INTER-OFFICE SERVICE MEMO

June 17, 1981

TO: ALL SERVICE OFFICES

FROM: Signal Analysis Division, Product Support Group, Santa Rosa

INSTRUMENT: 8558B Spectrum Analyzer
Serials Prefixed 1914A through 2024A

SUBJECT: Crystal Spur in 30 kHz Bandwidth Setting

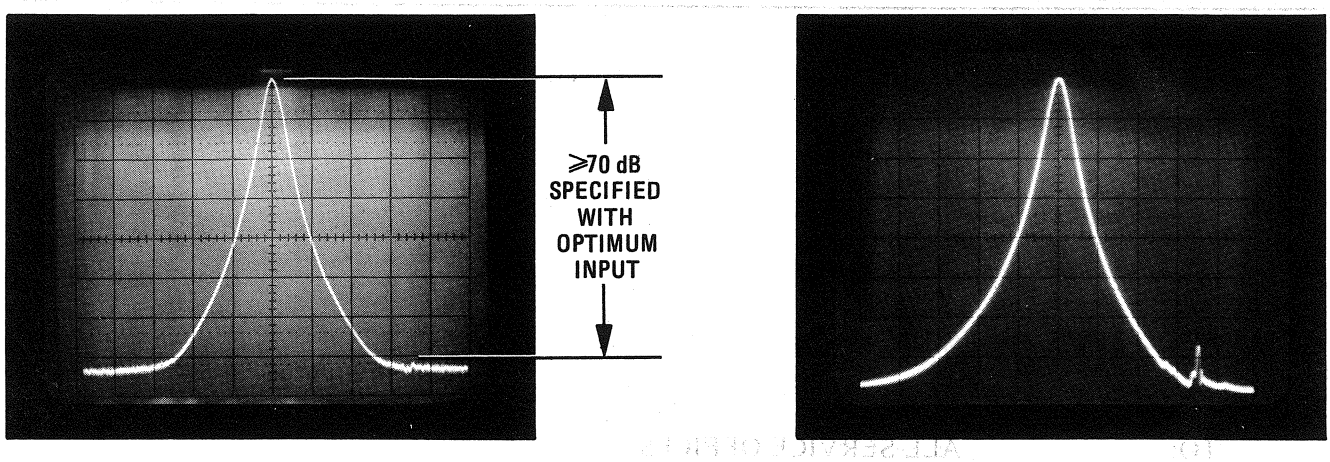
The 8558B Spectrum Analyzer with serials prefixed 1914A through 2024A may exhibit a crystal "spur" in 30 kHz resolution bandwidth settings. As shown in Figure 1, a non-fundamental resonance in the 21.4 MHz bandwidth filter crystals is excited by an input signal at the reference level, causing a spurious response 350 kHz above the true input signal frequency. At the listed control settings, the "spur" should be $\leq$70 dB down to meet published specifications.

Capacitors A11C14, A11C37, A13C14, and A13C37 have been changed to HP Part Number 0160-2250, CD=6 (C-FXD CER 5.1pF 500V) to decrease the 30 kHz bandwidth filter shape factor, minimizing the undesired crystal resonance.

Instruments with the above serials should be checked during normal adjustment to assure specified performance. The Bandwidth Filter alignment procedure in Section V of the Operation and Service Manual, HP Part Number 08558-90061 (CD=7), must be performed whenever it is necessary to replace the set of four capacitors.

Dan Colestock, Signal Analysis Division, Product Support

HEWLETT PACKARD



(a) CAL OUTPUT – NORMAL OPERATION

(b) CAL OUTPUT – OUT-OF-SPEC CRYSTAL RESONANCE

*Figure 1. 30 kHz Resolution Bandwidth Crystal "Spur"**

*NOTE: Specified performance (spurs ≥70 dB down) should be verified at the listed control settings. Photos above were taken at –40 dBm OPTIMUM INPUT setting to emphasize spur above the noise floor. A –40 dBm OPTIMUM INPUT overdrives the input mixer 10 dB when the –30 dBm CAL OUTPUT is applied.

Performance Verification Control Settings

Input:	Cal Output
Start-Center:	Center
Tuning:	280 MHz
Freq Span/Div:	100 kHz
Resolution BW:	30 kHz
Optimum Input:	–30 dBm
Option 002:	*+20 dBmV*
Reference Level dBm:	–30
Option 002:	*+20 (dBmV)*
10 dB/DIV – 1 dB/DIV – LIN:	10 dB/DIV
Sweep Time/Div:	Auto
Sweep Trigger:	Free Run
Video Filter:	~3 o'clock