
DUT (Device-Under-Test) FIXTURING DESIGN CONSIDERATIONS & APPROACHES

The Standard Device Packages that Accel-RF can accommodate within our DUT Fixtures are as follows:

- Internally Matched (IM) FET packaging
 - IK (4 hole flange) – Eudyna
 - MK (2 hole flange) – Eudyna
 - IB (2 hole flange) – Eudyna
 - 2-16G1B (4 hole flange) - Toshiba
 - 2-11D1B (2 hole flange) – Toshiba
- Kyocera Packages
 - 191 (2 hole flange)
 - 1419 (2 hole flange)
 - 1424 (2 hole flange)
 - A8585R (4 hole flange)
 - A9049R (4 hole flange)
- Materion/Zentrix
 - RF701 (2 hole flange)
 - RF70124 (2 hole flange)
 - RF708 (2 hole flange)
 - RF72402 (2 hole flange)
- Stratedge
 - 580286 (4 hole flange)
 - 580274 (2 hole flange)
 - 580348 (4 hole flange)
- Egide
 - CHF009007 (2 hole flange)
- Schott
 - USL 21099 (6-pin FET Style)

Additionally, we can design clamping/mounting hardware to be able to support a standard package, for example, a specific two-hole flange-mount carrier-plate or custom package. To do this, we would need to get the mechanical drawing or we would need to contact the part manufacturer.

Usually, the parts required for configuring the test fixture include:

1. Input matching circuit assembly, which consists of a circuit board and surface mount components for bias and RF matching (caps, resistors, inductors). This circuit will be placed in the fixture area that is next to the DUT. It will need to operate at temperatures as high as 85° C to 95° C max.
2. A DUT assembly, which consists of a package, mounting clamps, and DUT. This assembly will get hot. The max temperatures can be >200° C to 300° C. All material should be able to handle these temperature levels.
3. Output matching circuit assembly, which consists of a circuit board and surface mount components for bias and RF matching (caps, resistors, inductors). This circuit will be placed in the fixture area that is next to the DUT. It will need to operate at temperatures as high as 85° C to 95° C max.

Accel-RF has drawings and may have inventory for the input and output matching circuit boards, the DUT assembly adapter-plate, and the mounting clamps. The customer can purchase these from Accel-RF or design and “fab” their own parts.

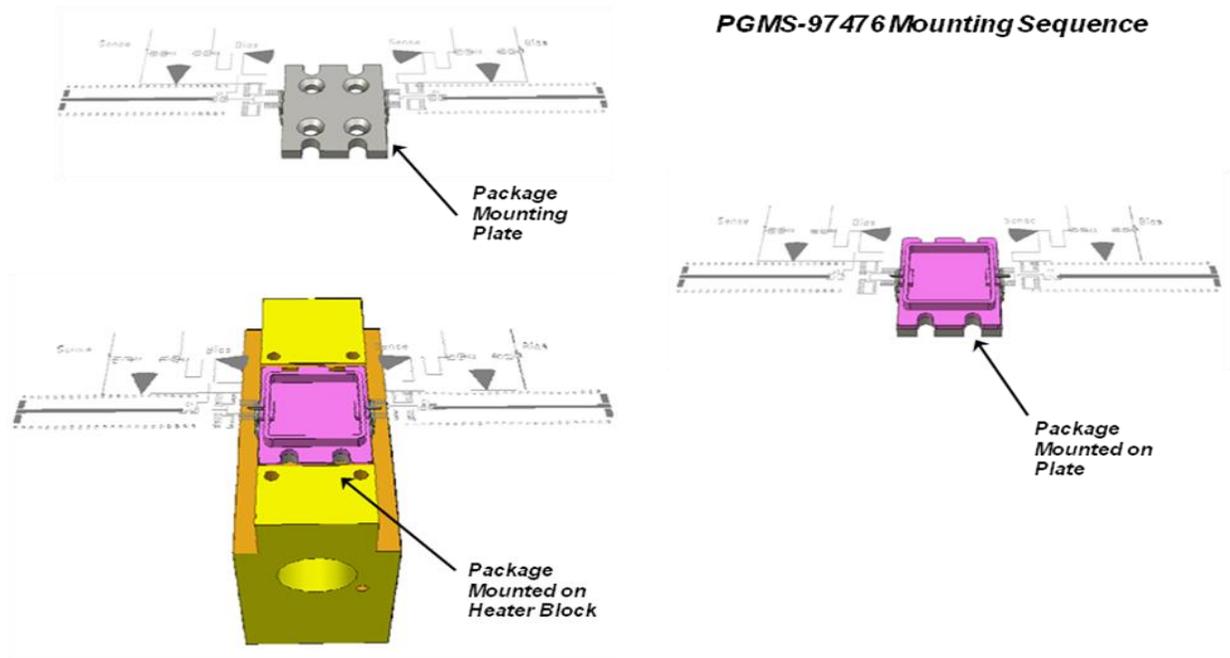
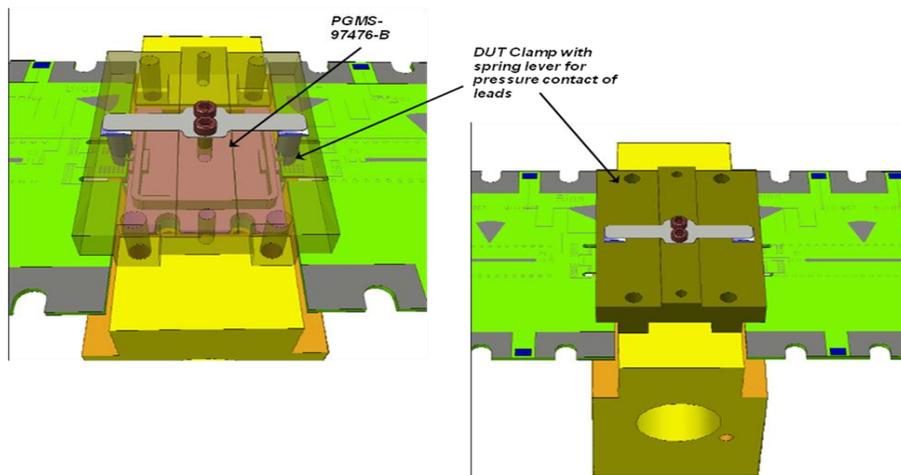
It should be noted, that the circuits for matching the input and output impedance or for output “power-matching” are not typically included with the AARTS system quotation. These items are considered accessory items. Accel-RF can design the circuit boards if we get information such as “S-Parameters” or source and load gammas. In any case,

whether Accel-RF or the customer designs, fabricates, and assembles the matching circuits, these are typically **required** throughout the use of the system because they are specific to the device or device package to be tested. These circuit designs usually change based on a specific device type. When a different device is going to be tested, a different matching-circuit design will be developed. MMIC devices may utilize a common input and output circuit as long as the test package remains constant.

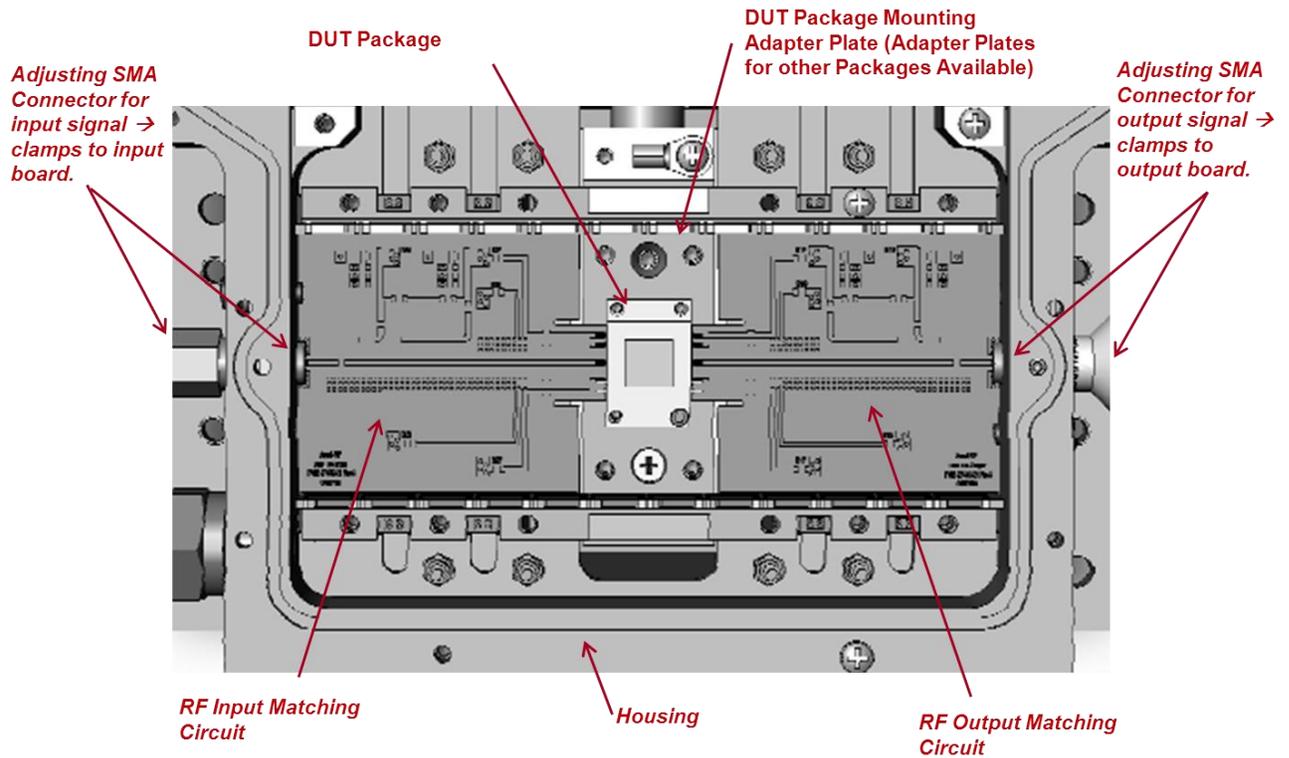
Accel-RF will give the customer the dimensional requirements for each of these assemblies so that the appropriate circuits can be designed and fabricated. In addition, Accel-RF can supply part or all of these assemblies at a cost TBD based on the customers design requirements and quantity of parts.

Accel-RF suggests that a conference call be planned with the customer after some preliminary information exchange has taken place. The DUT fixture configuration should be determined and purchase-parts ordered in time to have devices characterized and ready for mounting in the system when received.

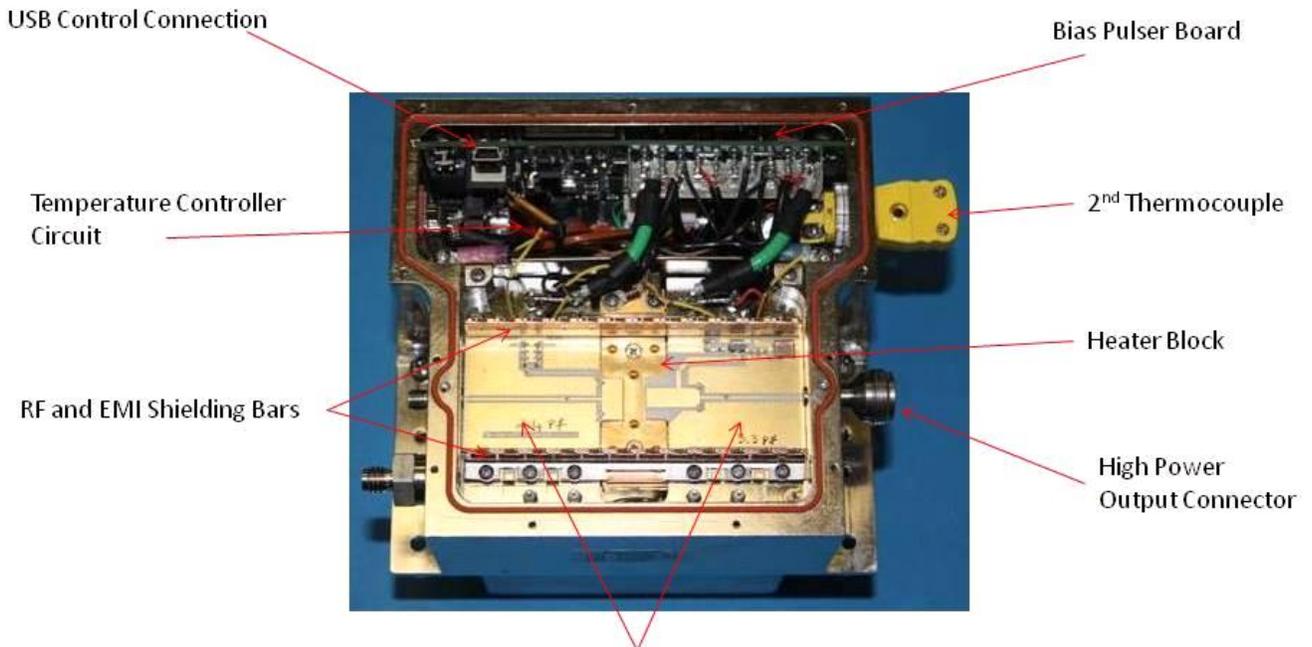
Example of PGMS-97476-B (2-pin or 6-pin) Package in Existing AARTS Fixture



AARTS DUT Fixture with RF Items Shown



AARTS DUT Fixture with Subsystem Items Shown

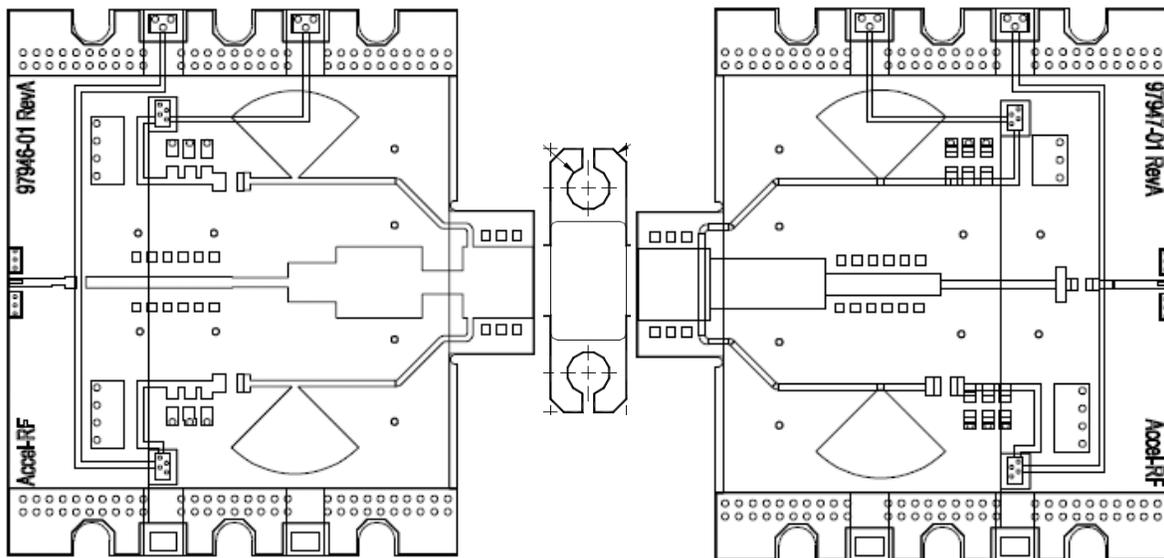


MMIC 50 Ohm Through Lines – can be configured with Bias Tees or Custom Matching circuits. This single board concept (One Input and One Output) can be changed without welding and maintains excellent RF properties.

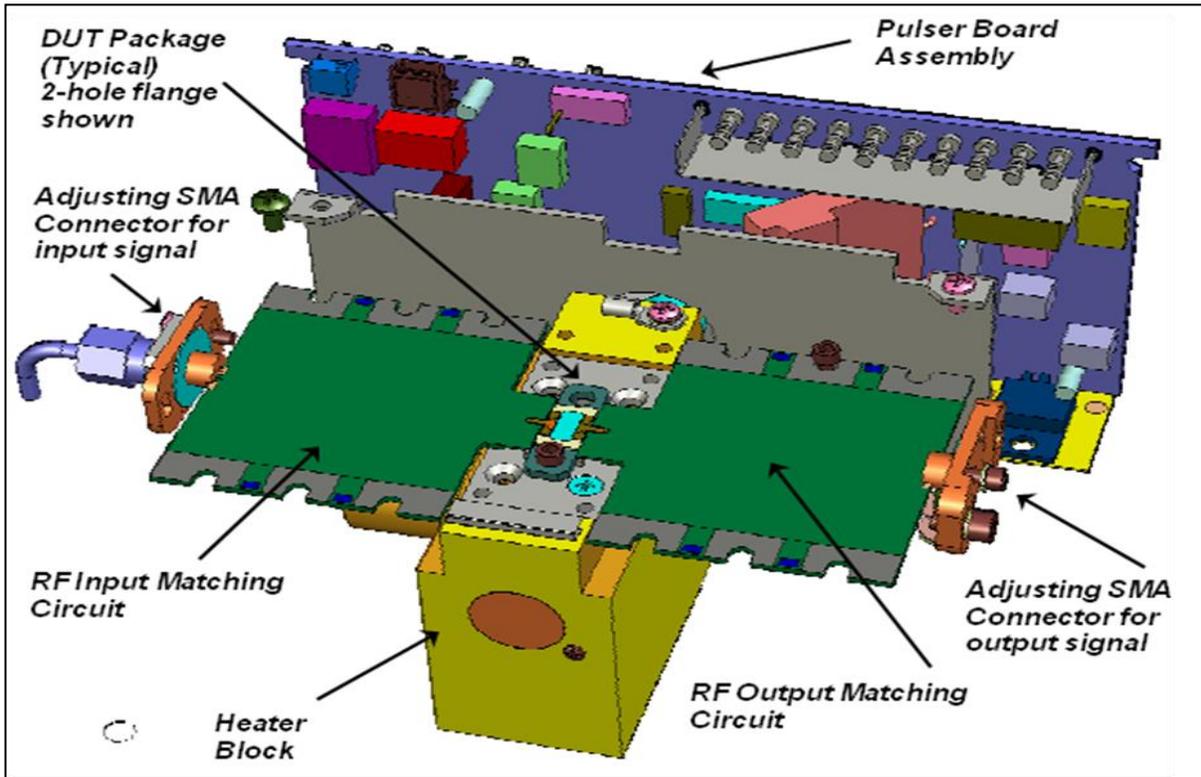
DUT and Example Input / Output Matching Circuits as Assembled in SMART Fixture Housing



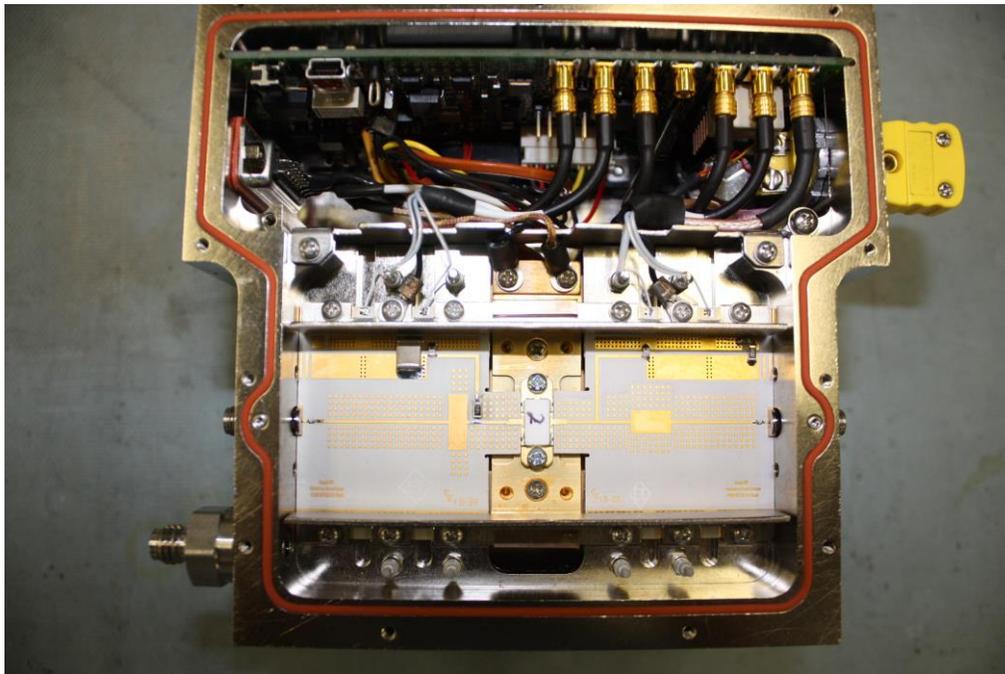
Top View Assembly Drawing (Discrete FET matched at 2GHz +/- 200MHz)



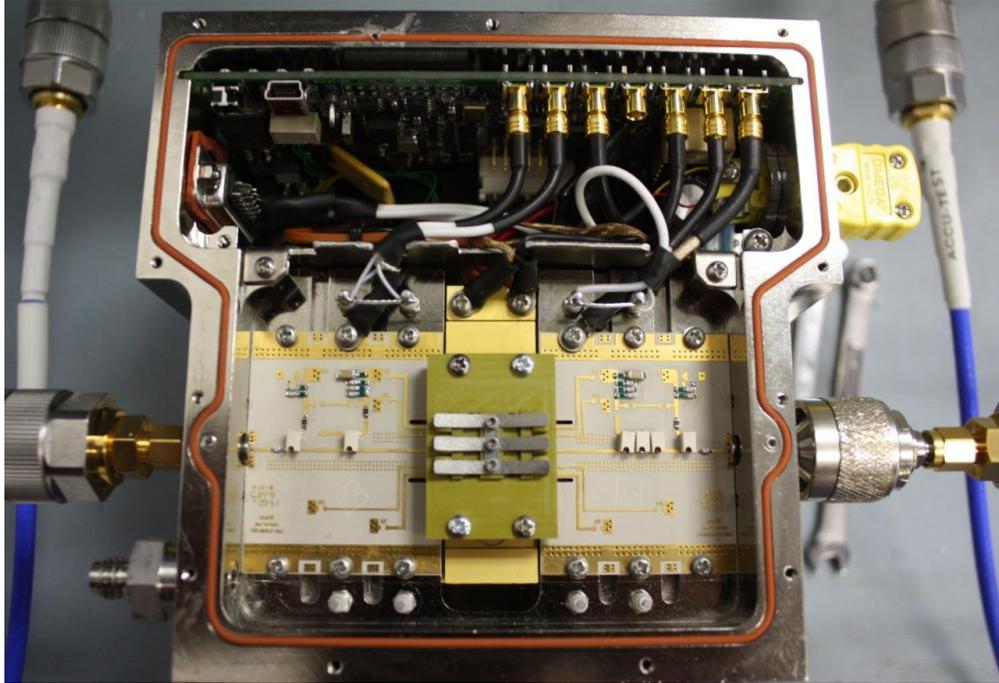
DUT Fixture and Device Mounting Information



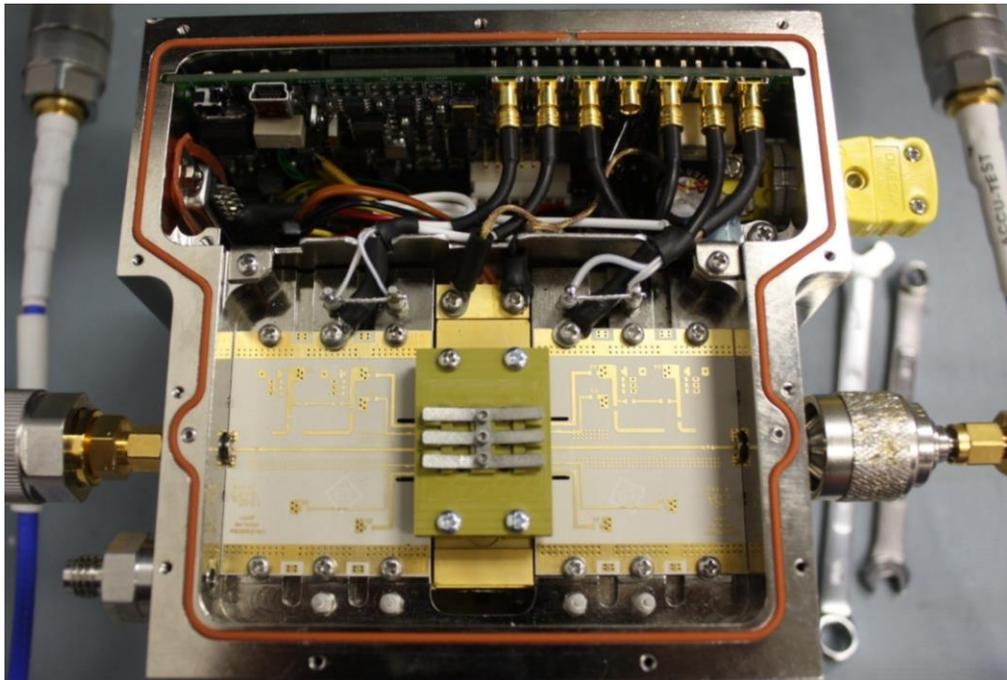
AARTS RF Device-Under-Test (DUT) Fixture with DUT & RF input/output circuits installed



AARTS DUT Fixture with Items Shown

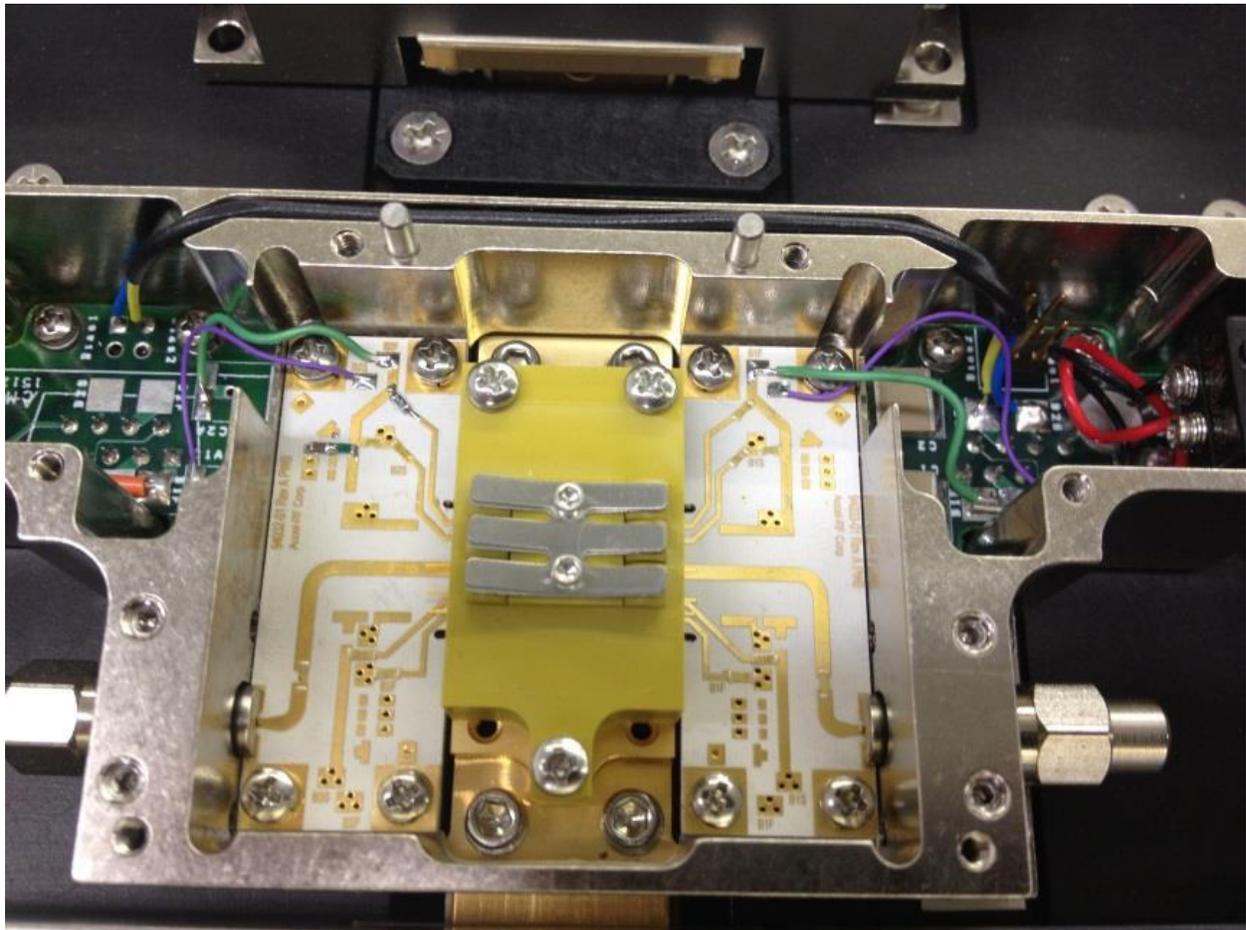
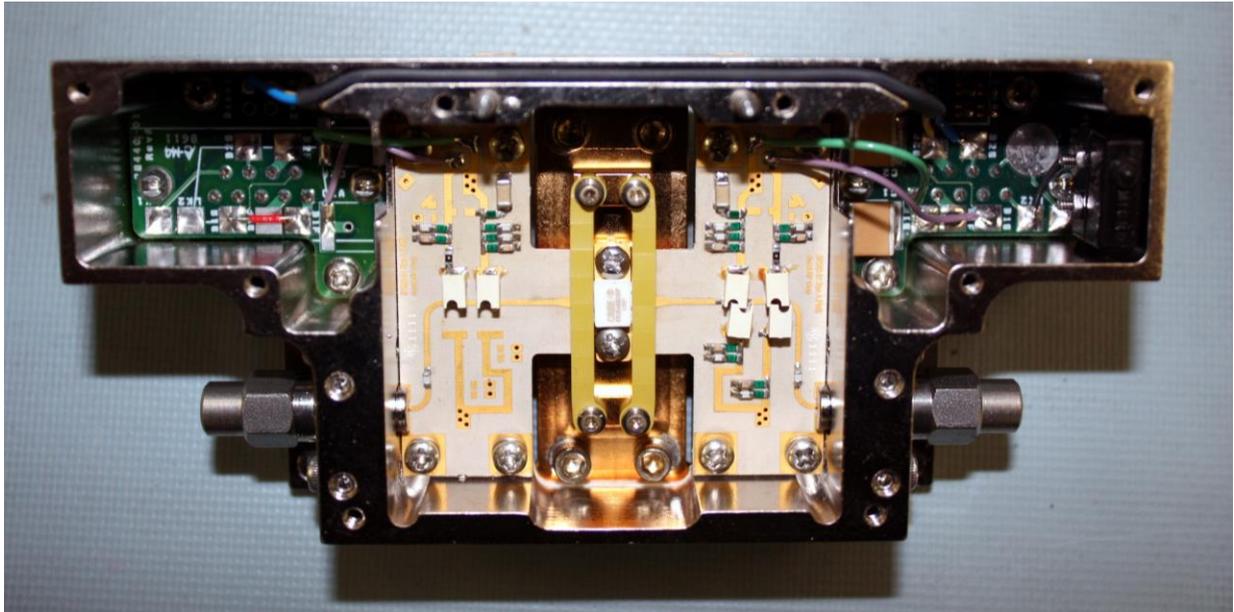


Top Picture: DUT Fixture with Bias-Tee circuits and DUT clamp installed

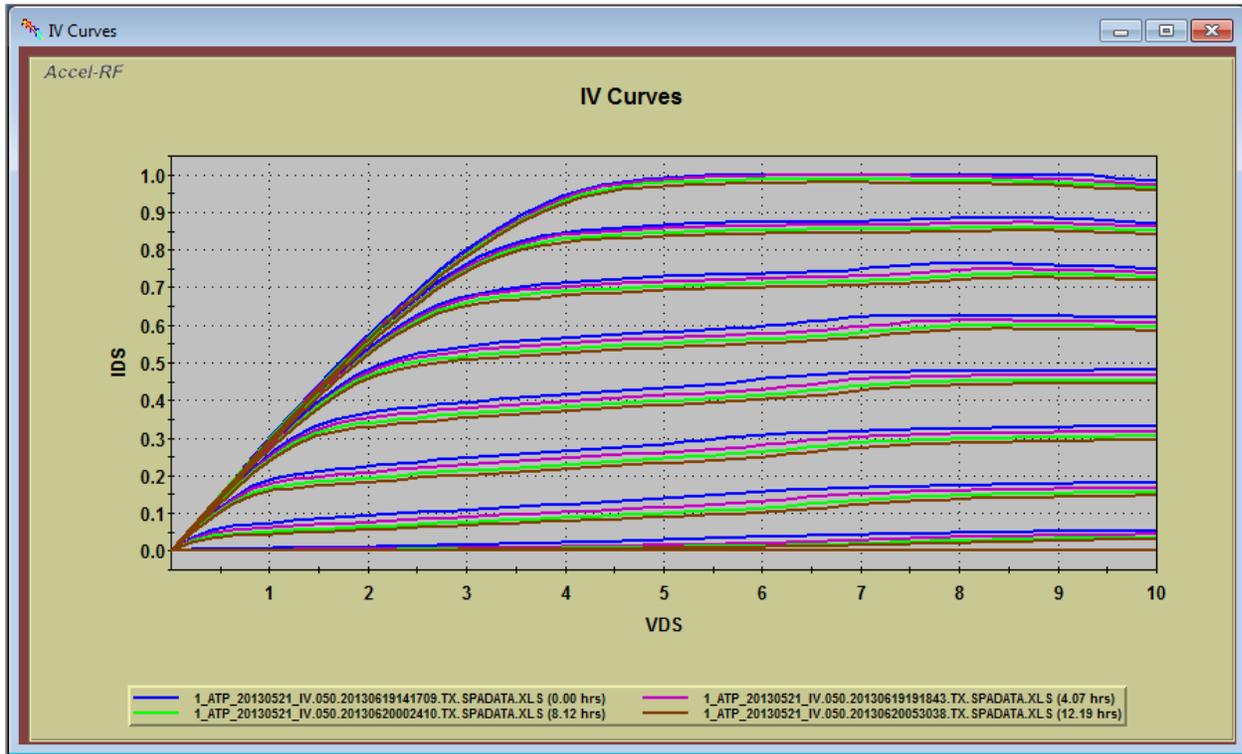


Bottom Picture: DUT Fixture with MMIC circuits and DUT clamp installed

AARTS DUT DC Test Fixtures with Various Matching Circuits Shown



Typical IV Curves for Devices in DC Fixtures measured In-Situ with AARTS



DC DUT Fixtures mounted in Test Chamber

