Operational Description

The product is a low powered, human interface device for peripheral. This product for low power radiation product This should be DXX for FCC Part 15.249.

See the **function descriptions** in attached. It is designed to operated from

The 2.4G Receiver transmission signal between the pc and the keyboard&mouse.

Function description

A) RECIEVER UNIT

1) A signal received by the antenna, amplified by the LNA is inputted to the mixer for frequency down conversion.

2) The received signal and local signal made by fractional N synthesizer (2402-2478MHz) are mixed by the mixer to remove carrier frequency, IF frequency is 1MHz

3) IF frequency passes the BPF (band pass filter) and sampled by ADC is putted to the demodulator for base band signal demodulation

4) After demodulation, base band signal is sent to MCU through the FIFO

B) TRANSMISSION UNIT

1) A base band signal from the MCU passes through SPI interface to the modulator for signal modulation.

2) The modulated signal is sent to fractional N synthesizer to synthesize the transmit frequency.

3) The transmit frequency (2402-2478MHz) is amplified by the PA (power amplifier) and goes to the antenna.

1. SW: T/R switch toggles between TX and RX.

2. LNA: Low Noise Amplifier provides low noise and high gain amplification for incoming received signal.

3. MIXER: RF mixer down converts received RF signal to 1MHz IF signal for further processing.

4. BPF: Band Pass Filter is to channel select 1 MHz IF signal and provides rejection for image and adjacent signals.

5. ADC: 8 bit ADC digitizes 1 MHz IF signal to digital data for further demodulation.

6. DEMOD: Digital demodulation block to demodulate the GFSK data.

7: LDO & BG: LDO will regulate VDD down to 1.8V for all internal blocks. Band Gap block provides a reference voltage for all internal blocks.

8: APLL: Analog PLL block will generate different clocks for internal block from external 16MHz xtal.

9: SM & Framer: State Machine and Digital Framer provide all digital functions in Arf2496.

10: Fractional_N Synthesizer and SDM: This is the RF synthesizer implemented with franctional_N and sigma delta modulator. The reference clock is 16MHz and the output analog signal will lock VCO at desired frequency.

11: VCO: Voltage-controlled-oscillator is phase locked by RF synthesizer and oscillates at 2.45GHz range.

12: MOD & GFSK: Digital modulator generates digital data for GFSK signal.

13: DAC: DAC converts digital GFSK data into analog GFSK signal for modulating VCO.

14: LO_SW: LO switch toggles between TX and RX paths.

15: I/Q Gen and Buffer: I/Q Gen and Buffer will convert LO signal into I and Q signals for Mixer.

16: PA: Power amplifier amplifies modulated RF signal and transmits to antenna.

17: RSSI: Detects received signal's strength.

18: Antenna type: Integrated PCB antenna

19: antenna gain: 1.97dBi gain