

MODIFICATION RECOMMENDED –  
CORRECTS MANUFACTURING OR DESIGN DEFECTS

**E5515B-03B**

# S E R V I C E                      N O T E

Supersedes:  
E5515B-03A

## E5515B Wireless Communications Test Set (8960 Series)

Serial Numbers: US00000000/US99999999, GB00000000/GB42400317

### Power Measurement Accuracy Degradation Requires Replacement of RF Interface

To Be Performed By: Agilent-Qualified Personnel

#### Parts Required:

P/N	Description	Qty.
E5515-61891	RF Interface Repair Kit	1

## ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
<b>MODIFICATION RECOMMENDED</b>			
ACTION CATEGORY:	X IMMEDIATELY ON SPECIFIED FAILURE AGREEABLE TIME	STANDARDS: LABOR: 1.5 Hour	
LOCATION CATEGORY:	CUSTOMER INSTALLABLE X ON-SITE X SERVICE CENTER	SERVICE INVENTORY: X RETURN SCRAP SEE TEXT	USED PARTS: X RETURN SCRAP SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	AGILENT RESPONSIBLE UNTIL: 1 NOV 2005	
AUTHOR: DT                      PRODUCT LINE: 13			
ADDITIONAL INFORMATION:			

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**Situation:**

The Test Set's RF Interface may require replacement to resolve inaccurate power measurements. Typical degradation of 1 to 5 dB occurs over time (approx. 3 to 4 months). This is the result of batch-related defective gain amplifiers in the RF power measurement path in the RF Interface.

This problem has only been noted on Test Sets with original RF Interfaces P/Ns E5515-61170 and E5515-61212. Use one of the following methods to determine which RF Interface is currently installed in the Test Set:

- 1) Remove the external cover and physically identify the part number of the RF Interface (located underneath the display).
- 2) Send the following GPIB commands to the Test Set:  
 OUTPUT 714; "PL13:LATCH:RFINT:EEPROM:PART\_NUMBER?"  
 ENTER 714; PART\_NUMBER\$  
 DISP PART\_NUMBER\$

**Solution/Action:**

Verify the performance of the RF Interface using the procedure below. Replace it if it does not meet specifications (refer to the *Specifications Table* for specific values). Verify that the replacement RF Interface also meets these specifications. Use proper anti-static protection to remove and replace this assembly. Upgrade of the Test Application(s) may be required.

**Required Test Equipment:**

Instrument	Critical Specifications	Recommended Agilent Model
Signal Generator	850 MHz Frequency >+10 dBm maximum power	ESG Series
Power Meter	$\pm 0.02$ dB Instrument Accuracy	EPM Series or 438A
Power Sensor	850 MHz Frequency >+14 dBm maximum input $\pm 4\%$ linearity	E-Series or 8482A
Power Splitter	850 MHz frequency $\pm 0.05$ dB tracking	11667A

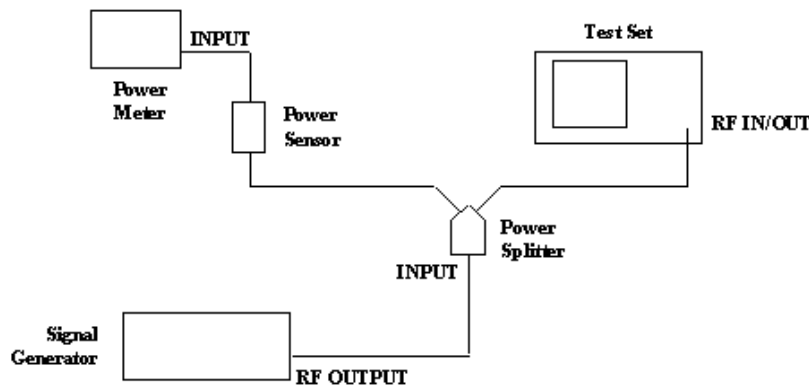
**Additional Equipment:**

Male-to-Male Type-N adapter (qty 1)

2-3 foot Type-N RF coaxial cable (qty 1)

**Procedure:**

1. If necessary, enter the power sensor calibration factors into the power meter.
2. Zero and calibrate the power meter and power sensor.
3. Connect the equipment as follows:



- a. Connect the signal generator to the input of the power splitter with the coaxial cable.
- b. Connect one arm of the power splitter to the Test Set RF IN/OUT connector **directly** through a Male-to-Male Type-N adapter.
- c. Connect the power sensor **directly** to the other arm of the power splitter.
4. On the power meter, set the power sensor calibration factor for 850 MHz.
5. On the signal generator set the frequency to 850 MHz.
6. On the Test Set:
  - a. Perform a full preset (SHIFT, Preset).
  - b. For E1960A Test Application:
    - i. On Call Parm's Menu 1 set Cell Power to Off.
    - ii. On Call Parm's Menu 3 set Receiver Control to Manual and Manual Freq to 850 MHz.
    - iii. Push the MEASUREMENT SELECTION key and select Transmit Power.
  - c. For E1961A Test Application:
    - i. On Call Control Menu set Active Cell to CW
    - ii. On Control Parm's Menu set Cell Power to Off.
    - iii. On Control Parm's Menu select Receiver Control and set Expected CW Power to each level specified in the ***Results Table***. Set Measurement Frequency and Uplink Frequency to 850 MHz.
    - iv. Push the MEASUREMENT SELECTION key and select Analog Transmit Power.
7. For both level settings in the ***Results Table*** below, do the following:
  - a. On the Test Set, set the Expected Power (E1960A) to the level being tested. Note: For E1961A the Expected CW Power is set in step 6c-iii.
  - b. On the signal generator, adjust the output so that the power meter displays the level shown in the ***Results Table*** below. This compensates for splitter and cable losses (approx 6dB).
  - c. Subtract the reading of the power meter from the reading of the Test Set and enter the calculated value in the ***Results Table***. The calculated value should not exceed the values listed in the ***Specifications Table*** (below):

***Specifications Table***

Test Application	RF Power (CW) Measurement Accuracy Specification
E1960A (GSM)	±0.27 dB
E1961A (AMPS/136)	±0.27 dB
E1962B (cdma2000/IS-95/AMPS)	Not Applicable
E1963A (W-CDMA)	Not Applicable
E1964A (GPRS)	Not Applicable

Test Set Serial Number: \_\_\_\_\_

RF Interface Part Number: \_\_\_\_\_

***Results Table***

Frequency	Level Setting (dBm)	
	+ 4.0	-20.0
850 MHz (initial performance)		
850 MHz (after replacement)		

**NOTE:** Include a copy of these results with the defective RF Interface being returned **OR**  
E-mail them to [spokane\\_service@agilent.com](mailto:spokane_service@agilent.com).