

MODIFICATION RECOMMENDED –
CORRECTS MANUFACTURING OR DESIGN DEFECTS

E8251A-09

S E R V I C E N O T E

Supersedes:
None

E8251A PSG Analog Signal Generator

Serial Numbers: [0000A00000 / 9999Z99999]

Power offset in the Agilent N7800A Test Management Environment Software for power measurements > 0 dBm

To Be Performed By: Agilent-Qualified Personnel or Customer

Parts Required:

P/N	Description	Qty.
None		

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
MODIFICATION RECOMMENDED			
ACTION CATEGORY:	X IMMEDIATELY <input type="checkbox"/> ON SPECIFIED FAILURE <input type="checkbox"/> AGREEABLE TIME	STANDARDS:	LABOR: 1.0 Hours
LOCATION CATEGORY:	X CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE <input type="checkbox"/> SERVICE CENTER	SERVICE INVENTORY:	<input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	USED PARTS:	<input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT
AUTHOR: RDS	PRODUCT LINE: 15	AGILENT RESPONSIBLE UNTIL: August 2006	
ADDITIONAL INFORMATION:			

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Situation:

The 20 GHz PSGs use an E4413A Power Sensor to measure Maximum Levelled Power and Power Level Accuracy. This power sensor contains two sets of Calibration Factors, one for powers ≤ 0 dBm and the other for powers > 0 dBm. Due to a software defect the Calibration Factors for powers > 0 dBm are not being used for higher powers. This will result in the measured power being offset.

Solution/Action:

Until the software is fixed a manual measurement is required for Maximum Levelled Power and Power Level Accuracy. The measured data will be recorded in this service note and attached to the Agilent N7800A Test Management Environment Software report.

Manual Maximum Power Measurement

1. Zero and calibrate the E4413A power sensor.
2. Connect the sensor directly to the PSG RF Output (no cables).
3. Set the E8251A frequency to 100 MHz.
4. Enter the test frequency via the E4419A/B front panel (Frequency/A Freq).
5. Set the E8251A amplitude to the maximum power in **Table 1**. The maximum power is dependent upon what options the E8251A contains.

Table 1

Frequency	STD	1E1	1EA	1E6	1E6 & 1E1	1E1& 1EA	1E1 & 1E6 & 1EA
250 kHz to 3.2 GHz	+13 dBm	+11 dBm	+16 dBm	+13 dBm	+11 dBm	+15 dBm	+12 dBm
> 3.2 GHz to 20 GHz	+13 dBm	+11 dBm	+20 dBm	+13 dBm	+11 dBm	+18 dBm	+20 dBm

6. Increment the E8251A amplitude by 0.3 dB, this is to accommodate the measurement uncertainty of the measurement.
7. Check for the E8251A leveling. If the unit is leveled then the test passed. If the unit is unlevelled, then the test failed.
8. Repeat steps 4 through 7 for E8251A frequencies of 10 GHz and 20 GHz.
9. Record your results below by initialing the appropriate cell in **Table 2**.

Table 2

Frequency	Pass	Fail
100 MHz		
10 GHz		
20 GHz		

Manual Power Level Accuracy

1. Zero and calibrate the E4413A power sensor.
2. Connect the sensor directly to the PSG RF Output (no cables).
3. Set the E8251A frequency to 95.1 MHz and the amplitude to 0 dBm.
4. Enter the test frequency via the E4419A/B front panel (Frequency/A Freq).
5. Measure the E8251A amplitude.
6. Subtract the measured value from the E8251A front panel setting.
7. Enter the difference in **Table 3**.

Table 3

Frequency	0 dBm	10 dBm	Max power (See Table 1)
95.1 MHz			
10.0501 GHz			
19.9501 GHz			

8. Increment the amplitude of the E8251A to the next power in **Table 3** and repeat steps 5 through 7. Repeat this step until all powers have been tested for this frequency.
9. Increment the E8251A frequency to the next frequency in **Table 3** and repeat steps 4 through 8.
10. Compare the result to the specifications in **Table 4**

Table 4

Frequency	> +10 dBm	+10 dBm to -10 dBm
250 kHz to 2 GHz	± 0.6	± 0.6
>2 GHz to 20 GHz	± 0.8	± 0.8

11. Record your results below by initialing the appropriate cell in **Table 5**.

Table 5

Frequency	Pass	Fail
95.1 MHz		
10.0501 GHz		
19.9501 GHz		

12. Attach the completed service note to the Agilent N7800A Test Management Environment Software report.