

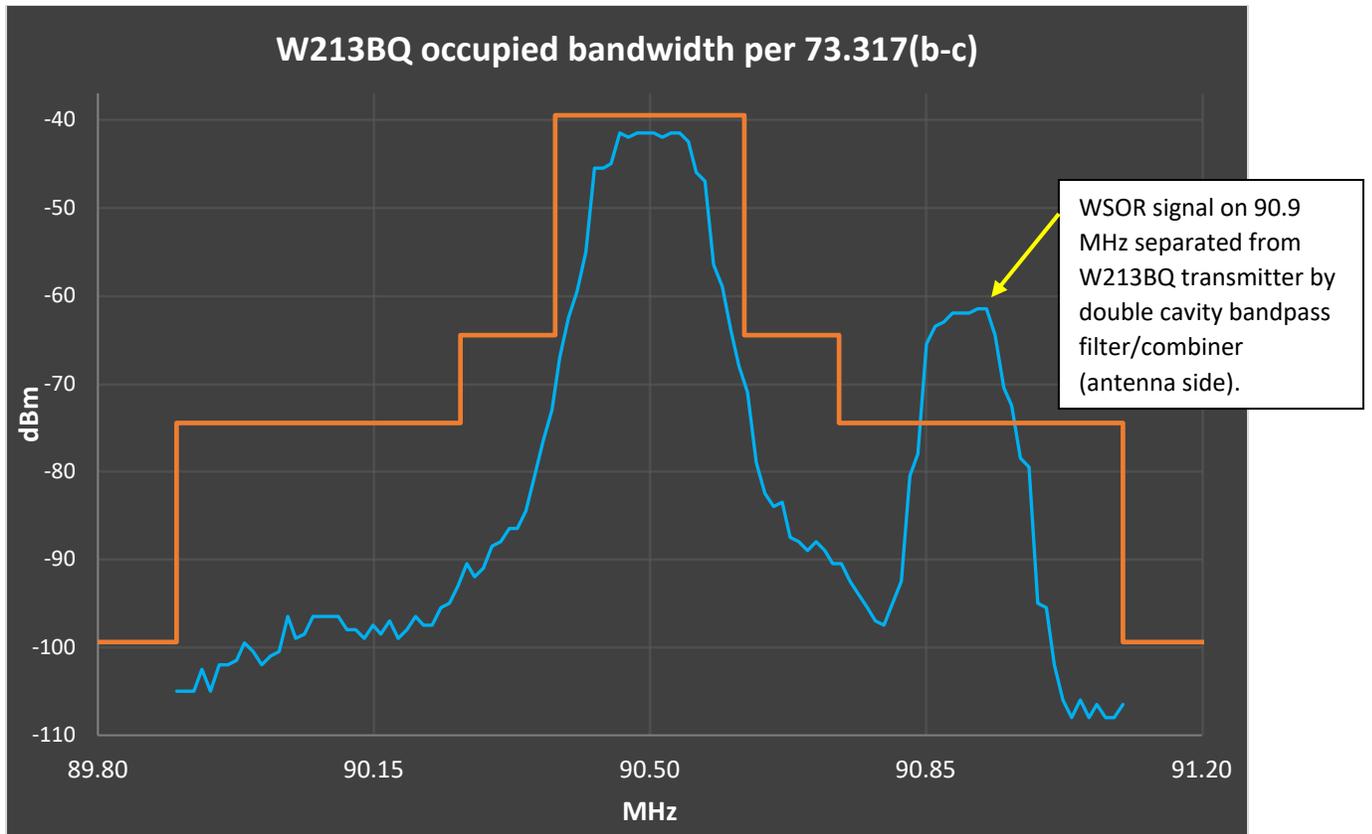
Special Operating Condition

Compliance with the spurious emissions requirements of
47 C.F.R. Sections 73.317(b) through 73.317(d)

W213BQ shares an antenna with W300EF. Measurements were made with both stations simultaneously utilizing the shared antenna. A sample of both signals was derived from a calibrated -30 dB RF coupler (Connecticut Microwave Corp. model 450128) at the output (antenna side) of the combiner (Kintronic model FMC-4X1200W-V-RS). Additional inline attenuators (Mini-Circuits models BW-N6W5+, HAT-30+, HAT-12+, HAT-6+) provided an additional 54 dB of attenuation to avoid overload per the specifications of the spectrum analyzer. Shielded RG58A/U and double-shielded LMR-240 coaxial cables connected the final attenuator to an RF Explorer WSUB1G PLUS spectrum analyzer.

The measured unmodulated carrier level of W213BQ was -39.5 dBm which was used as the reference level for all occupied bandwidth, harmonic, spurious and intermodulation measurements. With a transmitter power output of 49 watts, all harmonic, spurious and intermodulation products from the W213BQ transmitter must be attenuated by $43 + 10(\log 49) = 59.9$ dB (in this case, not to exceed an absolute maximum level of -99.4 dBm).

For occupied bandwidth measurement per 73.317(b & c), the spectrum analyzer was placed in the peak hold mode. As shown in the figure below, emissions appearing on frequencies removed from the carrier frequency by between 120 kHz and 240 kHz were attenuated by at least 25 dB below the unmodulated carrier level indicating that the occupied bandwidth of the transmitter is 240 kHz or less and emissions appearing on frequencies removed from the carrier frequency by between 240 kHz and 600 kHz were attenuated by at least 35 dB. It should be noted that the signal from WSOR on 90.9 MHz appears in this figure because WSOR's antenna is located on the same tower and this measurement is being sampled at the output of the W213BQ combiner (antenna side). The combiner inserts a dual bandpass cavity filter that attenuates the WSOR signal between the sampling coupler and the W213BQ transmitter.



Measurements were taken to verify compliance with 73.317(d) for potential intermodulation and harmonic frequency emissions and potential intermodulation products.

Because the antenna is shared with W300EF on 107.9 MHz, particular attention was given to the following frequencies for potential 3rd and 5th order intermodulation products: 55.7 MHz, 73.1 MHz, 125.3 MHz, and 142.7 MHz. To minimize the possible generation of false spurious or intermodulation products in the analyzer, tuned notch cavity filters were placed in series between the final attenuator and the analyzer resulting in 14.5 dB attenuation of the fundamental 90.5 MHz signal and 18.5 dB attenuation of the fundamental 107.9 MHz signal. All 3rd and 5th order products were below -59.9 dBc referenced to the unmodulated W213BQ carrier at -39.5 dBm:

- 55.7 MHz: < -72.5 dBc (< -112.0 dBm)
- 73.1 MHz: < -68.0 dBc (< -107.5 dBm)
- 125.3 MHz: < -69.4 dBc (< -108.9 dBm)
- 142.7 MHz: < -72.5 dBc (< -112.0 dBm)

Harmonics were measured from the 2nd to the 9th. For these measurements, a high-pass Mini-Circuits model BHP-175+ filter was placed in-line to attenuate frequencies below 160 MHz to

prevent analyzer-induced harmonic generation. All 2nd through 9th order harmonics were below -59.9 dBc referenced to the unmodulated W213BQ carrier (-39.5 dBm reference):

181.0 MHz: < -72.5 dBc (< -112.0 dBm)
271.5 MHz: < -71.5 dBc (< -111.0 dBm)
362.0 MHz: < -70.5 dBc (< -110.0 dBm)
452.5 MHz: < -69.0 dBc (< -108.5 dBm)
543.0 MHz: < -68.5 dBc (< -108.0 dBm)
633.5 MHz: < -69.0 dBc (< -108.5 dBm)
724.0 MHz: < -69.5 dBc (< -109.0 dBm)
814.5 MHz: < -69.5 dBc (< -109.0 dBm)

Since all measurements were below -59.9 dBc, W213BQ complies with the requirements of Rule 73.317(d). Therefore, no spurious emissions were observed due to the addition of the W213BQ carrier to the shared antenna and the Special Operating Condition is met.