



### MPE TEST REPORT

**Report Reference No**.....: CTL1308301369-WM

Compiled by  
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Date of issue.....: Sept 07, 2013

**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**.....: **CaptionCall, LLC**

Address.....: 4215 South Riverboat Road, Salt Lake City, UTAH 84020. USA.

**Test specification:**

Standard .....: **FCC Per 47 CFR 2.1091(b)**

TRF Originator.....: Shenzhen CTL Electromagnetic Technology Co., Ltd.

Master TRF.....: Dated 2011-01

**Shenzhen CTL Electromagnetic Technology Co., Ltd.**

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**Test item description** ..... : **Router**

**FCC ID**.....: **2AA6ZCR1**

Trade Mark .....: N/A

Model/Type reference.....: CR1

Power Supply.....: DC 5V from adapter from AC120V/60Hz

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 135 Mbps

Antenna Gain .....: 2dBi

Antenna type .....: Undetachable

Result.....: **Positive**

# Test Report

<b>Test Report No. :</b> CTL1308301369-WM	Sept. 07, 2013
	Date of issue

Equipment under Test : Router

Model /Type : CR1

**Applicant** : **CaptionCall, LLC**

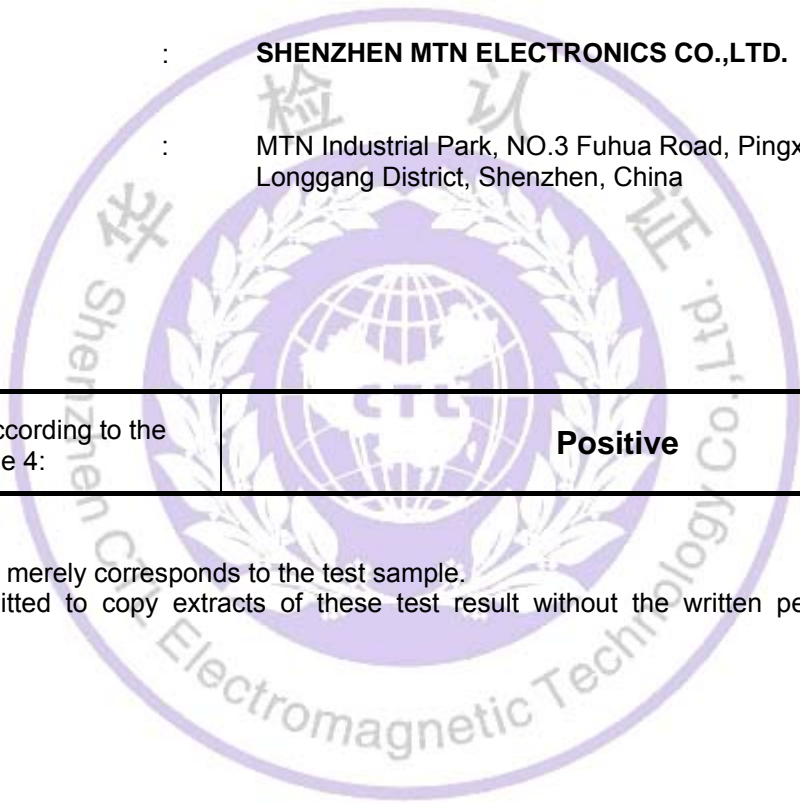
Address : 4215 South Riverboat Road, Salt Lake City, UTAH 84020. USA.

**Manufacturer** : **SHENZHEN MTN ELECTRONICS CO.,LTD.**

Address : MTN Industrial Park, NO.3 Fuhua Road, Pingxi Neighborhood, Longgang District, Shenzhen, China

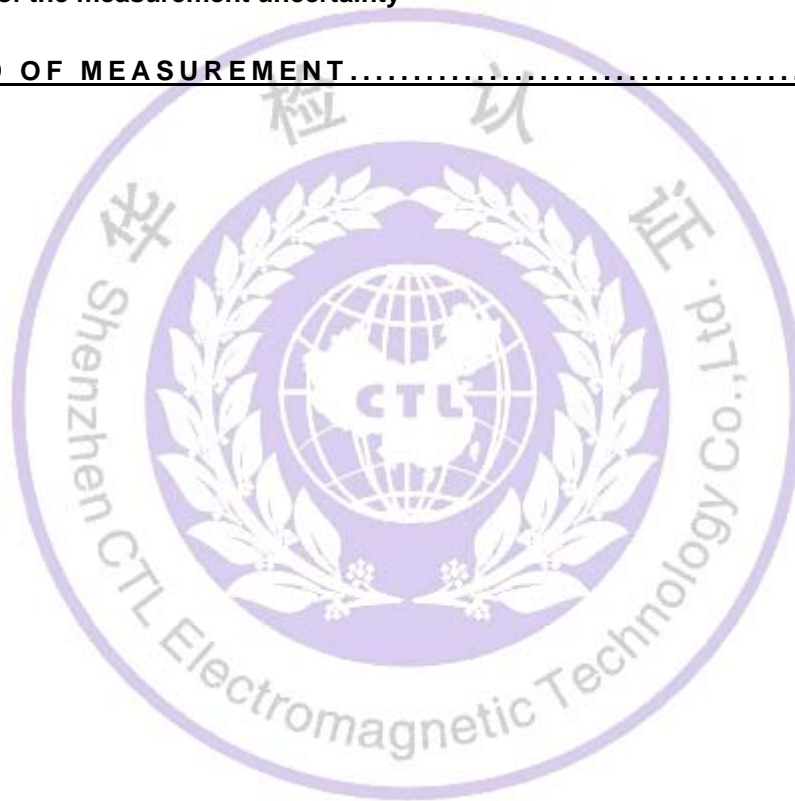
<b>Test Result</b> according to the standards on page 4:	<b>Positive</b>
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The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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## 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:	<u>15-35 ° C</u>
Humidity:	<u>30-60 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

### 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 <sup>2</sup> )	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 <sup>2</sup> )	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

Test Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2412	20.00	11.54	14.2561	1.5849	1.000	0.0045	Pass
2437	20.00	11.01	12.6183	1.5849	1.000	0.0040	Pass
2462	20.00	11.34	13.6144	1.5849	1.000	0.0043	Pass

### For 802.11 g

Test Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2412	20.00	10.44	11.0662	1.5849	1.000	0.0035	Pass
2437	20.00	9.95	9.8855	1.5849	1.000	0.0032	Pass
2462	20.00	10.16	10.3753	1.5849	1.000	0.0033	Pass

### For 802.11 n (20MHz)

Test Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2412	20.00	9.87	9.7051	1.5849	1.000	0.0031	Pass
2437	20.00	10.41	10.9901	1.5849	1.000	0.0035	Pass
2462	20.00	9.98	9.9541	1.5849	1.000	0.0032	Pass

### For 802.11 n (40MHz)

Test Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2422	20.00	13.36	21.6770	1.5849	1.000	0.0069	Pass
2437	20.00	13.06	20.2302	1.5849	1.000	0.0065	Pass
2452	20.00	13.09	20.3704	1.5849	1.000	0.0065	Pass

## 4. Conclusion

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

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