RADIO & TV BROADCAST SERVICES

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2021

FM OCCUPIED BANDWIDTH AND SPURIOUS EMISSIONS MEASUREMENTS

K264BR – KSKR FILL-IN TRANSLATOR

3 September 2021

MEASUREMENT REPORT

On the morning of September 3, 2021, equipment performance measurements were gathered as contemplated in 47 CFR §73.1590 (a & b) and described in 47 CFR §73.317 (b-d), for translator K264BR located on Mt. Nebo in Roseburg, Oregon. These measurements were made subsequent to the installation of a fill-in translator for KQEN.

Measurements were made while the station was broadcasting programming material typical of its daily operation. K264BR operates sterophonically with no SCA's. K264BR was operating at its full permitted power of 250 Watts, ERP and 80 Watts transmitter output power. Both K264BR and K230CG operate into a combined filter system and a shared broadband antenna.

MEASUREMENT PROCEDURE:

A sample of the K264BR transmitter signal was taken at the output of calibrated Bird 43 watt meter at the sample port provided by the manufacturer.

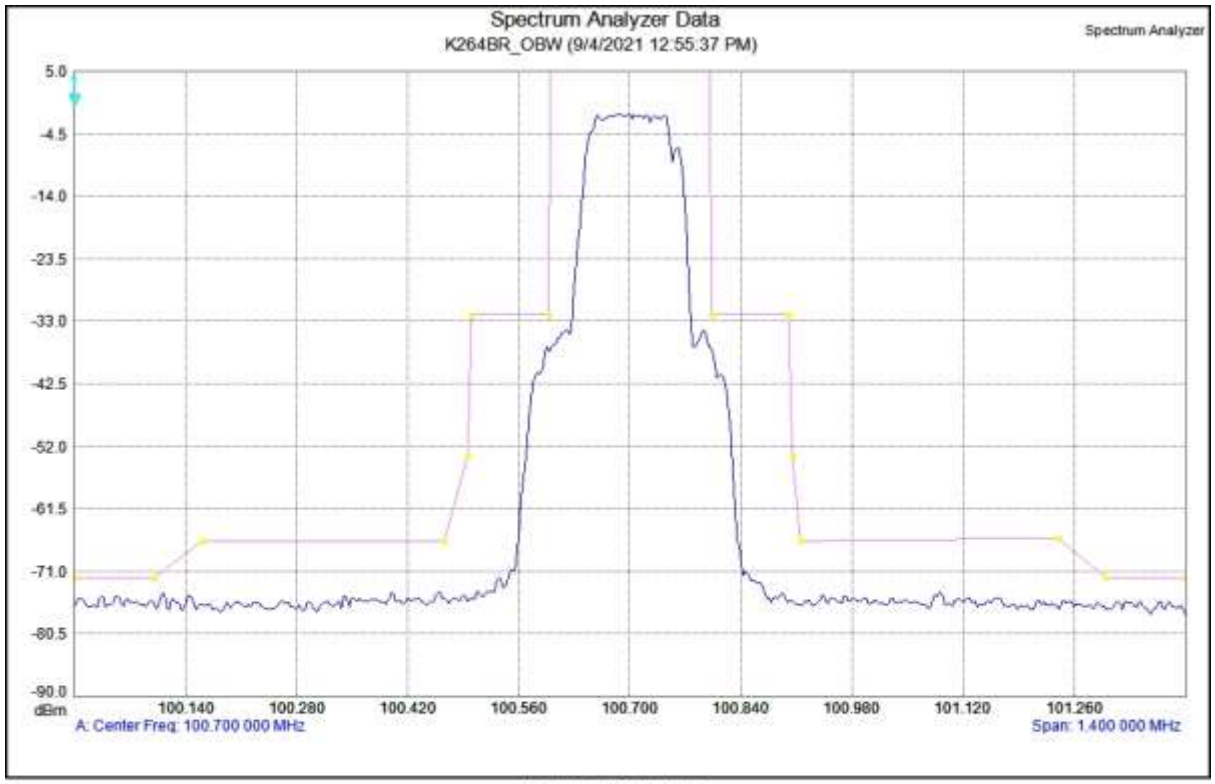
This sample was fed to a Anritsu M2713E spectrum analyzer, (S/N 1016084), within current calibration. The analyzer was set to a center frequency of 100.7 MHz, span of 1.5 MHz, resolution bandwidth of 1 kHz, video filtering of 3 kHz and using a peak detector. An un-modulated carrier was used to set the reference level at the top of the screen. Modulation was then applied and the analyzer set to peak hold mode and allowed to collect data for 10 minutes. The resulting plot was saved in the analyzer's memory and a copy is included below as Figure 1.

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 76.9 dB below the level of the carrier. These limits are superimposed on the plot.

The plot readily shows that that the occupied bandwidth of the K264BR signal lies within the limits established in 47 CFR § 73.317 (b) & (c) at frequencies removed from the carrier as much as 600 kHz.

The spectrum analyzer was set to 20 MHz span, 1 kHz resolution bandwidth, and 3 kHz video filtering to measure spurious signals and harmonics beyond 600 kHz from the carrier. At this resolution bandwidth, the internal noise of the analyzer is reduced sufficiently to resolve signals below -62 dBC. 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 than –62 dBC were noted. No such signals were found. No inter-modulation products, spurious signals or harmonics were found that could be attributed to the operation of K264BR.

In light of the above measurements I believe that K264BR is in full compliance with the requirements of 47 CFR § 73.317 (a) through (d).



Measurement Parameters

		Stop Frequency	101.400 000 MHz
Trace Mode	Max Hold	Frequency Span	1.400 000 MHz
Preamp	OFF	Reference Level	8.001 dBm
Min Sweep Time	0.1 S	Scale	10.0 dB/div
Reference Level Offset	0 dB	Serial Number	1016084
Input Attenuation	30.0 dB	Base Ver.	V5.79
RBW	10.0 kHz	App Ver.	V7.04
VBW	1.0 kHz	Model	MS2713E
Detection	Peak	Options	10, 21, 31
Center Frequency	100.700 000 MHz	Date	9/4/2021 12:55:37 PM
Start Frequency	100.000 000 MHz	Device Name	jacob

REFERENCE:

§ 73.317FM transmission system requirements.(a) FM broadcast stations employing transmitters authorized after January 1, 1960, must maintain the bandwidth occupied by their emissions in accordance with the specification detailed below. FM broadcast stations employing transmitters installed or type accepted before January 1, 1960, must achieve the highest degree of compliance with these specifications practicable with their existing equipment. In either case, should harmful interference to other authorized stations occur, the licensee shall correct the problem promptly or cease operation.(b) Any emission appearing on a frequency removed from the carrier by between 120 kHz and 240 kHz inclusive must be attenuated at least 25 dB below the level of the unmodulated carrier. Compliance with this requirement will

be deemed to show the occupied bandwidth to be 240 kHz or less.(c) Any emission appearing on a frequency removed from the carrier by more than 240 kHz and up to and including 600 kHz must be attenuated at least 35 dB below the level of the unmodulated carrier.(d) Any emission appearing on a frequency removed from the carrier by more than 600 kHz must be attenuated at least $43 + 10 \text{ Log}_{10}$ (Power, in watts) dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

TRANSMITTER T.P.O. CALCULATION:

K264BR calculated transmitter output power is 80 Watts. Total transmitter power output was calculated using the direct method and was found to match the transmitter front panel display as depicted in figure 1.

Figure 1

ENGINEER'S STATEMENT:

I hereby affirm that:

I have been retained by Brooke Communications, Inc., licensee of K264BR, to ascertain its station's 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 30 years experience and certified with the Society of Broadcast Engineers as a Certified Professional Broadcast Engineer (CPBE) member No. 16407 and;

My credentials are contained in other filings and are a matter of public record with the Federal Communications Commission.

Respectfully submitted this 3rd day of September 2021,

Thomas A Woods Jr.

ELECTRONIC SIGNATURE

Thomas A. Woods Jr.