E4446A-13

S E R V I C E N O T E

Supersedes:
NONE

E4446A - PSA Series Spectrum Analyzer

Serial Numbers: US44020000 – US45309999
MY44020000 - MY45309999
SG44020000 - SG45309999

Internal Alignment Failures for PSA Series Spectrum Analyzers Manufactured Between January 2004 and February 2006 Caused by Low Power Output from A9A1 DRO on A9 Second LO Assembly

Parts Required:

P/N	Description	Qty.
5086-1702	3.6 GHz Dielectric Resonator Oscillator	1

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

MODIFICATION RECOMMENDED

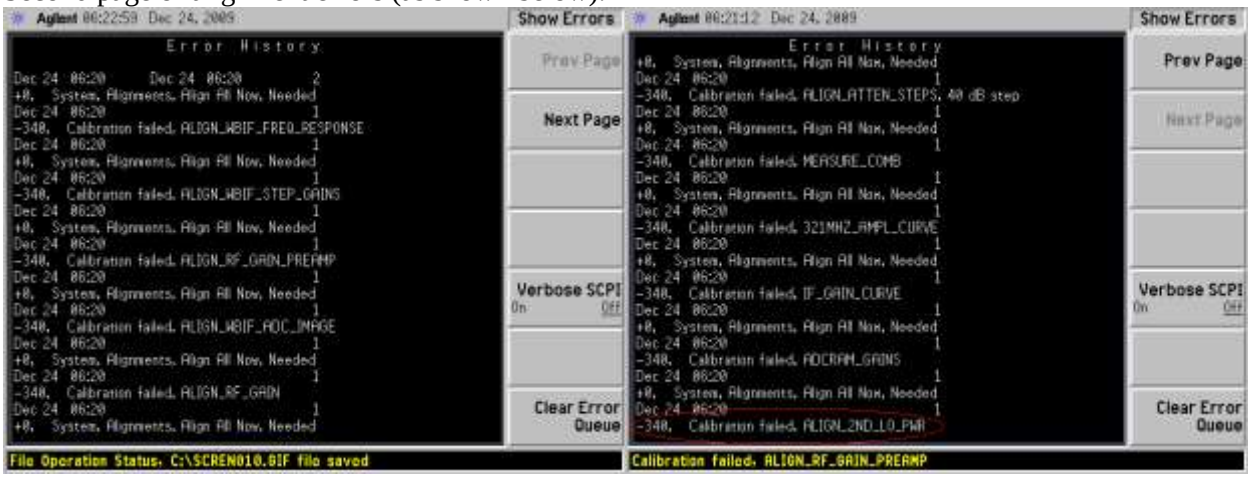
ACTION CATEGORY:	X ON SPECIFIED FAILURE [ ] AGREEABLE TIME	STANDARDS LABOR: 1.0 Hours	
LOCATION CATEGORY:	[ ] CUSTOMER INSTALLABLE [ ] ON-SITE X SERVICE CENTER [ ] CHANNEL PARTNER	SERVICE INVENTORY: [ ] RETURN [ ] SCRAP [ ] SEE TEXT	USED PARTS: X RETURN [ ] SCRAP [ ] SEE TEXT
AVAILABILITY: End of Support		NO CHARGE AVAILABLE UNTIL: September 1, 2011	
AUTHOR: KJL		PRODUCT LINE: 12	
ADDITIONAL INFORMATION:			

August 18, 2010
Rev. 17

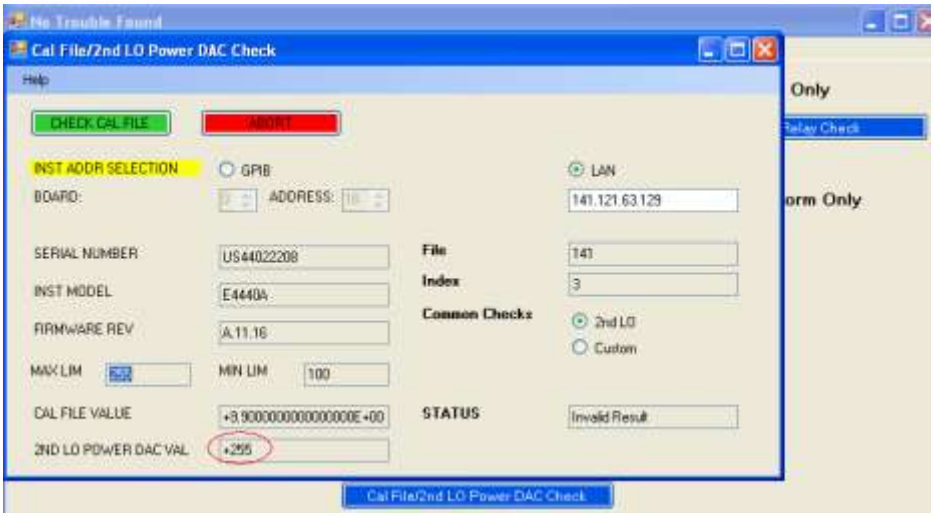
Agilent Technologies

Situation:
Our quality records for the serial number range listed above indicate a higher than normal incident of internal alignment failures due to low power output from the Second LO 3.6 GHz dielectric resonator oscillator (DRO) on the Second LO assembly. Instruments within this serial number range where manufactured between January 2004 and February 2006. The low power output is due to a filter drift issue on the A9A1 DRO causing the power output to drop over time until the Second LO amplifier on the A20 low band assembly is no longer able to compensate. A new tool has also been developed to allow Agilent service centers to read the DAC value corresponding to the Second LO amplifier gain on the low band assembly.

Solution/Action:
Verify the alignment failure by looking at the error queue for the error message "-340, Calibration failed, Align_2ND_LO_PWR". Press [System] <Show Errors> <Next Page>. Typically, when the Second LO power is too low, it will be the first failure listed in the alignment queue, which will be at the bottom the Second page of alignment errors (as shown below):

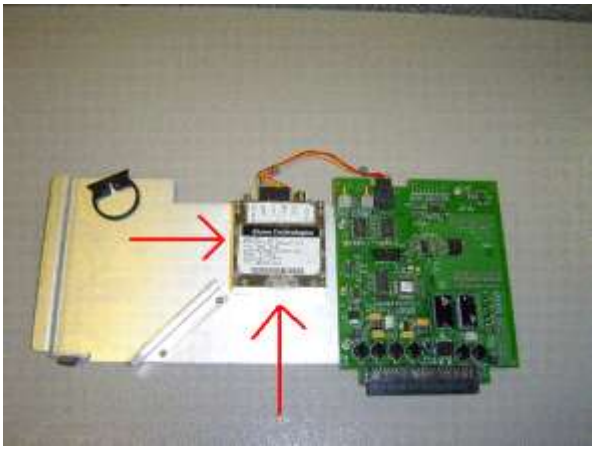


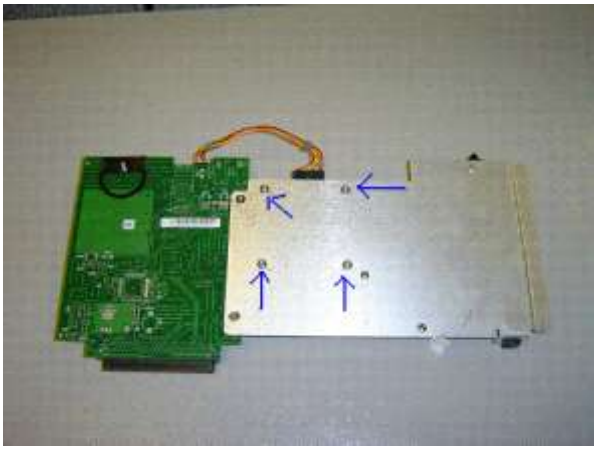
The failure can also be verified by running the internal Agilent No Trouble Found Software. The internal link to the software available to Agilent service centers is:
http://mktdev.soco.agilent.com/field/service/signal/psa/ntf
A value of +255 for the Second LO Power DAC Val will be returned if the analyzer is not able to set enough gain to the Second LO amplifier on the A20 low band assembly if the DRO power output is too low. The lower the DAC value reported is, the more gain the low band amplifier is using. When the low band amplifier is no longer able to provide enough gain, the DAC value rolls from 0 (most gain) to 255 (least gain), causing the internal alignments to fail.



The failure can further be verified by directly measuring the power output from the A9A1 DRO on the A9 Second LO assembly. The instrument cover and top brace must be removed and the instrument powered up. The W15 cable connected to the Second LO must first be disconnected. Either a spectrum analyzer or power meter can be connected to the 3.6 GHz output of the Second LO to measure the power output level. New DRO's typically output +1 to +3 dBm of power; however, any output power above -2 dBm is normal. Whenever the power output is less than -5 dBm, the DRO is bad, and the amplifier on the A20 low band assembly is no longer able to compensate.

Replace just the DRO by removing it from the Second LO assembly and replacing it with a new one.





No adjustments are needed, since the Second LO Power Adjustment routine in the TME calibration software is only necessary to be run when the A20 low band assembly is replaced and not when the DRO or Second LO assembly is replaced.

The repair will take 1 hour in total.