ESTEEM Wireless Modems

TECHNICAL BULLETIN
195Eg Range Analysis Tables

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	8.1	5.1
DSSS	2.0	1.00	1.00	86	5.8	3.6
DSSS	5.5	2.75	1.00	85	5.1	3.2
OFDM	6.0	3.00	1.00	88	7.3	4.6
OFDM	9.0	4.50	1.00	87	6.5	4.1
DSSS	11.0	5.50	1.00	82	3.6	2.3
OFDM	12.0	6.00	0.63	84	3.6	2.3
OFDM	18.0	9.00	0.63	82	2.9	1.8
OFDM	24.0	12.00	0.50	79	1.8	1.1
OFDM	36.0	18.00	0.50	75	1.1	0.7
OFDM	48.0	24.00	0.25	70	0.5	0.3
OFDM	54.0	27.00	0.25	68	0.4	0.2

Site 1			**Site 2**	
Configuration:	Pole Mounted		Configuration:	Pole Mounted
Antenna Type:	AA20DMEg		Antenna Type:	AA20DMEg
Antenna Gain:	5 dBi		Antenna Gain:	5 dBi

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	8.6	5.4
DSSS	2.0	1.00	1.00	86	6.1	3.8
DSSS	5.5	2.75	1.00	85	5.4	3.4
OFDM	6.0	3.00	1.00	88	7.6	4.8
OFDM	9.0	4.50	1.00	87	6.8	4.3
DSSS	11.0	5.50	1.00	82	3.8	2.4
OFDM	12.0	6.00	0.63	84	3.8	2.4
OFDM	18.0	9.00	0.63	82	3.0	1.9
OFDM	24.0	12.00	0.50	79	1.9	1.2
OFDM	36.0	18.00	0.50	75	1.2	0.8
OFDM	48.0	24.00	0.25	70	0.5	0.3
OFDM	54.0	27.00	0.25	68	0.4	0.2

Site 1			**Site 2**	
Configuration:	Pole Mounted		Configuration:	Pole Mounted
Antenna Type:	AA20DMEg		Antenna Type:	AA20Eg or AA203Eg
Antenna Gain:	5 dBi		Antenna Gain:	6 dBi

Notes

1. Ethernet bandwidth is an approximation of the effective data rate of a Point to Point radio system compared to sending Ethernet data over standard wire. This number takes into account factors like RF packet overhead, retries, and latency of the radio

2. The theroetical Line of Sight Range calculations uses the hardware configuration shown at the bottom of the table.

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TECHNICAL BULLETIN
195Eg Range Analysis Tables

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	38.2	24.1
DSSS	2.0	1.00	1.00	86	27.1	17.1
DSSS	5.5	2.75	1.00	85	24.1	15.2
OFDM	6.0	3.00	1.00	88	34.1	21.5
OFDM	9.0	4.50	1.00	87	30.4	19.2
DSSS	11.0	5.50	1.00	82	17.1	10.8
OFDM	12.0	6.00	0.63	84	17.1	10.8
OFDM	18.0	9.00	0.63	82	13.6	8.6
OFDM	24.0	12.00	0.50	79	8.5	5.4
OFDM	36.0	18.00	0.50	75	5.4	3.4
OFDM	48.0	24.00	0.25	70	2.1	1.4
OFDM	54.0	27.00	0.25	68	1.7	1.1

Site 1			**Site 2**	
Configuration:	Pole Mounted		Configuration:	Pole Mounted
Antenna Type:	AA20DMEg		Antenna Type:	AA204Eg
Antenna Gain:	5 dBi		Antenna Gain:	19 dBi

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	9	5.7
DSSS	2.0	1.00	1.00	86	6	4
DSSS	5.5	2.75	1.00	85	5.7	3.6
OFDM	6.0	3.00	1.00	88	8	5.1
OFDM	9.0	4.50	1.00	87	7.1	4.5
DSSS	11.0	5.50	1.00	82	4	2.5
OFDM	12.0	6.00	0.63	84	4	2.5
OFDM	18.0	9.00	0.63	82	3.2	2
OFDM	24.0	12.00	0.50	79	2	1.3
OFDM	36.0	18.00	0.50	75	1.3	0.8
OFDM	48.0	24.00	0.25	70	0.5	0.3
OFDM	54.0	27.00	0.25	68	0.4	0.3

Site 1			**Site 2**	
Configuration:	Pole Mounted		Configuration:	Pole Mounted
Antenna Type:	AA20Eg		Antenna Type:	AA20Eg or AA203Eg
Antenna Gain:	6 dBi		Antenna Gain:	6 dBi

Notes

1. Ethernet bandwidth is an approximation of the effective data rate of a Point to Point radio system compared to sending Ethernet data over standard wire. This number takes into account factors like RF packet overhead, retries, and latency of the radio

2. The theroetical Line of Sight Range calculations uses the hardware configuration shown at the bottom of the table.

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195Eg Range Analysis Tables

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	40.2	25.3
DSSS	2.0	1.00	1.00	86	28.4	17.9
DSSS	5.5	2.75	1.00	85	25.3	16.0
OFDM	6.0	3.00	1.00	88	35.8	22.6
OFDM	9.0	4.50	1.00	87	31.9	20.1
DSSS	11.0	5.50	1.00	82	17.9	11.3
OFDM	12.0	6.00	0.63	84	17.9	11.3
OFDM	18.0	9.00	0.63	82	14.2	9.0
OFDM	24.0	12.00	0.50	79	9.0	5.7
OFDM	36.0	18.00	0.50	75	5.7	3.6
OFDM	48.0	24.00	0.25	70	2.3	1.4
OFDM	54.0	27.00	0.25	68	1.8	1.1

Site 1		**Site 2**	
Configuration:	Pole Mounted	Configuration:	Pole Mounted
Antenna Type:	AA20Eg	Antenna Type:	AA204Eg
Antenna Gain:	6 dBi	Antenna Gain:	19 dBi

Model 195Eg Range Analysis						
RF Modulation Type	**RF Data Rate (Mbps)**	**Ethernet Bandwidth (Mbps) (1)**	**TX Power (watts)**	**RX Sensitivity (dB)**	**Theoretical Range 6 dB Fade Margin (Miles, LOS) (2)**	**Theoretical Range 10 dB Fade Margin (Miles, LOS) (2)**
DSSS	1.0	0.50	1.00	89	179.4	113.2
DSSS	2.0	1.00	1.00	86	127.0	80.1
DSSS	5.5	2.75	1.00	85	113.2	71.4
OFDM	6.0	3.00	1.00	88	159.9	100.9
OFDM	9.0	4.50	1.00	87	142.5	89.9
DSSS	11.0	5.50	1.00	82	80.1	50.6
OFDM	12.0	6.00	0.63	84	80.1	50.5
OFDM	18.0	9.00	0.63	82	63.6	40.1
OFDM	24.0	12.00	0.50	79	40.1	25.3
OFDM	36.0	18.00	0.50	75	25.3	16.0
OFDM	48.0	24.00	0.25	70	10.1	6.4
OFDM	54.0	27.00	0.25	68	8.0	5.0

Site 1		**Site 2**	
Configuration:	Pole Mounted	Configuration:	Pole Mounted
Antenna Type:	AA204Eg	Antenna Type:	AA204Eg
Antenna Gain:	19 dBi	Antenna Gain:	19 dBi

Notes

1. Ethernet bandwidth is an approximation of the effective data rate of a Point to Point radio system compared to sending Ethernet data over standard wire. This number takes into account factors like RF packet overhead, retries, and latency of the radio

2. The theroetical Line of Sight Range calculations uses the hardware configuration shown at the bottom of the table.