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Test Procedure for Carrier to Noise (C/N, CCN, CIN, CTN)

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1.0 SCOPE AND DEFINITIONS

1.1 Scope

This procedure defines the measurement procedure for determining the ratio of carrier to thermal noise and “noise-like” interference for broadband telecommunications system components. The test involves measuring the noise levels, or the combined noise plus “noise-like” intermodulation product levels, relative to the carrier level of a CW signal. The noise contribution of the test equipment is also measured to allow for correction of readings near the test equipment noise floor. ANSI/SCTE 96 2003, Cable Telecommunications Testing Guidelines, has additional definitions common to this and other SCTE test procedures.

1.2 Definitions:

1.2.1 Carrier to Noise (C/N):

Traditionally, the term used to describe the ratio of the peak level of the visual carrier of an analog television transmission to the noise floor of the transmission system. This term, when used generically, may refer to the ratio of the carrier to all undesired noise and noise-like signals. The terms CCN, CIN, and CTN are used to more clearly identify the specific components of the noise floor. For this procedure, CW carriers are substituted at equivalent levels to the peak visual carrier levels.

1.2.2 Carrier to Composite Noise (CCN):

The ratio of the CW carrier to the combined noise plus noise-like signal sources of non-thermal origin. This includes the thermal noise (CTN), combined with the noise-like intermodulation products created by beat products of analog and digital signals (CIN)

1.2.3 Carrier to Intermodulation Noise (CIN):

The ratio of the CW carrier to the noise-like signals generated by the non-linearity of a broadband transmission system carrying a combination of analog signals and digitally modulated signals. These distortion products are analogous to the CSO and CTB products generated by analog carriers, but due to the pseudo random nature of the digital modulation signals, appear as a noise-like interference. When CIN products fall within the analog portion of the spectrum, their effect on the analog signal is similar to increasing thermal (random) noise. Since CIN is a distortion product, its contribution is dependant on the output signal level.