



RF EXPOSURE EVALUATION REPORT

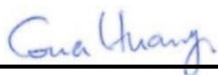
FCC ID : 2ADZR4G06A
Equipment : FastMile 4G Receiver
Brand Name : NOKIA
Model Name : 4G06-A
Applicant : Nokia Shanghai Bell Co., Ltd.
388#, Ningqiao Road, China (Shanghai) Pilot Free Trade Zone,
Shanghai 201206, China
Manufacturer : Nokia Shanghai Bell Co., Ltd.
388#, Ningqiao Road, China (Shanghai) Pilot Free Trade Zone,
Shanghai 201206, China
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.



Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FA981911	Rev. 01	Initial issue of report	Jun. 17, 2020

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	FastMile 4G Receiver
Brand Name	NOKIA
Model Name	4G06-A
FCC ID	2ADZR4G06A
Wireless Technology and Frequency Range	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	LTE: QPSK, 16QAM, 64QAM Bluetooth BR/EDR
HW Version	3TG00171AB
SW Version	FMR2003 E0115
EUT Stage	Identical Prototype
Remark: 1. This report evaluated LTE B48 and Bluetooth only, for LTE B2/B4/B7/B25/B66, RF Exposure evaluation which can refer to Sporton report NO.:FA950922	

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Reviewed by: Jason Wang

Report Producer: Daisy Peng

2. Maximum RF average output power among production units

Mode		Maximum Average power(dBm)
LTE	Band 48	24

Band / Mode	Average Power (dBm)
	BR / EDR
Bluetooth	3

3. 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 23 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



4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
LTE Band 48	11.00	24.00	35.000	3.162	3162.278	0.476	1.000	0.476
Bluetooth	5.00	3.00	8.000	0.006	6.310	0.001	1.000	0.001

Maximum WWAN 1Tx Power Density / Limit	Maximum WWAN 2Tx Power Density / Limit	Maximum Bluetooth Power Density / Limit	Σ (Power Density / Limit)
0.476	0.476	0.001	0.953

Note:

1. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN 2Tx + Bluetooth.
2. Considering the WWAN module collocation with the Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant at 23cm distance.