MODIFICATION AVAILABLE – *PERFORMANCE ENHANCEMENT*

N9038A-05

S E R V I C E   N O T E

N9038A MXE EMI Receiver

Serial Numbers: MY00000000 - MY54449999

Reduce Unspecified Residual Responses Between 400 and 600 MHz

Parts Required:

| P/N	Description	Qty.
0699-4509	49.9 Ω Resistor	2
0161-1792	47 pF Capacitor	2

ADMINISTRATIVE INFORMATION

<table>
<tr><td colspan="2">SERVICE NOTE CLASSIFICATION:</td></tr>
<tr><td colspan="2" align="center">MODIFICATION AVAILABLE</td></tr>
<tr>
<td>ACTION
CATEGORY::   AGREEABLE TIME</td>
<td>X   PERFORMANCE ENHANCEMENT
[[]] SERVICE / RELIABILITY ENHANCEMENT</td>
</tr>
<tr>
<td>LOCATION [[]] CUSTOMER INSTALLABLE
CATEGORY: [[]] ON-SITE (active On-site contract required)
          X SERVICE CENTER
          [[]] CHANNEL PARTNERS</td>
<td>AVAILABILITY: Support Life</td>
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<tr>
<td>   X   Calibration Required
     [[]] Calibration NOT Required</td>
<td>PRODUCT LINE: 12
AUTHOR: MPM</td>
</tr>
<tr><td colspan="2">ADDITIONAL INFORMATION:</td></tr>
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KEYSIGHT
TECHNOLOGIES

Situation:
Some instruments have displayed residual responses due to multiples of the 10 MHz internal reference getting into the A22 Radiated Filter Board assembly, as shown in Figure 1. While these residual responses have never been seen high enough to violate any advertised instrument specification some users have reported that they interfere with the testing of their products.

Figure 1 - Residual Responses
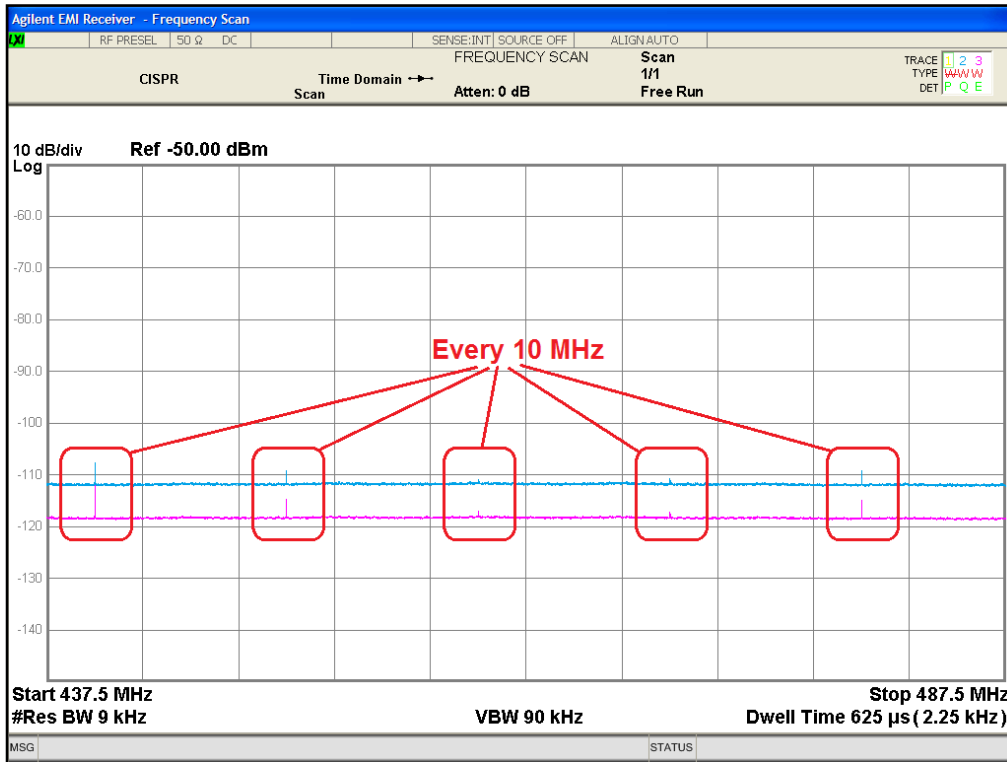
These residual responses are typically only seen when using the time domain scan type (Option TDS) in the EMI Receiver mode, along with the use of one of the EMI detectors (Quasi-Peak, EMI Average, or RMS Average) and a narrower than normal resolution bandwidth. Without this combination of settings the residuals will most likely not be seen at all, and sometime not even seen when these settings are used on a large percentage of instruments. Since the time domain scan type is an FFT measurement the level of residual responses when using it are not specified, we only provide a nominal value of -100 dBm for this case.

If an instrument has option TDS installed there is an instrument state file that can be loaded to try to view these residuals before applying this service note. However, some customers may ask that this service note be applied even if the residuals are not seen. This state file can be downloaded from:

http://sa.support.keysight.com/EMC/N9038A/ServiceNotes/N9038A-05/

By performing the modification outlined in this service note the level of these residuals should be reduced to such a level that they will no longer be seen by the user.

Solution/Action:
To perform this modification two resistors will need to be changed on the A22 Radiated Filter board assembly and two capacitors will need to be added.

PLEASE NOTE: If you do not have experience in replacing surface mount components on a printed circuit assembly please do not attempt this modification. Have the instrument sent to a service center that has this capability.

To perform this modification follow the procedure below. Some of the steps will require the removal and replacement of different mechanical parts and assemblies of the instrument. Please refer to Chapter 18, Assembly Replacement Procedures, of the N9038A Service Guide for detailed instructions on their removal and replacement.

1. Verify that this modification has not already been performed by pressing **System**, **Show**, **Hardware** on the instrument and look for the material revision (Matl Rev) of the A22 Radiated Filter board assembly as shown in Figure 2.

Figure 2 - System, Show, Hardware Display

| Assembly Name	Part #	Serial #	Matl Rev	Rev	OF Rev	Hw Id
Analog IF	N902060011	79124201837	015	1	A	57
RF Presel Conducted Fil...	N903860001	79130104862	010	0	A	65
Digital IF	N902060016	79123706770	013	3	A	34
Front End Controller	N902060172	79130303717	011	0	A	75
RF Presel Input	N903860003	91312000760	005	0	A	67
Low Band Switch	N902060051	13124803375	019	0	B	45
General Purpose IO Co...	N903860027	79130201219	003	0	A	126
LO Synthesizer	E441060187	79124900664	001	3	A	2
Reference Main	N902060015	79124908060	012	2	A	36
Reference Daughter	N902060235	79125000060	002	1	A	95
RF Presel Radiated Filter	N903860002	79125202941	007	0	A	66
Front End	N902060716	78124700200	007	2	C	44
YIG Tuned Filter	50877326	13130303401	024	2	C	49

2. If the material revision is greater than 7 stop here, the modification outlined in this service note has already been applied to this instrument.

   If the material revision is 7 or less proceed to step 3.

3. Remove the instrument outer case.

4. Remove the instrument top brace.

5. Remove W34 that connects A21 J102 to A22 J100.

6. Remove the A22 Radiated Filter assembly.

Figure 3 - A22 Radiated Filter Assembly Modification Location
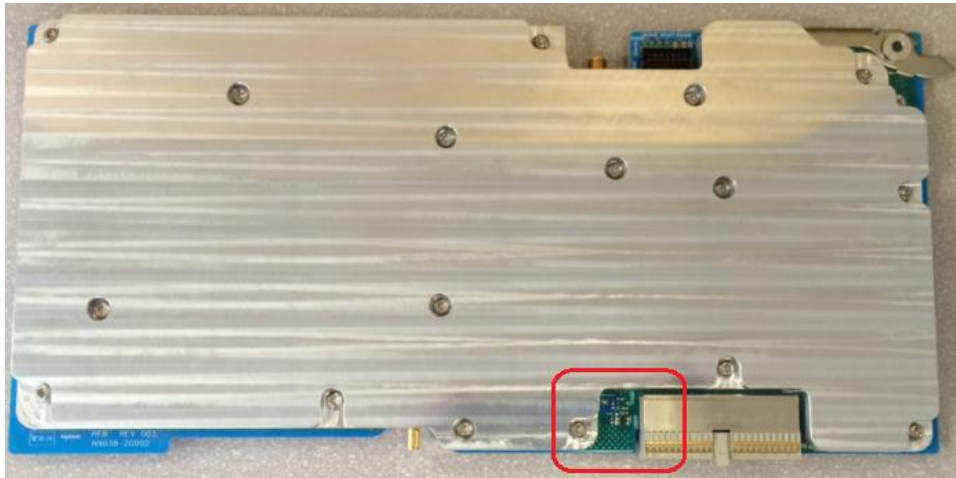
7. Referring to Figure 4, remove R657 and R715 and replace them each with a 49.9 Ω resistor, part number 0699-4509.

Figure 4 - A22 Radiated Filter Board Assembly Component Locator
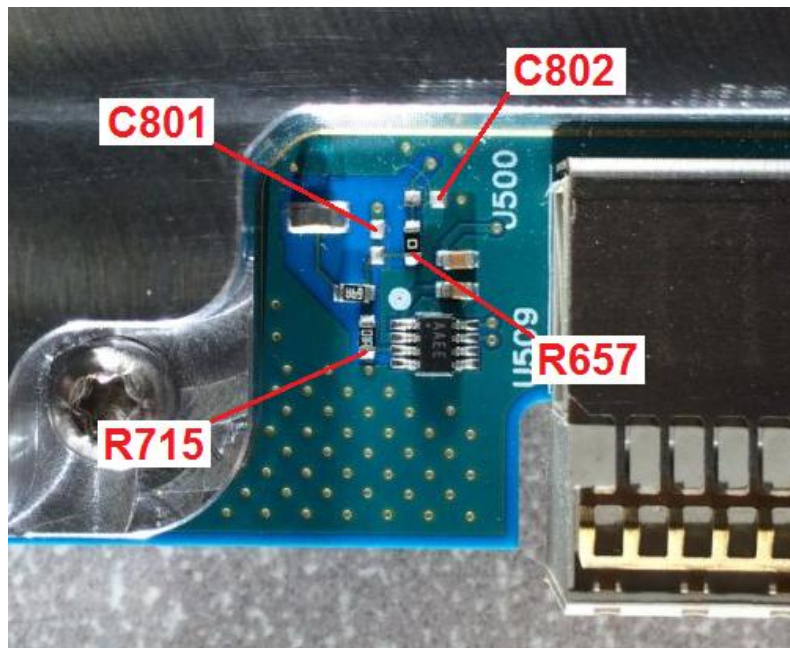
8. Referring to Figure 4, install a 47 pF capacitor (0161-1792) in the currently unused locations for both C801 and C802.

9. Carefully re-install the A22 Radiated Filter Board assembly into the instrument.

10. Install W34 between A21 J102 and A22 J100, and torque to 10 in-lbs.

11. Install the instrument top brace and torque all screws to 9 in-lbs.

12. Install the instrument outer case, rear feet, and strap handles, torqueing the screws to 21 in-lbs.

13. Install the instrument bottom feet and locks.

14. Power the instrument on and verify that all of the initial alignments run with no displayed error messages, other than possibly "Align 20 Hz to 3.6 GHz Required".

15. Connect the instrument to a PC that has the ability to run VEE runtime programs via GPIB.

16. Change the material revision stored in the header EEROM on the A22 Radiated Filter board assembly by using the VEE runtime program found at the following location:

    http://sa.support.keysight.com/EMC/N9038A/ServiceNotes/N9038A-05/

17. Verify that the material revision stored on the A22 Radiated Filter board assembly has been changed to **8**, refer to Figure 2.

18. Verify that the residual responses have been reduced or eliminated by using the saved instrument state file that can be downloaded from the web site listed in step 16 above.

Revision History:

Service Note Revision	Date	Author	Reason For Change
01	12/03/2014	MPM	As published