

TEST REPORT

Reference No. : WTS18S07118518-3W
FCC ID..... : NZ3-WN536A8
Applicant..... : Winstars Technology Limited
Address : Block 4, TaiSong Industrial Park, DaLang Street, LongHua Town,
Bao'an district, Shenzhen, China
Manufacturer : Winstars Technology Limited
Address : Block 4, TaiSong Industrial Park, DaLang Street, LongHua Town,
Bao'an district, Shenzhen, China
Product..... : Wi-Fi Router
Model(s) : WS-WN536A8, ARK T6, WS-WN533A8, Quantum Max, Quantum T10,
Quantum T12, Quantum D4C, Quantum D4, Quantum D6Q, Quantum
D6, Quantum T8, Quantum T6
Standards..... : FCC Part 1.1307
Date of Receipt sample..... : 2018-07-19
Date of Test..... : 2018-07-20 to 2018-08-09
Date of Issue..... : 2018-08-13
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

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2 Laboratories Introduction

Waltek Services (Shenzhen) Co., Ltd is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation) of USA, Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CEC(California energy efficiency), IC(Industry Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek(ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.



Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

2.1 Test Facility

A. Accreditations for Conformity Assessment (International)

Country/Region	Accreditation Body	Scope	Note
USA	CNAS (Registration No.: L3110)	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India		International Services	WPC
Thailand	NTC		-
Singapore	IDA		-
Note:			
1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.			
2. IC Canada Registration No.: 7760A			

B.TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of ...	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

3 Revision History

Test report #	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S07118518-3W	2018-07-19	2018-07-20 to2018-08-09	2018-08-13	Original	-	Valid

4 General Information

4.1 General Description of E.U.T

Product:	Wi-Fi Router
Model(s):	WS-WN536A8, ARK T6, WS-WN533A8, Quantum Max, Quantum T10, Quantum T12, Quantum D4C, Quantum D4, Quantum D6Q, Quantum D6, Quantum T8, Quantum T6
Model Description:	Only the model name and appearance is different. The test sample is WS-WN536A8
Operation Frequency:	802.11b/g/n HT20: 2412MHz ~ 2462MHz 802.11n HT40: 2422MHz~2452MHz IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5150MHz to 5250MHz IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5725MHz to 5850MHz
Antenna installation:	Integrated Antenna
Antenna Gain:	5.0dBi
Type of modulation:	IEEE 802.11b (CCK/QPSK/BPSK,11Mbps max.) IEEE 802.11g (BPSK/QPSK/16QAM/64QAM,54Mbps max.) IEEE 802.11n (BPSK/QPSK/16QAM/64QAM,HT20:72Mbps max., HT40:150Mbps max.) IEEE for 802.11a: OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11n : OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11ac : OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)

4.2 Details of E.U.T

Ratings	Input: AC 100~240V, 50/60Hz, 0.6A Output: 5V, 4A
Adapter	Model: P050W4000U

5 RF Exposure

Test Requirement: FCC Part 1.1307

Test Method: FCC Part 2.1091

5.1 Requirements

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 levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	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

Note: f = frequency in MHz ; *Plane-wave equivalent power density

5.2 Evaluation Result

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
5(ANT1)	3.162	10.82	12.08	0.0076	1
5(ANT2)	3.162	10.95	12.45	0.0078	1
5(ANT3)	3.162	13.68	23.33	0.0147	1
5(ANT4)	3.162	13.76	23.77	0.0150	1
5(ANT5)	3.162	19.81	95.72	0.0602	1
5(ANT6)	3.162	19.72	93.76	0.0590	1
5(ANT7)	3.162	19.69	93.11	0.0586	1
5(ANT8)	3.162	19.69	93.11	0.0586	1

Simultaneously transmitting:

ANT1+ANT2+ANT3+ ANT4+ANT5+ANT6+ANT7+ANT8

=0.0076+0.0078+0.0147+0.0150+0.0602+0.0590+0.0586+0.0586=0.2815<1

Result: Compliance

No SAR measurement is required.

=====End=====