RF Exposure Evaluation Report

APPLICANT	:	**BTI Wireless**
EQUIPMENT	:	**5G NR Femtocell**
BRAND NAME	:	
MODEL NAME	:	**nCELL-F2240**
FCC ID	:	**WBKF2240**
STANDARD	:	**47 CFR Part 2.1091**

The product evaluation date was started from Jun. 29, 2023 and completed on Jun. 29, 2023. We, Sporton International Inc. (Kunshan), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Si Zhang

Approved by: Si Zhang

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA361223	Rev. 01	Initial issue of report.	Aug. 09, 2023

1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-KS	CN1257	314309

Applicant	
Company Name	BTI Wireless
Address	11205 Knott Avenue – Suite A, Cypress, CA 90630 United States

Manufacturer	
Company Name	BTI Wireless
Address	11205 Knott Avenue – Suite A, Cypress, CA 90630 United States

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	5G NR Femtocell
Brand Name	BTI WIRELESS
Model Name	nCELL-F2240
FCC ID	WBKF2240
Wireless Technology and Frequency Range	5G NR n48 : 3550 MHz ~ 3700 MHz
Mode	5G NR : CP-OFDM 64QAM, 256QAM
Antenna Gain	<Ant.0/1>: 5G NR n48: 5.00 dBi
Antenna Type	WWAN: Integrated Antenna
HW Version	2
SW Version	5GNR_fa.tdd.fr1.2.3.0_475
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. WWAN support MIMO mode only, we only chose MIMO tune up power to perform MPE calculation conservatively for MIMO power is higher.

Comments and Explanations:
1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
2. The maximum RF output tune up power, antenna gain also the safe distance used for evaluate RF exposure were declared by manufacturer.

3. Maximum RF average output tune up power among production units

<5GNR>

Mode		Maximum Average power(dBm)
		Ant.0+1
5GNR	n48	26.00

Note: WWAN support MIMO mode only, we only chose MIMO tune up power to perform MPE calculation conservatively for MIMO power is higher.

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	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				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
5G NR n48 MIMO	3550	5.00	26.00	31.000	1258.925	0.251	1.000

Note:
1. Chose the maximum power and the maximum antenna gain to do MPE analysis.
2. The MIMO mode is completely uncorrelated, so selected the higher each antenna gain among all antennas as MIMO gain to perform MPE calculation.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

------THE END------