

## White Paper on **Entegralé** Ultimate Link and Reference Link Cables

There are hundreds of companies manufacturing to HDMI standards in the world today, yet there are fundamental manufacturing technologies that differentiate the good from the best. Why is this the case? Are there technologies and processes available that might solve modern-day custom install problem more ably than simpler shortcut approaches do?

This paper will provide a brief overview of the requirements of any HDMI manufacturing process along with a description and perspective on why **Entegralé** solves problems the way we do today.

A closer look at some of the current problems faced in the transmission of high quality, undistorted video sound formats show a plethora of companies that manage to meet a specification yet fail to bring the final high end requirements of reliability, consistency and certification above and beyond the base standards.

**Entegralé** cables are ideally built for transmission of ultra-sharp images in 4K resolution, lossless HD audio, perfect 3D images and broad spectrum deep color. Solid metal shielding eliminates external interference while a strengthened strain relief ensures longevity in installation. An integrated channel for transmitting network data and return of the audio signal from source without additional audio cable reduces cable redundancy. Overall adoption and application of the latest HDMI standards ensures long term technology readiness.

A consolidated production facility includes cable manufacturing; connector manufacturing and assembly, all under one roof thereby providing a production consistency and quality control that cannot be matched by an assembled production method. This process is probably unique in this industry.

1. In spite of the above, over 10 quality control tests are implemented on each cable piece and over 5 tests on each cable batch to ensure that in-house production is not taken for granted for quality.
2. Because each individual cable is tested for physical performance on a BER machine and for visual display on a physical TV, along with other tests, the expected failure rate is below 3/100th of a percentage point.
3. Connector wires on the inside of the head are gold plated rather than just the cover which carries no signal, to ensure greater surface to surface contact and hence optimum signal transmission.
4. Zinc alloy die cast anti-fatigue head provides a 10 lbs (4kgs) retention force to ensure that there is zero callback of the installer for a loose connection. We chose this over various locking mechanisms that are available as feedback from real world case studies from around the world showed that locking mechanisms have actually ended up damaging internal HDMI receptacles when excessive force is applied accidentally or by intention. The expensive die cast method and high quality of raw materials ensure that the head remains fatigue free and does not change its shape for a minimum of 1000 insertions, which should more than adequately cover the life of any cable.

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6) **Entegralé** cables use a 15 micron thick metal cover over the connecting points within the head to ensure:

- a. Extremely minimized EMI interference in comparison to other cables which have only a thin copper foil that provides no real protection.
- b. Greater distribution of pressure applied by fingers during normal use of the cable, over the entire length of the connector plus strain relief, to minimize chances of dislodging the extremely delicate 19 soldered connectors.

7) All soldering is done with a patented automated infrared process for the following benefits:

- a. Reducing the need to tinfoil the copper wire which only adds a manufacturing process and often leads to microscopic internal fracturing of the copper wire that is otherwise invisible to the human eye but leads to interference on the display.
- b. Even amount of soldering material is applied on all the 19 pins.
- c. Exactly the same temperature and duration is applied not only to the 19 pins in each cable but also to the entire batch to provide an unprecedented level of consistency.
- d. The automated process practically removes the chance of any loose soldering which would be invisible to the human eye during normal inspection.

8) All cables are CMG rated for in wall use.

**Entegralé** cables are researched and designed in Denmark, the world's centre for excellence in audio and video technology. Blending the highest levels of technology with state-of-the-art manufacturing and build quality provides long lasting cables that deliver cutting edge quality - far beyond HDMI 2.0 and 1.4 standards. Our advanced design, testing and manufacturing processes have successfully overcome the challenges of evolving specifications and fast paced quality manufacturing.

**Entegralé** cables are among the world's first DPL Labs 4K, 18GBPS, Deep Color certified line of cables.

Our highly advanced in-house standards for data transmission speed and materials ensured even our inaugural line passed the world's most stringent test bench at DPL Labs on our first attempt.

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