

TEST REPORT

Application No.: KSCR2111000279CR
FCC ID: WBKRU4370
Applicant: BTI Wireless
Address of Applicant: 6185 Phyllis Drive #D, Cypress, California 90630, United States
Manufacturer: BTI Wireless
Address of Manufacturer: 6185 Phyllis Drive #D, Cypress, California 90630, United States
Factory: Sunwave Communications Co., Ltd
Address of Factory: 581 Huoju Avenue, Binjiang District Hangzhou China
Equipment Under Test (EUT):
EUT Name: Remote Radio Unit
Model No.: RU4370
Trade mark:



Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-11-25
Date of Test: 2021-11-26 to 2021-12-21
Date of Issue: 2021-12-22

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-12-22	/

Authorized for issue by:			
		Damon Zhou	
		Damon Zhou / Project Engineer	
		Eric Lin	
		Eric Lin / Reviewer	



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3 General Information

3.1 Details of E.U.T.

Product Name:	Remote Radio Unit
Model No.:	RU4370
Trade Mark:	BTI
Power Supply:	48V DC, $\pm 20\%$
Test Voltage	DC 48V
Rated power:	150W
Sample Type:	Fixed device
CBSD Class:	Category B CBSD (Base Station)
Type of Modulation	QPSK/16QAM/64QAM
Frequency Band:	3550MHz-3700MHz
Normal Output Power:	For SISO Mode: 30 ± 2 dBm (downlink) For MIMO Mode: 32 ± 2 dBm (downlink)
MIMO Type:	4T4R MIMO
Antenna Type:	External Antenna
Antenna Gain:	Max Antenna Gain 15.0 dBi(Provided by manufacturer)

Note:

The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.



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3.2 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

- **ISED (CAB Identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development (ISED) Canada as an accredited testing laboratory.

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, C-11707, T-11499, G-10216 respectively.

3.4 Deviation from Standards

None

3.5 Abnormalities from Standard Conditions

None



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

Table 1 - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR211100027902.

Band Information	Antenna Gain (dBi)	Max Output Power (dBm)	Max Output Power (mW)
3550MHz to 3700MHz	15.0	34.00	2511.8864

5.2 MPE Calculation

Frequency Band (MHz)	Antenna Gain (dBi)	Max Output Power (dBm)	Max Tune-up tolerance power (dBm)	Max Tune-up tolerance power (mW)	Power Density at R = 80 cm (mW/cm ²)	Power Density Limit S(mW/cm ²)
3550 - 3700	15.0	34.00	34.00	2511.8864	0.9877	1

Note: Refer to Tune Up Procedure document for EUT Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 80 cm separation requirement.

So the limit of Band 3550MHz to 3700MHz = 1mW/cm²;

To satisfy RF exposure requirements, a separation distance of 80cm or more should be maintained between this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

--End of the Report--



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