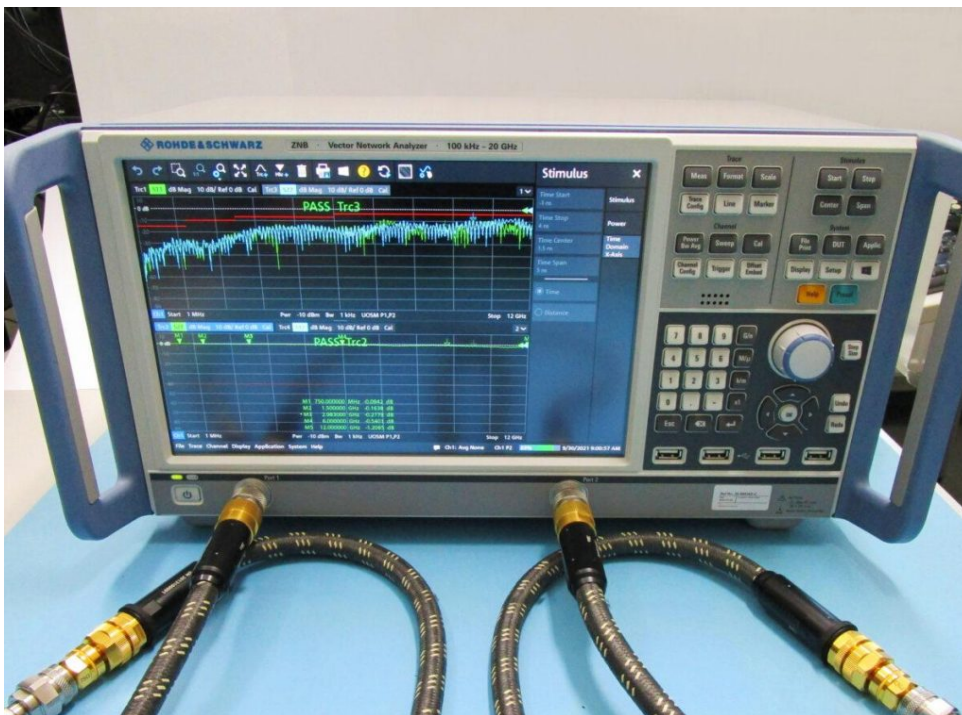


KLOTZ 12G video cables with guaranteed quality

Posted on October 5, 2021



Who hasn't been confronted with questions about the transmission quality of premade video cables? Carrying out research, Klotz discovered that information in data sheets is usually only mathematical extrapolations and not based on

sound measurements. Enjoy this interesting read from Klotz.

As an ISO 9001-certified company, we were no longer willing to put up with this situation and decided to invest in new measurement technology that would be fully integrated into the production process right from the start. This project did not come entirely without its own challenges, which had to be solved in advance.

Commercially available measuring devices for 50-ohm technology are only partially suitable for the 75-ohm systems used in broadcast. So we had to find a measuring device that was suitable for 75-ohm video cables and could be smoothly integrated into our series production. In addition, a calibrated measurement setup should be easy and efficient to realize in order to prevent falsification of the measurement results. Mathematical extrapolations should absolutely be avoided.

Furthermore, it is necessary to be able to map the entire frequency spectrum for UHD 12G signals. Reliable results can be expected for digital signals for measurements up to the 3rd harmonic as a reasonable compromise, which corresponds to 18 GHz for 12G/4K signals according to SMPTE ST 2082-1. As measurement results, it must be possible to map the continuity of the characteristic impedance, the resulting return loss and the linear frequency-dependent attenuation as essential parameters. After appropriate research, a vector network analysis was found to be the solution.

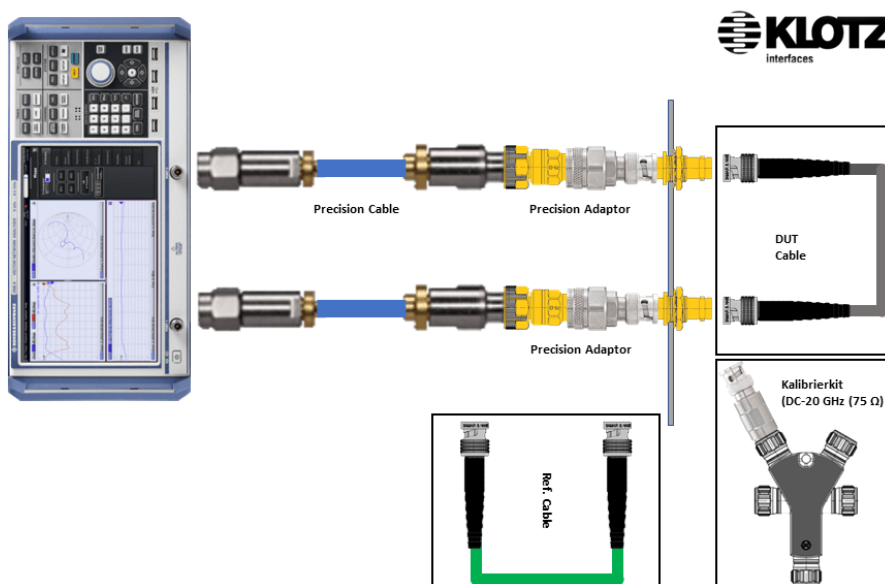


Since these network analyzers are only available in 50 ohms, a transformation of the

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characteristic impedance at the inputs had to be performed. The question arose as to whether corresponding high-quality and technically suitable components were available in the market. In close cooperation with Rohde & Schwarz, we were able to develop a measurement method that enables exact calibration to 75 ohms on the adapted measurement port. For us, a ZNB series network analyzer with high-precision test leads and adapters proved to be the ideal solution.

In addition, a way had to be found for calibration on BNC connections, which are commonly used in video technology. For this purpose, a solution with a specially developed high-precision 75-ohm calibration set up to 20 GHz was chosen. With this newly developed measurement system integrated in production, we can now perform transmission measurements (attenuation) in both directions S12 and S21, reflection measurements (return loss) S11 and S22 at both ends of the cable. Simultaneously, time domain gating measurements for impedance deviations in the cables and on connectors can now be determined over the entire frequency range. KLOTZ 12G video cable series are available with BNCPro connectors from Damar & Hagen or with Neutrik UHD BNC.



After completing a 1.5-year development phase, we were able to commission the 12G test station

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at the Vilchband plant in late September. This enables us to offer our customers not only the outstanding KLOTZ manufacturing quality, but also the necessary 12G measurement in order to be able to guarantee you a high level of operational reliability.

Upon request, you will receive a measurement report confirming the electrical parameters along with your KLOTZ 12G video cable.