T1250A-02

Modification Recommended Service Note

Supersedes:
NONE

T1250A - Smart RF Switching Unit

Serial Numbers: E1250000001/E1250000014, ES53210101, EST12500013/EST12500028, MY53301001/MY54050147

The Problem

Low frequency spurious generated by Power Supply Unit; removed with proper filtering and grounding of power lines.

Parts Required:

P/N	Description	Qty.
T1250-21001	Ground Board Distribution	1
T1250-60009	PCBA hardware group 008-013-000	1

ADMINISTRATIVE INFORMATION

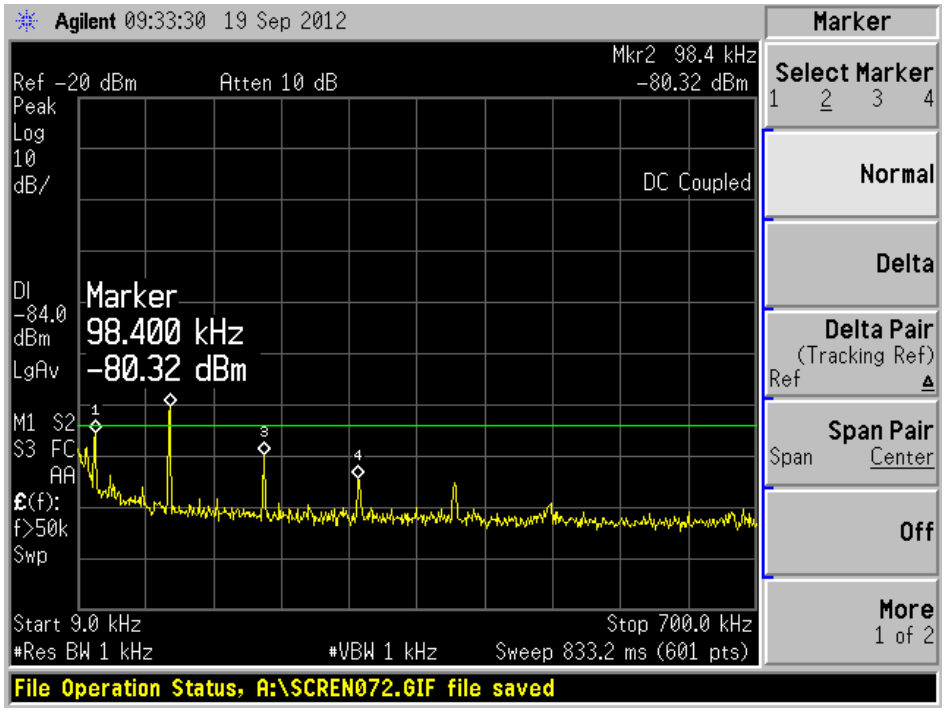
ACTION CATEGORY:	[X] ON SPECIFIED FAILURE [[]] AGREEABLE TIME	STANDARDS LABOR: 1.0 Hours			
LOCATION CATEGORY:	[[]] CUSTOMER INSTALLABLE [[]] ON-SITE (active On-site contract required) [X] SERVICE CENTER [[]] CHANNEL PARTNERS	SERVICE INVENTORY:	[[]] RETURN [[]] SCRAP [X] SEE TEXT	USED PARTS:	[[]] RETURN [X] SCRAP [[]] SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL: 31-Mar-2017			
	[ ] Calibration Required [X] Calibration NOT Required	PRODUCT LINE: PL13 AUTHOR: AJGG			

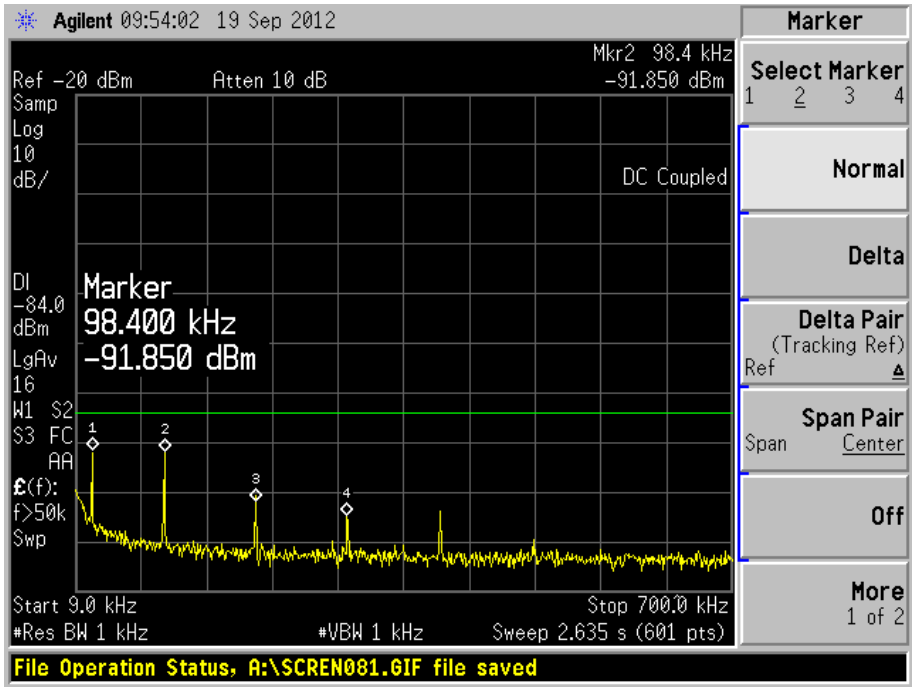
ADDITIONAL INFORMATION:

KEYSIGHT TECHNOLOGIES

Situation:

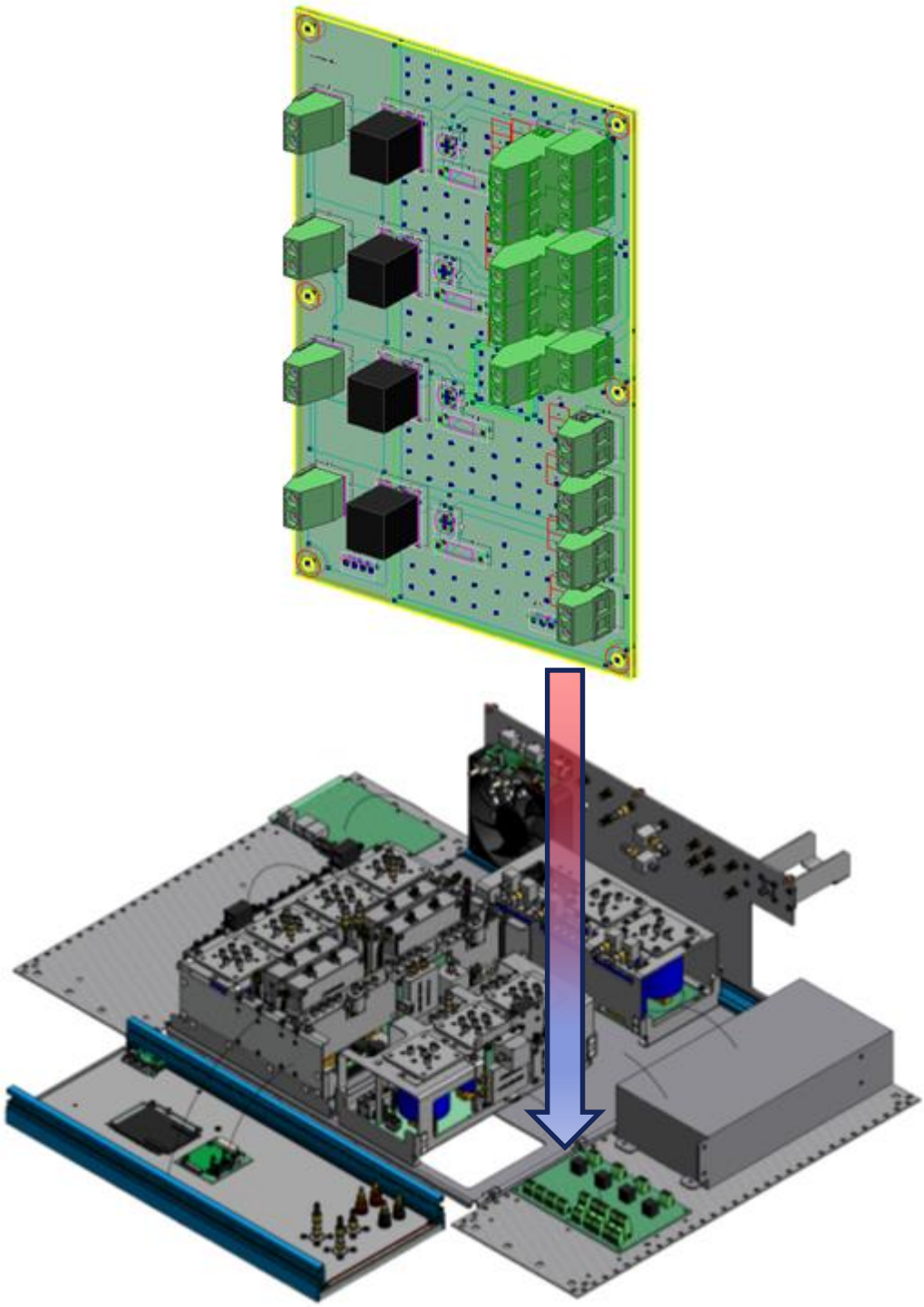
Some spurious were found at frequency 98.4 KHz and its harmonics (196.8 KHz, 295.2 KHz...), which come from the T1250A Power Supply Unit. In some cases, the main 98.4 KHz spurious could be measured above the threshold level of the 3GPP test case 6.6.3.1 (“Transmitter spurious emissions”), thus producing a ‘ false’ spurious (it does not come from the UE under test).





Note: The spurious at 20 KHz (in the screenshots) is not generated by the PSU (it came from the Test Bench).

The following picture shows the Power Distribution Board (T1250-60009), and its location in the T1250A:



Solution/Action:
A technical investigation revealed that power supply lines required EMI filtering, defining a Power Distribution Board with EMI filters, and two years later, it was found that the grounding of the Power Distribution Board was not effective.

The following changes were implemented, in order to improve power lines filtering and grounding:

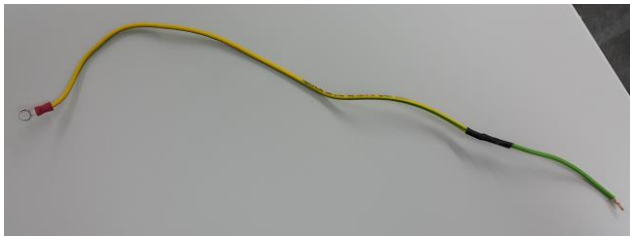
1- Power Distribution Board, pn: T1250-60009, included with engineering change ECO0326469 (May 2013), as part of the production transfer from Málaga to Penang. The first serial number incorporating this board is MY53301001.

2- Ground cable, pn: T1250-21001, was modified in June 2015, through ECO0372327:

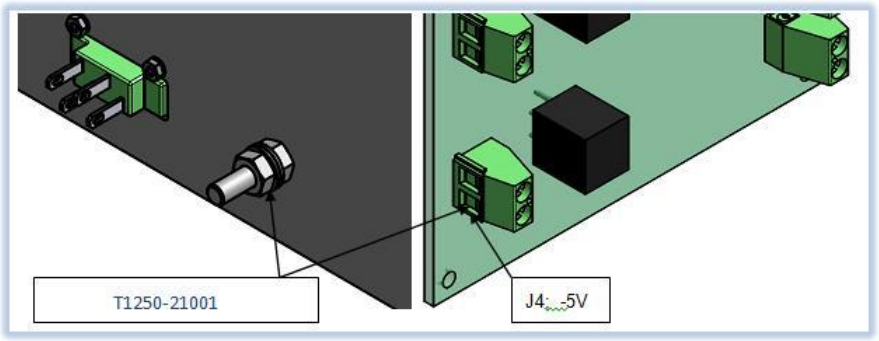
   a. Cable length was reduced from 35cm to 10cm
   b. Type of cable changed from AWG18 to AWG16
   c. One of its end connection points changed from chassis to a screw that attaches the board to the chassis through a standoff (see pictures below). The first serial number with this change is MY54050148

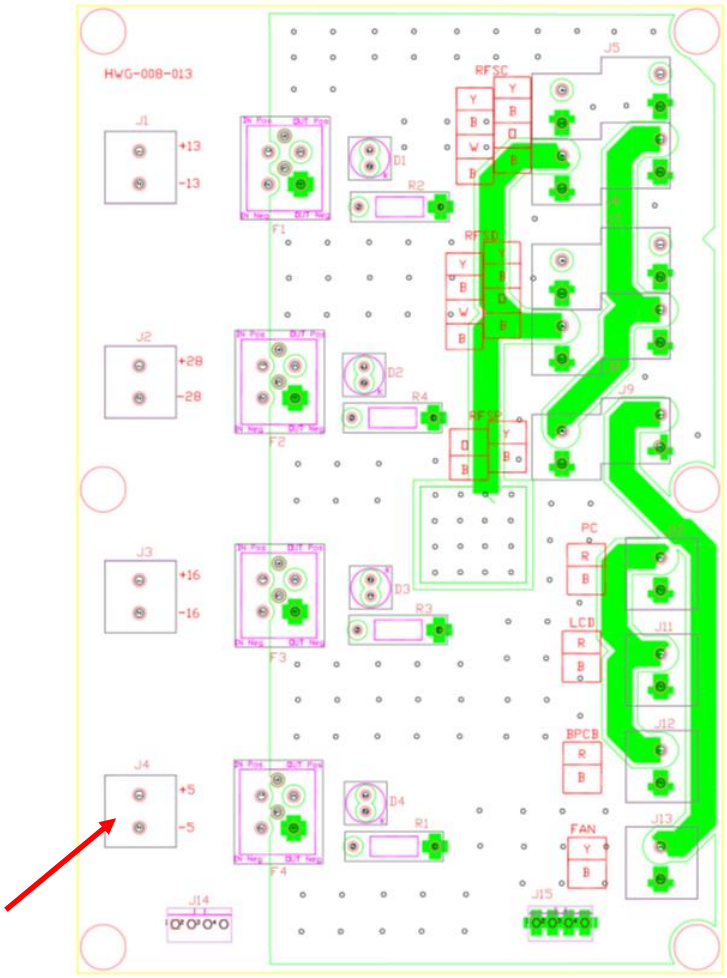
The following steps provide detail on how to change the ground cable, to comply with current build standard (ECO0372327):

i. Open upper cover of T1250A
ii. Remove the GND cable "T1250-21001" (obsolete version) that goes from J4 connector of the Power Distribution Board "T1250-60009" to chassis:



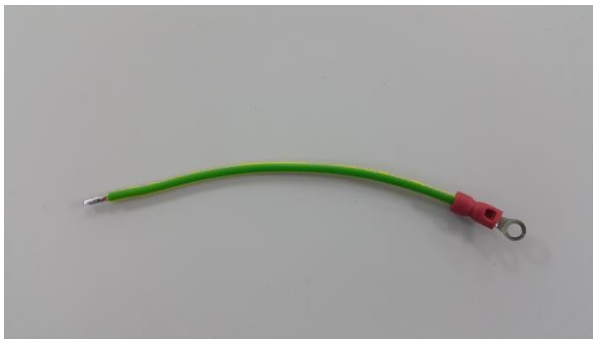
AWG18 and 35 cm long ground cable



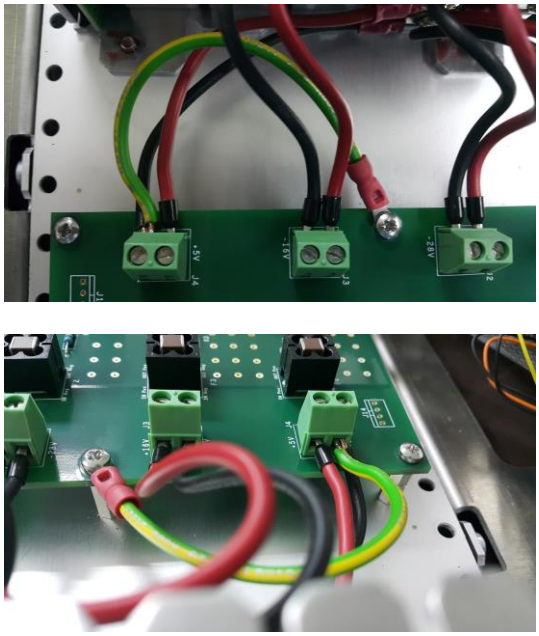


Layout of Power Distribution Board T1250-60009, highlighting "J4" connector

iii. Connect the cable "T1250-21001" (new version) from J4 of the Board "T1250-60009" to the chassis screw of the same board as shown in the following Pictures:



AWG16 and 10 cm long ground cable



Installation of ground cable T1250-21001

iv. Put back the upper cover of T1250A

Return to Factory (this model is supported Return to Factory) repairs and upgrades (i.e. upgrades to Carrier Aggregation version) included these changes, therefore any early build T1250A without the Power Distribution Board that had been repaired and/or upgraded at Factory, will certainly have this Board installed.

However, any T1250A not serviced after end of May 2015 will NOT have the proper grounding, being at risk of showing low frequency spurious generated by the Power Supply Unit.

T1250A is a Return to Factory device, so the above mentioned hardware changes are intended to be done at Factory site. Exceptionally, it could be done at Service Center, if the needed parts are supplied by the product Division (parts are not available from SPO).

The above mentioned hardware changes do not require calibration of the switching unit, as it does not imply any change in the RF subsystem. Refer to T1250A Support webpage for postrepair verification procedure: http://mktwww.srs.is.keysight.com/field/service/wireless/AT4-LTE/index_T1250A.htm

Revision History:

Date	Service Note Revision	Author	Reason for Change
11 Mar 2016	01	Tony Guerrero	As Published