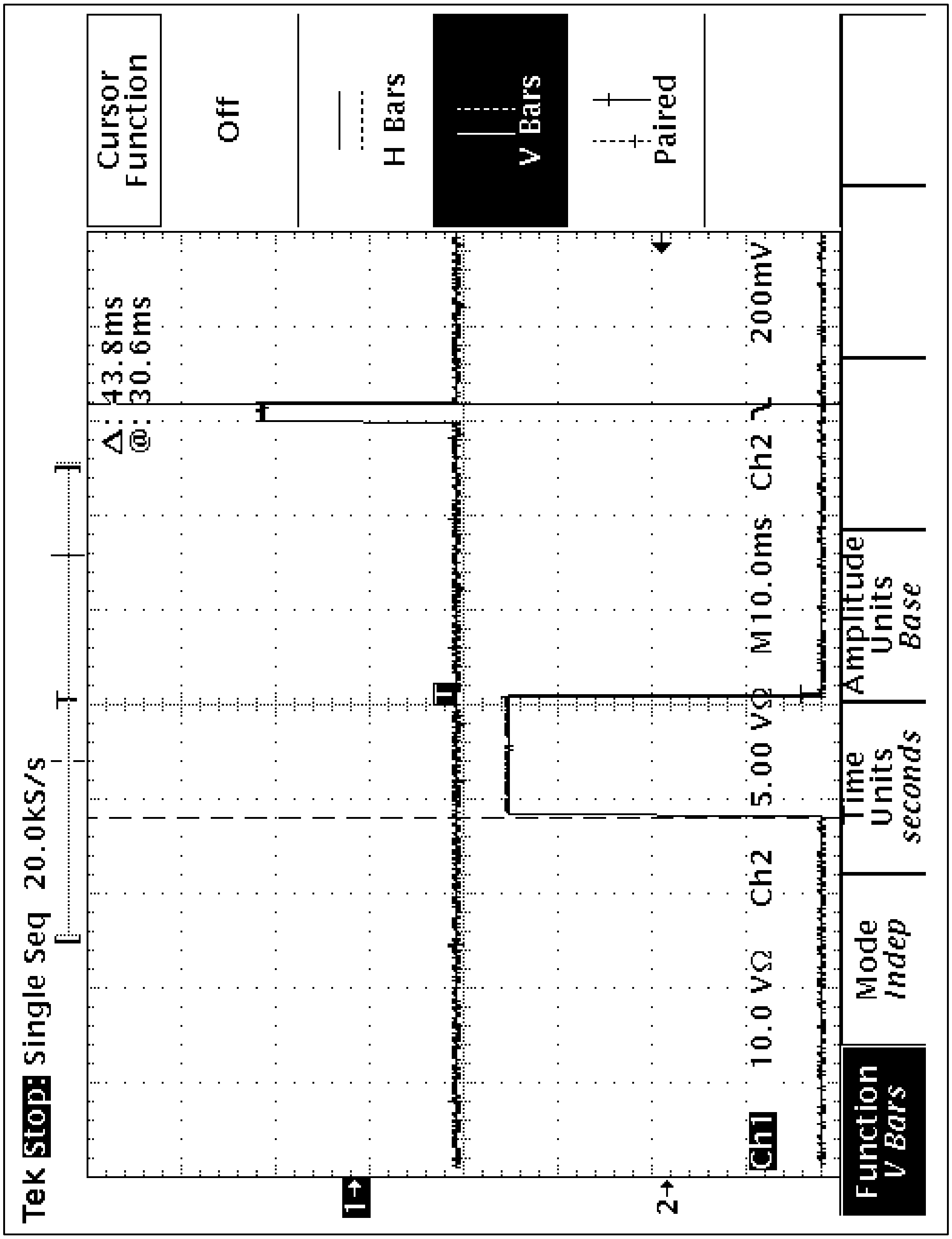
VTech Group of Companies

Kyle,

The following scope photo shows two of the 2.4 GHz transceivers operating in their normal mode.



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TEST CONDITIONS

The previous waveform shows two of the 2.4 GHz transceivers operating in their intended half-duplex mode.

During operation one 2.4 GHz transceiver (The A unit) sends up to 64 bytes of data to a second transceiver (The B unit). The B unit sends back a short acknowledge message to the A unit indicating that the message arrived error free. If the A unit does not receive an acknowledge, it resends the message. This process repeats at a 43.8 millisecond minimum repeat time. The repeat cycle is dependent on baseband system latency issues and is typically much longer than 43.8 milliseconds. I have assumed 43.8 milliseconds because that provides the "worst case" transmit on time duty cycle for the purpose of determining the average power at the transmitter's output.

The first (widest) pulse shows the time that the A units transmits to the B unit. The second (narrow) pulse is the B units acknowledge transmission to the A unit.

The transmit duty cycle for the A unit is:

10ms/43.8ms => 22.8% duty cycle @ a 43.8 ms cycle time

The transmit duty cycle for the B unit is:

2.0ms/43.8ms => 4.6% duty cycle @ 43.8 ms cycle time

The maximum message length ever sent by the system is 64 bytes of data. All shorter messages will have an even lower duty cycle than the values calculated above.

As the system reversed the direction of data flow, the B unit will have the longer transmit time and the A unit will reply with the shorter message. The minimum fixed delay time between transmit and receive modes insures that at no time does either the A or B unit transmit duty cycle increase beyond 33% over a 43.8 millisecond period.

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