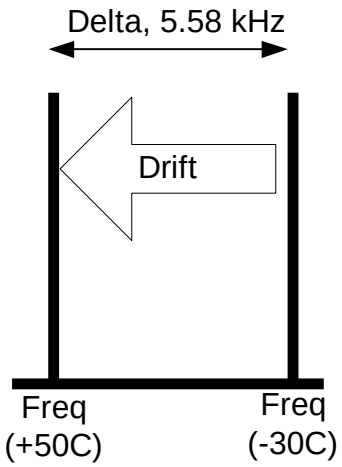
GNW7000

WCS Radio Frequency Stability Data, -30 to + 50 C

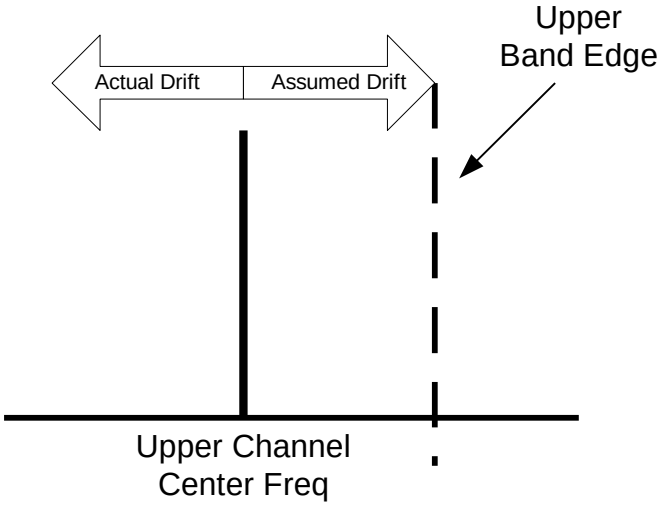
The unit was placed in a temperature chamber and the temperature of the chamber lowered to –30C. The temperature of the radios was allowed to stabilize. Once the temperature had stabilized, the center frequency of several channels (at the edge of the bands) was measured and one of the channels was monitored with a spectrum analyzer on MAX HOLD. The temperature of the chamber was then raised to +50 C and the temperature of the radios allowed to stabilize. The frequencies of the channels was then measured again and compared to the first reading. In the case of the channel that was monitored with the spectrum analyzer during the temperature change, the maximum drift could be read off the spectrum analyzer. The amount of drift of the other channels matched the drift measured by the spectrum analyzer using MAX HOLD. Therefore, all of the channels in the radio drifted the same amount and in the same direction, as excepted.



The drift data is summarized below.

Channel Center Freq(MHz)	Occ BW (MHz)	Max Drift -30 to + 50 (MHz)	Channel edge w/ Drift	WCS Band edge	Delta (MHz)
2315.2	0.32	0.00558	2315.03442	2315	0.03442
2319.36	0.32	0.00558	2319.52558	2320	0.47442
2345.76	0.32	0.00558	2345.59442	2345	0.59442
2349.76	0.32	0.00558	2349.92558	2350	0.07442

Even though the drift was always from a higher frequency to a lower one, in the case of the channels at 2319.36 MHz and 2349.76MHz, a drift in the opposite direction was assumed in order to yield a worst case result (That would be the drift moving closer to the band edge when in reality the drift would cause the radio to drift away from the band edge.



WCS Radio Emission Designation:

The WCS radio will use two modulations in the field. The two modulations are: **QPSK and 16QAM w/ Trellis coding.**

The modulation used will be selected by the radio automatically depending on what modulation the radio determines communication link can reliabily support. For example, if the link has been unreliable and packets have had to be retransmitted , then the more robust (but slower) QPSK would be used. If the link has proven to be reliable in the past,the radio may select the faster 16 QAM modulation. Therefore there are two Emission designators for the WCS radios.

16QAM w. Trellis Coding: 320kD1D
QPSK: 320kG1D