DD2
Site Preparation Checklist

Thank you for purchasing an Agilent instrument. To get you started and to assure a successful and timely installation, please refer to this specification or set of requirements.

Correct site preparation is the key first step in ensuring that your instruments and software systems operate reliably over an extended lifetime. This document is an information guide AND checklist prepared for you that outlines the supplies, consumables, space and utility requirements for your equipment for your site.

For additional information about our solutions, please visit our web site at
http://www.chem.agilent.com/en-US/Pages/HomePage.aspx

Customer Responsibilities

Make sure your site meets the following prior to the installation date using the checklist below. For details, see specific sections within this document, including:

- ☐ The necessary laboratory space is available.
- ☐ The lab requirements as listed in this checklist and the "DD2 MR Installation Planning Guide"
- ☐ The required operating supplies necessary for the product and installation
- ☐ Please consult Other/Special Requirements section below for other product-specific information
- ☐ If Agilent is delivering installation and familiarization services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.
- ☐ For more details, please consult the product-specific site prep manual **"**DD2 MR Installation Planning Guide**"**

Important Customer Information

1. If you have questions or problems in providing anything described as a *Customer Responsibilities* above, please contact your local Agilent or partner support/service organization for assistance prior to delivery. In addition, Agilent and/or it's partners reserve the right to reschedule the installation dependent upon the readiness of your laboratory.

2. Should your site not be ready for whatever reasons, please contact Agilent as soon as possible to re-arrange any services that have been purchased.

3. Other optional services such as additional training, operational qualification (OQ) and consultation for user-specific applications may also be provided at the time of installation when ordered with the system, but should be contracted separately.

Selecting the MR Installation Site

Ensure the following factors have been taken into account for the MR system site selection:

- ❑ Verify the site configuration with an Agilent representative before designing the layout
- ❑ Consider the fringe field effects on the surroundings
  - ❑ Ensure that sensitive equipment, pace makers, ferromagnetic objects, etc., are outside the 5 gauss line
  - ❑ Consider the stray field effects on areas or floors above and below the magnet
  - ❑ Be mindful of safety hazards of large, unrestrained stationary ferromagnetic objects
  - ❑ Be mindful of homogeneity disturbances caused by
    - ❑ Moving ferromagnetic objects such as elevators, pallets, trams, etc.
    - ❑ Environmental magnetic fields
  - ❑ Ensure sufficient space layout so the console, workstation, and power bay (if present) will be outside the 5 gauss line.
  - ❑ Site construction materials affecting the magnetic field such as steel beams, steel studding, etc
- ❑ Ensure site accessibility requirements have been met (pallet/forklift transport, cryogen dewars, emergency routes, system crates, etc)
- ❑ Ensure system can be easily accessed for operation, maintenance, and cryogenic service
- ❑ Ensure the ceiling requirements have been met taking into account the system, magnet, and accessory dimensions, including any possible floor-plates.
- ❑ Ensure the following floor requirements are met:
  - ❑ Structural floor loading requirements for all system components during and after installation
  - ❑ Floor leveling and covering
  - ❑ Floor vibrations are within stated specs
- ❑ Ensure potential EMI requirements have been met taking into account power lines, transformers, elevators, local trams, etc.
- ❑ Ensure the site meets RF interference requirements
  - ❑ External sources such as TV, radio, cellular
  - ❑ Other NMR spectrometers operating at the same frequency
- ❑ Ensure ventilation requirements have been met
- ❑

Special Notes:

1. Ensure all lab requirements are met before the “Ship By” date on the order acknowledgement to prevent installation delays

Environmental Conditions

Operating your instrument within the recommended lab requirements insures optimum instrument performance and lifetime.

- ❑ Ensure the site temperature requirements are met as stated below
- ❑ Ensure the site humidity requirements are met as stated below
- ❑ If needed, ensure stringent site stability requirements are met
- ❑ Ensure no direct sunlight falls on the any system component, especially the magnet
- ❑ Ensure ventilation requirements are met
  - ❑ If necessary, install recommended oxygen and air flow sensors
  - ❑ If required, ensure quench piping is installed

Special Notes:

1. Performance can be affected by sources of heat & cold e.g. direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibrations.
2. The site's ambient temperature conditions must be stable for optimum performance.

Stability Requirements Type	Operating temp range °C (F)	Operating humidity range (%)	Temperature Stability °C (F)
Standard: For 600 MHz and below	17 - 24 deg (60 – 75)	20 - 80	+/- 1 (+/- 1.8)
Stringent: For 700MHz and above OR long-term stability required	18 – 25 deg (63 – 77)		+/- 0.5 (+/- 1)

Power Consumption

Component	Required Outlets	Electrical Requirements (Vac) (single phase at 50-60 Hz)	Current Rating (A)
Two-cabinet console	1	200,208,220,230,240	20
Pneumatics Router	1	120/240	
Host PC and peripherals	6	120 240	15 7.5
7510-AS	1	120 240	15 7.5
7600-AS	1	120 240	15 7.5
VAST autosampler	2	120 240	15 7.5
Accessories and test equipment	6	120 240	20 10
Solid-state power cabinet (CH 1 and 2)	1	220	30
Solid-state power cabinet (CH 3 and 4)	1	220	30
Micro-imaging module cabinet	1	Refer to the DD2 MR Installation Planning Guide	
Third cabinet for 700 – 1000 MHz	1	220	30
VT CP/MAS module	1	110-125 220-240	15 7.5
Diffusion (L500)	1	3-phase 208 – 240 3-phase 380 - 415	10 5
Cold Probe system		Refer to Cold Probes Installation and Operation manual	

Special Notes:

1) For details consult the site planning manual "DD2 MR Installation Planning Guide"
   a. Observe the voltage and frequency line variations
   b. Consider a UPS if necessary

Laboratory Gas Supply Requirements

Air or Nitrogen Gas

System Configuration	Pressure psig (kPa)	Flow Rate LPM (SCFH)
Normal operation	80 (585)	54 (114)
During Eject	80 (585)	75 (159)
System with gHX Nano probe	80 (585)	45 (95)
System with Doty probe, Solid-state MAS spinning	90 (620)	50 (106)
System with Agilent solids probe, solid-state VT, and probe purge	80 (585)	169 (360)
System with Agilent solids probes, solid-state MAS spinning	90 (620)	141 (300)

Special Notes:

1) For 200-900 systems liquids, micro-imaging or liquids & micro-imaging with no options the air source us needed for spin, probe/shim cooling, VT, eject, and anti-vibration legs.
2) Engineer will supply air filter/coalescing oil filter for liquids systems
3) Other gas supply considerations/requirements:

- ❑ Ensure the supplied air has a dew point of -40 C min or -60 C min with an FTS chiller
- ❑ Consider using nitrogen gas for less-than-ambient temperature experiments
- ❑ Consider Air-dryers in high humidity areas
- ❑ For solids systems review special gas supply requirements
- ❑ Ensure meeting holding tank requirements if using a portable compressor
- ❑ Consider separate air sources for system options:
  - o Anti-vibration table
  - o Solids options such as CRAMPS and CP/MAS have special dewpoint, oil removing, and filtration air requirements

AC power and air conditioning requirements

System	Power (kW)	Surge Current (A)	Power Factor	BTU/hr
300-600 MHz 2-bay standard	0.7	85	0.925 leading	2400
700-900 MHz 3-bay, 4CH liquids	2.3	78	0.925 leading	7850
Host work station, monitor, peripherals	0.9			3100
Autosampler	0.18			615
Additional solids high-band channel	0.82			2800
Additional extra high power, solids, low band channel	1.32			4500
Additional liquids RF channel	0.5			1700
Micro-imaging module	1.5			5120
Solids Accessory cabinet	0.02			68

Other / Special Requirements

Before the installation takes place:

- ❑ Ensure a moving crew is provided to move the crates from the dock to installation site for 600 NB magnets and lower (not for 600WB magnets and higher)
- ❑ If feasible provide telephone and Internet access in the spectrometer lab
- ❑ Ensure precautions are taken against electrostatic discharges to prevent system damage.
- ❑ Provide the necessary network information as indicated in the planning guide.
- ❑ Ensure the required installation supplies and equipment are ready prior to the start of the install
  - ❑ Liquid helium and nitrogen
  - ❑ Gas helium and nitrogen
  - ❑ Face mask, gloves, heat gun, and non-ferromagnetic ladder
  - ❑ Hoist
- ❑ Check the SHIP BY date on the Agilent Order Acknowledgment form, and use this date as a target for completing installation preparations.
- ❑ Perform the post-delivery inspection and report any damage upon receipt of the system boxes and crates as indicated in the Installation Planning Guide.
- ❑ Ensure all checks in this document and requirements in the Installation Planning guide have been met prior to scheduling the installation

Once the magnet installation has begun, please ensure the following:

- ❑ Measure the stray magnetic field with a gauss meter after the magnet is fully energized
- ❑ Post the provided signs warning of magnetic field hazards

Document Control Logs

Revision Log:

Revision	Date	Reason For Update
A	4/15/2011	Released Version

Approval Log:

Revision	Approver(s)	Title of Approver
A	Kenneth Kezeor	Manager, NMR Technical Support