



RF EXPOSURE EVALUATION REPORT

FCC ID : UDX-60076017
Equipment : LTE Router
Brand Name : CISCO
Model Name : MX67C-HW-NA
Applicant : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.

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Approved by: Jones Tsai / Manager

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Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS	5
3. RF EXPOSURE LIMIT INTRODUCTION	6
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	7
4.1. Standalone Power Density Calculation	7



History of this test report

Report No.	Version	Description	Issued Date
FA831423	Rev. 01	Initial issue of report	Jul. 24, 2018

**1. Description of Equipment Under Test (EUT)**

Product Feature & Specification	
EUT Type	LTE Router
Brand Name	CISCO
Model Name	MX67C-HW-NA
FCC ID	UDX-60076017
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz
Mode	GPRS/EGPRS RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM
HW Version	R3
SW Version	Router-14
EUT Stage	Production Unit

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: Eric Huang

Report Producer: Wan Liu

2. Maximum RF average output power among production units

Mode	Burst average power(dBm)	
	GSM 850	GSM 1900
GPRS (GMSK, 1 Tx slot)	33.5	30.5
GPRS (GMSK, 2 Tx slots)	33.5	30.5
GPRS (GMSK, 3 Tx slots)	33.5	30.5
GPRS (GMSK, 4 Tx slots)	33.5	30.5
EDGE (8PSK, 1 Tx slot)	27.5	26.5
EDGE (8PSK, 2 Tx slots)	27.5	26.5
EDGE (8PSK, 3 Tx slots)	27.5	26.5
EDGE (8PSK, 4 Tx slots)	27.5	26.5

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.5
	Band IV	24.5
	Band V	24.5
LTE	Band 2	23.5
	Band 4	23.5
	Band 5	23.5
	Band 12	23.5
	Band 13	23.5

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 22 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	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 22cm (mW/cm ²)	Limit (mW/cm ²)
GPRS 850 (1 Tx slot)	824.2	1.25	33.50	34.750	2.985	375.837	0.062	0.549
GPRS 850 (2 Tx slots)	824.2	1.25	33.50	34.750	2.985	749.894	0.123	0.549
GPRS 850 (3 Tx slots)	824.2	1.25	33.50	34.750	2.985	1119.438	0.184	0.549
GPRS 850 (4 Tx slots)	824.2	1.25	33.50	34.750	2.985	1496.236	0.246	0.549
EGPRS 850 (1 Tx slot)	824.2	1.25	27.50	28.750	0.750	94.406	0.016	0.549
EGPRS 850 (2 Tx slots)	824.2	1.25	27.50	28.750	0.750	188.365	0.031	0.549
EGPRS 850 (3 Tx slots)	824.2	1.25	27.50	28.750	0.750	281.190	0.046	0.549
EGPRS 850 (4 Tx slots)	824.2	1.25	27.50	28.750	0.750	375.837	0.062	0.549
GPRS 1900 (1 Tx slot)	1850.2	2.72	30.50	33.220	2.099	264.241	0.043	1.000
GPRS 1900 (2 Tx slots)	1850.2	2.72	30.50	33.220	2.099	527.230	0.087	1.000
GPRS 1900 (3 Tx slots)	1850.2	2.72	30.50	33.220	2.099	787.046	0.129	1.000
GPRS 1900 (4 Tx slots)	1850.2	2.72	30.50	33.220	2.099	1051.962	0.173	1.000
EGPRS 1900 (1 Tx slot)	1850.2	2.72	26.50	29.220	0.836	105.196	0.017	1.000
EGPRS 1900 (2 Tx slots)	1850.2	2.72	26.50	29.220	0.836	209.894	0.035	1.000
EGPRS 1900 (3 Tx slots)	1850.2	2.72	26.50	29.220	0.836	313.329	0.052	1.000
EGPRS 1900 (4 Tx slots)	1850.2	2.72	26.50	29.220	0.836	418.794	0.069	1.000
WCDMA Band 2	1852.4	2.72	24.50	27.220	0.527	527.230	0.087	1.000
WCDMA Band 4	1712.4	2.72	24.50	27.220	0.527	527.230	0.087	1.000
WCDMA Band 5	826.4	1.25	24.50	25.750	0.376	375.837	0.062	0.551
LTE Band 2	1850.7	2.72	23.50	26.220	0.419	418.794	0.069	1.000
LTE Band 4	1710.7	2.72	23.50	26.220	0.419	418.794	0.069	1.000
LTE Band 5	824.7	1.25	23.50	24.750	0.299	298.538	0.049	0.550
LTE Band 12	699.7	0.56	23.50	24.060	0.255	254.683	0.042	0.466
LTE Band 13	779.5	0.56	23.50	24.060	0.255	254.683	0.042	0.520

Note: For conservativeness, the lowest 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.