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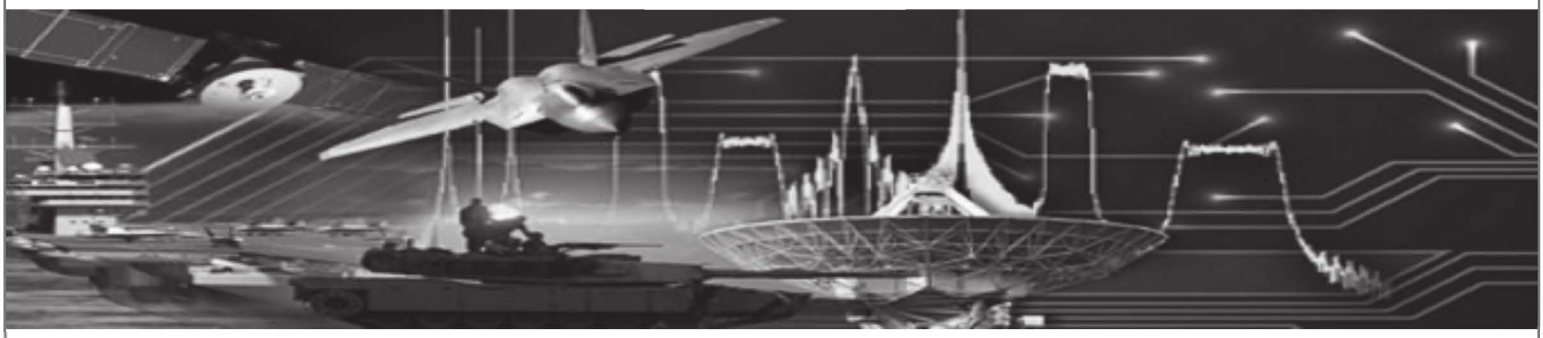


Electromagnetic Radiation Effects (EMRE) Application

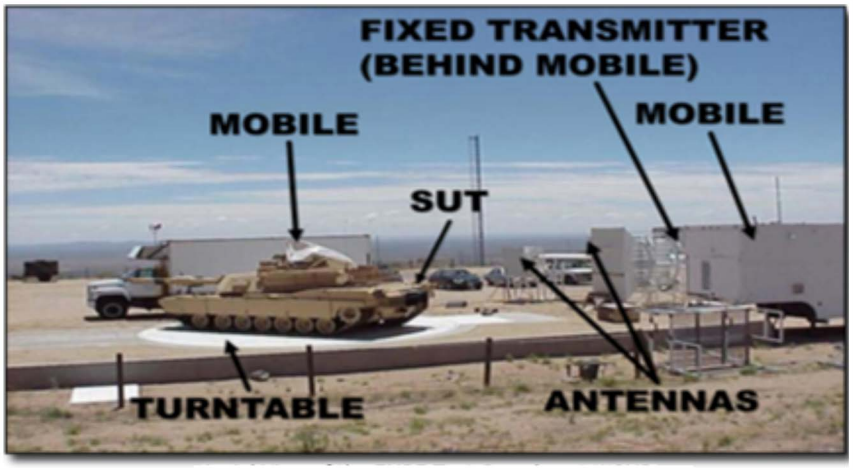
CASE STUDY: TCS001

Claude Sweeton
Sr. Sales Engineer
TEVET

CUSTOMER: DoD US Army White Sands Missile Range
SOW: W9124Q-14-Q-2462

The U.S. Army White Sands Missile Range (WSMR) Electromagnetic Radiation Effects (EMRE) facility is one of the largest Open Air Tests (OATS) facilities in the USA. The facility provides full body illumination testing of large vehicle systems. Many large test items come to EMRE every year to conduct their mandatory Electromagnetic Environmental Effects (E3) testing.

The EMRE facility needed a high-speed Arbitrary Waveform Generator (ARB) because the ARB already in use at EMRE had limited frequency range and poor programmability, which inhibited full safety testing of many items.



Aerial View of the EMRE Test Complex at WSMR

The EMRE required an ARB that would provide broadband signals up to 20 GHz, 50 GSa/s with all the latest modulations that the DoD has used over the past 7 years. This ARB would also add the ability to generate signals specific to the test item so that a more thorough evaluation of item performance could be achieved.

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MINIMUM REQUIREMENTS

The new ARB would be used for testing to Mil-Std-461 and Mil-Std-464. This ARB would also test for one specific application, Radio Desensitization, which currently was only performed in a very limited manner at WSMR. Also, a new test application required a signal which could not be generated by any of the equipment available on WSMR, and the new ARB would be able to generate this signal. Therefore, adding this capability at EMRE would solve not only current testing shortfalls, but would provide an enhanced capability, improving the overall White Sands Test Center capabilities.

MINIMUM TECHNICAL REQUIREMENTS

- Minimum Frequency Bandwidth: 20 GHz
- Minimum Sample Rate: 50 GSa/s
- Minimum 10 bit resolution
- MATLAB compatible
- GPIB Controllable
- Able to generate signals such as Radar, RF Comms, OFDM, UWB
  - o If an external software package is necessary for signal generation, it must be included in the bid.
- Perform modulations such as WiMAX, WiFi, GSM, CDMA
  - o If an external software package is necessary for signal generation, it must be included in the bid.
- Able to generate White Noise Signals and mix with a modulated output signal
- Must include a 2 year (minimum) annual calibration service, 1 year (minimum) warranty

TEVET SOLUTION

TEVET contacted the engineering team at WSMR directly to understand completely the requirements and the test challenges they were facing. TEVET completed a full gap analysis of what was required for not only today's needs, but also future capabilities the customer may require. After evaluating several technologies from a variety of providers, TEVET settled on the Keysight M8195A. The M8195A 65 GSa/s ARB met and surpassed each of the technical requirements, plus it included a 3 year warranty which saved the program additional money. Our internal engineering expertise, validated by Keysight subject matter experts, enabled TEVET to deliver a highly robust solution that exceeded the customer's expectations.

KEY TECHNICAL ADVANTAGES

- Provided 65 GSa/s Sample Rate vs. the 50 GSa/s requirement = 30% performance improvement
- Provided 4 Channels vs. 1 Channel of the competitive ARB = 4x channel density
- Provided built-in Phase & Frequency response calibration for cleaner signals
- Built on the AXIe platform –vs a single box platform = greater flexibility
- 3 year standard warranty