Outermost Technology

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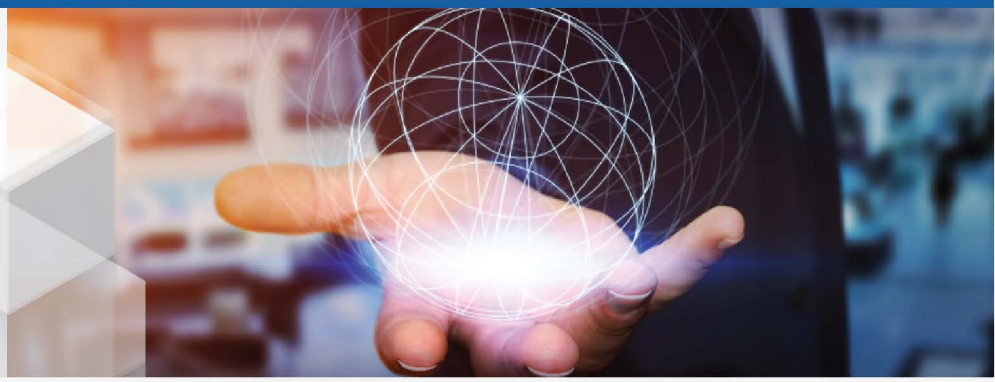
RF Biased Life (RF HTOL)

Reliability Testing



Why Work with Us?

Scalable Cost
Test labs in US and Asia

Advice & Project Management
Compliments your native skill sets

AEC, JEDEC, MIL-STD, Custom
Test methods applied to development, qualification, and QMS projects

What is RF Biased Life?

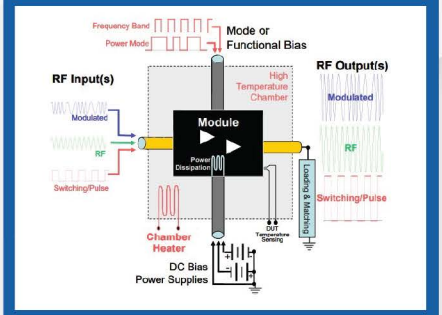


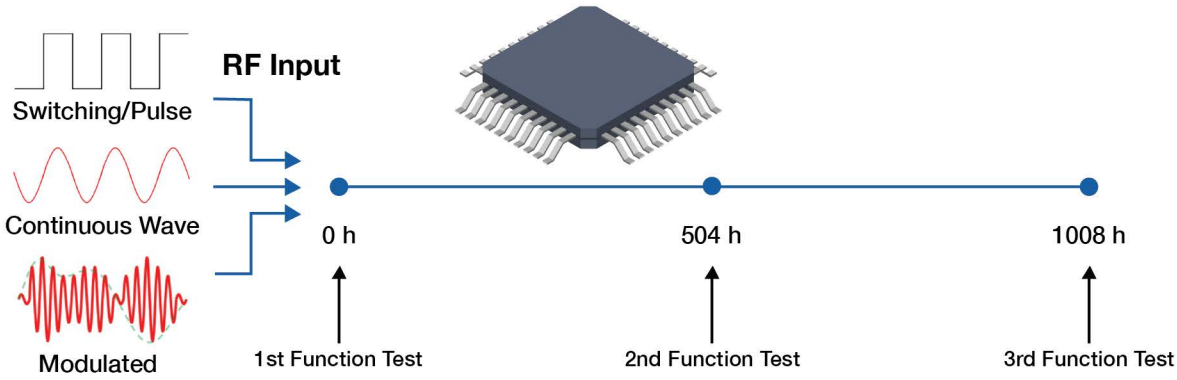
Diagram of RF Biased Life Signal Flow

- RF biased life (RF HTOL) test method, JESD226, is intended to determine the effects of nominal DC and RF bias conditions and high temperature on power amplifier modules over time
- Primarily intended for device qualification & reliability monitoring
- Induces accelerated lifetime using continuous stress conditions
- Minimum duration of 500 hours
- RF biased life setup can include measurements at prescribed read points, like S parameters, IP3, P1dB, P3dB, and noise figure

RF Biased Life (RF HTOL) Procedure

RFBL (RF HTOL) = High Temperature + RF/DC Bias + Time

The typical test sequence is described below:



The inclusion of the functional test in the sequence addresses time-zero requirements. The signal produced by our high-quality generators is very accurate and stable over time allowing us to create reliable statistics of the components' lifetime.

Reliability Testing for RF HTOL

Input	DUT	Output
Signal Generator Maker: Keysight Model: N5183A~B	**Test Board**	**Network Analyzer** Maker: Keysight Model: ES072A
		Spectrum Analyzer Maker: Keysight Model: N9020A-B
Power Supply Manufacturer: SuNAM Model: NEOS-400	**High Temperature Chamber** Maker: AD&T Model: HTS-12	**Power Meter** Maker: Keysight Model: N1912A
		Noise Figure Maker: Keysight Model: N8974B

Functional Testing: Measured Parameters

Measured Parameters	Conditions
S parameter	Ratio of output voltage to input voltage over the frequency distribution
Third-order Intercept Point (IP3)	IM (Intermodulation Distortion) is measured and reflects the DUT non-linearity which produces additional intermodulation when more than two tones are applied. IP3 is then calculated and used as a figure of merit for IM3
P1dB, P3dB	Automated sequence measures 1db gain compression point (P1dB) considered to be the limit of linear operation of the amplifier as well as the 3dB compression point (P3dB) that is pretty close to the saturated output
Noise Figure	Indicates how much noise is added to the original signal by the various circuit blocks. This is a measurement of the SNR degradation

408-721-6800 contact@outermost-tech.com 2975 Scott Boulevard, Suite 115, Santa Clara, CA 95054

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