

T1250A-03

Modification Recommended Service Note

Supersedes:
NONE

T1250A Smart RF Switching Unit

Serial Numbers: E125000001 / E125000030
ES53210101 / ES53210103
EST12500013 / EST12500028
MY53301001 / MY54050159

The Problem

A radiofrequency performance issue was found. The T4010S test system (this is the RF switch for T4010S) RF paths compensation routines directly tied to the YIG filter performance (CAL001 for RFSC YIG filter, CAL002 for RFSD YIG filter) showed unexpected RF losses. Typically, the mentioned RF path compensation scripts fail due to excessive RF losses.

The YIG filter module assembly procedure, and its bracket, was modified to improve reliability.

ADMINISTRATIVE INFORMATION

ACTION	<input checked="" type="checkbox"/> ON SPECIFIED FAILURE	STANDARDS	
CATEGORY:	<input type="checkbox"/> AGREEABLE TIME	LABOR:	4.0 Hours
LOCATION	<input type="checkbox"/> CUSTOMER INSTALLABLE	SERVICE:	<input type="checkbox"/> RETURN
CATEGORY:	<input type="checkbox"/> ON-SITE (active On-site contract required)	INVENTORY:	<input type="checkbox"/> SCRAP
	<input checked="" type="checkbox"/> SERVICE CENTER		<input type="checkbox"/> SCRAP
	<input type="checkbox"/> CHANNEL PARTNERS		<input checked="" type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL:	Dec/31/2018
	<input checked="" type="checkbox"/> Calibration Required	PRODUCT LINE:	PL13
	<input type="checkbox"/> Calibration NOT Required	AUTHOR:	AJGG

ADDITIONAL INFORMATION:

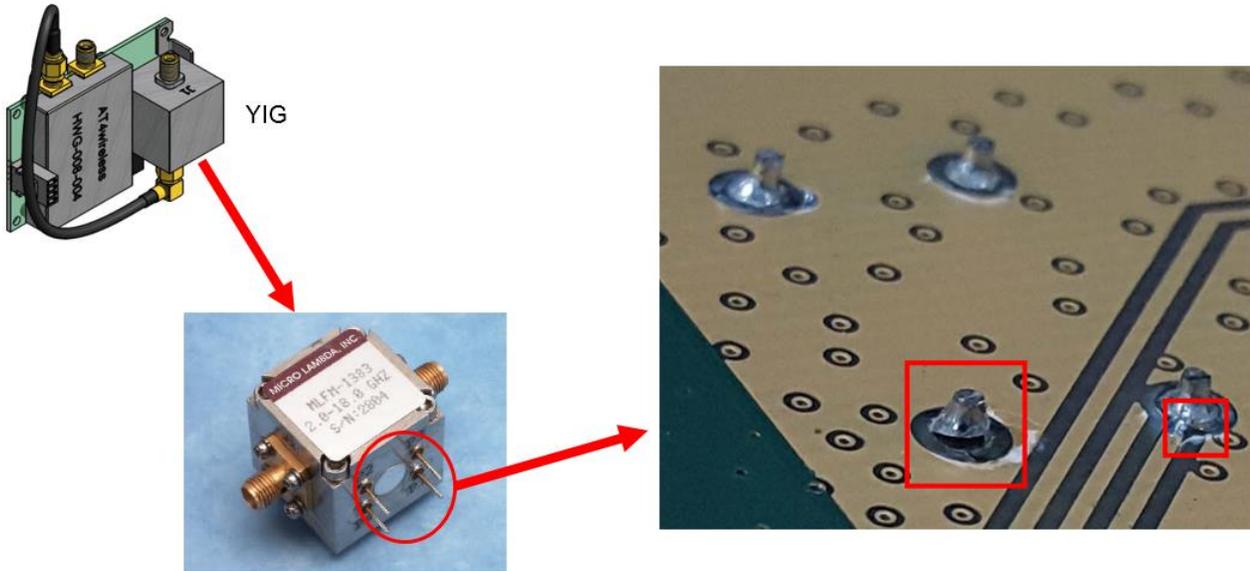
Part not available at SPO: this model is supported Return to Factory.

Parts Required:

P/N	Description	Qty.
T1250-61050	YIG Filter 0.5-4GHz	1

Situation:

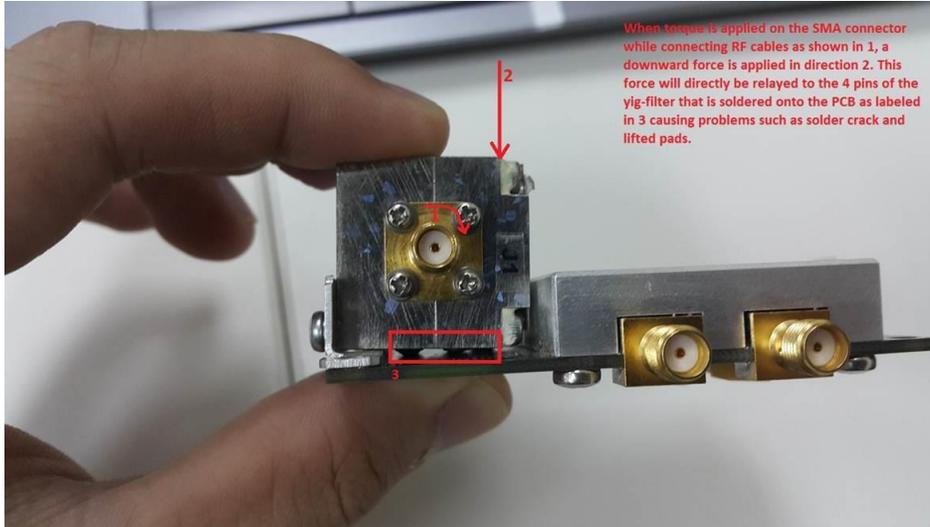
A careful inspection of the YIG filter module PCB of failing units revealed solder cracks in the YIG filter pins:



The YIG filter is a Tunable Band-Pass Tunable RF filter, with frequency range [0.5, 18 GHz]. The center frequency of the pass band is controlled with an input signal (V_c).

Root Cause analysis determined two possible sources for this problem:

- 1- At factory assembly stage, an RF cable was attached to the YIG filter, before the metal plate that attaches the YIG filter to the PCB was properly attached to the PCB. That torque may cause the solder cracks. This is the most probable cause.

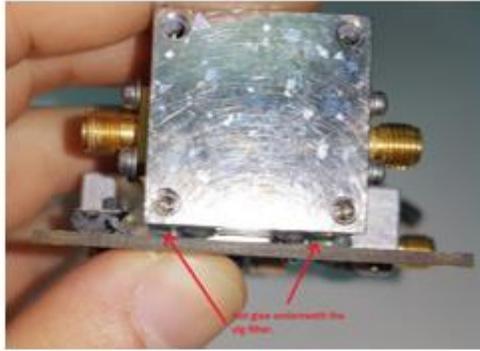


- 2- After assembly, although the YIG filter is attached to the PCB with the metal plate, there is some free space between the bottom side of the YIG filter and the PCB, thus allowing vibrations to be transmitted to the YIG pins soldering points.

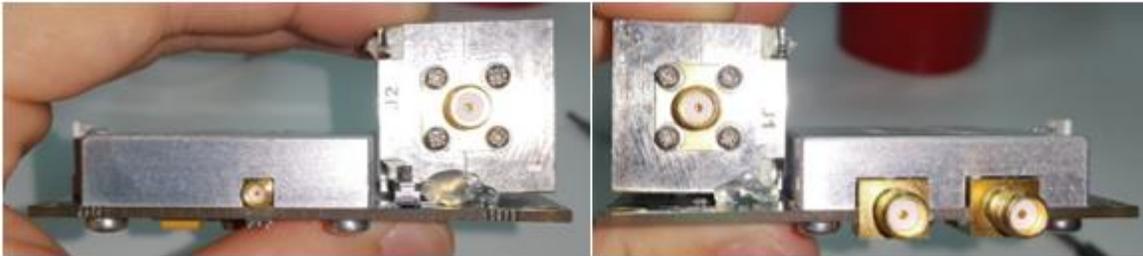
T1250A is supported Return to Factory (Penang – AX63), so there is no action required at Service Center.

Solution/Action:

- 1- A change was immediately included in the Assembly procedure. The RF cable must be connected after the YIG module has been installed in the T1250A chassis, so that the YIG filter pins are not forced during assembly stage.
- 2- A design change was defined:
 - Short term solution: add hot glue between the component and the PCB, as it is shown in the following pictures:



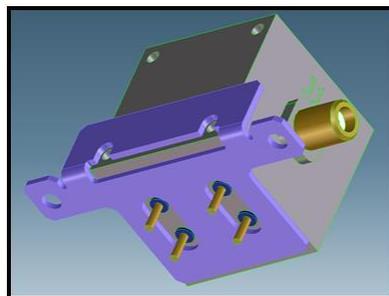
Side View:



This change has been implemented in production starting from MY54050159. In Return to Factory repairs, it has been incorporated in November 2015 (it has been included as a standard check for T1250A RTF process). To current date, these are the modified existing units:

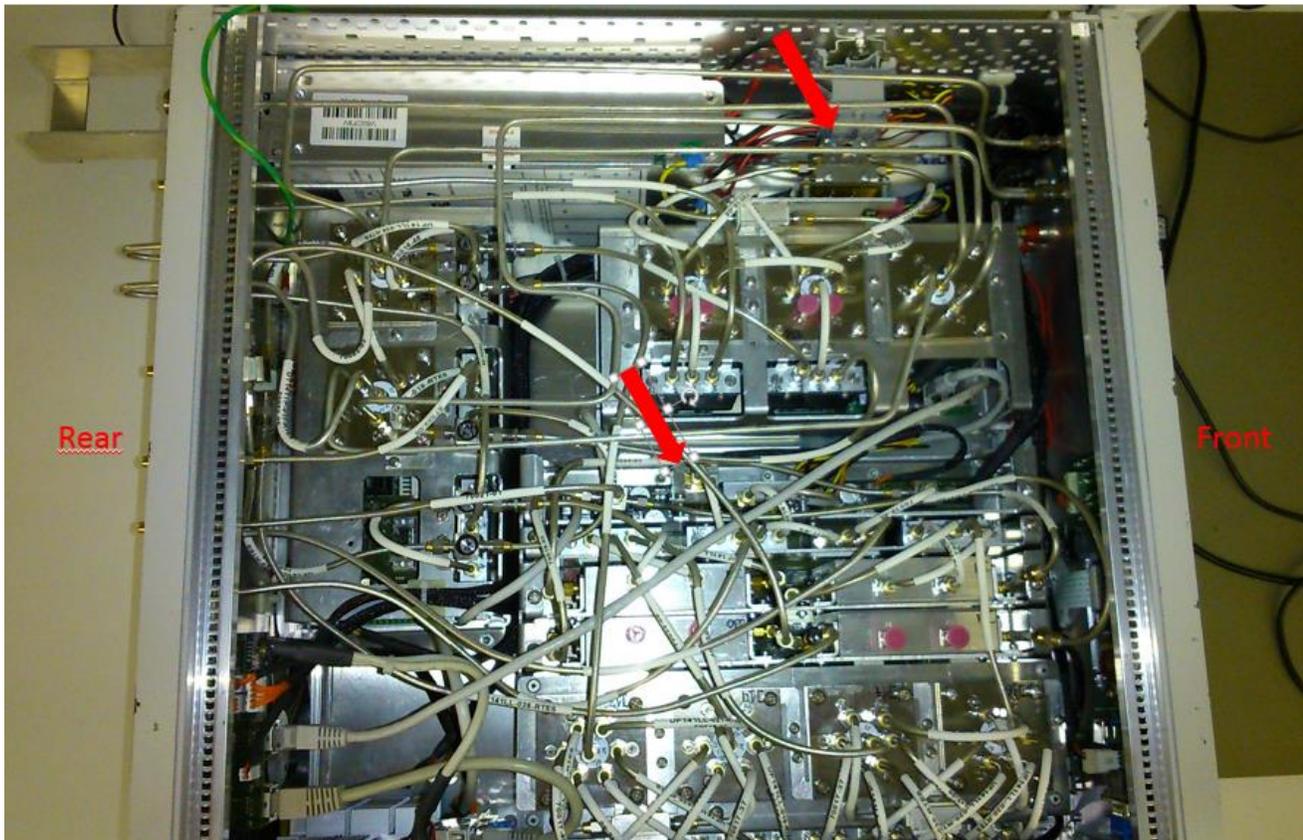
Serial#
MY54050118
E1250000004
MY54050127
MY54050132
MY53301001
MY54050116
MY54050156

- Long term solution: change the bracket that attaches the YIG filter to the PCB. This design change will be put in Production in FY16, once the current stock of YIG filter subassemblies is depleted (to avoid desoldering the YIG filter which could potentially damage the component).



New bracket design

The following picture shows the YIG filters location:



Any failure related to this issue should be covered by warranty, because the root cause is the former assembly process.

Hot glue fix can be easily inspected by removing the top cover of the instrument, but the PCB inspection can only be done if the YIG module is disassembled.



RFSC YIG module



RFSD YIG module

This operation involves manipulating some RF connections, and therefore, a factory calibration is strongly recommended. This is only supported at Factory.

In summary, YIG module fix is **supported at Factory (AX63-Penang)** site, although an initial inspection can be done in the Field.

Revision History:

Date	Service Note Revision	Author	Reason for Change
15 Apr 2016	01	Tony Guerrero	As Published