

S E R V I C E N O T E

SUPERSEDES: None

**HP 8566B Spectrum Analyzer
HP 85660B RF Section****Serial Numbers:** 85660B RF Section: 0000A00000/9999A99999**Exceptions:** None**Spurious Responses in Low Band****Situation:**

HP 8566A/B Spectrum Analyzers will display spurious responses in low band (0 to 2.5 GHz band) when an out of band input signal is applied to the RF input.

Spurious responses are produced in the A6A3 First Converter when input signals from 7 to 20 GHz mix with a harmonic of the LO. Since the physical dimensions of the first converter dictate the exact frequency of the spur, the settings given in the example below may not produce a spur. Changing the input frequency slightly will cause a spur to appear.

Example:

Frequency and Power level of source is 13.930 GHz at 0 dBm. The LO is tuned to 5.850 GHz. A spur at 2.229 GHz and -58 dBc results from 3LO-fsource producing the first IF frequency of 3.6214.

Continued

DATE: July 1997

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

INFORMATION ONLY

AUTHOR:

BS

ENTITY:

5300

ADDITIONAL INFORMATION:

Solution:

A high quality external low-pass filter can be installed on the spectrum analyzer when measuring signals in low band. The low pass filter should cut off above 2.6 GHz since low band extends to 2.5 GHz. The addition of a low pass filter can slightly degrade spectrum analyzer flatness and dynamic range. Therefore the filter chosen must have low insertion loss and the in-band response of the filter must be quantifiable so the effect of the The HP 11688A 2.8 GHz Low pass filter is well suited for this application.

Insertion Loss: < dB at 2.6 GHZ

Rejection: > 40 dB at 3.5 GHZ

Connectors: Type-N