IEEE P802.11
Wireless LANs

Status of TGa (5 GHz high speed PHY) of 802.11 after January 98 Interim Meeting

Naftali Chayat, TGa Chair

In January 1998 Task Group A of 802.11 gathered in Lynnwood, WA, with 73 people attending. During the meeting the 6 PHY proposals, presented previously in November 97 meeting, were presented in greater detail and initial performance data was presented. The Task Group agreed on a common format of presenting performance data in March 1998 meeting for comparison and selection. The comparison criteria include sensitivity and multipath robustness, spectrum utilization (number of channels, Co-Channel and Adjacent channel interference sensitivity), complexity and power consumption, RF power amplifier efficiency and robustness to phase noise.

Initial assessment of members' priorities shows bias towards robust operation in multipath typical to low/medium ranges, with low-power consumption and non-excessive complexity. Of smaller priority come radio related parameters and sensitivity. In March 1998 Task Group A intends to select the preferred modulation method and to have the Working Group Draft Standard avaliable after its May 1998 meeting.

Comparison of proposals

Company	Lucent Tech.	NTT	Micrilor	NEC	BreezeCom	RadioLAN
Modulation method	OFDM QPSK or 16-QAM in each subcarrier	OFDM DQPSK in each subcarrier	DBOK (Differential BiOrtho. Keying) + Overlaid signaling	QPSK	Offset Quadrature Modulation (OQPSK/OQAM)	PPM (16-PPM, 4-PPM)
Pulse shaping features	Crest-factor reduction	Crest-factor reduction	MSK based waveforms	50% Square-Root Raised Cosine	GMSK-derived pulse shape	50% Square-Root Raised Cosine
Error Correction Coding	Convolutional K=7, Inter-carrier interleaving	Convolutional K=7, Inter-carrier interleaving	Optional RS(13,15)	Uncoded, BCH(31,26) considered	Hamming (31,26), uncoded option	Uncoded
Rates supported	10 Mbit/s 20 Mbit/s 30 Mbit/s	20 Mbit/s	10 Mbit/s (16DBOK) 18 Mbit/s (4x4DBOK) 24 Mbit/s (4x4DBOK)	20 Mbit/s	21 Mbit/s (coded) 25 Mbit/s (uncoded) 42 Mbit/s (coded) 50 Mbit/s (uncoded)	10 Mbit/s (4-PPM) 20 Mbit/s (16-PPM)
Number of channels in U-NII band	5 in 100 MHz 11 in 200 MHz	3 in 100 MHz 7 in 200 MHz	2 in 100 MHz	4-5 in 100 MHz 10 in 200 MHz	3 in 100 MHz 7 in 200 MHz	3 in 100 MHz
Applicable documents	97/123, 98/12, 97/92	97/137,98/02,98/03 97/89	97/130, 98/17, 98/19	97/121, 98/34, 98/35	97/111, 98/21	97/145r1, 98/38