

NMR Probe Specifications

Model	JEOL Resonance 5mm 500MHz broadband Z-gradient high resolution ROYAL NMR probe (NM-03820RO5, NM-03821RO5S, or NM-03822RO5SS)																																																							
Applicable Instrument	ECZ, ECA, and ECX 500MHz NMR systems. For other models, please contact JEOL Resonance for specifications.																																																							
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 500MHz standard bore magnets. The LF coil can be tuned to observe any nucleus from ^{31}P to ^{15}N , plus ^{39}K and ^{109}Ag . The HF coil may be tuned from ^1H to ^{19}F §. The probe is fitted with a ^2H lock. The probe is compatible with the JEOL Autotune accessory unit (NM-61160ATZ or NM-01090AT). The probe includes one (1) variable temperature compatible sample spinner.																																																							
Specifications	Signal-to-Noise <table> <tr> <td>^1H sensitivity</td><td>$\geq 800:1$</td><td>0.1% Ethyl Benzene[†]</td></tr> <tr> <td></td><td>$\geq 700:1$</td><td>0.1% Ethyl Benzene[‡]</td></tr> <tr> <td>^{19}F sensitivity</td><td>$\geq 750:1$</td><td>0.05% TFT[§]</td></tr> <tr> <td>^{13}C sensitivity</td><td>$\geq 270:1$</td><td>ASTM[†]</td></tr> <tr> <td></td><td>$\geq 235:1$</td><td>ASTM[‡]</td></tr> <tr> <td>^{13}C sensitivity</td><td>$\geq 310:1$</td><td>10% Ethyl Benzene</td></tr> <tr> <td></td><td>$\geq 270:1$</td><td>10% Ethyl Benzene[‡]</td></tr> <tr> <td>^{31}P sensitivity</td><td>$\geq 135:1$</td><td>0.0485M TPP</td></tr> <tr> <td>^{15}N sensitivity</td><td>$\geq 35:1$</td><td>90% Formamide w/o NOE</td></tr> </table> Pulse Widths <table> <tr> <td>^1H pulse width</td><td>$\leq 8 \mu\text{s}$</td><td>@30W</td></tr> <tr> <td>^{19}F pulse width</td><td>$\leq 10 \mu\text{s}$</td><td>@30W</td></tr> <tr> <td>^{13}C pulse width</td><td>$\leq 12 \mu\text{s}$</td><td>@100W</td></tr> <tr> <td>^{31}P pulse width</td><td>$\leq 15 \mu\text{s}$</td><td>@125W</td></tr> <tr> <td>^{15}N pulse width</td><td>$\leq 24 \mu\text{s}$</td><td>@150W</td></tr> </table> Lineshape <table> <tr> <td>^1H spinning lineshape</td><td>$\leq 6/12 \text{ Hz}$</td><td>1% chloroform (0.55%/0.11%)</td></tr> <tr> <td>^1H Non-spin lineshape</td><td>$\leq 8/16 \text{ Hz}$</td><td>1% chloroform (0.55%/0.11%)</td></tr> </table> Spinning Sidebands (SSB) $\leq 1\%$ Resolution <table> <tr> <td>^1H resolution, spinning</td><td>$\leq 0.5 \text{ Hz}$</td><td>1% chloroform (FWHM)</td></tr> <tr> <td>^1H resolution, non-spin</td><td>$\leq 0.8 \text{ Hz}$</td><td>1% chloroform (FWHM)</td></tr> </table> 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 -100°C to +150°C		^1H sensitivity	$\geq 800:1$	0.1% Ethyl Benzene [†]		$\geq 700:1$	0.1% Ethyl Benzene [‡]	^{19}F sensitivity	$\geq 750:1$	0.05% TFT [§]	^{13}C sensitivity	$\geq 270:1$	ASTM [†]		$\geq 235:1$	ASTM [‡]	^{13}C sensitivity	$\geq 310:1$	10% Ethyl Benzene		$\geq 270:1$	10% Ethyl Benzene [‡]	^{31}P sensitivity	$\geq 135:1$	0.0485M TPP	^{15}N sensitivity	$\geq 35:1$	90% Formamide w/o NOE	^1H pulse width	$\leq 8 \mu\text{s}$	@30W	^{19}F pulse width	$\leq 10 \mu\text{s}$	@30W	^{13}C pulse width	$\leq 12 \mu\text{s}$	@100W	^{31}P pulse width	$\leq 15 \mu\text{s}$	@125W	^{15}N pulse width	$\leq 24 \mu\text{s}$	@150W	^1H spinning lineshape	$\leq 6/12 \text{ Hz}$	1% chloroform (0.55%/0.11%)	^1H Non-spin lineshape	$\leq 8/16 \text{ Hz}$	1% chloroform (0.55%/0.11%)	^1H resolution, spinning	$\leq 0.5 \text{ Hz}$	1% chloroform (FWHM)	^1H resolution, non-spin	$\leq 0.8 \text{ Hz}$	1% chloroform (FWHM)
^1H sensitivity	$\geq 800:1$	0.1% Ethyl Benzene [†]																																																						
	$\geq 700:1$	0.1% Ethyl Benzene [‡]																																																						
^{19}F sensitivity	$\geq 750:1$	0.05% TFT [§]																																																						
^{13}C sensitivity	$\geq 270:1$	ASTM [†]																																																						
	$\geq 235:1$	ASTM [‡]																																																						
^{13}C sensitivity	$\geq 310:1$	10% Ethyl Benzene																																																						
	$\geq 270:1$	10% Ethyl Benzene [‡]																																																						
^{31}P sensitivity	$\geq 135:1$	0.0485M TPP																																																						
^{15}N sensitivity	$\geq 35:1$	90% Formamide w/o NOE																																																						
^1H pulse width	$\leq 8 \mu\text{s}$	@30W																																																						
^{19}F pulse width	$\leq 10 \mu\text{s}$	@30W																																																						
^{13}C pulse width	$\leq 12 \mu\text{s}$	@100W																																																						
^{31}P pulse width	$\leq 15 \mu\text{s}$	@125W																																																						
^{15}N pulse width	$\leq 24 \mu\text{s}$	@150W																																																						
^1H spinning lineshape	$\leq 6/12 \text{ Hz}$	1% chloroform (0.55%/0.11%)																																																						
^1H Non-spin lineshape	$\leq 8/16 \text{ Hz}$	1% chloroform (0.55%/0.11%)																																																						
^1H resolution, spinning	$\leq 0.5 \text{ Hz}$	1% chloroform (FWHM)																																																						
^1H resolution, non-spin	$\leq 0.8 \text{ Hz}$	1% chloroform (FWHM)																																																						

† Thin wall NMR sample tube, 0.24mm

‡ Standard wall NMR sample tube, 0.38mm

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

Data and specifications are subject to change without notice.

Document date: 2017-02-06