IEEE P802.11
Wireless LANs

Micrilor TGb proposal comparison matrix

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General description:

			Micrilor
Modulation Technique			16-ary DBOK, 16-ary DBOK with (15,13) R/S FEC, 4x4-ary DBOK
Data Rate(s)			10 Mbit/s (primary) and 18, 8.7, 2, 1 Mbit/s
Sensitivity			-88 dBm @10 Mbit/s -90 dBm @8.7 Mbit/s -83 dBm @18 Mbit/s
Reference submissions			9750.ppt 9751.ppt 9752.ppt 9753.ppt 9782.ppt 9783.ppt 97116.doc 97117.doc 97118.doc 97119.doc 97120.doc 97128.ppt 97129.ppt 97130.ppt 97131.ppt 98016.doc 98017.doc 98018.doc 98019.doc 98117.ppt 98018r1.doc 98117r1.ppt 98206.ppt 98207.ppt 98209.ppt 98016r1.doc 98117r2.ppt

Receiver structure:

			Micrilor
Receiver structure description			ML for Rayleigh channel; correlators for demodulation; correlator for acquisition; matched filter for CSMA; non-coherent receiver.
RF/IF complexity relative to current low rate PHYs.			Same as low rate PHYs
Baseband processing complexity. relative to current low rate PHYs. (Gate Count, MIPS)			Similar: approximately 40k gates including channel matched filter
Equaliser Complexity and performance impact (if applicable).			Not required; equalizer or MLSE techniques could be added for enhancement
Antenna Diversity and performance impact.			1 or 2 dB improvement in SNR; adds 4 μs to preamble.

Multipath and Noise performance:

			Micrilor
PER vs. multipath RMS delay spread (no noise). Delay spread @ 10% PER for 64 and 1000 byte packets.			**10 Mbit/s** 64 bbyte: 360 ns 1 kbyte: 280 ns
PER vs. thermal noise w/ multipath @ 10% PER. Eb/No @ 20% PER for 64 and 1000 byte packets.			**10 Mbit/s** 64 bbyte @ 360 ns: 26 dB 1 kbyte @ 280 ns: 24.5 dB
PER vs. thermal noise (no multipath). Eb/No @ 10% PER for 64 and 1000 byte packets.			**10 Mbit/s** 64 byte: 5.5dB 1 kbyte: 6.7dB **18 Mbit/s** 64 byte: 8.5dB 1 kbyte: 9.7dB **8.7 Mbit/s** 64 byte: 4.5dB 1 kbyte: 5.0dB

Carrier and Data frequency accuracy:

			Micrilor
Required Carrier frequency accuracy.			±20 ppm; Recommend specify @ 10 ppm
Degradation at worst case carrier frequency offset.			<.2 dB @ 20 ppm; negligible @ 10 ppm; no tracking required in any case
Data clock frequency accuracy.			10 ppm to reduce stress on tracking
Degradation at worst case data clock frequency offset.			< .3 dB @ ≈1/8-chip time-tracking error

Overhead related parameters:

			Micrilor
Preamble length			24 us
Does the preamble length include receive antenna diversity? Yes or no.			Yes
Does the preamble length include equaliser training? Yes or no.			Includes training of channel matched filter
Slot time.			10 us
CCA mechanism description.			Detect 1-/2-Mbps DS or FH at –80 dBm
Co-Channel signal detection time.			2 us for all DS TBD for FH
RX/TX turnaround time.			2 us
SIFS.			10 us

Spectral efficiency, Cell density related parameters:

			Micrilor
Channelization scheme			= low rate PHY (frequency); plus many code channels
Cell planing scheme			= low rate PHY 3 independent frequency channels; code channels used to isolate BSAs for frequency re-use
Adjacent channel interference rejection.			35 dB
Co-channel interference rejection.			12 dB
S/J where CW interference gives 10% PER.			2 dB
Other interference immunity tests.			Same
Co-Channel signal detection time.			2 us
Total number of channels in 2.4GHz band.			Identical to low rate DSSS PHY; 3 colocated channels for FCC or ETSI
Aggregate throughput.			Dependent on cell topology. e.g. three channels in one cell gives 3 * throughput or 30 Mbit/s; at short range could be 3*18=54 Mbit/s

Misc. critical performance factors:

			Micrilor
Phase noise sensitivity			N/A; noncoherent Rx
RF PA backoff			2-5 dB
DC power consumption			Same as low rate PHY PCMCIA form factor TX < 300mA @ 3V RX < 250A @ 3V

Interoperability:

			Micrilor
Interoperability / Co-existence strategy with current low rate PHYs			Prefix legacy preamble to enable CCA by FH or DS 1-/2-Mbps equipment. Multisignal CCA (ref: 97/128) enables CCA of FH and DS legacy transmissions. Thus, interoperable or coexisting when required, but single high-rate preamble.
Is the proposal Interoperable at the data level?			Yes
Is the proposal Interoperable at the antenna level?			Yes
Performance penalty due to Interoperability / Coexistence.			192 us preamble added for DS interoperability mode when needed; not part of high-rate PHY.

General Information:

			Micrilor
Has the submission of the required IEEE letter covering IP been made? Yes or No			Yes
Applicable patent numbers			Pending
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