IEEE P802.11
Wireless LANs

Title: HIPERLAN type 2 PHY Decision List

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Abstract

This document summarizes the agreements achieved between three different communities BRAN HIPERLAN type 2, MMAC WATM WG and IEEE802.11a regarding the harmonization of physical layer for different system currently being standardized in Europe, Japan and USA. The table shows that the physical layers have been harmonized to a large extent and

Parameter	H/2 Current working assumption or decision	Harmonised with IEEE?	Harmonised with MMAC-WATM-WG?
Channel spacing	20 MHz (decided)	Yes	Yes
Sampling rate	20 Msample/s (decided)	Yes	Yes
FFT length	64 (decided)	Yes	Yes
Number of used sub-carriers	48 data sub-carriers and 4 pilot sub-carriers (decided)	Yes	Yes
Sub-carrier modulation	BPSK, QPSK, 16QAM, optionally 64 QAM (decided)	Yes	Yes

Signal constellation and bit mapping	Decided	Yes	Yes
Demodulation	Coherent (decided)	Yes	Yes
FEC mother code	Convolutional code, rate 1/2 (decided)	Yes	Yes
Code termination	Method (decided), additional puncturing patterns to be decided at BRAN#13.5	No	Yes
Guard interval	800 ns corresponding to 16 time samples (decide)	Yes	Yes
PHY modes & code rates	7 modes (decided) 6, 9, 12, 18, 27, 36, 54 Mbps	Mainly yes 6, 9, 12, 18, 24, 48, 54 Mbps	Yes
Oscillator accuracy	+/- 20 ppm (decided)	Yes	Yes
Linkage of Oscillators	Generation of RF and baseband timing from the same reference oscillator	Yes	Yes
Generator polynomial for data scrambling	X^7+ X^4 + 1 (decided)	Yes	Yes
Scrambling of pilot sub-carriers	Generator polynomial X^7+ X^4 + 1 (decided), scheme not decided (two alternatives, IEEE and BRAN specific ones)	Generator polynomial Yes, scheme not clear	Generator polynomial Yes, scheme not clear (IEEE scheme adopted)
Preamble structure (based on quarter symbols, 16 samples)	BCH preamble, DL preamble (FCH, SCH, LCH) and short version and long version of UL preamble (SCH, LCH, RCH) (decided)	BCH preamble and the long version UL preamble have the same length as IEEE	BCH preamble the same length (content under discussion), DL Yes, UL under discussion
Interleaving	OFDM symbol wise (decided), permutation (working assumption)	Method Yes, Permutation No	Method Yes, Permutation No
Pulse shaping	TX power mask + modulation constellation accuracy (method decided, IEEE TX power mask and IEEE values for modulation accuracy working assumption)	Method Yes, Modulation accuracy values Yes, TX power mask Yes	Method Yes, Modulation accuracy values Yes, TX power mask No due to specific Japanese regulation matters