

2023

SURVEY OF

AM EMISSION NRSC-2

PERFORMANCE

FOR

KCRO 660-AM RADIO

BY
VAL LANE
CENTRAL ELECTRONICS
1911 CENTRAL AVE.
KEARNEY, NE 68847
308-236-7201
1/08/2023

AM EMISSION MEASUREMENT DATA SHEET

MISSION PERFORMANCE MEASUREMENTS AS REQUIRED BY THE FCC RULES 73.44 AND 73.1590
 WERE TAKEN ON STATION KCRD, FREQUENCY 660 KHz, KW 1, GMND/DA
1 1-8-23 BETWEEN 11:50 am AND 12:05 pm LOCAL TIME.
 MONITOR POINT LOCATION Apr. 2 mile SW of Tower

METHODOLOGY
 MEASURING VAN WAS DRIVEN TO A LOCATION APPROXIMATELY ONE KILOMETER FROM THE TOWER SITE, OR AS INDICATED ABOVE. A MODEL LP-3 SHIELDED LOOP ANTENNA, MANUFACTURED BY CHRIS SCOTT AND ASSOCIATES WAS USED FOR THESE MEASUREMENTS. THE ANTENNA WAS ROTATED TO GIVE MAXIMUM SIGNAL FROM THE STATION UNDER TEST, WHILE OTHER SIGNALS WERE WATCHED TO SEE IF THEIR LEVELS INCREASED OR DECREASED FROM THE STATION UNDER TEST. A ANRITSU MS2711D SPECTRUM ANALYZER WAS USED. DURING BANDWIDTH MEASUREMENTS A RESOLUTION BANDWIDTH OF 300 Hz WAS USED AND A CHRIS SCOTT LOW LOSS AM NOTCH FILTER MAY HAVE BEEN USED TO IMPROVE THE +/- 75 KHz PLUS, NOISE FLOOR READINGS. FOR HARMONIC MEASUREMENTS, TO MINIMIZE INTERMODULATION CREATED IN THE "FRONT END" OF THE ANALYZER, A MEDIUM FREQUENCY NOTCH FILTER WAS USED. BEFORE EACH HARMONIC MEASUREMENT WAS TAKEN THE FILTER WAS APPLIED AND TUNED FOR THE BEST NULL AT THE CARRIER FREQUENCY. THE FILTER HAS BEEN TESTED AND HAS LITTLE OR NO ATTENUATION OR INSERTION LOSS AT THE HARMONIC FREQUENCIES.

BANDWIDTH MEASUREMENTS

CARRIER	ABSOLUTE	NORMALIZED	FCC LIMIT
CARRIER	<u>-39.55 dBm</u>	0	0
10.2 KHZ			-25 dBc
20 KHZ			-35 dBc
30 KHZ	<u>All Pass OK.</u>	<u>Sec KCRD-1 mask.</u>	-35 dBc
KHZ			-45 dBc
50 KHZ			-55 dBc
60 KHZ			-65 dBc
>75 KHZ			-73

HARMONIC MEASUREMENTS

CARRIER	FREQ.	ABSOLUTE	NORMALIZED	FCC LIMIT
CARRIER		<u>660 KHz</u>	<u>-39.55</u>	0
SECOND		<u>1320</u>	<u>-124.24</u>	<u>-73</u>
THIRD		<u>1980</u>	<u>-126.90</u>	<u>-87.35</u>
FOURTH		<u>2460</u>	<u>-126.30</u>	<u>-86.75</u>
FIFTH		<u>3300</u>	<u>-126.83</u>	<u>-87.28</u>

- WITH MEDIUM NOTCH FILTER
- WITH MEDIUM NOTCH FILTER
- WITH MEDIUM NOTCH FILTER

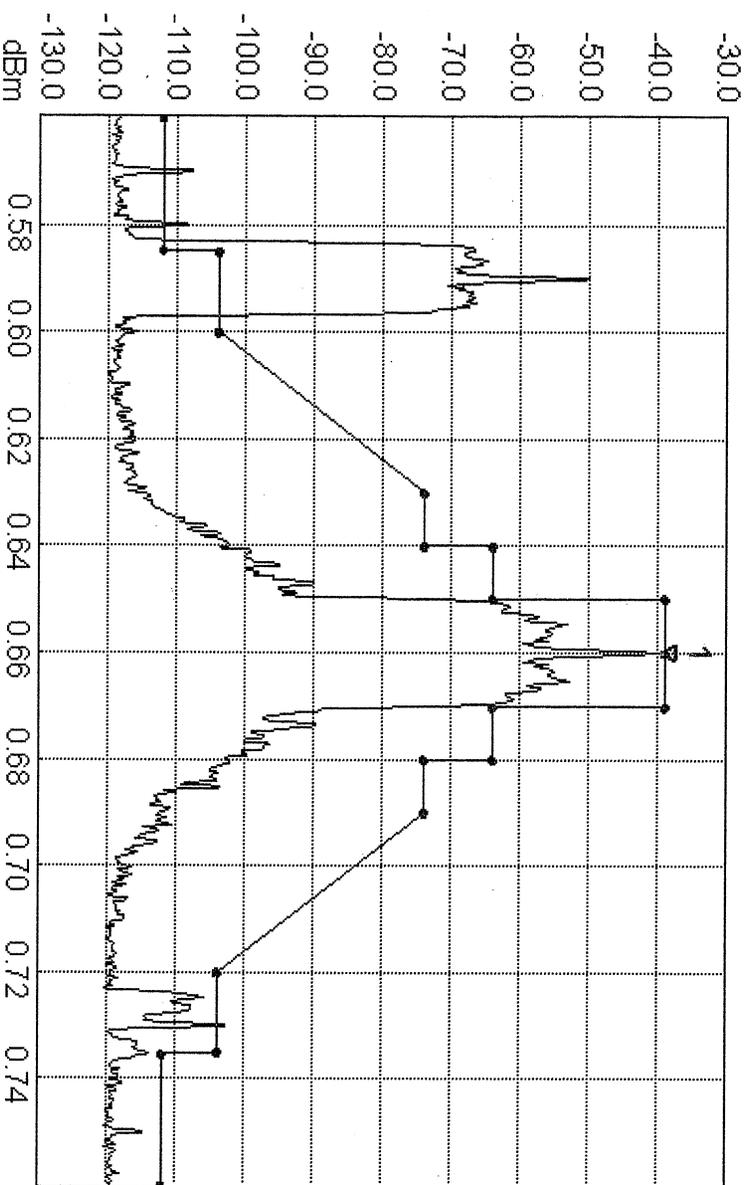
TEST LIMITS 5KW PLUS -80DB, 2.5KW -77DB, 1KW -73DB, 500 WATT -70DB, 250 WATT -67DB, 158 LESS -65DB.
 FREQUENCY MEASUREMENT -2 Hz SIGNATURE Val K DATE 1-8-23

PASS TEST OK / DID NOT PASS

Spectrum Analyzer Data

KCRO-1 (1/8/2023 11:56:19 AM)

Spectrum Analyzer



Center Freq: 660.000 KHz

Span: 200.000 KHz

Mkr	Ref Delta	Ref Freq	Ref Amp	Delta Freq	Delta Amp
1	<input checked="" type="checkbox"/>	660.000 0 KHz	-39.55 dBm	--	--
2	<input type="checkbox"/>	--	--	--	--
3	<input type="checkbox"/>	--	--	--	--
4	<input type="checkbox"/>	--	--	--	--
5	<input type="checkbox"/>	--	--	--	--
6	<input type="checkbox"/>	--	--	--	--

Trace A data:

Trace Mode = Max Hold

Preamplifier = OFF

Min Sweep Time = 0.001 S

Reference Level Offset = 0 dB

Input Attenuation = 0.0 dB

RBW = 300.0 Hz

VBW = 100.0 Hz

Detection = Peak

Center Frequency = 660.000 000 KHz

Start Frequency = 560.000 000 KHz

Stop Frequency = 760.000 000 KHz

Frequency Span = 200.000 000 KHz

Reference Level = -30.000 dBm

Scale = 10.0 dB/div

Serial Number = 802149

Base Ver. = V4.32

App Ver. = V5.73

Model = MT8222A

Options = 19, 25, 27, 31, 37, 66, 67

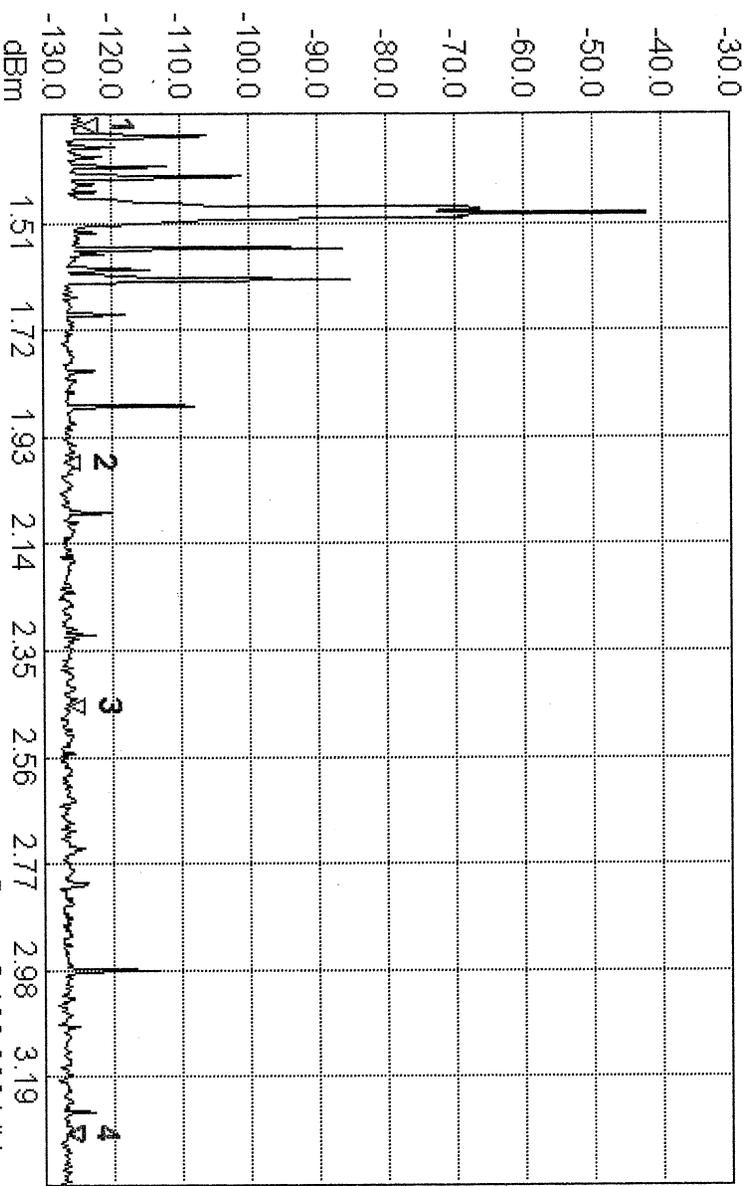
Date = 1/8/2023 11:56:19 AM

Device Name = VAL-MT8222A

Spectrum Analyzer Data

KCRO-2 (1/8/2023 12:01:30 PM)

Spectrum Analyzer



Mkr	Ref Delta	Ref Freq	Ref Amp	Delta Freq	Delta Amp
1	<input checked="" type="checkbox"/>	1.320 0 MHz	-124.24 dBm	--	--
2	<input checked="" type="checkbox"/>	1.980 0 MHz	-126.90 dBm	--	--
3	<input checked="" type="checkbox"/>	2.460 0 MHz	-126.30 dBm	--	--
4	<input checked="" type="checkbox"/>	3.300 0 MHz	-126.83 dBm	--	--
5	<input type="checkbox"/>	--	--	--	--
6	<input type="checkbox"/>	--	--	--	--

Trace A data:
 Trace Mode = Normal
 Preamplifier = OFF
 Min Sweep Time = 0.001 S
 Reference Level Offset = 0 dB
 Input Attenuation = 0.0 dB
 RBW = 300.0 Hz
 VBW = 10.0 Hz
 Detection = Peak
 Center Frequency = 2.350 000 MHz
 Start Frequency = 1.300 000 MHz

Stop Frequency = 3.400 000 MHz
 Frequency Span = 2.100 000 MHz
 Reference Level = -30.000 dBm
 Scale = 10.0 dB/div
 Serial Number = 802149
 Base Ver. = V4.32
 App Ver. = V5.73
 Model = MT8222A
 Options = 19, 25, 27, 31, 37, 66, 67
 Date = 1/8/2023 12:01:30 PM
 Device Name = VAL-MT8222A