TROUBLESHOOTING TEST FACILITIES WITH A HIGH RESOLUTION INSTRUMENTATION RADAR

T.J. Lyon and A.R. Howland
The Howland Company, Inc.
Decatur, Georgia, USA

This paper presents data from facility evaluation tasks on current projects. The data were obtained on outdoor free-space pattern test facilities, and in anechoic chamber RCS test facilities.

The instrumentation systems utilized a specially-constructed Frequency Domain Analyzer (FDA) based on FM/CW radar techniques, in combination with the facility test systems. The data produced is a real-time hard-copy display of signal level vs. distance, similar to a radar A-scope display.

The objectives of the evaluation tasks were to determine the location and relative level of extraneous EM sources, to reduce troublesome sources to acceptable levels, and to document overall facility measurement capability.

The FDA allows the operator to separate the direct path (desired) signal from extraneous signals as a function of distance, and to compare the signals in level. Resolution in distance can be set to one foot or better for equal magnitude signals, over a dynamic range of at least 70dB.

This paper highlights similarities and differences of FDA data and that obtained in more familiar evaluation techniques such as field probes, free-space VSWR cuts, and pattern comparisons.

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