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MPE TEST REPORT

FCC Per 47 CFR 2.1091(b)

Report Reference No.....:	CTL1312182003-WM
FCC ID.....:	2ABMQA360D
Compiled by (position+printed name+signature)..:	File administrators Jennifer NI
Name of the organization performing the tests (position+printed name+signature)..:	Test Engineer Jacky Chen
Approved by (position+printed name+signature)..:	Manager Tracy Qi
Date of issue.....:	Jan. 09, 2014
Representative Laboratory Name .:	**Shenzhen CTL Electromagnetic Technology Co., Ltd.**
Address.....:	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Test Firm.....:	**Bontek Compliance Testing Laboratory Ltd**
Address.....:	1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China
Applicant's name.....:	**Skytech Digital Limited**
Address.....:	Unit 04, 7/f, Bright Way Tower, No. 33, Mong Kok Road, Kowloon, Hong Kong
Test specification:	
Standard .....:	**FCC Per 47 CFR 2.1091(b)**
TRF Originator.....:	Shenzhen CTL Electromagnetic Technology Co., Ltd.
Master TRF.....:	Dated 2011-01

Test item description ..... :	**ANDROID SET TOP BOX WITH WLAN**
Model/Type reference.....:	i8000 HD
Work frequency .....:	802.11b/g/n(20MHz):2412~2462MHz,802.11n(40MHz):2422~2452
Type of modulation.....:	802.11b DSSS, 802.11g/n: OFDM
Data Rate.....:	802.11b: 1/2/5.5/11 Mbps, 802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 150 Mbps
Antenna Gain .....:	2dBi
Antenna type .....:	Internal
Result.....:	**Positive**

Test Report

Test Report No. :	CTL1312182003-WM	Jan. 09, 2014 Date of issue

Equipment under Test	:	ANDROID SET TOP BOX WITH WLAN
Model /Type	:	i8000 HD
Applicant	:	Skytech Digital Limited
Address	:	Unit 04, 7/f, Bright Way Tower, No. 33, Mong Kok Road, Kowloon
Manufacturer	:	Shenzhen Rich Electronics Co., Ltd.
Address	:	Rm701-702, D Block C Area, Baoan Internet Industry Base, 2005 Xingye Road, Xixiang Street, Baoan, Shenzhen 518101 China

Test Result according to the standards on page 4:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Content

1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- ● - supplied by the manufacturer
- o - supplied by the lab

1.2. Equipment Under Test

Power supply system utilised

Power supply voltage : ■ 120V / 60 Hz o 115V / 60Hz
o 12 V DC o 24 V DC
o Other (specified in blank below)

/

1.3. Description of the test mode

IEEE 802.11b/g/n: Thirteen channels are provided to the EUT,but only eleventh channels used for USA.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

1.4. NOTE

The EUT is an 802.11b/g/n ANDROID SET TOP BOX WITH WLAN,The functions of the EUT listed as below:

	Test Standards	Reference Report
WLAN 802.11b/g, 802.11n	FCC Part 15 Subpart C (Section15.247)	CTL1312182003-WF
WLAN 802.11b/g, 802.11n	FCC Per 47 CFR 2.1091(b)	CTL1312182003-WM

The frequency bands used in this EUT are listed as follows

Frequency Band(MHz)	2400-2483.5	5150-5350	5470-5725	5725-5850
802.11b	√	-	-	-
802.11g	√	-	-	-
802.11n(20MHz)	√	-	-	-
802.11n(40MHz)	√	-	-	-

Modulation Mode	TX Function
802.11b	1 TX
802.11g	1 TX
802.11n(20MHz)	1 TX
802.11n(40MHz)	1 TX

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements

2.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Bontek Compliance Testing Laboratory Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.22dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
According to §1.1310 and §2.1091 RF exposure is calculated.

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	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

3.3. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S=PG/4\pi R^2$
Where: S=power density
P=power input to antenna
G=power gain of the antenna in the direction of interest relative to an isotropic radiator
R=distance to the center of radiation of the antenna
From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna is 2.0 dBi, the RF power density can be obtained.

TEST RESULTS

For 802.11 b

Operation Mode	Frequency Range (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm2)	Power Density At 20 cm (mW/cm2)	Test Results
802.11b/g/n (20MHz)	2412-2462	12.48	17.70	1.5849	1.000	0.0056	Pass
802.11n (40MHz)	2422-2452	11.87	15.38	1.5849	1.000	0.0049	Pass

Note: Antenna to user separation ⩾ 20cm.

4 . C o n c l u s i o n

The measurement results comply with the FCC Limit per 47 CFR 2.1091 (b) for the controlled RF Exposure.

.....End of Report.....