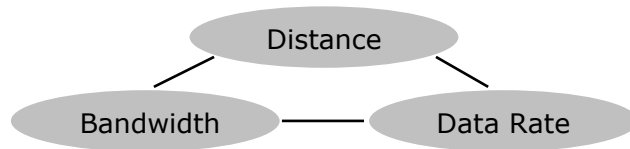




Range Guide: Setting System Data Rate and RF Bandwidth

The SkyWay 4000 system allows for a variety of data rate and RF bandwidth settings. There is no single, correct setting as each wireless network has unique physical requirements and licensing scenarios. In general, it is good to understand there are direct relationships between RF bandwidth, link distance and available RF data rates



For example, a longer link distance requires either a lower data rate, or larger RF bandwidth. Similarly, to increase data rate beyond a certain setting, either the link distance must be reduced or the bandwidth increased.

The core driver of these relationships is that higher data rates increase the minimum amount of RF energy needed at the receiving side of a radio link. This energy is a function of the distance between radios and the utilized RF bandwidth.

While analyzing these relationships can become complicated, using the SkyWay 4000 Series radio doesn't have to be. The table below lists the maximum line-of-sight link distances that can be achieved for each of the common data rate and bandwidth settings. When top performance is critical, it is best to choose settings that stretch the radios up to their maximum link ranges. If a link is running in near- or non-line-of-sight operation or if a customer requires additional link margin, then backing off from the maximum data rate / bandwidth settings will yield additional insurance.

Keep in mind that radios also have a required minimum distance, necessary to prevent overloading of the receiving side.

distances in Miles		Point-to-Point Model:			Multipoint, Sectoral Base Subscriber Model:			Multipoint, Omni Base Subscriber Model:		
Bandwidth	Data Rate	4101	4301	4501	4100	4300	4500	4100	4300	4500
40 MHz	108 Mbps	0.4	1.1	4.5	--	0.6	1.3	--	0.3	0.6
	72 Mbps	1.4	4	16	0.8	2.2	4.5	0.4	1.1	2.2
20 MHz	54 Mbps	0.6	1.6	6	0.3	0.9	1.8	--	0.4	0.9
	36 Mbps	2.0	6	22	1.1	3	6	0.6	1.6	3
	6 Mbps	10	28	30+	6	16	30+	2.8	8	16
10 MHz	27 Mbps	0.7	2.0	8	0.4	1.1	2.2	--	0.6	1.1
	18 Mbps	2.5	7	28	1.4	4	8	0.7	2.0	4
	3 Mbps	13	30+	30+	7	20	30+	4	10	20
5 MHz	13 Mbps	0.9	3	10	0.5	1.4	3	0.3	0.7	1.4
	9 Mbps	3	9	30+	2	5	10	0.9	3	5
	1.5 Mbps	16	30+	30+	9	25	30+	4	13	25
Minimum Distance:		100 ft	0.40	1.6	350 ft	0.25	0.5	200 ft	0.15	0.25

Table 1: Minimum and Maximum Link Distances for SkyWay 4000 product family. Unless otherwise noted, all distances shown in miles.