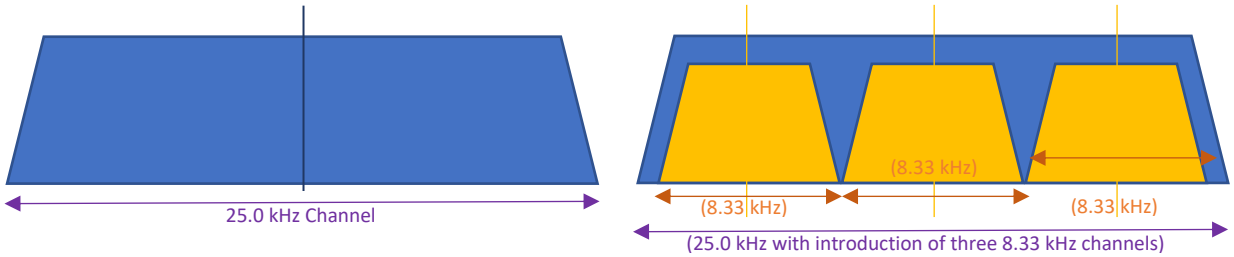
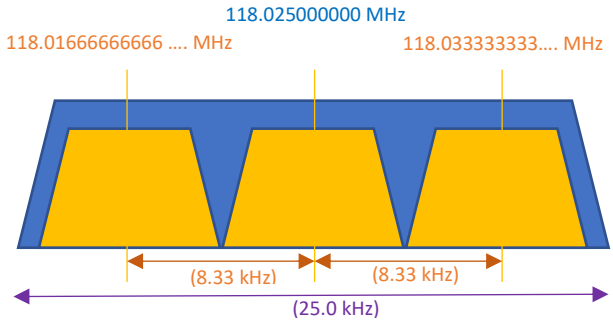
**Understanding 8.33kHz transmit/receive frequencies and their specific channel number**

By reducing the channel spacing between consecutive transmit frequencies in the aeronautical VHF bands, the 8.33 kHz channel spacing adds two additional channels for every 25 kHz channel. This is to overcome the frequency congestion in the medium to long term by providing more channels.



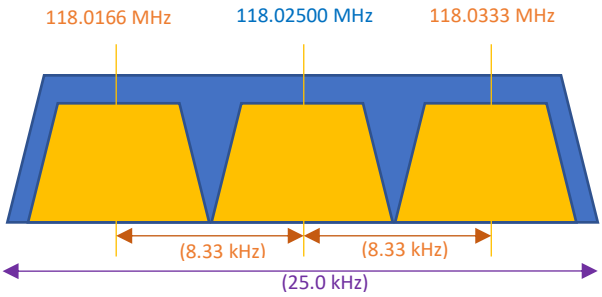

As an example, if we take the original transmit frequency 118.025MHz for a 25kHz channel we can split this into three new 8.33 kHz channels with transmit frequencies:

- 118 .016666666…. (i.e. 118.025 MHz – 8.33 kHz)
- 118 .025000000 …. As per the original frequency
- 118 .033333333…. (i.e. 118.025 MHz + 8.33 kHz)




For simplification the transmit frequencies the actual frequencies set on the frequency are those that appear on the licence schedule will normally appear as rounded values to four decimal places:

- 118 .0166
- 118 .0250
- 118 .0333




For an 8.33 kHz channel the transmit frequencies will have at least four digits after the decimal. But to reduce the potential for errors between the controller and pilot, the channel number has been allocated for each frequency which closely resembles the frequency. This is done in such a way that only three digits after the decimal are used. The purpose of this is to simplify the pronunciation of the frequency spoken over air and reduce the number of digits needed to be entered the onboard radio.

The ICAO prescribe the procedure for a 6-digit pronunciation of both 8.33 kHz and 25.0 kHz channels in VHF radio telephony communications, except in where the fifth and sixth digits are zeros, in which case only the first four digits should be entered the radio equipment (i.e. 118.0000 MHz will be entered as 118.0. Additionally, so that the 8.33 kHz channel is distinguishable from the 25.0 kHz channel the sixth digit and sometimes both the fifth and sixth digit are different to the actual transmit frequency digits.

As an example, to communicate on 118.0333 MHz the pilot will need to dial in 118.035 as the channel number for an 8.33 kHz capable radio. This will be pronounced by the controller as ‘One’ ‘One’ ‘Eight’ ‘Decimal’ ‘Zero’ ‘Three’ ‘Five’. On the other hand, if it was the old 25 kHz radio then this would be pronounced ‘One’ ‘Eight’ ‘Decimal’ ‘Zero’ ‘Three’ ‘Three’ matching more closely the transmit frequency digits. The 8.33 kHz equipment is designed in such a way that when the numbers are dialled in it will tune automatically tune into the actual transmit frequency 118.0333 MHz

**Summary**

Where 8.33 kHz VHF conversions are applicable the CAA will provide the ‘VHF Frequency Assignment’ letter which details both the channel and frequency. This usually appears such:

**Channel / Frequency** Channel 126.855 / 126.8500 MHz

In this example the number the pilot will dial into the radio will be 126.855 (pronounced ‘One’, ‘Two, ‘Six’, ‘Decimal’, ‘Eight’, ‘Five’, ‘Five’). This will distinguish it from a 25 kHz channel operating on the same transmit frequency.

For this example, the actual transmit frequency will be specified in the Aeronautical Wireless Telegraphy Act Licence and appear as 126.8500 MHz and not the channel number 126.855.