E5515C-02A

S E R V I C E N O T E

Supersedes:
E5515C-02

E5515C Wireless Communications Test Set (8960 Series)

Serial Numbers: US00000000/US99999999, GB00000000/GB42431687

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: **MODIFICATION RECOMMENDED**				
ACTION CATEGORY:	IMMEDIATELY X 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:				

Agilent Technologies

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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 E5515-61224, E5515-61236, and E5515-61242. 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:

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OUTPUT 714; "PL13:LATCH:RFINT:EEPROM:PART_NUMBER?"
ENTER 714; PART_NUMBER$
DISP PART_NUMBER$
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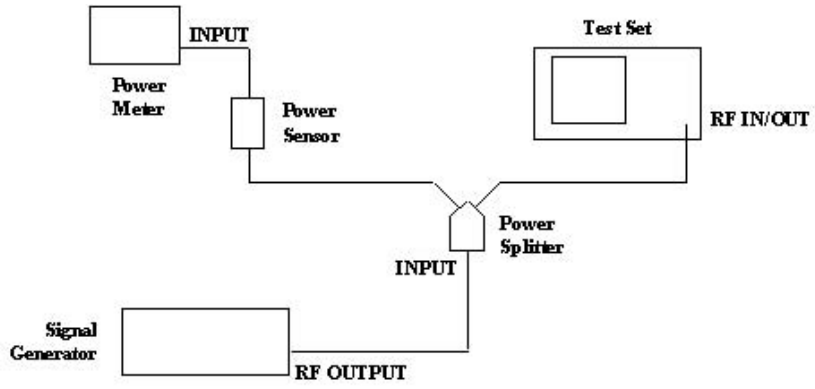
Solution/Action:
Verify the performance of the RF Interface using the procedure below. Replace it if it does not meet specifications (refer to the ***Specificatons Table*** for specific values). Verify that the replacement RF Interface also meets these specifications. Use proper anti-static protection 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	±0.02 dB Instrument Accuracy	EPM Series or 438A
Power Sensor	850 MHz Frequency >+14 dBm maximum input ±4% linearity	E-Series or 8482A
Power Splitter	850 MHz frequency ±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 Parms Menu 1 set Cell Power to Off.
        ii. On Call Parms 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 Parms Menu set Cell Power to Off.
        iii. On Control Parms 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.
    d. For E1962B Test Application:
        i. On the Call Control Menu set Sys Type to AMPS
        ii. On Call Parms Menu 1 set Cell Power to Off.
        iii. On Call Parms Menu 3 set Rcvr Power Ctrl to Manual and Meas 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) **or** Receiver Power (E1962B) 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):

Specificatons 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)	±0.32 dB
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: Incluce a copy of these results with the defective RF Interface being returned **OR** E-mail them to spokane_service@agilent.com.