

NMR Probe Specifications - Preliminary

Model	JEOL Resonance 5 mm 500 MHz Carbon-Proton Z-gradient high resolution UltraCool NMR probe, operating temperature <20K	
Applicable Instrument	ECZ500R NMR systems. For other models, please contact JEOL Resonance for specifications.	
Description	Carbon-Proton high resolution NMR probe for detection Carbon fitted with an actively shielded Z-axis gradient for 5mm sample tubes on 500MHz standard bore magnets. The LF coil is tuned to observe ^{13}C . The HF coil is tuned to ^1H . The probe is fitted with a ^2H lock. The probe is compatible with the JEOL Autotune accessory unit (NM-61160ATZ). The probe includes one (1) variable temperature compatible sample spinner.	
Specifications	Signal-to-Noise ^1H sensitivity $\geq 1500:1$ 0.1% Ethyl Benzene[†] ^1H sensitivity $\geq 1280:1$ 0.1% Ethyl Benzene[‡] ^{13}C sensitivity $\geq 1700:1$ ASTM[†] ^{13}C sensitivity $\geq 1450:1$ ASTM[‡] Pulse Widths ^{13}C pulse width $\leq 15 \mu\text{s}$ ^{13}C @ 80W Lineshape ^1H spinning lineshape $\leq 8/16 \text{ Hz}$ 1% chloroform (0.55%/0.11%) ^1H non-spin lineshape $\leq 12/24 \text{ Hz}$ 1% chloroform (0.55%/0.11%) Spinning Sidebands (SSB) $\leq 1\%$ Resolution ^1H resolution $\leq 0.8 \text{ Hz}$ 1% chloroform (FWHM) ^1H resolution, non-spin $\leq 1.0 \text{ Hz}$ 1% chloroform (FWHM) Z-gradient 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 -40°C to +150°C	

[†] Thin wall NMR sample tube, 0.24mm

[‡] Standard wall NMR sample tube, 0.38mm