

# RF Exposure Evaluation Report

Product Name : Software defined radio

Model No. : SDR-2400, SM-SDR-2400

FCC ID : XTC-SDR2400

Applicant : Lilee Systems, Ltd.

Address : 91 East Tasman Drive Suite 150, San Jose, California 95134, United States

Date of Receipt : Nov. 16, 2018

Date of Declaration : Mar. 04, 2019

Report No. : 18B0256R-SAUSP03V00

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Issued Date: Mar. 04, 2019

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|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Product Name        | Software defined radio                                                             |
| Applicant           | Lilee Systems, Ltd.                                                                |
| Address             | 91 East Tasman Drive Suite 150, San Jose, California 95134, United States          |
| Manufacturer        | Lilee Systems, Ltd.                                                                |
| Model No.           | SDR-2400, SM-SDR-2400                                                              |
| FCC ID.             | XTC-SDR2400                                                                        |
| Trade Name          |  |
| Applicable Standard | FCC 47 CFR 1.1310                                                                  |
| Test Result         | Complied                                                                           |

Documented By :



( Senior Adm. Specialist / Joanne Lin )

Tested By :



( Senior Engineer / Wen Lee )

Approved By :



( Director / Vincent Lin )

## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                    |                                                                                   |
|--------------------|-----------------------------------------------------------------------------------|
| Product Name       | Software defined radio                                                            |
| Trade Name         |  |
| Model No.          | SDR-2400, SM-SDR-2400                                                             |
| FCC ID.            | XTC-SDR2400                                                                       |
| Frequency Range    | 2412-2462MHz                                                                      |
| Channel Number     | 11                                                                                |
| Type of Modulation | OFDM (BPSK, QPSK, 16-QAM, 64-QAM)                                                 |
| Antenna Type       | Dipole Antenna 、 Patch Antenna                                                    |
| Channel Control    | Auto                                                                              |
| Antenna Gain       | Refer to the table “Antenna List”                                                 |

#### Antenna List

| No. | Manufacturer       | Part No.         | Antenna Type | Peak Gain         |
|-----|--------------------|------------------|--------------|-------------------|
| 1   | JOYMAX ELECTRONICS | IAF-6491RS5X-991 | Dipole       | 2dBi for 2.4 GHz  |
| 2   | JOYMAX ELECTRONICS | IPX-026XNFX9-999 | Patch        | 13dBi for 2.4 GHz |

## 2. RF Exposure Evaluation

### 2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz)                                     | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time (Minutes) |
|-----------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| (A) Limits for Occupational/ Control Exposures            |                               |                               |                                     |                        |
| 300-1500                                                  | --                            | --                            | F/300                               | 6                      |
| 1500-100,000                                              | --                            | --                            | 5                                   | 6                      |
| (B) Limits for General Population/ Uncontrolled Exposures |                               |                               |                                     |                        |
| 300-1500                                                  | --                            | --                            | F/1500                              | 6                      |
| 1500-100,000                                              | --                            | --                            | 1                                   | 30                     |

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

## 2.2. Test Result of RF Exposure Evaluation

Product : Software defined radio  
Test Item : RF Exposure Evaluation

### Dipole Peak Gain: 2dBi

| Band      | Frequency | Conducted Peak Power (dBm) | Duty Cycle (%) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Pass/Fail |
|-----------|-----------|----------------------------|----------------|------------------------------|--------------------------------------------------|-----------------------------|-----------|
| WLAN 2.4G | 2462      | 29.83                      | 100            | 961.612                      | 0.3032                                           | 1                           | Pass      |

### Patch Peak Gain: 13dBi

| Band      | Frequency | Conducted Peak Power (dBm) | Duty Cycle (%) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Pass/Fail |
|-----------|-----------|----------------------------|----------------|------------------------------|--------------------------------------------------|-----------------------------|-----------|
| WLAN 2.4G | 2437      | 22.87                      | 100            | 193.642                      | 0.7687                                           | 1                           | Pass      |

Note: The conducted output power is refer to report No.: 18B0256R-RFUSP26V00 from the DEKRA.