



# Wireless RF Test Enclosures

## JRE HDMI-1 HDMI 1.4 and higher Filtered Interface

**Easily test all HDMI devices in an RF Shielded test environment! Innovative new Patented design is NOT a low pass filter - which can impact data signals!**

- Fully HDMI compliant ver. 1.4 and higher including Ethernet
- Patented design utilizes new approach to filtering high speed data signals
- Unique ability to discern between Data and interfering RF signals
- Does not low pass filter or impact the HDMI signals
- 80 db isolation in test system from 50 MHz to over 6 GHz
- Rugged machined aluminum construction

The HDMI-1 Filter consists of a HDMI ver.1.4 and higher compliant filter inside a machined aluminum housing which provides exceptional RF shielding on all data and power lines.

The JRE HDMI-1 filter operates on an entirely new principle in data signal filtering. Previous filter designs used low pass filtering on the data lines to attenuate interfering wireless RF signals - however, as data speeds have increased, the data signals fall within the same frequency range as the interfering signals. Thus, simple low pass filtering cannot be used since such a filter will attenuate both the data and the interference.

Our Patented design uses an innovative application of signal phasing techniques and topology to filter out all RF signals except for the desired data signals. This ability to discriminate between data signals and undesired RF signals is especially valuable when testing at HDMI signal rates, since the signaling rate falls within wireless signal frequencies. Low pass filtering of the HDMI signal is not possible, since the 'stop band' of the filter has to be placed above the range of interfering signals - thus they passed through unattenuated. Previous to the introduction of the JRE HDMI-1 interface, non filtered, but shielded HDMI bulkhead connectors were used. Filtering was non-existent and depended simply upon the HDMI cable shield. Obviously, this 'lash-up' was extremely leaky, especially at higher RF frequencies. The JRE HDMI-1 and its patented design completely answers these issues.

Fully HDMI version 1.4 compliant including Ethernet, ARC, CEC, HEAC. The filter 'appears' to the devices as just a two meter long HDMI cable. Different versions of HDMI (1.0 - 2.X) pertain only to the source and sink device ports - the cable and filter remain the same, with the cable and filter loss being the limiting factor.

The HDMI filtered interface consists of balanced pairs of data lines utilizing proprietary signal phasing techniques along with appropriately filtered lines for the control and low frequency conductors. Standard HDMI Type A connectors are used allowing simple and reliable connection to your HDMI devices. The signal line filtering passes the HDMI signal data while providing rejection of 80 dB to undesired RF wireless signals. Included is a HDMI Type A Male to Male jumper cable.

Tight RF shielding to the enclosure wall is assured by the use of a series of 4-40 size mounting screws (template included for stand alone installation). Tests made on competitive filters utilizing a single hole mount with large securing nut were prone to leakage since the coarse thread pitch does not allow a reliable flat seat against the enclosure wall. Additionally, the single mechanical point of securing the filter is subject to loosening and even a tiny loss of tightness results in leakage. Our specifications are measured with the filter installed in an enclosure - and with the same reliability no matter how many times connectors are inserted or the filter bumped or jostled. The smaller size also allows more filters on the I/O plate.

### FEATURES & BENEFITS

- Patented unique design discerns between data and RF signals
- Extremely wideband operation, from low VHF through microwave
- Low loss, appears to the devices as a two meter long cable
- Heavy duty machined aluminum case for reliable shielding and ruggedness
- Multiple points of attachment secures without rotation or loosening

### SPECIFICATIONS:

- Insertion Loss on signal lines: less than 5 dB
- 80 dB isolation in test system configuration
- Data Line Balanced Impedance: 90 Ohms typical
- Low frequency lines: 0.1 ohms, -20 db @ 1 MHz, -80 db @ 10 MHz to 6 GHz

### DIMENSIONS

Outside: 2" H x 3.2" W x 0.8" D 50 x 80 x 20 mm



### JRE HDMI-1 Filtered Interface Adapter

**HDMI Inside:** HDMI Type A Female Connector

**HDMI Outside:** HDMI Type A Female Connector

**Power capability:** 50 VDC at 1 amp. DC resistance each leg, 0.1 ohms

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