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Concept 2
PM5 Radio Frequency
RF Clocks Operational Brief

The Concept2 PM5 contains two radio frequency (RF) generating components. The radios are used for ANT RF and Bluetooth Low Energy (BLE) wireless communications. Both radios operate in the 2.400 GHz band. The integrated radios are Nordic Semiconductor nRF51822 and a nRF51422. The nRF51822 can be used to implement BLE Peripheral or Controller functionality and the nRF51422 is used to implement ANT or BLE Peripheral functionality.

Each radio uses a 16 Mhz clock source. This clock is derived the main microcomputer (ST STM32F407) crystal input, a 16 MHz crystal located on the same printed circuit assembly, and then buffered and output to the two radios. The 16 MHz output is a direct connection to the internal oscillator in hardware within the microcomputer to assure that there is no jitter applied due to the internal phase lock loop. Additional intermediate filtering is used to assure that high frequency digital noise does not migrate to the radios.

Each radio operates asynchronously to one another, and has a separate antenna. There are 40 channels at 2 MHz spacing used within the 2.400 to 2.480 GHz band for each radio. The output power is set to -4 dBm for all the frequencies utilized.

Sincerely,

Jeff Finkelstein
President
Microprocessor Designs Inc

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