TECHNICAL QUALIFICATIONS

Be it here known:

That NORMAND R. LARAMEE has been contracted to perform the measurements and report contained herein.

That he is experienced in the field of Broadcast Engineering and has performed this type of work on a professional basis in the capacities of Chief Engineer, Contract Engineer, and Consultant.

That he has held an FCC First-Class Radiotelephone license since 1981.

That he currently holds an FCC General Radiotelephone Operator License PG-10-14519 issued January 2, 1985.

That he is currently an active member of the Society Of Broadcast Engineers.

That his work is a matter of record with the Federal Communications Commission.

Be it further attested that the information contained within this report is true and factual to the best of my knowledge.

Signed this 4th day of November, 2018.

Normand R. Laramee

Normand R. Laramee

TEST PROCEDURE

All tests were conducted using equipment suitable for this purpose and calibrated to internal standards prior to commencement of measurements.

Good engineering practices were observed during the course of the measurements and the results are believed to be accurate.

All tests were conducted in the field using a 2012 Nissan Xterra as a platform and it's onboard battery to provide power for the test equipment.

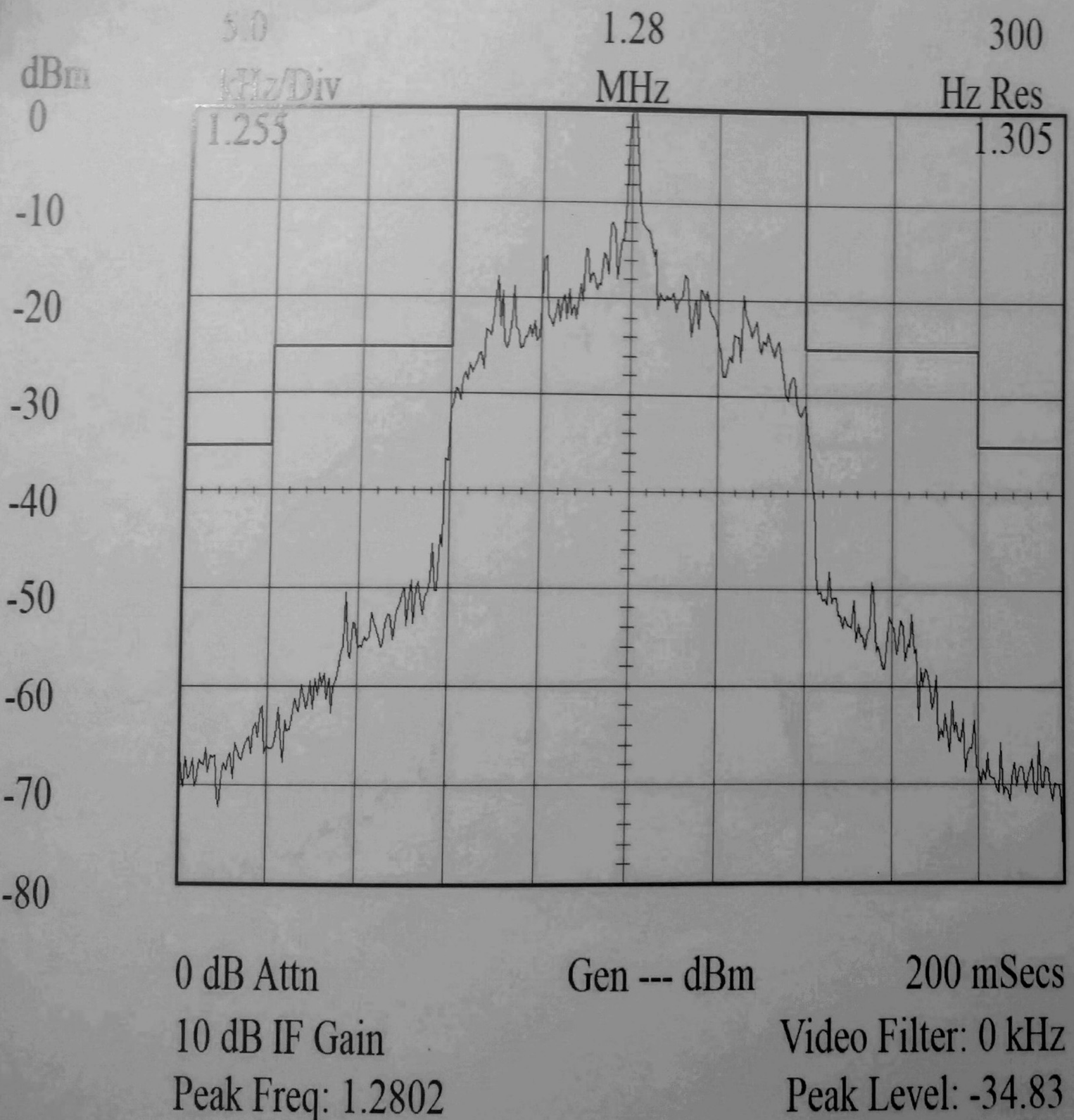
The measurements were conducted at a sufficient distance from the center of the antenna system as necessary to provide enough RF input level to the analyzer to meet the resolution requirements for the stations licensed power level. Measurements were made using a suitable swept-frequency RF spectrum analyzer, employing a peak-hold duration of at least 10 minutes; with no video filtering and a 300 Hz resolution bandwidth as required by FCC rules. The tests were made employing a shielded directional-loop type antenna with an approximate diameter of 4 feet. The antenna was deployed at 10 ft. above ground elevation.

Tests were conducted with the station operating on the main transmitter, into the specified antenna system and output power set for normal operation. Normal program material and audio processing were employed.

Measurements were made at span settings of 50 kHz, 100 kHz, and 200 kHz to yield horizontal divisions of 5 kHz, 10 kHz, and 20 kHz as recommended by the NRSC Committee. The system employed a vertical gratical of 10dB per division, with a range greater than the required 80dB.

The results were printed graphically and are included as exhibits to demonstrate compliance. The hard copy printouts were marked to show FCC limits as specified in 73.44(b) a.k.a. the NRSC mask.

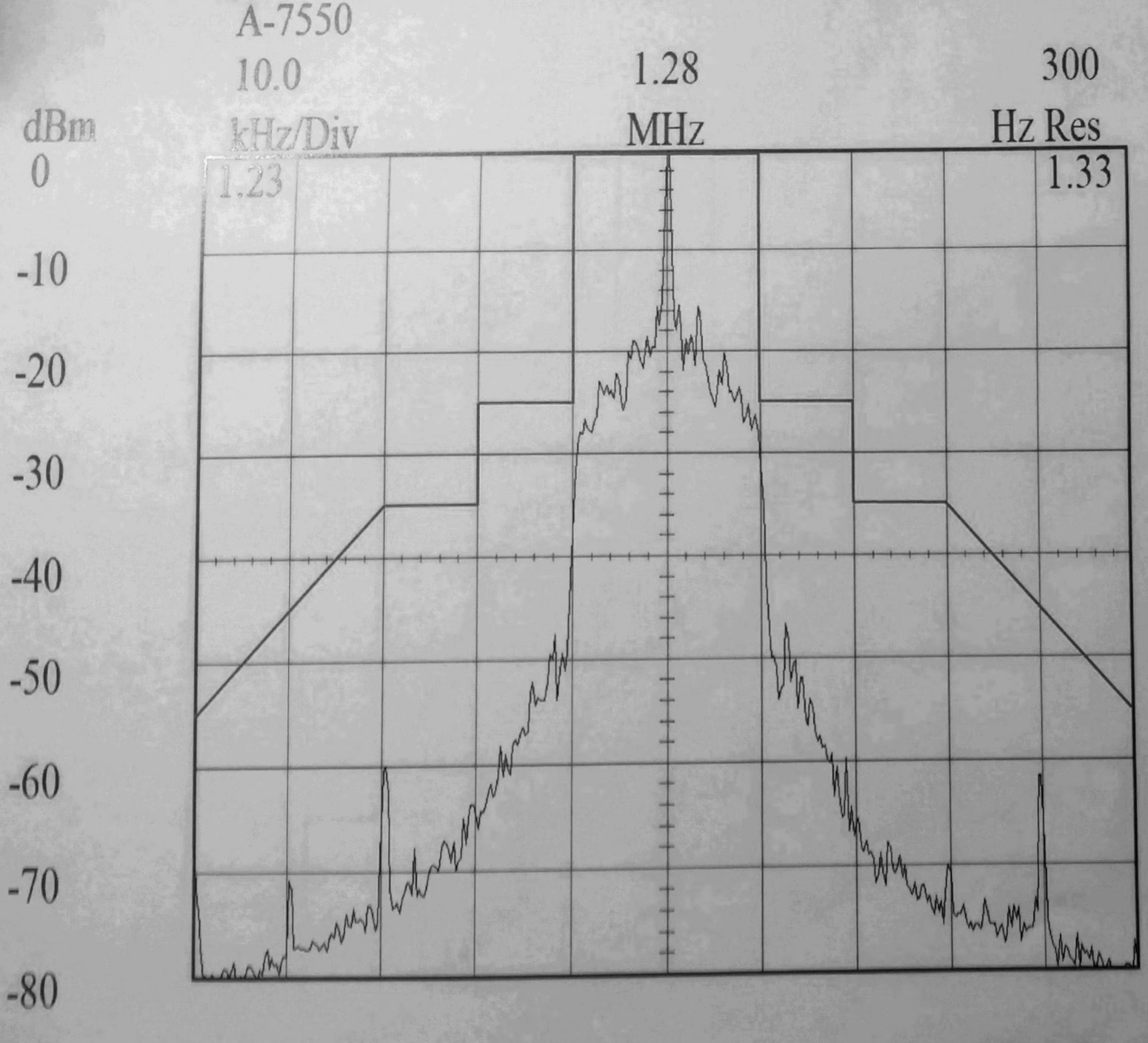
Measurements were also made with a Potomac Instruments FIM-41 at the second and third harmonic frequency and the results noted on the Site Log.



Excerpt, FCC Rules Sec 73.44
AM transmission system
emission limitations.
(NRSC Mask)

"Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level. Emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level."

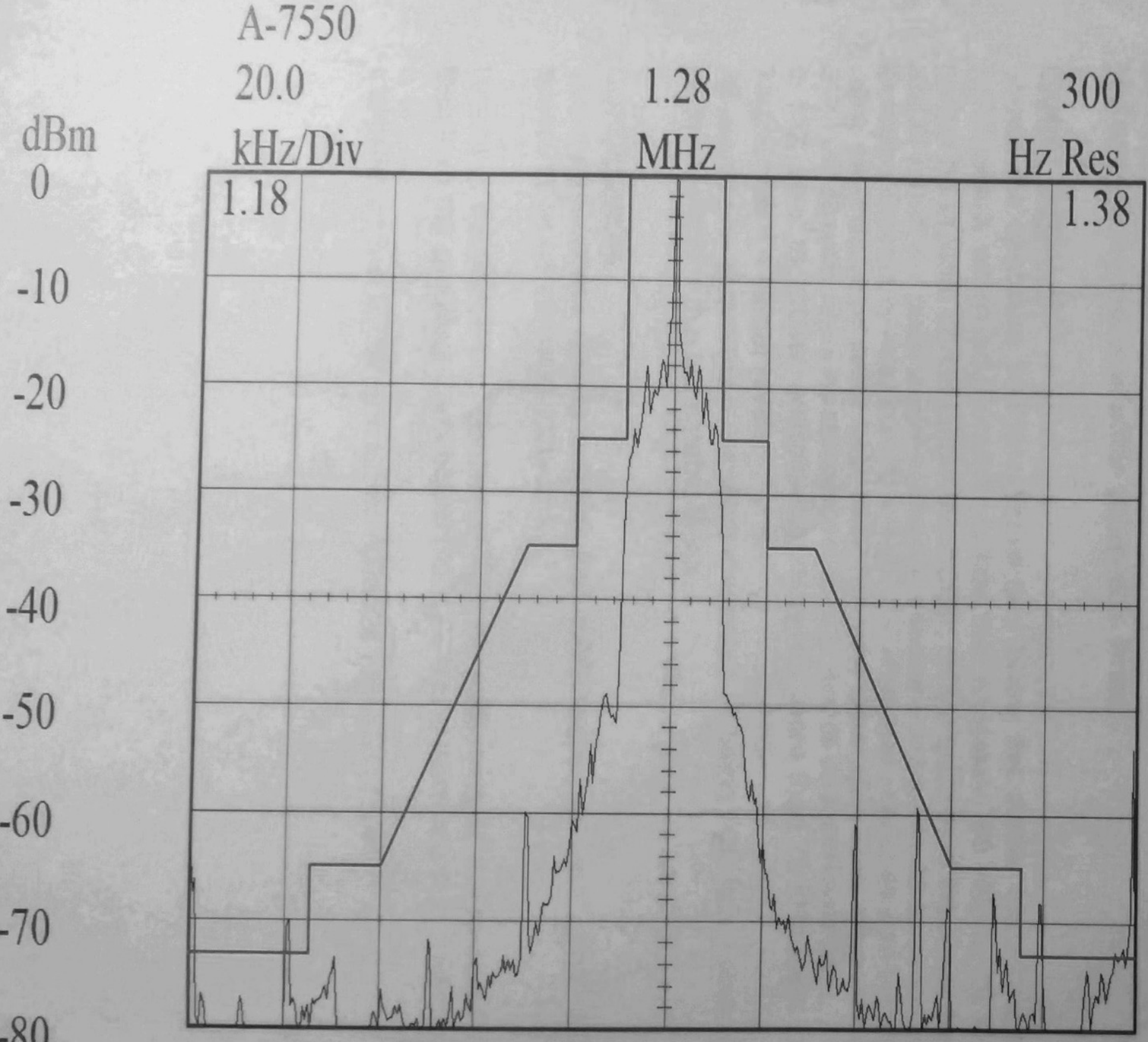
DIPRO Engineering Services



Excerpt, FCC Rules Sec 73.44
AM transmission system
emission limitations.
(NRSC Mask)

"Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level. Emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level. Emissions 30 kHz to 60 kHz removed from the carrier must be attenuated at least [5 + 1 dB/kHz] below the unmodulated carrier level."

DIPRO Engineering Services



Excerpt, FCC Rules Sec 73.44
AM transmission system
emission limitations.
(NRSC Mask)

"Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level. Emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level. Emissions 30 kHz to 60 kHz removed from the carrier must be attenuated at least [5 + 1 dB/kHz] below the unmodulated carrier level. Emissions between 60 kHz and 75 kHz of the carrier frequency must be attenuated at least 65 dB below the unmodulated carrier level. Emissions removed by more than 75 kHz must be attenuated at least 43 + 10 Log (Power in watts) or 80 dB below the unmodulated carrier level, whichever is the lesser attenuation, except for transmitters having power less than 158 watts, where the attenuation must be at least 65 dB below carrier level."

ANALYSIS

EXHIBIT KPRV-1:
Shows the spectrum 25 kHz above and below the carrier frequency. *("Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level. Emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level.")*
Narrow band performance is within acceptable limits.

EXHIBIT KPRV-2:
Shows the spectrum 50 kHz above and below the carrier frequency. (In addition to the above: *"Emissions 30 kHz to 60 kHz removed from the carrier must be attenuated at least [5 + 1 dB/kHz] below the unmodulated carrier level.")*
Mid band performance is within acceptable limits.

EXHIBIT KPRV-3:
Shows the spectrum 100 kHz above and below the carrier frequency and indicates the full NRSC mask which additionally requires that emissions 60 kHz to 75 kHz removed from the carrier be at least 65 dB below the carrier. (In addition to all of the above: *"Emissions between 60 kHz and 75 kHz of the carrier frequency must be attenuated at least 65 dB below the unmodulated carrier level. Emissions removed by more than 75 kHz must be attenuated at least 43 + 10 Log (Power in watts) or 80 dB below the unmodulated carrier level, whichever is the lesser attenuation, except for transmitters having power less than 158 watts, where the attenuation must be at least 65 dB below carrier level..")*
In this case, at 1000w, emissions removed by more than 75 kHz must be attenuated at least -73db below the carrier level.
All excursions above the mask were confirmed as being from other sources. Wide band performance is within acceptable limits.

CONCLUSION:
The measurement results confirm that KPRV emissions are within NRSC limits and there appear to be no transient problems.

Harmonic measurements confirmed that the emissions at the second and third harmonic is less than the required -73db below the carrier and therefore in compliance.

It is believed that KPRV is in full compliance with FCC 73.44.