

# HEALTH TEST REPORT

For

WIFI Storage

TEST Model: UD-4267

Prepared for :  
Address :

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.  
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Date of receipt of test sample : February 02, 2018  
Number of tested samples : 1  
Serial number : Prototype  
Date of Test : February 02, 2018 - March 19, 2018  
Date of Report : March 19, 2018



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**HEALTH TEST REPORT**

**EN 62311: 2008**

Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

**Report Reference No.** ..... : **LCS180131018AEC**

**Date of Issue** ..... : March 19, 2018

**Testing Laboratory Name** ..... : **Shenzhen LCS Compliance Testing Laboratory Ltd.**

**Address** ..... : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,  
Bao'an District, Shenzhen, Guangdong, China  
Full application of Harmonised standards

**Testing Location/ Procedure** ..... : Partial application of Harmonised standards   
Other standard testing method

**Applicant's Name**..... :

**Address** ..... :

**Test Specification**

**Standard** ..... : EN 62311: 2008

**Test Report Form No.** ..... : LCSEMC-1.0

**TRF Originator** ..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

**Master TRF** ..... : Dated 2011-03

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**Test Item Description.** ..... : **WIFI Storage**

**Trade Mark**..... : N/A

**Model/ Type reference**..... : UD-4267

**Ratings** ..... : Input : DC 5V/500mA

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

**Compiled by:**

*Dick Su*

Dick Su/ File administrators

**Supervised by:**

*Calvin Weng*

Calvin Weng/ Technique principal

**Approved by:**



Gavin Liang/ Manager

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# HEALTH --TEST REPORT

<b>Test Report No. : LCS180131018AEC</b>	<u>March 19, 2018</u> Date of issue
------------------------------------------	----------------------------------------

Type / Model.....	: UD-4267
EUT.....	: WIFI Storage
<b>Applicant</b> .....	:
Address.....	:
Telephone.....	: /
Fax.....	: /
<b>Manufacturer</b> .....	:
Address.....	:
Telephone.....	: /
Fax.....	: /
<b>Factory</b> .....	:
Address.....	:
Telephone.....	: /
Fax.....	: /

<b>Test Result</b>	<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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## Revision History

Revision	Issue Date	Revisions	Revised By
00	March 19, 2018	Initial Issue	Gavin Liang

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## 1. GENERAL INFORMATION

### 1.1. Product Description for Equipment Under Test (EUT)

EUT	: WIFI Storage
Test Model	: UD-4267
Power Supply	: Input : DC 5V/500mA
Hardware Version	: /
Software Version	: 1.1.36.16-A178(V.01)
WIFI(2.4G Band)	:
Frequency Range	: 2412-2472MHz
Channel Spacing	: 5MHz
Channel Number	: 13 Channel for 20MHz bandwidth(2412~2472MHz) 9 channels for 40MHz bandwidth(2422~2462MHz)
Modulation Type	: 802.11b: DSSS; 802.11g/n: OFDM
Antenna Description	: Internal Antenna, 1.0 dBi(Max.)

### 1.2. Objective

According to its specifications, the EUT must comply with the requirements of the following standards:  
EN 62311: 2008 –Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

### 1.3. Test Methodology

All measurements contained in this report were conducted with EN 62311: 2008.

#### 1.4. Facilities

All measurement facilities used to collect the measurement data are located at 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China.

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

#### 1.5. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
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#### 1.6. External I/O Cable

I/O Port Description	Quantity	Cable
USB Port	1	N/A

#### 1.7. Equipment

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 1.8. Laboratory Accreditations And Listings

### Site Description

EMC Lab. : FCC Registration Number. is 254912.  
 Industry Canada Registration Number. is 9642A-1.  
 ESMD Registration Number. is ARCB0108.  
 UL Registration Number. is 100571-492.  
 TUV SUD Registration Number. is SCN1081.  
 TUV RH Registration Number. is UA 50296516-001  
 NVLAP Registration Code is 600167-0

Name of Firm : Shenzhen LCS Compliance Testing Laboratory Ltd.

Site Location : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China

## 1.9. Measurement Uncertainty

Test Item	Uncertainty
Radio Frequency	0.9 x 10 <sup>-4</sup>
Total RF Power, Conducted	1.0 dB
RF Power Density, Conducted	1.8 dB
Spurious Emissions, Conducted	1.8 dB
All Emissions, Radiated	3.1 dB
Temperature	0.5 °C
Humidity	1 %
DC And Low Frequency Voltages	1 %

## 2. HUMAN EXPOSURE TO THE ELECTROMAGNETIC FIELDS

### 2.1 Basic Restrictions Reference levels

Council Recommendation 1999/519/EC Annex II

Basic restrictions for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range	Magnetic flux density (mT)	Current density (Ma/m <sup>2</sup> ) (rms)	Whole body average SAR (W/kg)	Localised SAR (head and trunk) (W/kg)	Localised SAR (limbs) (W/kg)	Power density (W/m <sup>2</sup> )
0Hz	40	-	-	-	-	-
>0-1Hz	-	8	-	-	-	-
1-4Hz	-	8/f	-	-	-	-
4-1000Hz	-	2	-	-	-	-
1000Hz-100kHz	-	f/500	-	-	-	-
100kHz-10MHz	-	f/500	0.08	2	4	-
10MHz-10GHz	-	-	0.08	2	4	-
10-300GHz	-	-	-	-	-	10

Note:

1. f is the frequency in Hz.
2. The basic restriction on the current density is intended to protect against acute exposure effects on central nervous system tissues in the head and trunk of the body and includes a safety factor. The basic restrictions for ELF fields are based on established adverse effects on the central nervous system. Such acute effects are essentially instantaneous and there is no scientific justification to modify the basic restrictions for exposure of short duration. However, since the basic restriction refers to adverse effects on the central nervous system, this basic restriction may permit higher current densities in body tissues other than the central nervous system under the same exposure conditions.
3. Because of electrical inhomogeneity of the body, current densities should be averaged over a cross section of 1cm<sup>2</sup> perpendicular to the current direction.
4. For frequencies up to 100 kHz, peak current density values can be obtained by multiplying the rms value by  $\sqrt{2}$ (=1.414). For pulses of duration  $t_p$  the equivalent frequency to apply in the basic restrictions should be calculated as  $f=1/(2t_p)$
5. For frequencies up to 100kHz and for pulsed magnetic fields, the maximum current density associated with the pulses can be calculated from the rise/fall times and the maximum rate of change of magnetic flux density. The induced current density can then be compared with the appropriate basic restriction.
6. All SAR values are to be averaged over any six-minute period.
7. Localised SAR averaging mass is any 10g of contiguous tissue; the maximum SAR so obtained should be the value used for the estimation of exposure. These 10g of tissue are intended to be a mass of contiguous tissue with nearly homogeneous electrical properties. In specifying a contiguous mass of tissue, it is recognised that this concept can be used in computational dosimetry but may present difficulties for direct physical measurements. A simple geometry such as cubic tissue mass can be used provided that the calculated dosimetric quantities have conservation values relative to the exposure guidelines.



8. For pulses of duration  $t_p$  the equivalent frequency to apply in the basic restrictions should be calculated as  $f=1/(2t_p)$ . Additionally, for pulsed exposures, in the frequency range 0,3 to 10GHz and for localised exposure of the head, in order to limit and avoid auditory effects caused by thermoelastic expansion, an additional basic restriction is recommended. This is that SA should not exceed 2mJ kg<sup>-1</sup> averaged over 10g of tissue.

## 2.2 Reference Levels

Council Recommendation 1999/519/EC Annex III

Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m <sup>2</sup> )
0-1Hz	-	$3,2 \times 10^4$	$4 \times 10^4$	-
1-8Hz	1000	$3,2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25Hz	1000	4000/f	5000/f	-
0.025Hz-0,8kHz	250/f	4/f	5/f,25	-
0,8-3kHz	250/f	5	6,25	-
3-150kHz	87	5	6,25	-
0,15-1MHz	87	0.73/f	0,92/f	-
1-10MHz	$87/f^{1/2}$	0.73/f	0,92/f	-
10-400MHz	28	0.073	0,092	2
400-2000MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	f/200
2-300GHz	61	0,16	0,20	10

Note:

1. As indicated in the frequency range column.
2. For frequencies between 100kHz and 10GHz, Seq, E2, H2 and B2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10GHz, Seq, E2, H2 and B2 are to be averaged over any 68/.1.05-minute period (.in GHz).
4. No E-field value is provided for frequencies <1Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 20kV/m. Spark discharges causing stress or annoyance should be avoided.

### 2.3. Test Results

According to the radio test report (LC180131018AEC), WIFI owns the maximum output power.

<b>EUT parameter (data from the separate report) WIFI mode.</b>	
Max average output power in Watt (TP)=EIRP-Antenna gain	1. Low Channel: 14.04dBm (0.025W) 2. Middle Channel: 14.61dBm (0.029W) 3. High Channel: 13.79dBm (0.024W)
Antenna gain (G)	1.0dBi (Numeric gain:1.26)
Minimum distance in meter (D) (from transmitting structure to the human body)	0.2m
<b>Exposure evaluation</b>	
Given  $E = \frac{\sqrt{30 \times G \times TP}}{D}$ yield E1= 4.860 V/m yield E2= 5.235 V/m yield E3= 4.762 V/m	Where  G: numerical gain of transmitting antenna; TP: Transmitted power in watt; D: distance from the transmitting antenna in meter.
<b>Conclusion:</b> → <u>E1=4.860 V/m, E2=5.235 V/m, E3=4.762 V/m</u> , is significant lower than the 61V/m as required in Annex III table 2 of EC Council Recommendation (1999/519/EC). This proves that the unit complies with the EN 62311 for RF exposure requirement.	

Note:

1. Only record worst case data for Low, Mid. High Channel
2. All other emissions are too low to read.

-----THE END OF TEST REPORT-----