Effects of Shielded Cable on High Frequency Response

| **Cable Type** | **Belden 8641 060100** | **Alpha 1705** | **Baseline**[1] |
|---|---|---|---|
| **Description**<br>12-inch length | Twisted pair, foil shield, drain wire | One conductor, spiral wrap | Hookup wire, conductors separated |
| **Measured Capacitance** | 35 pF[2] | 45 pF | 5 pF |
| **Frequency Response**[3] | | | |
| 0 Ω series, 1 MΩ shunt | ±1 dB 10 Hz – 100 kHz | ±1 dB 10 Hz – 100 kHz | ±1 dB 10 Hz – 100 kHz |
| 250 kΩ series, 750 kΩ shunt | ±1 dB 10 Hz – 15 kHz<br>–2 dB at 20 kHz<br>–4.5 dB at 30 kHz<br>–6.5 dB at 40 kHz<br>–8 dB at 50 kHz | ±1 dB 10 Hz – 15 kHz<br>–2.5 dB at 20 kHz<br>–5 dB at 30 kHz<br>–7.5 dB at 40 kHz<br>–8.5 dB at 50 kHz | ±1 dB 10 Hz – 30 kHz<br>–2 dB at 40 kHz<br>–3 dB at 50 kHz |
| 500 kΩ series, 500 kΩ shunt | ±1 dB 10 Hz – 10 kHz<br>–3 dB at 15 kHz<br>–4 dB at 20 kHz<br>–6 dB at 30 kHz<br>–8 dB at 40 kHz<br>–10 dB at 50 kHz | ±1 dB 10 Hz – 10 kHz<br>–3 dB at 15 kHz<br>–5 dB at 20 kHz<br>–7.5 dB at 30 kHz<br>–9.5 dB at 40 kHz<br>–11.5 dB at 50 kHz | ±1 dB 10 Hz – 20 kHz<br>–2 dB at 30 kHz<br>–3.5 dB at 40 kHz<br>–5 dB at 50 kHz |
| 750 kΩ series, 250 kΩ shunt | ±1 dB 10 Hz – 10 kHz<br>–1.5 dB at 15 kHz<br>–2.5 dB at 20 kHz<br>–5 dB at 30 kHz<br>–6.5 dB at 40 kHz<br>–8 dB at 50 kHz | ±1 dB 10 Hz – 10 kHz<br>–2 dB at 15 kHz<br>–3 dB at 20 kHz<br>–5.5 dB at 30 kHz<br>–7.5 dB at 40 kHz<br>–8.5 dB at 50 kHz | ±1 dB 10 Hz – 30 kHz<br>–2 dB at 40 kHz<br>–3 dB at 50 kHz |

**Notes**:
1 One foot of hookup wire, conductors separated.
2 Capacitance measured with black and drain wire connected on the measured end.
3 Response measured as a function of setting for a 1 MΩ potentiometer as detailed.