

EQUIPMENT PROOF OF PERFORMANCE

Occupied Bandwidth, Spurious and Harmonic Signal
Measurements

For

Radio Station KSBL-FM 101.7 MHz,

Carpinteria, California

Conducted on November 4, 2010

Measurements Performed by Burt I. Weiner

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FOREWORD

This report contains the results of measurements as described in Section 73.1590 and Section 73.317 of the rules and regulations of the Federal Communications Commission conducted on November 4, 2010 on behalf of Radio Station KSBL-FM, Carpinteria, California. KSBL-FM operates on 101.7 MHz with an ERP of 890 Watts from the mountains above Santa Barbara at the Rincon Broadcasting LLC W. Camino Cielo transmitter site. The KSBL-FM transmitter is a Broadcast Electronics model FM-3C, which is immediately followed by an Jampro three-cavity band-pass filter model RCBC-103-101.7. The audio processor is an Aphex FM Pro model 2020 Mk III.

These measurements show the extent to which KSBL-FM complies with the occupied bandwidth and harmonic emission requirements of the Commission's rules, specifically, Sections 73.317 regarding: FM Transmission System Requirements.

METHODS AND EQUIPMENT USED

For these measurements an Anritsu Spectrum Analyzer model MS2721B was used. The analyzer's input was connected to the station's transmission line using a Bird Electronics directional sample element inserted into the station's transmission line power monitor. The sample port was connected to the spectrum analyzer's input with 10 feet of RG223-U double shielded coaxial cable. A 20 dB power attenuator was inserted directly ahead of the spectrum analyzer's input.

For the mask spectrograph shown in Figure 1 and the portion of the spectrum between 108 MHz to 142 MHz the analyzer was operated in the peak hold mode for numerous sweeps totaling approximately 10 minutes. For harmonic measurements, a Microwave Filter Company model 5KHP High-Pass filter was inserted after the 20 dB power attenuator and immediately ahead of the spectrum analyzer's input in order to prevent overload of the analyzer by providing a measured 72.5 dB of attenuation of the fundamental signal. The insertion loss of the 5KHP filter is less than 2 dB at any frequency between 120 MHz to 1000 MHz.

RESULTS

Table A shows the results of the measurements of harmonic and any spurious emissions which were detected and determined to be associated with, but not necessarily attributable to the KSBL-FM broadcast facilities at the time of measurement.

Figure 1 shows the Occupied Bandwidth of the modulation mask. Figure 2 shows that calculated intermodulation products between KIST-FM on 107.7, KA287AL 105.3 MHz, and K295AH 106.9 MHz were measured at or below the noise floor as observed at the transmission line sample. Figure 3 shows an expanded spectrograph covering the frequencies between 108 to 140 MHz.

All emissions attributable to the KSBL-FM broadcast facilities were found to meet the requirements of Section 73.317(b)(c)(d) of the Commission's Rules and Regulations at the time of measurement.

Qualifications of Engineer

Burt I. Weiner, whose office is located at 210 Allen Avenue Glendale, California, hereby states that he has been actively involved in broadcast engineering since 1961; that his qualifications as a technical consultant are a matter of record with the Federal Communications Commissions; that he has prepared this report for Radio Station KSBL-FM, Carpinteria, California; that he made the equipment performance measurements of Radio Station KSBL-FM shown in this report; and that all of the data contained in this report is accurate and correct to the best of his knowledge and ability.

November 4, 2010

A handwritten signature in blue ink, appearing to read "Burt I. Weiner". The signature is fluid and cursive, with the first name "Burt" and last name "Weiner" clearly distinguishable.

Burt I. Weiner

TABLE A

Harmonic and associated emissions relative to the operation of KSBL-FM
November 4, 2010

Frequency and Relationship	Signal Attenuation Relative to Carrier	Attenuation Required by 73.317
101.7 MHz Carrier 0.0 dB (-7.1 dBm)	Reference	0 dBc
203.4 MHz 2 nd Harmonic	-113.9 dBc*	80 dBc
305.1 MHz 3 rd Harmonic	-110.9 dBc*	80 dBc
406.8 MHz 4 th Harmonic	-113.9 dBc*	80 dBc
508.5 MHz 5 th Harmonic	-111.9 dBc*	80 dBc
610.2 MHz 6 th Harmonic	-115.9 dBc*	80 dBc
711.9 MHz 7 th Harmonic	-111.9 dBc*	80 dBc
813.6 MHz 8 th Harmonic	-111.9 dBc*	80 dBc
915.3 MHz 9 th Harmonic	-113.9 dBc*	80 dBc
1017 MHz 10 th Harmonic	-112.9 dBc*	80 dBc

Calculated and Measured Intermodulation Products

$$(101.7 \times 2 = 203.4 - 107.7) = 95.7 = -88.6 \text{ dBc}^*$$

$$(101.7 \times 2 = 203.4 - 105.3) = 98.1 = -88.4 \text{ dBc}^*$$

$$(101.7 \times 2 = 203.4 - 106.9) = 96.5 = -88.8 \text{ dBc}^*$$

*Indicates signals are at or below the noise floor.

No other related signals were discovered.

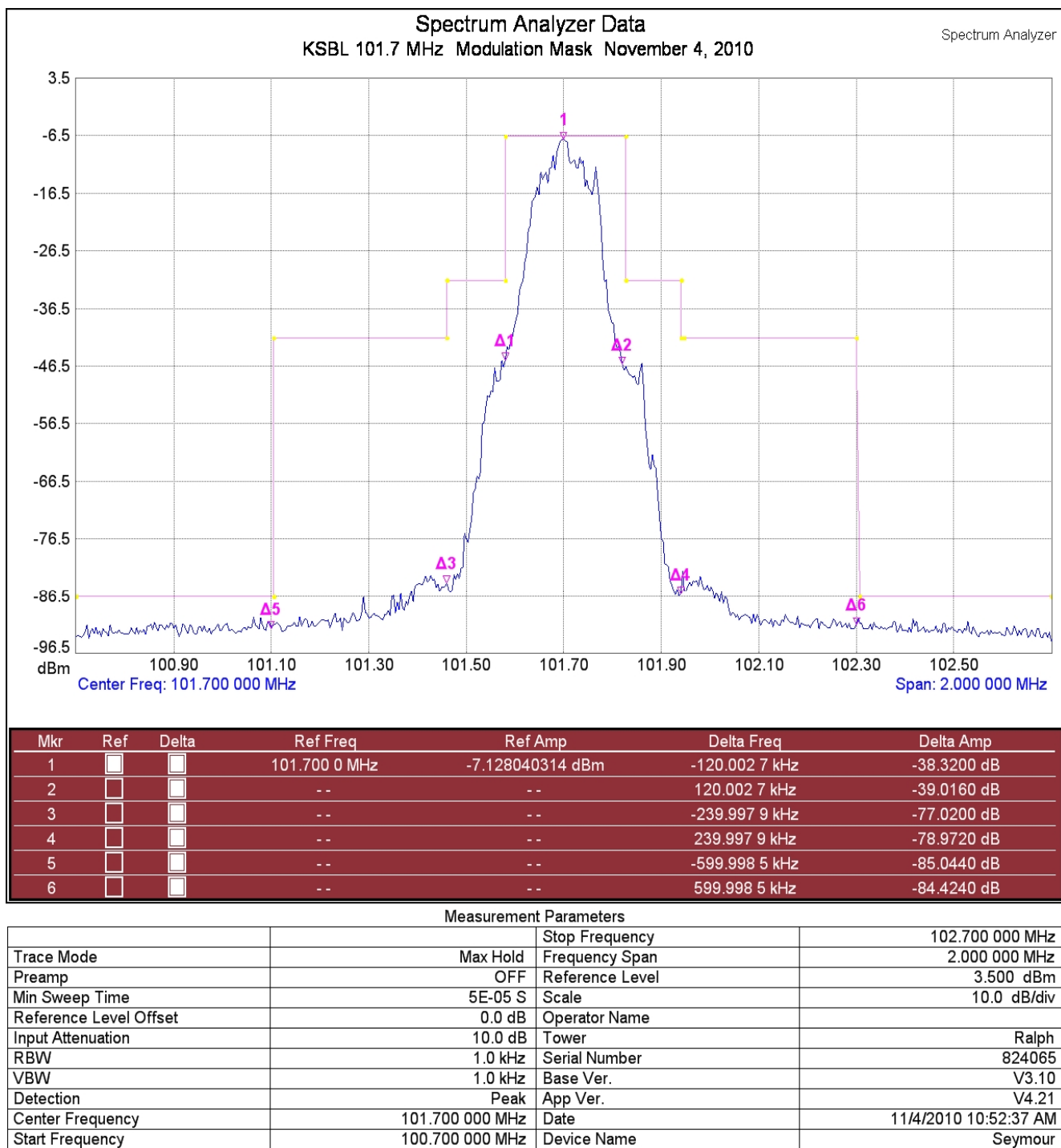


Figure 1- Modulation Mask and Reference

Radio Station KSBL-FM
Date: November 4, 2010
Center Frequency: 101.7 MHz
Span: 2.0 MHz; Vertical/Div 10dB/Div; RBW: 1 kHz

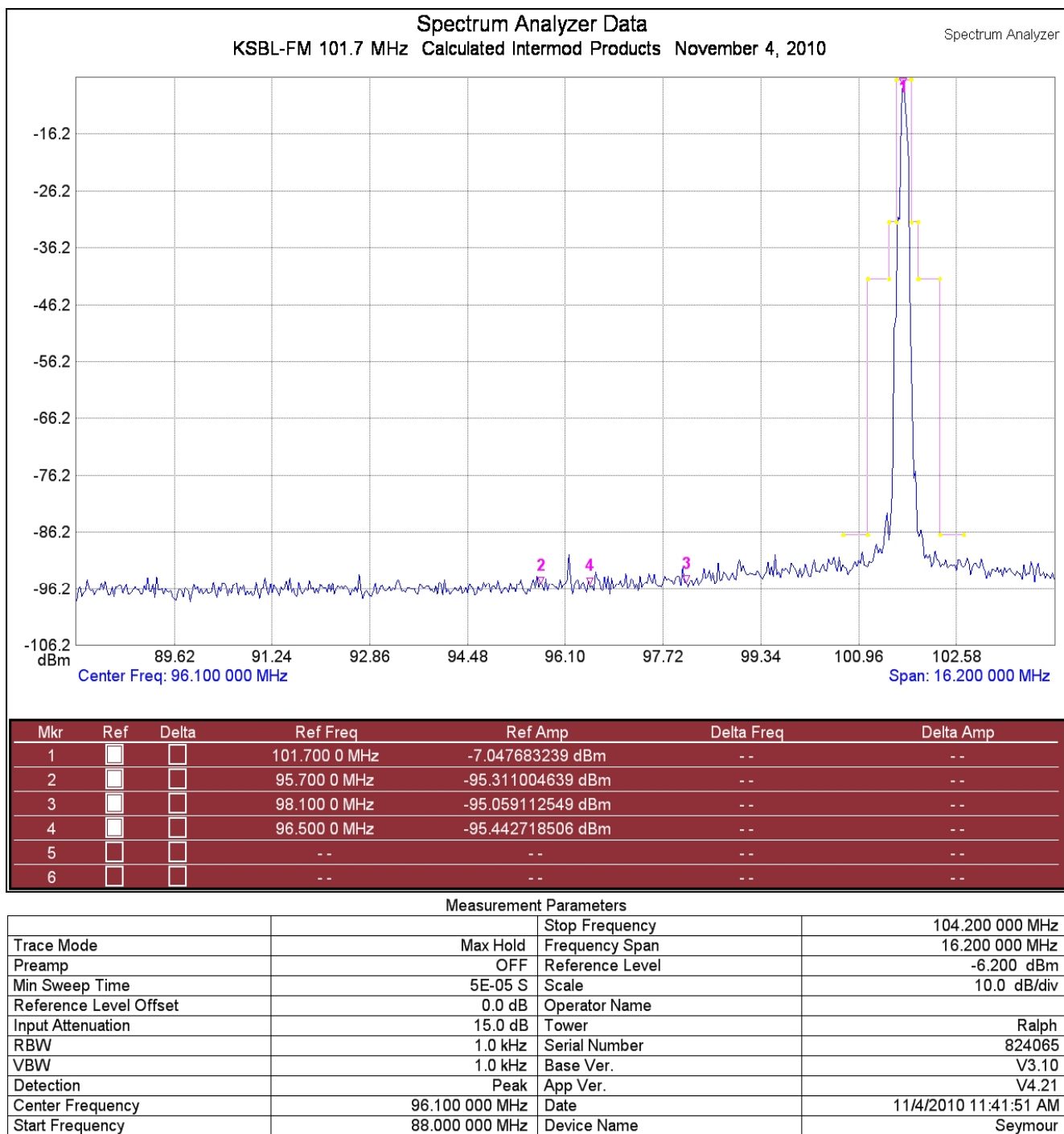


Figure 2 – KSBL-FM 101.7 MHz Calculated Intermodulation Products

Markers 2, 3 & 4 are locations of calculated Intermodulation Products

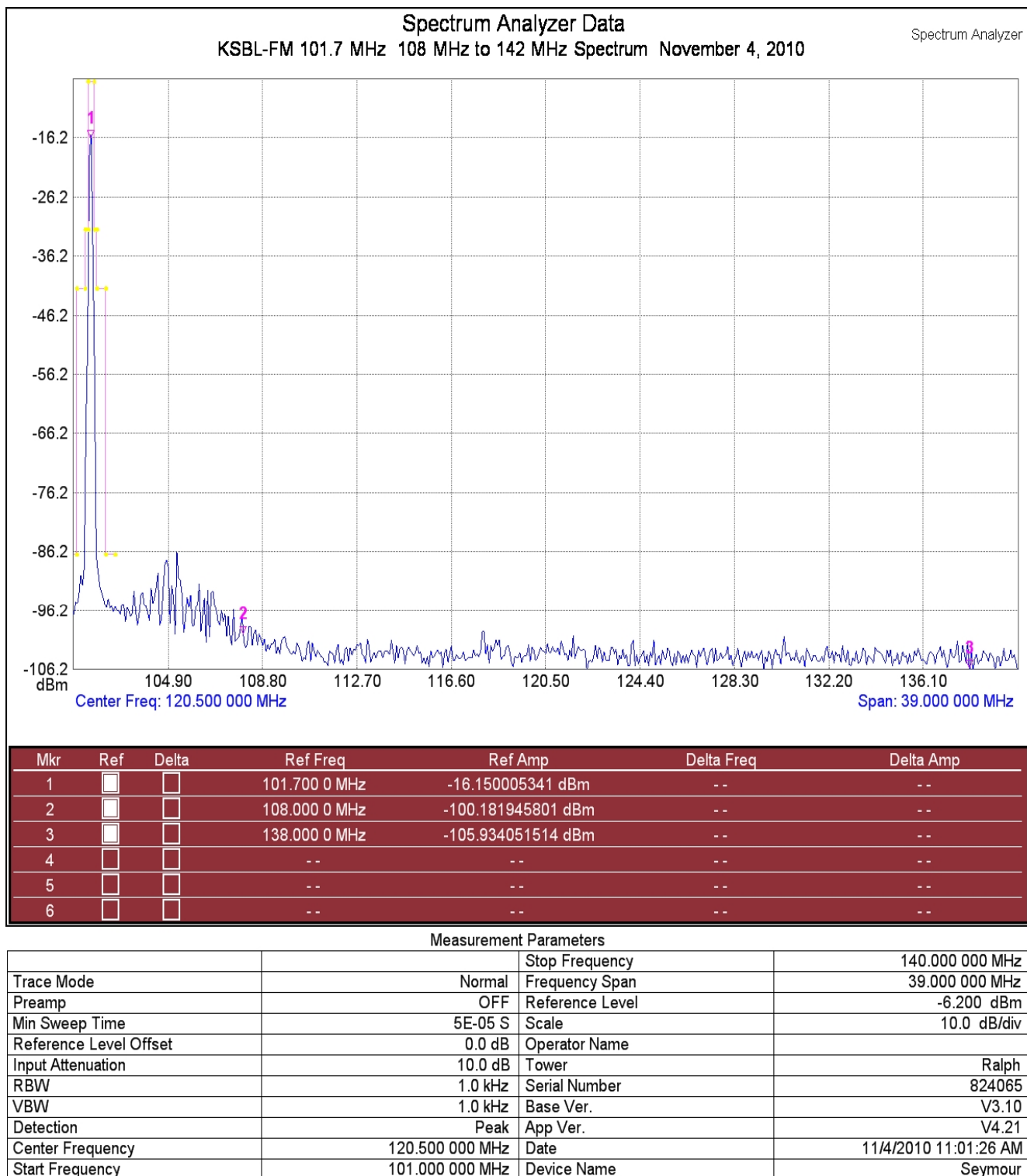


Figure 3 – KSBL-FM 101.7 108 MHz to 140 MHz Spectrum