

## HD BNC or Micro BNC – What’s in a name?

When COAX Connectors developed their range of Micro BNC connectors, they were specifically designed to be interchangeable with HD BNCs from Amphenol. If equipment is built using HD BNCs, it is entirely safe to connect with Micro BNCs and vice versa. Let us consider some connector design basics.

The interface dimensions – the interface is the area of a connector where two mating connectors meet. The design and dimensions of a plug must be suited to those of the opposing socket or jack, and as long as these dimensions are well matched, the 2 halves of a connector pair can be mated without causing damage to the other.



The dimensions are therefore more important than the name - a COAX Micro BNC with interface dimensions compatible with an Amphenol HD BNC will comfortably mate without causing any problems.

Independent of the interface dimensions used in the COAX Connectors Micro BNC, COAX have carried out testing where HD BNC and Micro BNC are connected and exposed to a high number of mating cycles to determine whether damage occurs and have re-affirmed the compatibility of these two series, see Appendix 1.

Signal performance – the signal performance that is achieved along a transmission line that includes a pair of mated connectors is another question. The signal traveling along the transmission line can be affected by many factors, each connector will have some effect on this signal.

As the demand for higher frequencies to handle High Definition TV increases, the ability to keep signal loss to a minimum at these high frequencies is paramount. At COAX Connectors, the Micro BNC was designed with consideration to future HD TV requirements, and testing the connector up to 6GHz has confirmed that they outperform other connector series using the same interface. In addition, the unique extended body (patent pending) of the COAX Micro BNC, makes insertion and extraction as simple as a standard BNC.

Whilst it is perfectly acceptable to mix Micro BNC and HD BNCs, the best overall results will be achieved by having Micro BNC connectors throughout a system.

For further connector information or to discuss the performance of Micro BNC from COAX Connectors, please contact - [info@coax-connectors.com](mailto:info@coax-connectors.com).

## Appendix 1

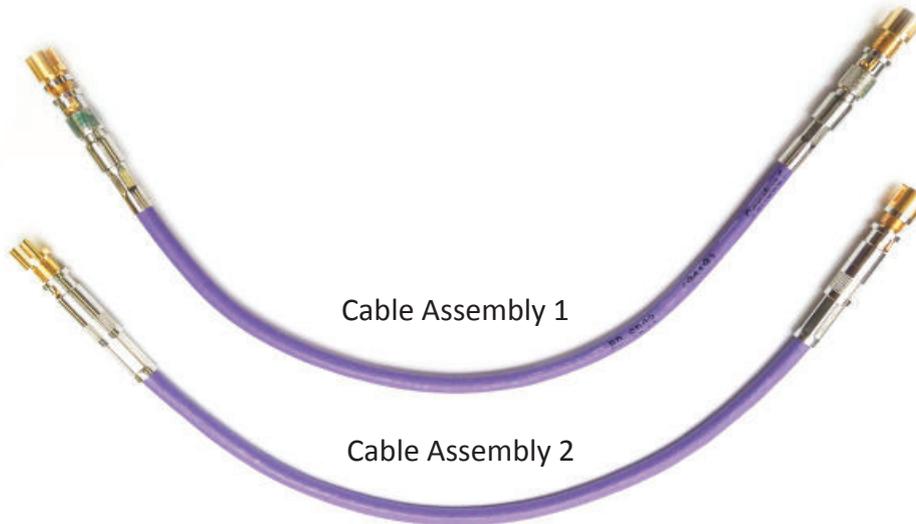
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### Comparative testing of COAX Connectors Micro BNC with Amphenol HD BNC connectors

Connectors undergoing test:

- Micro BNC Plug 67-005-B66-FA (COAX Connectors)
- Micro BNC End Launch Jack 67-463-D66 1.6 (COAX Connectors)
- HD BNC Plug (Amphenol)
- HD BNC End Launch Jack (Amphenol)

Configuration:



- Cable Assembly 1 – Amphenol HD BNC cable plugs to COAX and Amphenol Jacks
- Cable Assembly 2 – COAX cable plugs to COAX and Amphenol Jacks

Cable Assembly 1

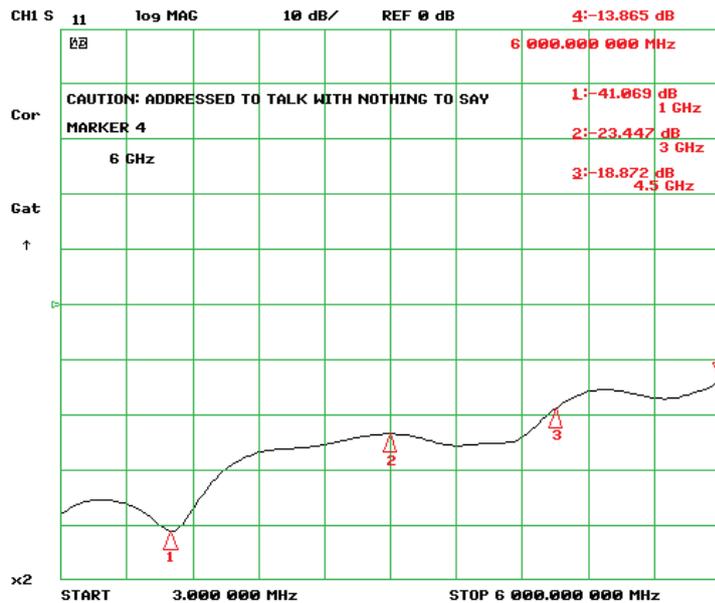
|          |   |                                      |
|----------|---|--------------------------------------|
| Results: | Initial inner contact resistance – 32.6mohm | After 250 mating cycles - 38.71mohms |
|          |   | After 500 mating cycles - 38.55mohms |
|          | Initial outer contact resistance – 5.91mohm | After 250 mating cycles - 5.46mohms  |
|          |   | After 500 mating cycles - 5.67mohms  |

Cable Assembly 2

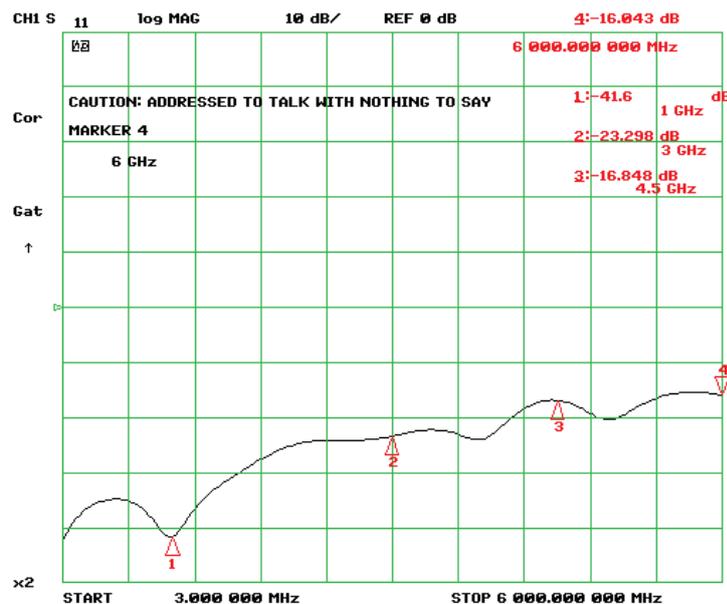
|          |   |                                      |
|----------|---|--------------------------------------|
| Results: | Initial inner contact resistance – 32.2mohm | After 250 mating cycles - 32.76mohms |
|          |   | After 500 mating cycles - 34.66mohms |
|          | Initial outer contact resistance – 7.65mohm | After 250 mating cycles - 6.58mohms  |
|          |   | After 500 mating cycles - 6.85mohms  |

## RF Return loss results after 250 and 500 mating cycles

Amphenol HD BNC plug to HD BNC plug cable assembly - 250 mating cycles with COAX Connectors Micro BNC and Amphenol jack connectors

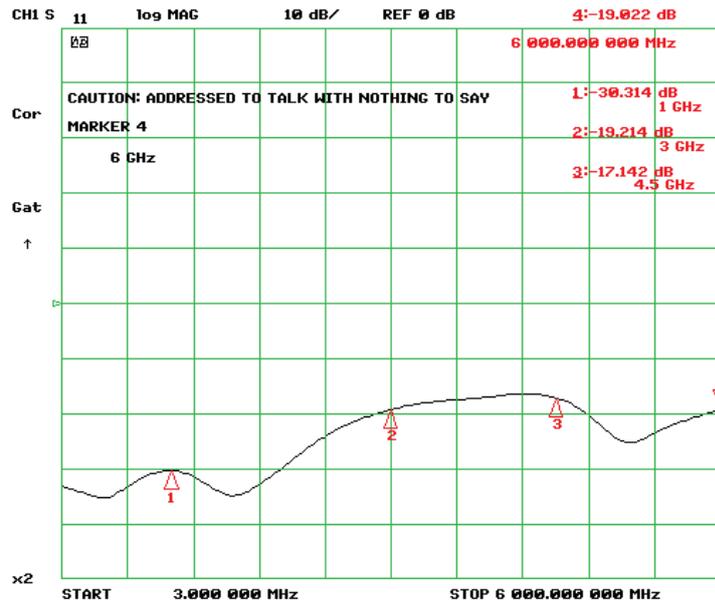


Amphenol HD BNC plug to HD BNC plug cable assembly - 500 mating cycles with COAX Connectors Micro BNC and Amphenol HD BNC jack connectors

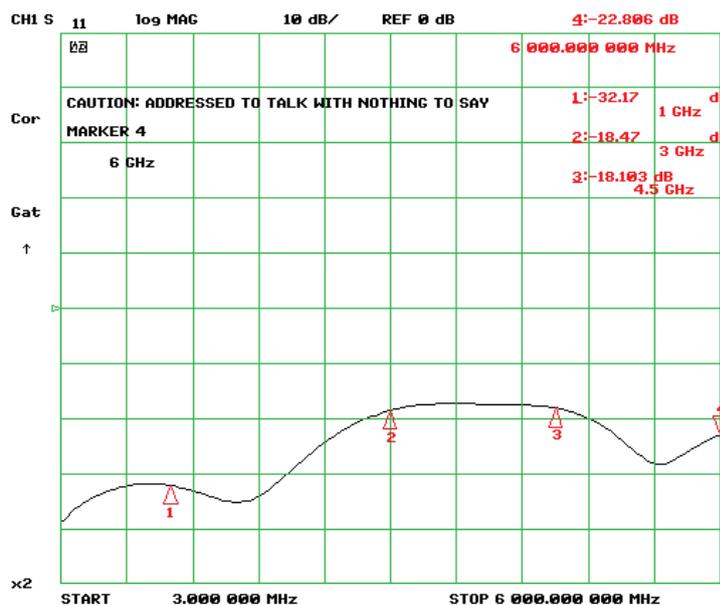


## RF Return loss results after 250 and 500 mating cycles

COAX Connectors Micro BNC plug to Micro BNC plug cable assembly - 250 mating cycles with COAX Connectors Micro BNC and Amphenol jack connectors



COAX Connectors Micro BNC plug to Micro BNC plug cable assembly - 500 mating cycles with COAX Connectors Micro BNC and Amphenol jack connectors



## Conclusion

Micro BNC (COAX Connectors) mated with HD BNC (Amphenol)

No significant wear was incurred during any of the mating cycle testing proven by the consistent inner and outer contact resistance measurements and the consistent RF Return Loss results. The connectors perform well when intermated at the extremes of their specification mating requirements.

## Observation

For use in Broadcast industry systems, the standards SMPTE 292M & 424M indicate performance levels required for High Definition SDI transmission. The data in this report shows that Micro BNC from COAX Connectors exceed these requirements.

Test conducted by COAX Connectors Ltd., October 2013