



June 26, 2010

Lexibook America  
C/O NATXIS PRAMEX INTERNATIONAL -NORTH AMERICA 1251  
Avenue of the Americas 34th floor

Dear Emmanuel LE COTTIER,

Enclosed you will find your file copy of a Part 15 Certification (FCC ID: UU8-WB400TX).

For your reference, review normally takes 1 week. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

A handwritten signature in black ink, appearing to read "Shawn Xing", with a long horizontal stroke extending to the right.

Shawn Xing  
Assistant Manager

Enclosure

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**  
6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China  
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: [www.china.intertek-etlsemko.com](http://www.china.intertek-etlsemko.com)



## Lexibook America

Application  
For  
Certification  
**(FCC ID: UU8-WB400TX)**

### Transmitter

Sample Description: Weather Station  
Model: WB400

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-2009]

*Billy Li*

SZ10050386-1  
Billy Li  
June 26, 2010

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF No.: FCC 15C\_TXa  
FCC ID: UU8-WB400TX

#### **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**

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## INTERTEK TESTING SERVICES

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### LIST OF EXHIBITS

*INTRODUCTION*

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**INTERTEK TESTING SERVICES**

**MEASUREMENT/TECHNICAL REPORT**

**Lexibook America - MODEL: WB400  
FCC ID: UU8-WB400TX**

**June 26, 2010**

This report concerns (check one:)      Original Grant       Class II Change

Equipment Type: DSC - Part 15 Security / Remote Control Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?      Yes       No

If yes, defer until: \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37?      Yes       No

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-01-09 Edition] provision.

Report prepared by:

Shawn Xing  
Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch  
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# INTERTEK TESTING SERVICES

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## INTERTEK TESTING SERVICES

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List of attached file

| Exhibit type          | File Description           | filename            |
|-----------------------|----------------------------|---------------------|
| Test Report           | Test Report                | report.pdf          |
| Operation Description | Technical Description      | descri.pdf          |
| Test Setup Photo      | Radiated Emission          | radiated photos.pdf |
| Test Report           | Bandwidth Plot             | bw.pdf              |
| External Photo        | External Photo             | external photos.pdf |
| Internal Photo        | Internal Photo             | internal photos.pdf |
| Block Diagram         | Block Diagram              | block.pdf           |
| Schematics            | Circuit Diagram            | circuit.pdf         |
| ID Label/Location     | Label Artwork and Location | fcc label.pdf       |
| User Manual           | User Manual                | manual.pdf          |
| Test Report           | Timing Plot                | timing.pdf          |
| Cover Letter          | Letter of Agency           | agency.pdf          |

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

## **INTERTEK TESTING SERVICES**

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### **1.0 General Description**

#### **1.1 Product Description**

The equipment under test (EUT) is a transmitter for Weather Station operating at 433.920MHz which is operated by a crystal. The EUT is power by 2 AAA batteries. The transmitter activate automatically.

During the normal operation, EUT will transmit periodically in every 56.2 s. The duration of each transmission is 800 ms.

Antenna Type: Integral

The brief circuit description is saved with file name: descri.pdf

#### **1.2 Related Submittal(s) Grants**

This is an application for certification of a transmitter. The receiver, associated with this transmitter, has FCC ID: UU8-WB400RX and has been filed at the same time.



## INTERTEK TESTING SERVICES

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### 1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated Emission measurement was performed in a Semi-anechoic chamber. Preliminary scans were performed in the Semi-anechoic chamber only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

### 1.4 Test Facility

The Semi-anechoic chamber facility used to collect the radiated data is **Interterk Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC.

**INTERTEK TESTING SERVICES**

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**EXHIBIT 2**  
**SYSTEM TEST CONFIGURATION**

## **INTERTEK TESTING SERVICES**

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### **2.0 System Test Configuration**

#### **2.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2003).

The EUT was powered by 2 new AAA batteries during test.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

For simplicity of testing, the unit was wired to transmit continuously.

The frequency range from 9KHz to 4.5GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

#### **2.2 EUT Exercising Software**

There was no special software to exercise the device.

#### **2.3 Special Accessories**

There are no special accessories necessary for compliance of this product.

## INTERTEK TESTING SERVICES

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### 2.4 Equipment Modification

Any modifications installed previous to testing by Lexibook America will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

### 2.5 Measurement Uncertainty

When determining the test conclusion, the measurement uncertainty of test has been considered.

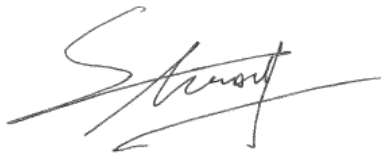
### 2.6 Support Equipment List and Description

This product was tested in a standalone configuration.

All the items listed under section 2.0 of this report are

*Confirmed by:*

*Shawn Xing*  
*Assistant Manager*  
*Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch*  
*Agent for Lexibook America*



\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
June 26, 2010

*Date*

**INTERTEK TESTING SERVICES**

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**EXHIBIT 3**  
**EMISSION RESULTS**

## INTERTEK TESTING SERVICES

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### 3.0 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

## INTERTEK TESTING SERVICES

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### 3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD + AV$$

where

- FS = Field Strength in dB $\mu$ V/m
- RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- PD = Pulse Desensitization in dB
- AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

## INTERTEK TESTING SERVICES

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### 3.1 Field Strength Calculation (cont'd)

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$



## **INTERTEK TESTING SERVICES**

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### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

433.920 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf

## INTERTEK TESTING SERVICES

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### 3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 1.5 dB

#### **TEST PERSONNEL:**



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*Signature*

Billy Li, Compliance Engineer  
*Typed/Printed Name*

June 26, 2010  
*Date*

## INTERTEK TESTING SERVICES

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Applicant: Lexibook America  
Model: WB400  
Mode: TX Transmit

Date of Test: June 26, 2010

Table 1

### Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dB $\mu$ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Average Factor (-dB) | Net at 3m (dB $\mu$ V/m) | Limit at 3m (dB $\mu$ V/m) | Margin (dB) |
|--------------|-----------------|----------------------|-------------------|---------------------|----------------------|--------------------------|----------------------------|-------------|
| Vertical     | 433.920         | 65.3                 | 0.0               | 18.6                | 12.5                 | 71.4                     | 72.9                       | -1.5        |
| Vertical     | 867.558         | 48.2                 | 20.0              | 25.6                | 12.5                 | 41.3                     | 52.9                       | -11.6       |
| Vertical     | *1301.940       | 27.3                 | 20.0              | 29.9                | 12.5                 | 24.7                     | 52.9                       | -28.2       |
| Vertical     | 1735.920        | 26.0                 | 20.0              | 33.5                | 12.5                 | 27.0                     | 52.9                       | -25.9       |
| Vertical     | 2169.900        | 25.1                 | 20.0              | 36.7                | 12.5                 | 29.3                     | 52.9                       | -23.6       |
| Vertical     | 2603.880        | 22.7                 | 20.0              | 39.8                | 12.5                 | 30.0                     | 52.9                       | -22.9       |

- Notes:
1. Peak Detector Data unless otherwise stated.
  2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3 meter distance were measured at 0.3 meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3 meter.
  3. Negative value in the margin column shows emission below limit.
  4. All emissions below the peak limit.
  5. "\*" Emission within restricted band fulfils the requirement of section 15.209.

Test Engineer: Billy Li

**INTERTEK TESTING SERVICES**

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**EXHIBIT 4**  
**EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

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### 4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename:  
external photos.pdf and internal photos.pdf

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**EXHIBIT 5**  
**PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and the label location are saved with filename: fcc label.pdf

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**EXHIBIT 6**  
**TECHNICAL SPECIFICATIONS**



## INTERTEK TESTING SERVICES

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### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematics are saved with filename:  
block.pdf and circuit.pdf

**INTERTEK TESTING SERVICES**

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**EXHIBIT 7**  
**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

This manual will be provided to the end-user with each unit sold/leased in the United States.

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**EXHIBIT 8**

**MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

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### 8.0 **Miscellaneous Information**

This miscellaneous information includes details of the measured bandwidth, the test procedure and calculation of factors such as pulse desensitization and averaging factor.

## INTERTEK TESTING SERVICES

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### 8.1 Measured Bandwidth

For electronic filing, the plot shows the fundamental emission when modulated is saved with filename: bw.pdf. From the plot, the 20dB bandwidth is 0.530 MHz and less than the limit of 1.085MHz. It fulfils the requirement of 15.231(C).

Figure 8.1 Bandwidth

## INTERTEK TESTING SERVICES

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### 8.2 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

The effective period ( $T_{\text{eff}}$ ) was approximately 310  $\mu$  s for a digital "1" bit, as shown in the plots of Exhibit 8.3. With a resolution bandwidth (3 dB) of 100 kHz, the pulse desensitivity factor was 0 dB.

## INTERTEK TESTING SERVICES

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### 8.3 Calculation of Average Factor

Averaging factor in dB =  $20 \log$  (duty cycle)

The specification for output field strengths in accordance with the FCC rules specifies measurements with an average detector. During testing, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The time period over which the duty cycle is measured is 100 milliseconds, or the repetition cycle, whichever is a shorter time frame. The worst case (highest percentage on) duty cycle is used for the calculation. The duty cycle is measured by placing the spectrum analyzer in zero scan (receiver mode) and linear mode at maximum bandwidth (3 MHz at 3 dB down) and viewing the resulting time domain signal output from the analyzer on a Tektronix oscilloscope. The oscilloscope is used because of its superior time base and triggering facilities.

A plot of the worst-case duty cycle as detected in this manner are saved with filename: af.pdf

The duty cycle is simply the on-time divided by the period:

The duration of one cycle = 56.2s  
Effective period of the cycle =  $310\mu\text{s} \times 73 + 540\mu\text{s} \times 2$   
= 23.71ms

DC =  $23.71\text{ms} / 100\text{ms} = 0.2371$  or 23.71%

Therefore, the averaging factor is found by  $20 \log_{10} 0.2371 = -12.5 \text{ dB}$



## INTERTEK TESTING SERVICES

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### 8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2003.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

## INTERTEK TESTING SERVICES

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### 8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 - 2003.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where transmissions of short enough pulse duration warrant, a greater bandwidth pulsed is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.2). Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

**INTERTEK TESTING SERVICES**

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**EXHIBIT 9**  
**TEST EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

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### 9.0 Test Equipment List

| Equipment No. | Equipment         | Manufacturer | Model No.    | Serial No. | Cal. Date | Due Date  |
|---------------|-------------------|--------------|--------------|------------|-----------|-----------|
| SZ061-03      | BiConiLog Antenna | ETS          | 3142C        | 00066460   | 25-Nov-09 | 25-May-11 |
| SZ061-08      | Horn Antenna      | ETS          | 3115         | 00092346   | 15-Mar-10 | 15-Sep-11 |
| SZ185-01      | EMI Receiver      | R&S          | ESCI         | 100547     | 08-Mar-10 | 08-Mar-11 |
| SZ188-01      | Anechoic Chamber  | ETS          | RFD-F/A-100  | 4102       | 09-Jan-10 | 09-Jan-11 |
| SZ056-03      | Spectrum Analyzer | R&S          | FSP 30       | 101148     | 18-Mar-10 | 18-Mar-11 |
| SZ062-02      | RF Cable          | RADIALL      | RG 213U      | --         | 19-Apr-10 | 19-Oct-10 |
| SZ062-06      | RF Cable          | RADIALL      | 0.04-26.5GHz | --         | 17-Aug-09 | 17-Aug-10 |
| SZ062-12      | RF Cable          | RADIALL      | 0.04-26.5GHz | --         | 17-Aug-09 | 17-Aug-10 |