

NMR Probe Specifications

Model	JEOL Resonance 5mm 700MHz broadband Z-gradient high resolution ROYAL NMR probe (NM-Z700RO5S)																																																	
Applicable Instrument	ECZ, ECA, and ECX 700MHz 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 700MHz standard bore magnets. The LF coil can be tuned to observe any nucleus from ^{31}P to ^{15}N . The HF coil may be tuned from ^1H to ^{19}F (see Note). 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 <table> <tr> <td>^1H sensitivity</td><td>$\geq 1100:1$</td><td>0.1% Ethyl Benzene[†]</td></tr> <tr> <td></td><td>$\geq 960:1$</td><td>0.1% Ethyl Benzene[‡]</td></tr> <tr> <td>^{19}F sensitivity</td><td>$\geq 1050:1$</td><td>0.05% TFT[§]</td></tr> <tr> <td>^{13}C sensitivity</td><td>$\geq 350:1$</td><td>ASTM[†]</td></tr> <tr> <td></td><td>$\geq 300:1$</td><td>ASTM[‡]</td></tr> <tr> <td>^{31}P sensitivity</td><td>$\geq 200:1$</td><td>0.0485M TPP</td></tr> <tr> <td>^{15}N sensitivity</td><td>$\geq 40:1$</td><td>90% Formamide w/o NOE</td></tr> </table> Pulse Widths <table> <tr> <td>^1H pulse width</td><td>$\leq 12 \mu\text{s}$</td><td>@30W</td></tr> <tr> <td>^{19}F pulse width</td><td>$\leq 13 \mu\text{s}$</td><td>@30W</td></tr> <tr> <td>^{13}C pulse width</td><td>$\leq 15 \mu\text{s}$</td><td>@125W</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>$\leq 30 \mu\text{s}$</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	$\geq 1100:1$	0.1% Ethyl Benzene [†]		$\geq 960:1$	0.1% Ethyl Benzene [‡]	^{19}F sensitivity	$\geq 1050:1$	0.05% TFT [§]	^{13}C sensitivity	$\geq 350:1$	ASTM [†]		$\geq 300:1$	ASTM [‡]	^{31}P sensitivity	$\geq 200:1$	0.0485M TPP	^{15}N sensitivity	$\geq 40:1$	90% Formamide w/o NOE	^1H pulse width	$\leq 12 \mu\text{s}$	@30W	^{19}F pulse width	$\leq 13 \mu\text{s}$	@30W	^{13}C pulse width	$\leq 15 \mu\text{s}$	@125W	^{31}P pulse width	$\leq 15 \mu\text{s}$	@125W	^{15}N pulse width	$\leq 30 \mu\text{s}$	@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	$\geq 1100:1$	0.1% Ethyl Benzene [†]																																																
	$\geq 960:1$	0.1% Ethyl Benzene [‡]																																																
^{19}F sensitivity	$\geq 1050:1$	0.05% TFT [§]																																																
^{13}C sensitivity	$\geq 350:1$	ASTM [†]																																																
	$\geq 300:1$	ASTM [‡]																																																
^{31}P sensitivity	$\geq 200:1$	0.0485M TPP																																																
^{15}N sensitivity	$\geq 40:1$	90% Formamide w/o NOE																																																
^1H pulse width	$\leq 12 \mu\text{s}$	@30W																																																
^{19}F pulse width	$\leq 13 \mu\text{s}$	@30W																																																
^{13}C pulse width	$\leq 15 \mu\text{s}$	@125W																																																
^{31}P pulse width	$\leq 15 \mu\text{s}$	@125W																																																
^{15}N pulse width	$\leq 30 \mu\text{s}$	@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 .