

Channel spacing vs. channel width

Channel spacing:

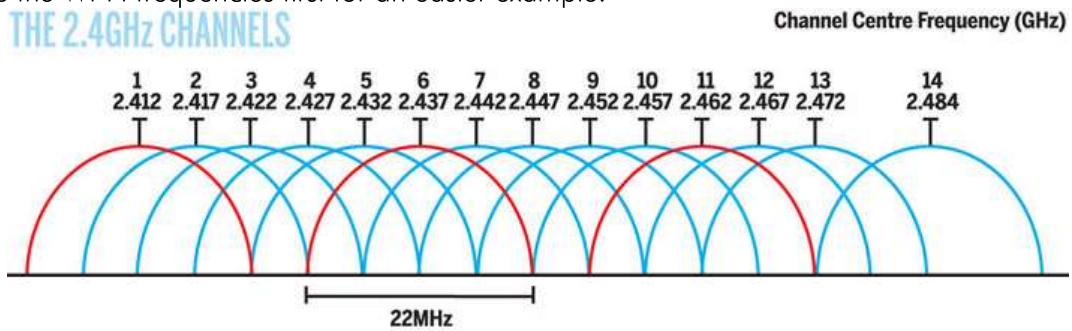
Defines the frequency difference between adjacent radio channels in the radio modem.

Channel Width:

Reserved channel bandwidth. Typically channel spacing is the same in the radio modems as the channel width.

In the context of SATEL radio modems the channel spacing defines also the width of the radio channel. The exceptions are that radios with 20 kHz channel spacing use 12.5 kHz channel width.

Let's take the Wi-Fi frequencies first for an easier example:



Picture 1. Wi-Fi channels

WiFi channel spacing: 5 MHz

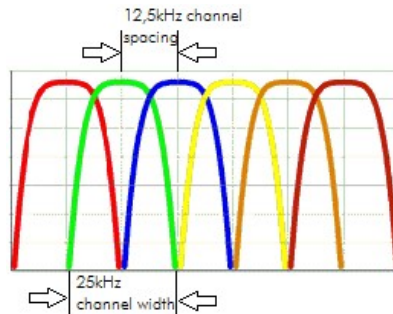
WiFi channel width: 22 MHz

Channel spacing with SATEL products:

- SATEL-EASy+, SATEL-TR4+, SATELLINE-EASy product and variants (SATELLINE-EASy Pro, -M3-TR1, SATEL Compact-Proof, EASy-Proof etc.): adjustable 25, 20*, 12.5 kHz
- SATELLAR XT 5R / 5RC products (QAM): adjustable 25 and 12.5 kHz
- SATELLINE-3AS VHF product family: always fixed, 25, 20*, 12.5 kHz

*Utilizes 12.5 kHz channel width

In the below seen picture, each colored curve represents frequency bandwidth.



Picture 2, channel spacing vs. channel width.



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With SATEL-EASy+, SATEL-TR4+ and SATELLINE-EASy product family products the RF frequency can be set in 6.25 kHz steps at 12.5 kHz and at 25 kHz channel spacing (width).

At 20kHz channel spacing (width) the frequency step is 10 kHz.

With SATELLAR XT 5R / RC products the RF frequency can be set in 6.25 kHz steps with all available channel spacing (width) options.

NOTE 1! With SATELLINE-EASy 869 and SATELLINE-M3-TR1 869 the channel spacing (width) is limited to 25 kHz. It is possible to change the channel raster of the device by settings the Reference frequency first to the desired channel raster (12.5 or 25 kHz) before changing the operating frequencies.

Example 1:

Frequency 420.00000 MHz, channel spacing 12.5 kHz. Next available frequencies upwards (manually changed, overlapping):

- 420.00625 MHz
- 420.01250 MHz
- 420.01875 MHz

...

Example 2:

Frequency 420.00000 MHz, channel spacing 20 kHz. Next available frequencies upwards (manually changed, overlapping):

- 420.01000 MHz
- 420.02000 MHz
- 420.03000 MHz

...

Example 3:

Frequency 420.00000 MHz, channel spacing 25 kHz. Next available frequencies upwards (manually changed, overlapping):

- 420.00625 MHz
- 420.01250 MHz
- 420.01875 MHz

...

With SATELLINE- 3AS (VHF) product family the RF frequency can be set:

- 12.5 kHz steps at 12.5 kHz channel spacing
- 25 kHz steps at 25 kHz channel spacing
- 20 kHz steps at 20 kHz channel spacing*

The factory set center frequency defines the channel raster. The channel spacing (width) is HW coded in the SATEL factory premises.