195Ep FREQUENCY OF OPERATION

In a wireless Ethernet network all of the ESTeem Model 195Ep's must be set to the same radio frequency of operation or channel. The frequency of operation is selectable when configuring the mode of operation of the 195Ep (reference Chapter 4). See Figure 1.
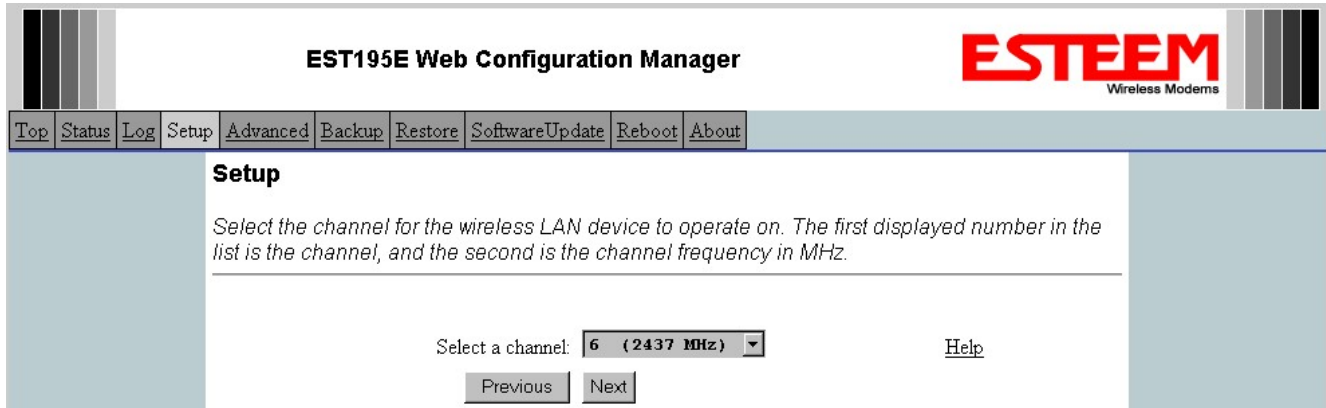

Figure 1: RF Channel Selection

RF COMMUNICATIONS DATA RATE

The RF data rate of the Model 195Ep can be programmed for operation at 1, 2, 5.5, or 11 Mbps. The RF data rate can be set for a fixed rate or a specific range that is dynamically scaled by the Model 195Ep from monitoring the received signal quality. By selecting all ranges from 1 to 11 Mbps you will be able to communicate with all mobile or remote locations devices regardless of their signal strength.

Dynamic scaling means that the Model 195Ep will operate at the highest RF data rate that is programmed into unit. If the received data quality drops below the required minimums for reliable communications the Model 195Ep will reduce the data rate to the next lowest step to increase signal quality. Conversely if the signal quality increases above the minimums the Model 195Ep will increase the RF data rate the next highest level.

The ESTeem 195Ep is set at the factory to operate at maximized scaling speed data rates from 1-11 Mbps and should not need adjustment. The RF Data Rate is programmed in the Model 195Ep through the **Advanced Menu>Wireless LAN Settings>Wlan0 Device** and the value for **wlan0_OPRATES:**. In the example shown in Figure 2 the RF Date Rate is programmed to dynamic scale from 1 to 11 Mbps (recommend factory default setting). To set the values for the data rate, check the box next to the listed data rate to enable this rate for operation.

wlan0_OPRATES:	1 ☑ 2 ☑ 5.5 ☑ 11 ☑ 6 ☑ 9 ☐ 12 ☑ 18 ☐ 24 ☑ 36 ☐ 48 ☐ 54 ☑	Select the set of data rates that the radio may transmit. These rates are used when transmitting frames to a single peer. Not all peers need to support these rates. If the rates selected are not valid for the radio and/or frequency selection then the rate set will be replaced with the default rate set at radio initialization time.
wlan0_SIFSPAD:	40	Enter the number of microseconds to add to the default SIFS value (0-100)
wlan0_AP_BCNINT:	100	Enter the number of TUs that a station shall use between beacon frames (1-65535)
wlan0_AP_DTIMINT:	1	Enter the number of beacon intervals that shall elapse between transmission of beacon frames containing a TIM element whose DTIM count field is 0 (1-255)
wlan0_AP_CFPPERIOD:	1	Enter the number of DTIM intervals between the start of CFPs (0-255)
wlan0_AP_CFPMAXDURATION:	100	Enter the maximum duration (in TUs) that may be generated by the PCF. (0-65535)
wlan0_AP_PROBEDELAY:	100	Enter the delay (in microseconds) to be used prior to transmitting a probe frame during active scanning.
wlan0_AP_CHANNEL:	9 (2452 MHz)	Enter the channel number when operating in one of Access Point modes
wlan0_AP_BASICRATES:	1 ☑ 2 ☑ 5.5 ☑ 11 ☑ 6 ☐ 9 ☐ 12 ☐ 18 ☐ 24 ☐ 36 ☐ 48 ☐ 54 ☐	Select the set of basic rates that the device will use to transmit frames that all stations must hear. The rate set must be a sub-set of rates selected for OPRATES. Note that all possible data rates are presented here. Not all rates are valid for all channels and all radios. If the rate set selected is not valid for the radio, frequency selection, or is not a sub-set of the operational rates then the rate set will be replaced with the default rate set at radio initialization time.

Figure 2: Advanced Data Rate Selection

RF BASIC RATE

The RF Basic Rate is the synchronization rate used to establish the initial connection between 802.11g and 802.11b communication devices in Mbps. After the initial connection has been establish the RF communication rate will be determined by the RF Communication Data Rate established above. Factory default is 1 through 11 Mbps shown in Figure 2 so that the unity will establish communication with the older (slower) 802.11b devices. This lower rate also allows for a quicker reconnect when the ESTeems are configured for EtherStation mode or working in a mobile environment.

The ESTeem 195Ep is set at the factory to operate at all speeds from 1-11 Mbps and should not need adjustment. The RF Basic Rate is programmed in the Model 195Ep through the **Advanced Menu>Wireless LAN Settings>Wlan0 Device** and the value for **wlan0_AP_BASICRATES:**. In the example shown in Figure 2 the RF Date Rate is programmed to dynamic scale from 1 to 11 Mbps (recommend factory default setting). To set the values for the data rate, check the box next to the data rate required.

Note: The Model 195Ep will only communicate with slower speed devices after synchronization if the RF Communication Data shown above has been set to dynamically scale to 1 and 2 Mbps.

*In general, do **not** set the RF Basic Rates above 11Mbps unless specifically instructed by ESTeem Customer Support.*