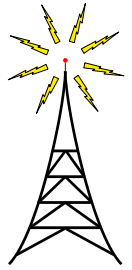


**D<sup>2</sup>**

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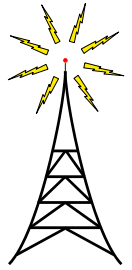


**FCC NRSC-2  
EMISSIONS MEASUREMENTS**

**WFSC-AM  
Franklin, NC  
December 30, 2019**



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**WFSC-AM**  
**Franklin, NC**  
**December 30, 2019**

**Qualifications**

**Daniel L. Davis deposes and says:**

**That he prepared the attached exhibit and that all work contained in that exhibit is true of his knowledge and belief, and as to such statements made on belief, they are believed to be true.**

**That he currently holds a F.C.C. General Class Radiotelephone License and had held a FCC First Class Radiotelephone License for ten years prior to receiving the General Class License in 1985. He also holds Professional Broadcast Engineer certification through the Society of Broadcast Engineers, and has been a member of the SBE since 1983.**

**That he received the degree of Master of Education from the University of Georgia in 1978, and that his undergraduate program of study was strong in Mathematics and Physics.**

**That he has been involved in the technical aspects of broadcasting since 1975, and has performed design, installation, project management, troubleshooting, and maintenance on broadcast facilities, including compliance measurements in connection with this work.**

**MEMBER IEEE**

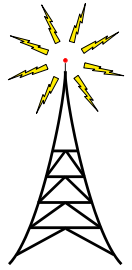



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**Daniel L. Davis      12/30/2019**  
**FCC Lic. No. PG-6-14509**  
**SBE CPBE No. 50651**  
**GA Lic. No. LVU-003485**



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**Franklin, NC**  
**December 30, 2019**

**AM BROADCAST STATION**  
**EMISSIONS MEASUREMENTS**  
**PROCEDURES**

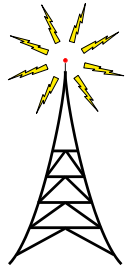
**A suitable location was chosen within the main lobe of the transmitting antenna. A Chris Scott model LP-3 calibrated loop antenna was used. The antenna is non-resonant in the AM broadcast band, making it appropriate for measuring emissions near the carrier, with high accuracy. For initial harmonics detection, a roof mounted whip antenna was used.**

**NRSC measurements were conducted using an Anritsu model MS2721B spectrum analyzer. The display was allowed to accumulate over a period of ten minutes, using the Max Hold feature. Analyzer settings were as indicated on the plots. Limit Masks of the FCC NRSC-2 specifications were overlaid on the spectrum analyzer plots, to show compliance or noncompliance with §73.44 of the FCC rules. Any apparently excessive emissions, which are actually signals from other radio services, are highlighted. Whenever harmonics were being measured, either a high-Q notch filter or a bandpass filter was switched in, to attenuate the carrier by several db. This allowed the analyzer input sensitivity to be increased without experiencing overload. The published antenna factor data was entered into the spectrum analyzer antenna table.**

**Harmonics were checked, using a Heath model SW-700 general coverage receiver with the vehicle roof mounted whip antenna. The receiver was slowly tuned through the fifteenth harmonic of the station. The results of this test are recorded on the next page of this report. If any harmonics were detected with the receiver, further measurements were made with the spectrum analyzer. Those plots are included in the spectrum analyzer plot section of this report.**



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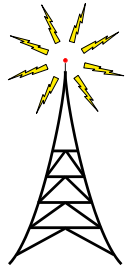
**Harmonics Test**

Daytime Mode

	HARMONIC FREQUENCY	RESULTS
NUMBER	MHz	
2	2.10	Not Detected
3	3.15	See Plot
4	4.20	Not Detected
5	5.25	"
6	6.30	"
7	7.35	"
8	8.40	"
9	9.45	"
10	10.50	"
11	11.55	"
12	12.60	"
13	13.65	"
14	14.70	"
15	15.75	"



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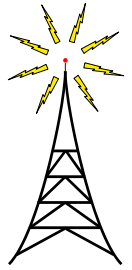
**Harmonics Test**

Nighttime Mode

	HARMONIC FREQUENCY	RESULTS
NUMBER	MHz	
2	2.10	Not Detected
3	3.15	"
4	4.20	"
5	5.25	"
6	6.30	"
7	7.35	"
8	8.40	"
9	9.45	"
10	10.50	"
11	11.55	"
12	12.60	"
13	13.65	"
14	14.70	"
15	15.75	"

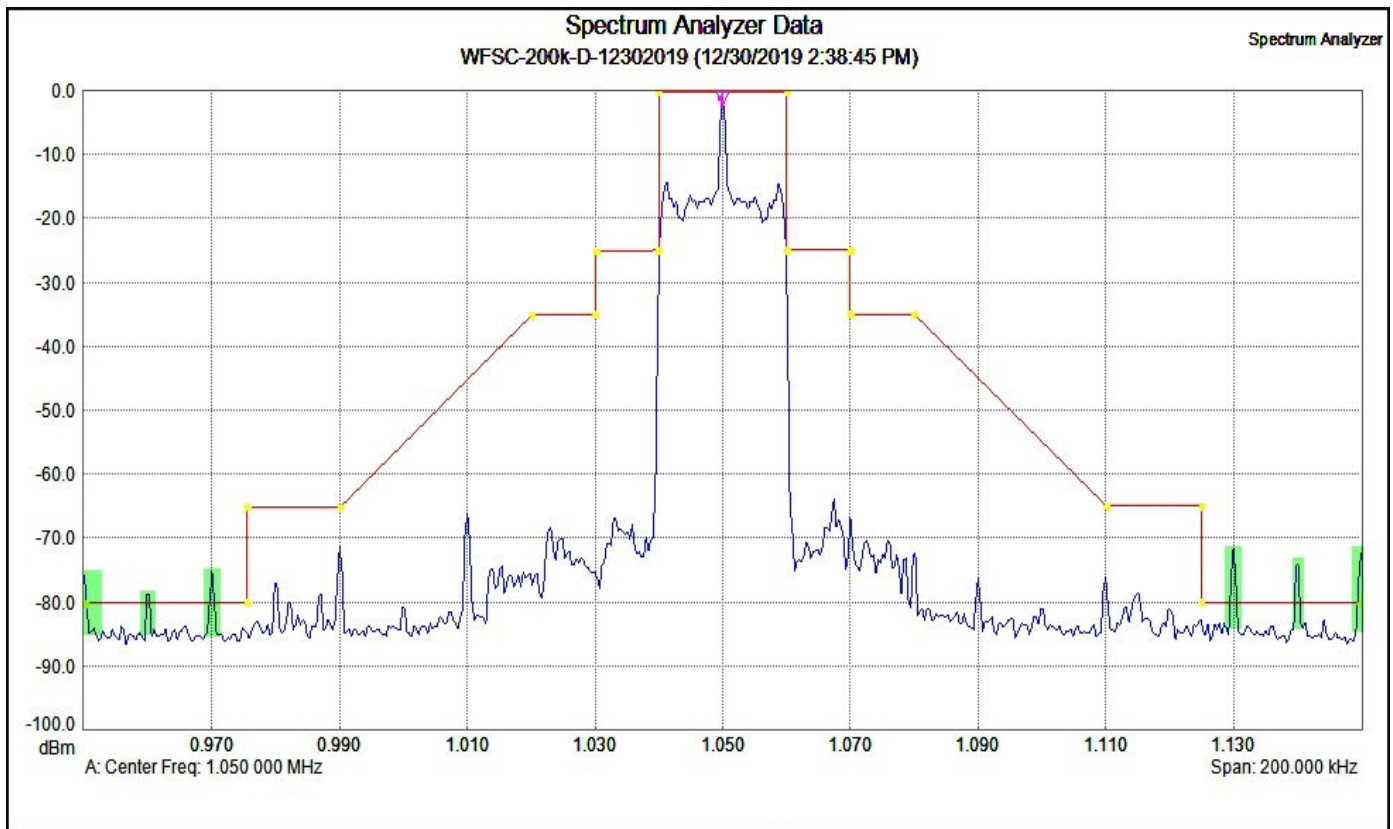


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Daytime Mode



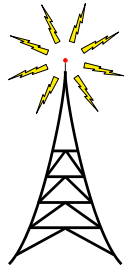
Measurement Parameters

		Reference Level	-44.000 dBm
Trace Mode	Max Hold	Scale	10.0 dB/div
Preamp	ON	GPS Longitude	W 83 21 36
Min Sweep Time	0.001 S	GPS Latitude	N 35 12 56
Reference Level Offset	-44 dB	GPS Fix Time	12 30 2019 19 40 28
Input Attenuation	0.0 dB	Serial Number	807109
RBW	300.0 Hz	Base Ver.	V5.71
VBW	3.0 MHz	App Ver.	V5.73
Detection	Peak	Model	MS2721B
Center Frequency	1.050 000 MHz	Options	9, 20, 31
Start Frequency	950.000 000 kHz	Date	12/30/2019 2:38:45 PM
Stop Frequency	1.150 000 MHz	Device Name	D-Squared
Frequency Span	200.000 000 kHz		

Highlighted Signals Are From Other Radio Stations Or Radio Frequency Sources.

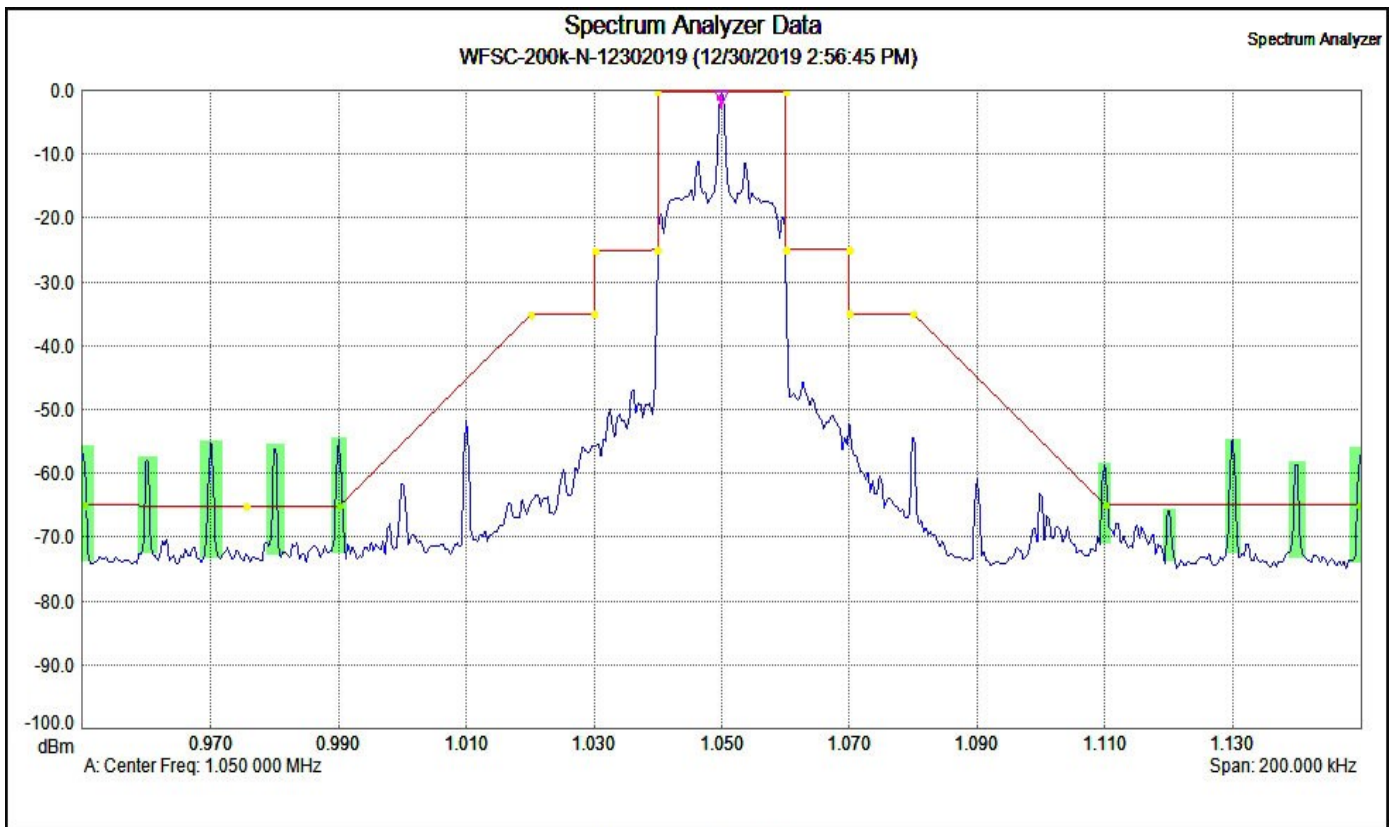


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Nighttime Mode



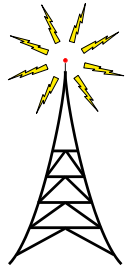
Measurement Parameters

Measurement Parameters		Reference Level	-59.000 dBm
Trace Mode	Max Hold	Scale	10.0 dB/div
Preamp	ON	GPS Longitude	W 83 21 36
Min Sweep Time	0.001 S	GPS Latitude	N 35 12 56
Reference Level Offset	-59 dB	GPS Fix Time	12 30 2019 19 58 28
Input Attenuation	0.0 dB	Serial Number	807109
RBW	300.0 Hz	Base Ver.	V5.71
VBW	3.0 MHz	App Ver.	V5.73
Detection	Peak	Model	MS2721B
Center Frequency	1.050 000 MHz	Options	9, 20, 31
Start Frequency	950.000 000 kHz	Date	12/30/2019 2:56:45 PM
Stop Frequency	1.150 000 MHz	Device Name	D-Squared
Frequency Span	200.000 000 kHz		

Highlighted Signals Are From Other Radio Stations Or Radio Frequency Sources.

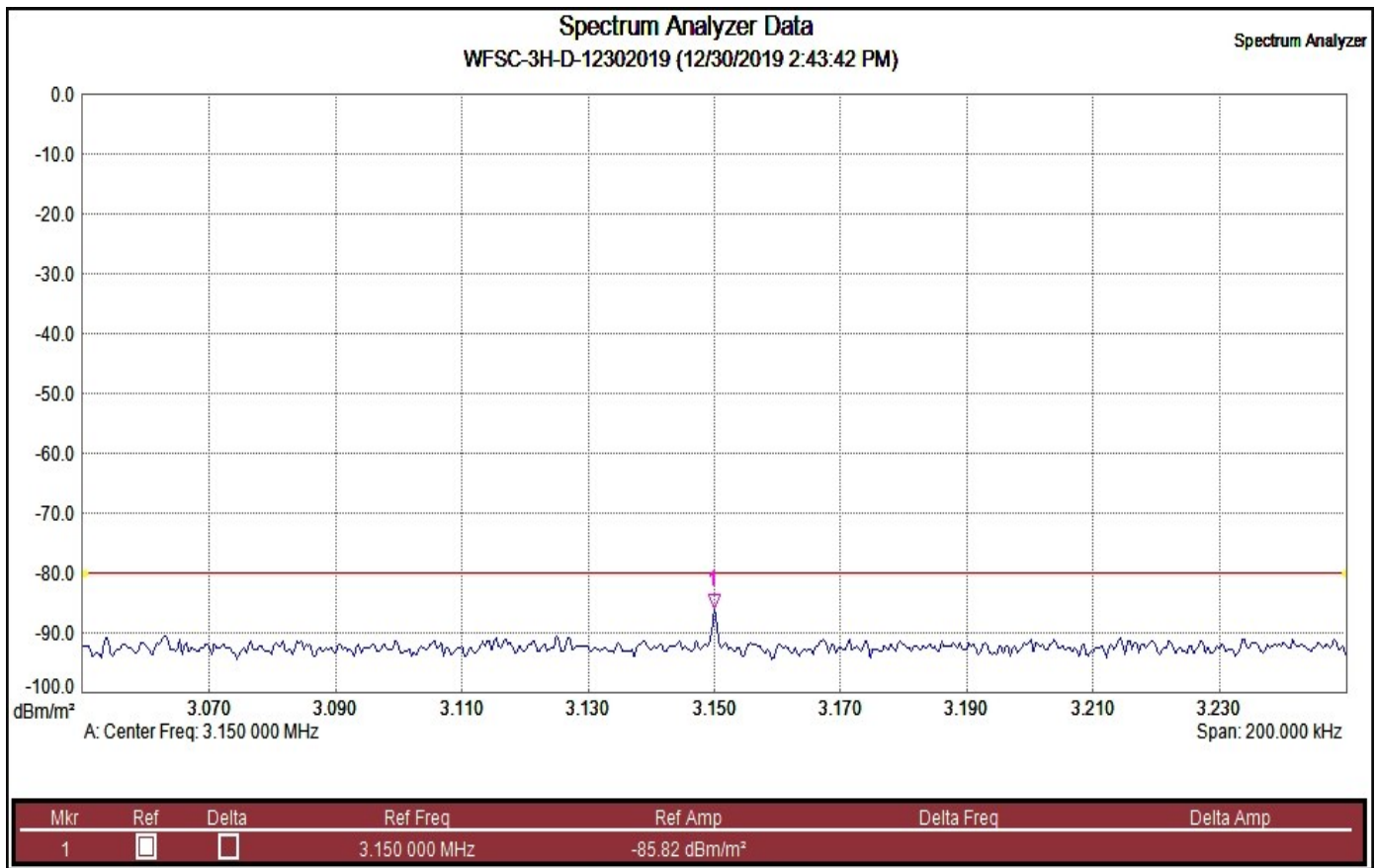


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Daytime Mode - Third Harmonic

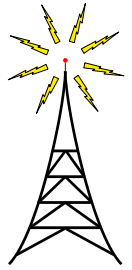


Measurement Parameters			
Trace A data: Trace Average	10	Reference Level	-44.000 dBm/m <sup>2</sup>
Trace Mode	Average	Scale	10.0 dBm/m <sup>2</sup> /div
Preamp	ON	GPS Longitude	W 83 21 36
Min Sweep Time	0.001 S	GPS Latitude	N 35 12 56
Reference Level Offset	-44 dB	GPS Fix Time	12 30 2019 19 45 28
Input Attenuation	0.0 dB	Field Strength	ON
RBW	300.0 Hz	Serial Number	807109
VBW	3.0 MHz	Base Ver.	V5.71
Detection	Peak	App Ver.	V5.73
Center Frequency	3.150 000 MHz	Model	MS2721B
Start Frequency	3.050 000 MHz	Options	9, 20, 31
Stop Frequency	3.250 000 MHz	Date	12/30/2019 2:43:42 PM
Frequency Span	200.000 000 kHz	Device Name	D-Squared





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Frequency Measurement

The carrier frequency of this radio station was measured, using an Anritsu MS2721B spectrum analyzer, with a frequency counter option. This analyzer also has a GPS frequency reference option, with the following specifications.

**GPS High Frequency Accuracy when GPS antenna is connected:**  
 ±25 ppb with GPS ON, 3 minutes after satellite lock in the selected operating mode  
**Internal High Accuracy, when GPS antenna is not connected:**  
 Better than ±50 ppb for 3 days from a High Accuracy GPS Lock and within 0 °C to 50 °C ambient temperature

Licensed Frequency	1050.000 kHz
Measured Frequency	1050.001866 kHz
FCC Tolerance	± 20 Hz
Deviation	+ 1.866 Hz

The carrier frequency of this station is within FCC tolerance.

