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Your ref: Docket No. 52-006
Our ref: DCP_NRC_002815

March 8, 2010

Subject: AP1000 Response to Request for Additional Information (SRP 3)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 3. This RAI response is submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in this response is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Enclosure 1 provides the response for the following RAI(s):

RAI-SRP3.7.1-SEB1-11 R3

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read 'D. A. Ludwig / FOR', written over the typed name of Robert Sisk.

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Enclosure

1. Response to Request for Additional Information on SRP Section 3

D063
NRC

cc: D. Jaffe - U.S. NRC 1E
E. McKenna - U.S. NRC 1E
B. Gleaves - U.S. NRC 1E
T. Spink - TVA 1E
P. Hastings - Duke Power 1E
R. Kitchen - Progress Energy 1E
A. Monroe - SCANA 1E
P. Jacobs - Florida Power & Light 1E
C. Pierce - Southern Company 1E
E. Schmiech - Westinghouse 1E
G. Zinke - NuStart/Entergy 1E
R. Grumbir - NuStart 1E
D. Lindgren - Westinghouse 1E

ENCLOSURE 1

Response to Request for Additional Information on SRP Section 3

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP3.7.1-SEB1-11
Revision: 3

Question:

The staff requests that Westinghouse provide additional figures in Section 5.2 TR-115, to include all location/direction combinations presented in the Section 5.1 figures, and to provide a cross-reference between the corresponding 5.1 and 5.2 figures.

Additional Request (Revision 2):

More data, i.e., HRHF response spectra for 5 locations on the basemat (4 locations at 4 corner and center) comparison of coherent at 5 nodes, 25 samples of incoherent and average of 25 incoherent response spectra.

Additional Request (Revision 3):

- A. Westinghouse will revise analysis to correct boundary conditions of rigid beams to solid elements in the NI20 SASSI model.
- B. Westinghouse will evaluate the need of modifying the transition shell to brick interface.
- C. Review interpolation function for NI20 SASSI model.
- D. Reanalysis of seismic response will correct/clarify values and results will be re-issued as a new revision to RAI-SRP3.7.1-SEB1-11.

Westinghouse Response (Revision 2):

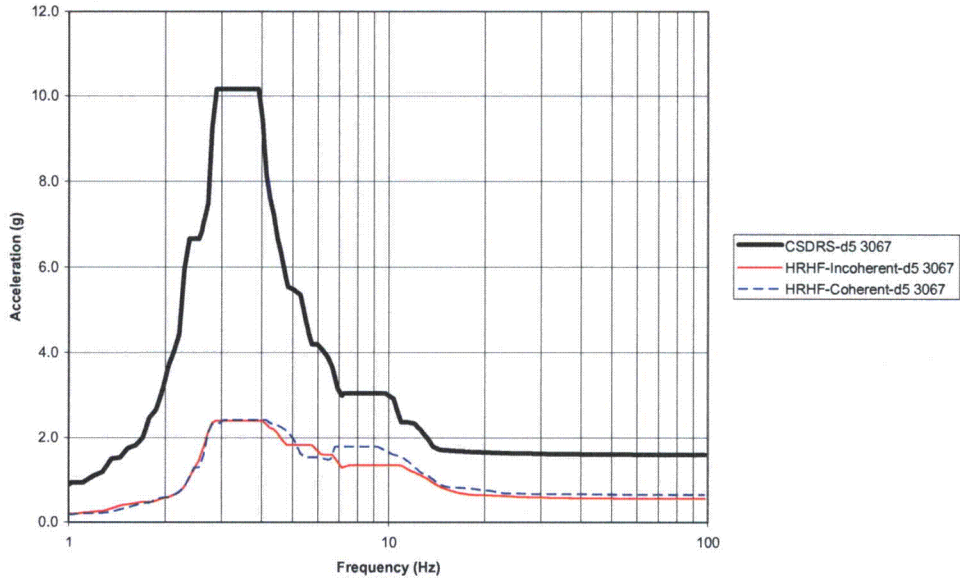
The figures provided in Section 5.1 are for comparison of NI10 and NI20 models. The time histories are different from that used in the HRHF evaluation documented in TR-115 as discussed in the Westinghouse response to RAI-SRP3.7.1-SEB01-07. No reduction for incoherency was considered. A representative group of HRHF floor response spectra were developed at locations considered susceptible to the high frequency response for comparison to the CSDRS floor response spectra. Some of these locations are the same or close to those given in Section 5.1. It would not be useful to add additional figures in Section 5.2 since the locations chosen are considered sufficient for comparison. A cross-reference between corresponding 5.1 and 5.2 figures cannot be given since different time histories are used.

In response to the NRC's request to supplement Section 5.2 in the TR-115 during May 19-23, 2008, Westinghouse has provided incoherent and coherent comparison response spectrum for the nodal locations presented in TR-115 Section 5.1. These spectra are presented below in Figure RAI-SRP3.7.1-SEB1-11-1 to RAI-SRP3.7.1-SEB1-11-9 (5% damping).

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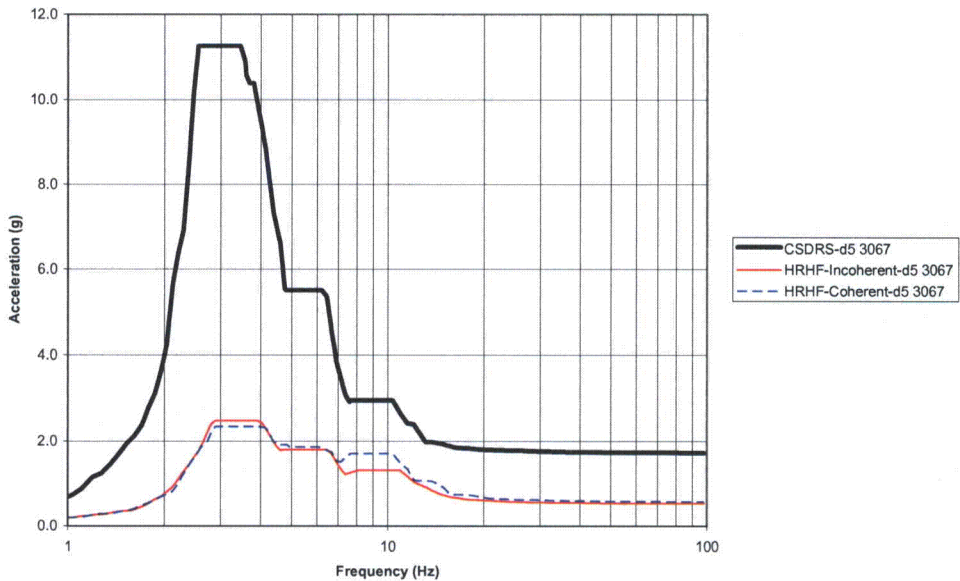
Response to Request For Additional Information (RAI)

FRS Comparison X Direction



RAI-SRP3.7.1-SEB1-11-1: Seismic Response Spectra on roof of Shield Building X-Direction

FRS Comparison Y Direction

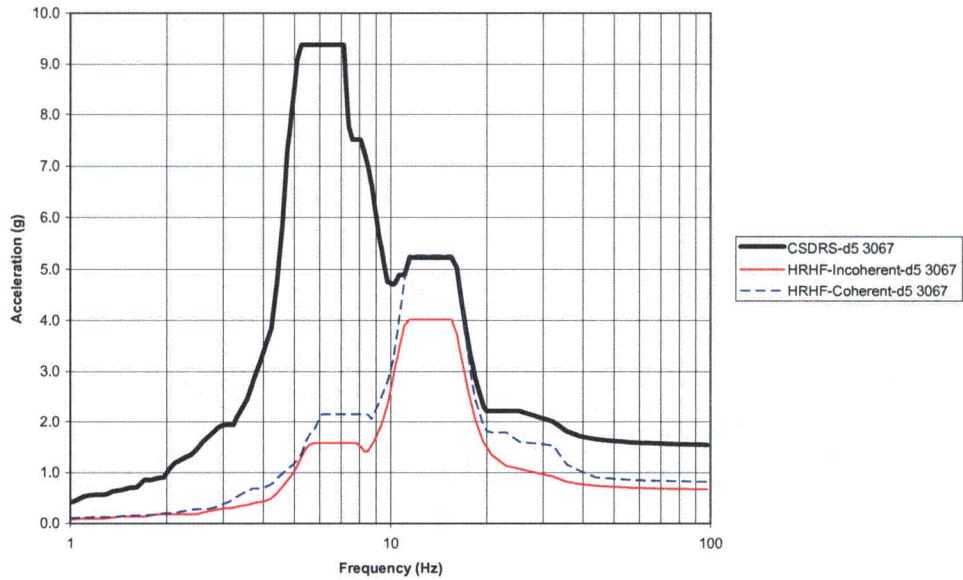


RAI-SRP3.7.1-SEB1-11-2: Seismic Response Spectra on roof of Shield Building Y-Direction

AP1000 TECHNICAL REPORT REVIEW

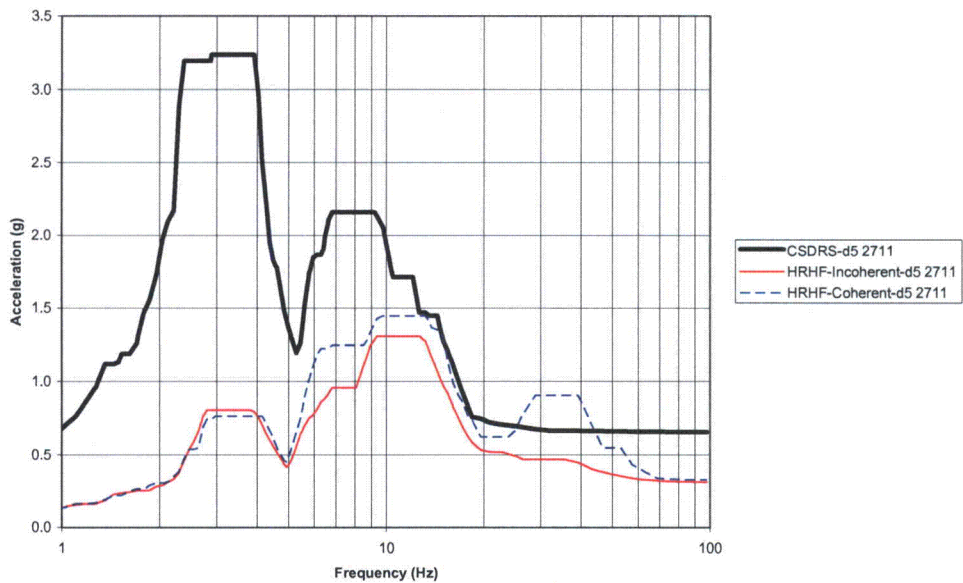
Response to Request For Additional Information (RAI)

FRS Comparison Z Direction



RAI-SRP3.7.1-SEB1-11-3: Seismic Response Spectra on roof of Shield Building Z-Direction

FRS Comparison X Direction

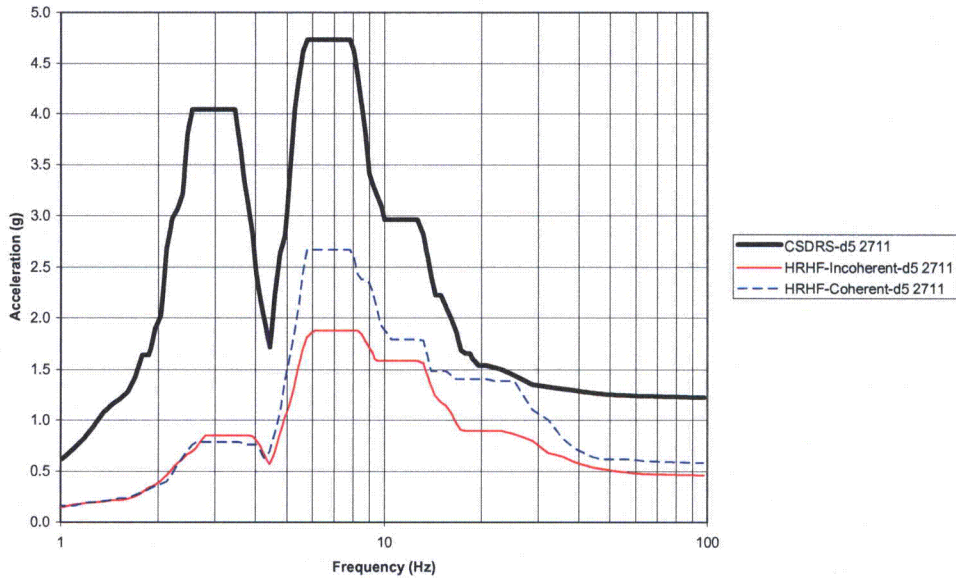


RAI-SRP3.7.1-SEB1-11-4: Seismic Response Spectra for West Side of Shield Building X-Direction

AP1000 TECHNICAL REPORT REVIEW

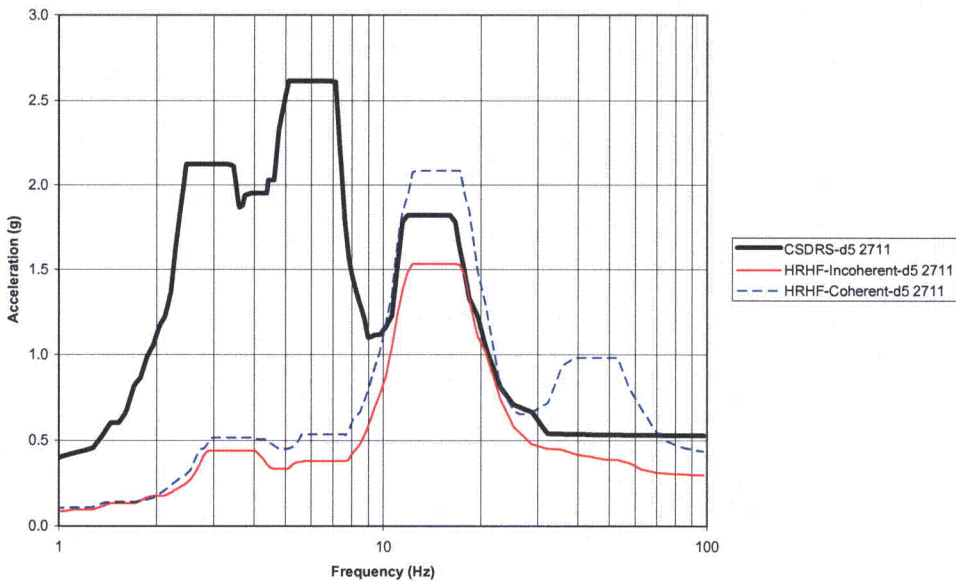
Response to Request For Additional Information (RAI)

FRS Comparison Y Direction



RAI-SRP3.7.1-SEB1-11-5: Seismic Response Spectra for West Side of Shield Building Y-Direction

FRS Comparison Z Direction

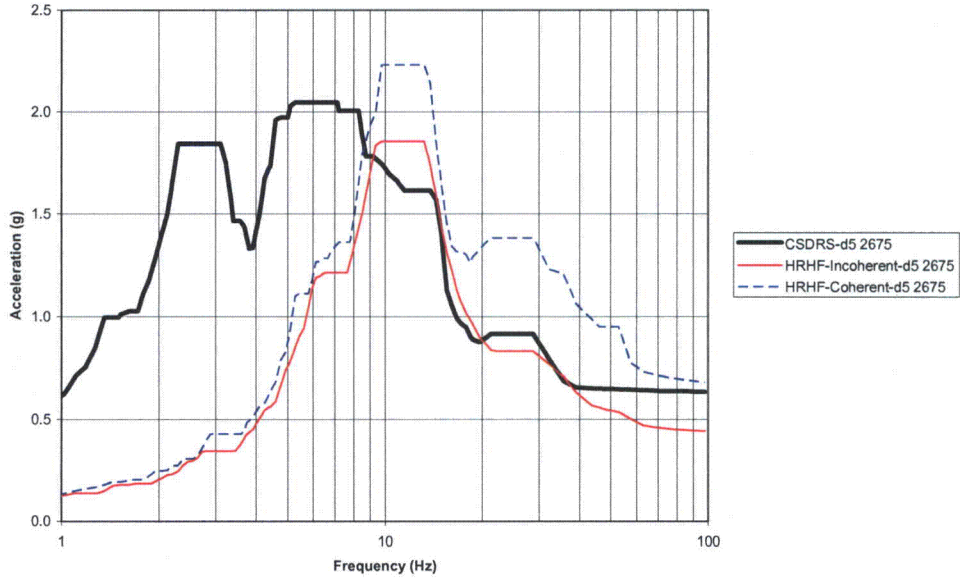


RAI-SRP3.7.1-SEB1-11-6: Seismic Response Spectra for West Side of Shield Building Z-Direction

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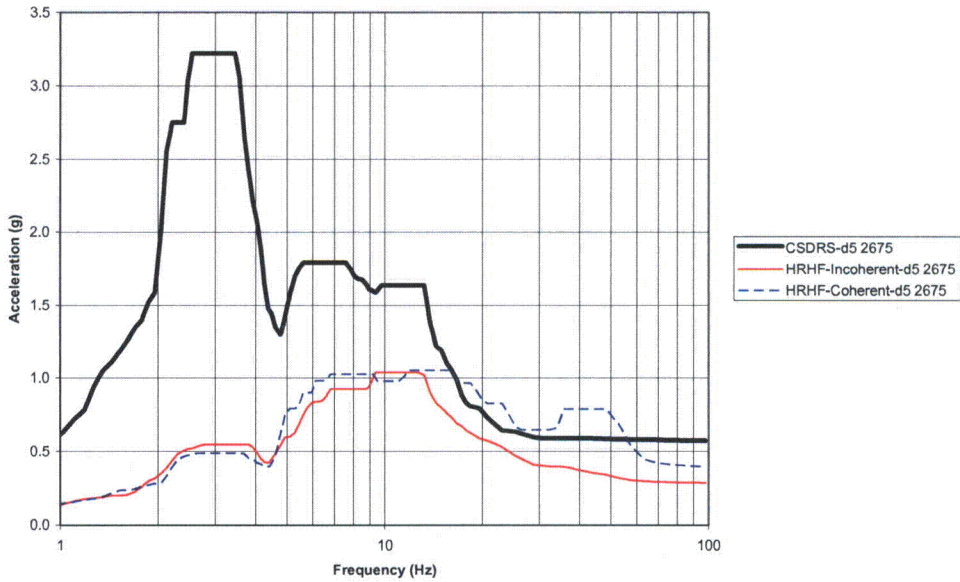
Response to Request For Additional Information (RAI)

FRS Comparison X Direction



RAI-SRP3.7.1-SEB1-11-7: Seismic Response Spectra for South Side of Shield Building X-Direction

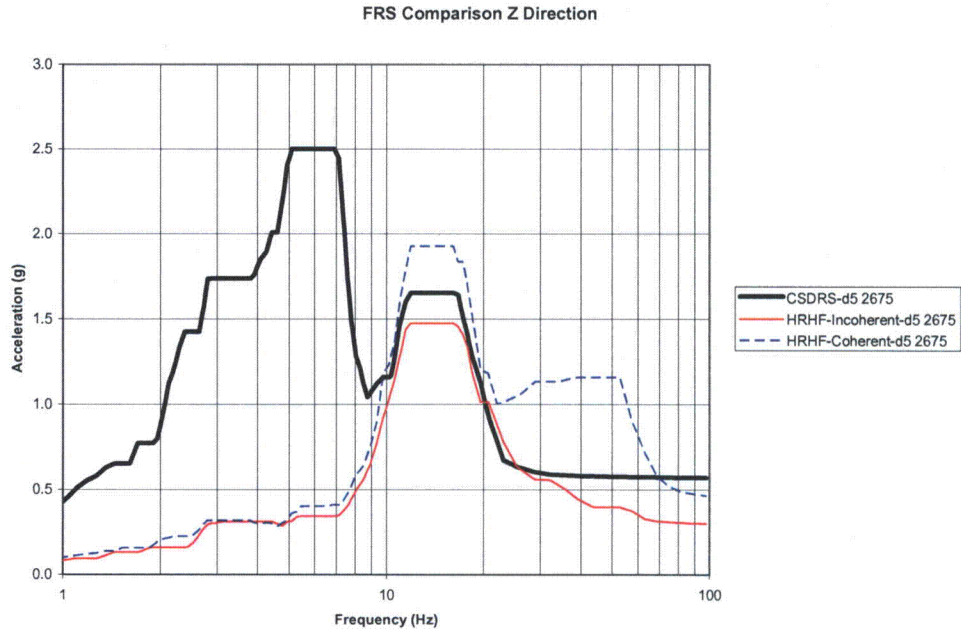
FRS Comparison Y Direction



AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI-SRP3.7.1-SEB1-11-8: Seismic Response Spectra for South Side of Shield Building Y-



Direction
RAI-SRP3.7.1-SEB1-11-9: Seismic Response Spectra for South Side of Shield Building Z-Direction

Westinghouse Response (Revision 2):

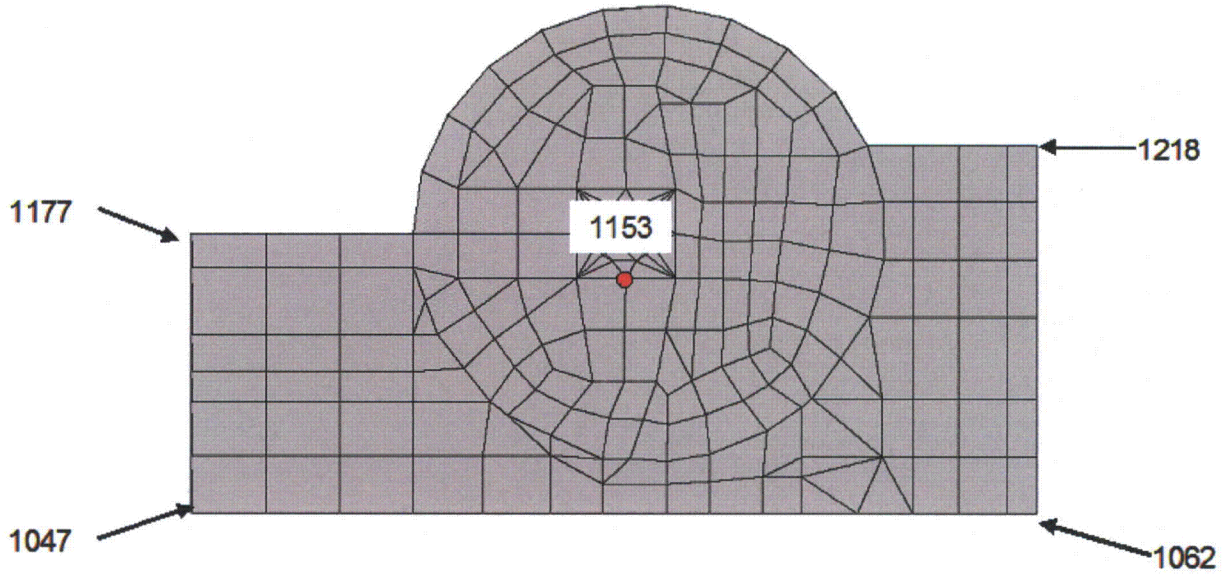
Following the NRC Audit of AP1000 Seismic Design the week of April 13-17, 2009, the NRC has requested additional HRHF FRS at the four corners and center of the Nuclear Island basemat. The nodal locations of the response spectra comparisons have been provided in a plot shown in Figure RAI-SRP3.7.1-SEB1-11-10. A comparison of the SRSS combined X, Y and Z directions for incoherent simulations, average incoherent and coherent FRS are shown in Figures RAI-SRP3.7.1-SEB1-11-11 through RAI-SRP3.7.1-SEB1-11-25. The plots provided show a general reduction in the 25 incoherent simulations when compared to the coherent response in the higher frequencies. At lower elevations, the incoherent simulations exceed the coherent responses in the z-direction around the 10-20 Hz range; these exceedances do not exist at higher elevations as seen in Figures RAI-SRP3.7.1-SEB1-11-1 through RAI-SRP3.7.1-SEB1-11-9.

Index for Figures RAI-SRP3.7.1-SEB1-11-11 through RAI-SRP3.7.1-SEB1-11-25:

- sim # - Incoherent Simulation (total of 25)*
- AVG - Average of the Incoherent Simulations*
- COH - Coherent Response*

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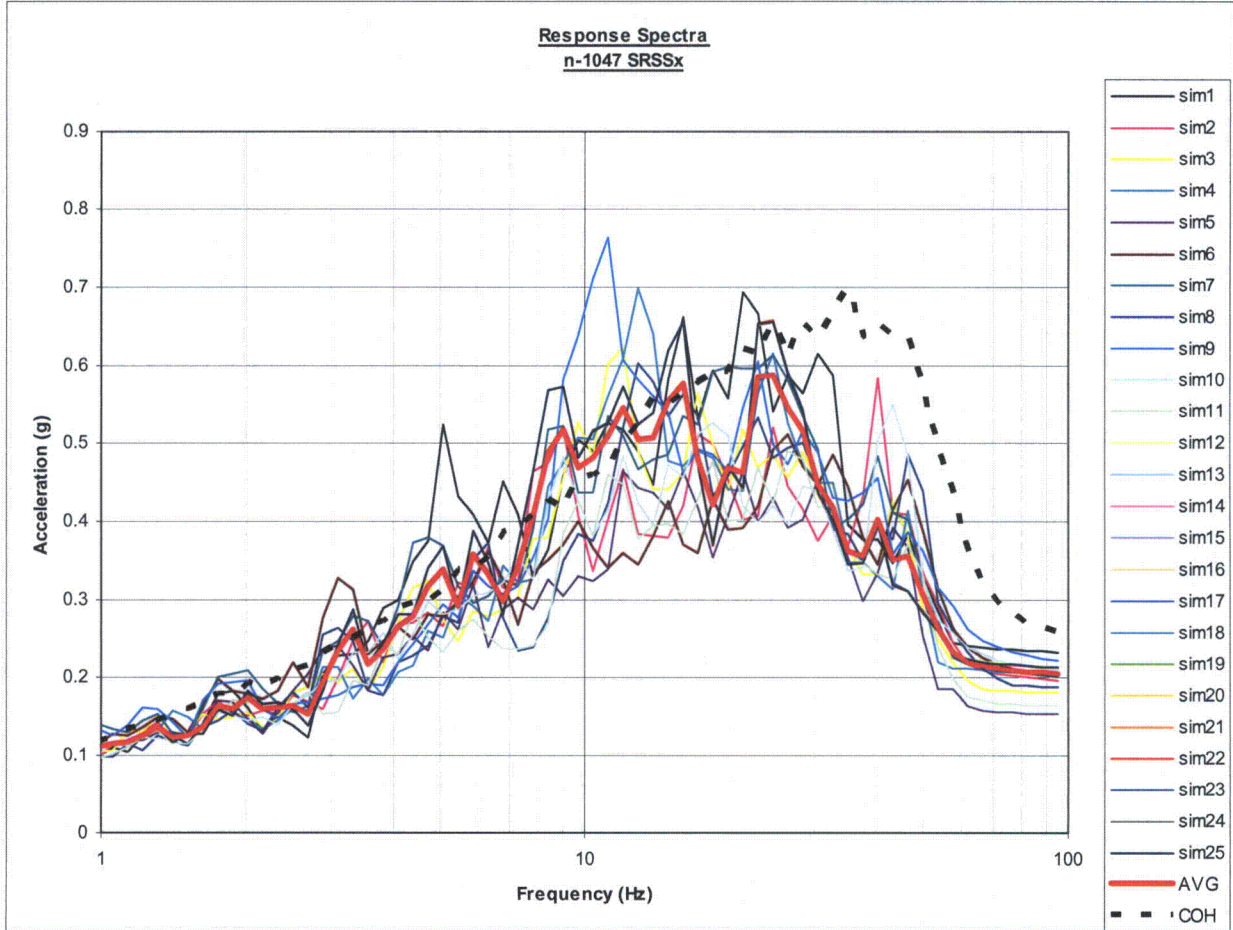
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-10: Basemat Nodal Locations, Elevation 60.5'

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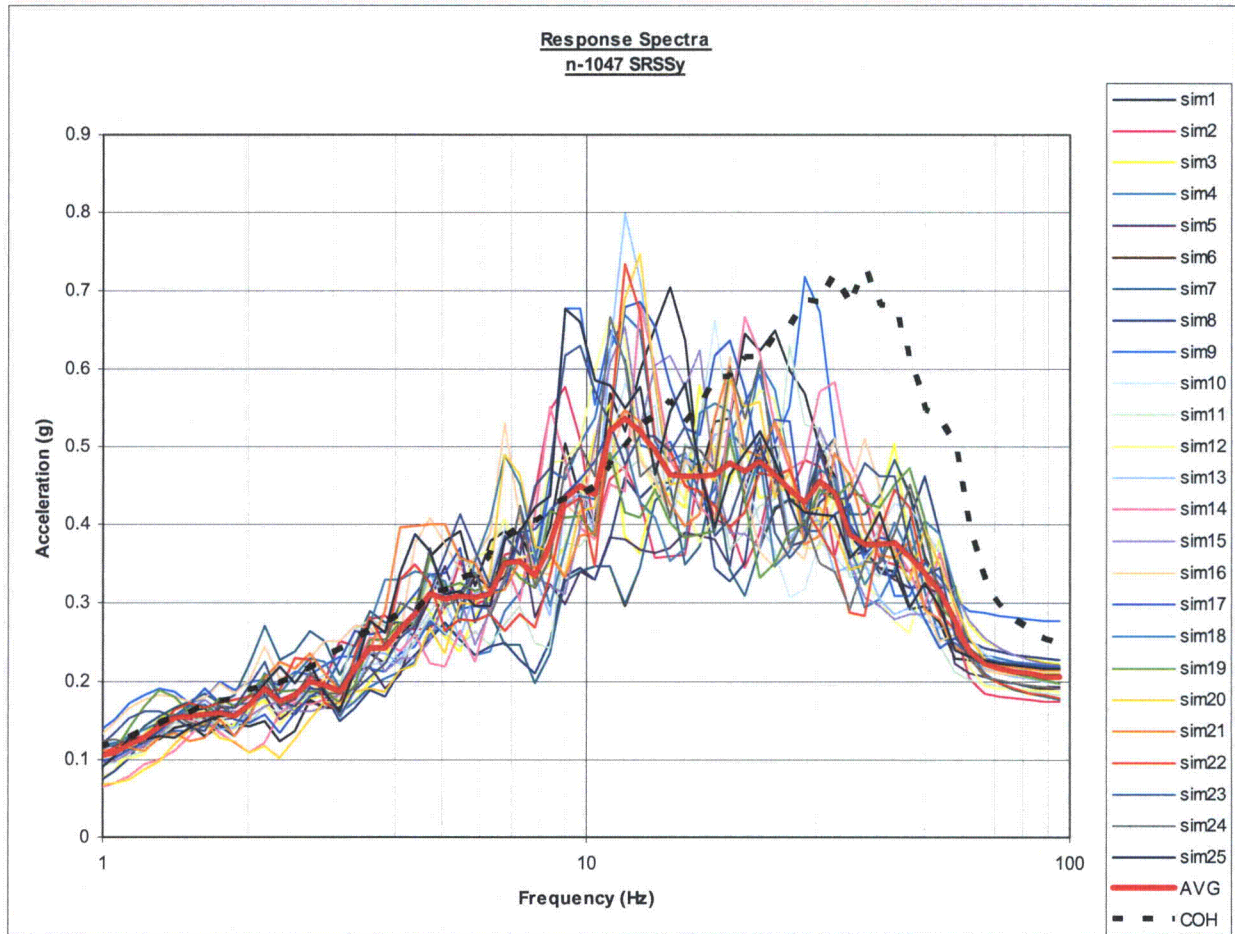
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-11: Node 1047-SRSS X-Direction, Southeast Corner

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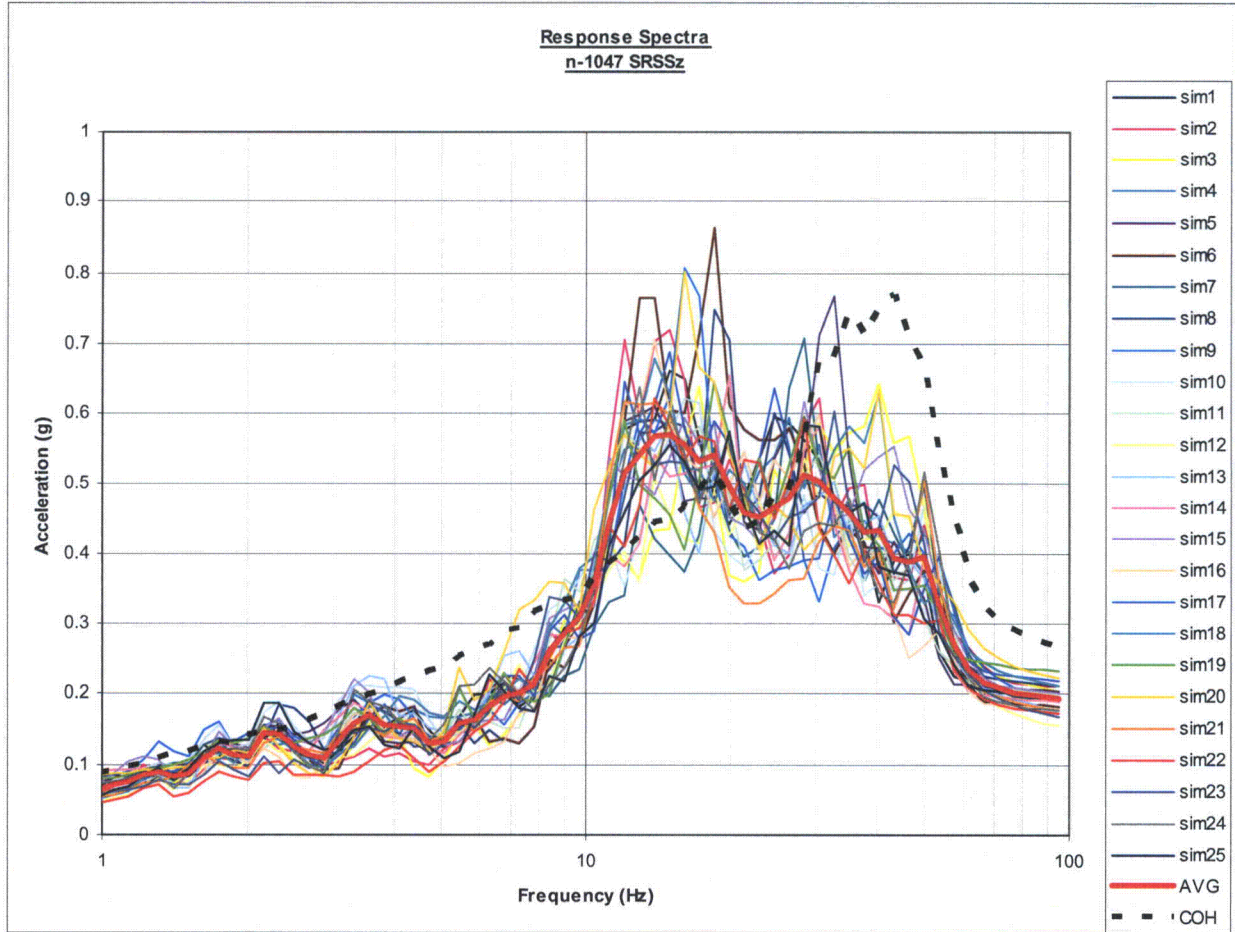
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-12: Node 1047-SRSS Y-Direction, Southeast Corner

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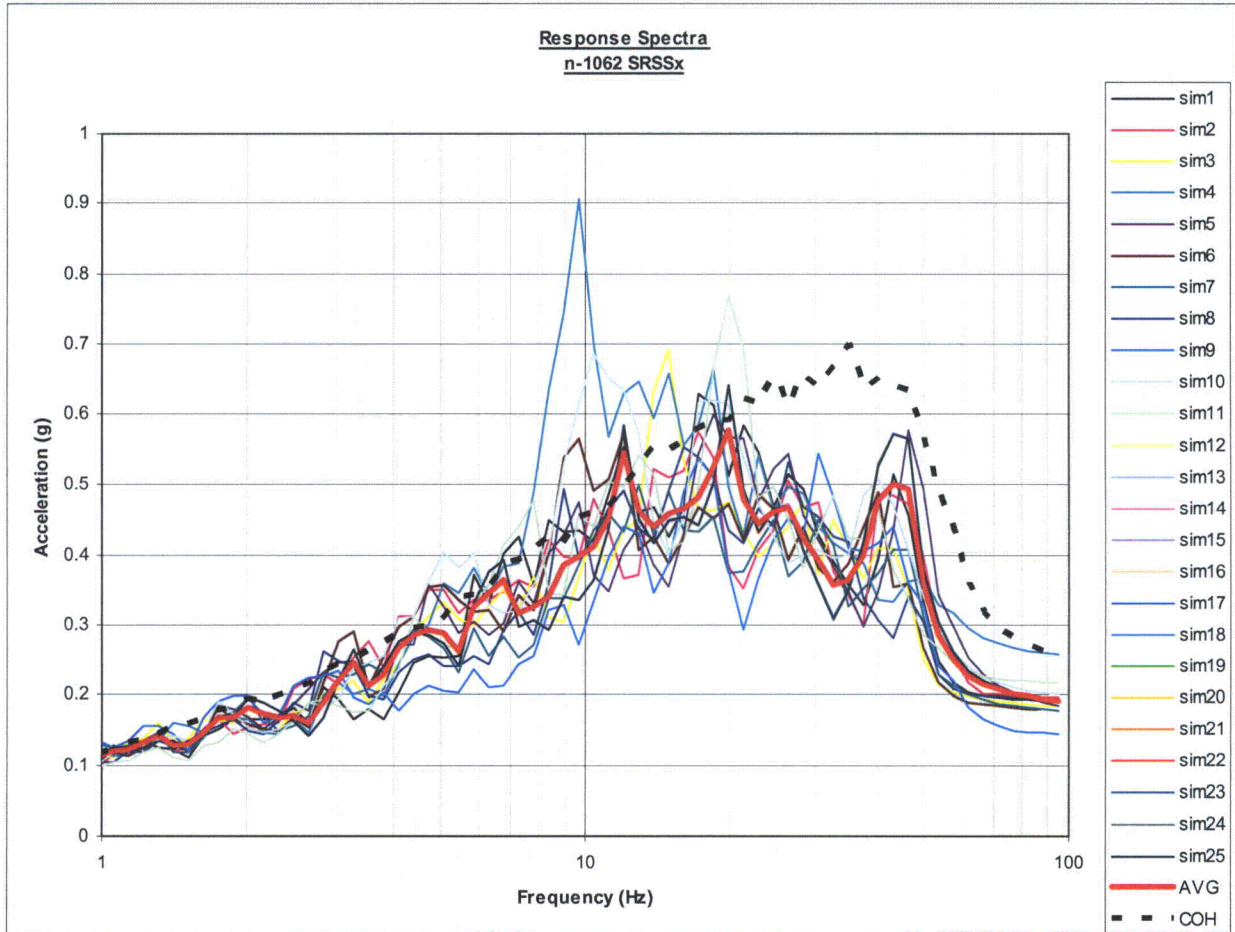
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-13: Node 1047-SRSS Z-Direction, Southeast Corner

AP1000 TECHNICAL REPORT REVIEW

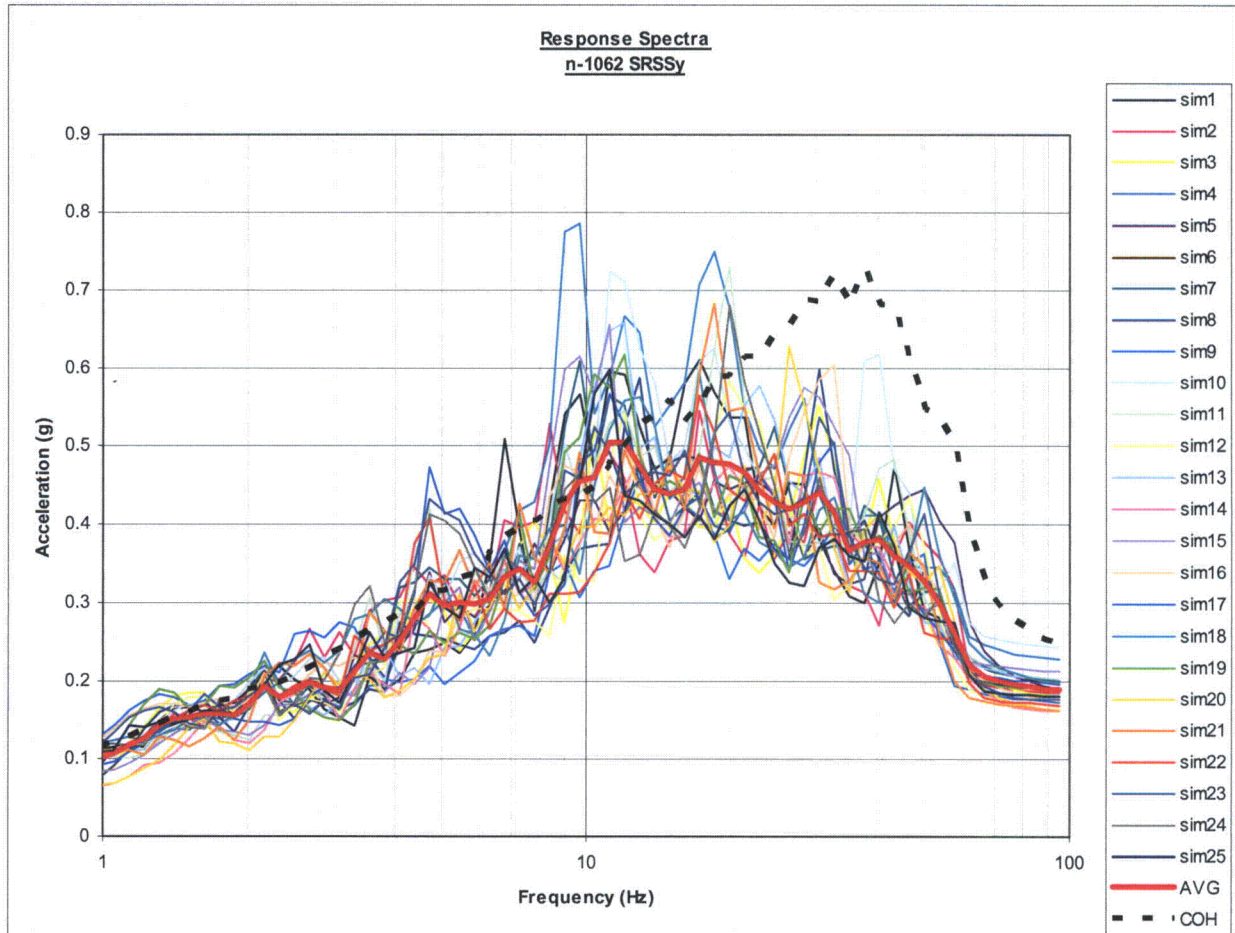
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-14: Node 1062-SRSS X-Direction, Northeast Corner

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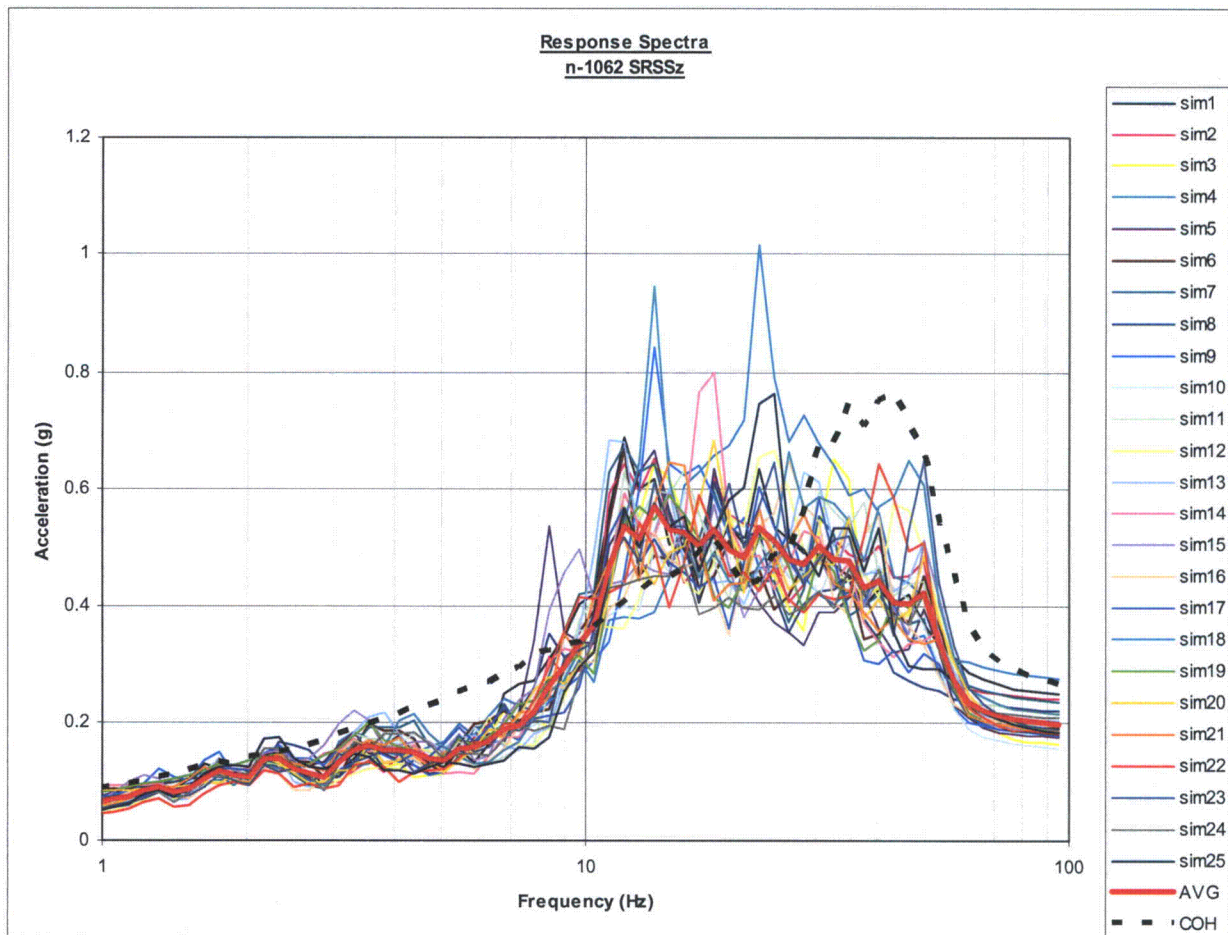
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-15: Node 1062-SRSS Y-Direction, Northeast Corner

AP1000 TECHNICAL REPORT REVIEW

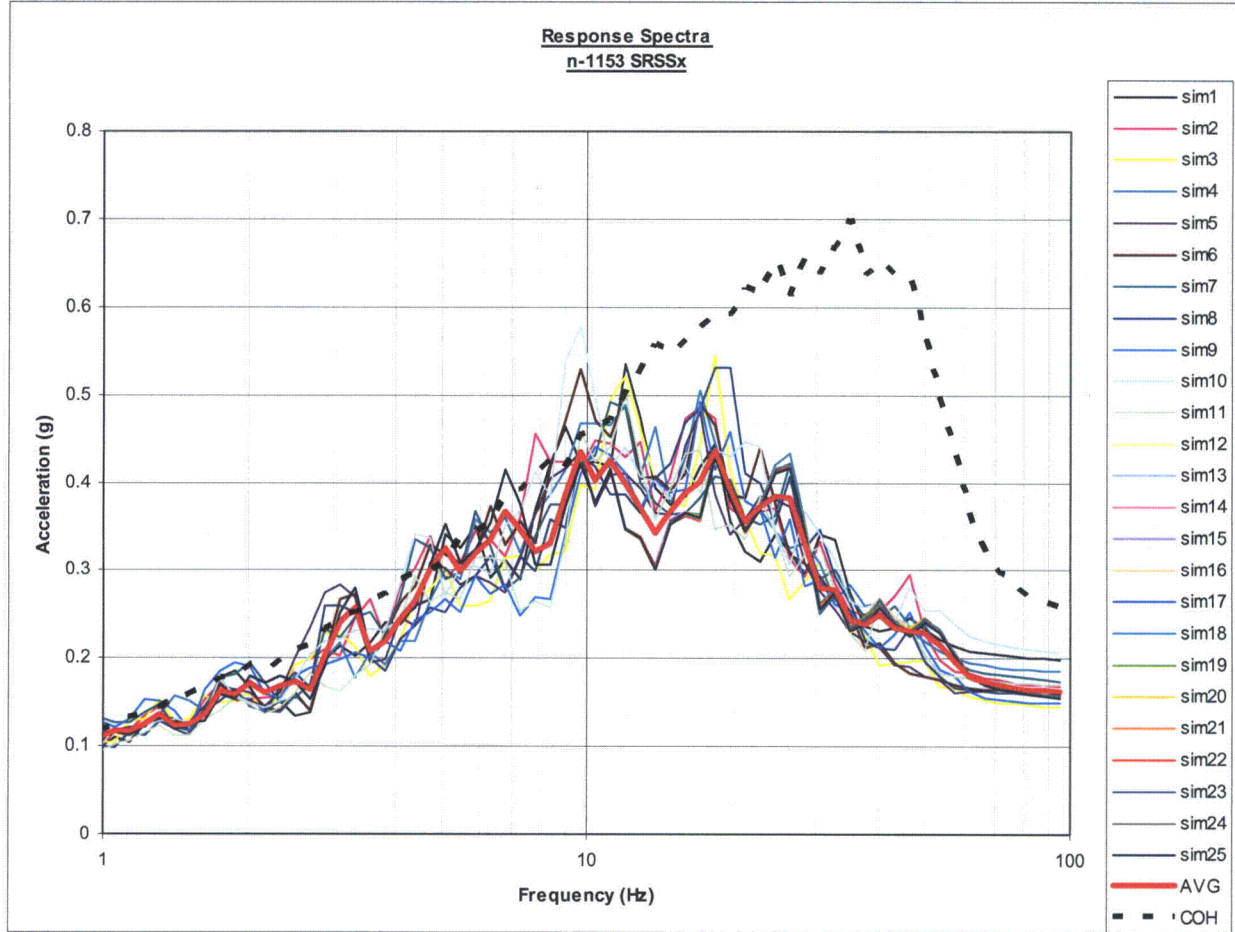
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-16: Node 1062-SRSS Z-Direction, Northeast Corner

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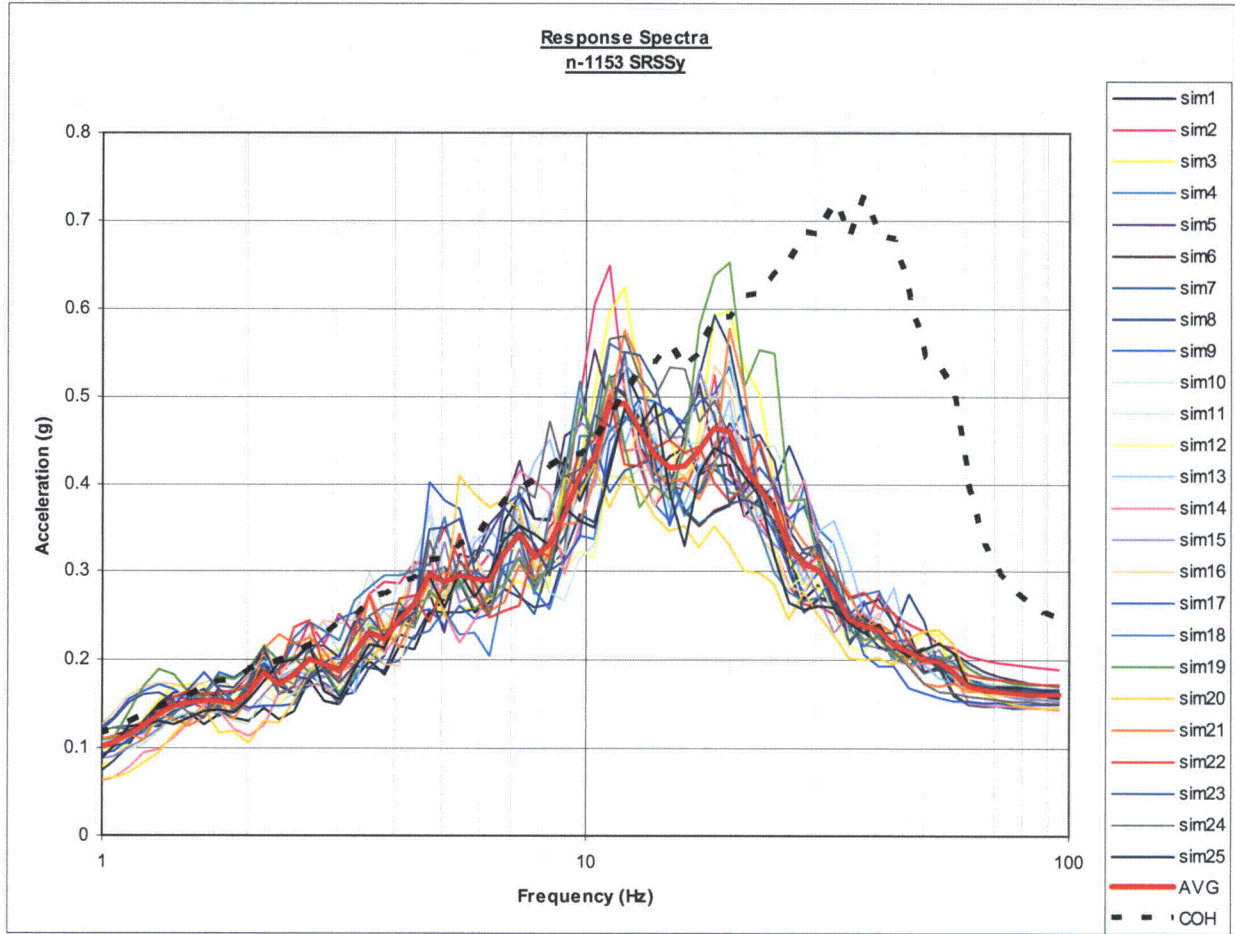
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-17: Node 1153-SRSS X-Direction, Center Basemat

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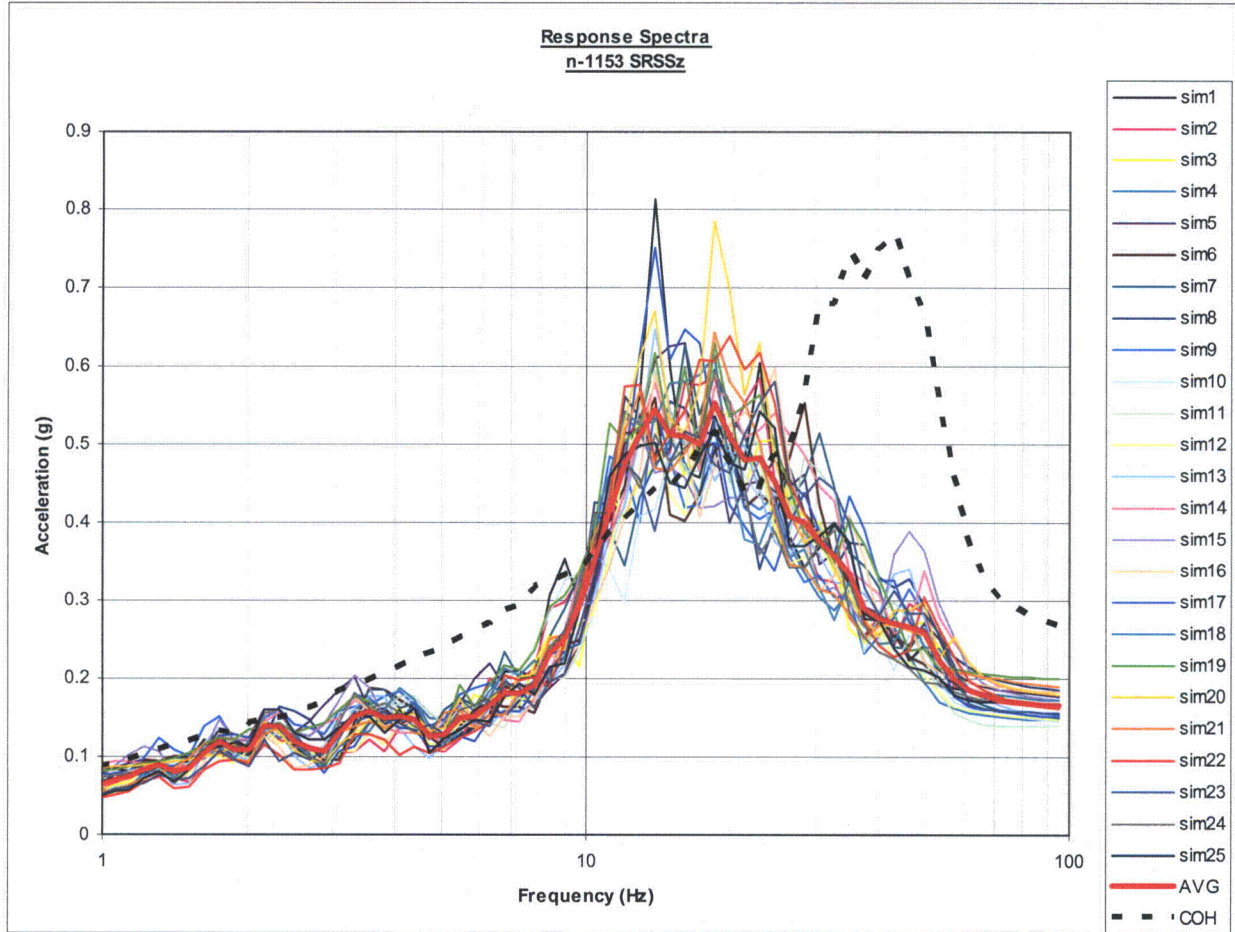
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-18: Node 1153-SRSS Y-Direction, Center Basemat

AP1000 TECHNICAL REPORT REVIEW

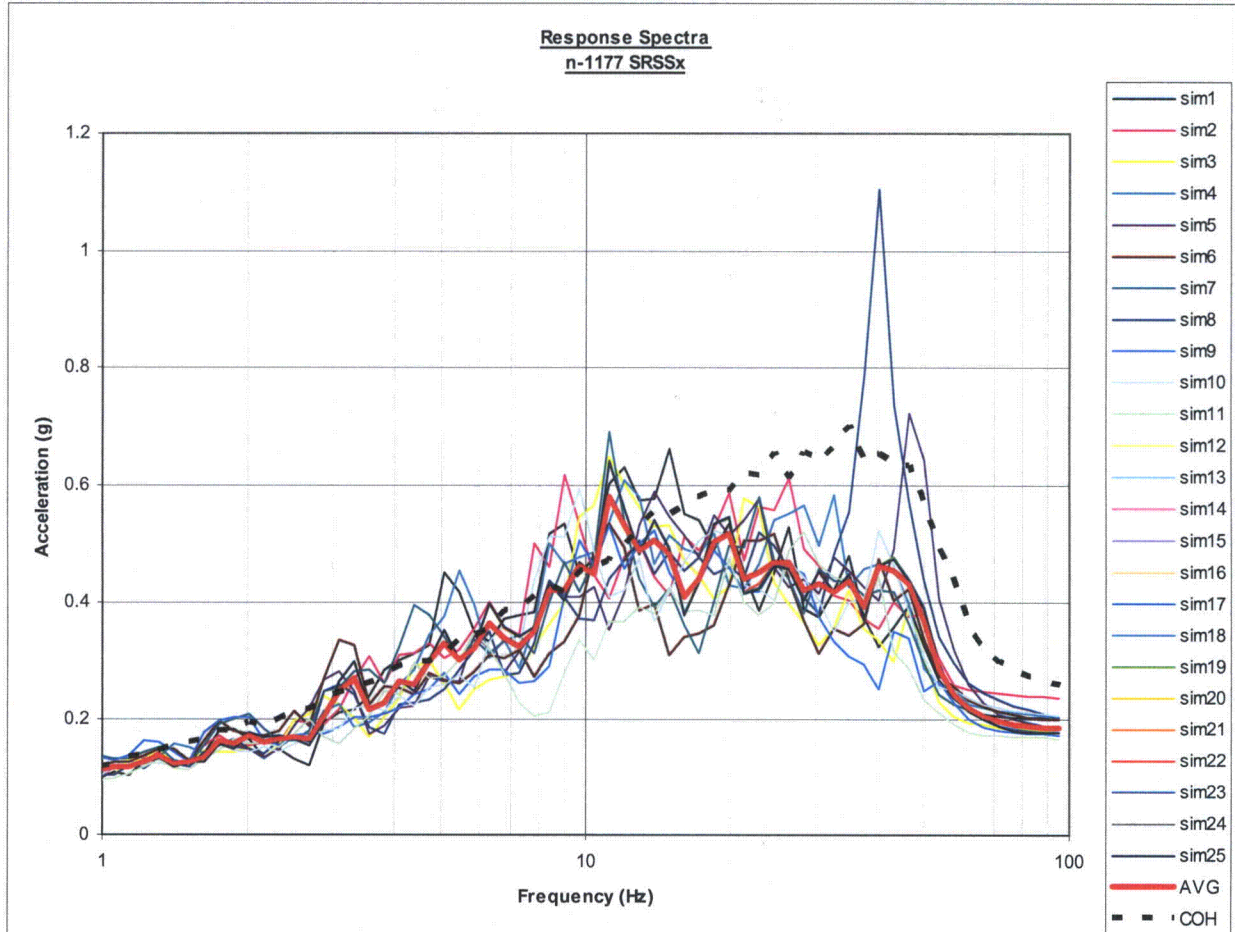
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-19: Node 1153-SRSS Z-Direction, Center Basemat

AP1000 TECHNICAL REPORT REVIEW

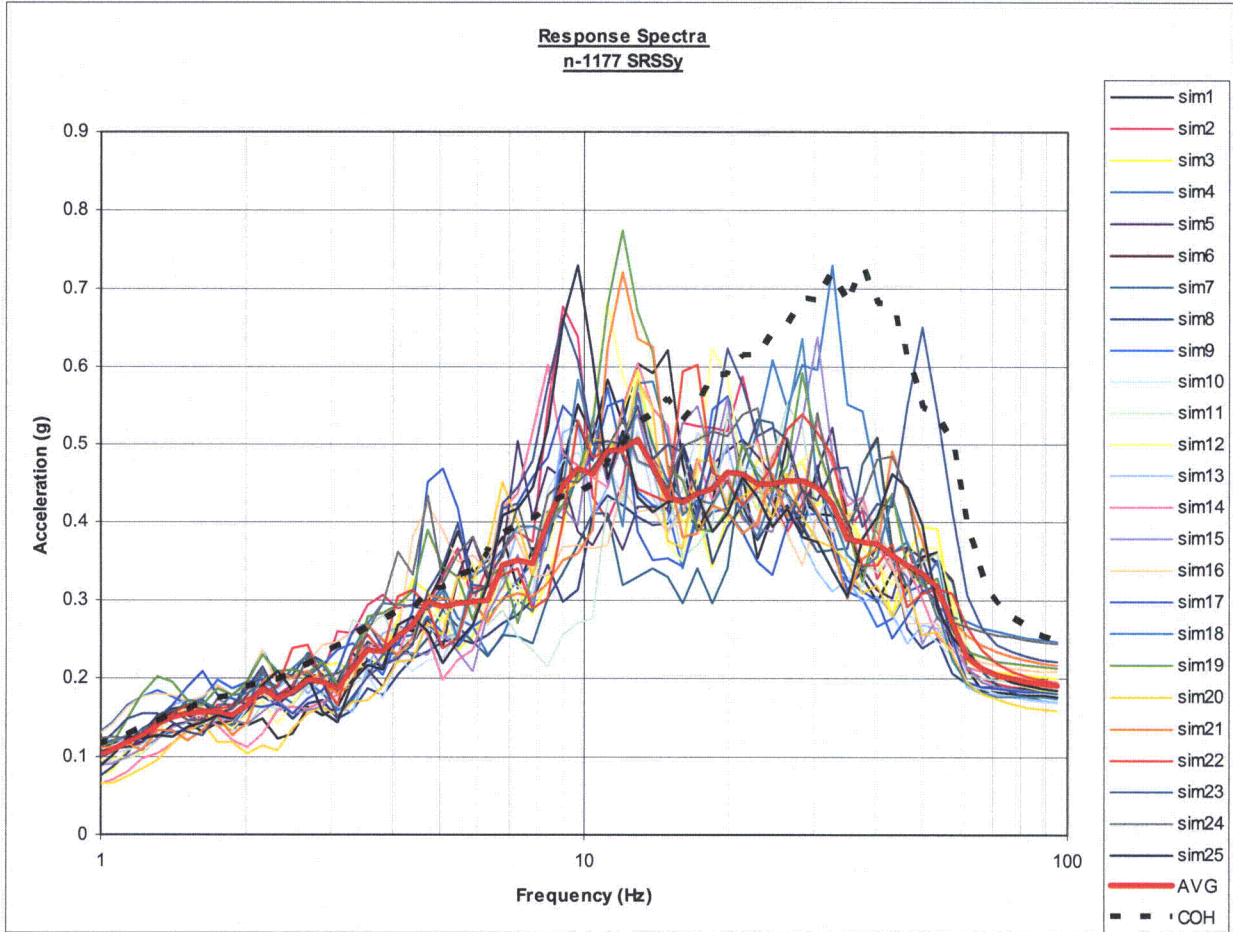
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-20: Node 1177-SRSS X-Direction, Southwest Corner

AP1000 TECHNICAL REPORT REVIEW

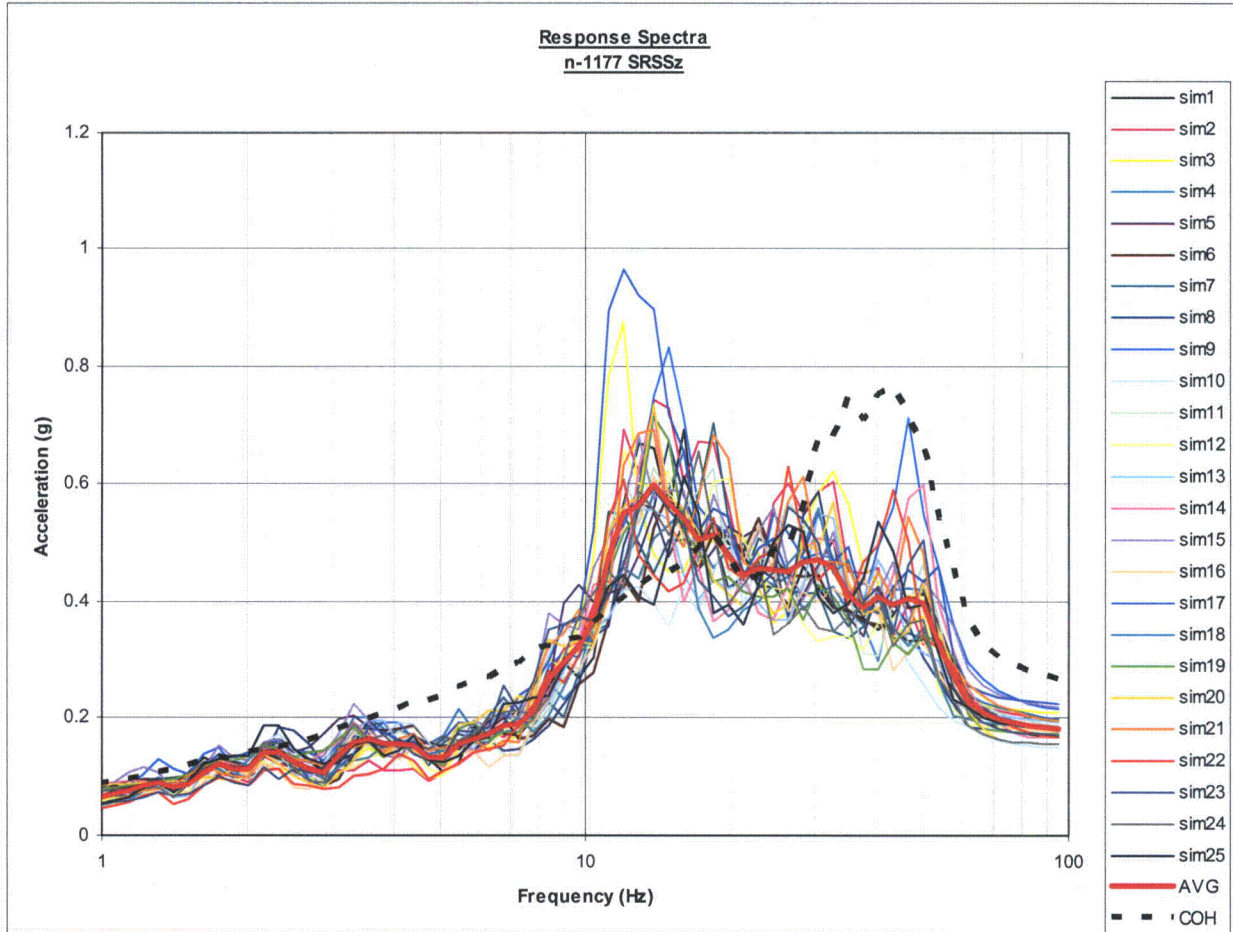
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-21: Node 1177-SRSS Y-Direction, Southwest Corner

AP1000 TECHNICAL REPORT REVIEW

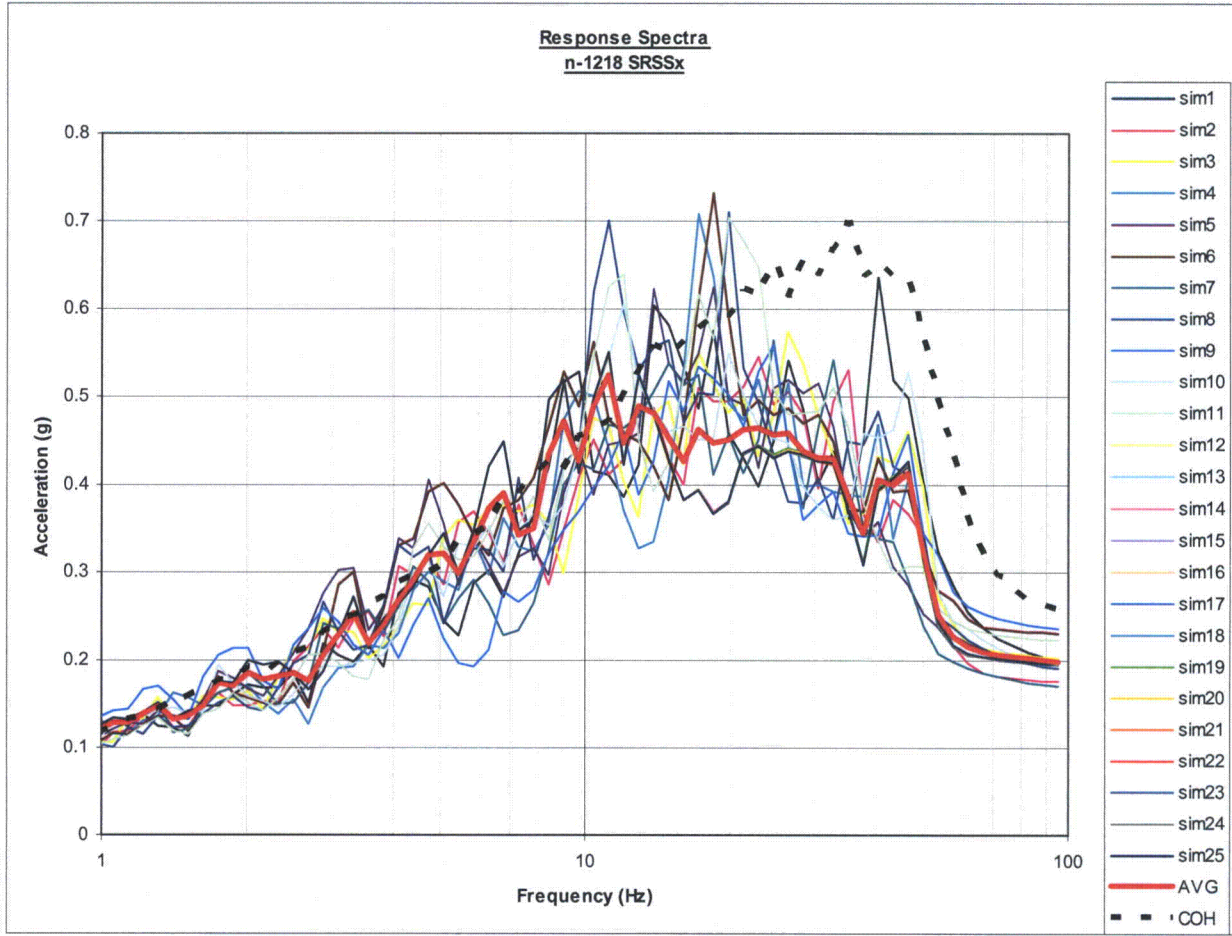
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-22: Node 1177-SRSS Z-Direction, Southwest Corner

AP1000 TECHNICAL REPORT REVIEW

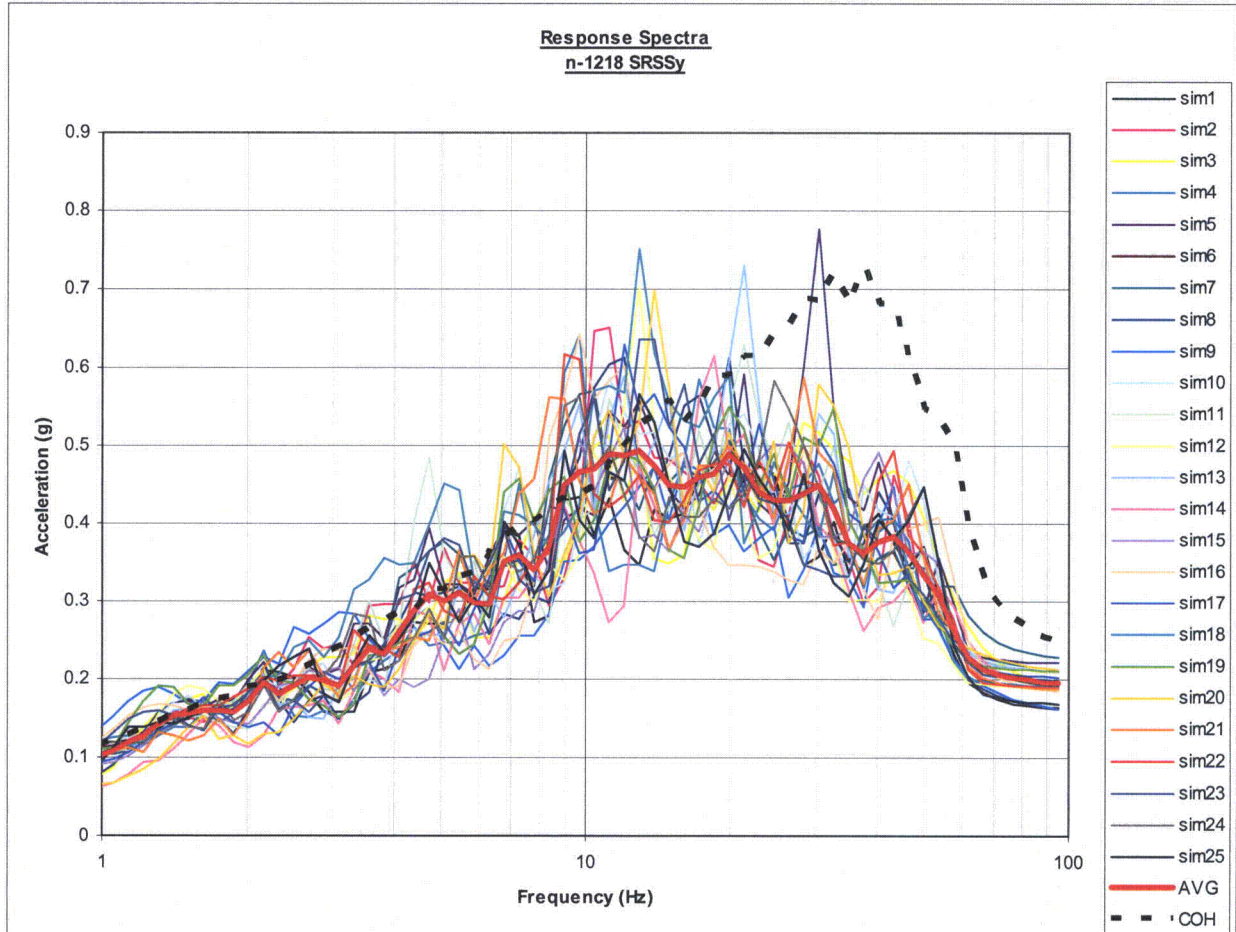
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-23: Node 1218-SRSS X-Direction, Northwest Corner

AP1000 TECHNICAL REPORT REVIEW

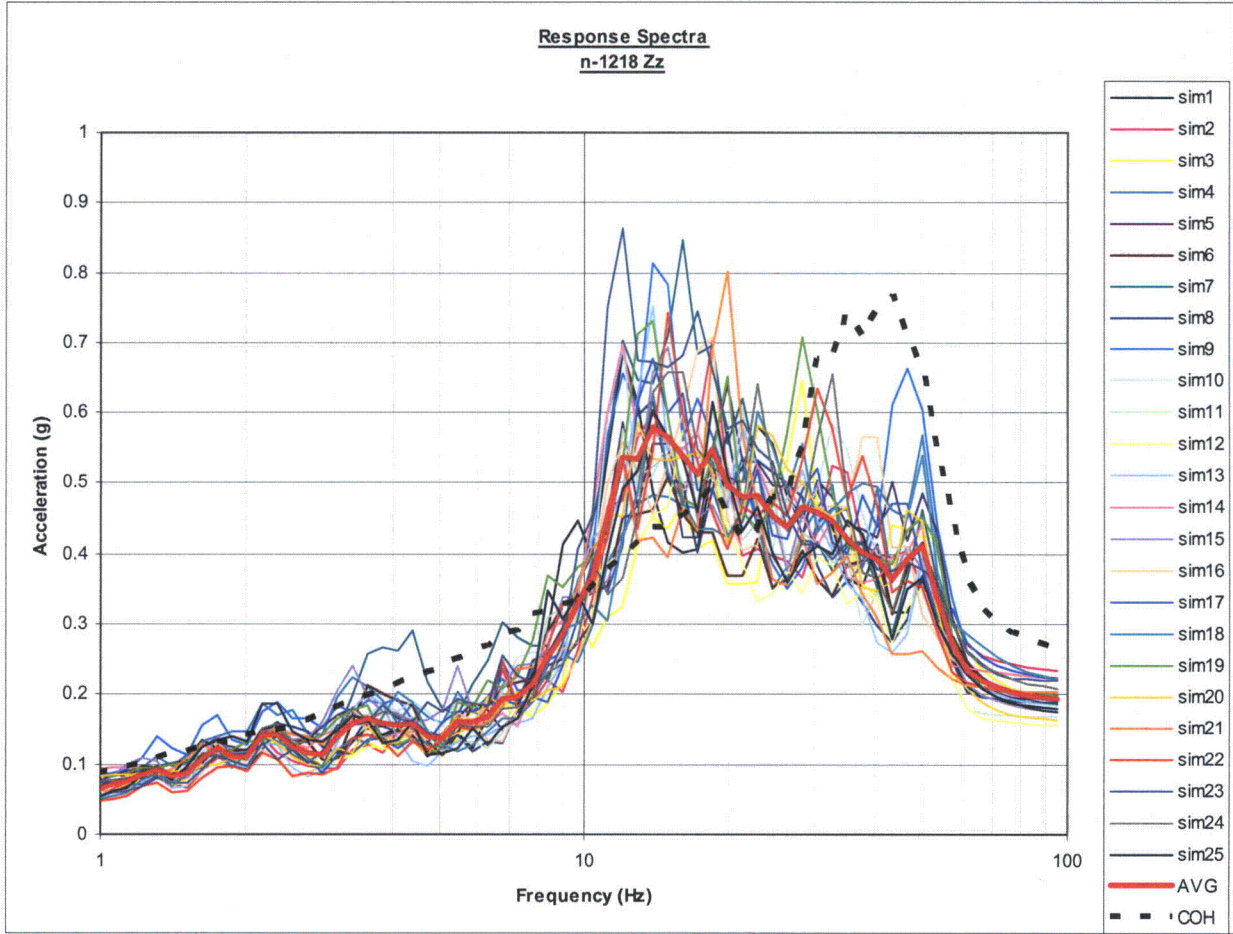
Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-24: Node 1218-SRSS Y-Direction, Northwest Corner

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Response to Request For Additional Information (RAI)



RAI-SRP3.7.1-SEB1-11-25: Node 1218-SRSS Z-Direction, Northwest Corner

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Response to Request For Additional Information (RAI)

Reference(s):

None

Design Control Document (DCD) Revision: None

PRA Revision: None

Technical Report (TR) Revision:

The figures presented in Revision 1 of this response request will be added to Section 5.2 of the TR-115 to supplement the existing data as Figures 5.2-7 and 5.2-8. Note that Figure 5.2-5 will be replaced by Figures RAI-SRP3.7.1-SEB1-11-4 to RAI-SRP-SEB1-11-6. Each figure will have the floor response spectra associated with the X, Y, and Z response. See also RAI-SRP-3.7.1-10 for additional changes to Section 5.2.

5.2 Comparison of CSDRS and HRHF Response Spectra

To show the significance of the HRHF response spectra, the CSDRS and HRHF seismic responses are compared. Figures 5.2-1 through 5.2-8 (5% damping) compare the response spectra with coherent and incoherent considerations at a number of locations in the nuclear island. There are some exceedances, mostly above the 15 Hz region. These curves are typical of the plant comparative responses found throughout the plant.

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Response to Request For Additional Information (RAI)

Westinghouse Response (Revision 3):

A. Westinghouse has revised models and performed reanalysis to address modeling concerns, specifically beam element interactions and connections in the NI20 SASSI model. This was required in part due to a modeling limitation in the SASSI software, the connections were unable to transfer rotational moments between elements. The solid-beam element interactions require either a fixed connection or a shell element to transfer forces properly between the elements. In order to address the element interaction issue, modeling changes were made. The solid-beam element connections were selected in the ANSYS model and are shown in Figure RAI-SRP3.7.1-SEB1-11-26. Figure RAI-SRP3.7.1-SEB1-11-27 shows the solid elements attached to the beam elements.

The shell elements were added at the top of the solid elements at elevations 82.5 feet and 100 feet. These shell elements transfer the six degrees of freedom of the beam elements to the three degrees of freedom of the solid elements without adding mass. The shell elements ensure that stresses are passed through the solid elements uniformly as well as transfer moments through the beam elements. Figures RAI-SRP3.7.1-SEB1-11-28 and RAI-SRP3.7.1-SEB1-11-29 show the shell elements at elevations 100 feet and 82.5 feet, respectively.

In addition to the shell elements mentioned above, all beam elements that were connected only to solid elements were changed to fixed connections in the NI20 model. One specific area of concern addressed was in the connection between the steel containment vessel (SCV) stick model and the nuclear island. The connection consists of a series of beam elements in the form of a spoke, with the center piece attached to the SCV stick model. The other ends of the beam elements are now attached to both the solid and shell elements. Figure RAI-SRP3.7.1-SEB1-11-30 shows the interface between the SCV spoke ends and shell element at elevation 100 feet.

It is noted that additional work has been incorporated into the SASSI model, specifically modifications to the shield building design. The changes relevant to the Nuclear Island model used for dynamic analyses are the increased thickness of the steel liner along the shield building cylindrical wall and the shape of the air inlet openings.

B. Westinghouse also evaluated the transition shell to brick interface. Another change made was the addition of massless shell elements to the base of the containment internal structures (CIS) model. These elements distribute the stresses between the auxiliary building and the CIS structures as shown in Figure RAI-SRP3.7.1-SEB1-11-31.

C. Westinghouse manually checks the interpolation function for the NI20 model to ensure the correct starting point of one for the transfer functions. The interpolation function for the six key locations is shown in Figures RAI-SRP3.7.1-SEB1-11-32 through RAI-SRP3.7.1-SEB1-11-

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Response to Request For Additional Information (RAI)

49. Note that in these figures, XX-TFU and XX-TFI indicates the coherent transfer function TFU and coherent transfer function TFI, respectively

D. Analysis of the SASSI NI20 hard rock model was conducted using the ACS SASSI Incoherent 25 simulations which incorporates the model changes and phasing correction. The results for the six key locations are shown in Figures RAI-SRP3.7.1-SEB1-11-50 through RAI-SRP3.7.1-SEB1-11-67. A summary of the six key locations is provided in Table RAI-SRP3.7.1-SEB1-11-1. Overall, the changes made to the SASSI model did not result in significant changes in the analysis as shown in these figures by ni20rNOPH indicating the HRHF average of the incoherent simulations with no phase adjustment. However, the analysis also incorporates the phasing correction that resulted in changes in the analysis as shown in these figures by ni20rHRHF indicating the HRHF average of the incoherent simulations with phase adjustment. These changes are being addressed in Technical Report APP-GW-GLR-115, Revision 2 (TR115). Provided below is the legend for Figures RAI-SRP3.7.1-SEB1-11-50 through RAI-SRP3.7.1-SEB1-11-67.

Legend for Figures RAI-SRP3.7.1-SEB1-11-50 through RAI-SRP3.7.1-SEB1-11-67

- _____ ssienv: CSDRS response spectra (ni20k model)
- _____ ni20rHRHF: HRHF average of the incoherent simulations with phase adjustment
- avg25: HRHF average of the incoherent simulations (ni20k model)
- ni20rNOPH: HRHF average of the incoherent simulations with no phase adjustment

Additional information is provided based on the 02-16-10 conference call with the NRC in which updated Figures RAI-SRP3.7.1-SEB1-11-11 through RAI-SRP3.7.1-SEB1-11-25 were requested. The HRHF FRS at the four corners and center of the Nuclear Island basemat for comparison of the X, Y and Z directions for incoherent simulations, average incoherent and coherent FRS are shown in Figures RAI-SRP3.7.1-SEB1-11-68 through RAI-SRP3.7.1-SEB1-11-82. Note that in these figures, ni20rHRHF indicates the HRHF average of the incoherent simulations with phase adjustment and ni20rCoh indicates the ni20r coherent response spectra. These figures replace Figures RAI-SRP3.7.1-SEB1-11-11 through RAI-SRP3.7.1-SEB1-11-25 in RAI-SRP3.7.1-SEB1-11 Revision 2. These figures reflect the changes to the model identified in Revision 3 of this response.

In the Revision 2 Figures RAI-SRP3.7.1-SEB1-11-11 through RAI-SRP3.7.1-SEB1-11-25 there is an inconsistency between the incoherent simulations and the coherent response spectra for the vertical direction in frequencies below 10 Hz. The results shown in Revision 3 Figures RAI-SRP3.7.1-SEB1-11-68 through RAI-SRP3.7.1-SEB1-11-82 do not include this inconsistency.

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Provided below is the legend for Figures RAI-SRP3.7.1-SEB1-11-68 through RAI-SRP3.7.1-SEB1-11-82.

Legend for Figures RAI-SRP3.7.1-SEB1-11-68 through RAI-SRP3.7.1-SEB1-11-82

— ni20rHRHF: HRHF average of the incoherent simulations with phase adjustment

— ni20rCoh: ni20r coherent response spectra

Table RAI-SRP3.7.1-SEB1-11-1: Six Key Nuclear Island Locations

Six Key Nuclear Island Locations	
Location	Node
Containment Internal Structure (CIS) at Elevation of Reactor Pressure Vessel (RPV) Support	1761
Auxiliary Building NE Corner (Main Control Room)	2078
Containment Operating Floor	2199
Shield Building at Fuel Building Roof	2675
Steel Containment Vessel (SCV) at Polar Crane Support	2788
Shield Building Roof	3329

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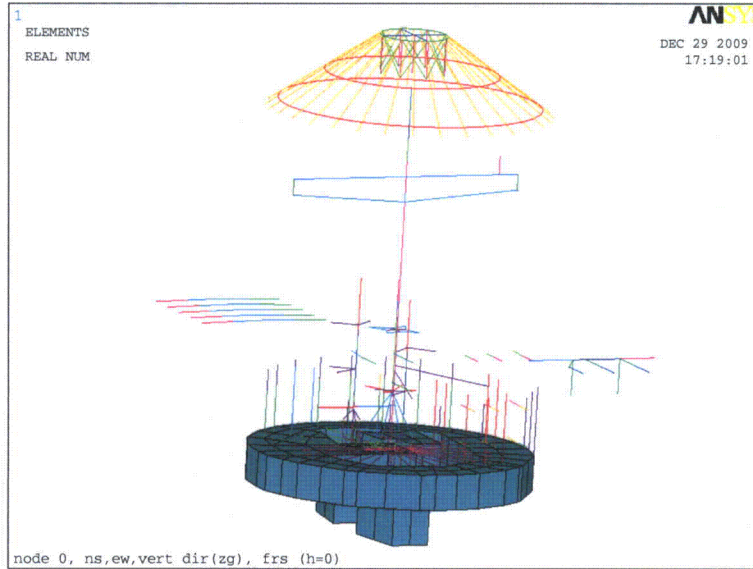


Figure RAI-SRP3.7.1-SEB1-11-26: Solid-Beam Element Connections

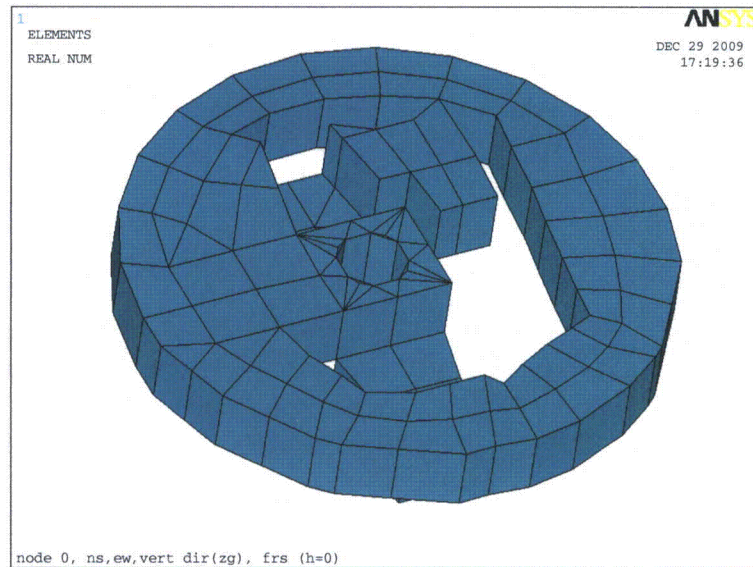


Figure RAI-SRP3.7.1-SEB1-11-27: Solid Elements Attached to the Beam Elements

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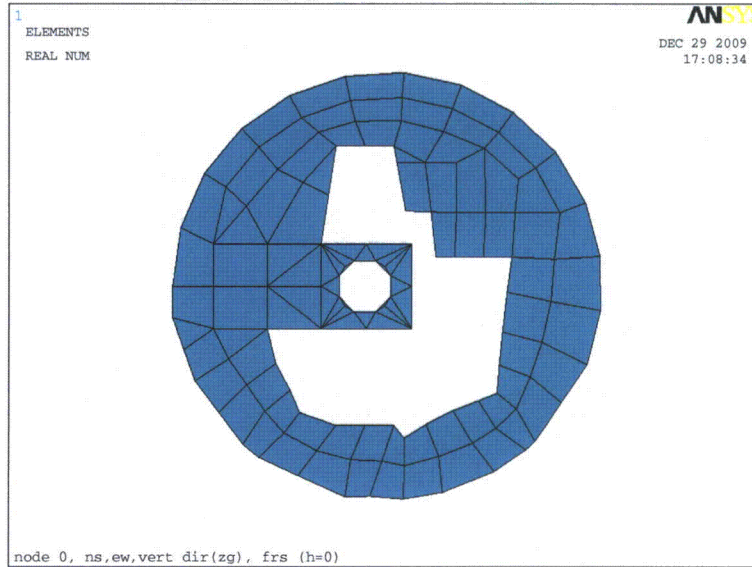


Figure RAI-SRP3.7.1-SEB1-11-28: Shell Elements at Elev. 100'

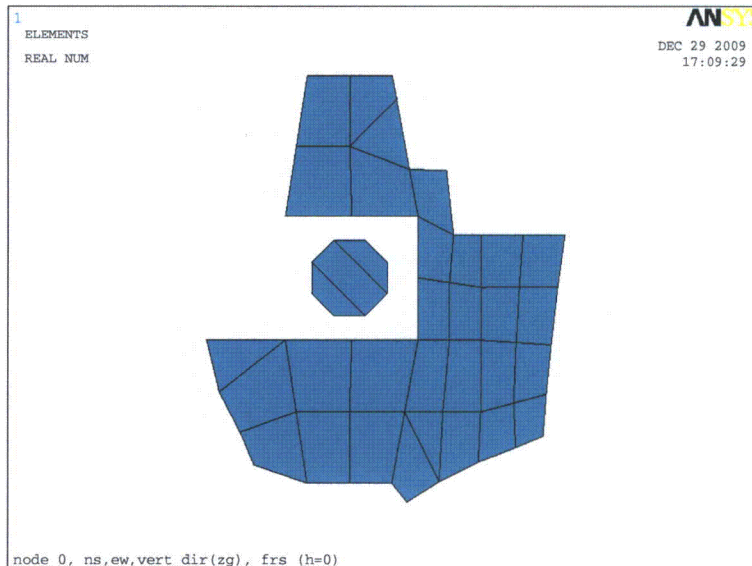


Figure RAI-SRP3.7.1-SEB1-11-29: Shell Elements at Elev. 82.5'

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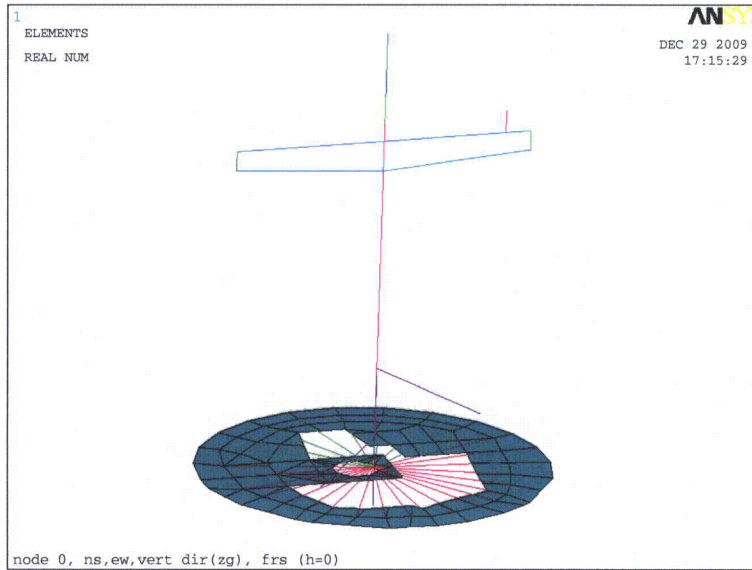


Figure SRP3.7.1-SEB1-11-30: Interface Between SCV Spoke Ends and Shell Elements at Elev. 100'

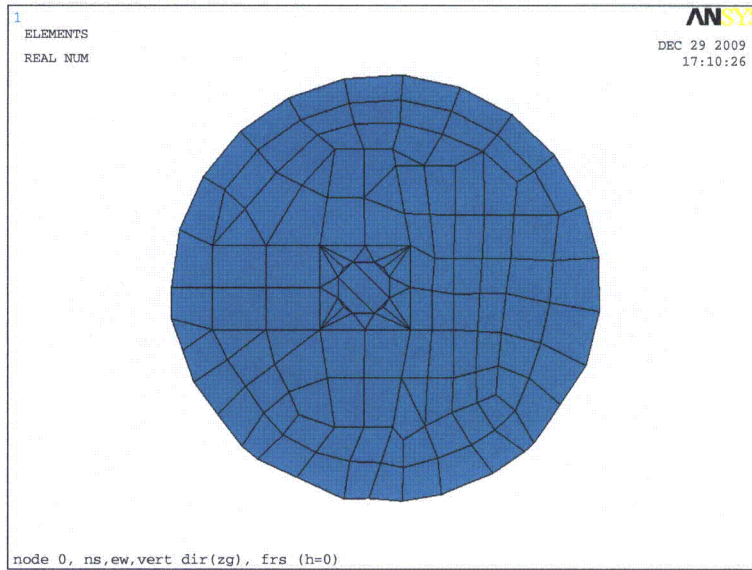


Figure RAI-SRP3.7.1-SEB1-11-31: Shell Elements at Elev. 60.5'

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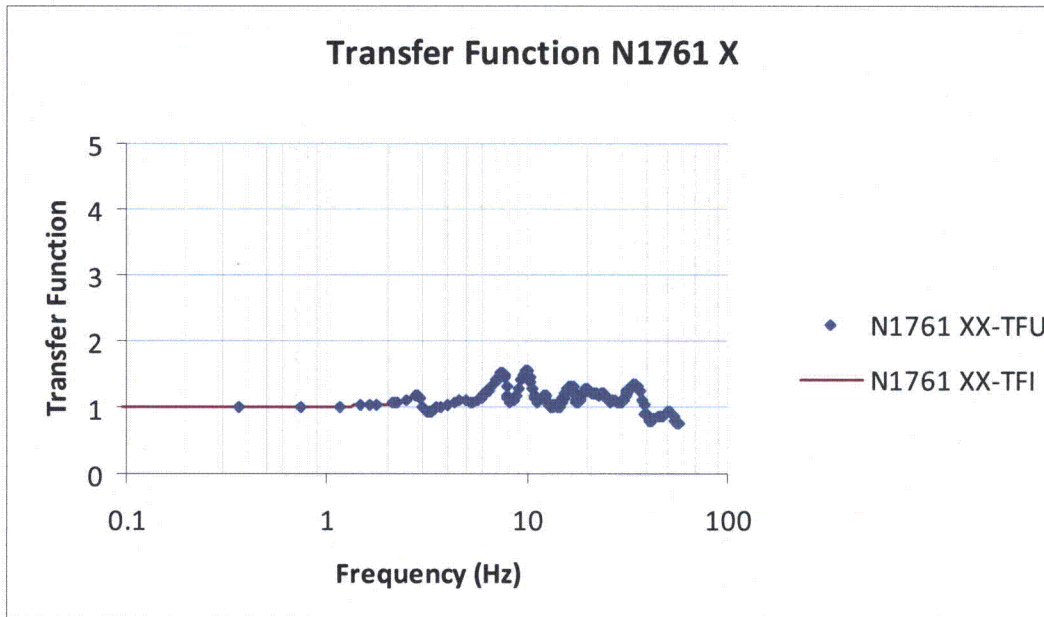


Figure RAI-SRP3.7.1-SEB1-11-32: Transfer Function Node 1761 X-Dir

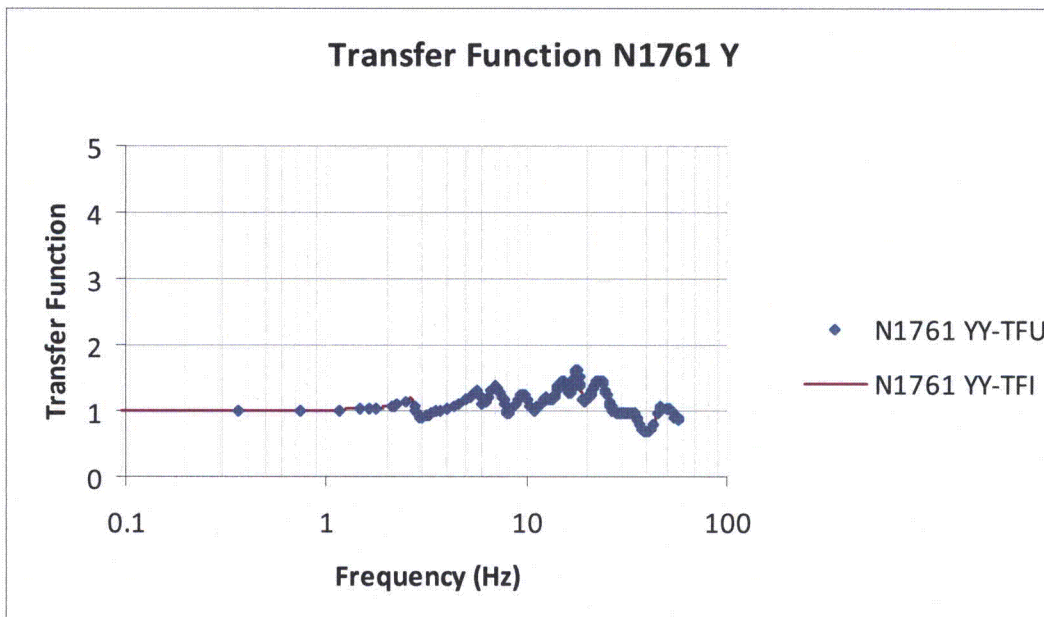


Figure RAI-SRP3.7.1-SEB1-11-33: Transfer Function Node 1761 Y-Dir

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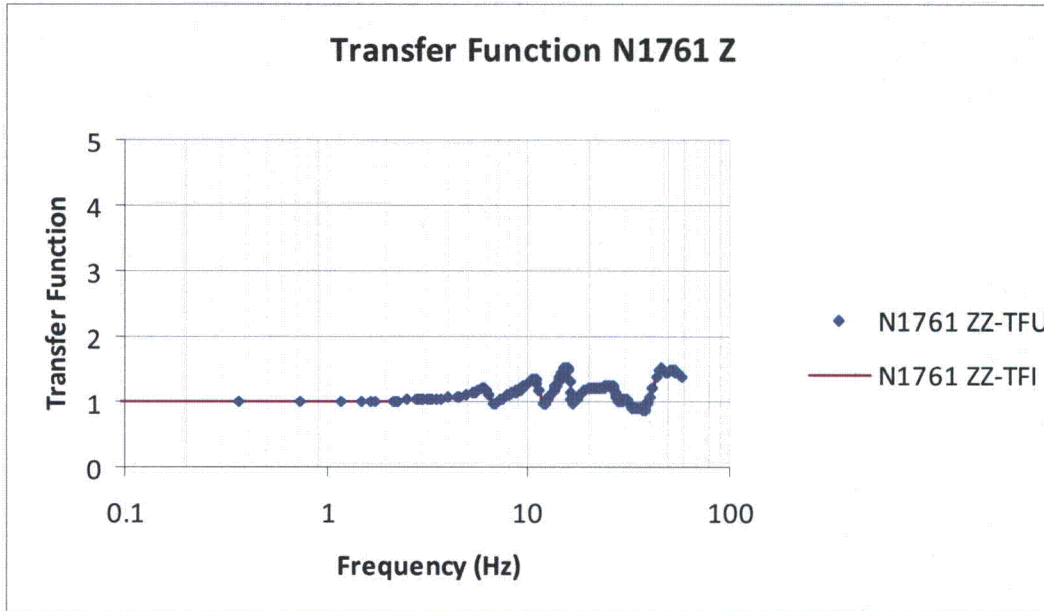


Figure RAI-SRP3.7.1-SEB1-11-34: Transfer Function Node 1761 Z-Dir

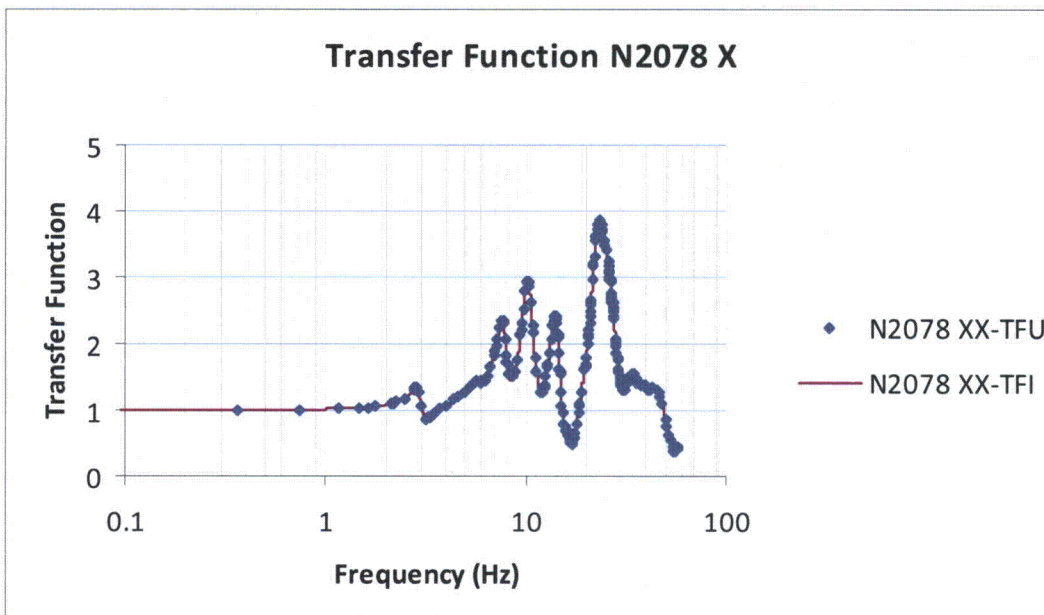


Figure RAI-SRP3.7.1-SEB1-11-35: Transfer Function Node 2078 X-Dir

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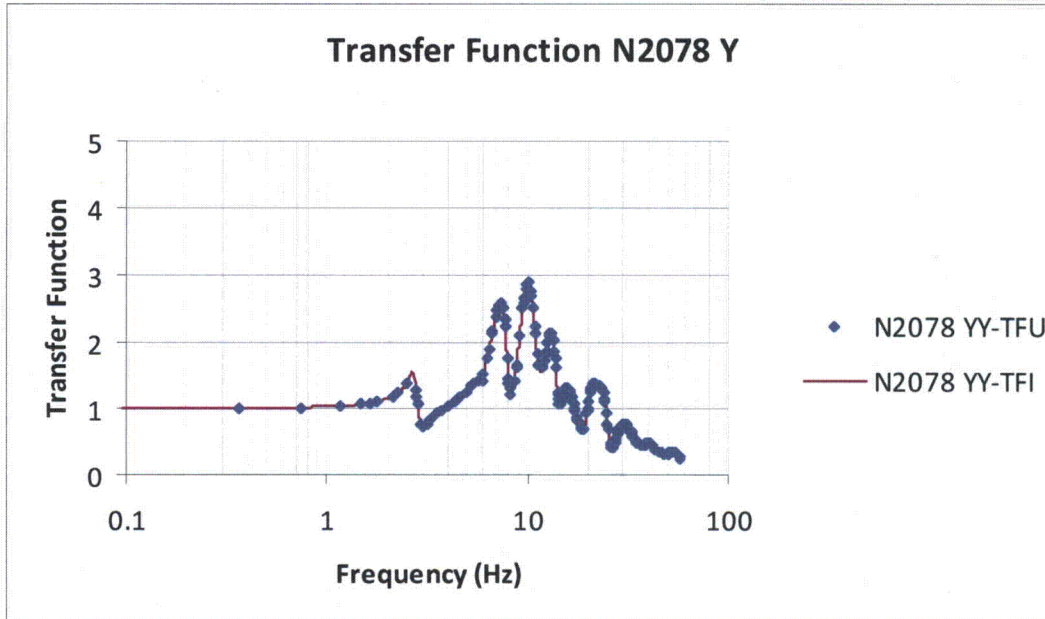


Figure RAI-SRP3.7.1-SEB1-11-36: Transfer Function Node 2078 Y-Dir

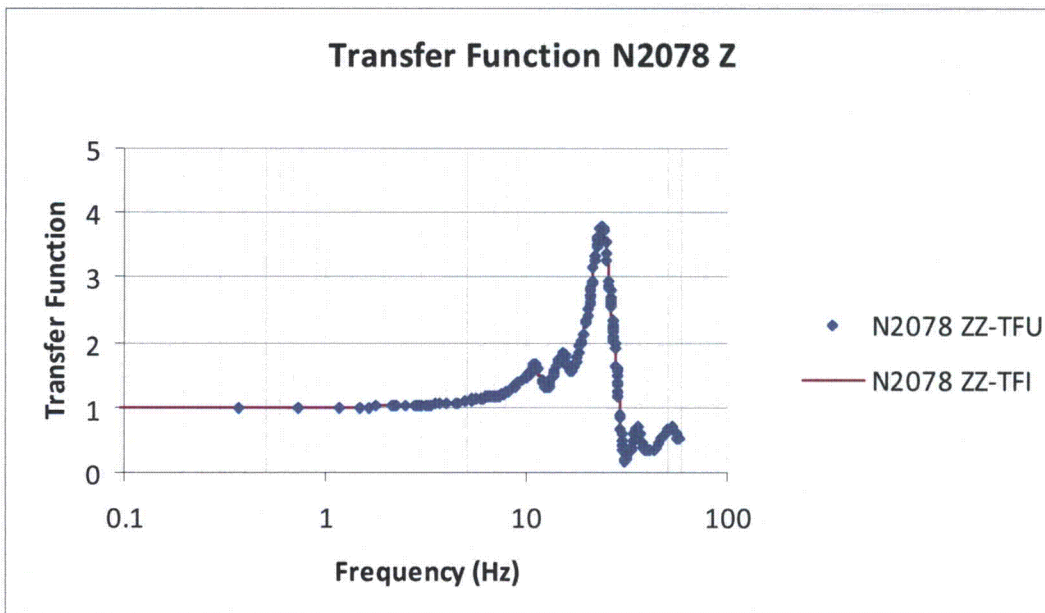


Figure RAI-SRP3.7.1-SEB1-11-37: Transfer Function Node 2078 Z-Dir

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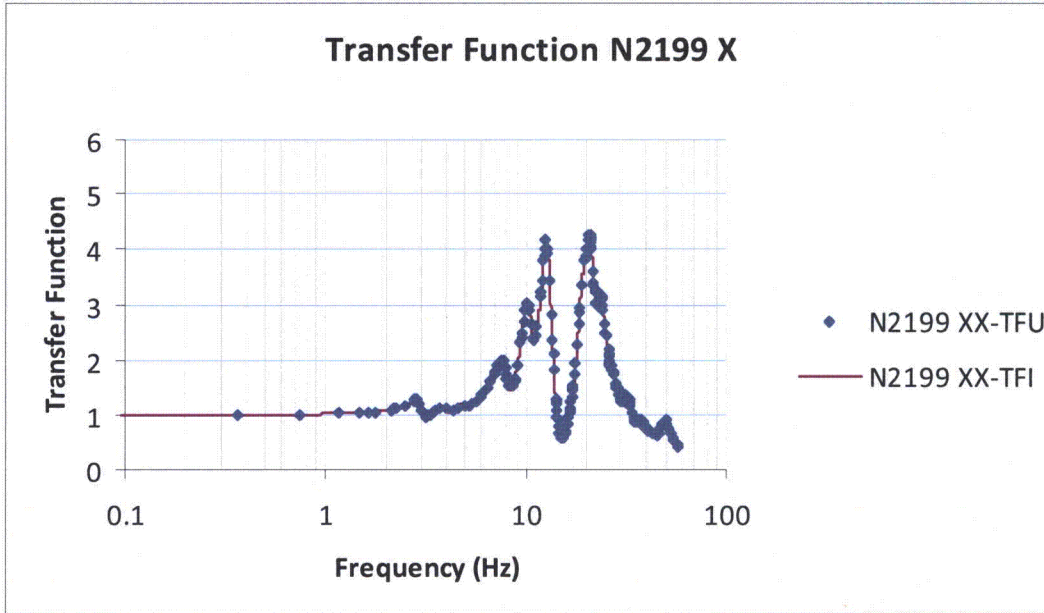


Figure RAI-SRP3.7.1-SEB1-11-38: Transfer Function Node 2199 X-Dir

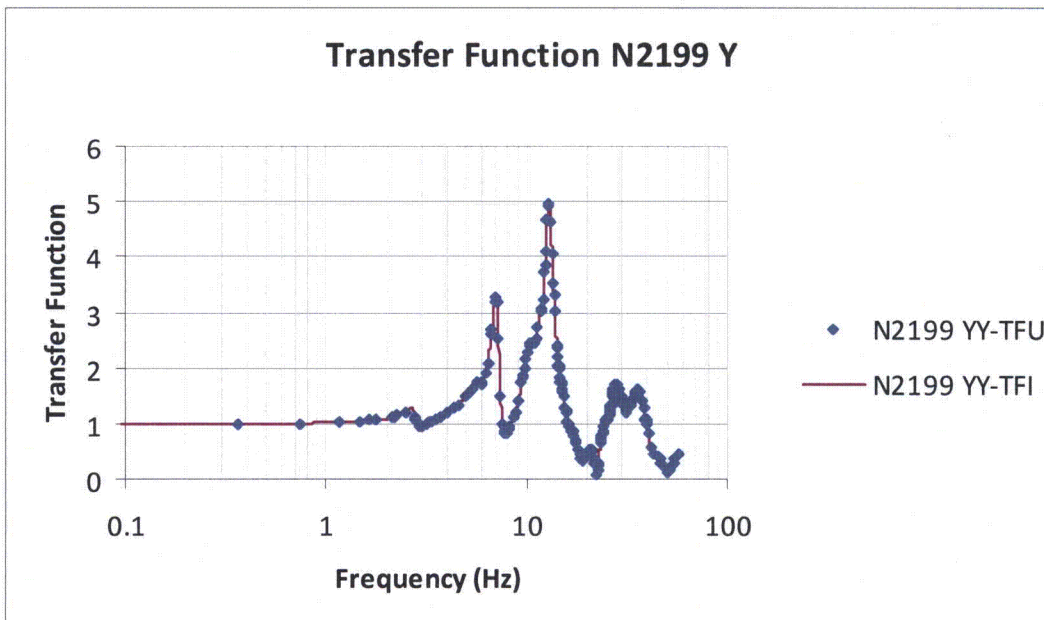


Figure RAI-SRP3.7.1-SEB1-11-39: Transfer Function Node 2199 Y-Dir

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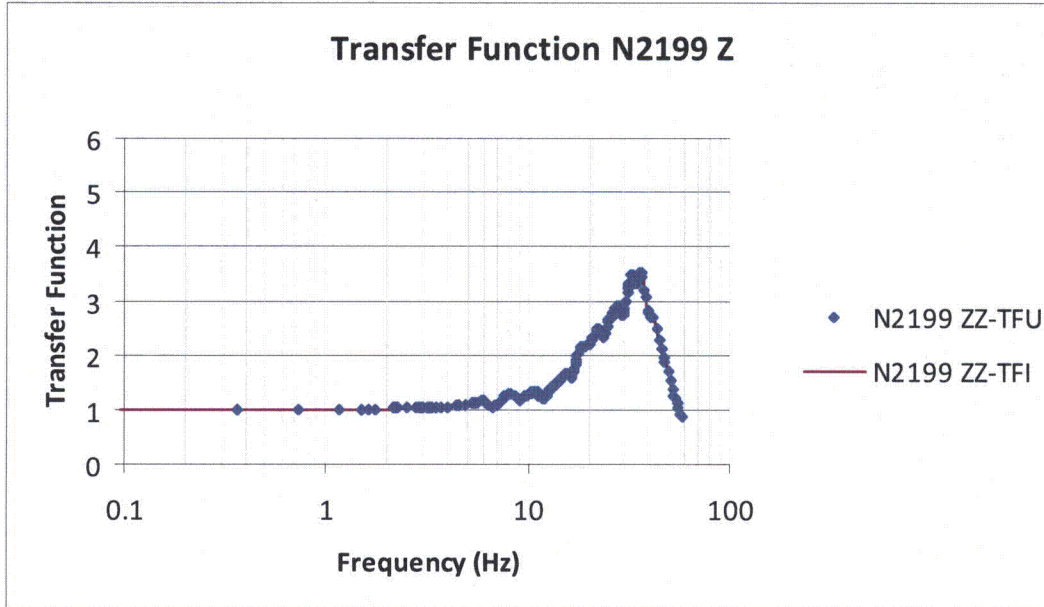


Figure RAI-SRP3.7.1-SEB1-11-40: Transfer Function Node 2199 Z-Dir

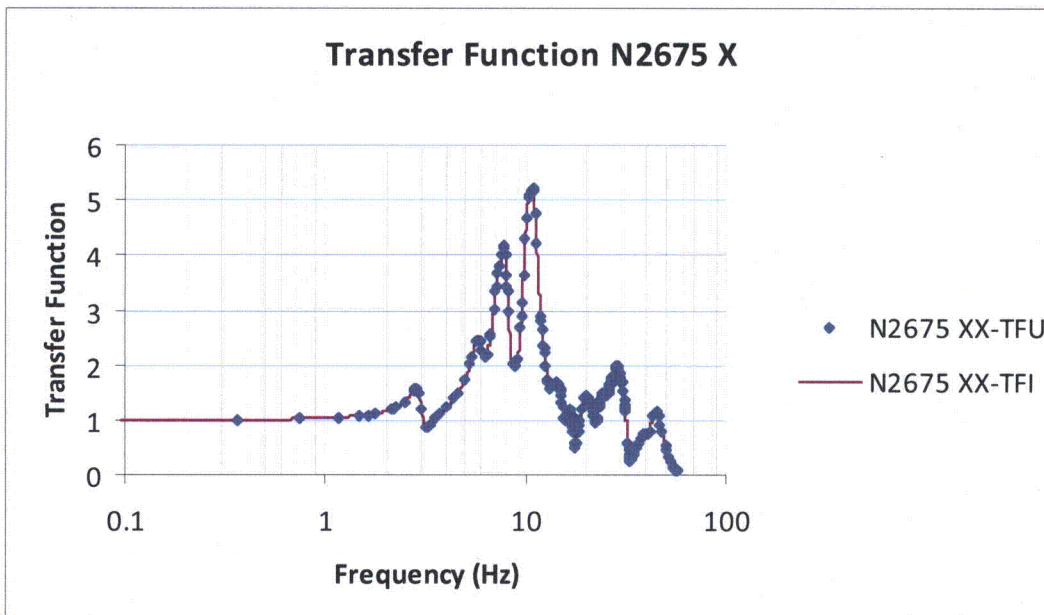


Figure RAI-SRP3.7.1-SEB1-11-41: Transfer Function Node 2675 X-Dir

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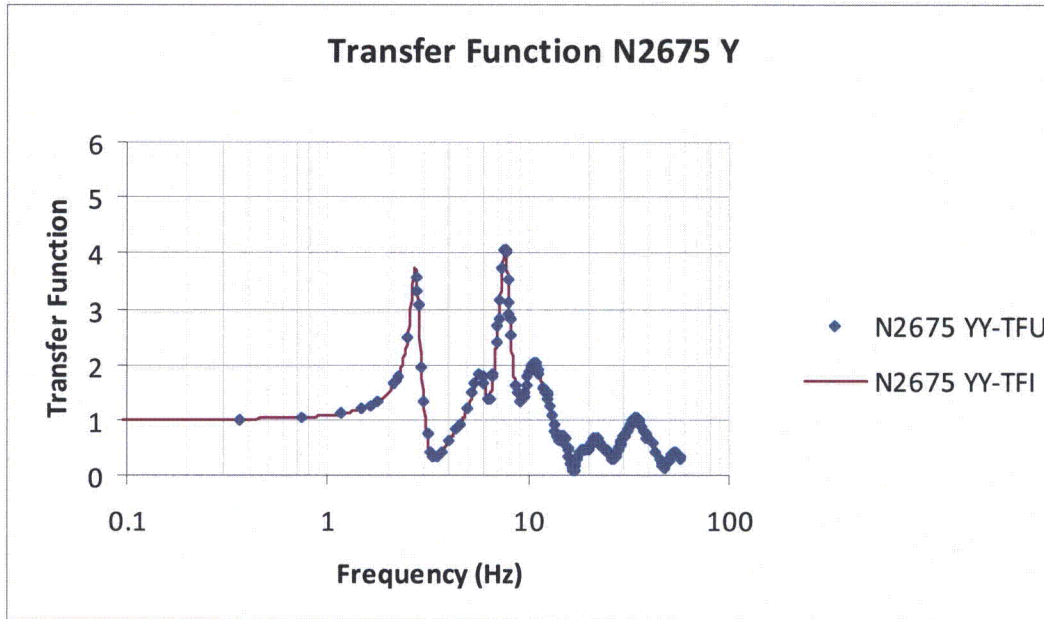


Figure RAI-SRP3.7.1-SEB1-11-42: Transfer Function Node 2675 Y-Dir

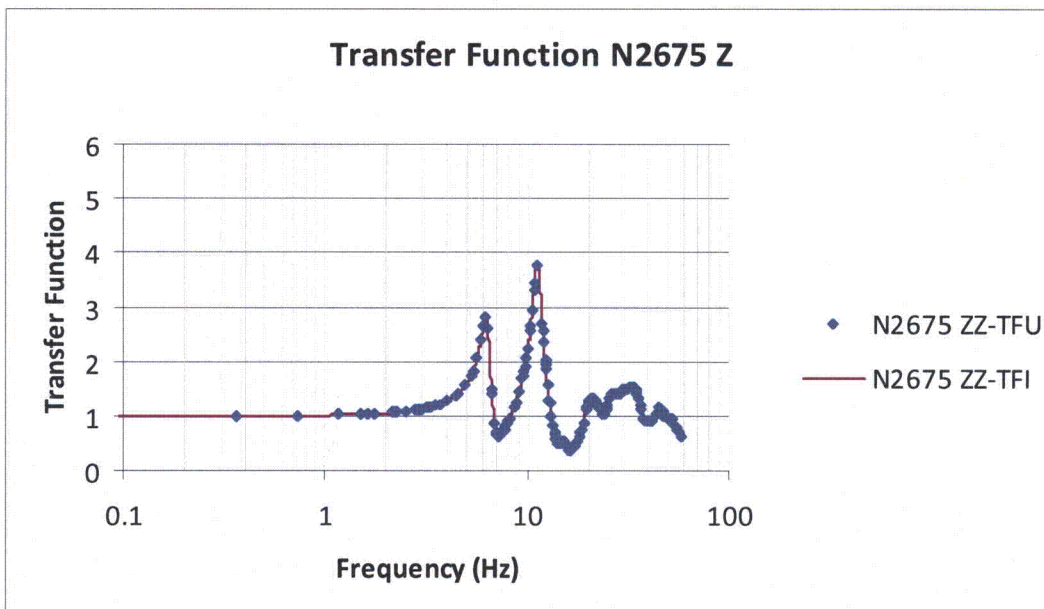


Figure RAI-SRP3.7.1-SEB1-11-43: Transfer Function Node 2675 Z-Dir

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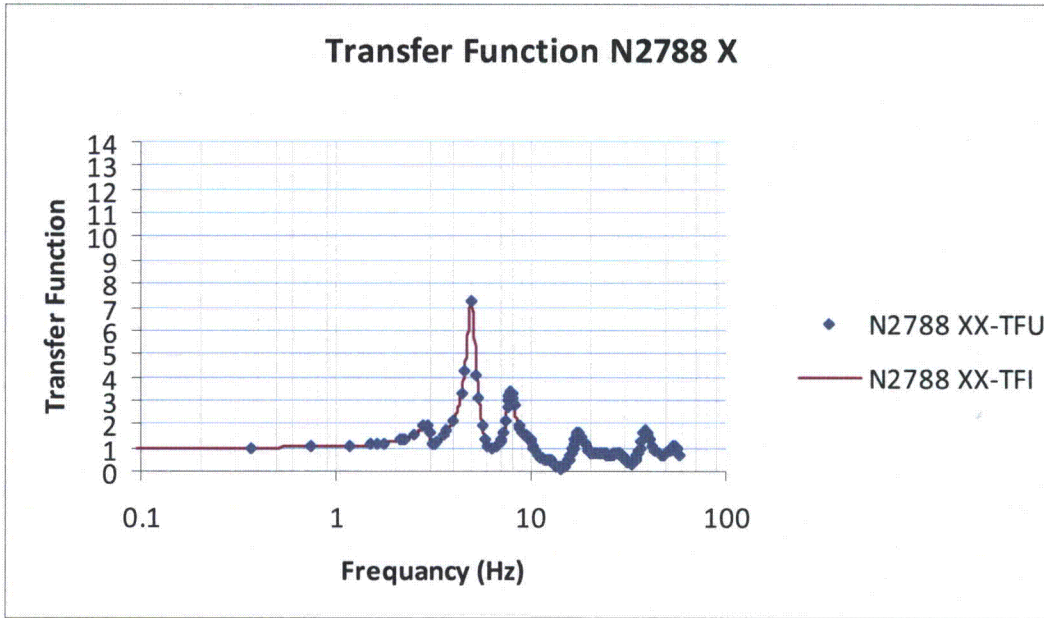


Figure RAI-SRP3.7.1-SEB1-11-44: Transfer Function Node 2788 X-Dir

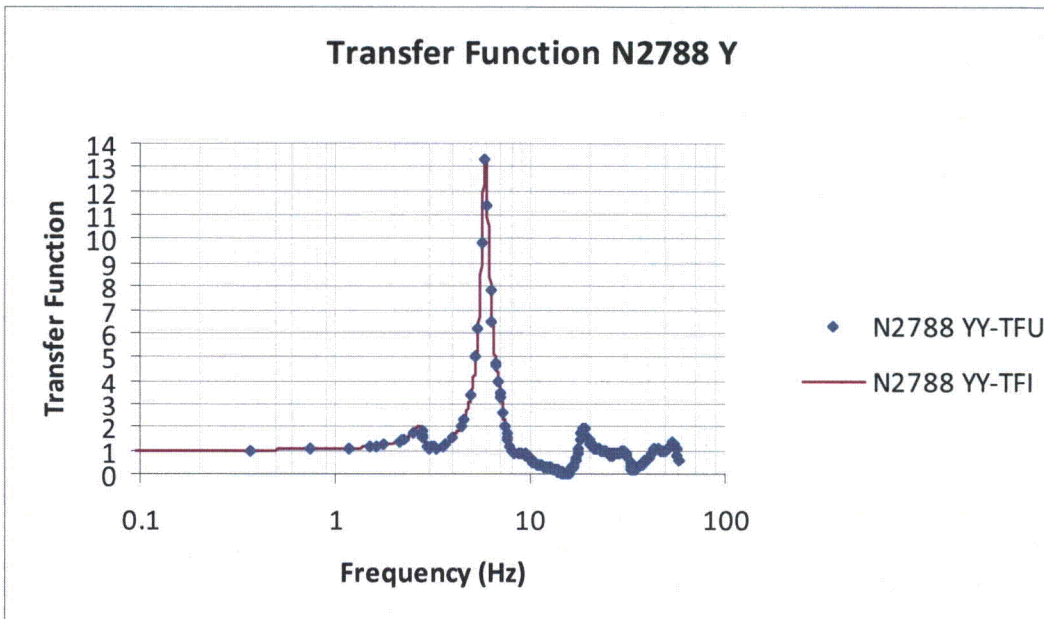


Figure RAI-SRP3.7.1-SEB1-11-45: Transfer Function Node 2788 Y-Dir

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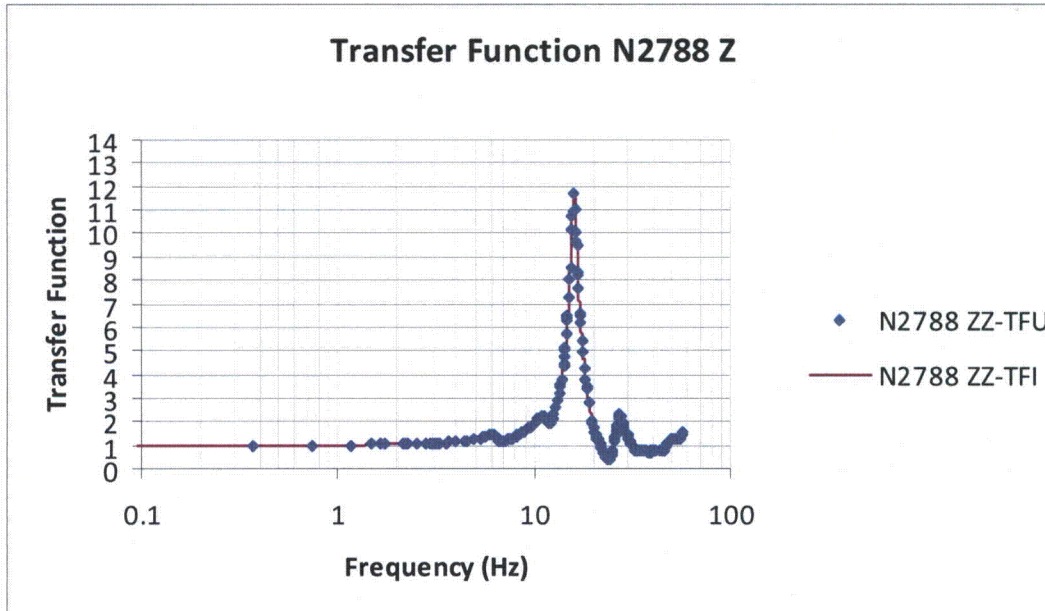


Figure RAI-SRP3.7.1-SEB1-11-46: Transfer Function Node 2788 Z-Dir

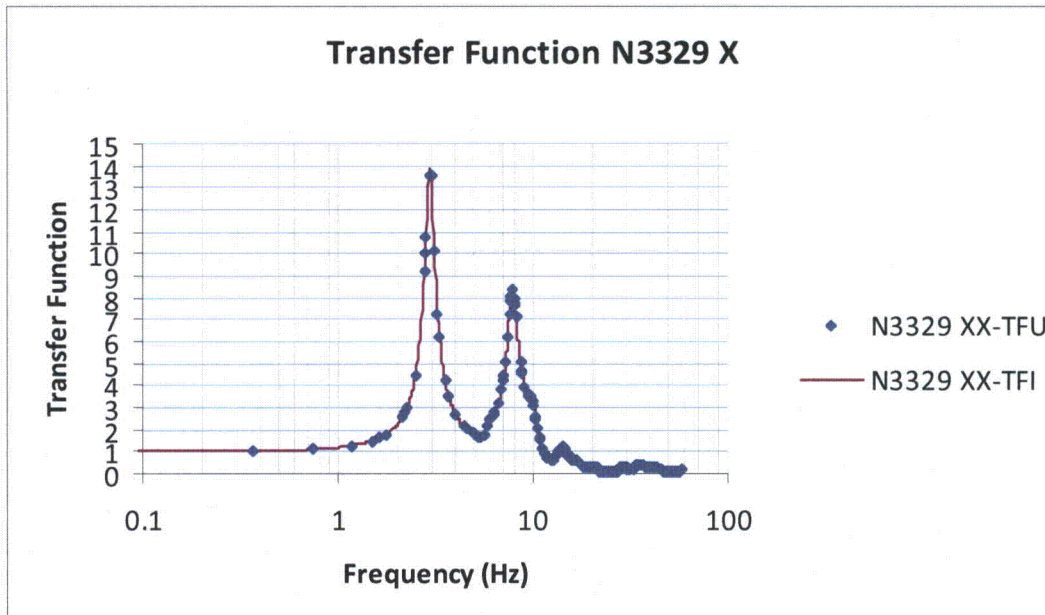


Figure RAI-SRP3.7.1-SEB1-11-47: Transfer Function Node 3329 X-Dir

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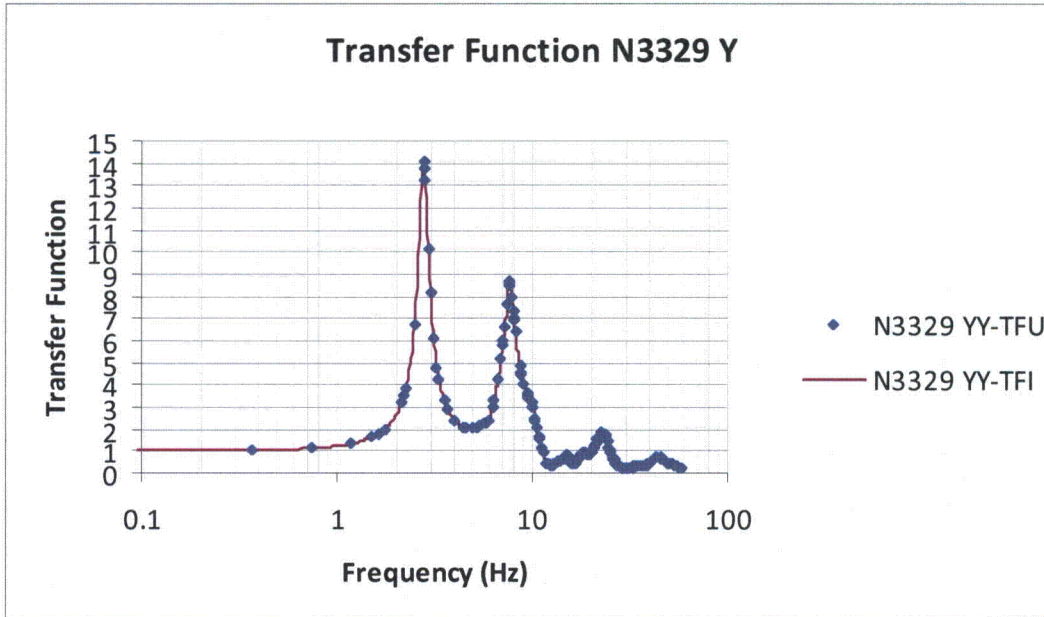


Figure RAI-SRP3.7.1-SEB1-11-48: Transfer Function Node 3329 Y-Dir

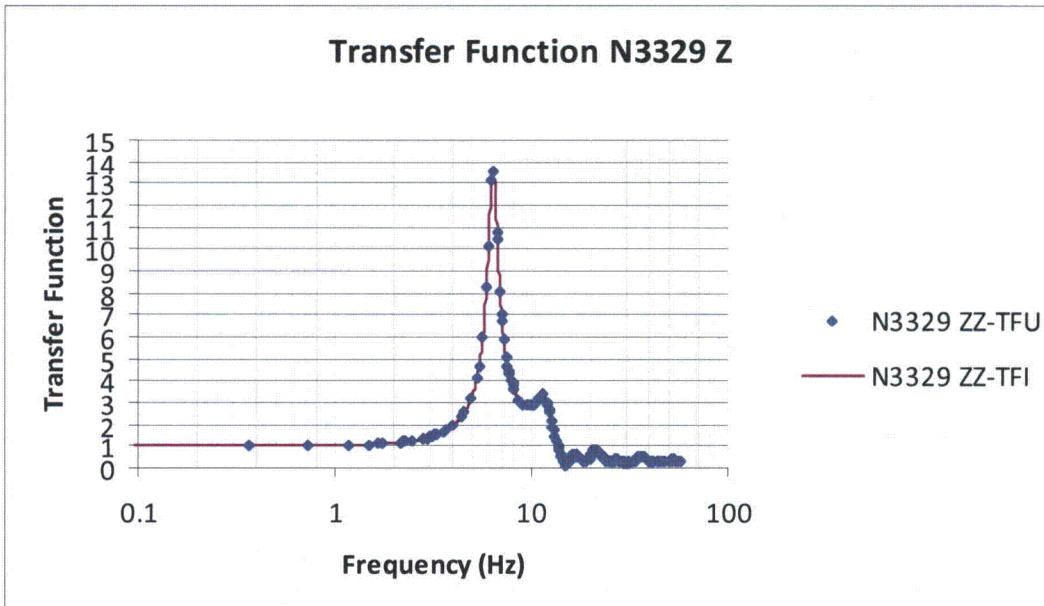


Figure RAI-SRP3.7.1-SEB1-11-49: Transfer Function Node 3329 Z-Dir

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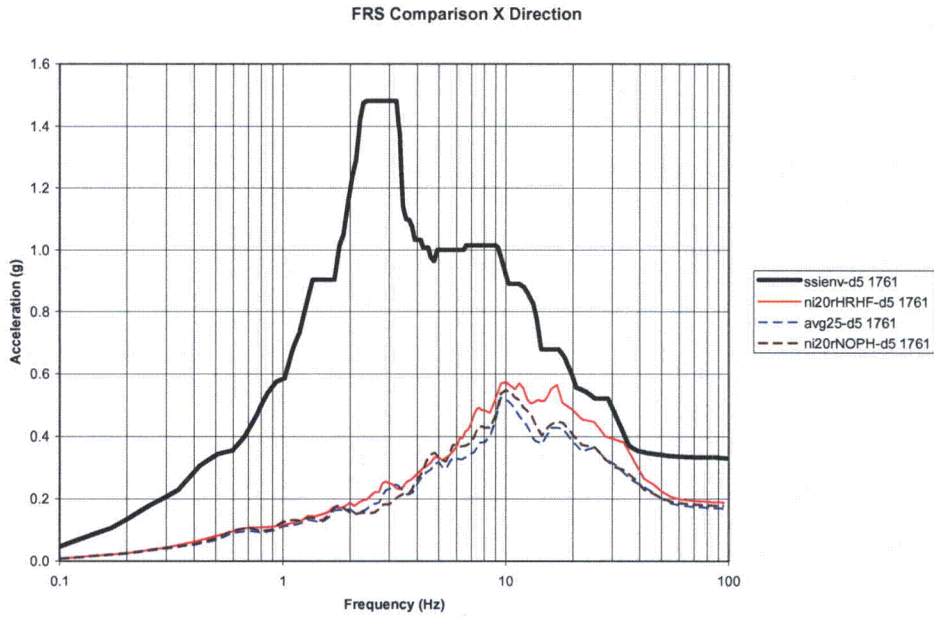


Figure RAI-SRP3.7.1-SEB1-11-50: CIS at Reactor Vessel Support Elevation X-Dir

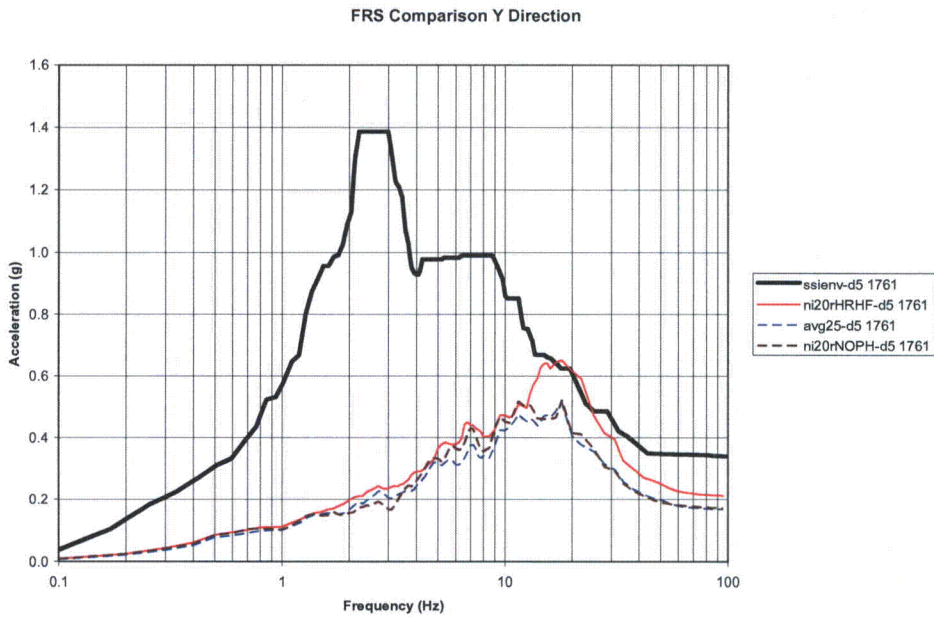


Figure RAI-SRP3.7.1-SEB1-11-51: CIS at Reactor Vessel Support Elevation Y-Dir

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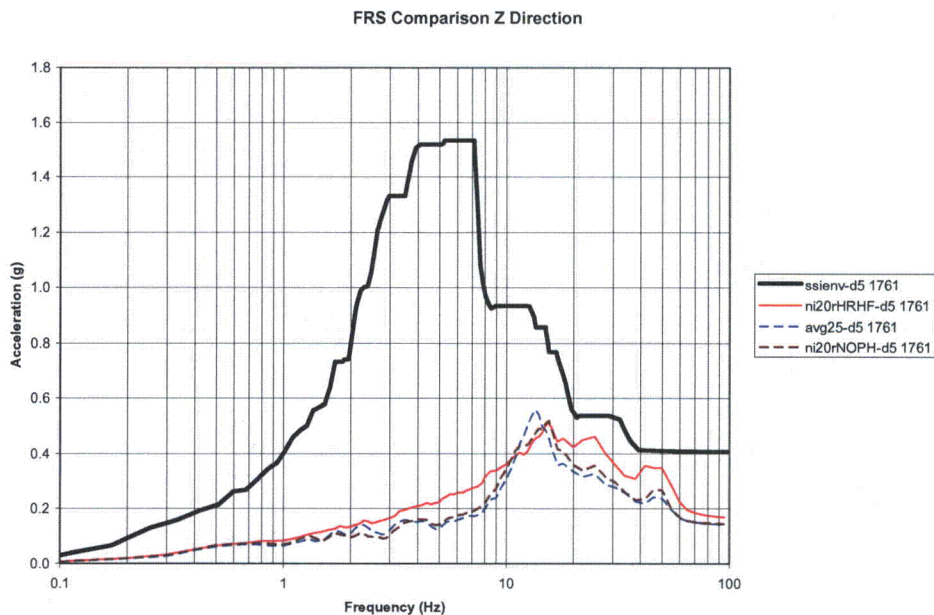


Figure RAI-SRP3.7.1-SEB1-11-52: CIS at Reactor Vessel Support Elevation Z-Dir

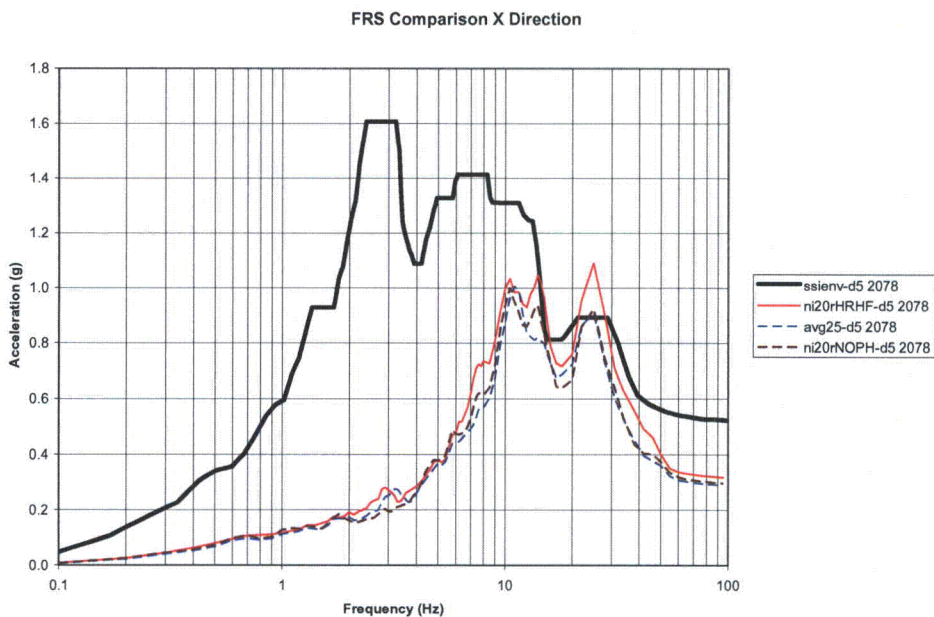


Figure RAI-SRP3.7.1-SEB1-11-53: ASB NE Corner at Control Room Floor X-Dir

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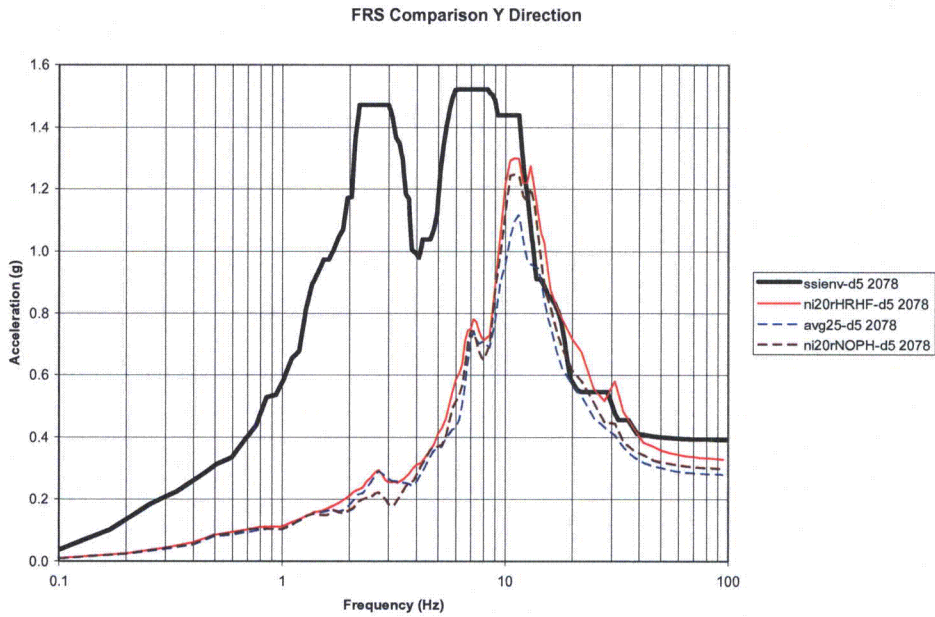


Figure RAI-SRP3.7.1-SEB1-11-54: ASB NE Corner at Control Room Floor Y-Dir

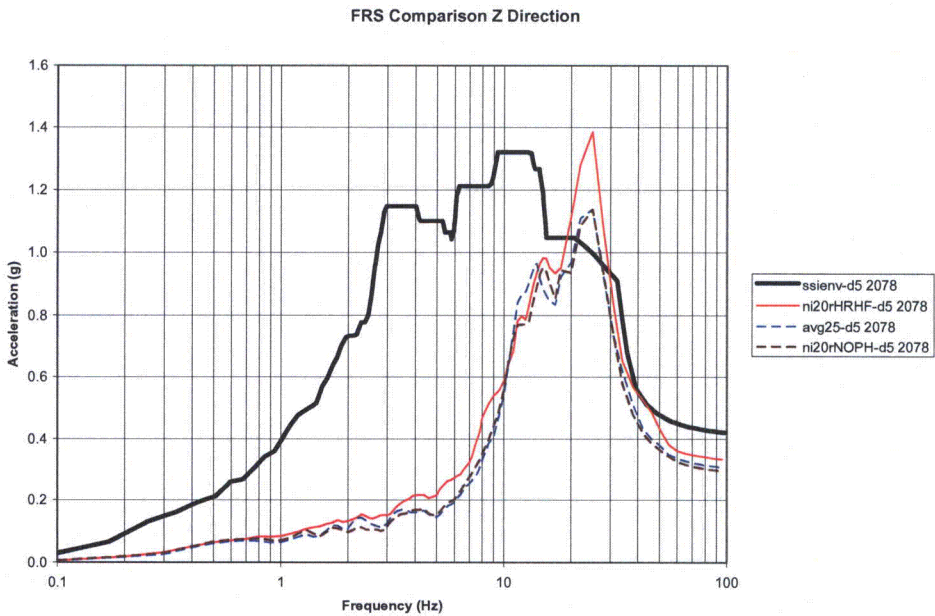


Figure RAI-SRP3.7.1-SEB1-11-55: ASB NE Corner at Control Room Floor Z-Dir

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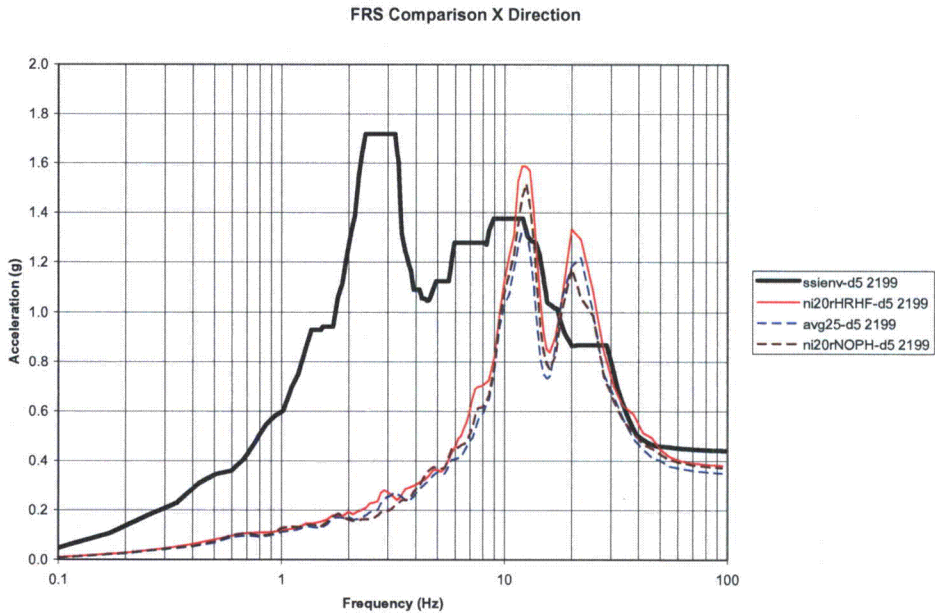


Figure RAI-SRP3.7.1-SEB1-11-56: CIS at Operating Deck X-Dir

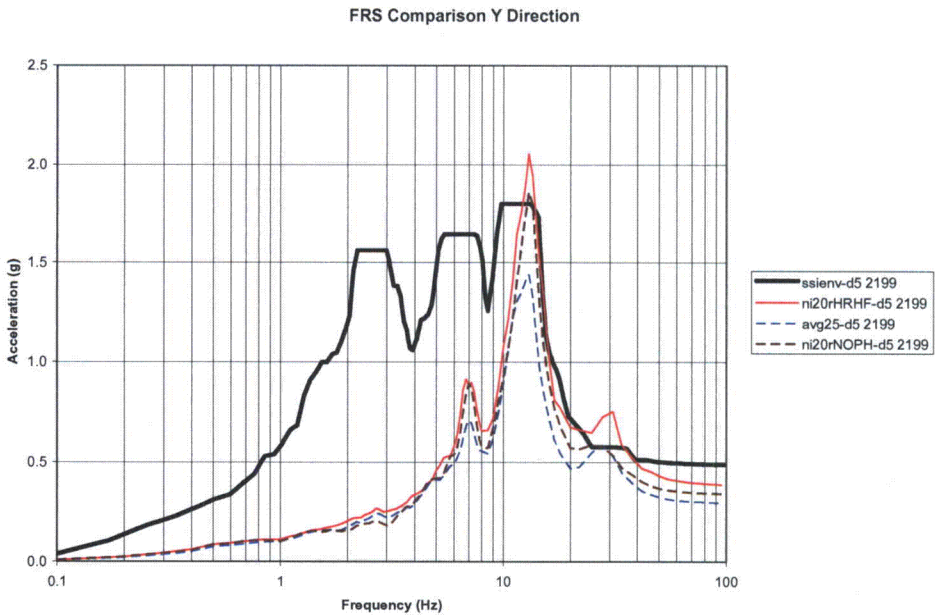


Figure RAI-SRP3.7.1-SEB1-11-57: CIS at Operating Deck Y-Dir

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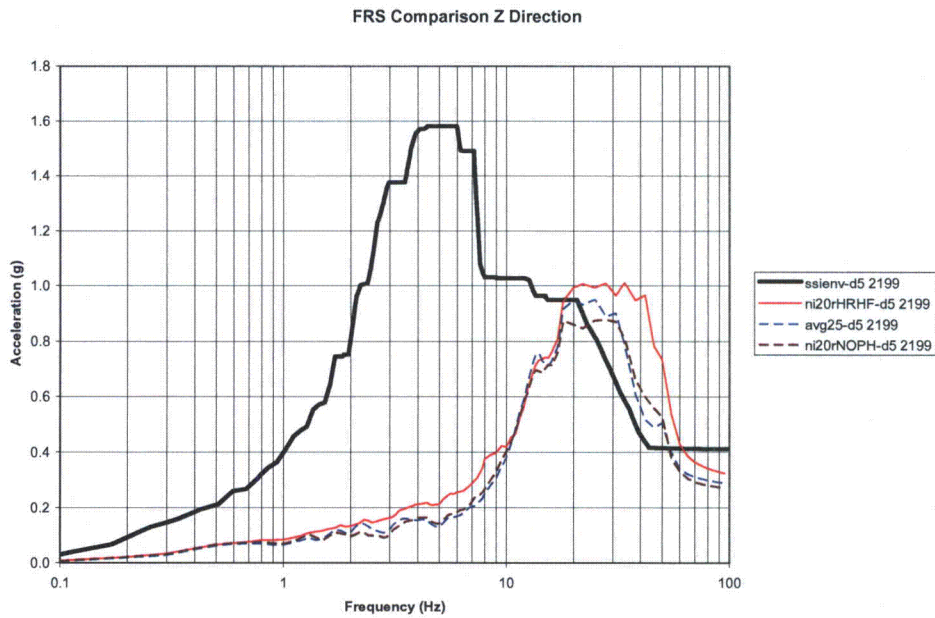


Figure RAI-SRP3.7.1-SEB1-11-58: CIS at Operating Deck Z-Dir

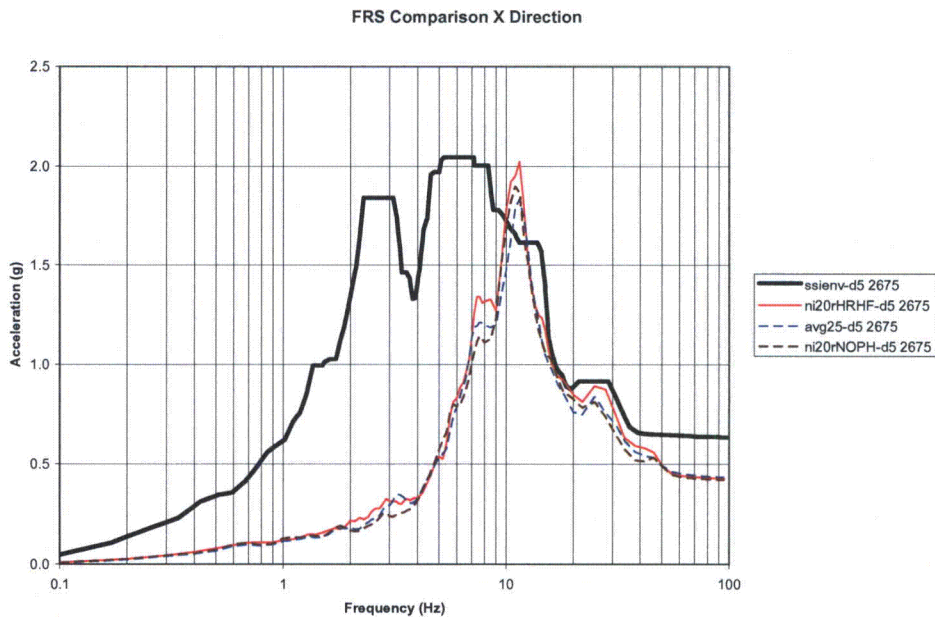


Figure RAI-SRP3.7.1-SEB1-11-59: ASB Corner of Fuel Building Roof X-Dir

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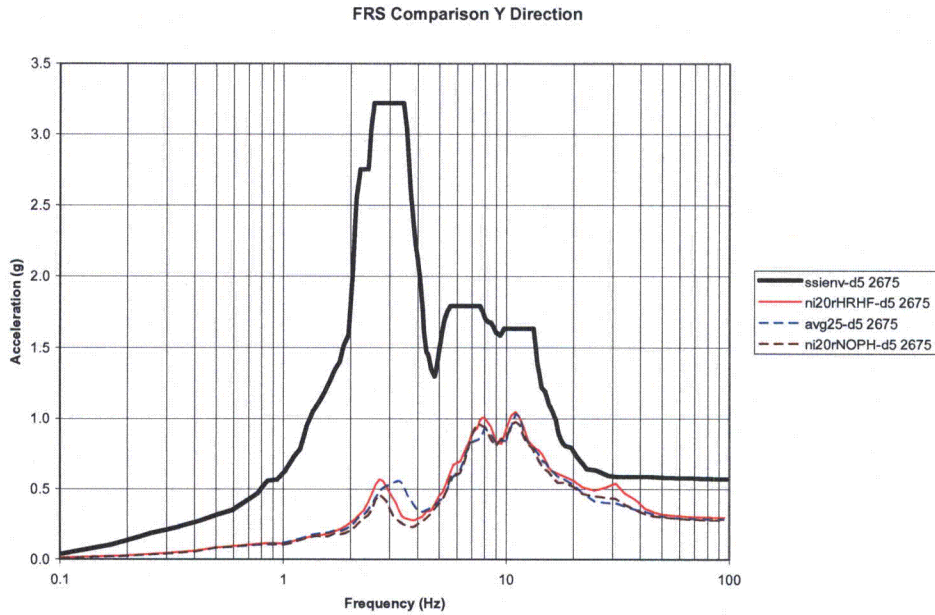


Figure RAI-SRP3.7.1-SEB1-11-60: ASB Corner of Fuel Building Roof Y-Dir

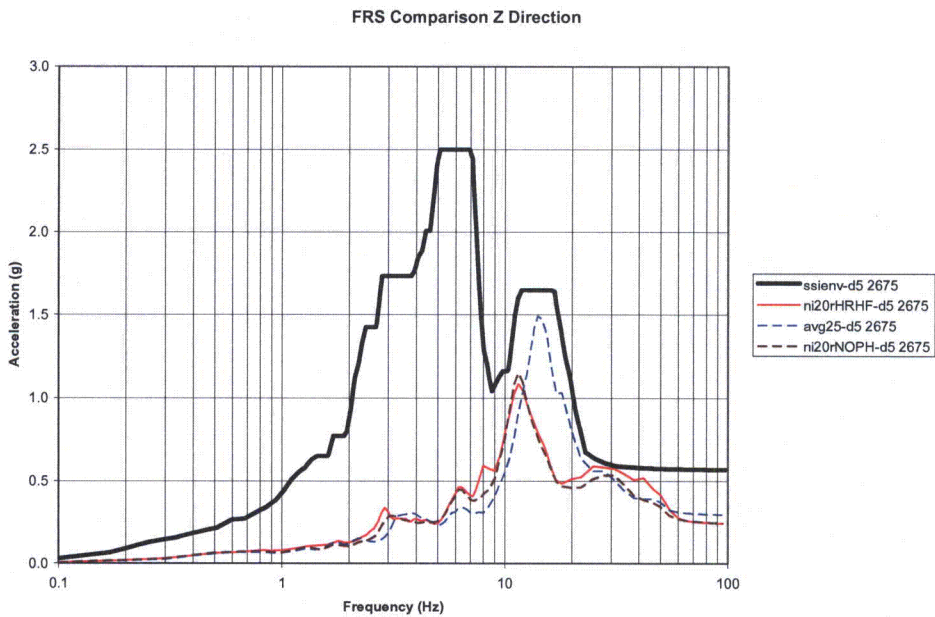


Figure RAI-SRP3.7.1-SEB1-11-61: ASB Corner of Fuel Building Roof Z-Dir

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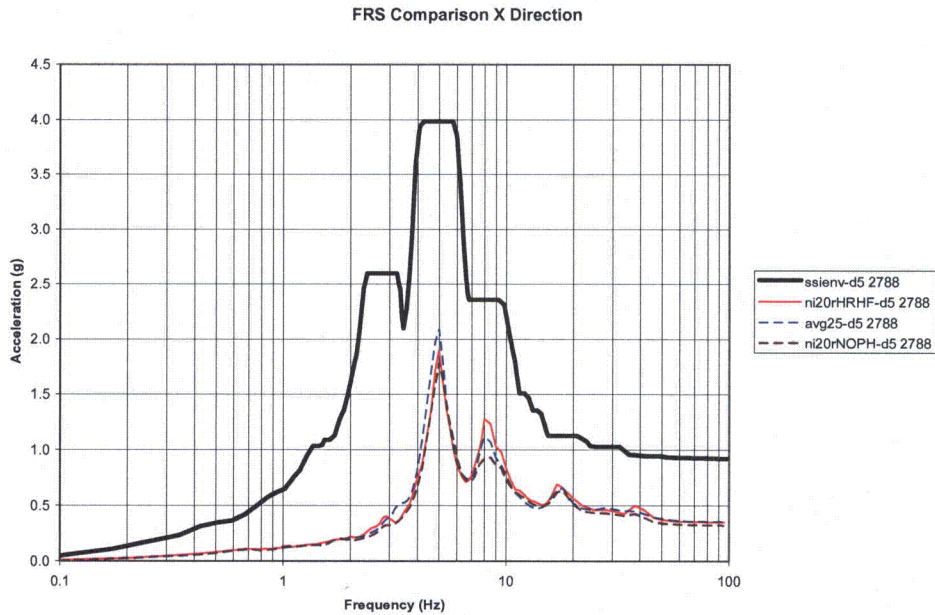


Figure RAI-SRP3.7.1-SEB1-11-62: SCV at Polar Crane Support X-Dir

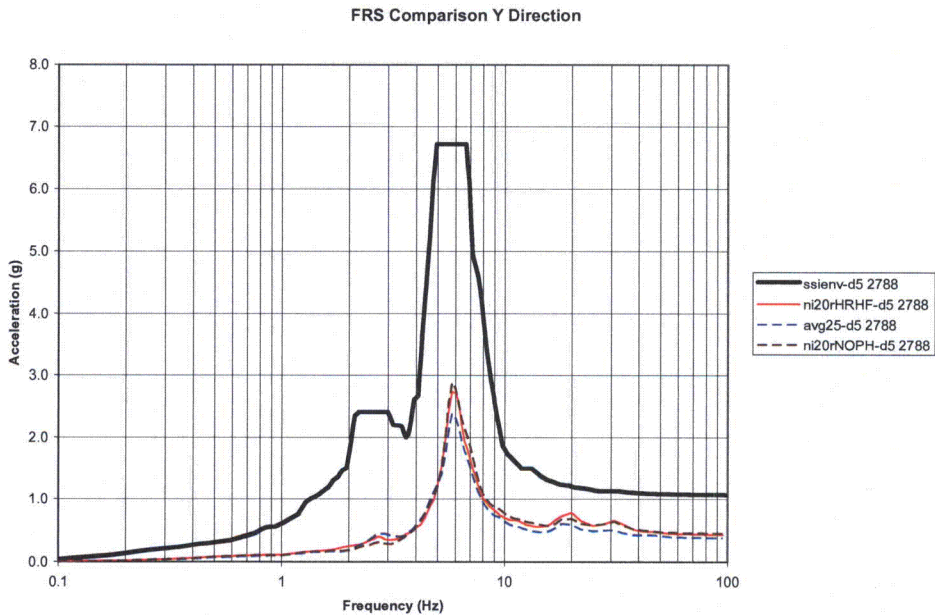


Figure RAI-SRP3.7.1-SEB1-11-63: SCV at Polar Crane Support Y-Dir

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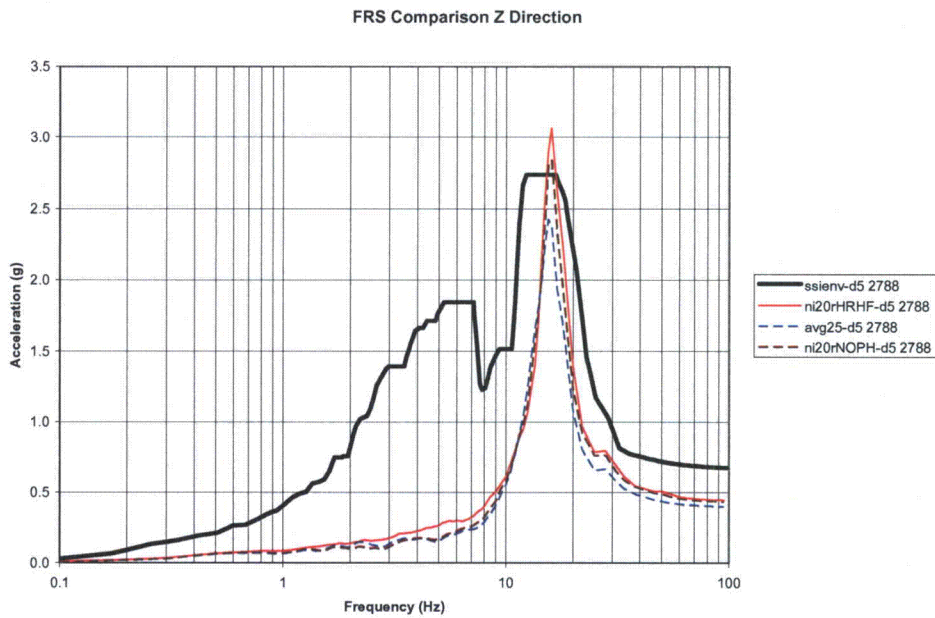


Figure RAI-SRP3.7.1-SEB1-11-64: SCV at Polar Crane Support Z-Dir

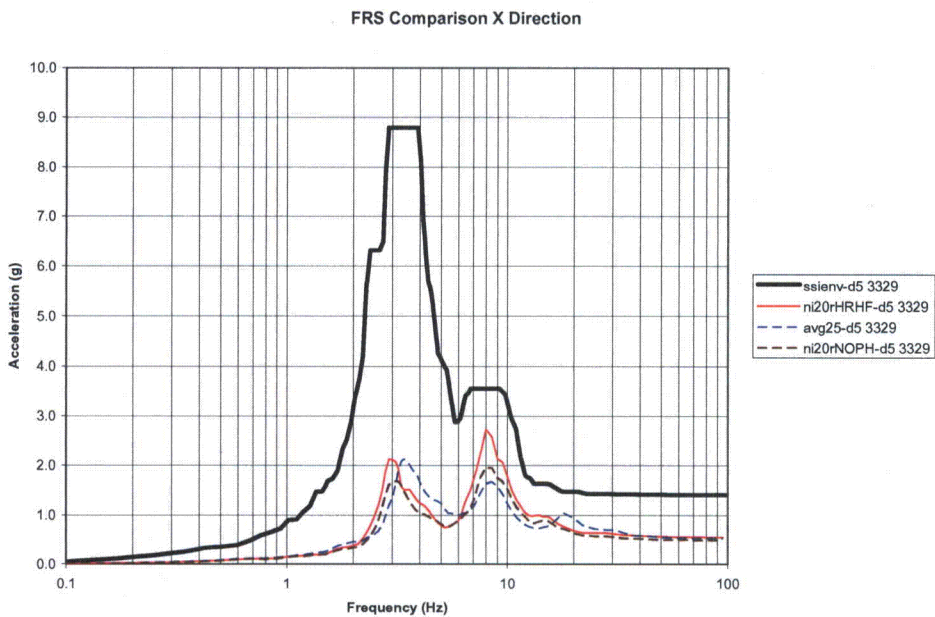


Figure RAI-SRP3.7.1-SEB1-11-65: Shield Building Roof X-Dir

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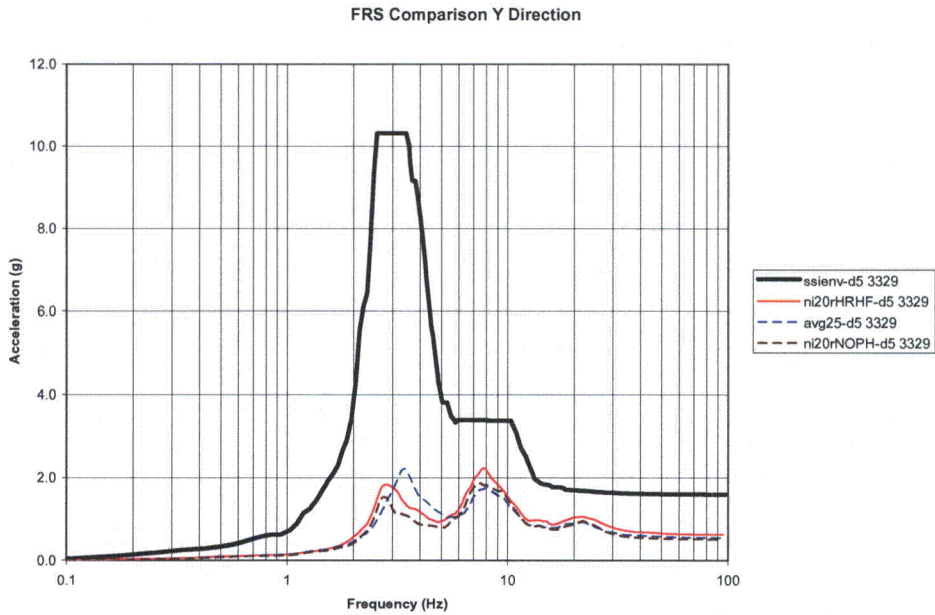


Figure RAI-SRP3.7.1-SEB1-11-66: Shield Building Roof Y-Dir

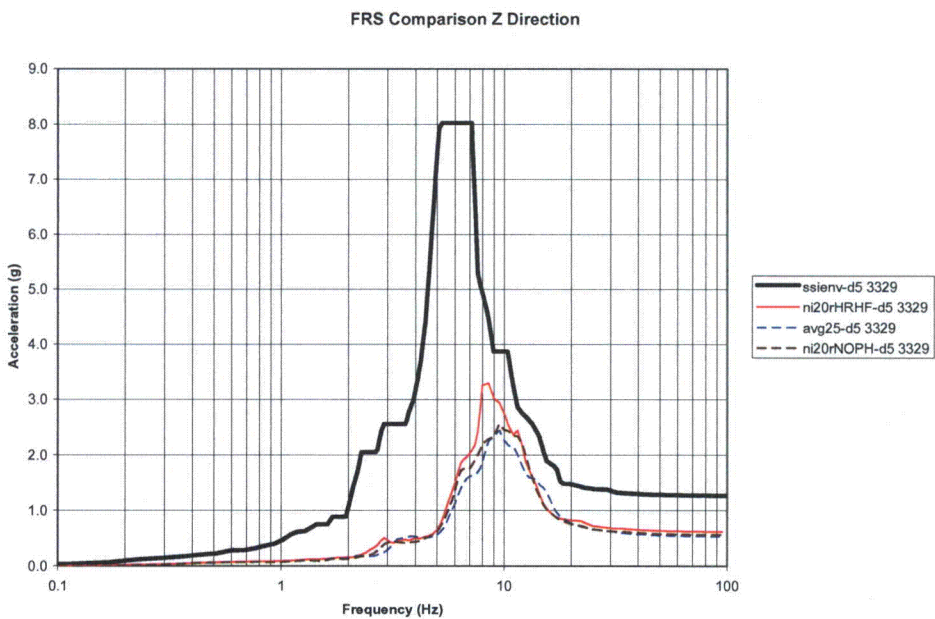
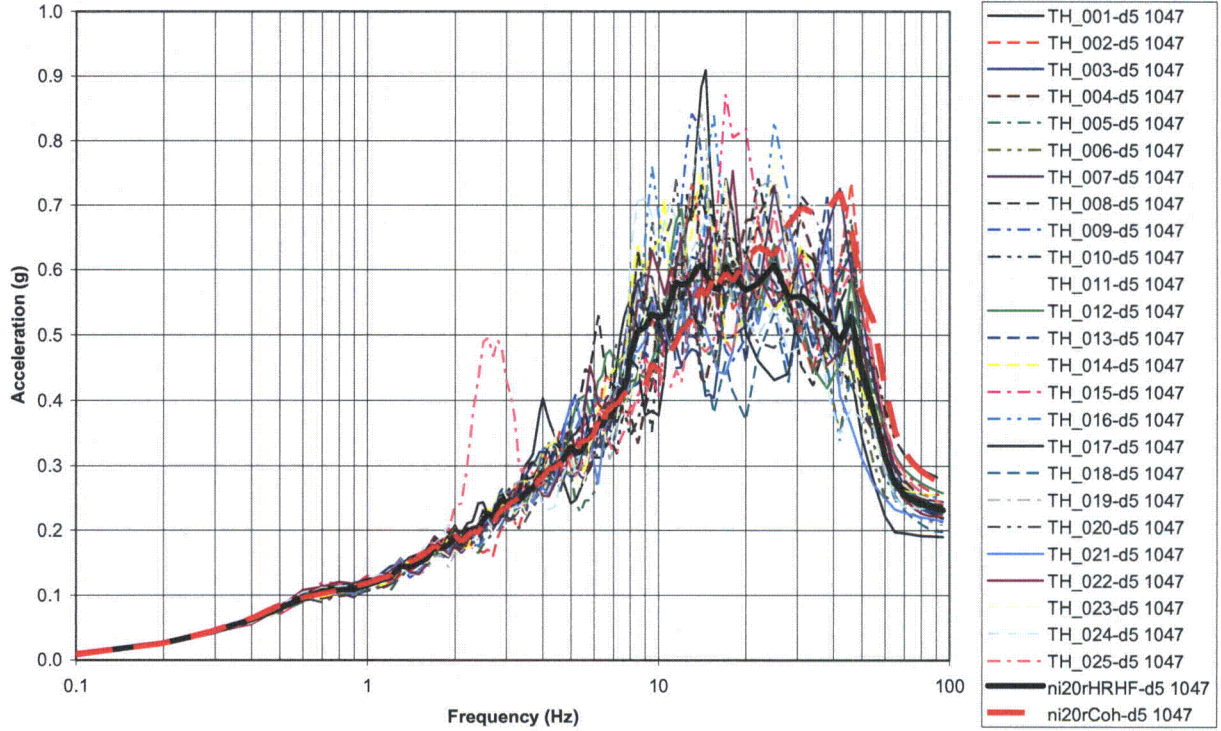


Figure RAI-SRP3.7.1-SEB1-11-67: Shield Building Roof Z-Dir

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FRS Comparison X Direction

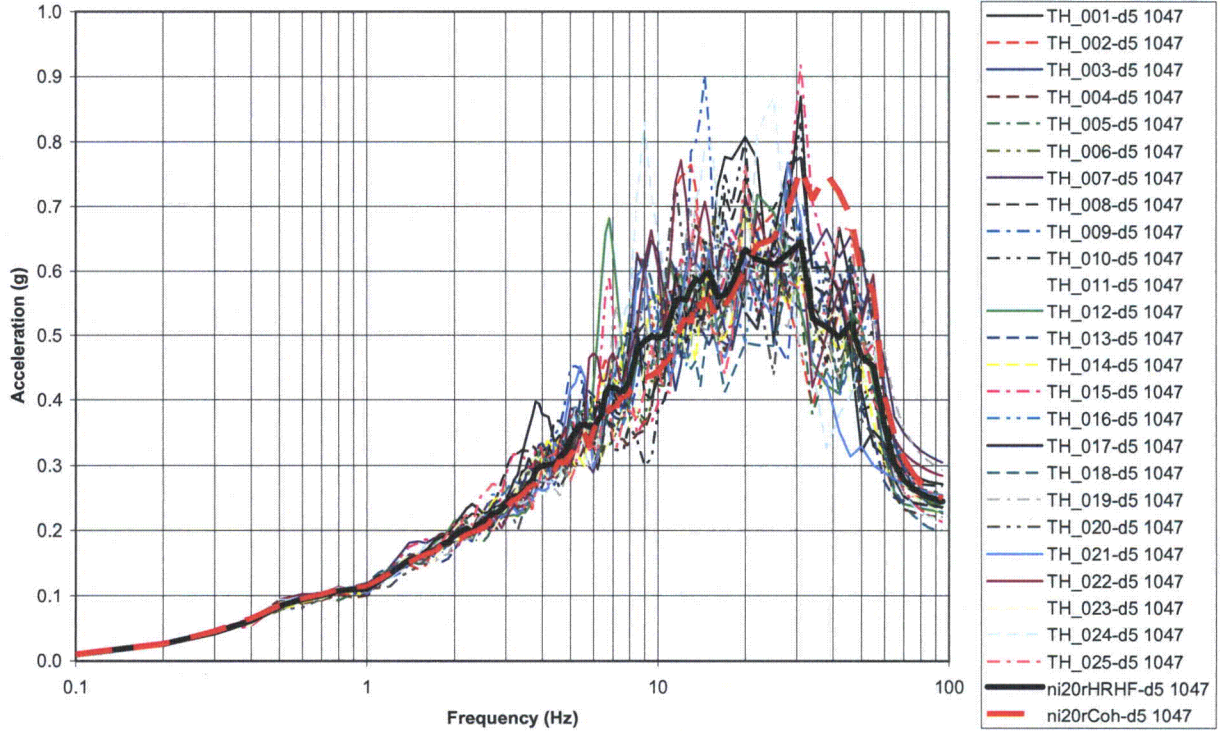


RAI-SRP3.7.1-SEB1-11-68: Node 1047 X-Direction, Southeast Corner

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FRS Comparison Y Direction

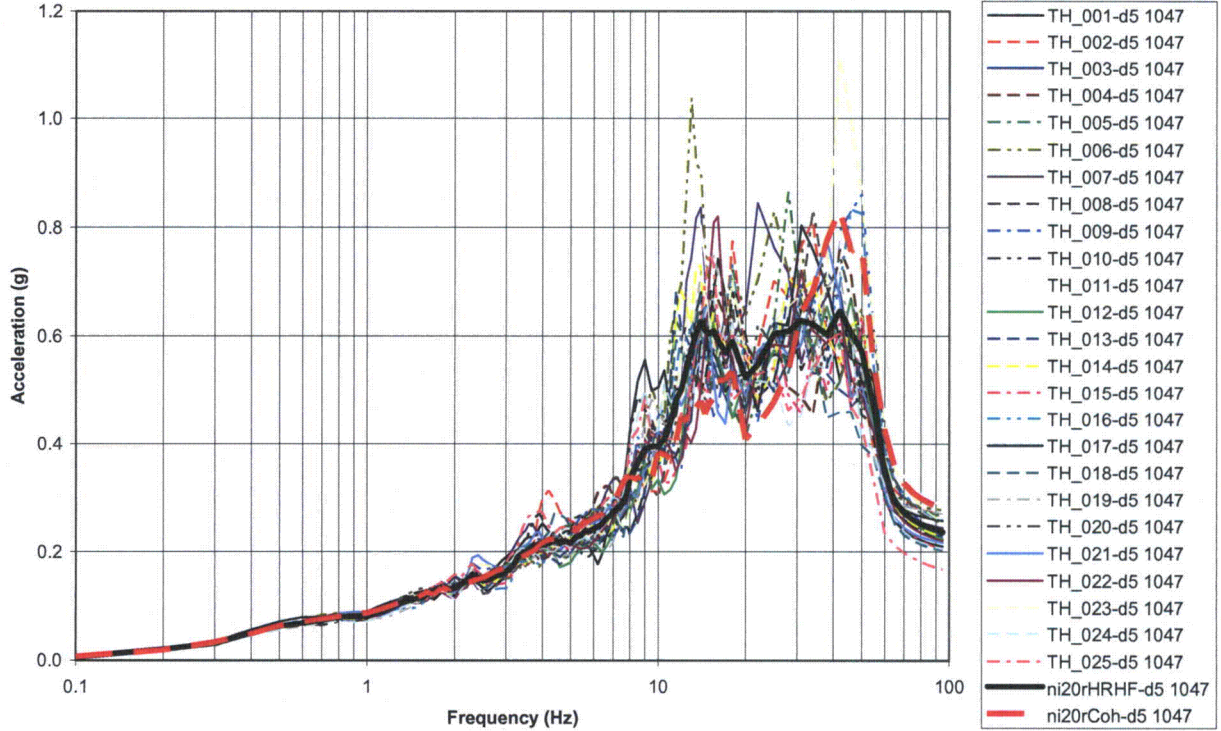


RAI-SRP3.7.1-SEB1-11-69: Node 1047 Y-Direction, Southeast Corner

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FRS Comparison Z Direction

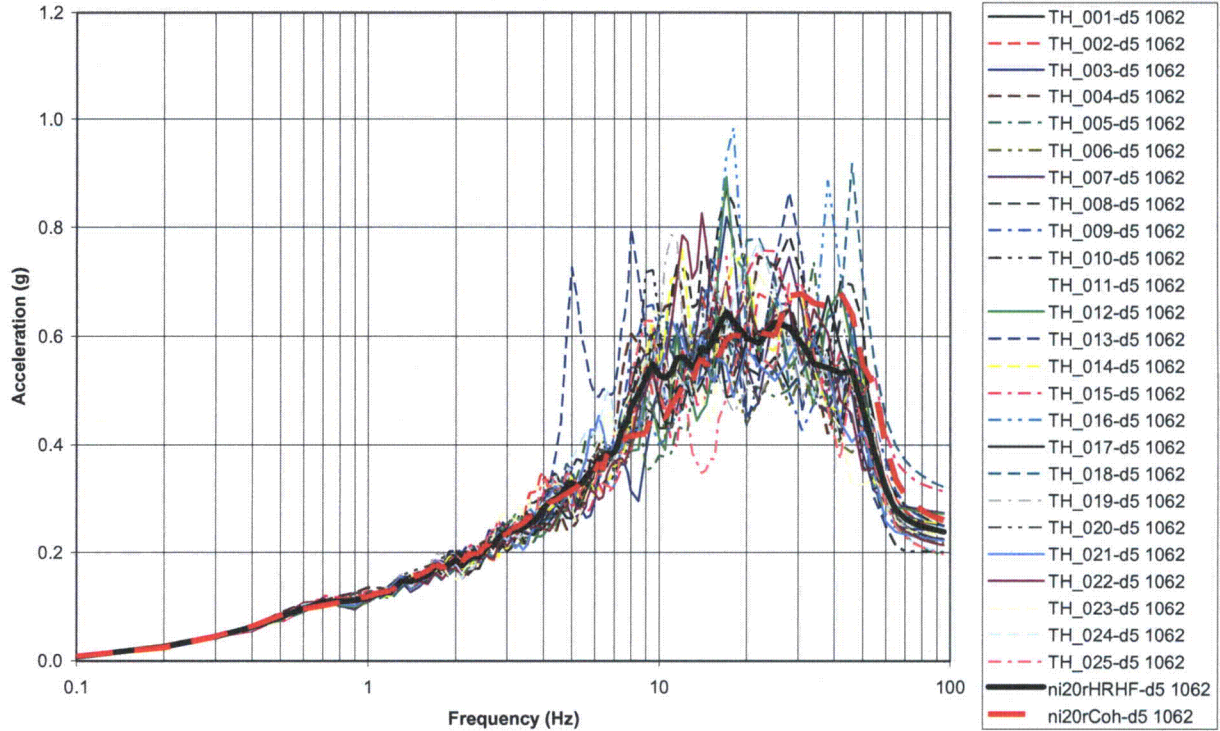


RAI-SRP3.7.1-SEB1-11-70: Node 1047 Z-Direction, Southeast Corner

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FRS Comparison X Direction

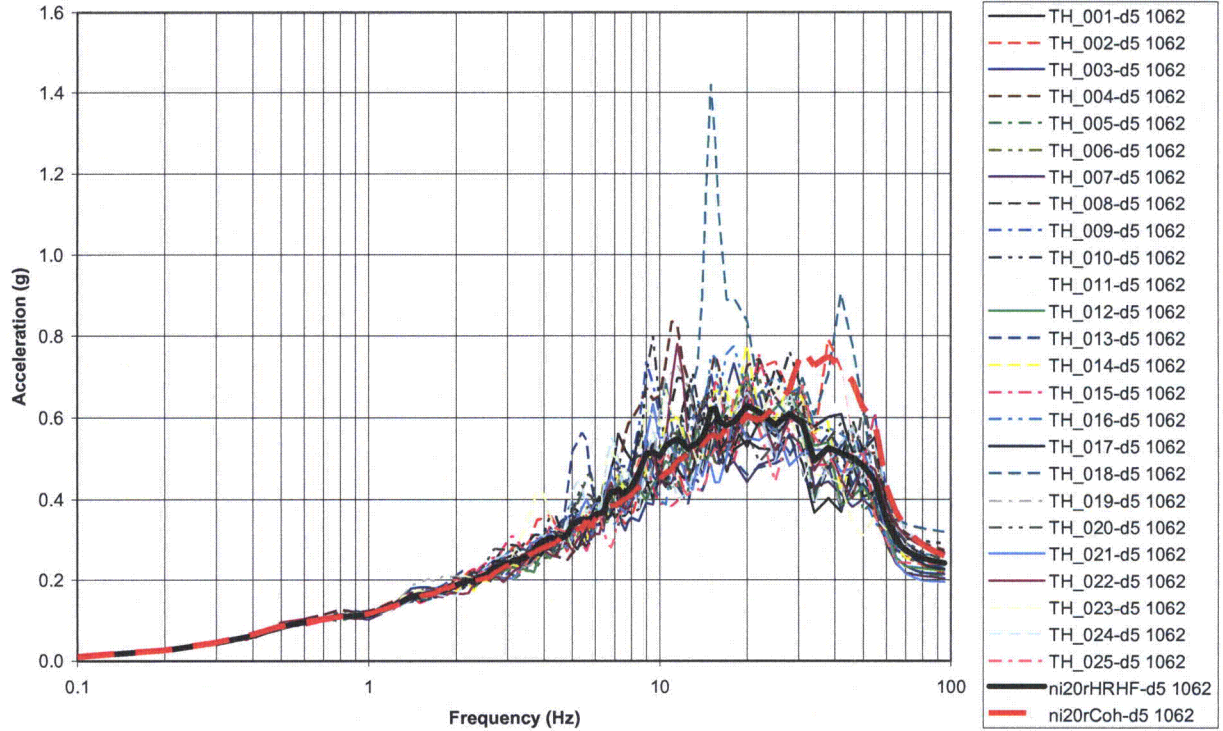


RAI-SRP3.7.1-SEB1-11-71: Node 1062 X-Direction, Northeast Corner

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FRS Comparison Y Direction

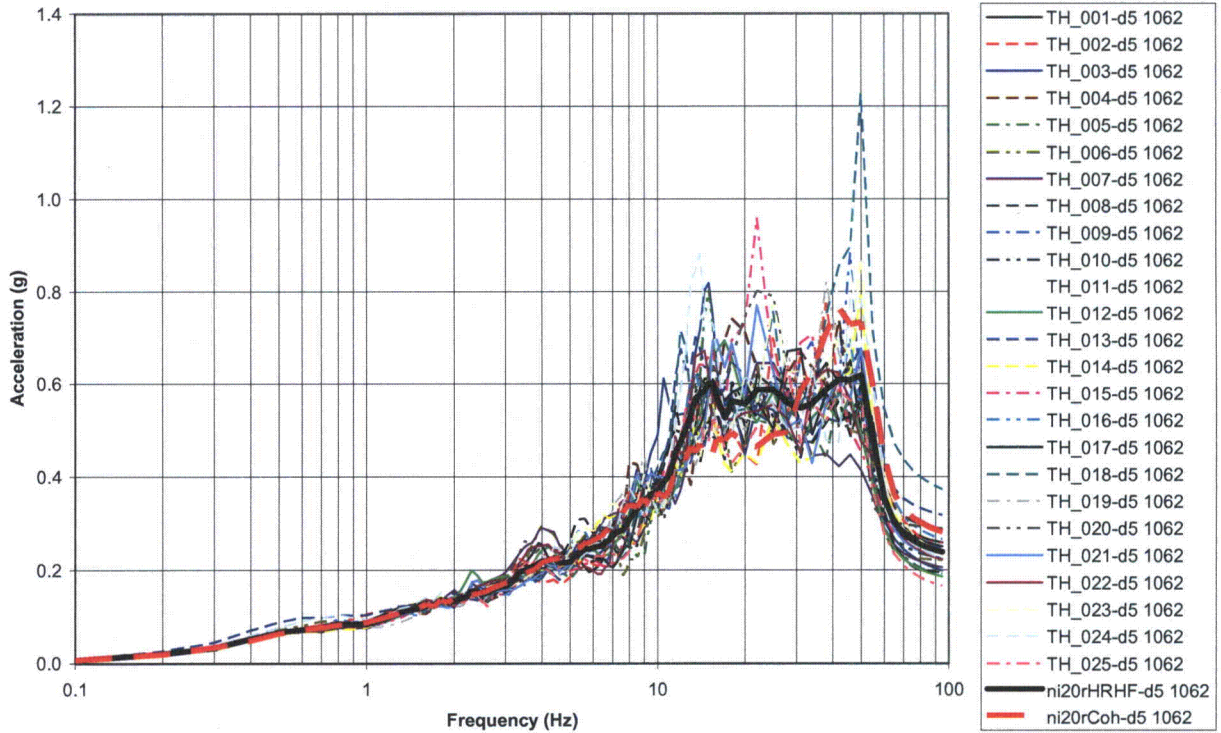


RAI-SRP3.7.1-SEB1-11-72: Node 1062 Y-Direction, Northeast Corner

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FRS Comparison Z Direction

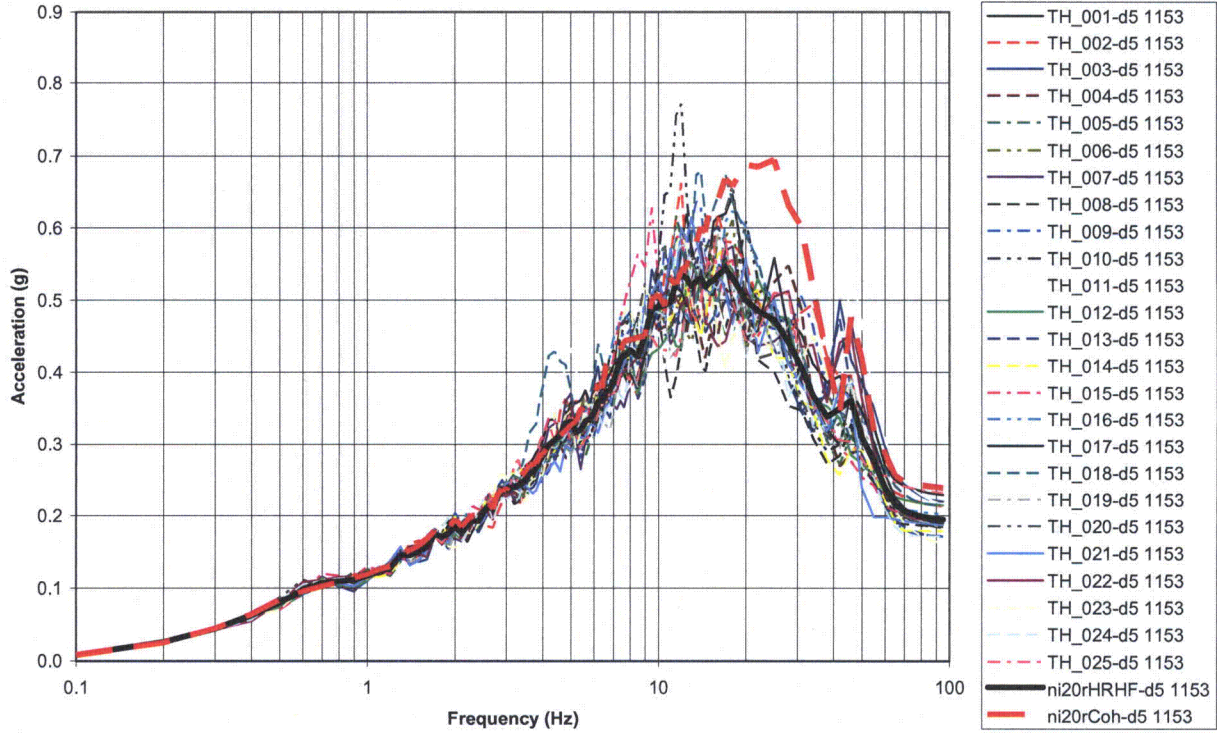


RAI-SRP3.7.1-SEB1-11-73: Node 1062 Z-Direction, Northeast Corner

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FRS Comparison X Direction

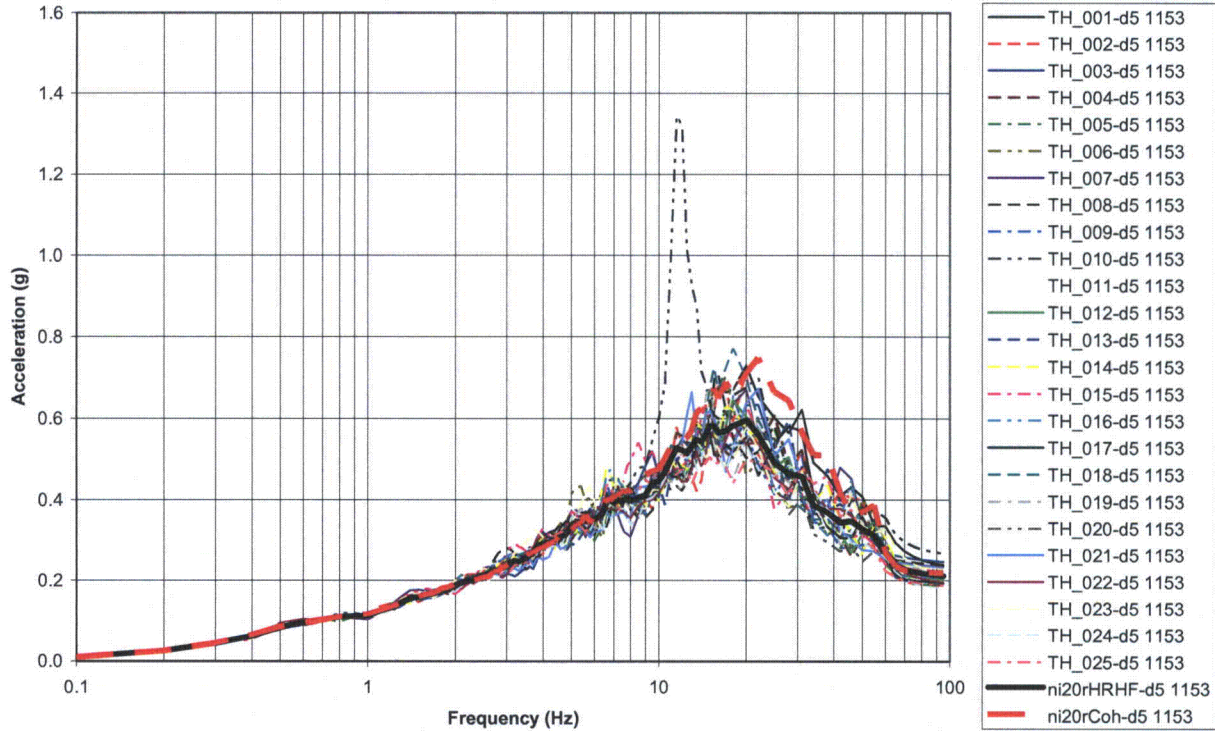


RAI-SRP3.7.1-SEB1-11-74: Node 1153 X-Direction, Center Basemat

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FRS Comparison Y Direction

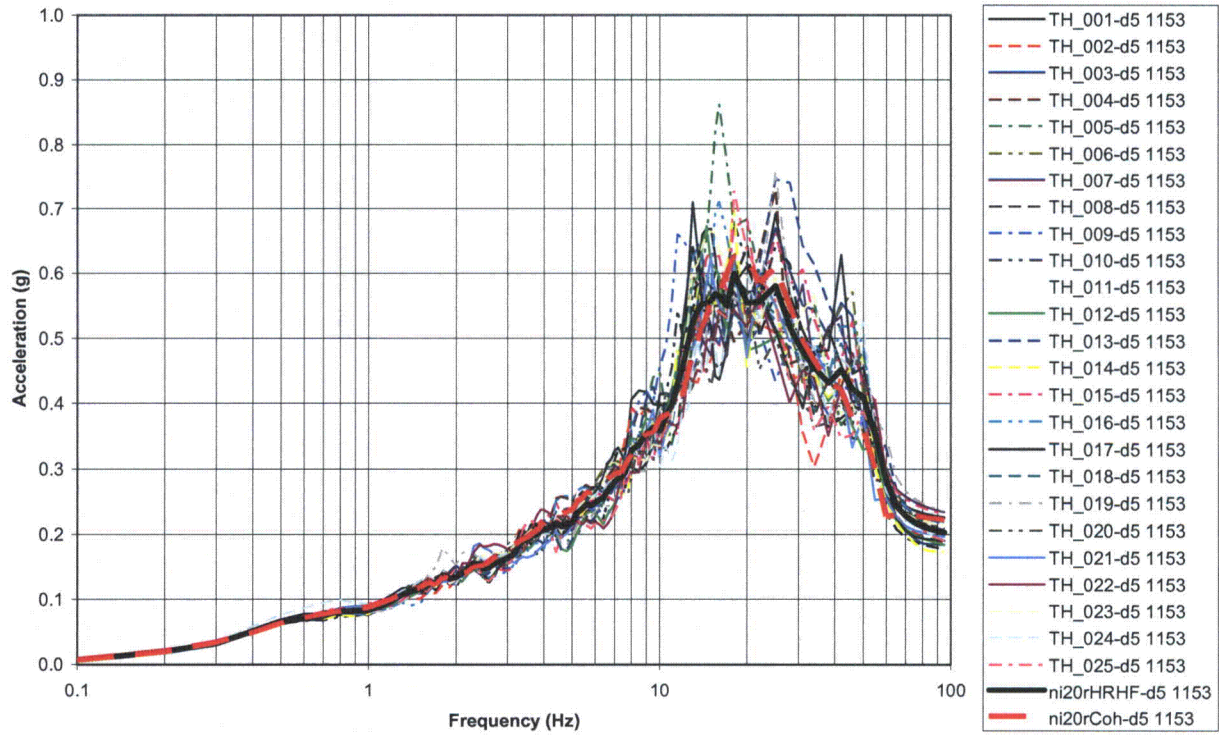


RAI-SRP3.7.1-SEB1-11-75: Node 1153 Y-Direction, Center Basemat

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FRS Comparison Z Direction

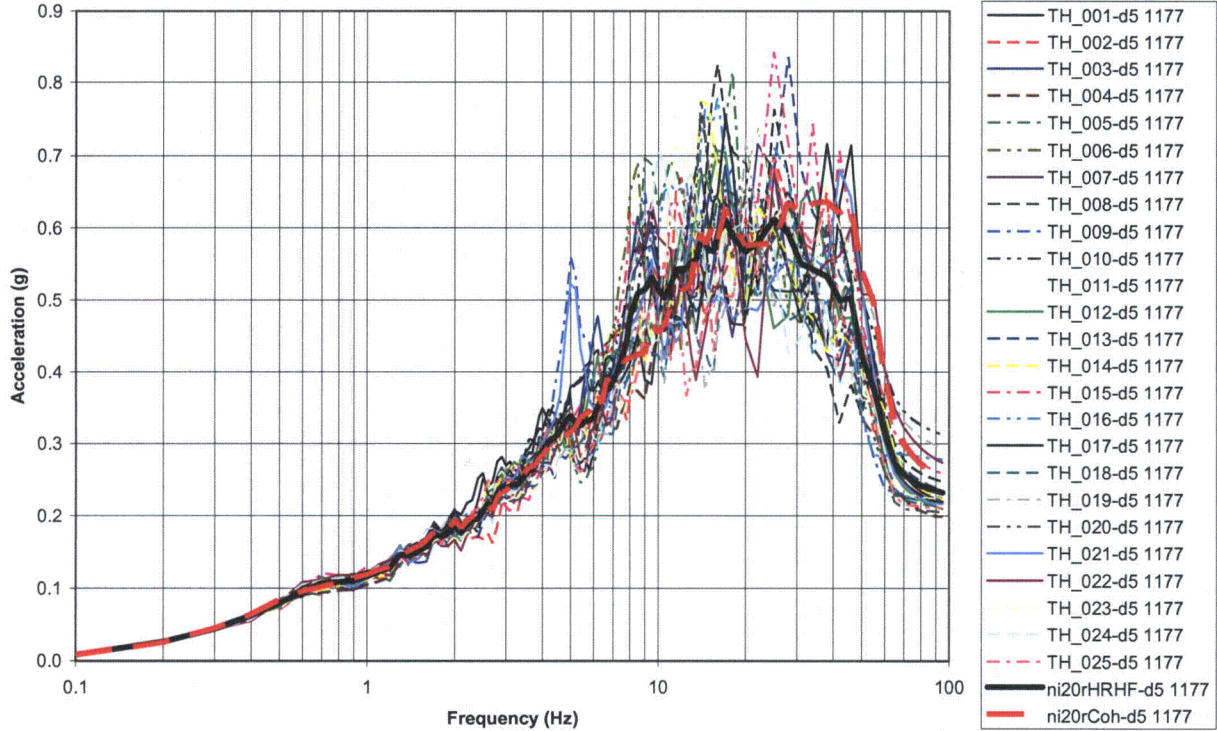


RAI-SRP3.7.1-SEB1-11-76: Node 1153 Z-Direction, Center Basemat

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FRS Comparison X Direction

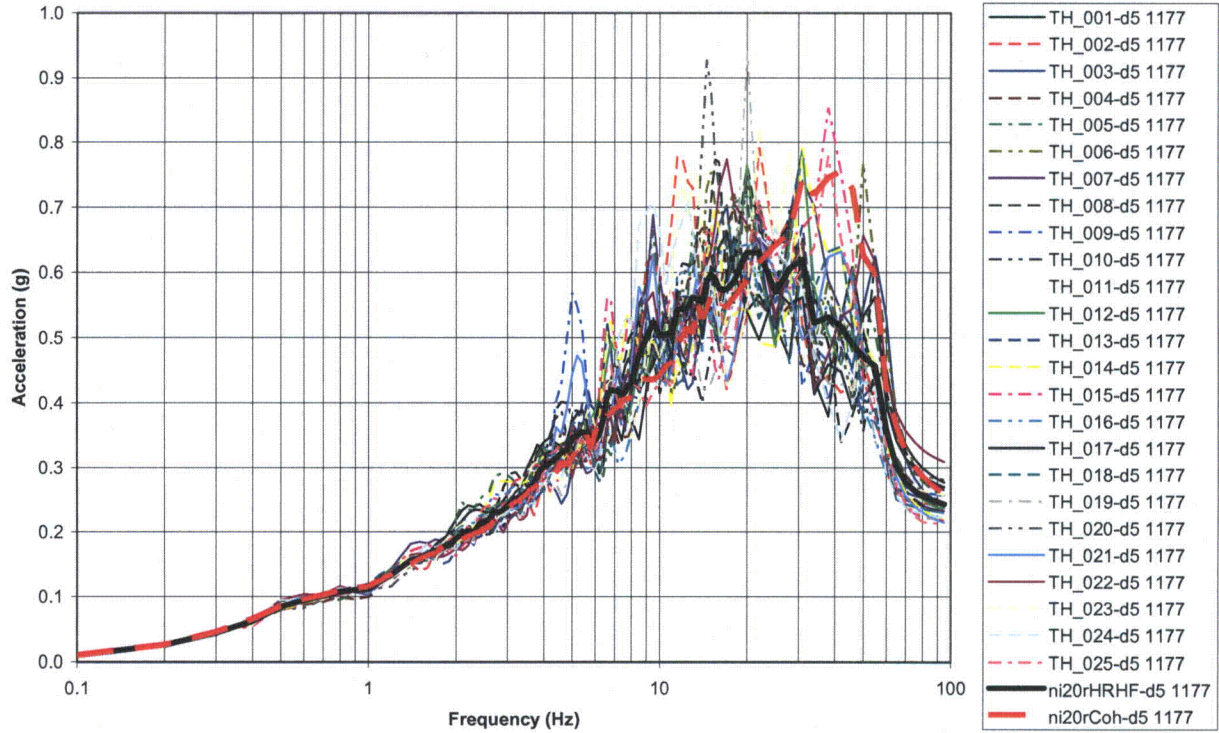


RAI-SRP3.7.1-SEB1-11-77: Node 1177 X-Direction, Southwest Corner

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FRS Comparison Y Direction

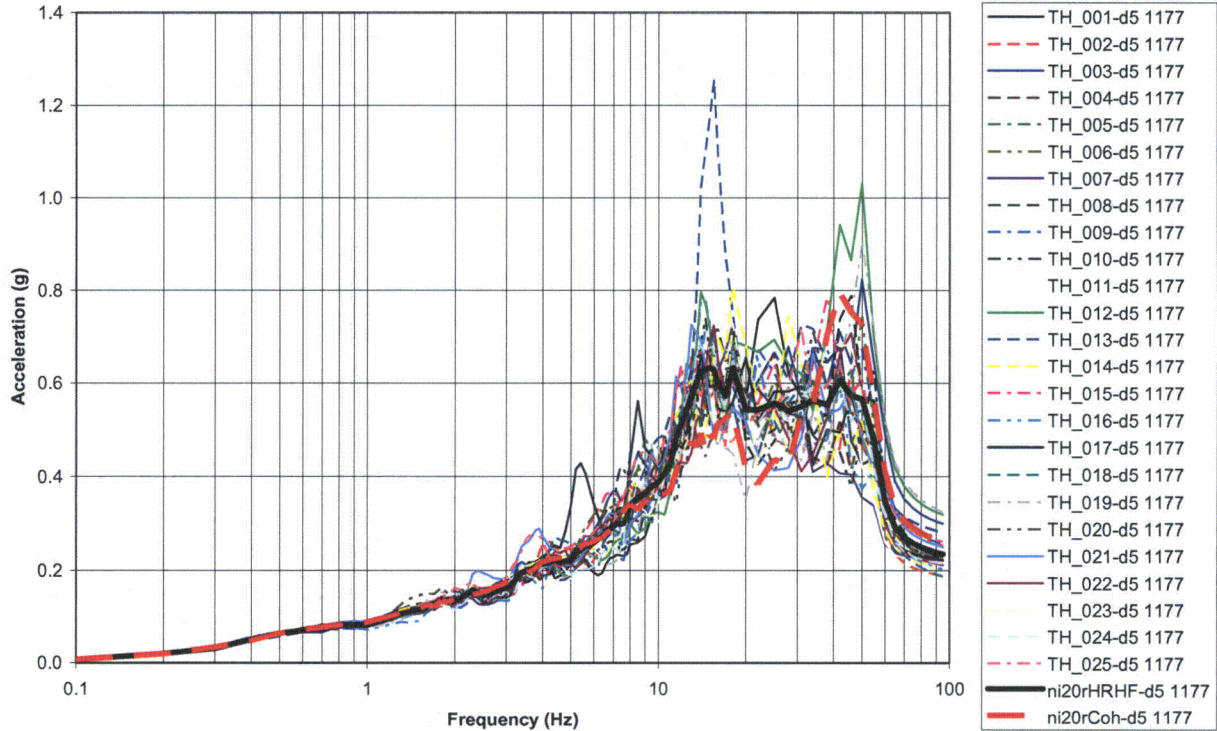


RAI-SRP3.7.1-SEB1-11-78: Node 1177 Y-Direction, Southwest Corner

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Response to Request For Additional Information (RAI)

FRS Comparison Z Direction

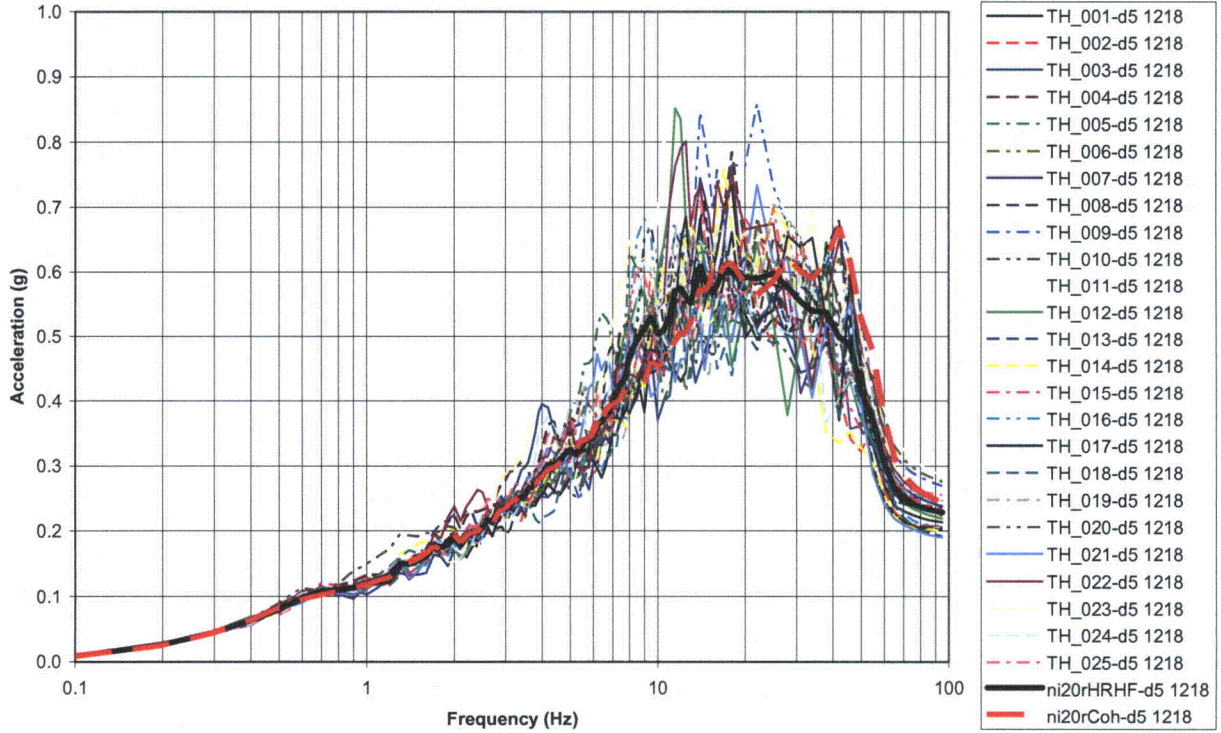


RAI-SRP3.7.1-SEB1-11-79: Node 1177 Z-Direction, Southwest Corner

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FRS Comparison X Direction

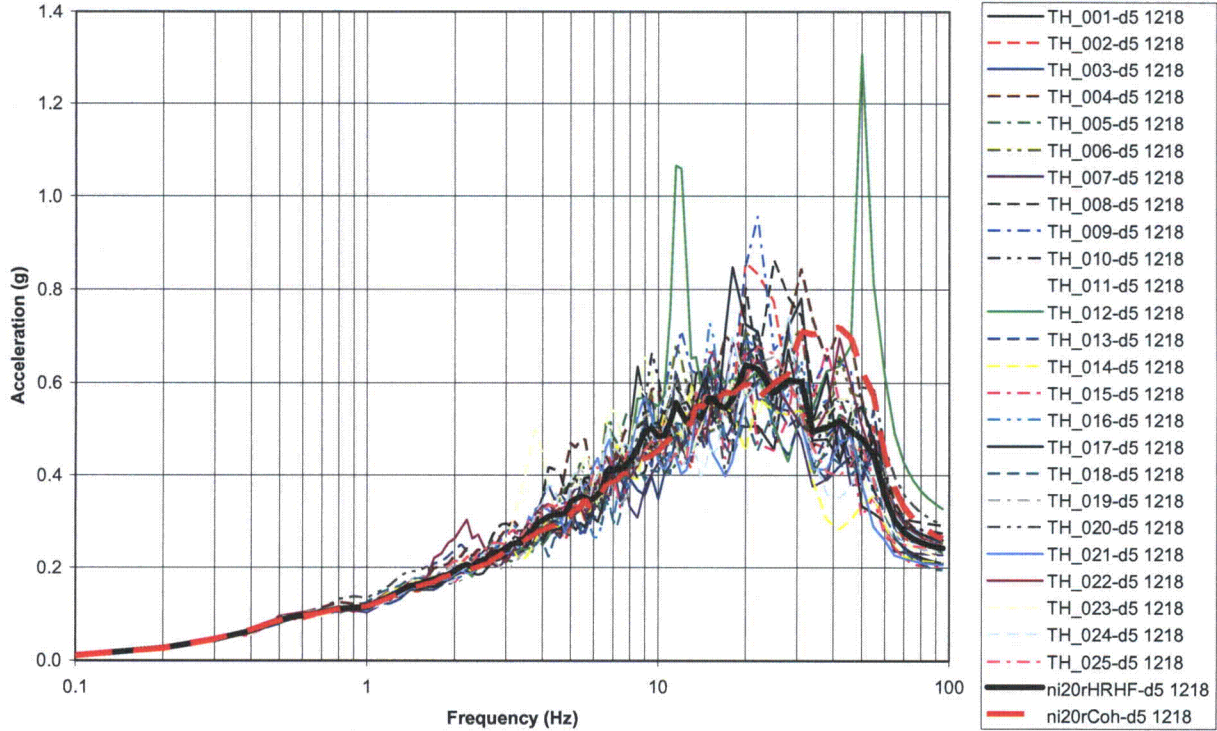


RAI-SRP3.7.1-SEB1-11-80: Node 1218 X-Direction, Northwest Corner

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FRS Comparison Y Direction

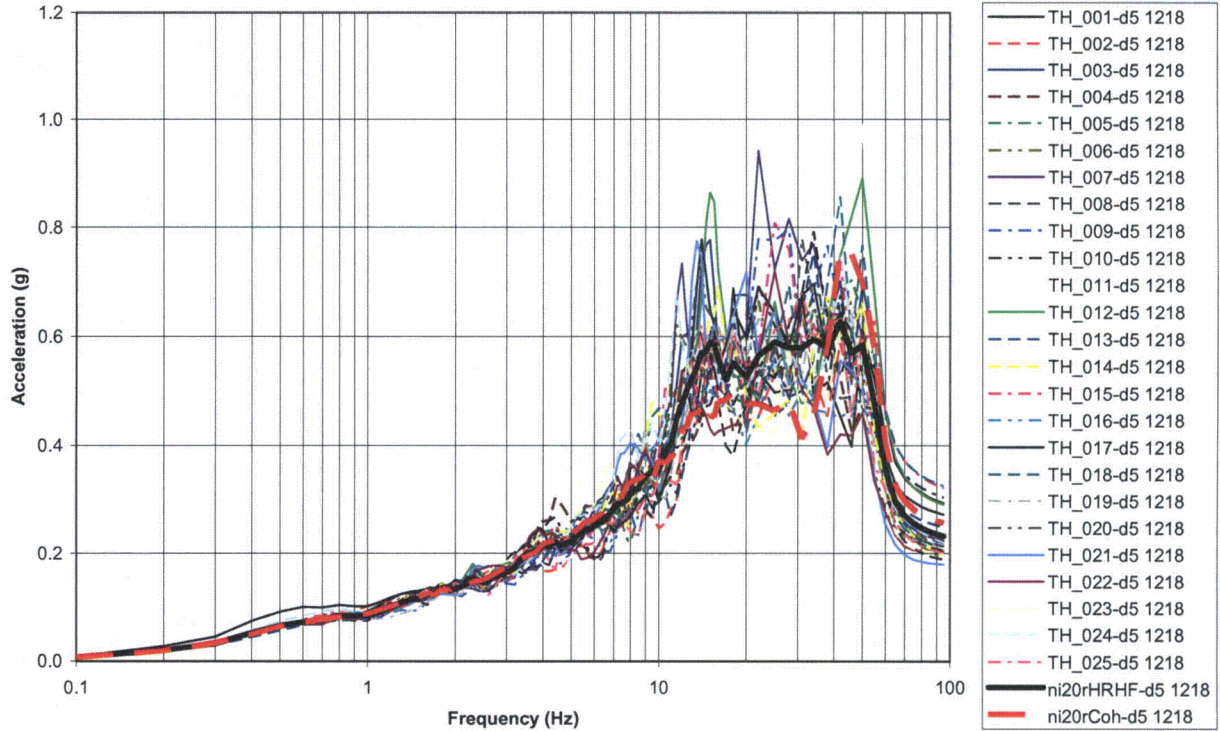


RAI-SRP3.7.1-SEB1-11-81: Node 1218 Y-Direction, Northwest Corner

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Response to Request For Additional Information (RAI)

FRS Comparison Z Direction



RAI-SRP3.7.1-SEB1-11-82: Node 1218 Z-Direction, Northwest Corner