

RF EXPOSURE EVALUATION REPORT



Issued to

TCT Mobile Limited

For

Wifi Display Dongle

Model Name : V101
Trade Name : Alcatel
onetouch
Brand Name : Alcatel
onetouch
FCC ID : RAD441
Standard : 47CFR 2.1091
KDB 447498 D01 General RF
Exposure Guidance v05r01
Test date : 2013-11-26
Issue date : 2013-11-29

by

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Change History		
Issue	Date	Reason for change
1.0	Nov. 29, 2013	First edition



1. TESTING LABORATORY

1.1 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China 518101

1.2 Accreditation Certificate

Accredited Testing Laboratory:	No. CNAS L3572
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2. TECHNICAL INFORMATION

Note: the Following data is based on the information by the applicant.

2.1 Identification of Applicant

Company Name:	TCT Mobile Limited
Address:	5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

2.2 Identification of Manufacturer

Company Name:	TCL COMMUNICATION TECHNOLOGY HOLDINGS LIMITED
Address:	70 Huifeng 4rd,ZhongKai Hi-tech Development District , Huizhou, Guangdong 516006 P.R.China (TCL Mobile Communication Co.,LTD.Huizhou)

2.3 Equipment Under Test (EUT)

Model Name:	V101
Trade Name:	Alcatel onetouch
Brand Name:	Alcatel onetouch
Hardware Version:	V3.0
Software Version:	S1_B15001S_1110000_B10001S
Frequency Bands:	Wifi802.11B/G/N (2.4GHz)
Modulation Mode:	WIFI802.11B: DSSS; WIFI802.11G: OFDM WIFI 802.11N: OFDM;
Antenna type:	Fixed Internal Antenna
Development Stage:	Identical prototype

2.3.1 Photographs of the EUT

Please refer to External Photo for the photographs of the EUT.

2.3.2 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the Following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	V3.0	S1_B15001S_1110000_B10001S

2.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radiofrequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01 V05r01	General RF Exposure Guidance

3. Device Category and RF Exposure Limit

Per user manual, this device is a set-top box with WiFi function. Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term “fixed location” means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

4. Measurement Of Conducted Peak Output Power.

1. WiFi Conducted average output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			802.11B (DSSS)	802.11G (OFDM)	802.11N20 (OFDM)
Wifi	1	2412	17.58	13.62	12.05
	6	2437	17.42	12.31	12.48
	11	2462	17.23	12.75	12.41

Band	Channel	Frequency (MHz)	Output Power(dBm)
			802.11N40 (OFDM)
Wifi	3	2422	11.02
	6	2437	11.06
	9	2452	11.01

5. RF Exposure Evaluation

Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Antenna Gain (dBi)	Conducted Average Power (dBm)	Time-averaging EIRP (mW)	Calculated to ERP (mW)
2.4GHz	2450	2.00	17.58	90.782	55.355

Note:

Per 47CFR 2.1091(c)

Mobile device are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.

ERP of the 802.11 is lower than 3 watts, so standalone MPE evaluation is not required for 2.4GHz antenna.

$EIRP=P \cdot G$, $ERP=EIRP-2.15dB$

Simultaneous transmission MPE evaluation

There are only one 2.4GHz transmitter incorporated in this remote controller, so simultaneous transmission is not required.