ROYAL NMR Probe Specifications

**Instrument model** JNM-ECZ 400S

**Probe Designation** 40RO5AT/FG

5mm 400MHz broadband Z-gradient high resolution ROYAL NMR probe (S/N: NM-03811RO5S)

**Probe Description** Broadband high resolution NMR probe for both direct and indirect detection fitted with an actively shielded Z-axis gradient for 5mm sample tubes on 400 MHz standard bore magnets. The LF coil can be tuned to observe any nucleus from 31P to 15N, plus 39K and 109Ag. The HF coil may be tuned from 1H to 19F§. The probe is fitted with a 2H lock. The probe is compatible with the JEOL Autotune accessory unit (NM-61160ATZ). The probe includes one variable temperature compatible sample spinner.

**Specifications** Signal-to-Noise

1H sensitivity 500:1 0.1% Ethyl Benzene†

425:1 0.1% Ethyl Benzene‡ 19F sensitivity 550:1 0.05% TFT§

13C sensitivity 180:1 ASTM†

155:1 ASTM‡

13C sensitivity 200:1 10% Ethyl Benzene†

175:1 10% Ethyl Benzene‡ 31P sensitivity 100:1 0.0485M TPP

15N sensitivity 30:1 90% Formamide w/o NOE

Pulse Widths

|  |  |  |
| --- | --- | --- |
| 1H pulse width | 7 s | @30W |
| 19F pulse width | 9 s | @26W |
| 13C pulse width | 12 s | @80W |
| 31P pulse width | 18 s | @50W |
| 15N pulse width | 20 s | @120W |

Lineshape

1H spinning lineshape 0.5/6/12 Hz (0.55%/50%//0.11%)

Standard sample: 1% chloroform in acetone-d6

Spinning Sidebands (SSB) ≤1%

Resolution

Z-gradient

1H resolution ≤0.5 Hz 1% chloroform

13C resolution ≤0.25 Hz ASTM

The probe is fitted with an actively shielded single Z-axis gradient coil capable of 30G/cm with 10A current.

Variable Temperature

Variable temperature range is -100°C to +150°C

† Thin wall NMR sample tube, 0.24 mm

‡ Standard wall NMR sample tube, 0.38 mm

§ The probe may have a 19F background when observing 19F.