Proof of Performance Report

K298AW Sevier, UT

FIN: 145327

107.5 MHz

November 25, 2020

Stephen Wilde
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Introduction

The permittee for the K298AW Sevier, UT (file number 0000112366) construction permit is Sanpete Country Broadcasting Company. Stephen Wilde completed the K298AW combiner proof of performance.

Test Equipment

- Agilent N9912A Spectrum Analyzer, Serial Number MY51464885
- AAT Directional Coupler
- Mini-Circuits High Pass filters
- FM 2-Pole Bandpass Filter

Station Equipment

- Nautel FM Transmitter
- 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 K298AW transmitter was operating at 100% power during the time of measurements. The measurements were completed in order to ensure compliance with the requirements of FCC Part 73.317.

Affidavit

STATE OF CALIFORNIA
Sacramento County

I, Steve Wilde, do affirm that:

1. I have been engaged in the RF engineering and installation of broadcast facilities since 2005.
2. I hold Bachelor of Science degree in Electrical Engineering from DeVry University Chicago, IL.
3. I further declare, under penalty of perjury, that the statements contained herein are true and correct to the best of my knowledge.

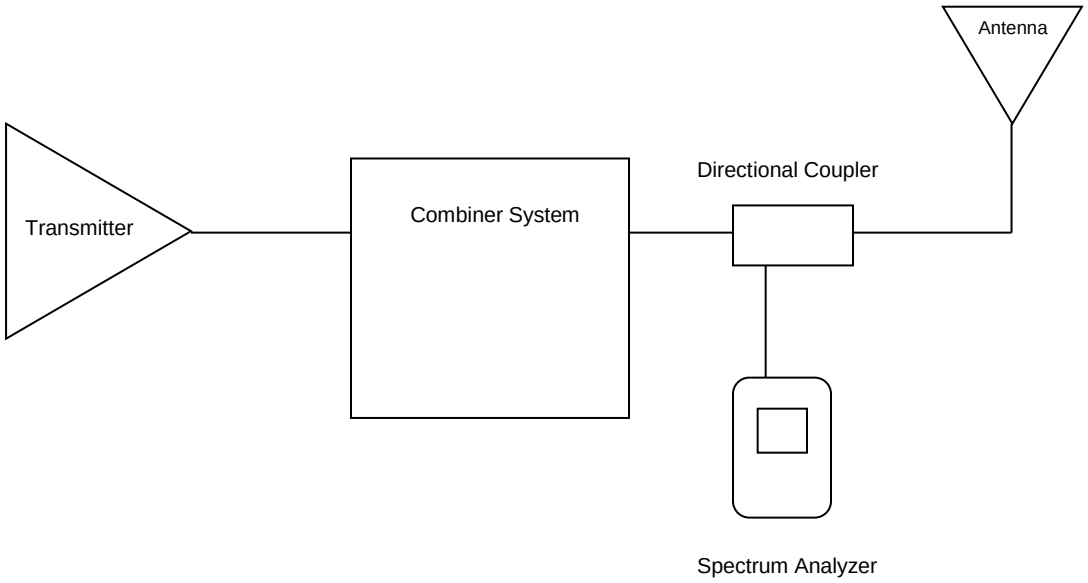
Stephen Wilde
SWE Services, LLC
November 25th 2020

X

Stephen Wilde

Measurement Diagrams

Harmonic Emissions & Spurious Emissions Measurement Configuration



Measurement Results

Fundamental Frequency Measurement

Assigned Frequency	107.5000000	MHz	Variance in Hz
Measured Frequency	107.5001311	MHz	131.1

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 (dB)	Instrument Reading (dB)	Corrected Measurement (dBc)	FCC Limit (dBc)	Clearance (dB)
X2	215.00	0.06	0.50	0.00	-95.10	**-94.54**	-65.67	**28.87**
X3	322.50	1.26	0.40	0.00	-99.33	**-97.67**	-65.67	**32.00**
X4	430.00	3.86	0.30	0.00	-110.10	**-105.94**	-65.67	**40.27**
X5	537.50	6.66	0.10	0.00	-92.00	**-85.24**	-65.67	**19.57**
X6	645.00	8.96	0.10	0.00	-95.66	**-86.60**	-65.67	**20.93**
X7	752.50	11.16	0.10	0.00	-97.55	**-86.29**	-65.67	**20.62**
X8	860.00	11.96	0.10	0.00	-110.00	**-97.94**	-65.67	**32.27**
X9	967.50	13.26	0.20	0.00	-111.88	**-98.42**	-65.67	**32.75**

Intermodulation Emissions Measurements

The K298AW transmission circuit was analyzed using an Agilent N9912A spectrum analyzer while all combiner circuits operated at 100% power. The K298AW transmission circuit meets or exceeds 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)
123.3	0.00	0.00	0.00	-95.80	**-95.80**	-65.67	**30.13**
119.3	0.00	0.00	0.00	-92.16	**-92.16**	-65.67	**26.49**
99.7	0.00	0.00	0.00	-86.03	**-86.03**	-65.67	**20.36**
87.7	0.00	0.00	0.00	-81.03	**-81.03**	-65.67	**15.36**
83.9	0.00	0.00	0.00	-97.05	**-97.05**	-65.67	**31.38**
75.9	0.00	0.00	0.00	-97.10	**-97.10**	-65.67	**31.43**