Proof of Performance Report

K269GH Nephi UT

FIN: 140501

101.7 MHz

August 21, 2023

Introduction

The licensee for the K269GH (file number 0000177564) license is Sanpete County Broadcasting. Beau Lund completed the K269GH combiner proof of performance.

Test Equipment

- Anritsu MS2721B/20 Spectrum Analyzer, Serial Number 1026135
- AAT Directional Coupler
- Mini-Circuits High Pass filters
- FM 2-Pole Bandpass Filter

Station Equipment

- FM Transmitter
- Bext FM Combiner System
- Nicom FM Antenna

Summary

Harmonics, Intermodulation, Spurious, and Occupied Bandwidth emissions measurements were completed at the output of the transmission network. The K271DB transmitter was operating at 100% power during the time of measurements. The measurements were completed to ensure compliance with the requirements of FCC Part 73.317.

Affidavit

I, Beau Lund, do affirm that:

1. I have been engaged in RF engineering and installation of broadcast facilities since 2008.

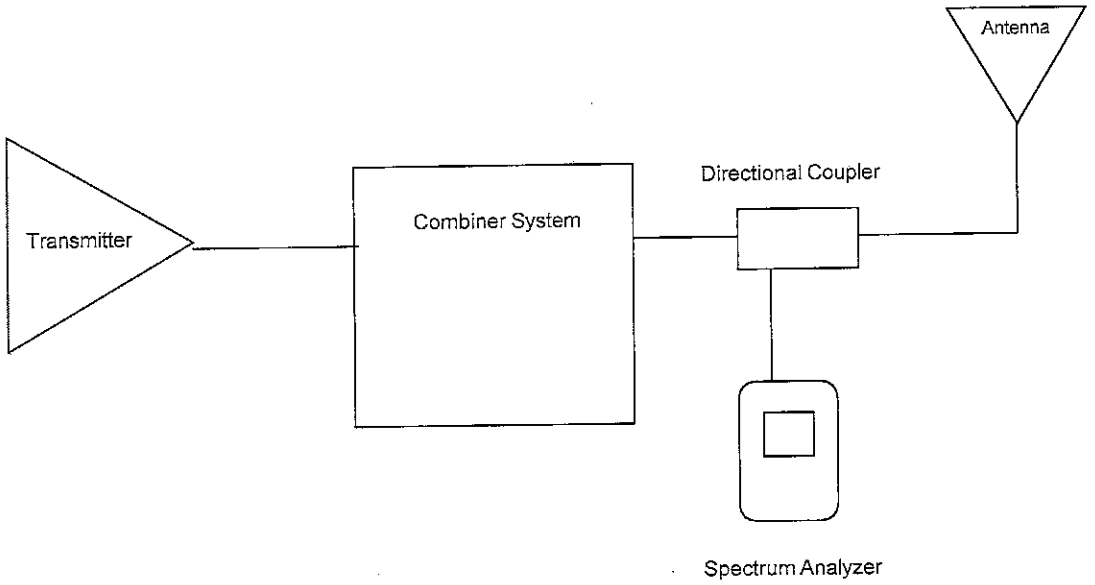
2. I hold a Bachelor of Science degree in Electrical Engineering from the University of Utah.

3. I further declare, under penalty of perjury, that the statements contained herein are true and correct to the best of my knowledge.

X

Measurement Diagrams

Harmonic Emissions & Spurious Emissions Measurement Configuration



Measurement Results

Fundamental Frequency Measurement

Assigned Frequency	101.7000000	MHz	Variance in Hz
Measured Frequency	101.7004510	MHz	451

Measurement Methodology

To ensure accurate measurements, the frequency response of all couplers, RF filters, and sample ports were measured. The resulting dB characteristics were added to the recorded spectrum analysis measurements to ensure accurate calculations.

The test instrument reference point of the fundamental frequency is 0.00 dBm. The characteristics of the directional coupler forward sample-port is a dB reference relative to the fundamental frequency. Therefore, the directional coupler forward sample-port loss or gain, high pass filter loss, and dB reference point are added to the instrument measurement to provide the resulting dBc calculation.

Harmonic Emissions Measurement

Harmonic	Frequency (MHz)	Directional Coupler (dB)	High Pass Filter (dB)	Reference Level	Instrument Reading (dB)	Corrected Measurement (dBc)	FCC Limit (dBc)	Clearance (dB)
X2	203.40	-5.99	0.50	2.27	-54.67	**-57.89**	-54.76	**3.13**
X3	305.10	-9.46	0.40	2.27	-55.29	**-62.08**	-54.76	**7.32**
X4	406.80	-11.87	0.30	2.27	-54.98	**-64.28**	-54.76	**9.52**
X5	508.50	-13.70	0.10	2.27	-54.04	**-65.37**	-54.76	**10.61**
X6	610.20	-15.18	0.10	2.27	-54.98	**-67.79**	-54.76	**13.03**
X7	711.90	16.40	0.10	2.27	-53.73	**-34.96**	-54.76	**-19.80**
X8	813.60	-17.42	0.10	2.27	-54.04	**-69.09**	-54.76	**14.33**
X9	915.30	-18.28	0.20	2.27	-53.10	**-68.91**	-54.76	**14.15**

Intermodulation Emissions Measurements

The K269GH transmission circuit was analyzed using an Anritsu MS2721B/20 spectrum analyzer while all combiner circuits operated at 100% power. The K269GH transmission circuit meets the intermodulation spurious emissions requirements.

IM Frequency (MHz)	Directional Coupler (dB)	Band Pass Filter (dB)	Reference Level (dB)	Instrument Reading (dB)	Corrected Measurement (dBc)	FCC Limit (dBc)	Clearance (dB)
94.5	0.00	0.00	0.00	-74.23	**-71.96**	-54.76	**19.47**
105.3	0.00	0.00	0.00	-73.59	**-71.32**	-54.76	**18.83**