

# CALIBRATION STANDARD INSTRUMENTS



## NEAR-FIELD-MONITORING™

### I. DEFINITION:

NEAR-FIELD-MONITORING™ is monitoring in which the listener is within 1 meter of each loudspeaker; each spaced within 1 meter of the other and having a time offset of less than 100 microseconds from 200 Hz to 5000 Hz.

### II. REQUIREMENTS:

To qualify as NEAR-FIELD-MONITORING™, a monitoring setup must meet these requirements:

1. The primary purpose of the monitor must be to "warn" of program faults and must not enhance the sound of the program either by its own characteristic response or by nearby boundary reflections.
2. The monitor loudspeaker must provide a coherent source of sound within 50 cm. of its acoustical center, with a time offset of less than 100 microseconds from 200 Hz to 5000 Hz.
3. The listener must be 3 feet or less from the acoustical center of each loudspeaker.
4. The time differential between the loudspeakers should not exceed 3 milleseconds.
5. The increase in Sound Pressure Level (SPL) in the lower frequency range caused by proximate boundaries, such as a console deck should be less than 5 dB.
6. The cancellation due to reflection from the first order proximate boundary, such as a console deck, should be less than 12 dB.
7. The variation in SPL, due to the reflection from the console deck, must change at least 6 dB with a vertical change of listener position of 2 to 1, relative to the console deck.
8. The frequency of the first order cancellation null should lie between 200 Hz and 600 Hz with normal listener height at the recording console.
9. The frequency of the first order cancellation null should change at least one octave with a vertical change of listener position of 2 to 1, relative to the console deck.

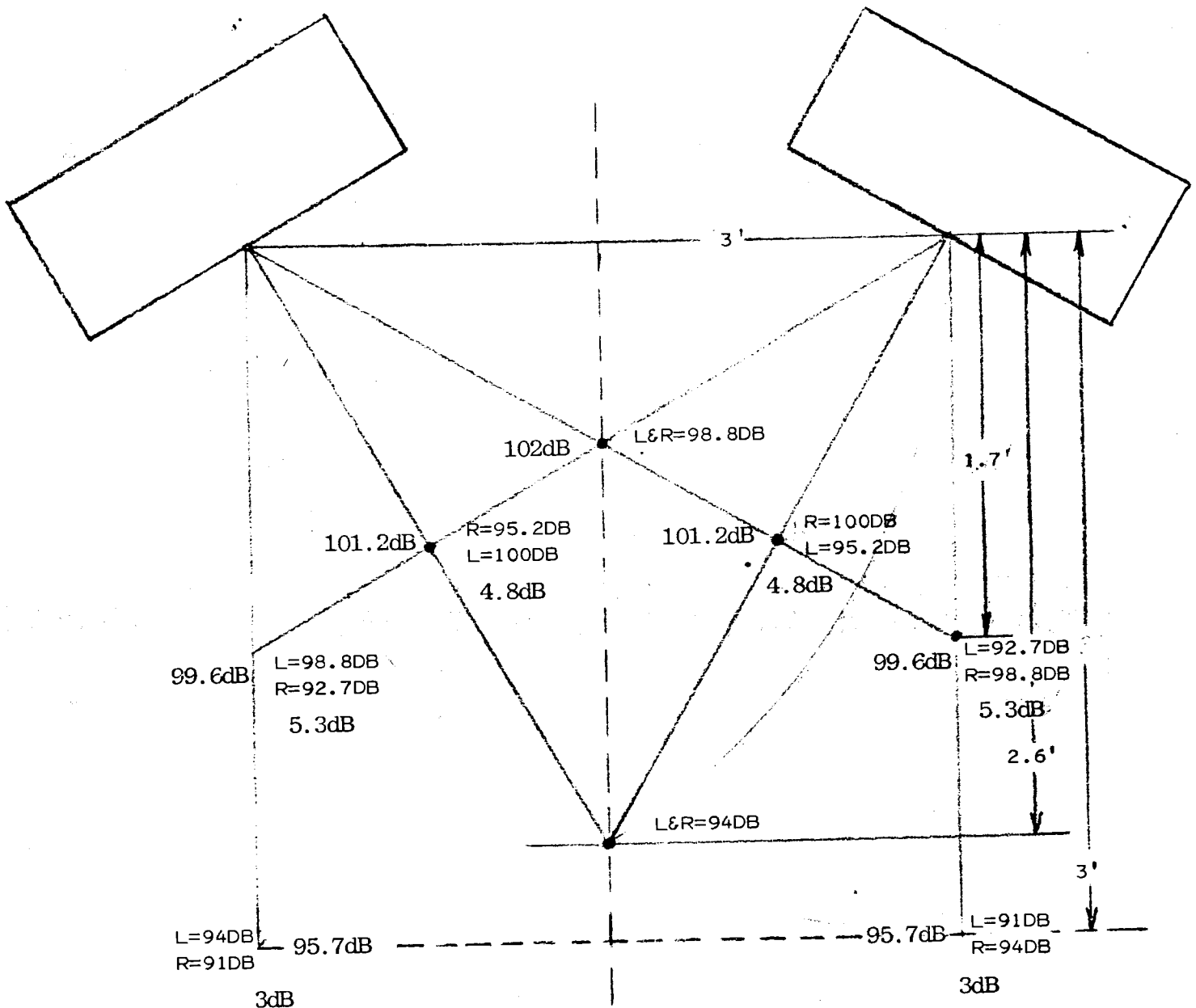
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## III. BENEFITS:

1. Small movements by the listener relative to the monitors and a nearby recording console deck, if any, allow the listener to perceive large changes in the sound field between the monitors.
2. The effects of the monitoring environment are reduced to the point where they are negligible (12 dB or more) with the possible exception of a recording console deck, if it is present.
3. The effects of the recording console deck may be easily determined by a change of listener position of 12 inches or less.
4. Source position between the loudspeakers due to amplitude panning, time differential panning or a combination of both, and subsequent shifts due to listener position changes, may be determined more easily than by any other method of monitoring.
5. Comb filter type effects due to a source being picked up by two or more microphones may be easily perceived.
6. The Absolute Polarity of the acoustic signal from the monitors may be easily determined.

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## NEAR-FIELD-MONITORING™

RECOMMENDED MONITOR AND LISTENER POSITIONS FOR NEAR-FIELD-MONITORING™. MONITORS MUST PRODUCE A COHERENT PLANE WAVE ACOUSTICAL RADIATION WITHIN 18" OF THEIR RESPECTIVE ACOUSTICAL CENTERS AND HAVE A TIME OFFSET OF LESS THAN 100 MICROSECONDS FROM 200HZ TO 5000HZ.

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