The Raptor™

CDMA INDOOR MULTIPATH SYSTEM

The Raptor™ is a high-resolution channel sounder system sutiable for indoor propagation studies as well as for outdoor RF sounding. The system consists of two units- a portable, battery-powered correlating receiver Rx and a 3-watt transmitter Tx. The transmitter outputs a BPSK modulated signal that is a 4x over-sampled PN sequence of 255 chips in length. The sampling frequency is up to 100 MHz. The correlating receiver also samples the demodulated baseband signal at 100 MHz. This allows the resolution of multiple RF paths down to 40-50 ns. The highest delay spread that can be monitored at the same time without ambiguity of reflections is up to 10.2 µs. RF sensitivity with this bandwidth will be greater than 85 dBm.

Raptor's high speed architecture and light weight make Raptor ideal for indoor CDMA multipath and propagation analysis studies.

KEY APPLICATIONS:

- Powerful multipath analysis that verifies reflections
- True RF channel sounding, magnitude & phase measurement
- Optimization of symbol rates
- Analysis of coverage areas
- Verification of equalizing algorithms

FEATURES:

- RF sensitivity of greater than 85 dBm
- "Sliding correlator" measures CDMA correlated signal strength (Ec/Io) ±1.0 dB
- Modulating signal is 4X over-sampled PN sequence of 255 chips length (up to 50 Megachips per second)
- 100 mW to 3 Watts of CDMA output controllable in 1.0 dB steps
- Infinite VSWR protection for power amplifier
- Complete data output via RS-232 to laptop PC
- Fast Fade analysis supports up to 100 measurements per second

Raptor is just one of many exceptional design solutions from Berkeley Varitronics Systems. Call us today for more information:

(732) 548-3737 / Fax: (732) 548-3404
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Email: info@bvsystems.com

wireless products
Berkeley Varitronics Systems

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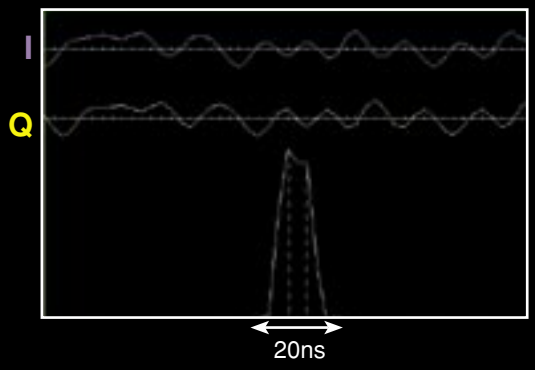
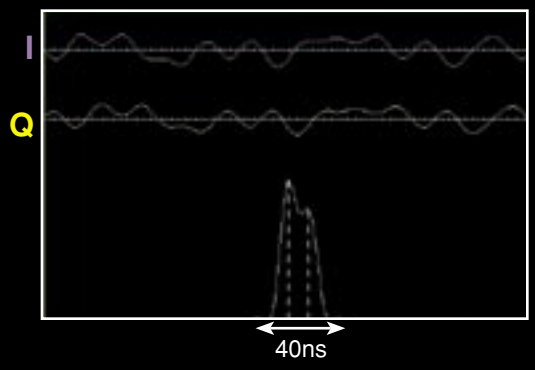
TRANSMITTER SPECIFICATIONS

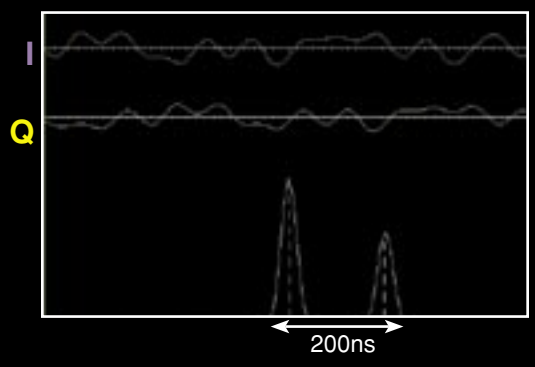
TUNING RANGE	2.4-2.85 GHz (up to 250 MHz tuning range in 1 MHz steps)
OUTPUT POWER RANGE	+20 to +35 dBm in 1 dB steps
MODULATION	BPSK (demodulator uses both I and Q quadrature signal components)
CODE RATE	25 to 50 megachips/second
OUTPUT FILTERING	Multistage (128 stages) FIR filter
OUTPUT MONITORING	6:1 VSWR monitoring
VSWR MONITORING	-20 dB
DIMENSIONS	W=14" L=11" D=6"
WEIGHT	7 pounds
POWER	12 VDC @ 3A

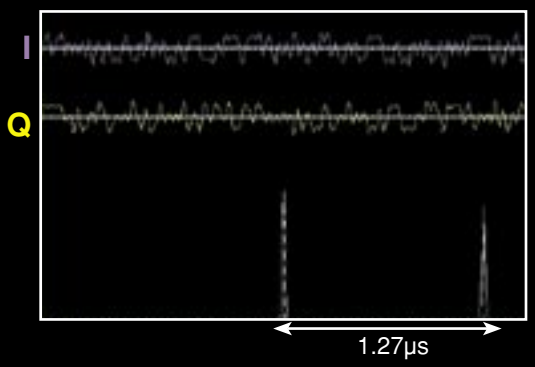
RECEIVER SPECIFICATIONS

TUNING RANGE	2.4-2.85 GHz (1 MHz steps)
TIME RESOLUTION	40ns
MAXIMUM DELAY	10µs
CODE RATE	25 megachips/second
SENSITIVITY	-85 dBm
DYNAMIC RANGE	-30 dBm to -85 dBm (max. input without damage to LNA is +13 dBm)
NORMAL PROCESSING GAIN	21 dB
STABILITY	± 0.1 ppm 0° to 50° C
PHASE NOISE	<100 Hz out 1 kHz from carrier
REMOTE CONTROL	Control of receiver functions through RS-232 port
DIMENSIONS	W=8" L=6" D=4"
WEIGHT	6 pounds
POWER	12 VDC @ 1A









The four graphs on the left illustrate the Raptor's ability to transmit, receive and correlate a variety of time delay spreads from as little as 20 ns (maximum is 10 µs). The two dashed, vertical lines represent both correlation peaks, one is the input and the other is the delay. The top horizontal waveform (Input phase) is the analog signal input while the one below it represents the delayed signal (Quadrature phase)

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