



## MPE TEST REPORT

### FCC Per 47 CFR 2.1093(b)

**Report Reference No.**.....: **TRE1209009503 R/C: 82725**

**FCC ID**.....: **T37PL9571-WAP**

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Date of issue.....: Feb 20, 2013

**Testing Laboratory Name** .....: **Shenzhen Huatongwei International Inspection Co., Ltd**

Address.....: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

**Applicant's name**.....: **ASOKA Shenzhen Limited.**

Address.....: Room 1701,17/F., Fiyta Hi Tech Building, Gao-Xin Rd, South, Shenzhen , P R China

**Test specification:**

Standard .....: **FCC Per 47 CFR 2.1093(b)**

TRF Originator.....: Shenzhen Huatongwei International Inspection CO., Ltd

Master TRF.....: Dated 2006-06

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**Test item description** ..... : PlugLink 500 Wireless "N" Adapter

Trade Mark .....: /

Model/Type reference.....: PL9571-WAP

Listed Models .....: /

Modulation Type.....: CCK,OFDM

Operation Frequency.....: From 2400MHz to 2483.5MHz

**Result :** **Positive**

# TEST REPORT

|                          |                      |               |
|--------------------------|----------------------|---------------|
| <b>Test Report No. :</b> | <b>TRE1209009503</b> | Feb 20, 2013  |
|                          |                      | Date of issue |

Equipment under Test : PlugLink 500 Wireless "N" Adapter

Model /Type : PL9571-WAP

Listed Models : /

**Applicant** : ASOKA Shenzhen Limited.

Address : Room 1701,17/F., Fiyta Hi Tech Building, Gao-Xin Rd,  
South, Shenzhen , P R China

**Manufacturer** : Asoka USA Corporation

Address : 2620 Augustine Drive Suite 230,Santa Clara City,CA  
95054

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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## 1. SUMMARY

### 1.1. EUT configuration

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

● - supplied by the manufacturer

○ - supplied by the lab

|                       |             |                |   |
|-----------------------|-------------|----------------|---|
| <input type="radio"/> | Power Cable | Length (m) :   | / |
|                       |             | Shield :       | / |
|                       |             | Detachable :   | / |
| <input type="radio"/> | Multimeter  | Manufacturer : | / |
|                       |             | Model No. :    | / |

### 1.2. Power supply system utilised

|                      |   |  |                                   |
|----------------------|---|--|-----------------------------------|
| Power supply voltage | : | <input checked="" type="radio"/> 120V / 60 Hz          | <input type="radio"/> 115V / 60Hz |
|                      |   | <input type="radio"/> 12 V DC                          | <input type="radio"/> 24 V DC     |
|                      |   | <input type="radio"/> Other (specified in blank below) |                                   |

### 1.3. Description of the test mode

IEEE 802.11b/g/n: Eleven channels are provided to the EUT.

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

### 1.4. NOTE

1. The EUT is a 802.11b/g/n PlugLink 500 Wireless "N" Adapter, The functions of the EUT listed as below:

|                  | Test Standards                           | Reference Report |
|------------------|--|------------------|
| WLAN 802.11b/g/n | FCC Part 15 Subpart C<br>(Section15.247) | TRE1209009501    |
| LAN Prot         | FCC Part 15 Subpart B                    | TRE1209009502    |
| MPE REPORT       | FCC Per 47 CFR 2.1093(d)                 | TRE1209009503    |

2. 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)      | √           | —         | —         | —         |

3. The EUT incorporates a SIMO function, Physically, the EUT provides one completed transmitter and Two receiver.

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

## 2. TEST ENVIRONMENT

### 2.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd  
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China  
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

### 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 TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Huatongwei International Inspection Co., 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 Shenzhen Huatongwei laboratory is reported:

| Test Items                  | Measurement Uncertainty | Notes |
|-----------------------------|-------------------------|-------|
| Transmitter power conducted | 0.57 dB                 | (1)   |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

## 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 §2.1093 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

Prediction 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 antenna is 2.0 dBi, the RF power density can be obtained.

### TEST RESULTS

#### **For 802.11 b**

| Test Frequency (MHz) | Minimum Separation Distance | 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                       | 13.78              | 23.88             | 1.585                  | 1.000                                     | 0.008  | Pass         |
| 2437                 | 20.00                       | 14.00              | 25.12             | 1.585                  | 1.000                                     | 0.007  | Pass         |
| 2462                 | 20.00                       | 13.54              | 22.59             | 1.585                  | 1.000                                     | 0.007  | Pass         |

#### **For 802.11 g**

| Test Frequency (MHz) | Minimum Separation Distance | 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                       | 12.67              | 18.49             | 1.585                  | 1.000                                     | 0.006  | Pass         |
| 2437                 | 20.00                       | 12.87              | 19.36             | 1.585                  | 1.000                                     | 0.006  | Pass         |
| 2462                 | 20.00                       | 13.03              | 20.09             | 1.585                  | 1.000                                     | 0.006  | Pass         |

#### **For 802.11 n(20MHz)**

| Test Frequency (MHz) | Minimum Separation Distance (20cm) | 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                              | 12.57              | 18.07             | 1.585                  | 1.000                                     | 0.006  | Pass         |
| 2437                 | 20.00                              | 12.73              | 18.75             | 1.585                  | 1.000                                     | 0.006  | Pass         |
| 2462                 | 20.00                              | 12.94              | 19.68             | 1.585                  | 1.000                                     | 0.006  | Pass         |

**For 802.11 n(40MHz)**

| Test Frequency (MHz) | Minimum Separation Distance (20cm) | 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                              | 12.29              | 16.94             | 1.585                  | 1.000                                     | 0.005  | Pass         |
| 2437                 | 20.00                              | 12.49              | 17.74             | 1.585                  | 1.000                                     | 0.006  | Pass         |
| 2452                 | 20.00                              | 12.62              | 18.28             | 1.585                  | 1.000                                     | 0.006  | Pass         |

**4. Conclusion**

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the general population RF Exposure.

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