RF Exposure Evaluation Report

APPLICANT	**:**	**NetComm Wireless Limited**
EQUIPMENT	**:**	**3G M2M Router**
BRAND NAME	**:**	**NetComm Wireless**
MODEL NAME	**:**	**NTC-6200-03**
FCC ID	**:**	**XIA-NTC620003**
STANDARD	**:**	**47 CFR Part 2.1091**

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA380641-01	Rev. 01	Initial issue of report	Feb. 28, 2014

1. Administration Data

1.1. Testing Laboratory

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

1.2. Applicant

Company Name	NetComm Wireless Limited
Address	Level 2, 18-20 Orion Road Lane Cove, NSW Australia 2066

1.3. Manufacturer

Company Name	NetComm Wireless Limited
Address	Level 2, 18-20 Orion Road Lane Cove, NSW Australia 2066

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	3G M2M Router
Brand Name	NetComm Wireless
Model Name	NTC-6200-03
FCC ID	XIA-NTC620003
Integrated Module	Brand Name: Cinterion Model Name: PHS8-P
IMEI Code	351650060000137
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Mode	•GPRS/EGPRS •RMC 12.2Kbps Rel 99 •HSDPA Rel 5, Cat10 •HSUPA Rel 6, Cat6
Antenna Type	Dipole Antenna
EUT Stage	Identical Prototype

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

3. Maximum RF average output power among production units

Mode	Average power(dBm)	
	GSM 850	GSM 1900
GPRS (GMSK, 1 Tx slot)	35.0	31.0
GPRS (GMSK, 2 Tx slots)	32.0	27.5
GPRS (GMSK, 3 Tx slots)	30.0	25.5
GPRS (GMSK, 4 Tx slots)	28.5	24.0
EDGE (8PSK, 1 Tx slot)	28.5	26.5
EDGE (8PSK, 2 Tx slots)	25.5	23.5
EDGE (8PSK, 3 Tx slots)	24.0	21.5
EDGE (8PSK, 4 Tx slots)	23.0	20.5

Mode	Average power(dBm)	
	WCDMA Band V	WCDMA Band II
RMC 12.2K	25.0	24.5
HSDPA Subtest-1	25.0	24.5
HSUPA Subtest-5	24.0	23.5

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 Calculations

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm2)	Limit (mW/cm2)
GPRS 850 (1 Tx slot)	824.2	0.2	35.0	416.87	0.08	0.55
GPRS 850 (2 Tx slots)	824.2	0.2	32.0	416.87	0.08	0.55
GPRS 850 (3 Tx slots)	824.2	0.2	30.0	392.64	0.08	0.55
GPRS 850 (4 Tx slots)	824.2	0.2	28.5	371.54	0.07	0.55
EGPRS 850 (1 Tx slot)	824.2	0.2	28.5	93.33	0.02	0.55
EGPRS 850 (2 Tx slots)	824.2	0.2	25.5	46.77	0.01	0.55
EGPRS 850 (3 Tx slots)	824.2	0.2	24.0	98.63	0.02	0.55
EGPRS 850 (4 Tx slots)	824.2	0.2	23.0	104.71	0.02	0.55
GPRS 1900 (1 Tx slot)	1850.2	2.7	31.0	295.12	0.06	1.00
GPRS 1900 (2 Tx slots)	1850.2	2.7	27.5	263.03	0.05	1.00
GPRS 1900 (3 Tx slots)	1850.2	2.7	25.5	247.74	0.05	1.00
GPRS 1900 (4 Tx slots)	1850.2	2.7	24.0	234.42	0.05	1.00
EGPRS 1900 (1 Tx slot)	1850.2	2.7	26.5	104.71	0.02	1.00
EGPRS 1900 (2 Tx slots)	1850.2	2.7	23.5	104.71	0.02	1.00
EGPRS 1900 (3 Tx slots)	1850.2	2.7	21.5	98.63	0.02	1.00
EGPRS 1900 (4 Tx slots)	1850.2	2.7	20.5	104.71	0.02	1.00
WCDMA Band 5	826.4	0.2	25.0	331.13	0.07	0.55
WCDMA Band 2	1852.4	2.7	24.5	524.81	0.10	1.00

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band

Conclusion:

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