PHOENIX NMR
Elevating your science

NB 1200MHz HX 4mm MAS Probe

Probe ID = 13

PN: PH1FT4S0NN

Tender Ref: CJ-03-23-PHYSICS-MASNMR-SB

Description
A 2 channel magic angle spinning probe for solid state NMR applications. The unique modular probe head design increases versatility by allowing easy exchange of different module sizes by the user, while utilizing the same probe base. The use of transmission line tuning efficiently transmits high power RF pulses to the sample with minimal probe ring-down over a wide tuning range.
VT operation through the probe minimizes loss while eliminating the need to purchase additional hardware.

Tuning Range
Double Resonance Mode: **H:** 1H **X:** 7Li to 87Sr
Tuning on X can be lowered to ~15MHz with optional Low Gamma box.

Spinning Module

Material:	PCTFE The PCTFE module exhibits low 1H background. 13C background is improved when performing cross polarization experiments, however 19F is relatively strong.
Spin Rate:	2kHz-18kHz
Stability:	+/- 30Hz or +/- 0.1%, whichever is larger, over 24hrs at +/-20C
Sample Volume:	46uL Active sample volume used for all NMR tests
VT Range:	-125C to +125C with FTS pre-conditioner or LN2

Resolution
Adamantane (13C): 0.05ppm FWHM, 0.12ppm @ 10%, 0.24ppm @ 2%

Signal to Noise[1]: HC 495:1

Target RF Performance:

Nucleus	pw90(μs)*
1H	8.0
31P	8.0
13C	8.0
15N	12.0

[1] Expected S/N on Agilent/Varian VNMRS system. Measured with Hexamethylbenzene, spinning at 5kHz, optimized variable amplitude CP and contact time, matched line broadening and 4 scans.
*pw90=(pw360-pw180)/2

PHOENIXNMR
Elevating your science

Customer	University of Warwick
Serial Number	SN240506
Frequency	1200MHz
Style	HX
Field Center	701mm

Module Size	4.0mm
Module Material	PCTFE
Min Speed	2kHz
Max Speed	18kHz

Spin Speed (kHz)	Bearing Pressure (psi)	Drive Pressure (psi)
2	8.5	1.8
4	8.5	3.9
6	10.0	7.0
8	13.1	10.9
10	16.3	15.8
12	19.5	21.6
14	22.7	28.8
16	25.7	38.0
18	33.0	56.6

Spin Speed (kHz)	Bearing Pressure (mbar)	Drive Pressure (mbar)
2	586	124
4	586	269
6	689	483
8	903	752
10	1124	1089
12	1344	1489
14	1565	1986
16	1772	2620
18	2275	3902

(970) 776-9658 | 510 E. 5th Street Loveland CO, 80537
PhoenixNMR.com

PHOENIXNMR
Elevating your science

Tuning Information

Customer	University of Warwick	**Module Size**	4.0mm
Serial Number	SN240506	**Module Material**	PCTFE
Frequency	1200MHz	**Style**	HX

Series Plug-In PCB#	X Tune Tube	Frequency Minimum	Frequency Maximum
3	UHX	7Li	467.5
SC	UHX	430.5	466.0
0	1	312.4	321.3
1	1	300.8	311.1
1	2	296.4	306.0
1	3	291.7	300.9
1	4	286.7	294.3
2	2	271.2	282.7
2	3	265.2	276.6
2	4	258.7	268.8
3	3	247.7	261.3
3	4	229.9	251.5
3	5	224.8	230.9
4	4	206.5	221.5
4	5	196.1	211.2
5	5	183.3	199.4
SC	5	118.8	154.3
SC	6	95.3	125.9
SC	7	76.4	99.3
SC	8	59.0	77.8
SC	9	50.5	54.5

← verified tune & match

Tune and observe on the X channel for X Mode

39K tune but not match
tune was slightly low

TT	Series
8	SC
9	SC

Series (pf)	PCB#
1.8	0
2.2	1
3.3	2
4.7	3
8.2	4
12	5
Short	SC

PHOENIXNMR
Elevating your science

Probe Acceptance Criterion Sheet
1200MHz 4mm HX

Spin Rate	2kHz-18kHz	☑
Magic Angle Adjustment		☑
Resolution shimmed on 1H	.05ppm FWHM, .12ppm @ 10%, .24ppm @ 2% .007ppm 1H .019ppm 1H .12ppm 1H	☑
PW90 (Measured as PW360-PW180/2)		
1H pw90 = 10µs @ 100W = 12µs @ 75W	8.0	☑
13C 79Br pw90 = 7.8µs @ 100W	8.0	☑
31P	8.0	☐
15N	12.0	☐
* Signal to Noise	* HC 495:1	☐

39K not matched but on resonance pw180 = 75µs

PhoenixNMR Representative Ridenour

Customer Anjali

* - Signal to noise is dependent on both the system as well as the probe. As PhoenixNMR has no control over your system, we cannot guarantee that this specification can be met. Signal to Noise has been proven on our system with a known signal to noise baseline and the data is included with the probe.