FCC ID: X4USPC
Exhibit 9 Rev.2: Limited Split Modular - Operational Description

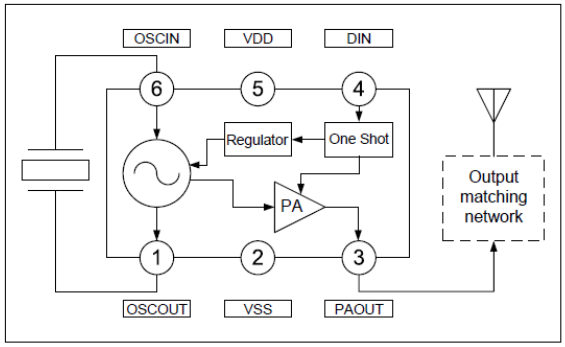
The components of the Limited Split Modular transmitter are permanently affixed to the mother board of the host device. The host device and the Limited Split Modular transmitter are produced by the same manufacturer.

The host device is typically mounted on a stand approximately 2'-3' from the end user. The host device operates from two AA batteries or a single cell 3.0 V Lithium battery. A DC to DC converter regulates the power supply to 3.3Vdc.

A detailed schematics of the the Limited Split Modular transmitter is shown in attached 'X4USPC_splitmodule_schem.pdf'

RF Front-End

The RF Front-end is a typical OOK transmitter, whereas a SAW oscillator only oscillates during a high state (data pulse) at the data input. The circuit comprises a PT4450, an ASK/OOK transmitter IC for remote control systems. It consists of a SAW oscillator, power amplifier, and one-shot circuit which control the SAW oscillator and power amplifier.



Normally, the RF front-end is in stand-by mode and does not transmit any RF signals. It requires a high state on the Data pin (DIN) for a duration of at least 200uSec (a startup time) to start the oscillator and enable the power amplifier.

The RF Front-end's power amplifier is coupled via output matching network to a small helical antenna mounted with a screw or solder directly to a pad on the mother board of the host device. The matching network provides attenuation and selectivity to meet the requirements per FCC 15.231.

Control element - microcontroller (MCU)

The microcontroller (MCU) activates the RF Front-end to transmit a short control command when a key on the keypad of the host device is pressed or when a voice command is processed via the voice activated circuitry of the host device.

The MCU sends the data via its UART module's TX port to the to the Data port of the RF front-end.

The MCU encodes a command into serial data packet comprising 5 bytes: Byte[0:3] = Address, Byte[4:5] = Control. The data is preceded by a 2mS preamble to wake the transmitter and condition the receiver.

The data rate is controlled by the firmware settings of the microcontroller's UART module which are set for 4.8 kbps. At that rate, the duration of a packet's transmission is approximately 10mS. The transmission is repeated 2-3 times over a period of 100mS with blank spaces between packets.

Transmission stops after the last repetition (in less than 100mS) and will not resume until a new command is detected. A new key command required releasing the key and pressing is again. A voice activated command cannot be acquired in less than 4 Seconds.

The transmitting software subroutines in the MCU are identical to the software subroutines used to pass the Test Firm's FCC 13.231(a)(1) test shown on pages 6-8 of the attached test report . Here is the code executed by the MCU when transmitting the encoded command:

```
F11_000038 EQU $            ; FOR LOOP x 3
    CLRF _I
FR@LB596
    MOVLW 3
    SUBWF _I,W
    BTFSC STATUS,0,0
    GO@TO NX@LB597
F11_000041 EQU $            ; TRASMIT
    MOVF FIELDNUM,W
    F@CALL SOUT
    MOVF ADDRH,W
    F@CALL SOUT
    MOVF ADDR,W
    F@CALL SOUT
    MOVF THROW1,W
    F@CALL SOUT
    MOVF THROW0,W
    F@CALL SOUT
F11_000043 EQU $            ; DELAY
    MOVLW 9
    MOVWF PP1,0
    CLRF PP1H,0
    MOVF DELFACT,W
    BZ SL@LB35
SL@LB34
    BCF STATUS,0,0
    RLCF PP1,F,0
    RLCF PP1H,F,0
    DECFSZ WREG,F,0
    BRA SL@LB34
SL@LB35
    F@CALL DLY@P
F11_000044 EQU $            ; NEXT
    INCF _I,F
    BTFSS STATUS,2,0
    GO@TO FR@LB596
NX@LB597
F11_000046 EQU $            ; RETURN
    RETURN 0

SOUT                        ; SERIAL TX

    BTFSS 3998,PP_TXIF
    BRA $ - 2
    MOVWF 4013
    BSF 4056,0
    RETURN
```

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Exhibit 9 Rev.2: Limited Split Modular - Operational Description

As per FCC 15.212 (a)(2)(iv) the RF Front-end and control elements of Limited Split Modular transmitters can only work with each other and are non interchangeable by the user or any other party. This is because all the components of the Limited Split Modular are permanently affixed to the motherboard of the host device and the firmware is read/write protected. Specifically:

- The RF front-end, circuit is soldered on the host mother board close to the antenna.
- The control element - microcontroller (MCU) is soldered on the mother board.
- The microcontroller controls the radio operation via serial communication line printed on the printed circuit board of the host device.
- The MCU firmware/software that determines the data rate, the contents of the data packet and the duration of transmission is stored in non-volatile (FLASH) memory on the MCU. The memory on the MCU is read/write protected by the manufacturer so it cannot be accessed by the user or any other party for any unauthorized modifications of transmitter parameters.
- The unique antenna is coupled with a screw or solder directly to a pad on mother board very close to the RF Front-end. The antenna is also permanently inserted into a plastic panel of the enclosure of the host device and cannot be removed without breaking the antenna or the panel. Once the circuit is assembled in the enclosure, there is no access to the antenna and it cannot be replaced by the user of the system.