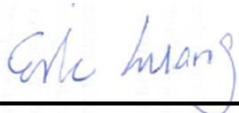


RF Exposure Evaluation Report

APPLICANT : TECOM CO., LTD.
EQUIPMENT : Residential Fire and Burglar Control Unit
BRAND NAME : CISCO
MODEL NAME : DLC-200C US
FCC ID : D6XDLC200C
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



SPORTON INTERNATIONAL INC.

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA4N1471-01	Rev. 01	Initial issue of report	Mar. 27, 2015
FA4N1471-01	Rev. 02	Revised Model Name	Jul. 24, 2015
FA4N1471-01	Rev. 03	Added Sim-Tx analysis	Aug. 27, 2015

1. Administration Data
1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	TECOM CO., LTD.
Address	No. 23 R&D Road 2, Science-Based Industrial Park, Hsin-Chu Taiwan

Manufacturer	
Company Name	Global Brands Manufacture (DongGuan) Ltd.
Address	Yue Yuan Industrial Estate, Huang Jiang Zhen, DongGuan City, Guangdong Province, China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Residential Fire and Burglar Control Unit
Brand Name	CISCO
Model Name	DLC-200C US
FCC ID	D6XDLC200C
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 • HSDPA • HSUPA

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 will combination with FCC ID: D6XDLC200 and the detail information refer below table.

Residential Fire and Burglar Control Unit	
Brand Name	CISCO
Model Name	DLC-200C US
FCC ID	D6XDLC200
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Zigbee: 2405 MHz ~ 2480 MHz Z-wave: 908.42MHz AFM: 911.78 MHz ~ 919.78 MHz
Mode	• 802.11b/g/n HT20/HT40 • Zigbee: O-QPSK • Z-wave: FSK • AFM: FSK
HW Version	614-901005R V1.1
SW Version	v1.00.17

**3. Maximum RF average output power among production units****<FCC ID: D6XDLC200C>**

Mode	GSM 850	GSM 1900
	Average power(dBm)	
GPRS/EDGE (GMSK, 1 Tx slot)	32.00	30.00
GPRS/EDGE (GMSK, 2 Tx slots)	32.00	30.00
EDGE (8PSK, 1 Tx slots)	27.00	26.00
EDGE (8PSK, 2 Tx slots)	27.00	26.00

Mode	WCDMA Band V	WCDMA Band II
	Average power(dBm)	
RMC 12.2Kbps	23.50	23.50
HSDPA Subtest-1	23.50	23.50
HSUPA Subtest-5	23.50	23.50

<FCC ID: D6XDLC200>

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)								
		Ant 0				Ant 1			Ant 0+1	
		11b	11g	HT20	HT40	11g	HT20	HT40	HT20	HT40
2.4GHz Band	2412	24.5	19	19		18	17		20	
	2422				14			14		16
	2437	24.5	22	22	18	22	22	18	22	21
	2452				16			16		21
	2462	22	19	19		18	17		22	

Mode	Average Power (dBm)
Zigbee	24.50
Z-wave	1.0
AFM	10.0



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 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. Power Density Calculation

<FCC ID: D6XDLC200C>

Band	Frequency (MHz)	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
GPRS 850 (1 Tx slot)	824.2	2.40	32.00	34.400	2.754	346.737	0.0690	0.5495	0.1256
GPRS 850 (2 Tx slots)	824.2	2.40	32.00	34.400	2.754	691.831	0.1377	0.5495	0.2506
EGPRS 850 (1 Tx slot)	824.2	2.40	27.00	29.400	0.871	109.648	0.0218	0.5495	0.0397
EGPRS 850 (2 Tx slots)	824.2	2.40	27.00	29.400	0.871	218.776	0.0435	0.5495	0.0793
GPRS 1900 (1 Tx slot)	1850.2	3.60	30.00	33.600	2.291	288.403	0.0574	1.0000	0.0574
GPRS 1900 (2 Tx slots)	1850.2	3.60	30.00	33.600	2.291	575.440	0.1145	1.0000	0.1145
EGPRS 1900 (1 Tx slot)	1850.2	3.60	26.00	29.600	0.912	114.815	0.0229	1.0000	0.0229
EGPRS 1900 (2 Tx slots)	1850.2	3.60	26.00	29.600	0.912	229.087	0.0456	1.0000	0.0456
WCDMA B5	826.4	2.40	23.50	25.900	0.389	389.045	0.0774	0.5509	0.1406
WCDMA B2	1852.4	3.60	23.50	27.100	0.513	512.861	0.1021	1.0000	0.1021

<FCC ID: D6XDLC200>

Band	Frequency (MHz)	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
Zigbee	2405.0	2.00	24.50	26.500	0.447	446.684	0.0889	1.0000	0.0889
Z-wave	908.4	2.00	1.00	3.000	0.002	1.995	0.0004	0.6056	0.0007
AFM	911.8	2.00	10.00	12.000	0.016	15.849	0.0032	0.6079	0.0052
2.4GHz WLAN	2412.0	5.50	24.50	30.000	1.000	1000.000	0.1990	1.0000	0.1990

**5.2. Collocated Power Density Calculation**

D6XDLC200 Power Density / Limit	D6XDLC200C Power Density / Limit	Σ (Power Density / Limit)
0.1990	0.2506	0.4496

General 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)]
2. Considering the wireless mode 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.