

# MAGNETIC REFERENCE LABORATORY, INC.

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## Broadband White-Noise Tapes With 1 kHz Tone

Calibration tapes are available with broadband (20 Hz...20 kHz) random noise of either "white" spectrum or "pink" spectrum (see Pub 802, on other side), followed by 30 s of 1 kHz tone at 0 dB for gain setting..

The white spectrum is especially suited to analysis by a constant-bandwidth filter.

The pink spectrum is especially suited to analysis by a frequency-proportional bandwidth (for example, a 3rd octave) filter.

### WHITE NOISE FOR AZIMUTH ADJUSTMENT

Because of its large high-frequency power, White Noise is especially useful for adjusting azimuth of fulltrack reproducers, or for adjusting multitrack reproducers for minimum intertrack time displacement ("phase error").

If you set azimuth with a single high-frequency tone, it is possible to misadjust to a "false peak", at the azimuth where there is a one full cycle time delay between the waves. Using random noise for azimuth setting prevents this, because the wave is not periodic. White Noise can be used with most of the usual azimuth setting techniques: On a mono channel, adjust for maximum level. On a multichannel system, sum either the edge channels or all of the channels, and adjust for maximum level; or take the difference between the edge channels (channels summed with one channel polarity reversed), and adjust for minimum level.

You can also set azimuth quite accurately with any of these methods by

listening, because the character of the sound changes in a very obvious way. The "brightest" sound is the correct adjustment. A Lissajous figure on an oscilloscope also works very well.

White Noise does not work with a phase meter, or with the dual-beam oscilloscope method. Both of these methods require having a periodic wave.

### BANDWIDTH AND NOISE LEVEL

The noise generator used for these tapes is sharply band limited by a 4-pole high-pass filter at 14 Hz, and a 6-pole low-pass filter at 22 kHz.

The total noise power level is dependent on the bandwidth and the frequency response of the transmission system. Therefore unless the reproducer is flat over this entire band, the total noise power level may not agree with a sine-wave measurement at 1 kHz. Therefore we do not generally recommend using these noise tapes for setting the reproducer gain: use a 1 kHz sine-wave tone.

### OTHER NOISE TAPES

Contact us for a part number and prices if you need white noise for a playing time of 16, 32, or 64 minutes, or if you need a different reference fluxivity, tones and noise, etc.

See "Choosing and Using MRL Calibration Tapes for Audio Tape Recorder Standardization", MRL Publication Choo&U, for more information on choosing and converting between different equalizations and levels, as well as descriptions of other test signals that are available from MRL, and notes on using Calibration Tapes.

**Table of Broadband White-Noise Tapes With 1 kHz Tone**

Medium	Tape Speed	Equalization Standard	Level of Noise Signals	4 minutes total			8 minutes total		
				Catalog Number for Reference Fluxivity of:		Price	Catalog Number for Reference Fluxivity of:		Price
				250 nWb/m ("+3 dB")	355 nWb/m ("+6 dB")		250 nWb/m ("+3 dB")	355 nWb/m ("+6 dB")	
¼ in	3.75 in/s	IEC & NAB	-10 dB	221-703-480-100	221-703-510-102	100 \$	221-703-480-126	221-703-510-122	140 \$
	7.5 in/s	IEC (IEC1)	-10 dB	231-703-480-107	231-703-510-103		231-703-480-123	231-703-510-129	
		NAB (IEC2)	-10 dB	233-703-480-103	233-703-510-109		233-703-480-129	233-703-510-125	
	15 in/s	IEC (IEC1)	0 dB	241-702-480-107	241-702-510-103		241-702-480-123	241-702-510-129	
NAB (IEC2)		0 dB	243-702-480-103	243-702-510-109	243-702-480-129	243-702-510-125			
	30 in/s	AES (IEC2)	0 dB	251-702-480-104	251-702-510-100	105 \$	251-702-480-120	251-702-510-126	155 \$
½ in	3.75 in/s	IEC & NAB	-10 dB	321-703-482-107	321-703-512-103	145 \$	321-703-482-123	321-703-512-129	225 \$
	7.5 in/s	IEC (IEC1)	-10 dB	331-703-482-104	331-703-512-100		331-703-482-120	331-703-512-126	
		NAB (IEC2)	-10 dB	333-703-482-100	333-703-512-106		333-703-482-126	333-703-512-122	
	15 in/s	IEC (IEC1)	0 dB	341-702-482-104	341-702-512-100		341-702-482-120	341-702-512-126	
		NAB (IEC2)	0 dB	343-702-482-100	343-702-512-106		343-702-482-126	343-702-512-122	
	30 in/s	AES (IEC2)	0 dB	351-702-482-101	351-702-512-107	170 \$	351-702-482-127	351-702-512-123	250 \$
1 in	3.75 in/s	IEC & NAB	-10 dB	421-703-482-106	421-703-512-102	265 \$	421-703-482-122	421-703-512-128	415 \$
	7.5 in/s	IEC (IEC1)	-10 dB	431-703-482-103	431-703-512-109		431-703-482-129	431-703-512-125	
		NAB (IEC2)	-10 dB	433-703-482-109	433-703-512-105		433-702-482-125	433-703-512-121	
	15 in/s	IEC (IEC1)	0 dB	441-702-482-103	441-702-512-109		441-702-482-129	441-702-512-125	
		NAB (IEC2)	0 dB	443-702-482-109	443-702-512-105		443-702-482-125	443-702-512-121	
	30 in/s	AES (IEC2)	0 dB	451-702-482-100	451-702-512-106	305 \$	451-702-482-126	451-702-512-122	475 \$
2 in	7.5 in/s	IEC (IEC1)	-10 dB	531-703-482-102	531-703-512-108	375 \$	531-703-482-128	531-703-512-124	570 \$
		NAB (IEC2)	-10 dB	533-703-482-108	533-703-512-104		533-703-482-124	533-703-512-120	
	15 in/s	IEC (IEC1)	0 dB	541-702-482-102	541-702-512-108		541-702-482-128	541-702-512-124	
		NAB (IEC2)	0 dB	543-702-482-108	543-702-512-104		543-702-482-124	543-702-512-120	
	30 in/s	AES (IEC2)	0 dB	551-702-482-109	551-702-512-105	420 \$	551-702-482-125	551-702-512-121	645 \$

Prices are in US\$, and do not include shipping or applicable taxes.

Prices may be changed without notice.