

CLASS D FM EQUIPMENT PERFORMANCE MEASUREMENT REPORT

KXRY, Portland, OR

Measurements taken: August 17 & 19, 2022

BROWN BROADCAST SERVICES

INCORPORATED

Michael D. Brown

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TECHNICAL STATEMENT/RESULTS

On August 17 and 19, 2022, I performed RF emissions equipment performance measurements on KXRY, Portland, OR, to show compliance with FCC Rules 47 CFR §73.317(a), (b), (c), and (d).

The results of these tests, contained herein, show that at the time of the measurements, KXRY appeared to met all standards as set forth in §73.317(a), (b), (c), and (d).

These measurements are required as a Special Operating Condition in the underlying Construction Permit - 0000152112. This report is being submitted as part of the FCC Form 2100, Schedule 302-FM (Application for a Station License), as required by the CP.

KXRY is diplexed into a common antenna with KSFL-LP, Portland, OR. Both stations were operating at their approved ERP levels during all tests.

The data and exhibits contained herein were compiled and prepared by me, and that I believe them to be a true and accurate representation of the facts as evident at the time of the measurements.

Michael D. Brown

A handwritten signature in black ink, appearing to read "Michael D. Brown", with a long horizontal flourish extending to the right.

Brown Broadcast Services, Inc.

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MEASUREMENT PROCEDURE OVERVIEW

This report seeks to accurately assess the performance of the FM transmission system. The emissions mask limits are:

± 120 to 240 kHz	≥ -25db below carrier level
± 240 to 600 kHz	≥ -35db below carrier level
± 600kHz and beyond	≥ -43 +10log(power in watts) or 62.5db, whichever is the lesser attenuation

For the 90W ERP employed, the limit for ± 600kHz and beyond is -62.5dbc (below carrier).

All measurements were taken during normal audio programming, with both stations operating at their rated powers. A Keysight/Agilent N9340B swept-frequency spectrum analyzer was employed. To begin, a reference level was established using the following setup during normal programming:

Span:	2MHz
Resolution Bandwidth:	1MHz
Video Bandwidth:	1MHz
Detection:	Positive Peak
Trace A:	Max Hold
Preamp:	Off

For the occupied bandwidth measurements:

Span:	2MHz
Resolution Bandwidth:	1kHz
Video Bandwidth:	1kHz
Sweep:	Auto
Attenuation:	Auto
Detection:	Positive Peak
Trace A:	Max Hold
Preamp:	Off

Plots were examined up to 525MHz.

The spectrum analyzer exhibited sufficient linearity, such that a notch filter was deemed unnecessary during measurements of possible harmonics and intermodulation products.

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GENERAL DATA

STATION CALL LETTERS: KXRY
CITY OF LICENSE: Portland
STATE OF LICENSE: OR
FREQUENCY: 91.1Mhz
TRANSMITTER LOCATION: Weatherly Building, 516 S.W. Morrison St., Portland, OR
45:31:01N, 122:39:37W
TRANSMITTER: Crown FM600
ERP: 90W
TRANSMITTER TPO: 317W
COMBINER SYSTEM: Telewave 2 section combiner w/4x 1005-1 filters --
combined with KSFL-LP, 99.1MHz, Portland, OR
DATE OF MEASUREMENTS: August 17 & 19, 2022
MEASUREMENT POINT: RF sample port directional coupler

TEST EQUIPMENT EMPLOYED

Keysight/Agilent N9340B Spectrum Analyzer, serial #CN0349A283
Narda 771-6 6db 50Ω inline pad
Bird Model 43 Line Section
Coaxial Dynamics 87015, -50dB directional coupler slug - flat ±1dB to 500MHz

POWER OUTPUT CALCULATIONS

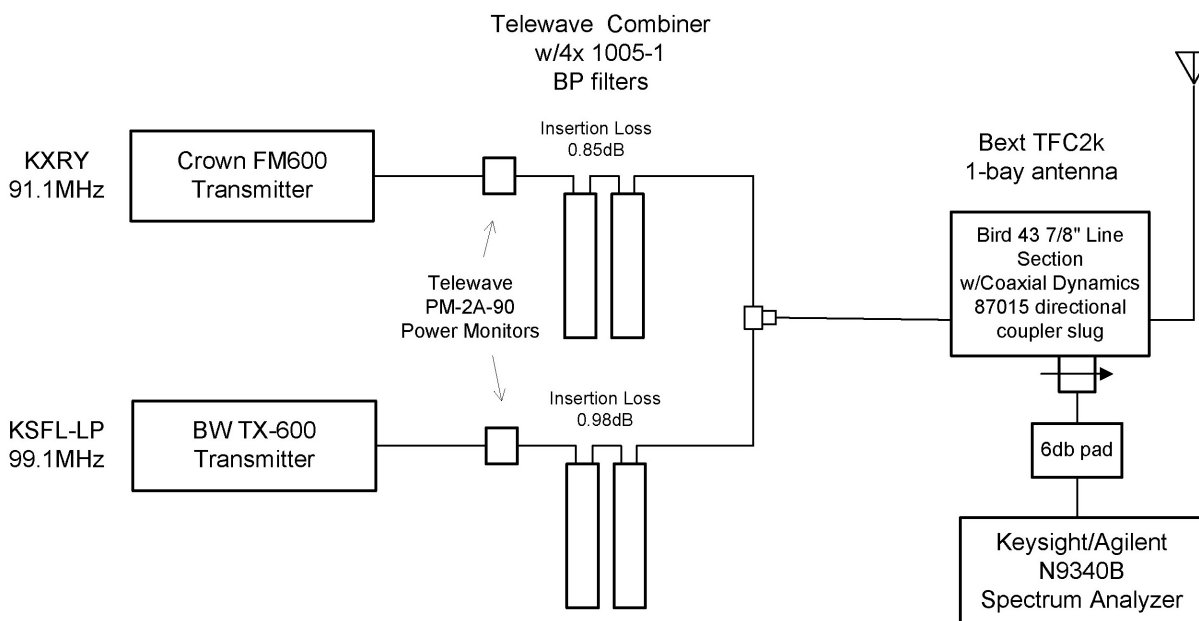
Transmission line: LMR400
Length: 82ft
Loss: -0.964dB
Power dissipated in line: 63w
Other losses: -0.15dB - (3 pairs of N-connectors @0.05db)
Other losses: -0.1dB - lightning arrestor
Other losses: -0.85dB - combiner
Antenna: Bext TFC2K
Bays: 1
Bay Spacing: 1
System ERP: 90w
Transmitter Output: 317w

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TEST SETUP



DATA ANALYSIS

SPURIOUS AND HARMONIC RADIATIONS

	FREQ	SIGNAL	REL	COMMENTS
CARRIER:	91.1MHz	-2.9dBm	peak ref	--
2nd HARMONIC:	182.2MHz	unreadable	--	FCC SPEC: -62.5dbc - OK
3rd HARMONIC:	273.3MHz	unreadable	--	FCC SPEC: -62.5dbc - OK
4th HARMONIC:	364.4MHz	unreadable	--	FCC SPEC: -62.5dbc - OK
5th HARMONIC:	455.5MHz	unreadable	--	FCC SPEC: -62.5dbc - OK

OTHER SPURIOUS & INTERMOD PRODUCTS:

None were found. All frequencies from 50MHz to 525MHz were examined. There were no unidentified products (e.g.: local radio stations) found above the analyzer noise floor (approximately -75dBc).

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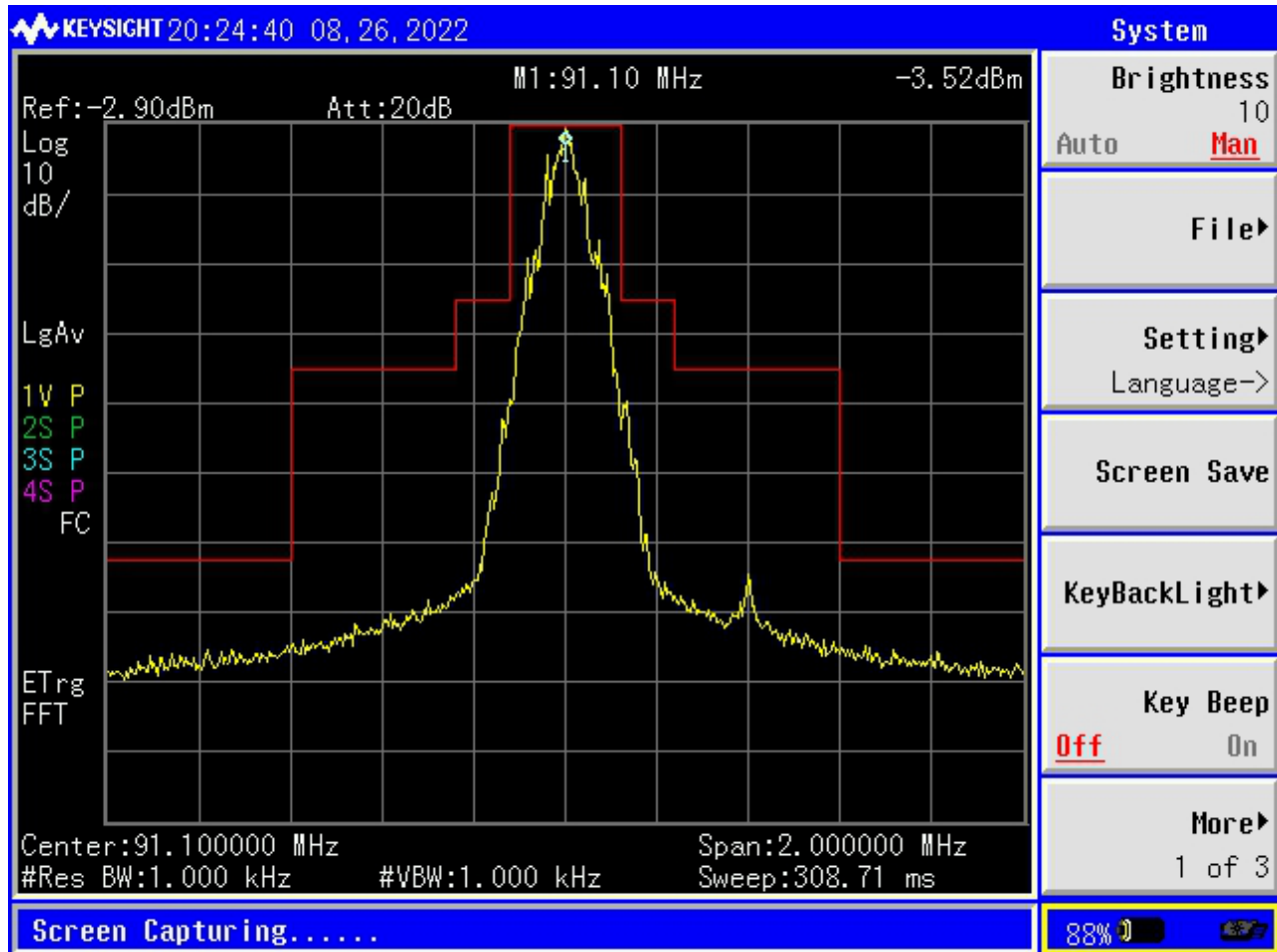
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PLOT 1

200khz/div



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