

S E R V I C E N O T E

SUPERSEDES: None

Agilent 5519B Laser Head

Laser Head Optical Feedback Reduction

Serial Numbers: 0000A00000 / 9999A99999
 US00000000 / US99999999

Duplicate Service Notes:5501B-03
 5517A/B/C/D-03
 5518A-04
 5519A/B-03

Situation:

All laser tubes, regardless of manufacturer, are very sensitive to any of their light being re-entering their cavity from any optical reflection. The split frequency will exhibit AM, FM, PM and wavelength jitter simultaneously which we call "Freebling". It will increase as the strength of the reflected light increases until the internal trigger misses a count. The causes a "Head Error" in our electronics.

Solution / Action:

Reflections can be seen on the front face of the laser head. Our optics have "AR (anti reflection)" coatings to reduce freebling effect.

To reduce the effect as much as possible, we suggest to misalign the optics slightly such that the reflection does not re-enter the cavity but shines next to the exit aperture.

For laser heads with excess power, an absorption filter (Agilent Product # 10774A C10) can be placed between the laser head and the interferometer or reduce the area of the exit aperture.

DATE: September 2000

ADMINISTRATIVE INFORMATION

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|------------------------------|-----------------|-------------------------|
| SERVICE NOTE CLASSIFICATION: | | |
| INFORMATION ONLY | | |
| AUTHOR: EL | ENTITY: 0200 | ADDITIONAL INFORMATION: |