



PHASE MATCHED RF CABLES



SCAN ME TO WATCH
PHASE MATCHING PROCESS

What is Phase Matching?

A set of precisely manufactured and tested RF cables that have the same electrical length at a set frequency (measured in degrees) based on end-user requirements.

Why is this important?

RF cables used together in a system need to be matched for proper performance. Matching can be required from pairs through entire lots of cables, and demands precise and unique manufacturing protocols.

What makes this service unique?

Precise and consistent manufacture of phase matched cables requires specialized equipment and skilled, experienced technicians. CDM's unique phase matching program provides a one-stop source for customer material requirements, match testing and final assembly.

What are CDM's capabilities?

- Rohde & Schwarz ZNL20 Vector Analyzer, frequency range 5kHz to 20 GHz.
- Rohde & Schwarz ZNLE Vector Analyzer, frequency range 100kHz to 20 GHz.

What are typical applications?

- **Aerospace and Military:** In the field of electronic warfare, phase matched cable assemblies play a crucial role. These systems demand accurate timing and signal quality to perform at their best.
- **Radar Technology:** Whether operating in space, airborne or on the surface, contemporary radar technologies employ timed components to accurately monitor and track an extensive array of targets. Utilizing phased matched cables, these advanced radar technologies can accurately track and visualize their targets.
- **Healthcare Equipment:** Magnetic Resonance Imaging (MRI) devices and Computed Tomography (CT) scanners all rely on high-frequency components, and the use of phased matched coaxial cables guarantees the production of high-quality diagnostic images.
- **Communication Systems:** Communication satellites and cellular base stations utilize phased matched coaxial cables to guarantee that the communication between the base station and the system is completely synchronized, optimizing system reliability.

Phase Matching Protocols

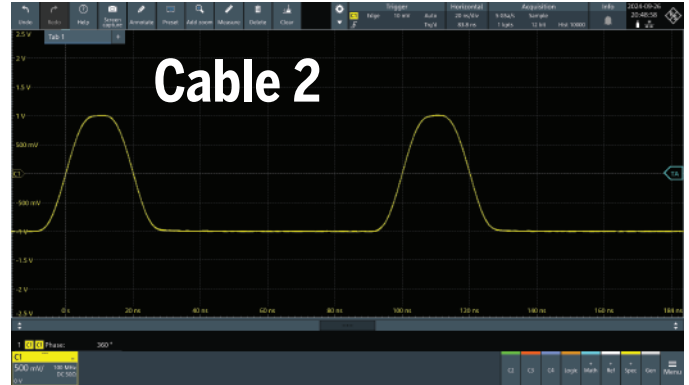
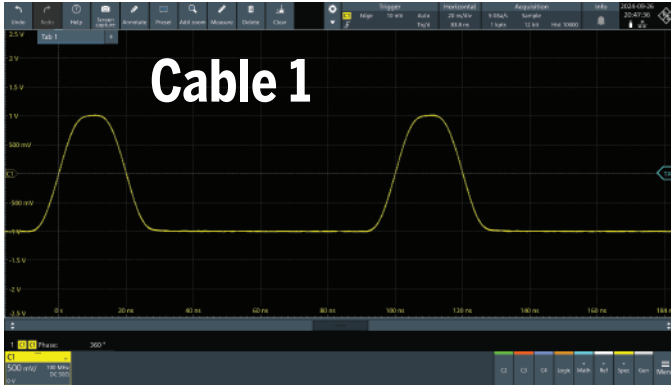
- **Relative Matching:** Cables within a group will have the same phase relative to each other, but not all groups will have the same phase.
- **Absolute Matching:** Every cable in a group must be in the same phase, matching to a customer defined length.

Production Protocols to Achieve Phase Matching

- Cut all cables to the exact same length with very tight tolerancing and ensure all cables are assembled the same way. The intention is that the cables will meet the performance standards through strictly physical tolerance. These cables are expected to be phase matched during production and will undergo testing on a network analyzer to verify.
- There are applications and requirements where setting the physical length is not sufficient for achieving performance objectives. For these requirements a "trimming to length" protocol is used. RF cable assemblies are only partially finished, the measurement evaluated, and the cable is consistently shortened until its performance meets the required standards.



Examples:



CDM is a proud supplier of engineered cable assemblies to:

BAE Systems, Boeing, CACI Technologies, Collins Aerospace, Defense Supply Center (DSCC), General Dynamics, L3-Harris, Leidos, Lockheed Martin, Northrop Grumman, Raytheon

Company Information

Cage Code 42827 | NAICS Codes 334417, 336413, 334419, 335929, 335931 | ISO 9001:2015 Certified | AS9100D Certification | ITAR Registered
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