

FORMAT-A

System Application Data

Frequency Response over Long-Distance Transmission

Format-A provides high noise immunity and excellent audio performance over long distances. When transmission is required over long distances, cable loss often requires that modules at each end of the long cable run be powered separately (not through the cable). Those requirements are described in the distance graphs associated with the product data.

Cable losses also impact the frequency response of received audio through a long cable. The relevance of frequency response variations depends on the system specifications and the nature of the audio being transmitted (voice or music). This sheet shows measured data to guide in system design. The measurements were taken using standard 23 gauge CAT6 cable and an active Format-A sender and receiver. Measurements do not apply to passive modules.

Audible frequency response losses are not defined by a specific deviation value for all applications. For example, loudspeakers and power amplifiers are often specified within 6 dB, or +/- 3 dB. Good fidelity may be considered aurally 'flat' for values +/- 1 dB, +/- 1.5 dB or +/- 2 dB.

The graph shows the frequency response received by a Format-A receiver for cable distances from 250 feet to 2,750 feet. The frequency response is within +/- 2 dB out to 10 kHz at 2,750 feet. 10 kHz upper frequency response is beyond the practical requirement of most any commercial system distributing music audio. Full voiceband audio could be transmitted much farther. Full music fidelity equivalent to FM radio extends to 15 kHz. The graph can be used to assess the expected performance for various distances.

Nominal frequency response values from the chart are summarized as follows:

Distance	Music Frequency Response	Music Frequency Response	Voice Frequency Response
1000 feet (304.8 meters):	20 Hz to 15 kHz (+/- 1.5 dB)	20 Hz to 10 kHz (+/- 0.5 dB)	20 Hz to 5 kHz (+/- 0.1 dB)
1500 feet (457.2 meters):	20 Hz to 15 kHz (+/- 2.1dB)	20 Hz to 10 kHz (+/- 1 dB)	20 Hz to 5 kHz (+/- 0.25 dB)
2000 feet (609.6 meters):	20 Hz to 15 kHz (+/- 3 dB)	20 Hz to 10 kHz (+/- 1.25 dB)	20 Hz to 5 kHz (+/- 0.5 dB)
2500 feet (762.0 meters):	20 Hz to 15 kHz (+/- 4 dB)	20 Hz to 10 kHz (+/- 1.75 dB)	20 Hz to 5 kHz (+/- 0.75 dB)

