OCCUPIED BANDWIDTH

AND SPURIOUS EMISSIONS MEASUREMENTS

K276AF Channel: 276D 103.1 MHz and K269AO Channel: 269D 101.7 MHz

Rich Parker, Director of Engineering, CoastAlaska, Inc.

On the evening of October 8, 2021, I made the equipment performance measurements contemplated in 47 CFR § 73.1590 (a & b) and described in 47 CFR § 73.317 (b-d), for collocated FM translator radio stations, K276AF and K269AO, Juneau, Alaska.

These measurements were made consequent to Special Operating Conditions in underlying Construction Permits **BLFT-19840508MA (K269AO)** and **0000153212 (**K276AF)

Measurements were initially made with unmodulated carriers to establish peak carrier level and noise floors for the measurements. Occupied bandwidth measurements were made while the stations were modulating, with broadcast programming material typical of their daily operation.

K276AF (103.1) and K276AF (101.7) operate stereophonically with no subsidiary communications services. Both signals are combined into a BEXT TFC2K-4 antenna by means of a Shively Model 2914-BR-04(4)F-04(3)F combiner which has been installed in the transmission line to prevent intermodulation.

K276AF and K269AO both operate with an Effective Radiated Power of 0.25KW H-POL. 47 CFR § 73.317 (b) & (c) requires that all signals between 120 and 240 kHz removed from the carrier be attenuated below the level of the carrier by at least 25 dB; that all signals between 240 kHz and 600 kHz removed from the carrier be attenuated by at least 35 dB below the level of the carrier; and that all signals greater than 600 kHz removed from the carrier be attenuated by at least 75 dB below the level of the carrier.

Two sets of measurements were made to assure compliance with these requirements. The first measurement looked at the spectrum between –600 kHz and 600 kHz, relative to the carrier frequency, in order to assess the station's occupied bandwidth under modulation. The second measurement scanned the spectrum from 9 kHz to 1 GHz in order to detect any out-of-band intermodulation products or harmonics. All measurements were taken with Rhode and Schwartz FPH-102055/02 Spectrum Master analyzer.

The measurement sample was taken from after the combiner using a Bird line section and a non-directional coupling slug. The coupling slug has a 6 dB per octave response.

To measure the occupied bandwidth, the spectrum analyzer was set to 101.7 MHz and to 102.103.1 Mhz center frequency, 200 kHz/div span. This results in a measurement noise floor of approximately –-85 dBC. An unmodulated carrier was used to establish the reference point at the top of the screen, the analyzer placed in the peak hold mode and modulation applied. After ten minutes of data collection, the resultant spectrum was saved and a plot made of it for each station for analysis.

A copy of these plots are included as Figures 1 and 2, below. The emission limits of 47 CFR § 73.317 (b-d) are shown on the modulated plot as red lines. It can be clearly seen from these plot that the occupied bandwidth of K276AF and K269AO lie well within the prescribed limits between –600 kHz and +600 kHz, relative to the carrier frequency.

To measure spurious signals and harmonics, the spectrum analyzer was set to 2 MHz/div span, but using the same settings as the above measurements to accomplish the same noise floor. The analyzer was initially set at 10 MHz center frequency and then incremented successively by 20 MHz to scan the spectrum from 9 kHz to 1 GHz. Any signals that were greater –75 dBC were noted and compared to a list of known transmitters in the area for elimination of ingress signals.

No such signals were noted.

In light of the above measurements I believe that K276AF and K269AO are in compliance with the requirements of 47 CFR § 73.317 (a) through (d).

Figure 1 – K269AO 101.7 Modulated Carrier

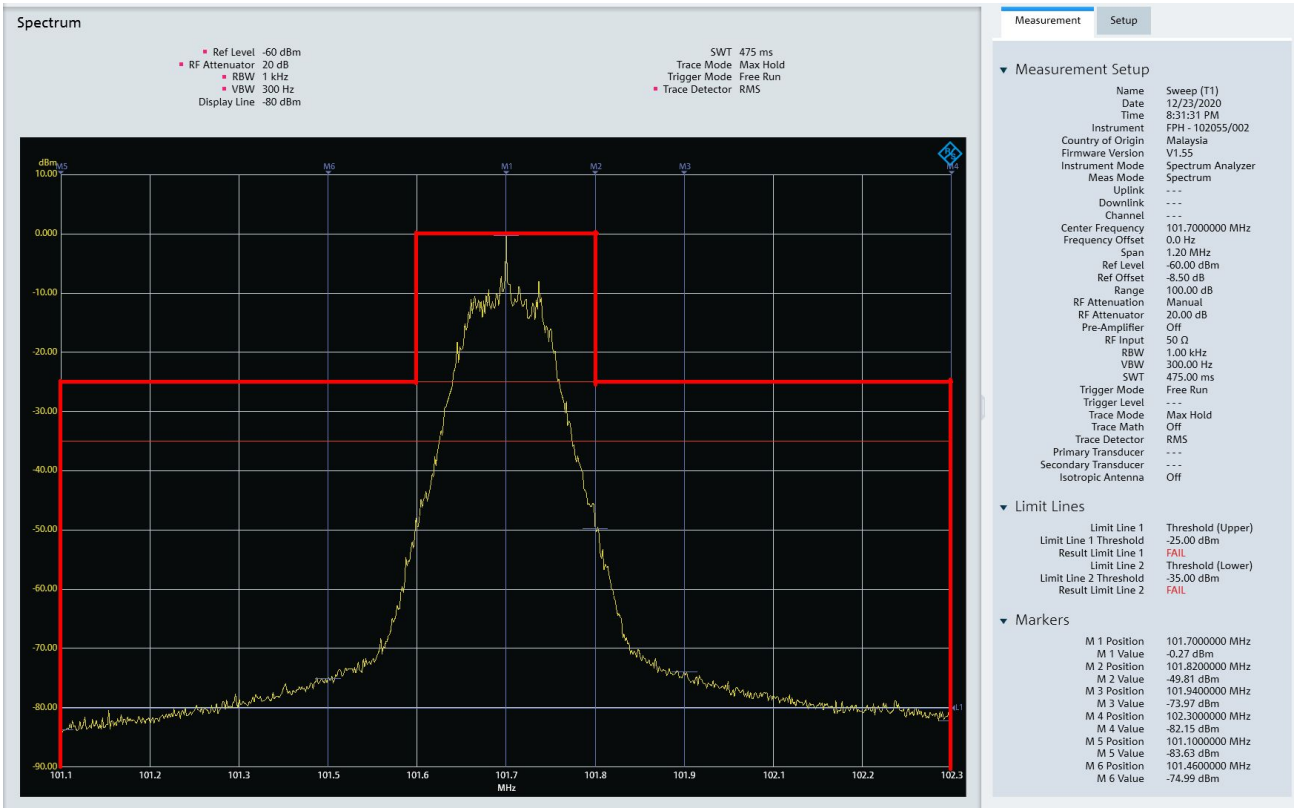
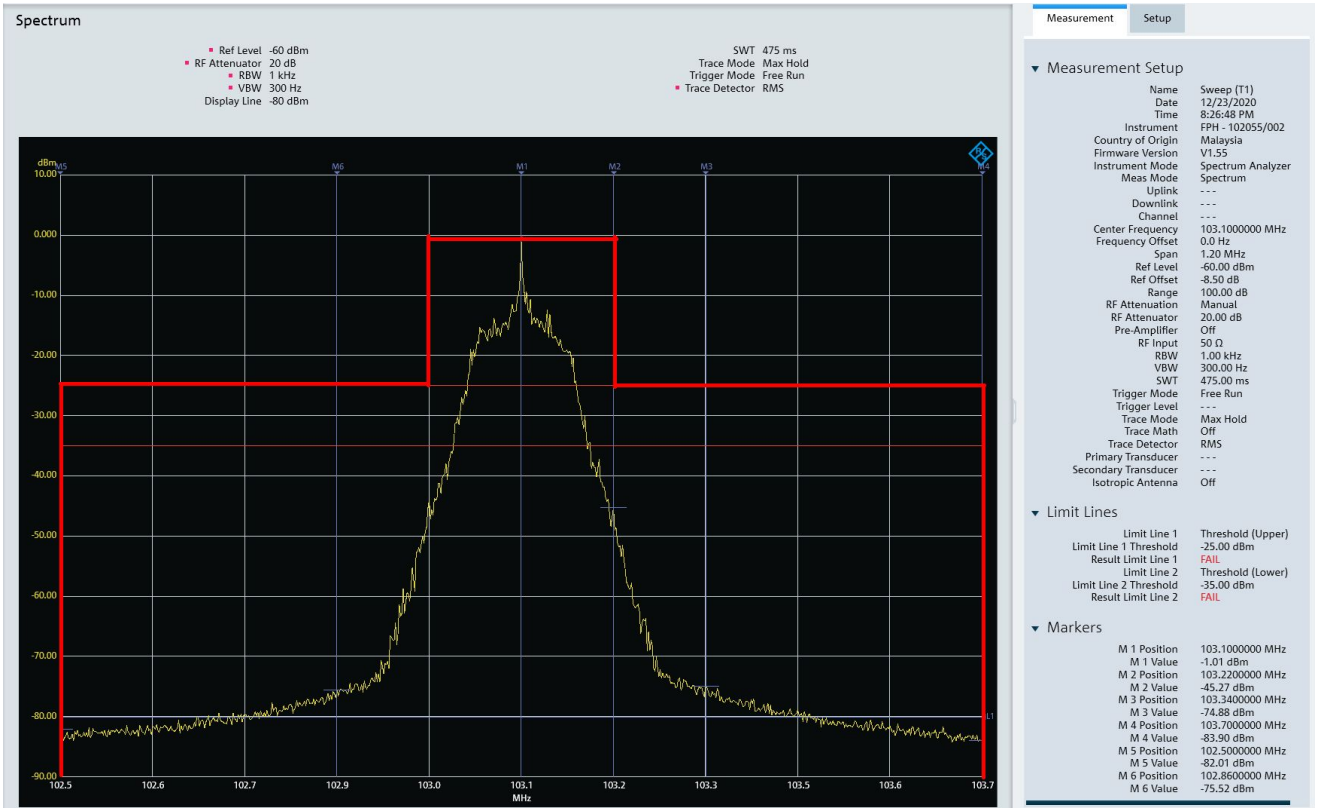


Figure 2 K276AF 103.1 Modulated Carrier



ENGINEER'S STATEMENT

I hereby affirm that: I have been retained by Capital Community Broadcasters, on behalf of CoastAlaska, Inc. to ascertain their compliance with 47 CFR § 73.1590 (a) & (b) and 47 CFR § 73.317 (b-d) and to prepare this report;

This report and associated exhibits were prepared by me, and are based on measurements made by me;

To the best of my knowledge all statements made herein are true and reflect the actual facts of the matter;

I am a Broadcast Engineer of 35 years experience and;

My qualifications are a matter of record with the Commission.

Submitted this 12 day of October 2021,

Richard Parker

Director of Engineering

CoastAlaska, Inc.