IEEE 802.11
Wireless Access Method and Physical Layer Specification

Title: **IR PHY Modulation Template**

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General Specifications

Parameter	Value	Comments
Spectrum Occupancy	15 MHz to 30 MHz	
Data Rate	4 and 10 Mb/s	
Wavelength	850 - 950 nm	
Modulation Method	FQPSK	
Number of Channels	1 to 6	
Propagation Mode	Diffuse	Non aimed transceivers

Transmitter Specifications

Parameter	Value	Comments
Output Peak Power	2.0 W ± 20%	@900 nm
Pulse Format		doc: IEEE P802.11-93/97
• for 0 0 in	-1 to +1 sin	sin trans at 1/2 of symb
• for 0 1 in	+1 to -1 sin	
• for 1 1 in	+1 dc	
• for 1 0 in	-1 dc	
• tj (jitter)	10 ns (max)	absolute deviation
Emitter Radiation Pattern	TBD	

Receiver Specifications

Parameter	Value	Comments
Sensitivity (BER=10^{-9}) (max)	TBD dBm/cm^2 (4 Mb/s) TBD dBm/cm^2 (10 Mb/s)	-10 dBm/cm^2 ambient light
Minimum Dynamic Range	30 dB	On the irradiance at the receiver detector
Minimum Field of View	150	At the physical limit
Frame Error Rate (FER)	≤ 4 ∞ 10^{-5}	MAC frame = 512 octets
Carrier Sense out to MAC	TBD	After the preamble start
TX-RX turnaround time	TBD	
RX-TX turnaround time	TBD	
IR silence to Carrier Sense deassert	TBD	In case of EFD failure

Frame Specifications I

Parameter	Value	Comments
Preamble	50 - 100 bits	
Start of Frame Delimiter	4 bits	
Data Rate Field	3 bits	
MAC Frame	TBD	Integer number of octets
End of Frame Delimiter	16 bits	

Frame Specifications II

Parameter	Format	Comments
Preamble Format	010101...0101010	4 and 10 Mb/s
SFD Format	1001	4 and 10 Mb/s
Data Rate Field Format	000	4 Mb/s
	001	10 Mb/s
	other formats:	TBD
EFD Format	0000011011011011	4 and 10 Mb/s

Modulation Encoding Table

Digit Pattern d_0 is first in time	Phase Change
0 0	0°
0 1	90°
1 1	180°
1 0	270°