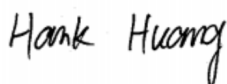


RF Exposure Evaluation Report

APPLICANT : Global Telecom Corp
EQUIPMENT : LTE Outdoor CPE
BRAND NAME : Global Telecom, TITAN
MODEL NAME : TITAN4000 B48
FCC ID : S3KTO48YY
STANDARD : 47 CFR Part 1.1307
47 CFR Part 1.1310

We, Sporton International (ShenZhen) Inc., would like to declare that the device has been evaluated in accordance with 47 CFR Part 1.1307 and 47 CFR Part 1.1310, and pass the limit. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.



Reviewed by: Hank Huang / Supervisor



Approved by: Johnny Chen / Manager



Sporton International (ShenZhen) Inc.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China



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**Revision History**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA171309	Rev. 01	Initial issue of report.	Sep. 13, 2021



1. Administration Data

1.1. Testing Laboratory

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	Global Telecom Corp
Address	17901 Von Karman Ave, Suite 600, Irvine, California 92614 United States of America

Manufacturer	
Company Name	Global Telecom Corp
Address	17901 Von Karman Ave, Suite 600, Irvine, California 92614 United States of America

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	LTE Outdoor CPE
Brand Name	Global Telecom, TITAN
Model Name	TITAN4000 B48
FCC ID	S3KTO48YY
Wireless Technology and Frequency Range	LTE Band 48: 3550 MHz ~ 3700 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Mode	LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20/ HT40
Antenna Gain	<For WWAN> For Ant. 0 LTE Band 48 : 15.0 dBi For Ant. 2 LTE Band 48 : 15.0 dBi <For WLAN> <Ant. 1> WLAN 2.4GHz: gain 3.0 dBi <Ant. 2> WLAN 2.4GHz: gain 3.0 dBi
Antenna Type	WWAN : Fixed Internal Antenna WLAN : PCB Antenna
HW Version	V1.0
SW Version	V1.6.0
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. This device supports LTE Band 48 uplink CA (CA_48C) and uplink MIMO, but LTE Band 48 Ant. 2 only for uplink CA and CDD(MIMO) mode.
3. WLAN2.4GHz all support SISO/MIMO mode, we only chose MIMO tune up power to perform MPE calculation conservatively for MIMO power is higher.
4. The LTE Band 48 and WLAN CDD/MIMO mode's gain calculation is reference KDB 662911.

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 Tune Up power among production units

<LTE>

Mode			Maximum Average power(dBm)
LTE	Band 48	SISO Ant. 0 (CDD disable)	22.00
		CDD Mode Ant. 0 (CDD enable)	16.00
		CDD Mode Ant. 2 (CDD enable)	16.00
		MIMO (Ant. 0 +Ant. 2) (CDD enable)	19.00

Note: LTE Band 48 Ant. 2 only for uplink CA and CDD(MIMO) mode.

<2.4GHz WLAN >

Mode		Maximum Average Power (dBm) ANT1+2
2.4GHz	802.11b	19.00
	802.11g	16.00
	802.11n-HT20	16.00
	802.11n-HT40	16.00

Note:

1. WLAN2.4GHz all support SISO/MIMO mode, 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/f ²)	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/f ²)	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 21 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)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 21cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
LTE Band 48 SISO Ant. 0	3552.50	15.00	22.00	37.000	5.012	5011.872	0.905	1.000	0.905
LTE Band 48 CDD Mode Ant. 0	3552.5	18.01	16.00	34.010	2.518	2517.677	0.455	1.000	0.455
LTE Band 48 CDD Mode Ant. 2	3552.5	18.01	16.00	34.010	2.518	2517.677	0.455	1.000	0.455
LTE Band 48 MIMO	3552.50	18.01	19.00	37.010	5.023	5023.426	0.907	1.000	0.907
2.4GHz WLAN	2412.0	6.01	19.00	25.010	0.317	316.957	0.057	1.000	0.057

Note:

- For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
- Chose the maximum power density to do MPE analysis.
- WLAN2.4GHz all support SISO/MIMO mode, we only chose MIMO tune up power to perform MPE calculation conservatively for MIMO power is higher.
- The LTE Band 48 and WLAN CDD/MIMO mode's gain calculation is reference KDB 662911.

5.2. Collocated Power Density Calculation

WWAN Power Density / Limit	WLAN 2.4GHz Power Density / Limit	$\Sigma(\text{Power Density / Limit})$ of WWAN + WLAN 2.4GHz
0.907	0.057	0.964

Note:

- For collocation analysis, LTE Band 48 MIMO is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
- $\Sigma(\text{Power Density / Limit})$: This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN MIMO (Ant. 0 + Ant. 2) + WLAN 2.4GHz or WWAN + WLAN 2.4GHz.
- Considering the WWAN module collocation with the WLAN transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1.

Conclusion:

According to 47 CFR §1.1307, the MPE was calculated at 21 cm to show compliance with the power density limit , the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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