RF Exposure Evaluation Report

Equipment	: MOD6213/MOD6212 transiver
Brand Name	: Sibeam Snap Technology Transceiver module
Model No.	: MOD6213/MOD6212
FCC ID	: UK2-MOD621X
Standard	: 47 CFR Part 2.1091
Applicant	: Lattice Semiconductor Corporation 111 SW 5th Avenue Suite 700 Portland, OR 97204 United States.
Manufacturer	: Lattice Semiconductor Corporation 111 SW 5th Avenue Suite 700 Portland, OR 97204 United States.

The product sample received on Aug. 16, 2016 and completely tested on Oct. 07, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit.

Testing Laboratory
1190

Cliff Chang
SPORTON INTERNATIONAL INC.

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA681603	Rev. 01	Initial issue of report	May 09, 2017

1 General Description

1.1 EUT General Information

The Channel Plan(s)	
Operating Frequency (GHz)	**Modulation Type**
60.48 GHz	OOK

1.1.1 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model	Radiation	I^2C Tunneling	PROX Detection	EUT
MOD6213	Broad Fire	Connect to Slave	Initiator	EUT1
MOD6212	Broad Fire	Connect to Master	Responder	EUT 2

Note: All test results were recorded in the report.

1.2 Testing Location

Testing Location			
☐	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
		TEL :	886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD :	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
		TEL :	886-3-656-9065 FAX : 886-3-656-9085

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	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

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

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:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

2.3 Calculated Result and Limit

Exposure Environment	General Population / Uncontrolled Exposure		
Temp	22℃	**Humidity**	54%
Test Engineer	Paul Chen / Welson Chen	**Test Date**	Sep. 02, 2016~Oct. 07, 2016

<EUT 1>

Test results					
Maximum EIPR Power of Test Frequency (GHz)	**Average EIRP Power (dBm)**	**Average EIRP Power (mW)**	**Power Density (S) (mW/cm²)**	**Separation Distance (cm)**	**Limit of Power Density (S) (mW/cm²)**
60.48 GHz	0.40	1.10	0.00022	20	1.00

<EUT 2>

Test results					
Maximum EIPR Power of Test Frequency (GHz)	**Average EIRP Power (dBm)**	**Average EIRP Power (mW)**	**Power Density (S) (mW/cm²)**	**Separation Distance (cm)**	**Limit of Power Density (S) (mW/cm²)**
60.48 GHz	-3.49	0.45	0.00009	20	1.00