

MODIFICATION RECOMMENDED

N1996A-01C

S E R V I C E N O T E

Supersedes:
N1996A-01B

Agilent CSA Spectrum Analyzer, N1996A

Serial Numbers: All

(Refer this Service Note if the A4 Digital IF assembly has not been applied with the Aluminum Foil Taping)

Residual Responses due to Shield Problem on A4 Digital IF Assembly

Parts Required:

Part#	Description	Quantity
8160-1757	10mm* 75mm aluminum foil	18
8160-1756	10mm* 40mm aluminum foil	18

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
MODIFICATION RECOMMENDED			
ACTION CATEGORY:	X ON SPECIFIED FAILURE <input type="checkbox"/> AGREEABLE TIME	STANDARDS	LABOR: 3 Hours
LOCATION CATEGORY:	<input type="checkbox"/> CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE X SERVICE CENTER <input type="checkbox"/> CHANNEL PARTNER	SERVICE INVENTORY: X RETURN <input type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT	USED PARTS: <input type="checkbox"/> RETURN X SCRAP <input type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL: Aug 2012	
AUTHOR:	Jian Kang	PRODUCT LINE: CM	
ADDITIONAL INFORMATION:			

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Situation:

N1996A spectrum analyzers may exhibit a high-density of residual responses caused by switching power supply signals leaking into the circuitry on the A4 Digital IF (DIF) Assembly.

Follow this procedure to determine if the N1996A exhibits the problem described above:

- 1 Terminate the analyzer input with a 50 Ohm load.
- 2 Press **Mode, Spectrum Analyzer**.
- 3 Press **Mode Preset**.
- 4 Press **FREQ, Center Freq, 2681 MHz**
- 5 Press **SPAN, 1 MHz**
- 6 Press **AMPTD, Ref Level, -70 dBm**.
- 7 Press **BW, Res BW, 100 Hz**.
- 8 Press **Meas Setup, Avg Mode, Repeat**
- 9 Press **Avg Number, 5, Enter**
- 10 Press **Trace/Detector, Average**
- 11 Press **Single**. Wait until the message “Paused. Press Continuous or Single to Continue” appears on the status line at the bottom of the display.
- 12 Press **Peak Search**. The marker amplitude reading represents the level of the highest residual response. See Figure 1. Record this marker amplitude value in Table 1 in the Peak Residual Level column of the “As Received” row.
- 13 If the Peak Residual Level is above -100.0 dBm, the residual responses are too high. Proceed with Solution/Action.

Figure 1: Marker Reading Peak Residual Level

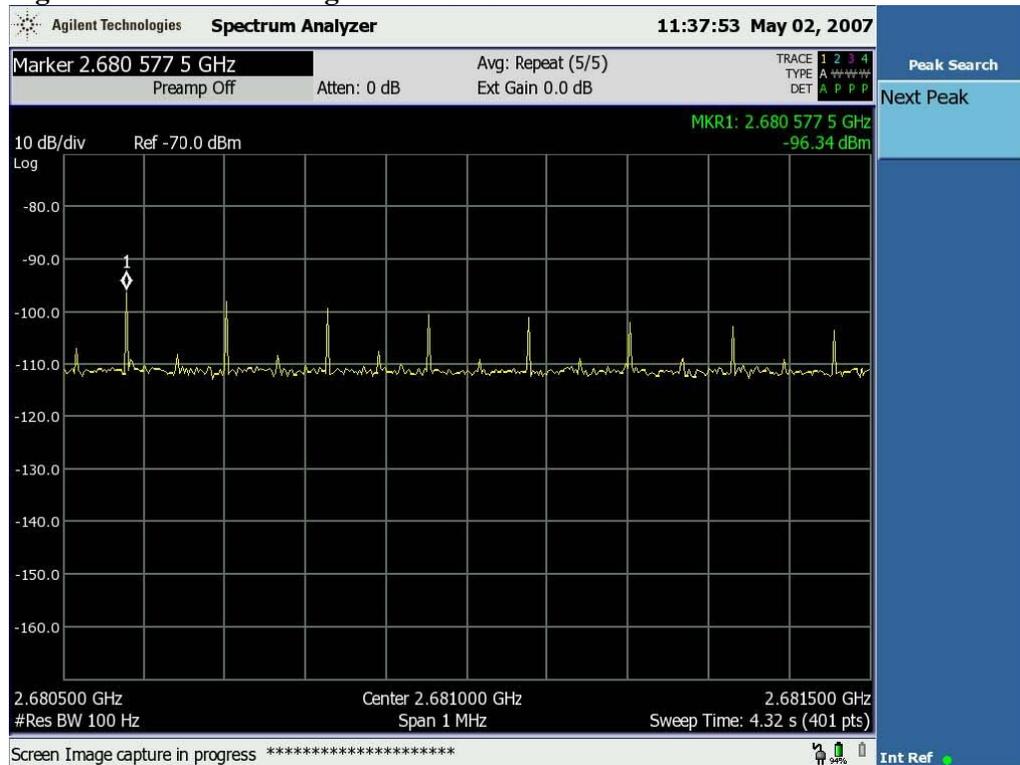
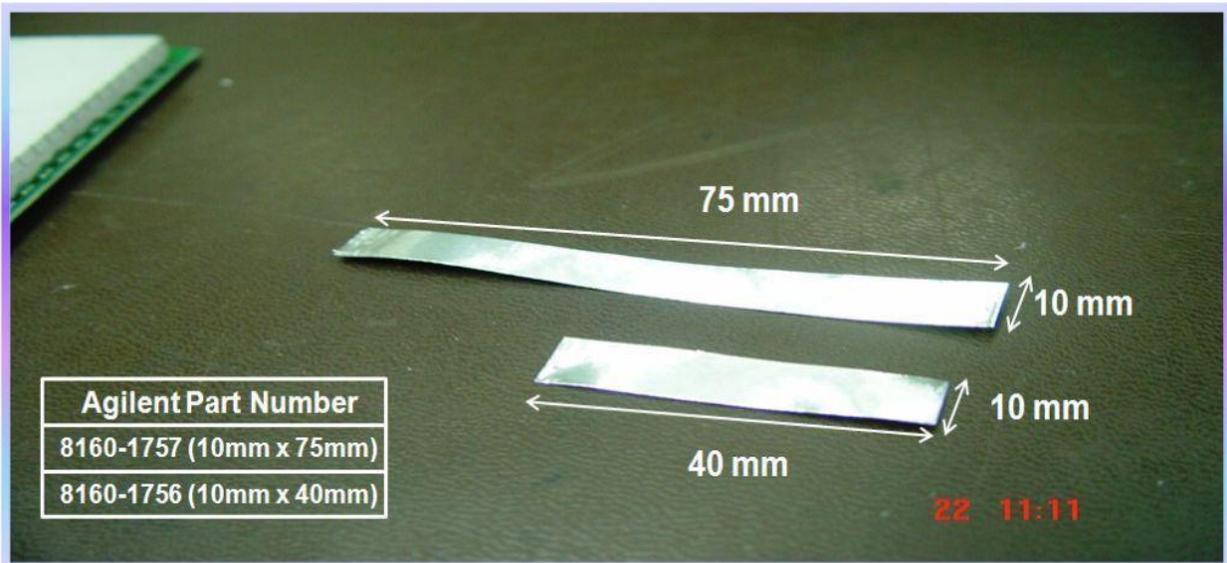


Table 1: DIF Residual Response Measurement

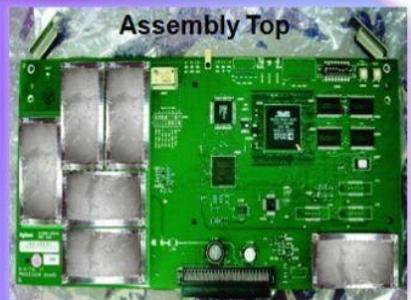
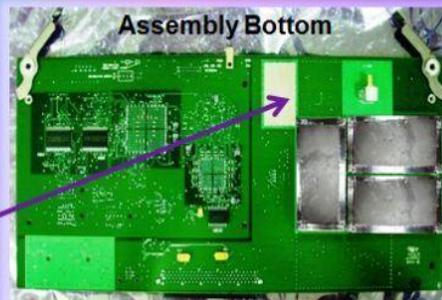
Condition	Peak Residual Level (dBm)	Max Peak Residual Level (dBm)
As Received (from Old Assy)		-100.0
After Repair (from Old Assy)		-100.0
After New A4 DIF Assy Replacement		-100.0

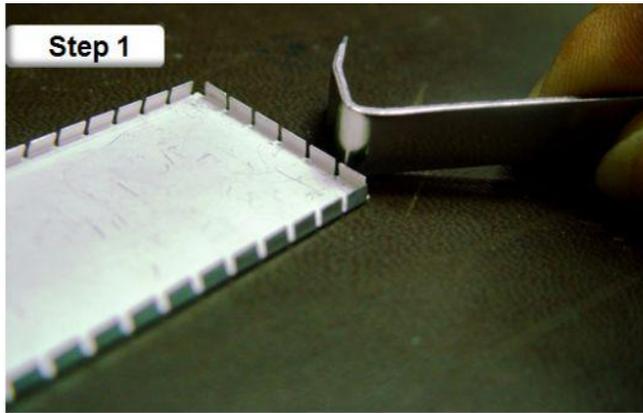
Solution/Action:

- 1 Remove the analyzer’s outer case as described in the Instrument Outer Case, Removal procedure in the N1996A Service Guide.
- 2 Remove the analyzer’s board cover as described in the Board Cover, Removal procedure in the N1996A Service Guide.
- 3 Remove A4 DIF assembly as described in the A4 IF Board, Removal procedure in the N1996A Service Guide.
- 4 Tape aluminum foil to the 9 large shields (Agilent Part Number: 5022-7816), the details of taping instruction is described as below:

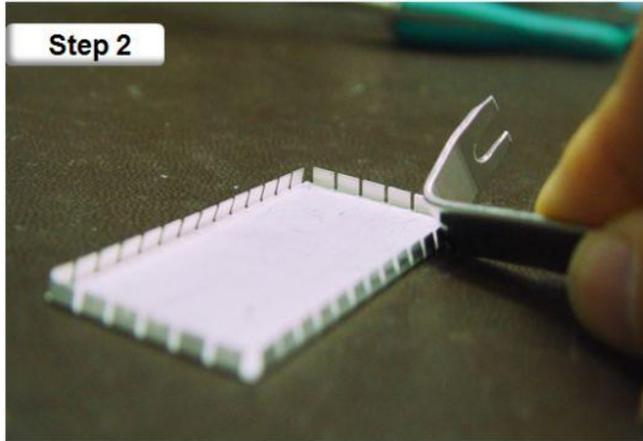


All the 9 large shield covers (5022-7816) on the DIF assembly are removed from the shield frame. The smaller shield cover (5022-2873) does not require any rework.

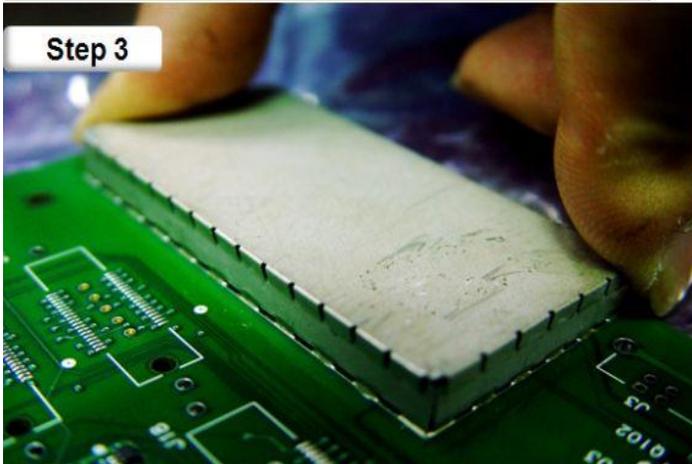




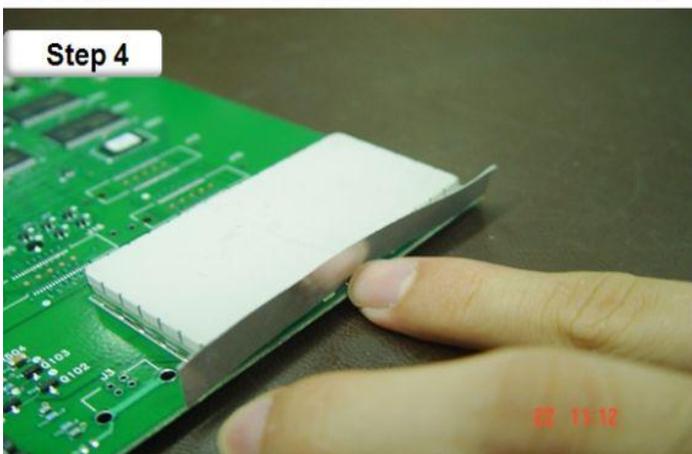
Step 1



Step 2



Step 3



Step 4

Step 1 & Step 2:*(The most important and compulsory Step)*

After removed the shield covers, use the “L-shape connector opener or any hard tool to slightly bend (around 6° from vertical) the fingers of the shield covers.

Repeat step 1&2 on remaining 3 sides of the shield cover. This step is critical in eliminating the DIF spurs. Any missing of this step would resolve the same scenario again.

Tighten and bend the shield cover:

-Helps to ensure that the shield cover makes a good contact with the shield frame.(Electrical Grounding)

Aluminum foil taping (will be discussed next):

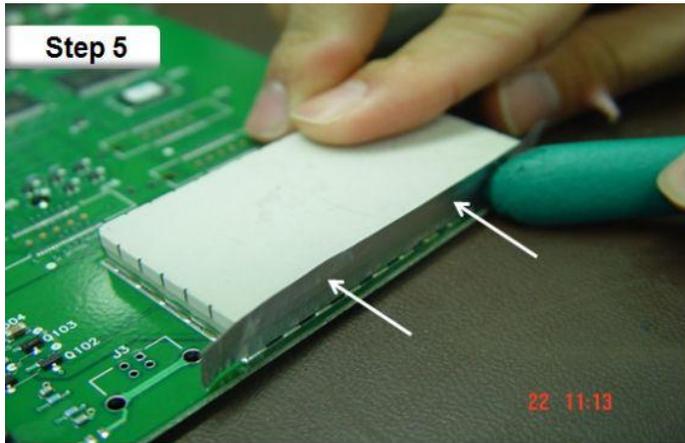
-As a form to keep the shield cover in place.
-Long term reliability.

Step 3:

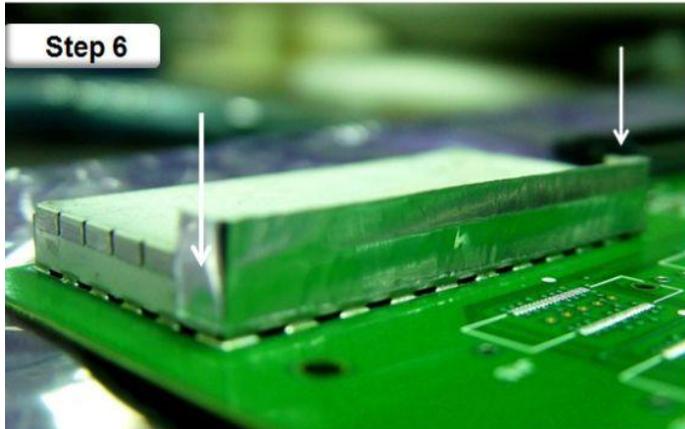
Push and press it at each corner.

Step 4:

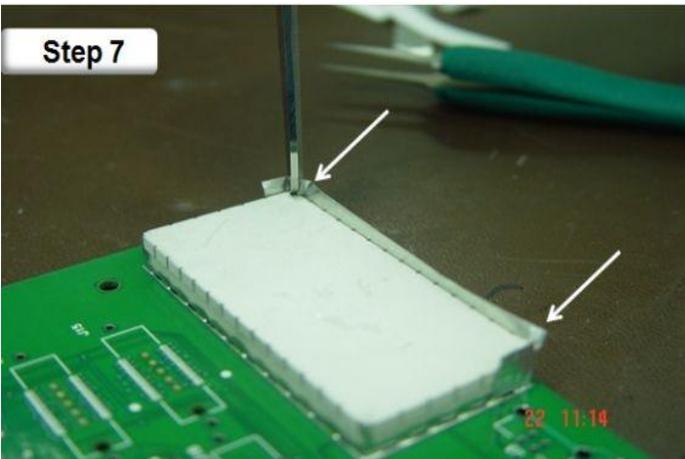
Paste the aluminum foil.



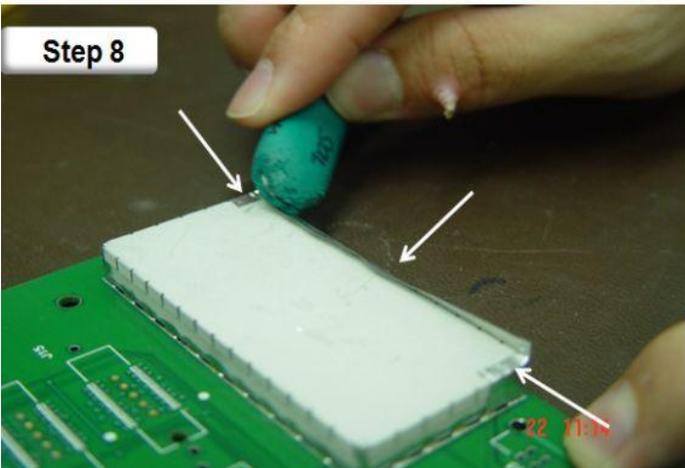
Step 5:
Use the handle of tweezers or any Hard tool to flatten it.



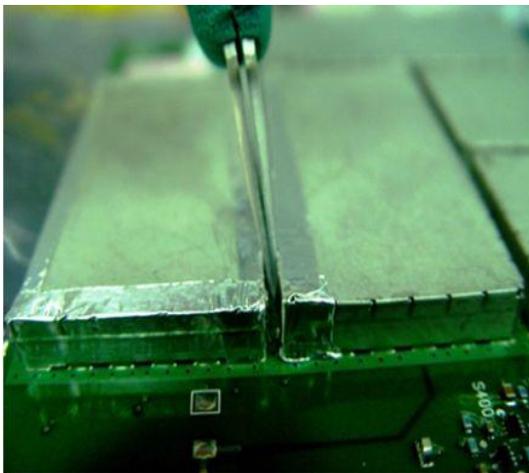
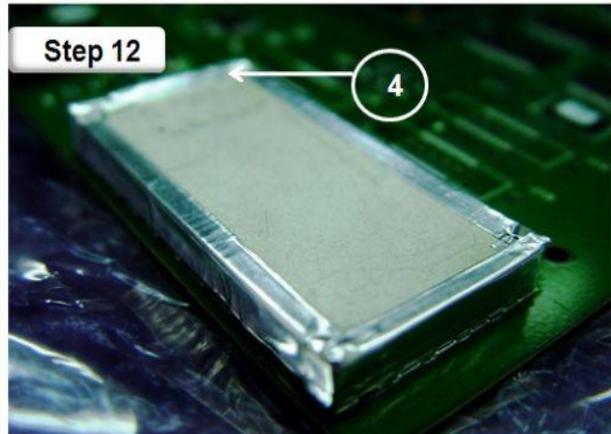
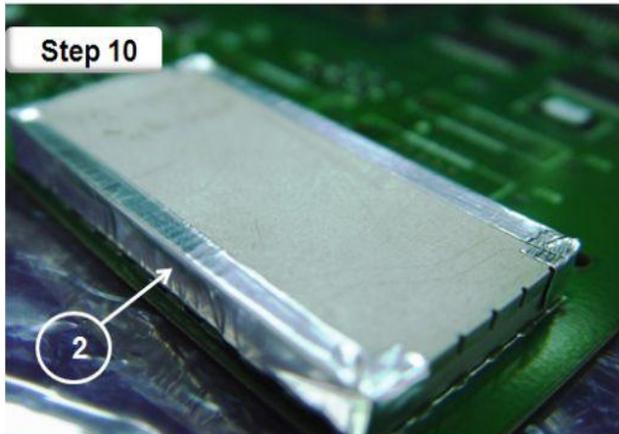
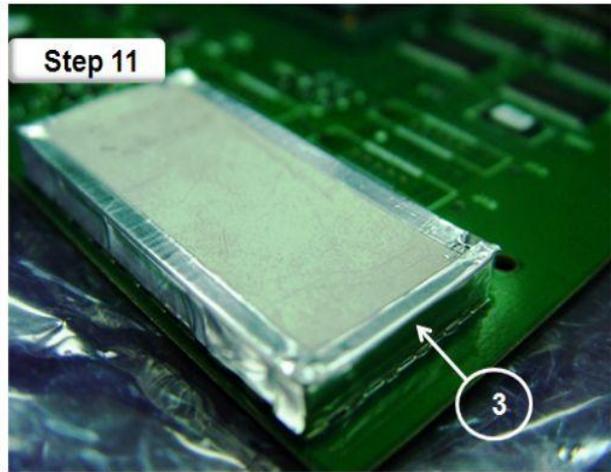
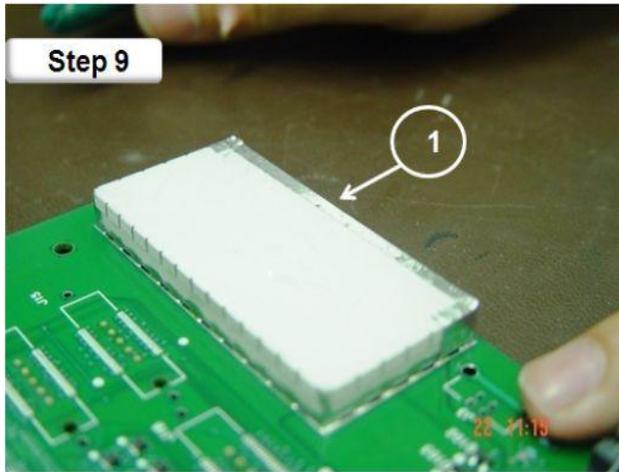
Step 6:
Fold it.



Step 7:
-Cut the 2 edges of the aluminum foil by using scissor.



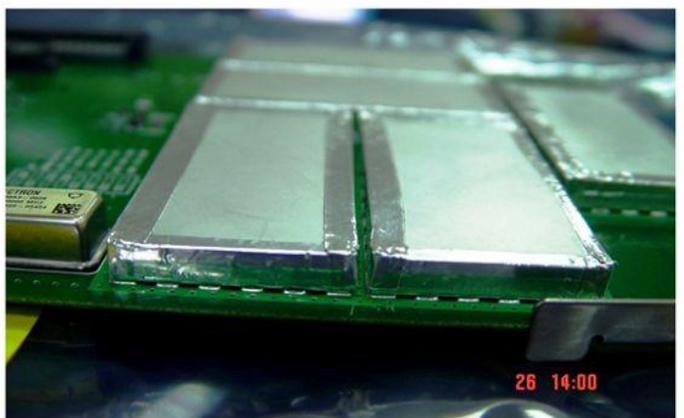
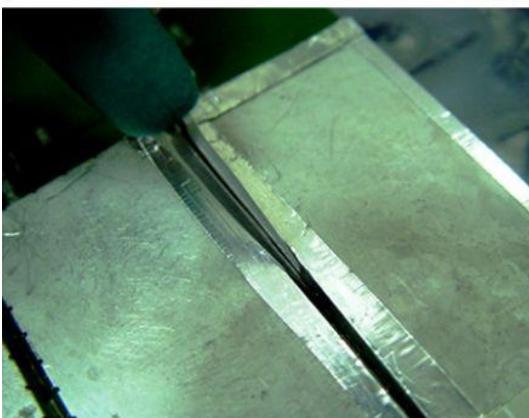
Step 8:
-Use the handle of tweezers or any hard tool to flatten it.



Step 13:

Use the tweezers or any tool to flatten the aluminum foil which is pasted inner of the shield case.

Repeat step 1 till 13 on the remaining 8pcs of shield covers.



- 5 Install the 9 large shields with aluminum to A4 IF Board.
- 6 Re-install A4 DIF assembly as described in the A4 IF Board, Replacement procedure in the N1996A Service Guide.
- 7 Replace the board cover as described in the Board Cover, Replacement procedure in the N1996A Service Guide.
- 8 Replace the outer case as described in the Instrument Outer Case, Replacement procedure in the N1996A Service Guide.
- 9 Connect the output of the ac adapter to the analyzer.
- 10 Turn N1996A on and wait for analyzer to boot up.
- 11 Connect N1996A to TME system, and perform IF flatness Adjustment and Amplitude Adjustment.**
- 12 Repeat test procedure described in Situation above, entering values in the “After Repair (from Old Assy)” row of **Table 1**.

Refer to the video instructions as below for more information:

1. [Tighten and bend the shield cover](#)
2. [Aluminum foils taping](#)