

# NMR Probe Specifications

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                          |                            |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------|
| <b>Model</b>                 | <b>JEOL Resonance 2 mm High Resolution 800 MHz HXY MAS probe</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                          |                            |
| <b>Applicable Instrument</b> | ECZR 800 MHz NMR system.<br>For other models, please contact JEOL USA for specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                          |                            |
| <b>Description</b>           | Three-channel magic angle spinning (MAS) NMR probe. Magic angle spinning speeds up to 38 kHz with standard Zirconia rotors at room temperature with gas supply <60 psi. High frequency channel tuned to $^1\text{H}$ at 800 MHz. Observe (X, Y) channel tuning inserts supplied for ( $^{27}\text{Al}$ , $^{13}\text{C}$ , $^{79}\text{Br}$ )/ $^{15}\text{N}$ , ( $^{31}\text{P}$ , $^7\text{Li}$ )/( $^{27}\text{Al}$ , $^{13}\text{C}$ , $^{79}\text{Br}$ ), ( $^{31}\text{P}$ , $^7\text{Li}$ )/ $^{15}\text{N}$ & ( $^{27}\text{Al}$ , $^{13}\text{C}$ , $^{79}\text{Br}$ )/ $^{29}\text{Si}$ , and Observe (X) channel tuning for $^{23}\text{Na}$ , $^{27}\text{Al}$ , $^{13}\text{C}$ , $^{79}\text{Br}$ . Other tuning combinations are optionally available. |                                                                                          |                            |
| <b>Specifications</b>        | Signal-to-Noise                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | $^{13}\text{C}$ sensitivity $\geq 120$                                                   | 8 scans HMB, HCN Tuning    |
|                              | Pulse Widths                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                          |                            |
|                              | $^1\text{H}$ $\pi/2$ pulse width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | $\leq 2.4 \mu\text{s}$                                                                   | At $\leq 100$ W at 800 MHz |
|                              | $^{13}\text{C}$ $\pi/2$ pulse width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\leq 5.3 \mu\text{s}$                                                                   | At $\leq 275$ W at 200 MHz |
|                              | $^{15}\text{N}$ $\pi/2$ pulse width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\leq 9.0 \mu\text{s}$                                                                   | At $\leq 275$ W at 80 MHz  |
|                              | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | $^{13}\text{C}$ resolution $\leq 0.1$ ppm                                                | Adamantane (FWHM)          |
|                              | Variable Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Variable temperature range is $-70^\circ\text{C}$ to $+90^\circ\text{C}$ with VT system. |                            |

## Notes:

Pulse width specifications are measured at the magic angle with sufficient air flow, at ambient temperature. Cross Polarization (CP) at field strengths up to 80% of the observe pulse strength up to 10ms duration. The probe may have  $^{19}\text{F}$  &  $^{13}\text{C}$  background signals for single pulse experiments.