



---

Ring  
1523 26<sup>th</sup> Street  
Santa Monica CA 90404  
USA

---

2020/09/10

## **FCC C2PC / ISED C3PC Permissive change letter**

Federal Communications Commission  
7435 Oakland Mills Road  
Columbia, MD 21046

Certification and Engineering Bureau  
ISED Canada  
3701 Carling Avenue (Building 94)  
Ottawa, Ontario  
K2H 8S2

To whom it may concern,

We, Ring LLC. apply for certification of the below described changes to the following existing certifications:

FCC-ID: 2AEUPBHAFM001, initial grant data: 2019-01-01

IC: 20271-BHAFM001, HVIN: 5W21S8, approval date: 2019-02-27

under FCC Class 2 Permissive Change rules according to FCC §2.1043 (b)(2) and ISED Class 3 Permissive Change rules according to ISED RSP-100, issue 12, section 10.

For ISED, the updated products will be identified with the following dedicated FVIN: 1.7.16-56 (IC ID and HVIN remain unchanged).

The purpose of this application is to add the following hopping modes by SW activation, to the existing initial certification which was for non-hopping mode (DTS) only:

LoRa DTS 500KHz 902.5-926.5MHz(Channel Separation:800KHz)---31channels  
LoRa FHSS 125KHz 902.2-927.8MHz(Channel Separation:200KHz)---129channels  
FSK FHSS 50Kbps 902.2-927.8MHz(Channel Separation:200KHz)---129channels  
FSK FHSS 150Kbps 902.4-927.6MHz(Channel Separation:400KHz)---64channels  
FSK FHSS 250Kbps 902.5-927.5MHz(Channel Separation:500KHz)---51channels



---

Ring  
1523 26<sup>th</sup> Street  
Santa Monica CA 90404  
USA

---

In addition, we introduce the following HW modification for further production units.

C5000 HW modification:

(1) CC3 and CC4 changed from 12pF to Not Connect (Remove SX1262 32MHz crystal load capacitors)

In SX1262 datasheet explain this:

The SX1261/2 does not require the user to set external foot capacitors on the XTAL supplying the 32 MHz clock. Indeed, the device is fitted with internal programmable capacitors connected independently to the pins XTA and XTB of the device.

2.Change the LED Power Driver board components parameter for FCC EMC issue.

(1) Add C1(1000pF/1KV)

(2) Add C2(220pF/1KV)

(3) Change C21 from 1000pF/2KV to 1500pF/1KV

(4) Change Q2 from NCE70T540I to WMK15N80M3+ heatsink

(5) Transformer added outsourcing copper foil for shielded grounding

(6) Remove D3 4148

(7) There's a dangling wire for transformer 6PIN PCB layout.

Change to: At the top layer, a single end suspended flying wire is cut from the T1 6PIN pad and the remaining copper is removed

Ongoing compliance with all limits according to FCC 15.247 and ISED RSS-247 issue 2 for non-hopping and hopping modes has been verified by testing in accredited and recognized laboratories of TÜV Rheinland (Shenzhen) Co., Ltd. and is documented in related test reports, as listed below:

Test Report number 60360350 001

We confirm, that all changes are within the boundaries of the FCC C2PC and ISED C3PC rules.

Sincerely,

Hand signed signature

Printed name                      Carro Hsieh  
title                                      Engineer

Company name and address

Ring LLC  
1523 26th St, Santa Monica, CA 90404, USA