RESEARCH REPORT

Measured Pressure Equalized Performance of an Exterior Insulation Finish System (EIFS) Specimen. Performance of Pressure Equalized Rainscreen Walls: A Collaborative Research and Development Project

Progress Report #5

Canada

CMHC SCHL
HOME TO CANADIANS

CMHC—HOME TO CANADIANS

Canada Mortgage and Housing Corporation (CMHC) has been Canada's national housing agency for more than 60 years.

Together with other housing stakeholders, we help ensure that Canada maintains one of the best housing systems in the world. We are committed to helping Canadians access a wide choice of quality, affordable homes, while making vibrant, healthy communities and cities a reality across the country.

For more information, visit our website at **www.cmhc.ca**

You can also reach us by phone at 1-800-668-2642
or by fax at 1-800-245-9274.

Outside Canada call 613-748-2003 or fax to 613-748-2016.

Canada Mortgage and Housing Corporation supports the Government of Canada policy on access to information for people with disabilities. If you wish to obtain this publication in alternative formats, call 1-800-668-2642.

Progress Report #5
Measured Pressure Equalized Performance of an Exterior Insulation Finish System (EIFS) Specimen

Performance of Pressure Equalized Rainscreen Walls
A Collaborative Research and Development Project

Author ______________________
James M. Ullett, P.Eng.

Author ______________________
William C. Brown
Project Manager

Approved ______________________
Dr. S.A. Barakat
Head, Building Performance Laboratory

Report No:	A3028.6
Report Date:	April 19, 1996
Contract No:	A3028
Reference:	Agreement Dated March 24, 1992
Laboratory:	Building Performance

33 pages
Copy No. 1 of 4 copies

EXECUTIVE SUMMARY

A literature review conducted by the National Research Council (NRC) in 1992 to determine design guidelines for pressure equalized rainscreen (PER) walls concluded that current guidelines were not at all comprehensive. As a consequence, a research and development project was initiated to generate design guidelines for PER walls. Canada Mortgage and Housing Corporation (CMHC) is jointly sponsoring the experimental evaluation task of the project. In addition, several wall system manufacturers are supplying test specimens and providing technical and practical information.

This report presents data from the experimental evaluation of an exterior insulation and finish system (EIFS) test specimens which were supplied by Dryvit Canada Inc. These specimens were to replace an identical (except in overall dimensions) construction which failed mechanically and were documented in report number A3028.5. Two test specimens, each 2.44 m high by 1.20 m wide, were manufactured and shipped to IRC/NRC. Each specimen consisted of 13 mm Densglas Gold® gypsum board fastened to a 89 mm steel stud assembly (studs @ 406 mm OC) with a 3 mm coating of trowelled on Infinity Dryshield/Portland Cement. This layer acted as the air barrier system. Each specimen was then finished 50 mm expanded polystyrene (EPS) boards (0.61 m x 1.22 m) adhered to the air barrier and covered with a 3 mm thick Dryvit finish, which acted as the rainscreen. The cavity for the specimens consisted of 25 mm wide by 6 mm deep vertical channels located in the back of the EPS and were connected through channels formed at the perimeter of the sheets by 12 mm chamfered corners. The channels extended to within 150 mm of the perimeter of each specimen. The vent was comprised of a Vent Material, supplied by Dryvit Canada, and measured 200 mm wide by 25 mm deep located in the bottom centre of the specimen.

The experimental evaluation task consisted of air leakage, pressure equalization and water penetration sub-tasks.

Pressure equalization performance of the cavity and water penetration performance of the exterior finish and steel stud assemblies were measured under dynamic pressure conditions for several leakage configurations, loading scenarios, and excitation frequencies. The following observations were made for the specimens:

- Pressure difference across the rainscreen decreased as the air leakage located opposite the vertical channels in the EPS decreased.
- Pressure difference across the rainscreen decreased as the air leakage located in the centre of the EPS decreased.
- Pressure difference across the rainscreen varied along the height and across the width of the test specimen.
- Pressure difference across the rainscreen was slightly greater in the centre of the EPS than in the vertical channels.
- The overall performance of these test specimens differed, both the air leakage and the pressure equalizing performance, from the response of the first test specimen delivered to IRC/NRC by Dryvit. The EPS used in the current specimens appears to allow air to move through it at a higher rate than the other specimen. This is indicated by the measured air leakage characteristics as well as the dynamic response of the system when the leakage holes in the EPS are opened.
- The amount of water which entered the specimen in a face sealed system was much greater than that which entered as a pressure equalizing system.
- Significantly more water entered the system when there was a defect present in the rainscreen and there was a pressure difference to drive the water into the system. With no pressure difference, the amount of water which entered the defective and non-defective specimens was almost identical.
- All of the water which passed through the rainscreen was drained through the vent. No water appeared in any of the stud cavities

RÉSUMÉ

Une analyse documentaire qu'effectuait en 1992 le Conseil national de recherches (CNR) dans le but d'établir des directives de conception à l'égard des murs avec écran pare-pluie à pression équilibrée a permis de conclure que les directives actuelles ne sont pas du tout complètes. C'est ainsi qu'un projet de recherche et de développement a été amorcé en vue de donner lieu à des directives de conception pour les murs avec écran pare-pluie à pression équilibrée. La Société canadienne d'hypothèques et de logement (SCHL) parraine l'évaluation expérimentale conjointement avec l'Institut de recherche en construction (IRC). De plus, plusieurs fabricants de systèmes muraux fournissent des spécimens aux fins d'essais, en plus d'offrir des renseignements technico-pratiques.

Le présent rapport livre les résultats de l'évaluation expérimentale de spécimens de système d'isolation des façades avec enduit (SIFE) fournis par Dryvit Canada Inc. Les spécimens devaient remplacer un ensemble de construction identique (sauf en dimensions hors-tout) qui a subi une défaillance mécanique; ils font d'ailleurs l'objet du rapport n° A3028.5. Deux spécimens, mesurant chacun 2,44 m de hauteur sur 1,20 m de largeur, ont été fabriqués et expédiés à l'IRC du CNRC. Chaque spécimen était constitué de plaques de plâtre Densglas Gold® de 13 mm, fixées à une ossature en poteaux d'acier de 89 mm (poteaux espacés de 406 mm entre axes) et d'un enduit de 3 mm de ciment Portland et de Dryshield Infinity appliqué à la truelle. La couche d'enduit faisait fonction de pare-air. Chaque spécimen a été pourvu de panneaux de polystyrène expansé (0,61 m x 1,22 m) collés au pare-air et recouverts d'un revêtement de finition Dryvit de 3 mm d'épaisseur, faisant fonction d'écran pare-pluie. La cavité des spécimens était formée par des rainures verticales de 25 mm de largeur sur 6 mm de profondeur, situées dans la face arrière des panneaux de polystyrène expansé et étaient raccordés par les rainures formées au pourtour des feuilles par des angles chanfreinés de 12 mm. Les rainures se prolongeaient jusqu'à moins de 150 mm du pourtour de chaque spécimen. L'évacuation était assurée par un matériau d'évacuation, fourni par Dryvit Canada, et mesurait 200 mm de largeur sur 25 mm de profondeur, situé dans le centre inférieur du spécimen.

L'évaluation expérimentale a porté sur l'étanchéité à l'air, l'équilibrage de la pression et la pénétration d'eau.

L'équilibrage de la pression de la cavité et la pénétration d'eau dans le revêtement extérieur de finition et l'ossature d'acier ont été mesurés dans des conditions de pression dynamique suivant plusieurs configurations de fuites, conditions de charge et fréquences d'excitation. Les observations suivantes s'appliquent aux deux spécimens :

- La différence de pression agissant sur l'écran pare-pluie diminuait à mesure que s'atténuaient les fuites d'air en face des rainures verticales des panneaux de polystyrène expansé;
- La différence de pression agissant sur l'écran pare-pluie diminuait à mesure que s'atténuaient les fuites d'air au centre des panneaux de polystyrène expansé;
- La différence de pression agissant sur l'écran pare-pluie variait en fonction de la hauteur et de la largeur du spécimen.
- La différence de pression agissant sur l'écran pare-pluie était légèrement supérieure au centre des panneaux de polystyrène expansé que dans les rainures verticales.

- La performance générale de ces spécimens différait, tant pour l'étanchéité à l'air que pour l'équilibrage de la pression, par rapport aux résultats obtenus du premier spécimen livré par Dryvit à l'IRC du CNRC. Les panneaux de polystyrène expansé utilisés dans les spécimens semblaient permettre à l'air de les traverser à un taux plus élevé que pour les autres spécimens. C'est ce qu'indiquaient les fuites d'air mesurées et la réponse dynamique du système lorsque les orifices de fuite des panneaux de polystyrène expansé étaient ouverts.
- La quantité d'eau qui a pénétré le spécimen étanchéisé en surface était de beaucoup supérieure à celle qui a pénétré le système à pression équilibrée.
- Beaucoup plus d'eau a pénétré le système lorsque l'écran pare-pluie qui présentait un défaut et qu'il existait une différence de pression pour pousser l'eau dans le système. Sans différence de pression, la quantité d'eau qui pénétrait aussi bien le système avec défaut que le système sans défaut était presque la même.
- Toute la quantité d'eau qui a traversé l'écran pare-pluie a été évacuée par l'orifice de ventilation. Les cavités entre les poteaux n'ont affiché aucune trace d'eau.

CMHC SCHL

National Office
700 Montreal Road
Ottawa ON K1A 0P7
Telephone: (613) 748-2000

Bureau national
700 chemin de Montréal
Ottawa ON K1A 0P7
Téléphone : (613) 748-2000

Puisqu'on prévoit une demande restreinte pour ce document de recherche, seul le résumé a été traduit.

La SCHL fera traduire le document si la demande le justifie.

Pour nous aider à déterminer si la demande justifie que ce rapport soit traduit en français, veuillez remplir la partie ci-dessous et la retourner à l'adresse suivante :

Centre canadien de documentation sur l'habitation
Société canadienne d'hypothèques et de logement
700, chemin Montréal, bureau C1-200
Ottawa (Ontario)
K1A 0P7

Titre du rapport: ______________________________________

____

Je préférerais que ce rapport soit disponible en français.

NOM ______________________________________

ADRESSE______________________________________
rue App.

____
ville province Code postal

No de téléphone ( ) ____________

INTRODUCTION

The pressure equalized rainscreen (PER) principle is considered the most effective design approach to control rain penetration in walls. However, a literature review conducted by the National Research Council (NRC) to determine design guidelines for such walls (IRC Internal Report No. 629) concluded that current guidelines are not at all comprehensive. As a consequence, a collaborative research and development project to develop design guidelines for PER walls was initiated. This project has three tasks, namely computer modeling, experimental evaluation and development of design guidelines. Canada Mortgage and Housing Corporation (CMHC) is jointly sponsoring the experimental evaluation task of the project. In addition, several wall system manufacturers are participating in the project by supplying test specimens and providing technical and practical information.

This report presents results from the experimental evaluation task. It documents air leakage measurements, pressure equalization response and water penetration measurements of an exterior insulation and finish (EIFS) test specimens which were constructed by Dryvit Canada

TEST SPECIMEN

Following is a description of the two test specimens as provided by Dryvit Canada (Figure 1):

- The two test specimens were identical, each specimen has overall dimensions of 2.44 m high by 1.20 m wide.
- The air barrier system (ABS) consists of a trowelled on air barrier material over the exterior of a single sheet of 13 mm Densglas Gold® gypsum board (2.44 m x 1.20 m) fastened vertically to the exterior of 89 mm deep steel studs (20 ga) located at 406 mm OC. The gypsum board is fastened with #8 drywall screws nominally located at 300 mm OC.
- The rainscreen (RS) consisted of a 3 mm coat of Infinity Dryshield mixed 1:1 with Portland cement (Type 10)over a 50 mm thick layer of expanded polystyrene (EPS), with overall dimensions of 0.61 m high by 1.22 m wide. The same mixture of Dryshield and Portland cement is used as the adhesive to attach the EPS to the gypsum board. The perimeter of the EPS is constructed with a 151 mm wide strip of EPS. The remainder of the layer is constructed with EPS boards, 0.61 m x 1.22 m.
- The cavity of the specimens consisted of channels which are pre-machined in the back of the EPS boards that form the centre portion of the EPS layer. Rectangular channels 25 mm wide x 6 mm deep are located on 305 mm centres along the short dimension of the boards, and all corners have a 12 mm chamfer. Assembly of the boards produces a series of vertical channels, 305 mm on centre, which are connected by horizontal channels located at 610 mm on centre. Venting for the cavity is achieved through a piece of Vent Material supplied by Dryvit Canada, 200 mm wide by 25 mm deep located in the centre of the bottom 151 mm wide strip of EPS.
- Six 6 mm diameter leakage holes were drilled through the gypsum board and air barrier material 225 mm apart and 70 mm from the top to simulate a leaky air barrier system. The locations were chosen such that three of the holes were located opposite the centre of the vertical channels and three of the holes were in the centre of the EPS. The area of one hole was of a size that could be detected by visual inspection.

The test specimens were installed side by side in a steel test frame and the test frame was mounted to the Dynamic Wall Test Facility (DWTF) with the air barriers facing the laboratory. The top and bottom tracks of the steel stud assemblies were mechanically fastened to the steel frame at the top and bottom. The air barrier systems were made continuous to the steel frame and to each other using backer rod and silicone sealant in a single stage joint.

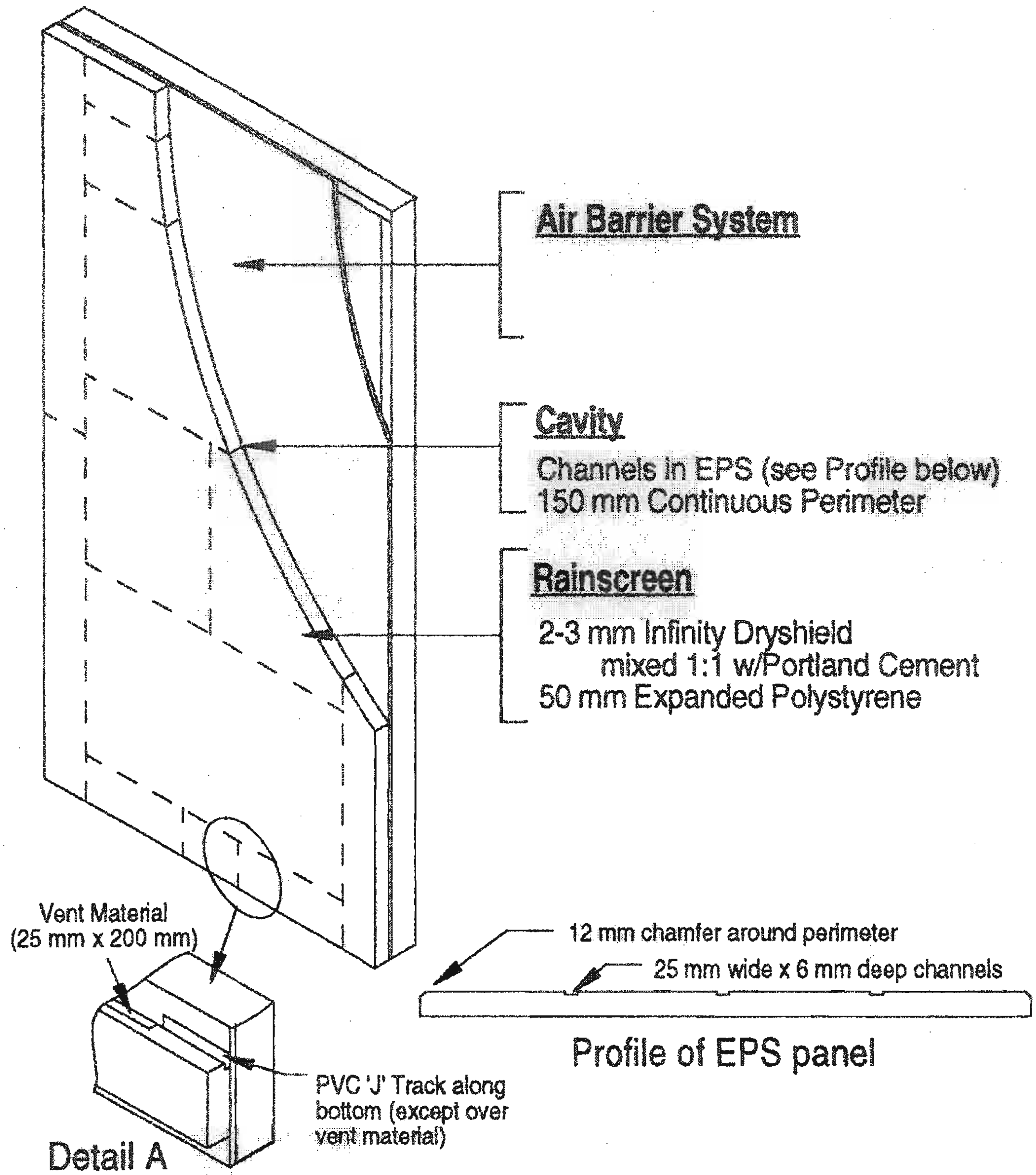


Figure 1. Details of construction of the exterior insulation and finish (EIFS) test specimens.

TEST PROGRAM

Air leakage, pressure equalization and water penetration performance were measured in the DWTF. The sub-tasks are summarized as follows:

1. Air leakage characteristics of the specimen under various leakage configurations were measured for static pressure differences.
2. Pressure equalization response was measured at a range of frequencies for different sinusoidal loading (i.e., mean value and amplitude) scenarios.
3. Water penetration was measured under both static and dynamic pressures with and without a defect in the rainscreen. The artificial horizontal defect measured 500 mm long and 1 mm wide and approximately 3 mm deep.

Air leakage

Air leakage was measured with Miriam Laminar Flow Elements (LFE) and Air Limited's Micromanometers (±0.5 Pa) at static pressure differences across the specimen ranging up to approximately 1000 Pa. The measurements were performed for the following conditions:

- *Base Leakage.* Polyethylene was tightly sealed to the steel frame on the laboratory side of the DWTF, covering both specimens and their seals to the frame. The only leakage would be through the seals around the door and piston.
- *Specimen Perimeter Leakage.* All leakage holes in the air barrier system were closed. The polyethylene was removed so that leakage could occur through the specimen perimeter seal.
- *Air Barrier System Leakage A.* 1, 2, and 3 leakage holes were opened opposite the vertical channels of one of the specimens.
- *Air Barrier System Leakage B.* 1, 2, and 3 leakage holes were opened opposite the center of the EPS of one of the specimens.

The *Base Leakage*, *Specimen Perimeter Leakage* and *Air Barrier System Leakage* measured for the experimental setup are shown in Figures 2 and 3. Figure 2 presents the data obtained by varying the leakage located opposite the vertical channels and Figure 3 shows the data obtained when the leakage opposite the centre of the EPS is changed. The *Specimen Perimeter Leakage*, 0 leakage holes, is less than 10% of that measured through one leakage hole.

To determine the air flow characteristics of the leakage holes, air flow (L/s) is correlated to pressure difference across the air barrier system (Pa) by a least squares fit to the following equation:

$$Q = C \bullet \Delta P^n \tag{1}$$

where Q is the air flow through the air barrier system and ΔP is the pressure difference across the air barrier system. Values for C and n determined for each of the *Air Barrier System Leakage* test conditions are also shown in Figures 2 and 3.

Observations: Air leakage through the air barrier system can be minimized by careful design and construction, but it is unwise to ignore the likelihood that some level of leakage will be present. According to a recently prepared guide[1] for the evaluation of air barrier systems, a properly functioning air barrier system should have a flow rate of not more than 0.1 L/s/m^2 at a pressure difference of 75 Pa, or approximately 0.3 L/s for a specimen area of 2.88 m^2. This is approximately what was measured for 2 leakage holes in the centre of the EPS for this specimen.

Pressure equalization

The dynamic component of wind approaching a building over open terrain can be represented by adding together sinusoidal components of suitable amplitude, phase, and frequency, selected from a limited range of frequencies. The higher the frequency, the more difficulty a given PER wall system will have in transmitting the fluctuation into the cavity in time to keep the pressure difference across the rainscreen within desirable limits. An important design issue is the upper bound for frequency content. The main energy content of wind flowing over open terrain is at relatively low frequencies in the range of 0.01 Hz to 0.1 Hz. The amount of energy contained at frequencies of 0.1 Hz and higher is normally negligible, but designers should be aware that some areas of the building envelope may experience energy at higher frequencies through interaction of the flow with parts of the building or with upwind structures. In the absence of special considerations, it is suggested that results at two frequencies, 0.5 Hz and 5 Hz, be used to evaluate the performance of test specimens.

The response of the cavity of the test specimen was measured for sinusoidal loading at seven frequencies for seven leakage rates and three sinusoidal loading (i.e., amplitude) scenarios (see following table). Since both of the specimens were identical, only one specimen was instrumented and monitored for the pressure equalizing performance.

---

[1] Technical Guide for Air Barrier Systems, Canadian Construction Materials Centre, National Research Council Canada, Ottawa Canada.

Leakage Type	Leakage Holes (Ø 6 mm)	Loading Scenarios[1]	Frequencies[2] f
A	0, 1, 2 & 3	3	7
B	1, 2, & 3	3	7

Notes: 1. The three loading scenarios were 0+500•sin($2\pi f t$) Pa, 0+1000•sin($2\pi f t$) Pa, and 500+500•sin($2\pi f t$) Pa
2. The seven frequencies, f, were 0.05, 0.1, 0.2, 0.5, 1, 2 and 5 Hz.

Pressure difference across the air barrier was measured along the height of the specimen (Figure 4) with Setra differential pressure transducers, all with similar frequency response characteristics. These were installed using the same length of vinyl tubing and attached to the same length of copper pressure tap. Channel 2 measures the pressure difference across the entire specimen (i.e., the driving potential). The pressure taps located in the vertical channels of the EPS (channels 3 through 9) extended flush with the Densglas Gold® gypsum board. The pressure taps located in the centre of the EPS (channels 10 and 11) extended through the air barrier system to the centre of the EPS. All pressure taps were epoxied in place to ensure a high strength, airtight seal.

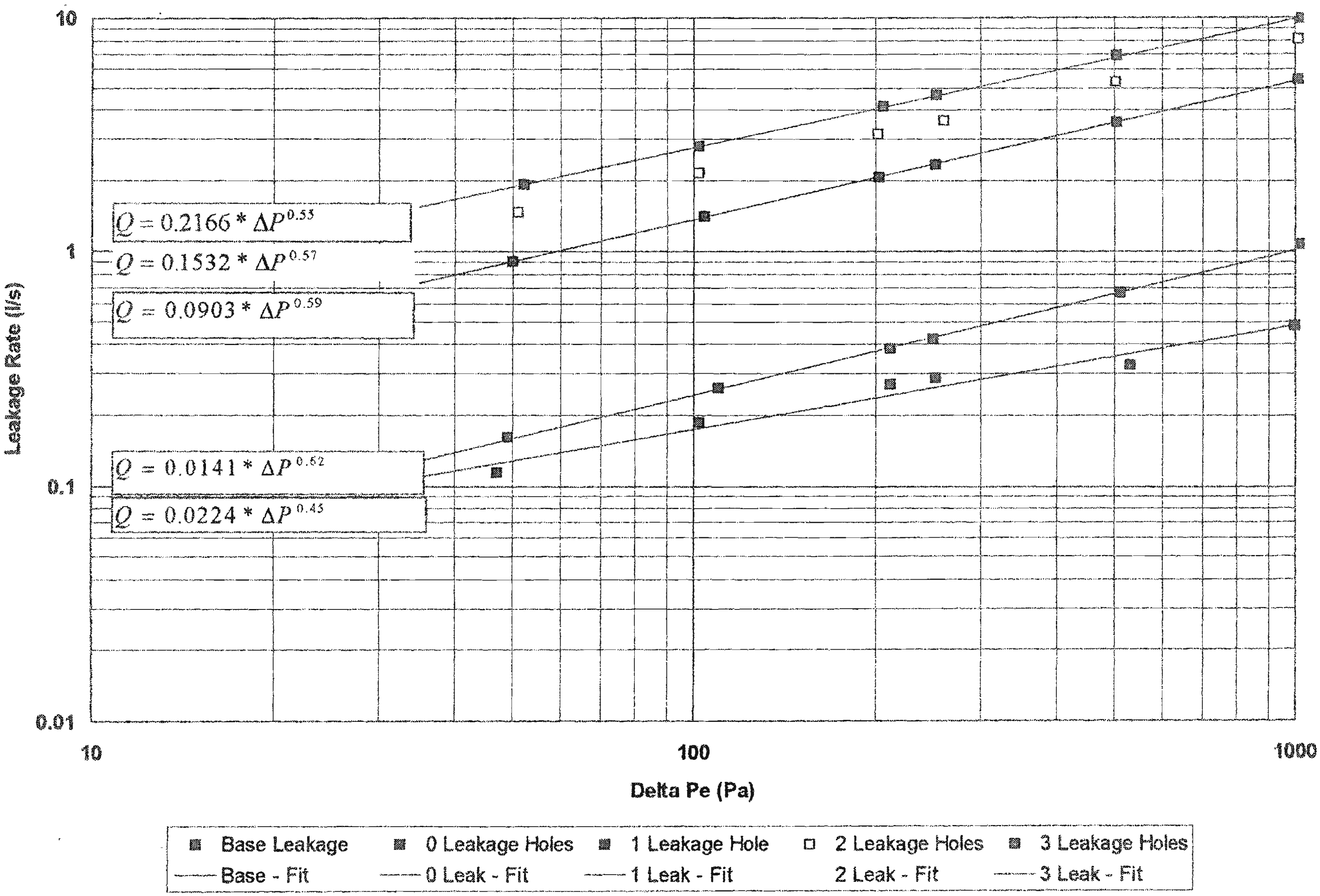
Figure 5 provides a graphical representation of data obtained from a typical pressure equalization test. The top half of the figure presents data collected with a loading scenario of 0+500•sin($2\pi f t$) Pa with f equal to 1.0 Hz. The bottom half presents the pressure difference calculated across the rainscreen by subtracting the pressure measured across the air barrier from the measured excitation pressure. Figure 5 also demonstrates that degradation of the response of the specimen is caused by both a reduction in amplitude ratio and an increase in phase lag for cavity pressure. It is important to note that the maximum pressure difference across the rainscreen is a consequence of both factors, and that a substantial pressure difference can result even though the amplitude of the pressure difference across the air barrier may be close to that across the specimen.

All of the pressure data measured for each test condition were fitted to sine/cosine functions using a least squares fit. From this analysis, an amplitude and phase angle were determined and the pressure equalization characteristics (in terms of amplitude ratio across the air barrier system, the phase shift of the response, and the resultant amplitude ratio across the rainscreen) of the specimen were determined. Figure 6 provides a summary of the results obtained from the specimen. Plotted are the percentage load across the rainscreen for channel 7 (top of the specimen inside the vertical channels) , channel 11 (top of the specimen in the centre of the EPS) and channel 5 (lower portion of the specimen inside the vertical channels) versus the number of leakage holes and the loading condition for both 0.5 Hz and 5.0 Hz. The pressure equalization response measured for all test conditions are presented in Appendix A.

Observations: The following observations on the pressure equalization response of the specimen derive from the summary of results given in Figure 6.

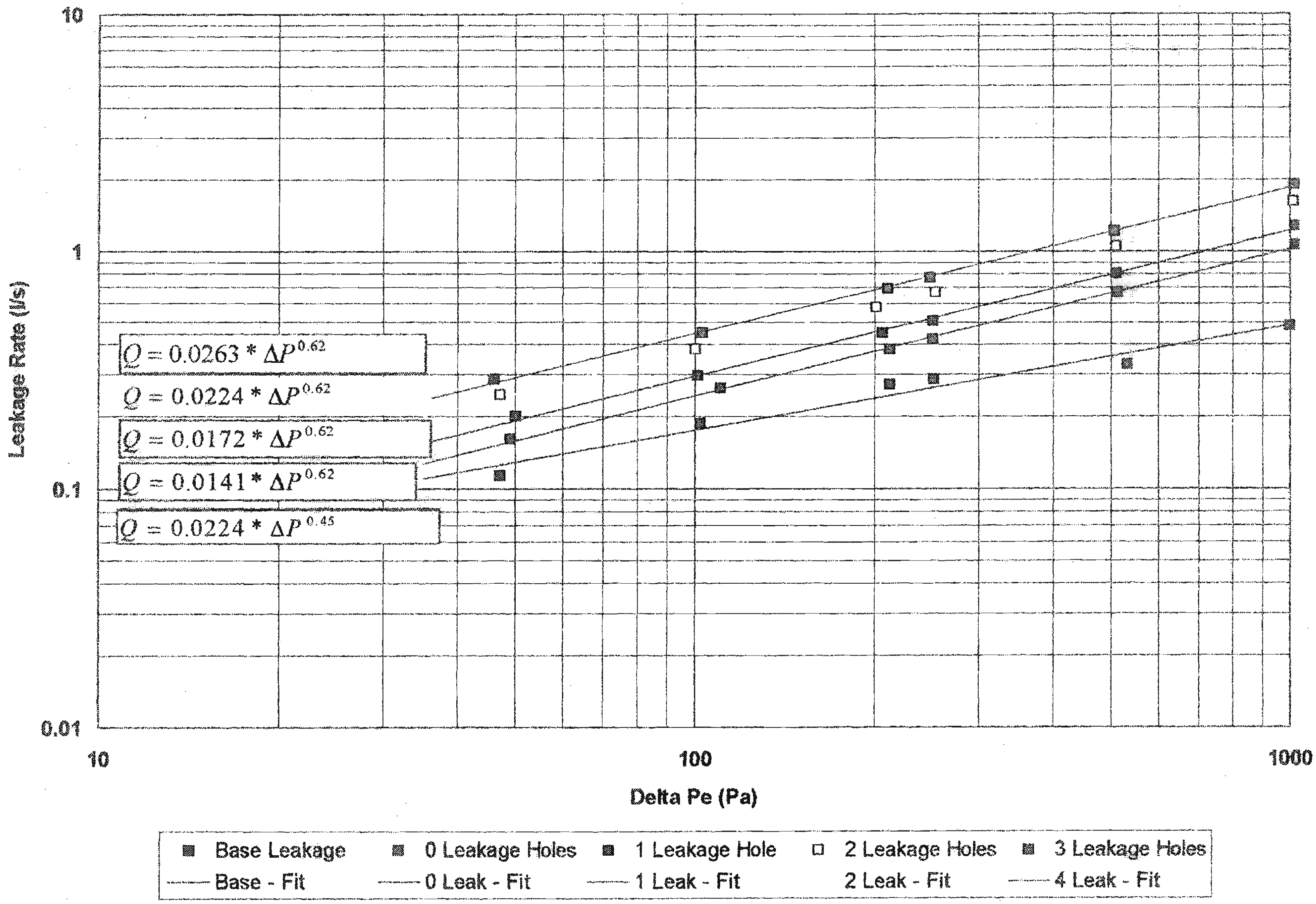
- Pressure equalization response improved as the leakage located both opposite the vertical channels and opposite the center of the EPS decreased.
- The pressure difference across the rainscreen varies along the height and across the width of the specimen. In general, the further from the vent location, the greater the pressure difference across the rainscreen. This is probably due to the resistance to air flow in the channels. It was also noted that, generally, the pressure difference measured across the rainscreen was higher in the centre of the EPS than inside the vertical channels.
- The pressure equalization response became worse as the frequency increased. Comparison of the response at 0.5 Hz to that at 5.0 Hz demonstrates that, without adequate dynamic pressure equalization response, a significant pressure difference can be imposed on the rainscreen as the frequency increases.

Figure 2: *Air leakage measurement result with holes in the vertical channels.*



NRC·CNRC

Figure 3: Air Leakage measurements with holes in the EPS.



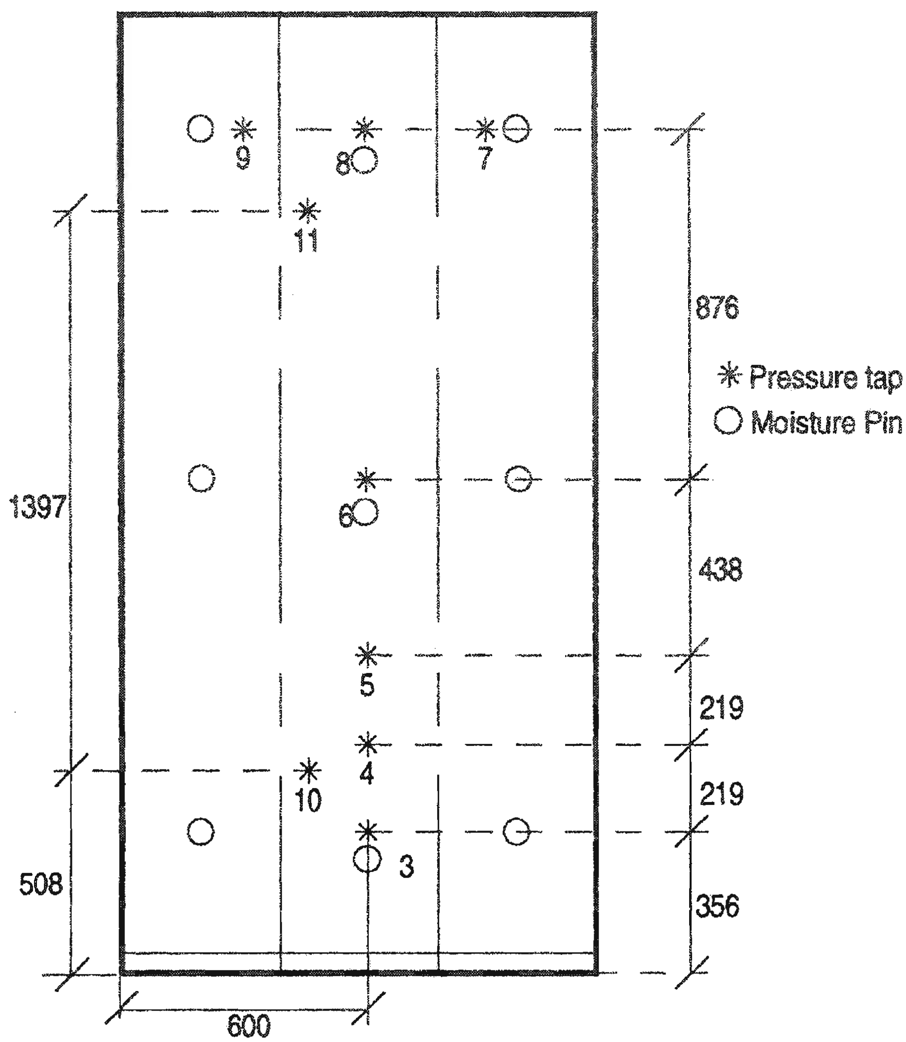


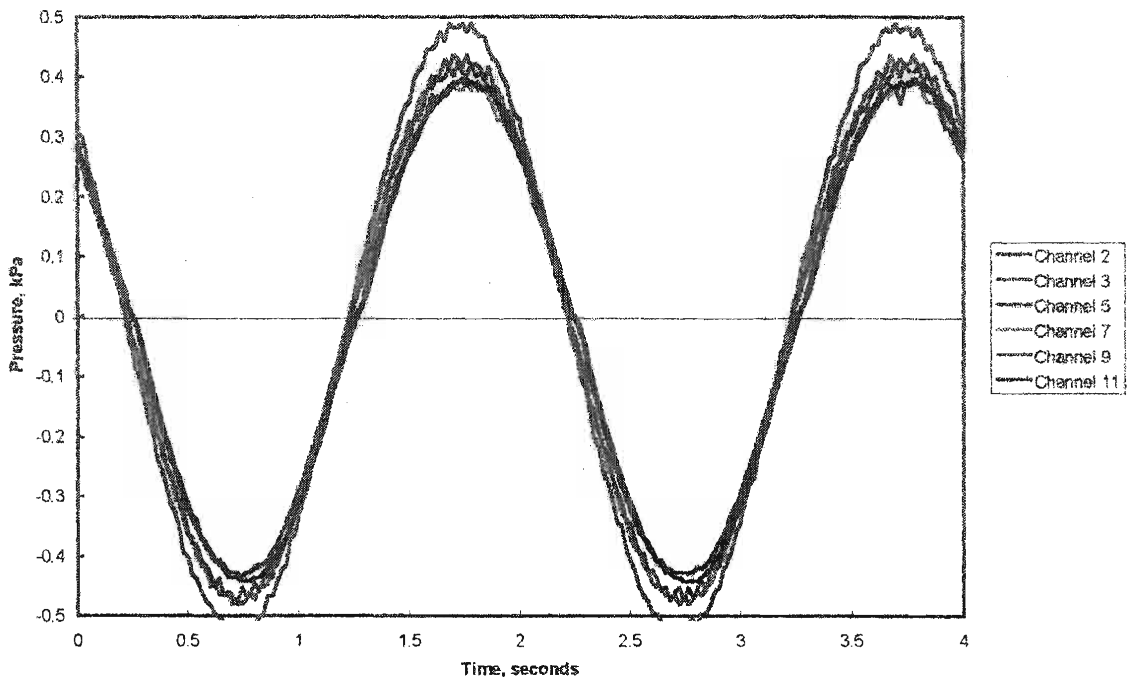
Figure 4. Location of pressure taps and moisture pins.

Water Penetration

Water penetration results were recorded for the test specimen. A catch was built and installed such that any water which penetrated into the system and drained through the vent was drained out to be measured. The catch was installed such that it would not interfere with pressure equalizing performance of the specimen. In addition, a series of moisture pins were installed into the EPS that extended through the air barrier system to approximately the mid-depth of the EPS. The length of the pins limited the depth to 25 mm into the EPS and therefore, pins were not able to extend to the lamina. A horizontal defect, measuring 500 mm long, 1 mm high and 3 mm deep, was cut into one of the test specimens 300 mm from the top. The water supply rate was the same for all tests, 4.2 L/min/m².

For the first series of tests, the vent area for both specimens was sealed and static pressure differences were applied across the specimens. The results are shown in Figure 7 for both specimens. This test indicates the static water penetration performance of a face sealed system. For the second series of tests, the vents were opened and a drip edge was placed over the catch basin. This was done in order to eliminate the possibility of any water entering the basin as a result of direct spray. The specimen was then subjected to a dynamic pressure of $300+200\cdot\sin(2\pi ft)$ Pa at a frequency of 0.5 Hz. The tests were performed both with and without an effective air barrier system (i.e., 0 leakage holes versus 3 leakage holes). All water penetrations tests had a duration of 60 minutes.

Figure 5. *Typical Test Data. Measured for the EIFS Test Specimen with 3 leakage holes in the vertical channels under a loading condition of 0+500•sin(2πft) Pa with f equal to 0.5 Hz (See Figure 4 for location of channels).*



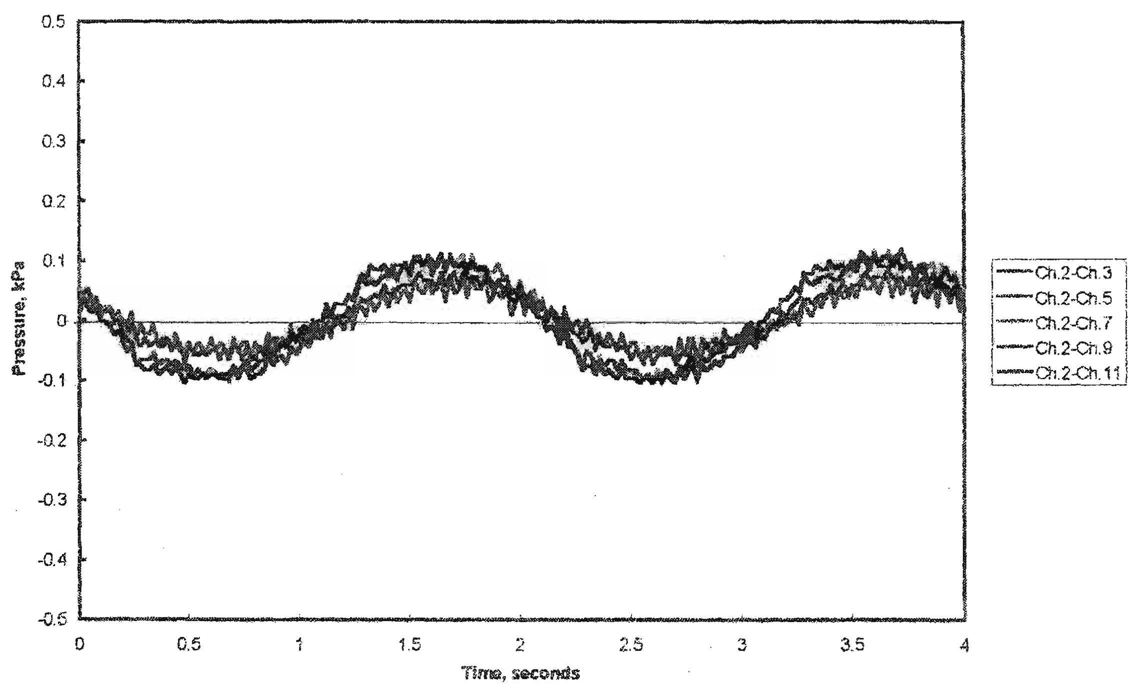
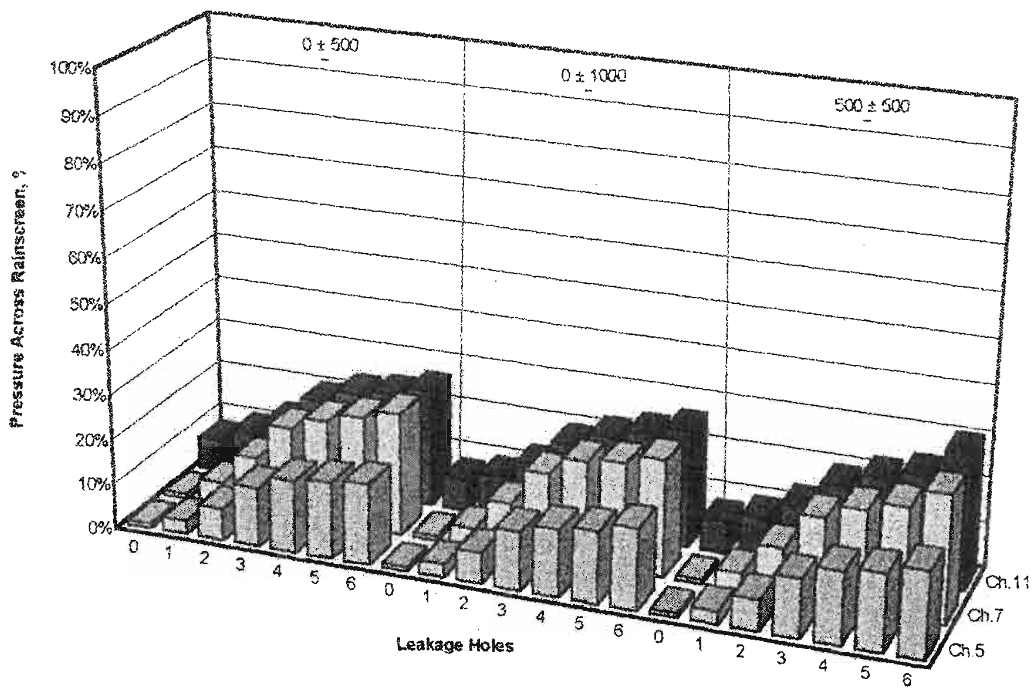
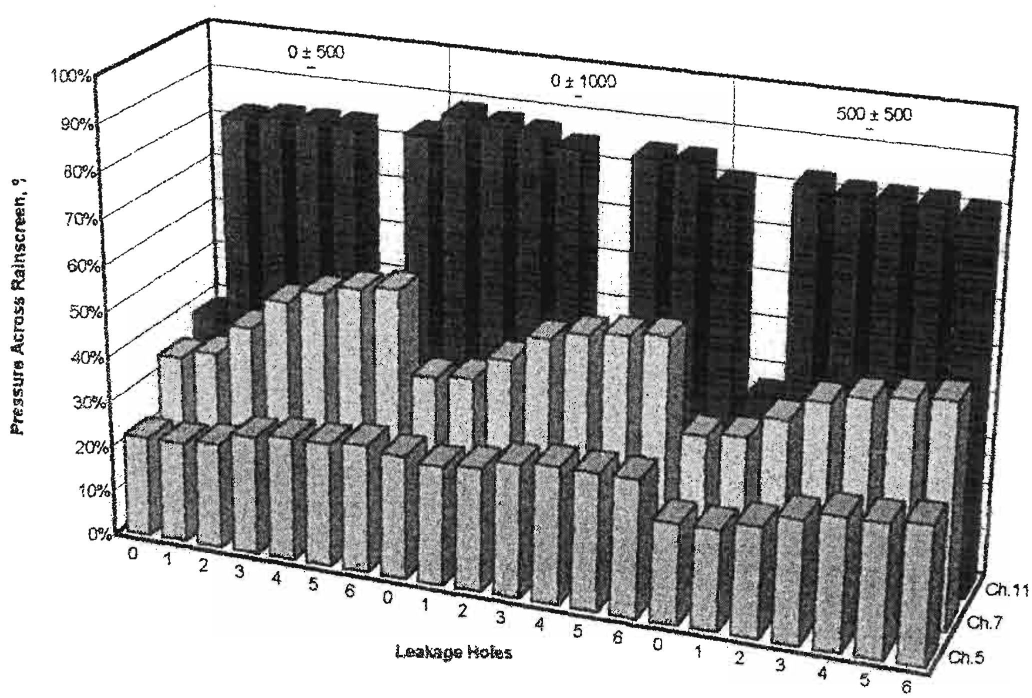


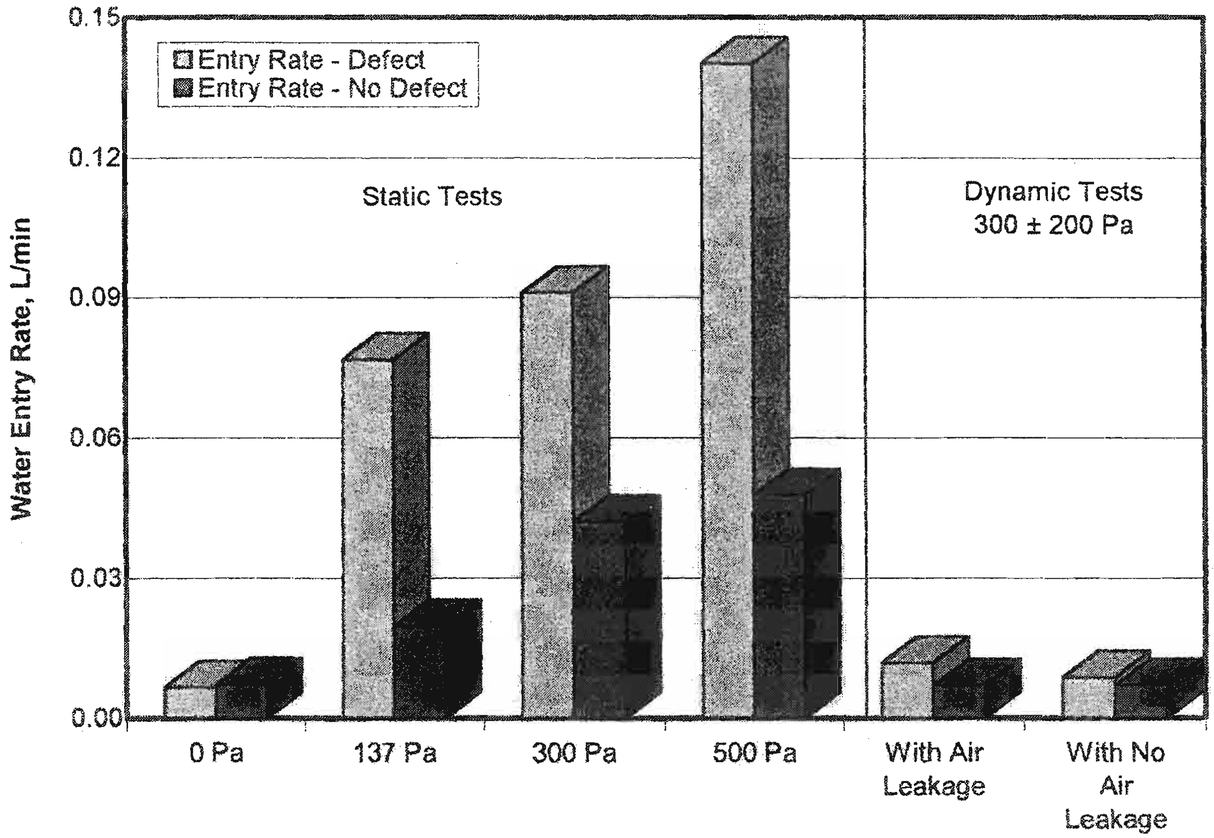
Figure 6. Percentage load across the rainscreen for the EIFS Test Specimen under the various test conditions.





Observations: The results of the water penetration tests for both the defective and non-defective test specimens are graphically shown in Figure 7. Under static conditions, the amount of water that passed through the system increased as the pressure across the specimen increased. With no pressure difference across either specimen, the amount of water through the system was approximately the same for both the defective and non-defective specimens. At higher pressures though, the amount of water that passed through the defective specimen was at least double that of the non-defective specimen. The dynamic tests were performed at a mean pressure of 300 Pa with an amplitude of 200 Pa at a frequency of 0.5 Hz. The amount of water that entered both specimens was significantly lower when the wall system performed as a pressure equalizing one (i.e., the vent area was open). The rate at which water was collected from the system increased only slightly when the air barrier system was compromised. During all of the tests, none of the moisture pins indicated any moisture. It should also be noted that the pins were unable to extend beyond the mid-depth of the EPS and that moisture pins are a point method of measurement. Water which passes the rainscreen will follow the path of least resistance until it finds its way into one of the channels where it will drain out through the vent due to gravity. If the pins are not located along one of the paths of least resistance, moisture will not be detected.

Figure 7: *Measured water penetration rates for the defective and non-defective test specimens under both static and dynamic pressure loadings.*

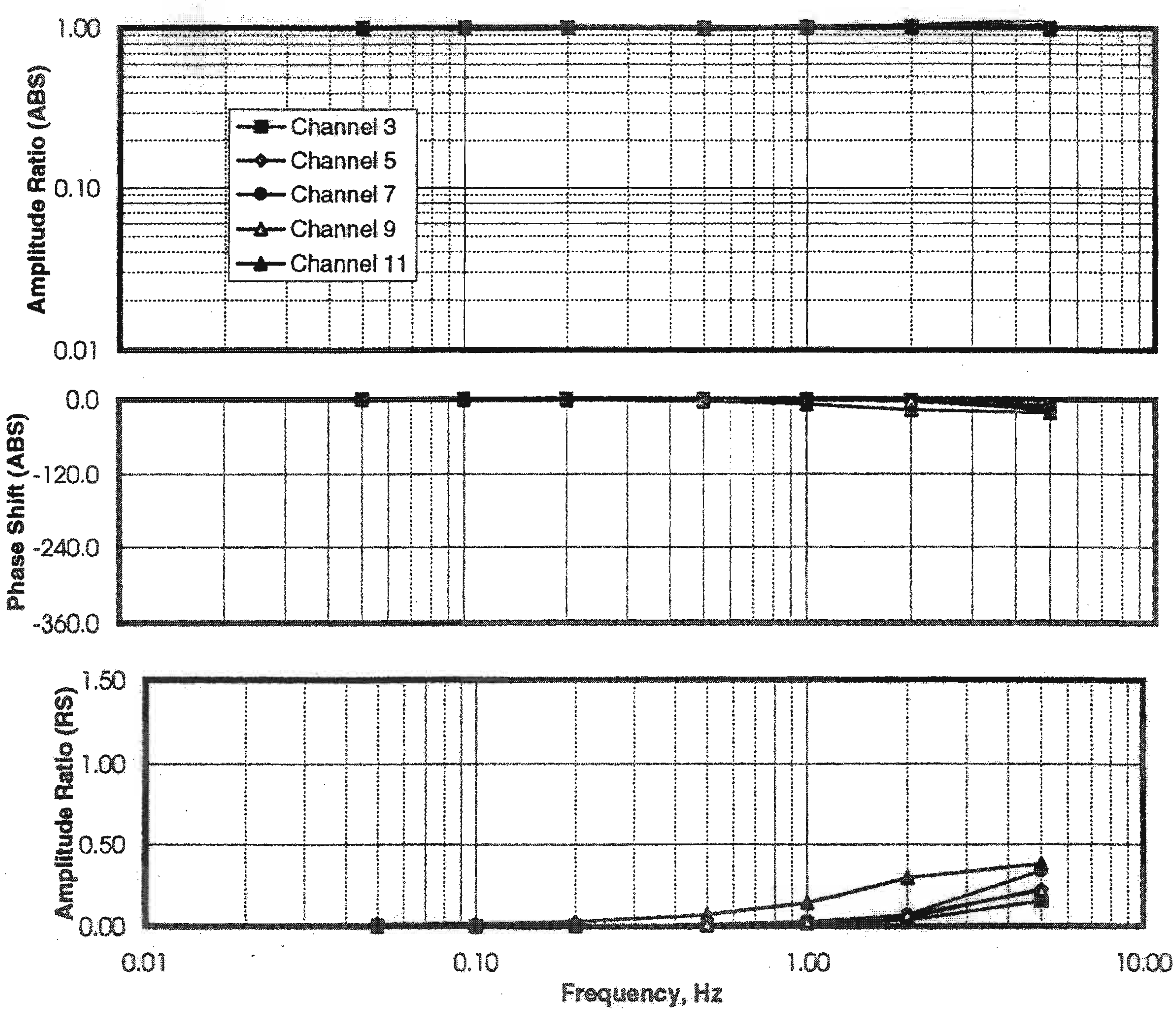


Appendix A

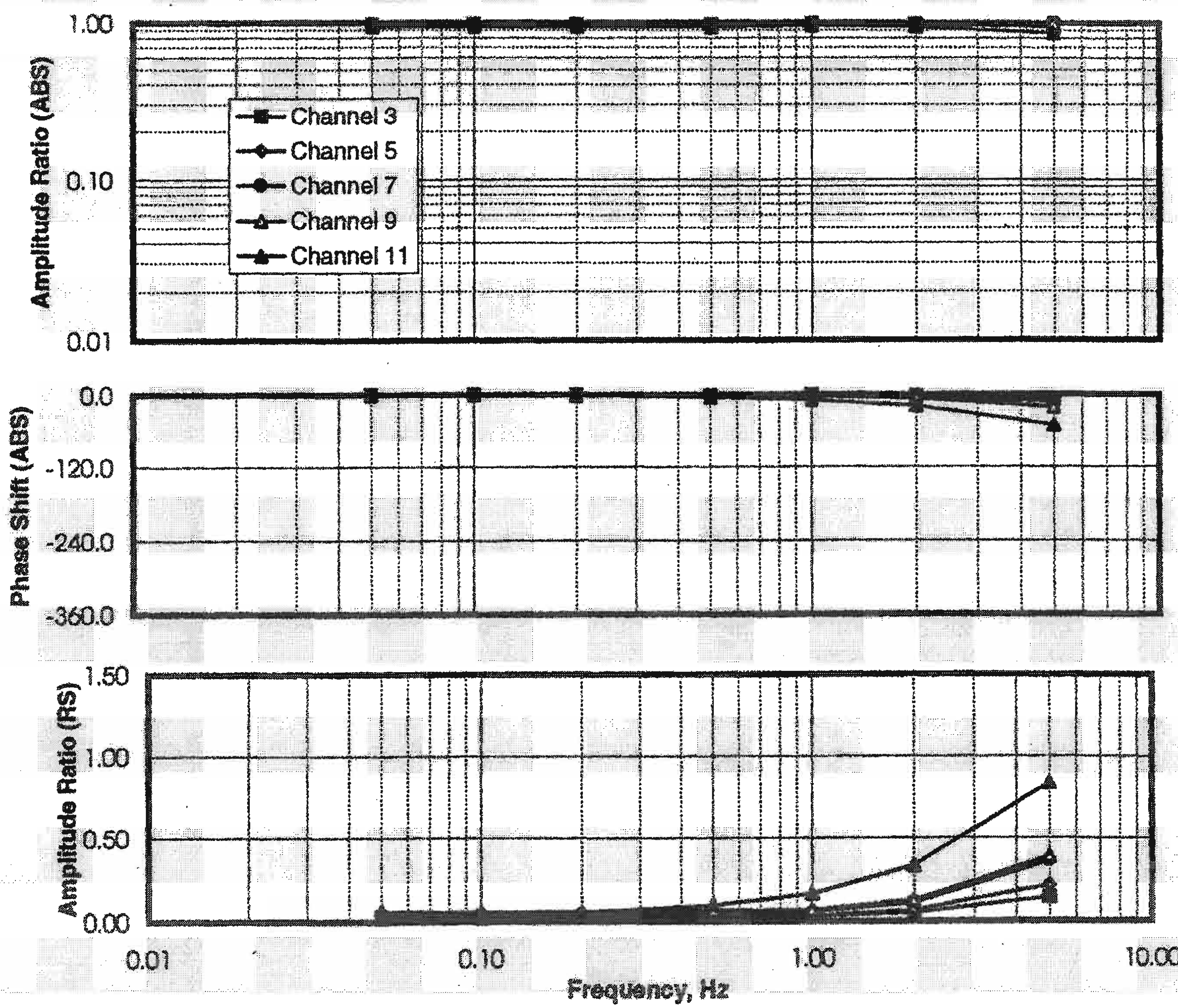
Measured Pressure Equalizing Performance

The following pages present the results of the pressure equalizing portion of the test program. Each page represents the performance of the test specimen for one test condition. The number of leakage holes and the loading scenario are found at the top of each page. The chart indicates the amplitude ratio of the air barrier system (ABS) and the relative phase shift of the pressure measured across the ABS for each of the tested frequencies. The resulting amplitude ratio of the rainscreen (RS) for each frequency is shown in the shaded rows. The Bode plots are a graphical representation of this chart.

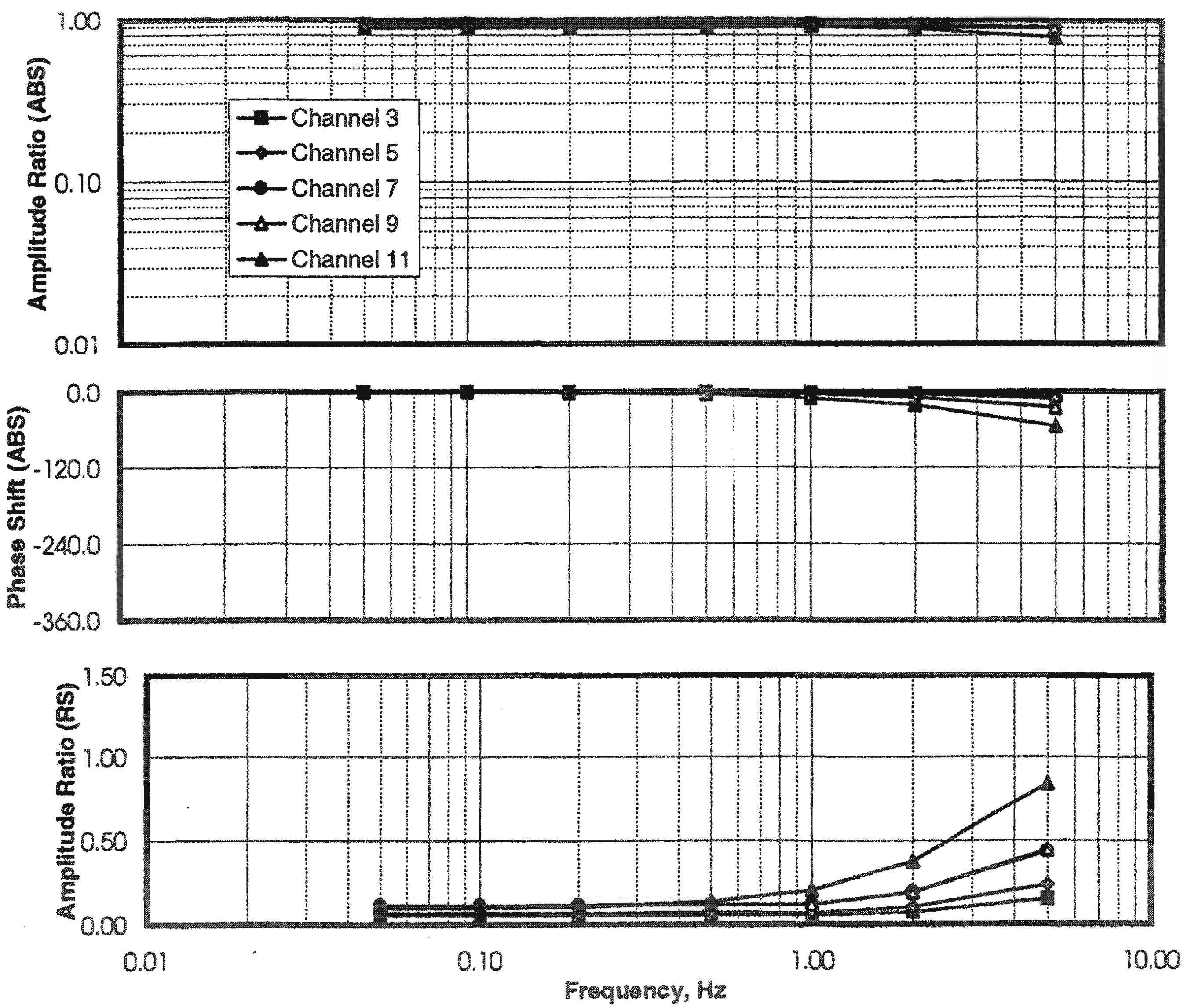
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	1.00	1.00	1.00	1.00	1.00	1.00	0.98
	Phase ABS	0.0	0.0	-0.1	-0.3	-0.7	-2.0	-8.6
	Amp RS	0.00	0.00	0.00	0.00	0.01	0.03	0.15
Channel 5	Amp. ABS	1.00	1.00	1.00	1.00	1.01	1.01	1.04
	Phase ABS	0.0	-0.1	-0.1	-0.4	-1.0	-2.7	-12.4
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.05	0.22
Channel 7	Amp. ABS	1.00	1.00	1.00	1.00	1.01	1.03	1.13
	Phase ABS	0.0	0.0	-0.2	-0.6	-1.2	-3.6	-16.9
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.07	0.34
Channel 9	Amp. ABS	1.00	1.00	1.00	1.00	1.01	1.03	1.03
	Phase ABS	-0.1	0.0	-0.2	-0.5	-1.2	-3.5	-12.0
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.07	0.22
Channel 11	Amp. ABS	1.00	1.00	0.99	0.99	0.99	0.99	0.97
	Phase ABS	-0.4	-0.8	-1.6	-4.0	-8.1	-17.2	-22.0
	Amp RS	0.01	0.01	0.03	0.07	0.14	0.30	0.38



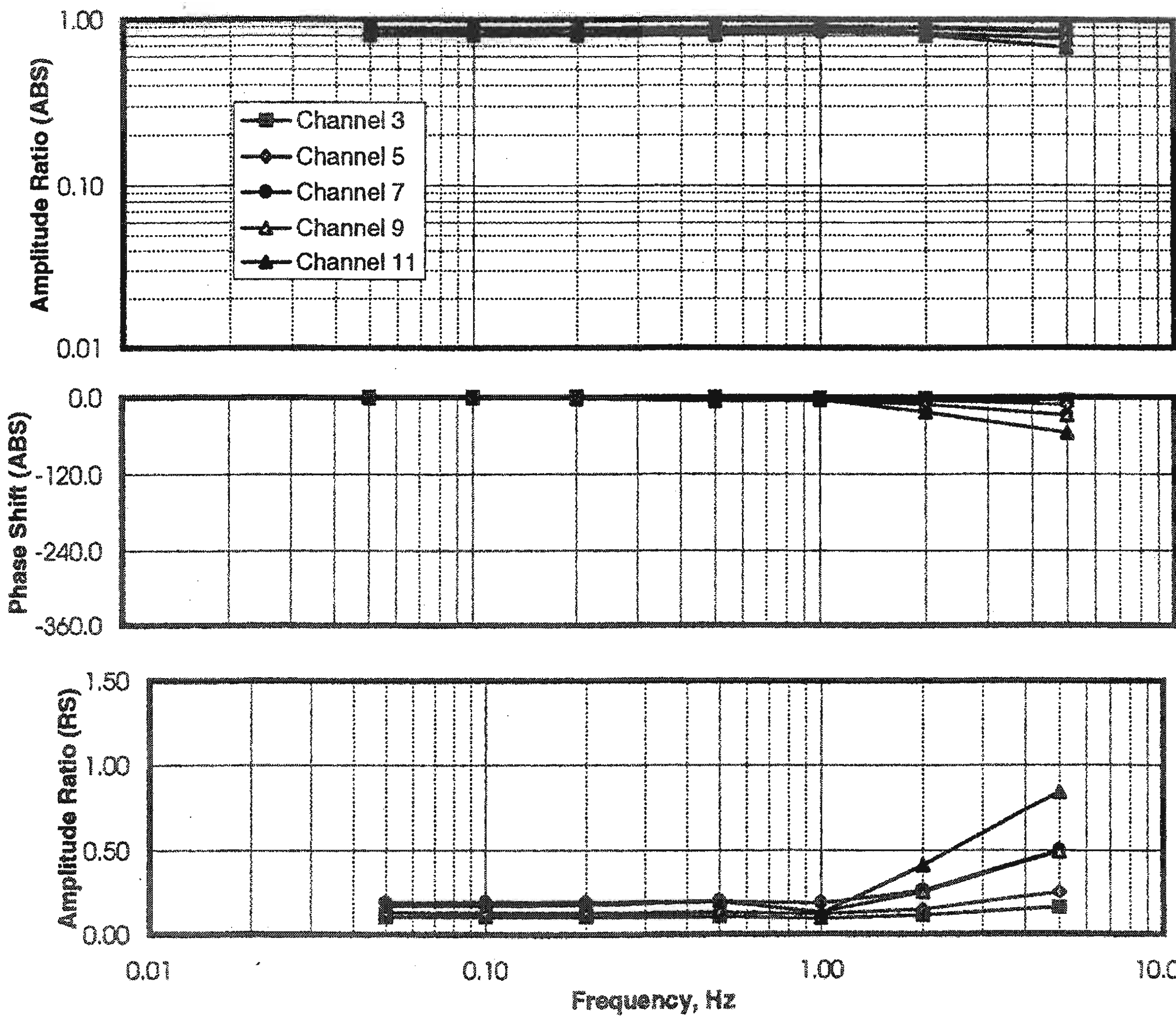
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.98	0.98	0.98	0.98	0.98	0.97	0.94
	Phase ABS	-0.1	-0.1	-0.2	-0.6	-1.1	-2.3	-7.7
	Amp RS	0.02	0.02	0.02	0.03	0.03	0.05	0.14
Channel 5	Amp. ABS	0.97	0.98	0.97	0.97	0.98	0.98	0.98
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.6	-3.6	-12.6
	Amp RS	0.03	0.03	0.03	0.03	0.03	0.07	0.22
Channel 7	Amp. ABS	0.96	0.96	0.96	0.96	0.97	0.98	1.02
	Phase ABS	-0.2	-0.3	-0.6	-1.7	-2.8	-6.2	-20.6
	Amp RS	0.04	0.04	0.04	0.05	0.06	0.11	0.36
Channel 9	Amp. ABS	0.94	0.94	0.94	0.94	0.96	0.96	1.00
	Phase ABS	-0.2	-0.4	-0.7	-1.9	-3.2	-7.0	-22.4
	Amp RS	0.06	0.06	0.06	0.07	0.07	0.13	0.39
Channel 11	Amp. ABS	0.96	0.96	0.96	0.95	0.96	0.94	0.86
	Phase ABS	-0.5	-1.0	-2.0	-5.0	-9.5	-19.5	-52.5
	Amp RS	0.04	0.04	0.05	0.10	0.17	0.33	0.83



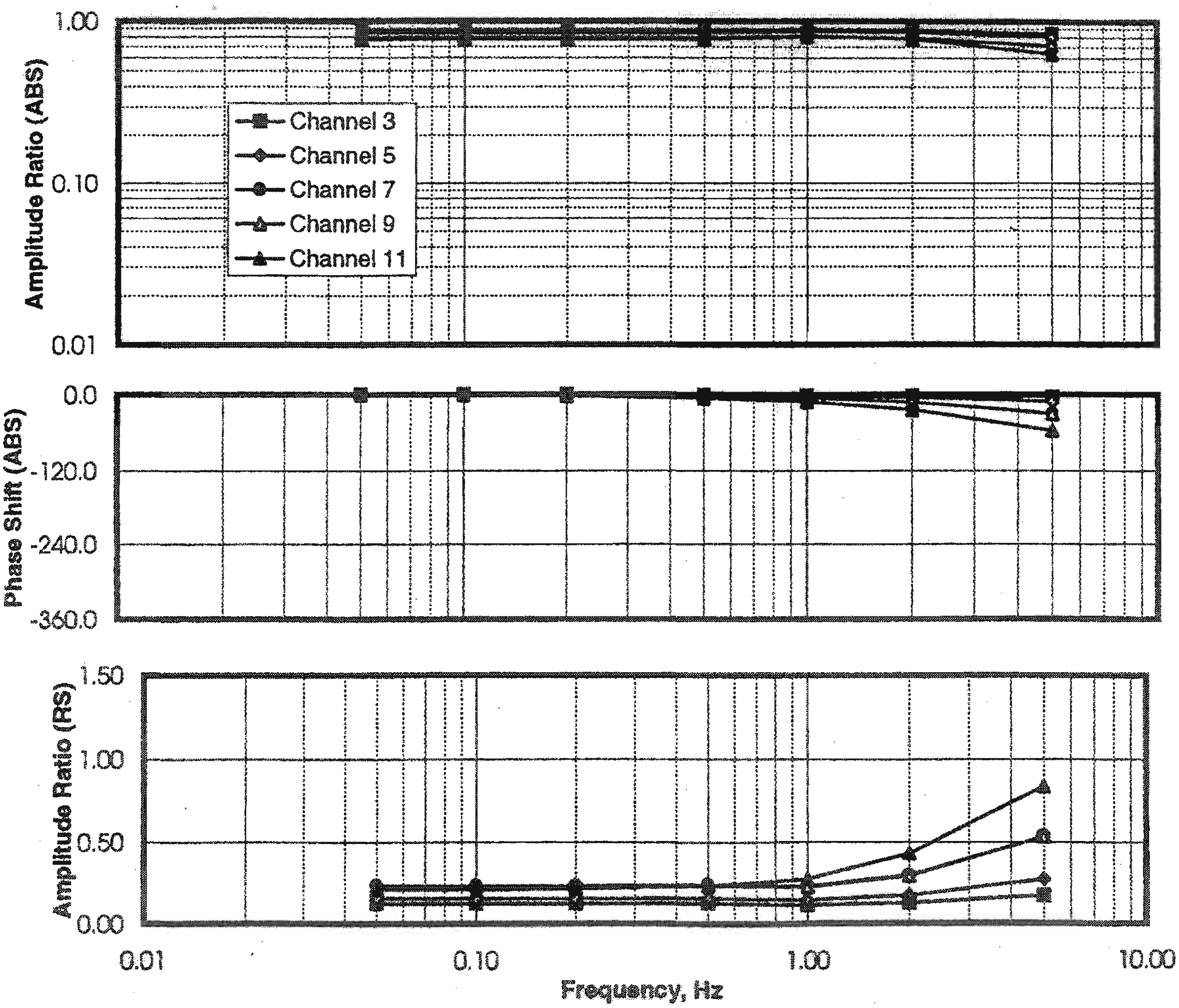
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.95	0.94	0.94	0.94	0.95	0.94	0.90
	Phase ABS	-0.2	-0.1	-0.3	-0.8	-1.3	-2.6	-6.8
	Amp RS	0.05	0.06	0.06	0.06	0.05	0.07	0.15
Channel 5	Amp. ABS	0.93	0.93	0.93	0.93	0.94	0.94	0.91
	Phase ABS	-0.2	-0.3	-0.5	-1.3	-2.3	-4.6	-12.8
	Amp RS	0.07	0.07	0.07	0.07	0.07	0.10	0.23
Channel 7	Amp. ABS	0.89	0.89	0.89	0.89	0.91	0.90	0.89
	Phase ABS	-0.3	-0.5	-1.0	-2.6	-4.6	-9.5	-25.6
	Amp RS	0.11	0.11	0.11	0.12	0.12	0.19	0.43
Channel 9	Amp. ABS	0.89	0.89	0.89	0.89	0.91	0.90	0.89
	Phase ABS	-0.3	-0.5	-1.0	-2.6	-4.8	-9.6	-26.2
	Amp RS	0.11	0.11	0.11	0.12	0.12	0.19	0.44
Channel 11	Amp. ABS	0.90	0.90	0.90	0.90	0.91	0.88	0.77
	Phase ABS	-0.6	-1.1	-2.3	-5.6	-10.8	-21.7	-54.8
	Amp RS	0.10	0.10	0.10	0.14	0.20	0.37	0.84



		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.90	0.90	0.90	0.90	0.91	0.90	0.87
	Phase ABS	-0.1	-0.2	-0.3	-0.8	-1.5	-2.6	-5.7
	Amp RS	0.10	0.10	0.10	0.10	0.09	0.11	0.16
Channel 5	Amp. ABS	0.87	0.87	0.87	0.87	0.89	0.88	0.84
	Phase ABS	-0.2	-0.3	-0.6	-1.4	-2.7	-5.2	-12.3
	Amp RS	0.13	0.13	0.13	0.13	0.12	0.15	0.26
Channel 7	Amp. ABS	0.81	0.81	0.81	0.81	0.84	0.82	0.77
	Phase ABS	-0.4	-0.6	-1.3	-3.2	-6.0	-11.9	-29.1
	Amp RS	0.19	0.19	0.19	0.20	0.19	0.26	0.50
Channel 9	Amp. ABS	0.81	0.81	0.81	0.81	0.88	0.82	0.77
	Phase ABS	-0.4	-0.6	-1.3	-3.3	-2.8	-11.7	-28.9
	Amp RS	0.19	0.19	0.19	0.20	0.13	0.26	0.49
Channel 11	Amp. ABS	0.83	0.83	0.83	0.82	0.89	0.81	0.68
	Phase ABS	-0.7	-1.2	-2.5	-6.1	-4.2	-23.4	-56.3
	Amp RS	0.17	0.17	0.18	0.20	0.13	0.41	0.84

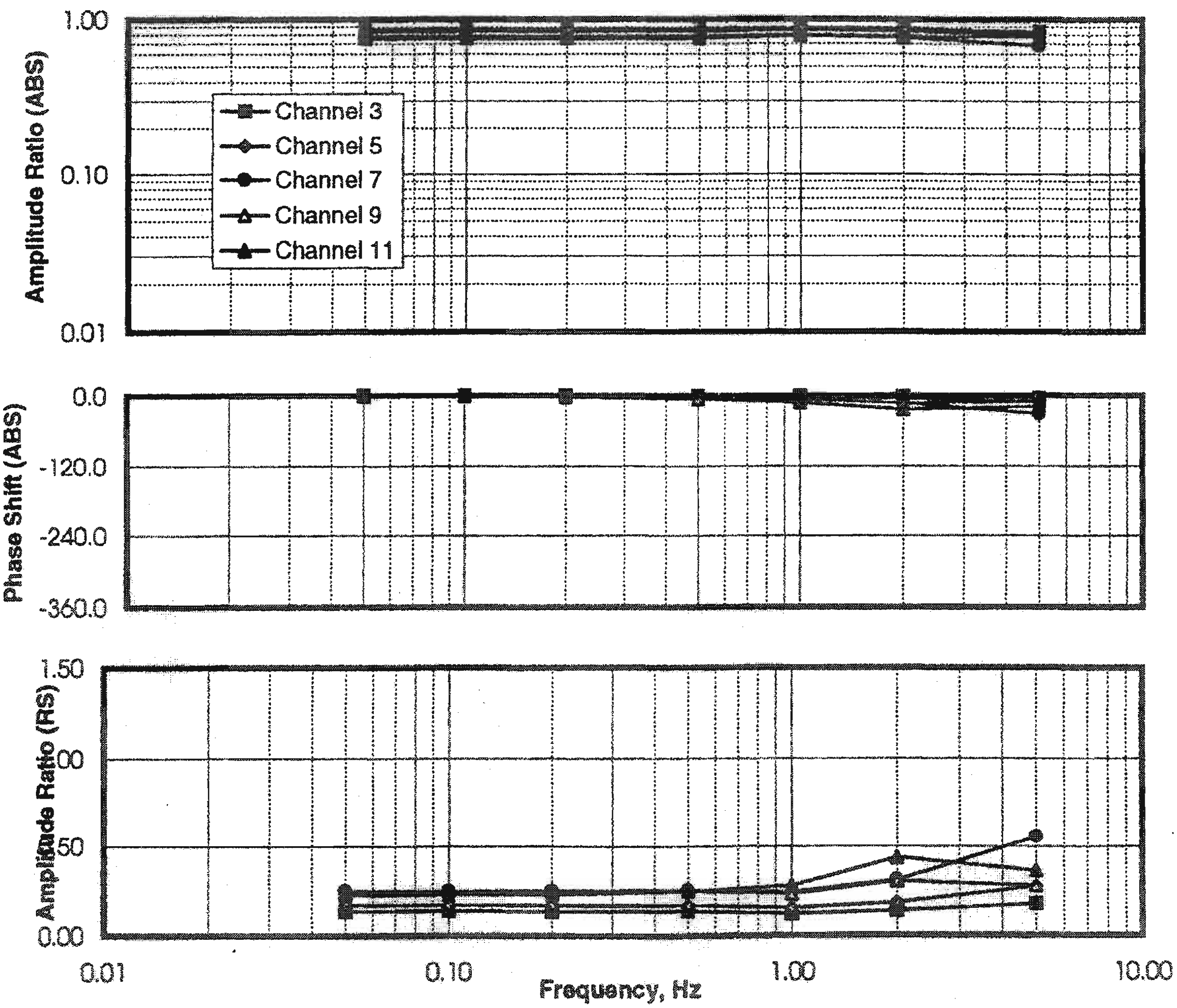


		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.88	0.88	0.88	0.88	0.89	0.88	0.85
	Phase ABS	-0.1	-0.2	-0.4	-0.7	-1.4	-2.5	-4.7
	Amp RS	0.12	0.12	0.12	0.12	0.11	0.12	0.17
Channel 5	Amp. ABS	0.85	0.85	0.85	0.85	0.87	0.85	0.81
	Phase ABS	-0.2	-0.3	-0.6	-1.5	-2.8	-5.2	-11.9
	Amp RS	0.15	0.15	0.15	0.16	0.14	0.17	0.27
Channel 7	Amp. ABS	0.77	0.77	0.77	0.77	0.80	0.79	0.71
	Phase ABS	-0.4	-0.7	-1.4	-3.5	-6.5	-12.8	-30.8
	Amp RS	0.23	0.23	0.23	0.23	0.22	0.29	0.53
Channel 9	Amp. ABS	0.78	0.78	0.78	0.77	0.80	0.79	0.71
	Phase ABS	-0.4	-0.7	-1.4	-3.4	-6.5	-12.7	-30.7
	Amp RS	0.22	0.22	0.23	0.23	0.22	0.29	0.53
Channel 11	Amp. ABS	0.79	0.80	0.79	0.79	0.81	0.78	0.63
	Phase ABS	-0.7	-1.3	-2.6	-6.2	-12.1	-24.0	-56.8
	Amp RS	0.21	0.21	0.21	0.23	0.27	0.43	0.84

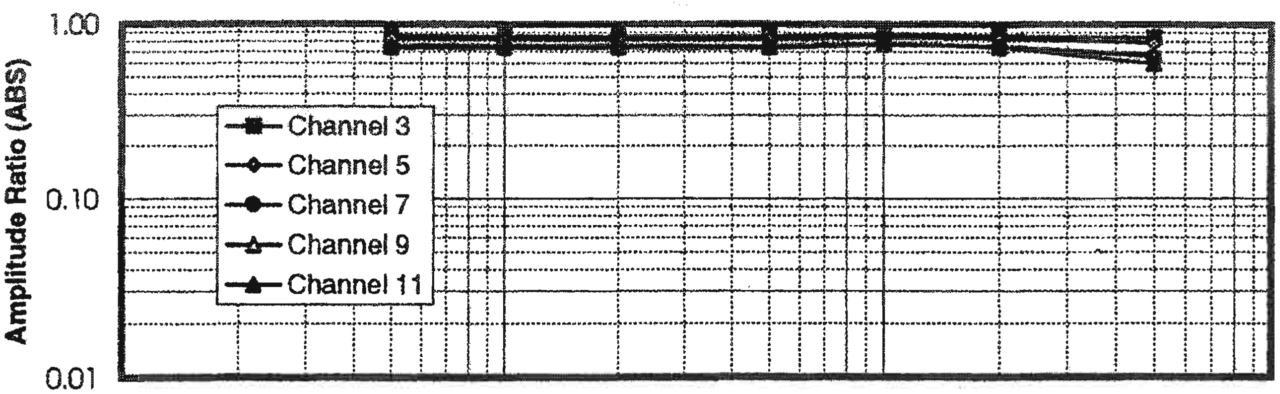


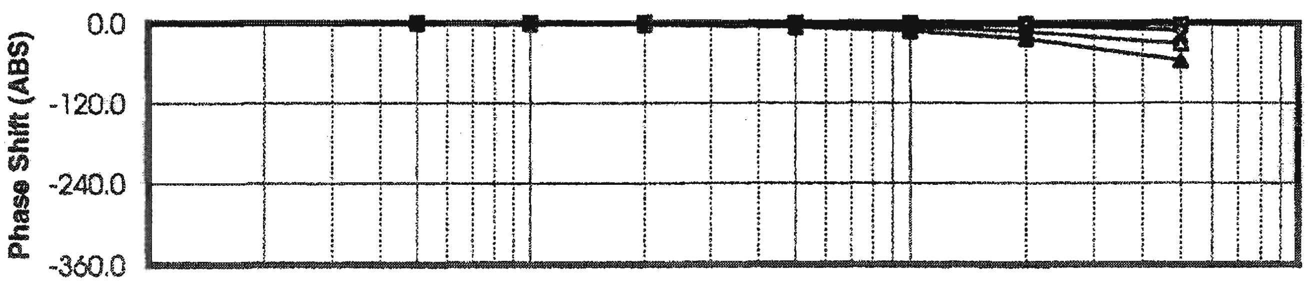
Dynamic performance test: DryVit - 5 Leakage 0±500 Pa

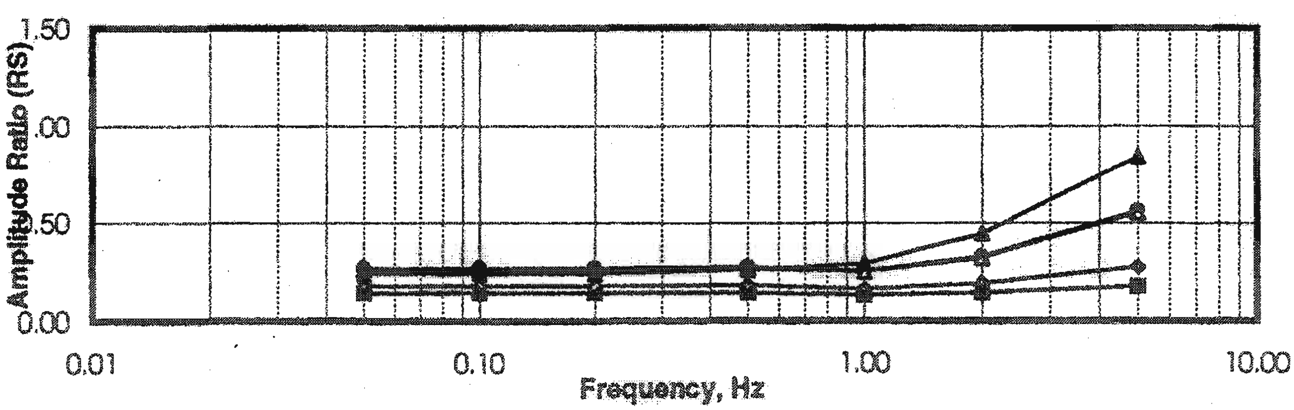
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.87	0.87	0.87	0.87	0.88	0.87	0.84
	Phase ABS	-0.1	-0.2	-0.3	-0.7	-1.4	-2.4	-4.3
	Amp RS	0.13	0.13	0.13	0.13	0.12	0.13	0.17
Channel 5	Amp. ABS	0.84	0.84	0.84	0.84	0.86	0.84	0.80
	Phase ABS	-0.2	-0.4	-0.6	-1.4	-2.8	-5.3	-11.6
	Amp RS	0.16	0.16	0.16	0.17	0.15	0.18	0.27
Channel 7	Amp. ABS	0.76	0.75	0.75	0.75	0.79	0.77	0.68
	Phase ABS	-0.4	-0.8	-1.4	-3.6	-6.7	-13.2	-31.7
	Amp RS	0.24	0.25	0.25	0.25	0.24	0.31	0.55
Channel 9	Amp. ABS	0.76	0.76	0.76	0.76	0.79	0.77	0.78
	Phase ABS	-0.4	-0.8	-1.5	-3.5	-6.6	-13.0	-10.9
	Amp RS	0.24	0.24	0.24	0.25	0.23	0.30	0.28
Channel 11	Amp. ABS	0.78	0.78	0.78	0.78	0.80	0.76	0.78
	Phase ABS	-0.7	-1.3	-2.6	-6.3	-12.3	-24.1	-18.9
	Amp RS	0.22	0.22	0.22	0.24	0.28	0.44	0.36



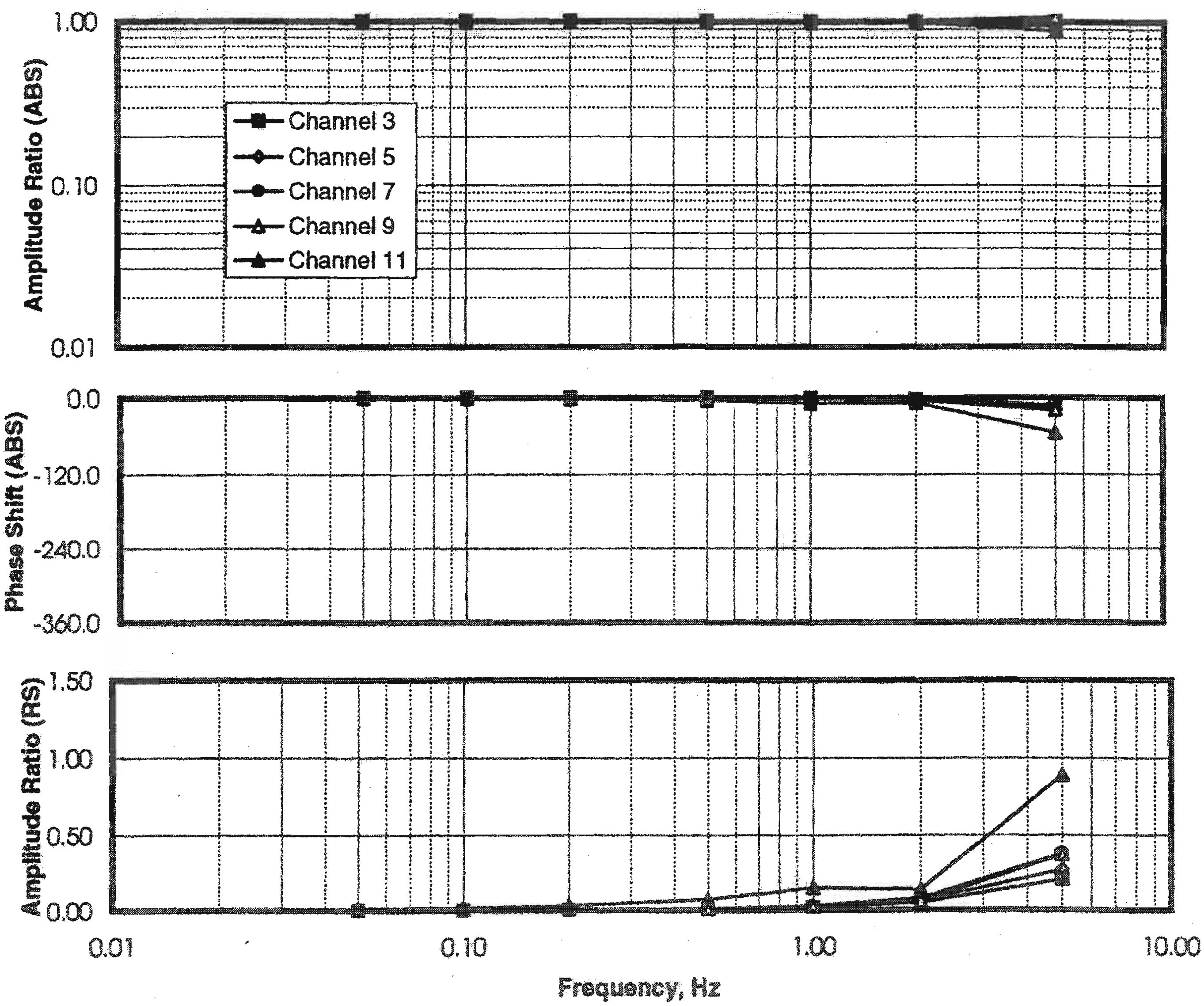
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.86	0.86	0.86	0.86	0.87	0.86	0.84
	Phase ABS	-0.1	-0.1	-0.3	-0.7	-1.3	-2.2	-4.0
	Amp RS	0.14	0.14	0.14	0.15	0.13	0.14	0.18
Channel 5	Amp. ABS	0.82	0.82	0.82	0.82	0.84	0.83	0.78
	Phase ABS	-0.2	-0.3	-0.6	-1.5	-2.8	-5.2	-11.1
	Amp RS	0.18	0.18	0.18	0.18	0.16	0.19	0.28
Channel 7	Amp. ABS	0.74	0.73	0.73	0.73	0.77	0.74	0.66
	Phase ABS	-0.5	-0.8	-1.5	-3.7	-6.9	-13.6	-31.9
	Amp RS	0.26	0.27	0.27	0.27	0.26	0.33	0.56
Channel 9	Amp. ABS	0.74	0.74	0.74	0.74	0.77	0.75	0.67
	Phase ABS	-0.4	-0.8	-1.5	-3.6	-6.8	-13.3	-31.5
	Amp RS	0.26	0.26	0.26	0.27	0.25	0.32	0.55
Channel 11	Amp. ABS	0.76	0.76	0.76	0.76	0.78	0.74	0.60
	Phase ABS	-0.7	-1.4	-2.6	-6.4	-12.4	-24.3	-57.0
	Amp RS	0.24	0.24	0.24	0.26	0.29	0.45	0.84



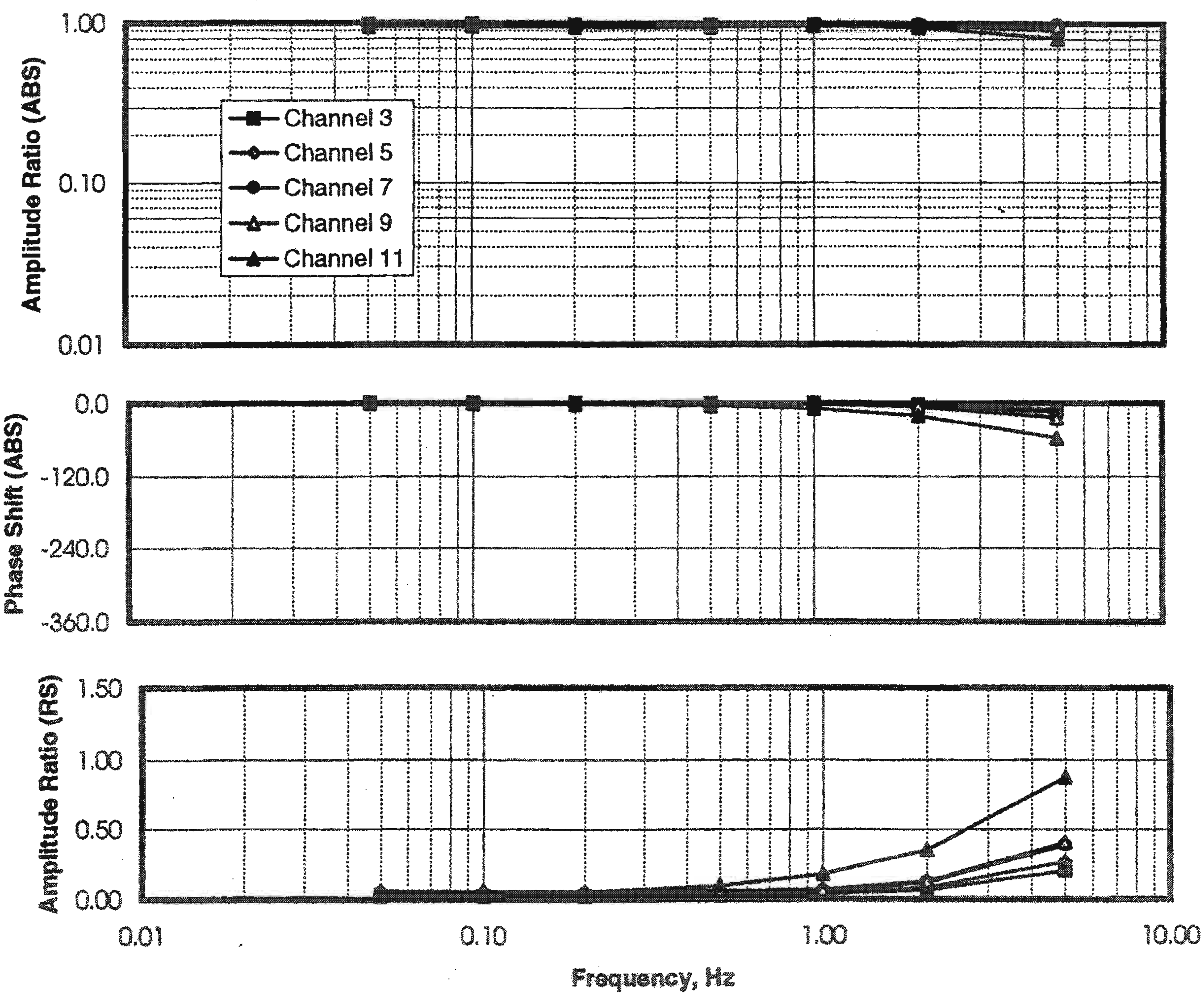




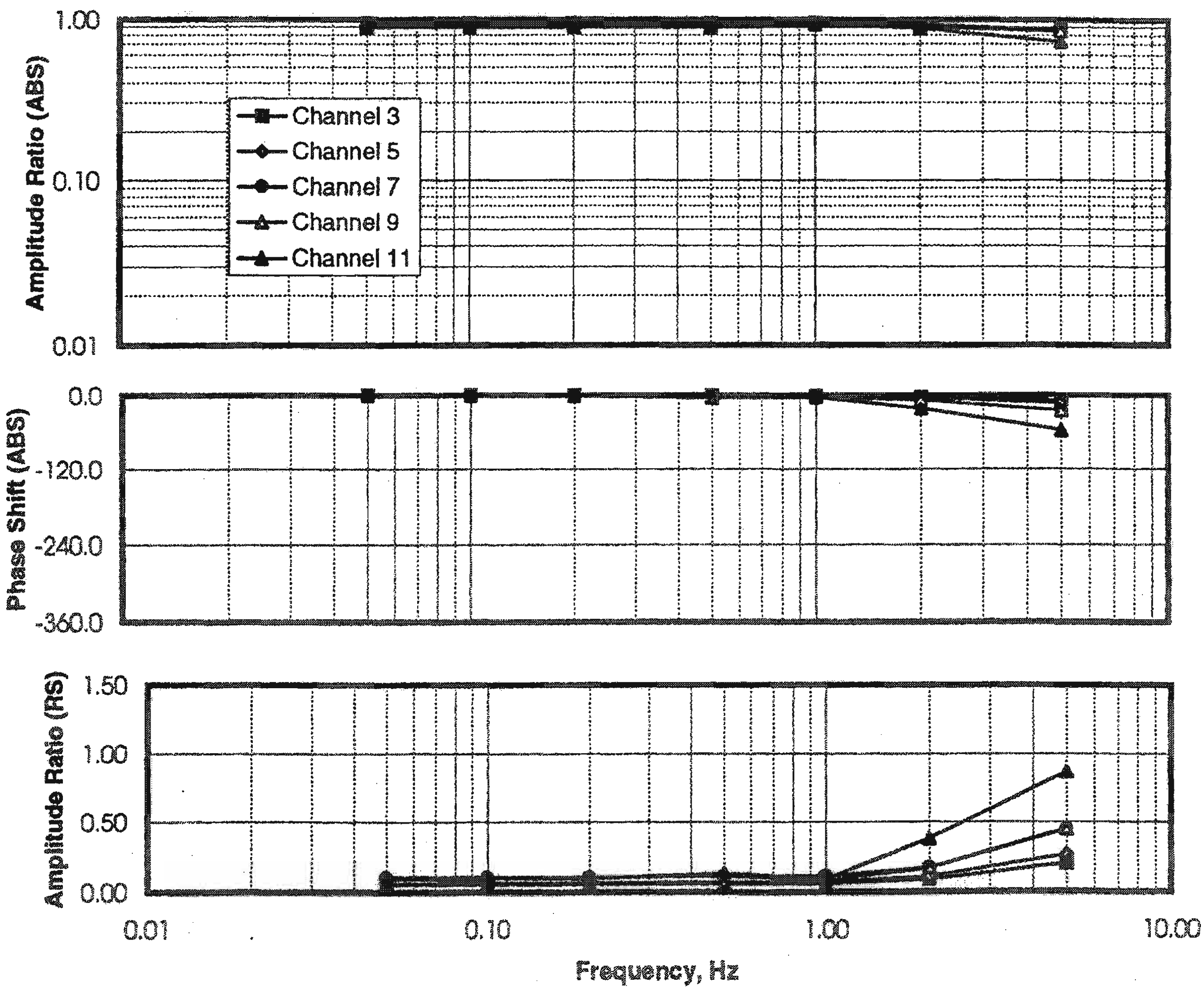
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	1.00	1.00	1.00	1.00	1.00	0.99	0.94
	Phase ABS	0.0	-0.1	-0.1	-0.4	-1.1	-2.8	-11.8
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.05	0.21
Channel 5	Amp. ABS	1.00	1.00	1.00	1.00	1.00	1.00	0.99
	Phase ABS	0.0	-0.1	-0.2	-0.5	-1.3	-3.6	-15.7
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.06	0.27
Channel 7	Amp. ABS	1.00	1.00	1.00	1.00	1.00	1.02	1.07
	Phase ABS	-0.1	-0.1	-0.2	-0.7	-1.7	-4.6	-20.6
	Amp RS	0.00	0.00	0.00	0.01	0.03	0.08	0.38
Channel 9	Amp. ABS	1.00	1.00	1.00	1.00	1.00	1.00	1.07
	Phase ABS	-0.1	-0.1	-0.2	-0.6	-1.7	-3.5	-20.3
	Amp RS	0.00	0.00	0.00	0.01	0.03	0.06	0.37
Channel 11	Amp. ABS	0.99	0.99	0.99	0.99	0.99	0.99	0.88
	Phase ABS	-0.4	-0.8	-1.6	-4.1	-8.8	-8.0	-55.8
	Amp RS	0.01	0.01	0.03	0.07	0.15	0.14	0.89



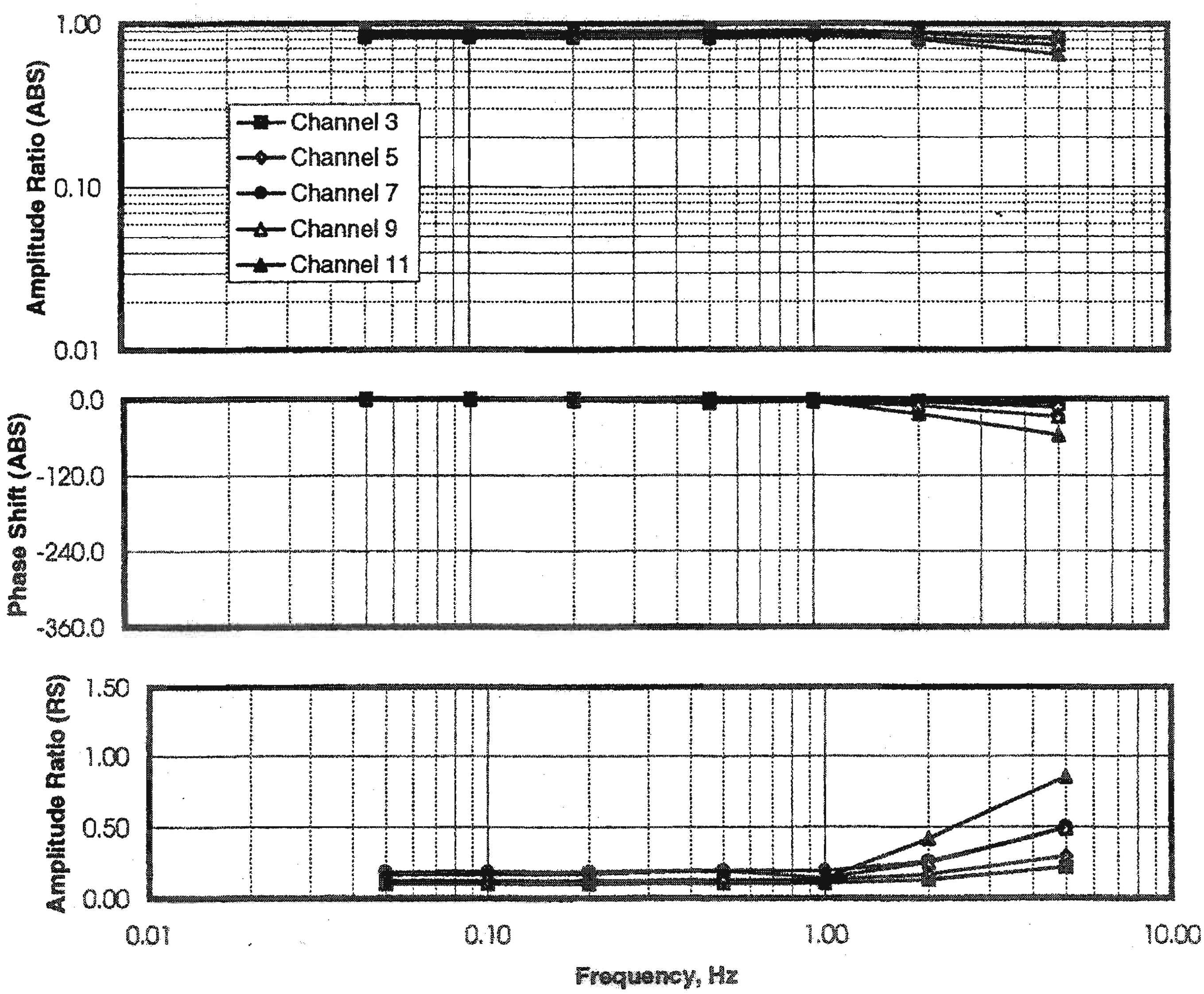
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.98	0.98	0.98	0.98	0.98	0.97	0.90
	Phase ABS	-0.1	-0.1	-0.3	-0.7	-1.3	-3.0	-10.3
	Amp RS	0.02	0.02	0.02	0.02	0.03	0.06	0.20
Channel 5	Amp. ABS	0.97	0.98	0.98	0.97	0.98	0.97	0.93
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.9	-4.2	-15.2
	Amp RS	0.03	0.02	0.03	0.03	0.04	0.08	0.26
Channel 7	Amp. ABS	0.96	0.97	0.96	0.96	0.97	0.97	0.97
	Phase ABS	-0.2	-0.3	-0.6	-1.5	-2.8	-6.3	-22.6
	Amp RS	0.04	0.04	0.04	0.04	0.06	0.11	0.39
Channel 9	Amp. ABS	0.95	0.95	0.95	0.95	0.96	0.96	0.95
	Phase ABS	-0.2	-0.3	-0.7	-1.7	-3.0	-6.8	-24.0
	Amp RS	0.05	0.05	0.05	0.06	0.06	0.12	0.41
Channel 11	Amp. ABS	0.96	0.96	0.96	0.96	0.96	0.93	0.81
	Phase ABS	-0.5	-1.0	-2.0	-4.9	-9.8	-20.7	-56.8
	Amp RS	0.04	0.04	0.05	0.09	0.17	0.35	0.88



		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.95	0.95	0.95	0.95	0.95	0.94	0.86
	Phase ABS	-0.1	-0.2	-0.4	-0.9	-1.7	-3.3	-8.9
	Amp RS	0.05	0.05	0.05	0.06	0.06	0.08	0.20
Channel 5	Amp. ABS	0.94	0.94	0.94	0.93	0.94	0.93	0.86
	Phase ABS	-0.1	-0.3	-0.6	-1.3	-2.4	-5.0	-14.1
	Amp RS	0.06	0.06	0.06	0.07	0.07	0.11	0.27
Channel 7	Amp. ABS	0.90	0.89	0.89	0.89	0.91	0.90	0.84
	Phase ABS	-0.2	-0.5	-1.0	-2.3	-4.2	-8.6	-26.0
	Amp RS	0.10	0.11	0.11	0.11	0.12	0.17	0.44
Channel 9	Amp. ABS	0.89	0.89	0.89	0.89	0.93	0.91	0.85
	Phase ABS	-0.3	-0.5	-0.9	-2.3	-2.4	-8.7	-26.5
	Amp RS	0.11	0.11	0.11	0.12	0.08	0.17	0.45
Channel 11	Amp. ABS	0.91	0.91	0.91	0.90	0.94	0.88	0.72
	Phase ABS	-0.6	-1.1	-2.2	-5.5	-4.2	-22.2	-57.6
	Amp RS	0.09	0.09	0.10	0.13	0.09	0.38	0.87

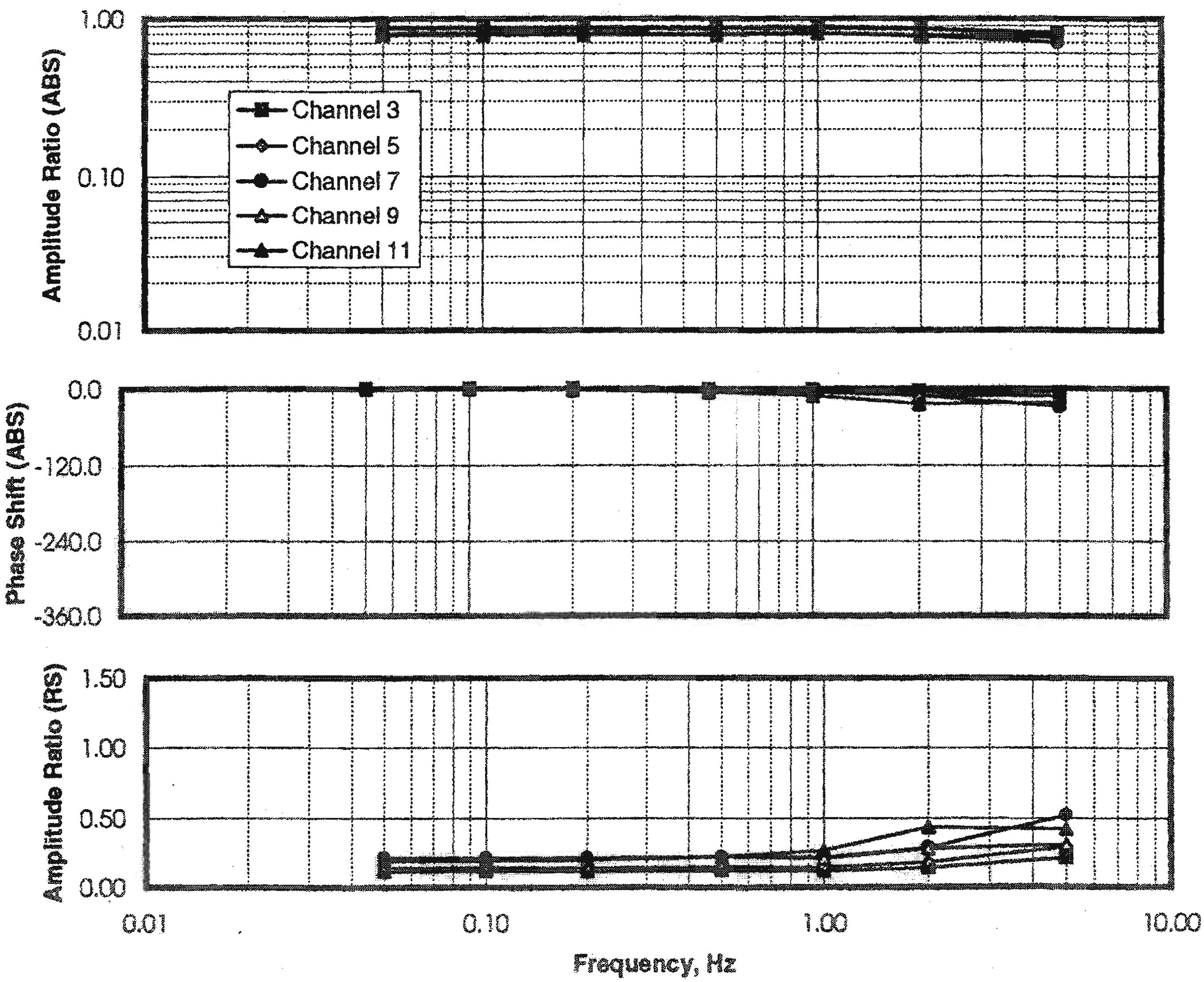


		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.90	0.90	0.90	0.90	0.91	0.89	0.82
	Phase ABS	-0.1	-0.2	-0.4	-1.1	-1.9	-3.4	-6.9
	Amp RS	0.10	0.10	0.10	0.10	0.10	0.13	0.21
Channel 5	Amp. ABS	0.88	0.88	0.88	0.88	0.89	0.87	0.80
	Phase ABS	-0.2	-0.3	-0.7	-1.6	-3.0	-5.5	-13.4
	Amp RS	0.12	0.12	0.12	0.13	0.12	0.16	0.29
Channel 7	Amp. ABS	0.82	0.82	0.82	0.81	0.83	0.81	0.74
	Phase ABS	-0.3	-0.6	-1.2	-2.9	-5.5	-10.9	-28.3
	Amp RS	0.18	0.18	0.18	0.19	0.19	0.26	0.50
Channel 9	Amp. ABS	0.82	0.82	0.82	0.82	0.87	0.82	0.74
	Phase ABS	-0.3	-0.7	-1.2	-2.9	-3.0	-10.7	-28.1
	Amp RS	0.18	0.18	0.18	0.19	0.14	0.25	0.49
Channel 11	Amp. ABS	0.84	0.84	0.84	0.83	0.89	0.80	0.64
	Phase ABS	-0.6	-1.2	-2.4	-6.0	-4.6	-23.7	-57.9
	Amp RS	0.16	0.16	0.17	0.19	0.13	0.42	0.85

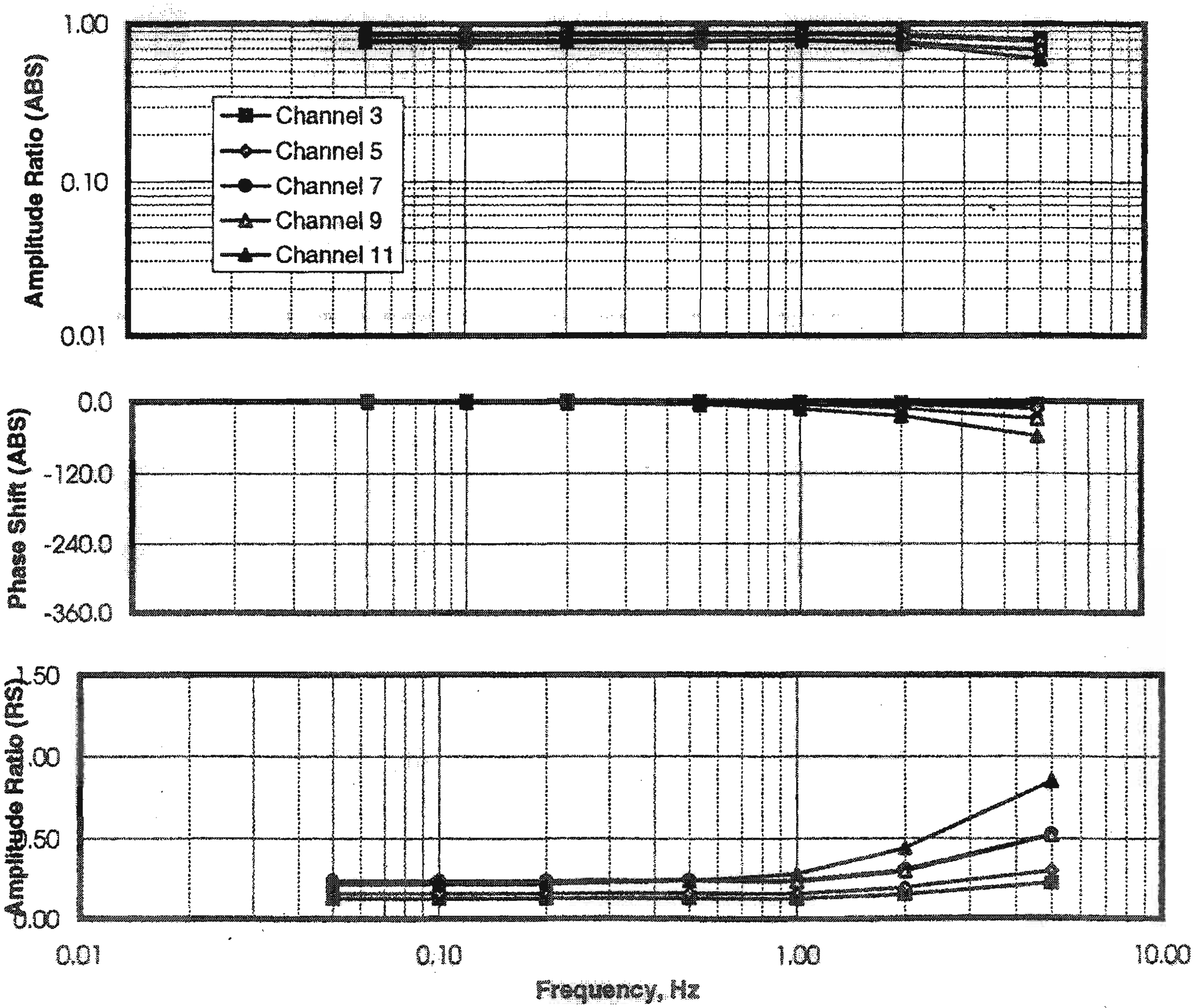


Dynamic performance test: DryVit - 4 Leakage 0±1000 Pa A3028.6

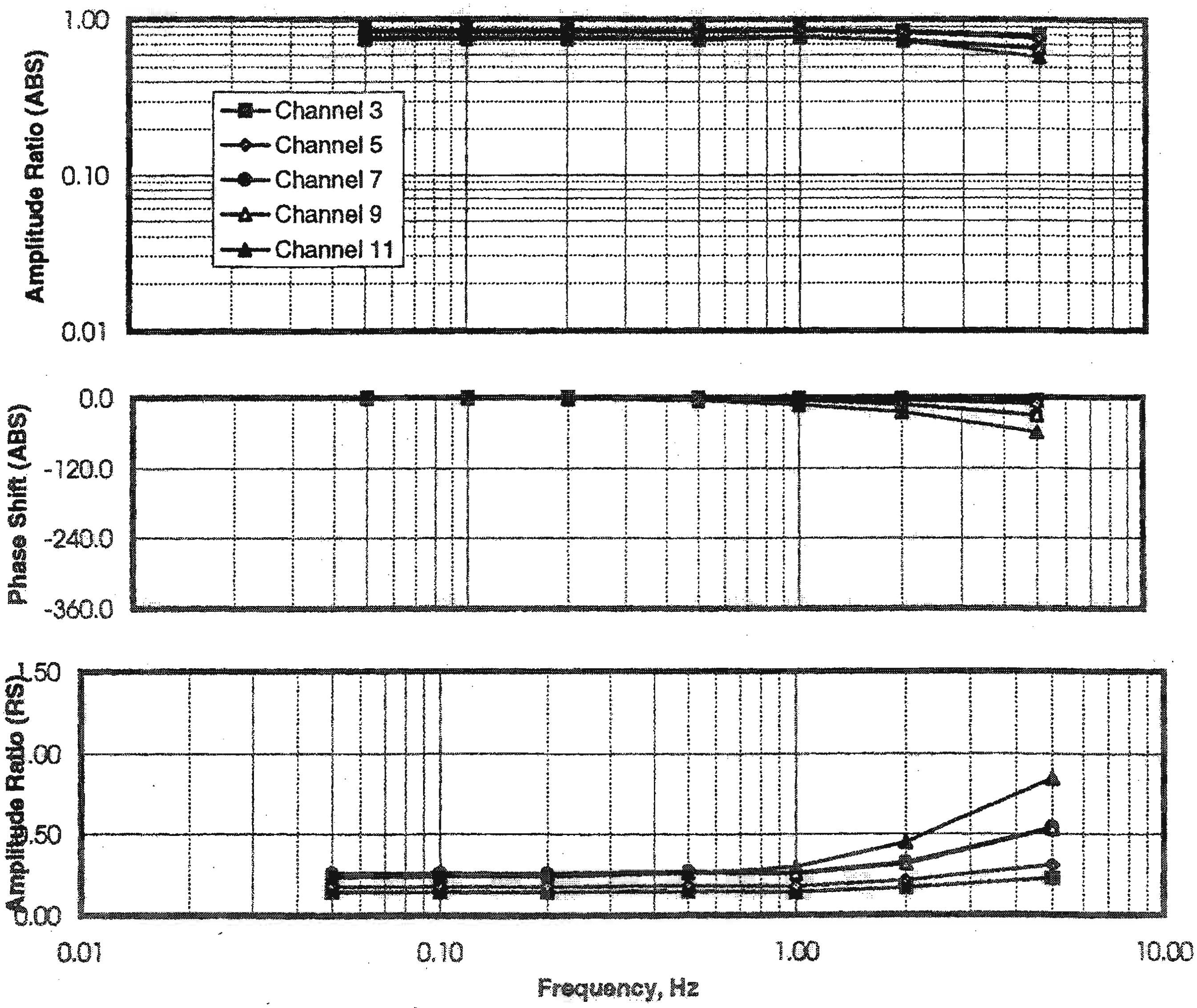
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.88	0.88	0.88	0.88	0.89	0.87	0.81
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.9	-3.3	-6.4
	Amp RS	0.12	0.12	0.12	0.12	0.12	0.14	0.22
Channel 5	Amp. ABS	0.86	0.85	0.86	0.85	0.86	0.84	0.78
	Phase ABS	-0.2	-0.4	-0.7	-1.6	-3.0	-5.7	-12.7
	Amp RS	0.14	0.15	0.14	0.15	0.15	0.18	0.30
Channel 7	Amp. ABS	0.78	0.78	0.78	0.78	0.80	0.77	0.70
	Phase ABS	-0.4	-0.7	-1.3	-3.1	-5.9	-11.6	-29.1
	Amp RS	0.22	0.22	0.22	0.23	0.22	0.29	0.52
Channel 9	Amp. ABS	0.79	0.79	0.79	0.78	0.81	0.78	0.75
	Phase ABS	-0.3	-0.7	-1.3	-3.1	-5.8	-11.4	-12.5
	Amp RS	0.21	0.21	0.21	0.22	0.21	0.28	0.31
Channel 11	Amp. ABS	0.81	0.80	0.80	0.80	0.81	0.77	0.75
	Phase ABS	-0.7	-1.3	-2.5	-6.2	-12.1	-24.1	-22.4
	Amp RS	0.20	0.20	0.20	0.22	0.27	0.43	0.42



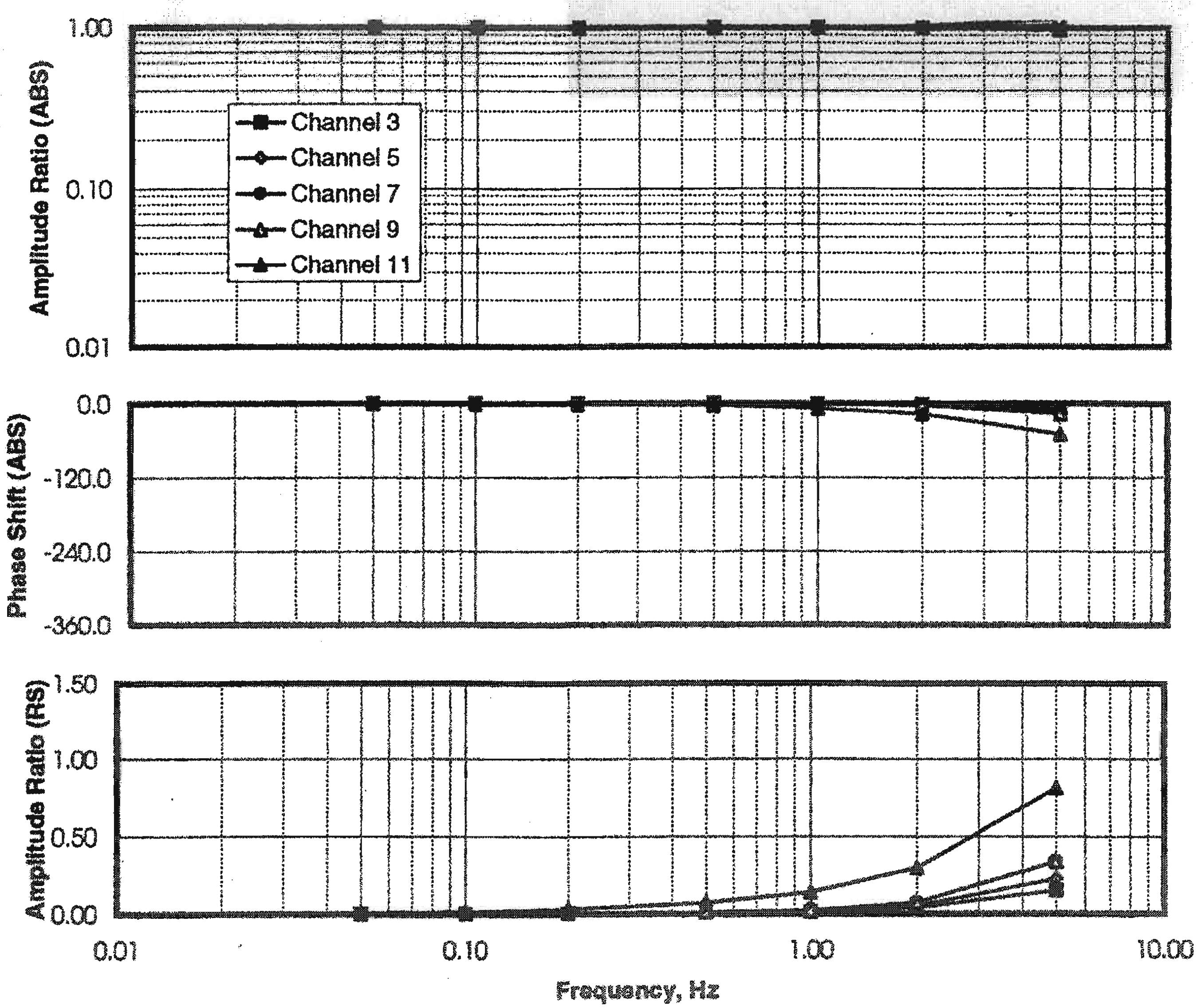
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.87	0.87	0.87	0.87	0.88	0.86	0.80
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.9	-3.2	-5.8
	Amp RS	0.13	0.13	0.13	0.13	0.13	0.15	0.22
Channel 5	Amp. ABS	0.84	0.84	0.84	0.84	0.85	0.83	0.77
	Phase ABS	-0.2	-0.3	-0.7	-1.6	-3.0	-5.6	-12.2
	Amp RS	0.16	0.16	0.16	0.16	0.16	0.19	0.30
Channel 7	Amp. ABS	0.77	0.77	0.77	0.76	0.78	0.75	0.68
	Phase ABS	-0.3	-0.7	-1.3	-3.2	-6.1	-12.0	-29.5
	Amp RS	0.23	0.24	0.23	0.24	0.24	0.31	0.53
Channel 9	Amp. ABS	0.77	0.77	0.77	0.77	0.79	0.77	0.69
	Phase ABS	-0.3	-0.7	-1.3	-3.2	-5.9	-11.6	-29.1
	Amp RS	0.23	0.23	0.23	0.24	0.23	0.29	0.52
Channel 11	Amp. ABS	0.79	0.79	0.79	0.78	0.79	0.75	0.60
	Phase ABS	-0.6	-1.3	-2.5	-6.2	-12.2	-24.2	-58.1
	Amp RS	0.21	0.21	0.21	0.24	0.28	0.44	0.85



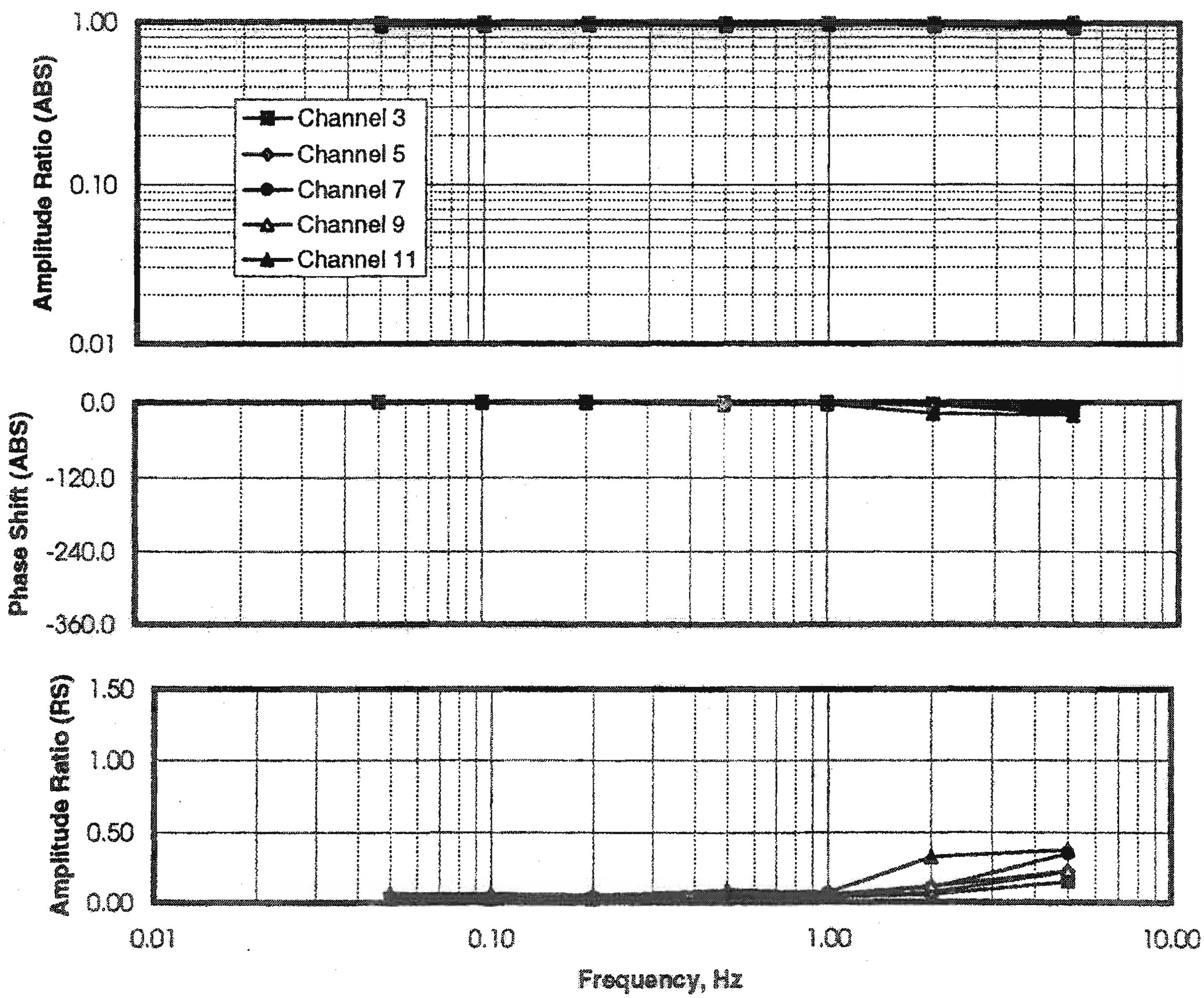
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.86	0.86	0.86	0.86	0.87	0.85	0.79
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.8	-3.1	-5.4
	Amp RS	0.14	0.14	0.14	0.14	0.14	0.16	0.22
Channel 5	Amp. ABS	0.83	0.83	0.83	0.82	0.84	0.81	0.76
	Phase ABS	-0.2	-0.3	-0.7	-1.6	-3.1	-5.6	-12.0
	Amp RS	0.17	0.17	0.17	0.18	0.17	0.21	0.30
Channel 7	Amp. ABS	0.74	0.74	0.74	0.74	0.76	0.73	0.65
	Phase ABS	-0.3	-0.7	-1.3	-3.3	-6.2	-12.2	-29.8
	Amp RS	0.26	0.26	0.26	0.26	0.26	0.32	0.54
Channel 9	Amp. ABS	0.75	0.75	0.75	0.75	0.77	0.74	0.66
	Phase ABS	-0.3	-0.6	-1.3	-3.2	-6.0	-11.9	-29.4
	Amp RS	0.25	0.25	0.25	0.26	0.25	0.31	0.53
Channel 11	Amp. ABS	0.77	0.77	0.77	0.76	0.78	0.73	0.58
	Phase ABS	-0.6	-1.3	-2.5	-6.2	-12.2	-24.4	-57.8
	Amp RS	0.23	0.23	0.23	0.26	0.29	0.45	0.85



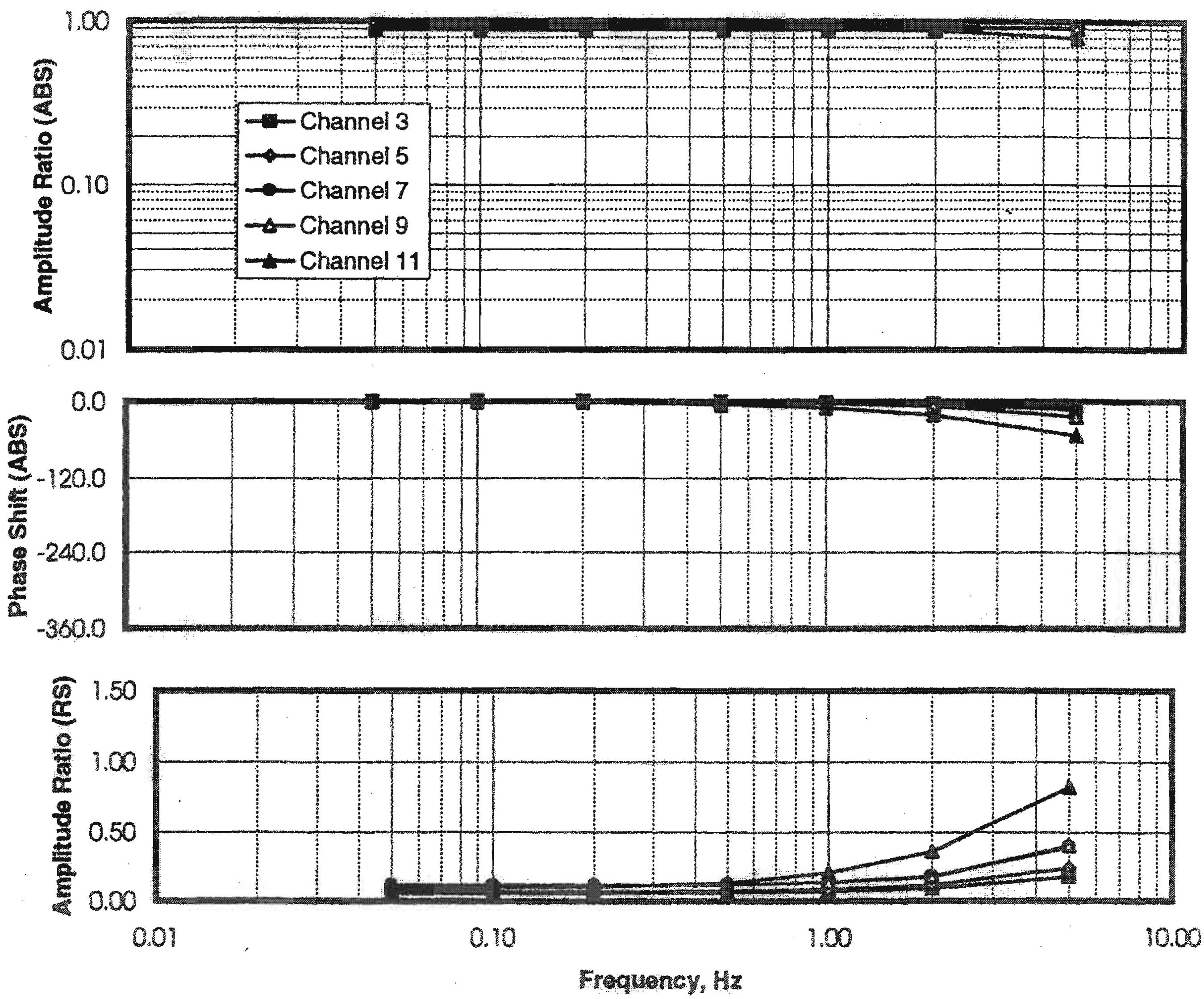
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	1.00	1:00	1.00	1.00	1.00	1.00	0.98
	Phase ABS	0.0	-0.1	-0.2	-0.3	-0.7	-2.0	-8.5
	Amp RS	0.00	0.00	0.00	0.01	0.01	0.04	0.15
Channel 5	Amp. ABS	1.00	1.00	1.00	1.00	1.00	1.01	1.04
	Phase ABS	0.0	-0.1	-0.2	-0.4	-1.0	-2.7	-12.3
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.05	0.22
Channel 7	Amp. ABS	1.00	1.00	1.00	1.00	1.01	1.03	1.13
	Phase ABS	0.0	-0.1	-0.3	-0.5	-1.3	-3.6	-16.7
	Amp RS	0.00	0.00	0.01	0.01	0.02	0.07	0.34
Channel 9	Amp. ABS	1.00	1.00	1.00	1.00	1.01	1.03	1.14
	Phase ABS	0.0	-0.1	-0.2	-0.5	-1.2	-3.6	-16.5
	Amp RS	0.00	0.00	0.00	0.01	0.02	0.07	0.33
Channel 11	Amp. ABS	1.00	1.00	0.99	0.99	0.99	0.99	0.96
	Phase ABS	-0.4	-0.8	-1.6	-4.0	-8.0	-17.1	-49.1
	Amp RS	0.01	0.01	0.03	0.07	0.14	0.30	0.81



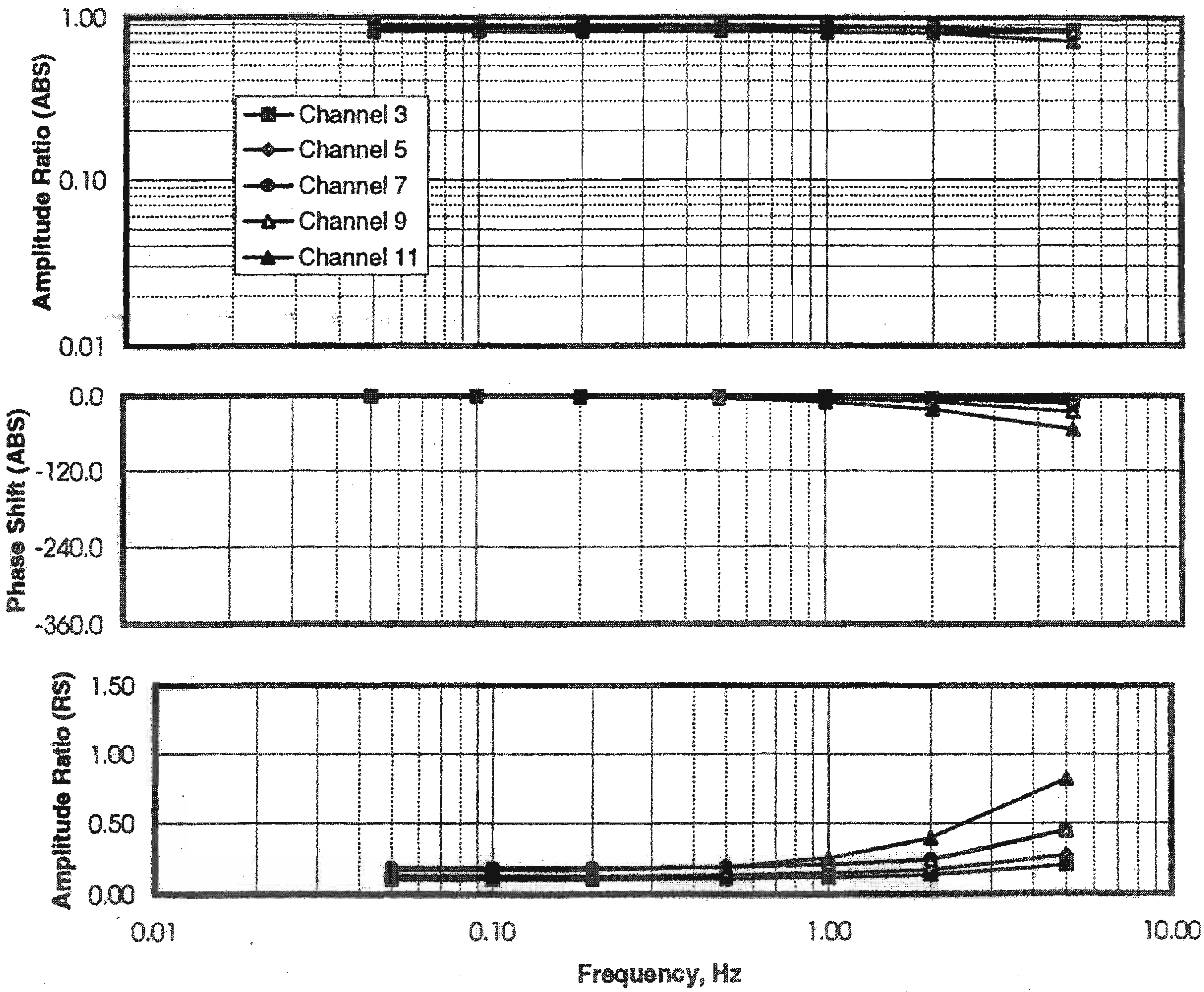
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.98	0.98	0.98	0.98	0.98	0.97	0.94
	Phase ABS	-0.1	-0.1	-0.3	-0.7	-1.3	-2.7	-8.3
	Amp RS	0.02	0.02	0.02	0.02	0.03	0.05	0.15
Channel 5	Amp. ABS	0.97	0.98	0.98	0.97	0.97	0.98	0.98
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.9	-3.9	-12.8
	Amp RS	0.03	0.02	0.03	0.03	0.04	0.07	0.22
Channel 7	Amp. ABS	0.96	0.97	0.97	0.97	0.97	0.98	1.04
	Phase ABS	-0.1	-0.3	-0.5	-1.3	-2.7	-5.8	-19.6
	Amp RS	0.04	0.03	0.03	0.04	0.06	0.10	0.35
Channel 9	Amp. ABS	0.94	0.94	0.95	0.94	0.96	0.95	0.97
	Phase ABS	-0.1	-0.3	-0.6	-1.4	-2.0	-6.2	-13.0
	Amp RS	0.06	0.06	0.05	0.06	0.05	0.12	0.23
Channel 11	Amp. ABS	0.96	0.96	0.96	0.96	0.97	0.94	0.93
	Phase ABS	-0.5	-0.9	-1.9	-4.7	-3.6	-19.0	-21.8
	Amp RS	0.04	0.04	0.05	0.09	0.07	0.33	0.37



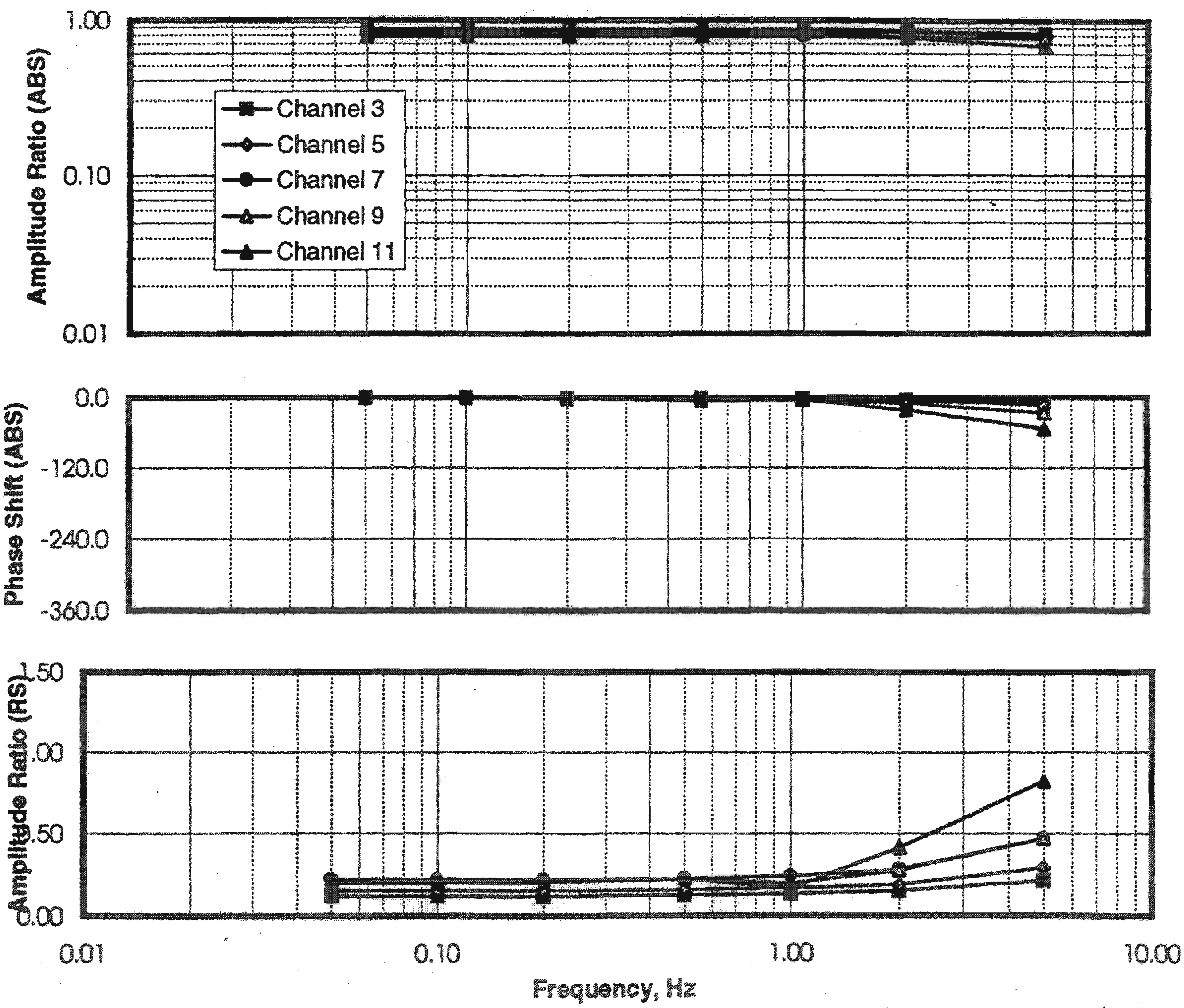
		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.95	0.95	0.95	0.95	0.94	0.94	0.90
	Phase ABS	-0.1	-0.2	-0.4	-1.0	-1.8	-3.4	-8.3
	Amp RS	0.05	0.05	0.05	0.06	0.06	0.09	0.17
Channel 5	Amp. ABS	0.93	0.93	0.93	0.93	0.93	0.93	0.91
	Phase ABS	-0.2	-0.3	-0.6	-1.4	-2.5	-5.0	-13.4
	Amp RS	0.07	0.07	0.07	0.07	0.08	0.11	0.24
Channel 7	Amp. ABS	0.89	0.89	0.89	0.89	0.89	0.89	0.91
	Phase ABS	-0.2	-0.4	-0.8	-2.0	-4.0	-8.3	-23.5
	Amp RS	0.11	0.11	0.11	0.11	0.13	0.17	0.40
Channel 9	Amp. ABS	0.89	0.89	0.89	0.89	0.89	0.89	0.91
	Phase ABS	-0.2	-0.4	-0.8	-2.0	-4.0	-8.1	-23.8
	Amp RS	0.11	0.11	0.11	0.11	0.13	0.17	0.40
Channel 11	Amp. ABS	0.91	0.91	0.91	0.91	0.90	0.88	0.80
	Phase ABS	-0.6	-1.1	-2.1	-5.3	-10.4	-20.8	-53.3
	Amp RS	0.09	0.09	0.10	0.13	0.20	0.36	0.83



		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.90	0.90	0.90	0.90	0.89	0.88	0.84
	Phase ABS	-0.1	-0.2	-0.5	-1.2	-2.0	-3.9	-7.9
	Amp RS	0.10	0.10	0.10	0.10	0.11	0.13	0.20
Channel 5	Amp. ABS	0.87	0.87	0.87	0.87	0.86	0.86	0.83
	Phase ABS	-0.2	-0.3	-0.7	-1.7	-3.0	-5.8	-13.8
	Amp RS	0.13	0.13	0.13	0.13	0.14	0.17	0.27
Channel 7	Amp. ABS	0.81	0.81	0.81	0.81	0.81	0.81	0.80
	Phase ABS	-0.3	-0.5	-1.1	-2.6	-5.1	-10.0	-26.2
	Amp RS	0.19	0.19	0.19	0.19	0.21	0.25	0.45
Channel 9	Amp. ABS	0.81	0.82	0.82	0.82	0.80	0.81	0.81
	Phase ABS	-0.2	-0.5	-1.1	-2.6	-5.2	-9.9	-25.9
	Amp RS	0.19	0.18	0.18	0.19	0.21	0.25	0.45
Channel 11	Amp. ABS	0.83	0.83	0.83	0.83	0.82	0.80	0.70
	Phase ABS	-0.6	-1.1	-2.3	-5.8	-11.2	-22.1	-54.3
	Amp RS	0.17	0.17	0.17	0.19	0.25	0.40	0.82

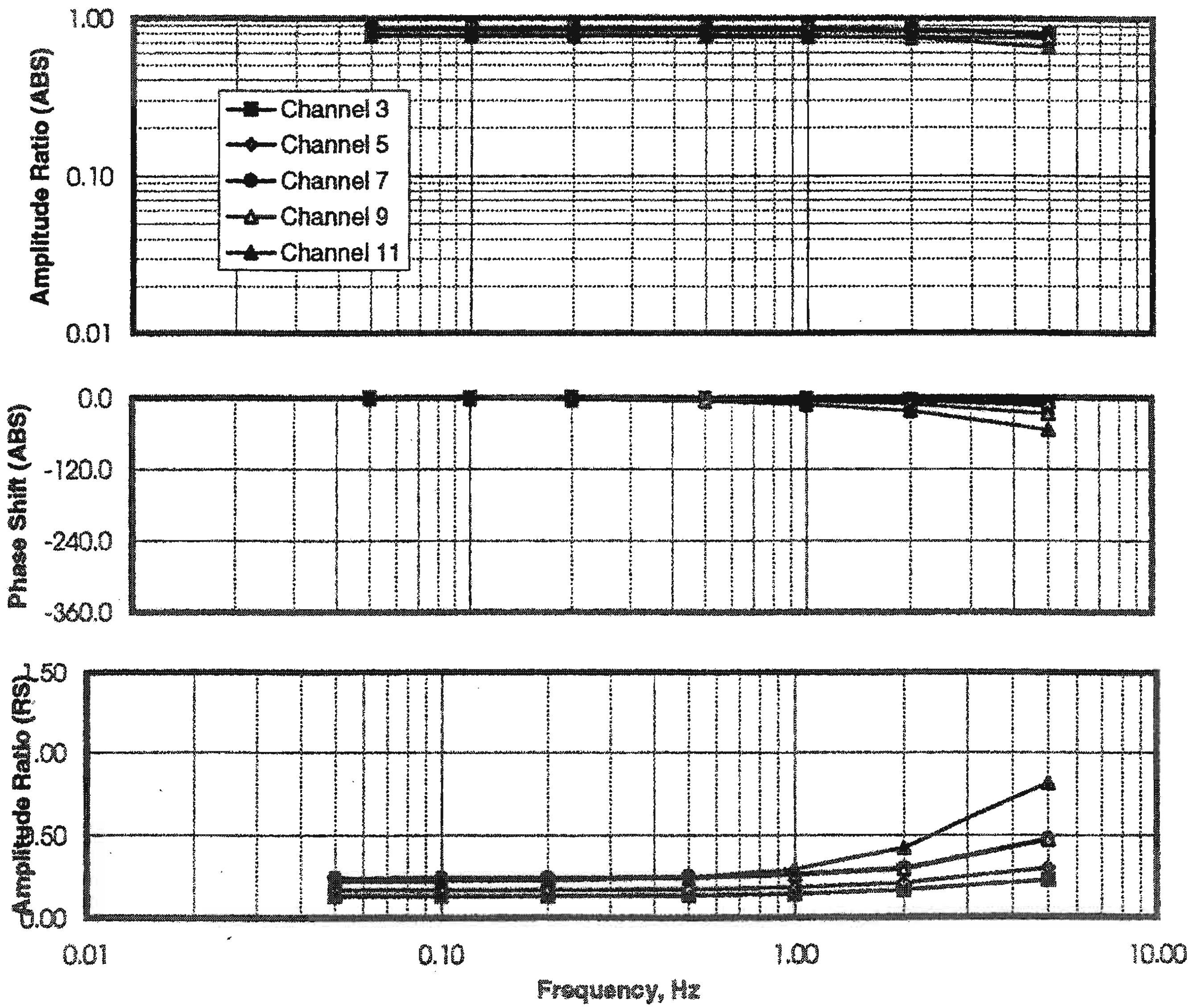


		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.88	0.88	0.88	0.88	0.87	0.86	0.83
	Phase ABS	-0.1	-0.3	-0.5	-1.2	-2.1	-3.8	-7.6
	Amp RS	0.12	0.12	0.12	0.12	0.13	0.15	0.21
Channel 5	Amp. ABS	0.85	0.85	0.85	0.84	0.84	0.83	0.80
	Phase ABS	-0.2	-0.3	-0.7	-1.8	-3.2	-5.8	-13.8
	Amp RS	0.15	0.15	0.15	0.16	0.17	0.19	0.29
Channel 7	Amp. ABS	0.78	0.78	0.78	0.78	0.77	0.77	0.76
	Phase ABS	-0.3	-0.4	-1.1	-2.7	-5.7	-10.4	-26.8
	Amp RS	0.22	0.22	0.22	0.22	0.24	0.28	0.47
Channel 9	Amp. ABS	0.78	0.78	0.78	0.78	0.81	0.77	0.76
	Phase ABS	-0.3	-0.7	-1.1	-2.7	-3.3	-10.4	-26.7
	Amp RS	0.22	0.22	0.22	0.22	0.20	0.28	0.47
Channel 11	Amp. ABS	0.80	0.80	0.80	0.80	0.85	0.76	0.67
	Phase ABS	-0.6	-1.2	-2.4	-5.8	-4.6	-22.4	-54.6
	Amp RS	0.20	0.20	0.20	0.22	0.16	0.41	0.82



Dynamic performance test: DryVit - 5 Leakage 500±500 Pa

		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.87	0.87	0.87	0.87	0.86	0.85	0.81
	Phase ABS	-0.1	-0.3	-0.5	-1.2	-2.1	-3.8	-7.6
	Amp RS	0.13	0.13	0.13	0.13	0.14	0.16	0.22
Channel 5	Amp. ABS	0.84	0.83	0.83	0.83	0.83	0.82	0.79
	Phase ABS	-0.1	-0.4	-0.7	-1.7	-3.2	-6.0	-13.6
	Amp RS	0.16	0.17	0.17	0.17	0.18	0.20	0.29
Channel 7	Amp. ABS	0.76	0.76	0.76	0.76	0.76	0.75	0.74
	Phase ABS	-0.3	-0.6	-1.1	-2.7	-5.7	-10.9	-27.0
	Amp RS	0.24	0.24	0.24	0.24	0.26	0.30	0.48
Channel 9	Amp. ABS	0.77	0.77	0.77	0.77	0.76	0.76	0.75
	Phase ABS	-0.3	-0.7	-1.0	-2.8	-5.5	-10.5	-26.6
	Amp RS	0.23	0.23	0.23	0.24	0.25	0.29	0.47
Channel 11	Amp. ABS	0.79	0.78	0.78	0.78	0.77	0.75	0.65
	Phase ABS	-0.6	-1.2	-2.4	-5.9	-11.5	-22.6	-54.5
	Amp RS	0.21	0.22	0.22	0.24	0.29	0.42	0.82



		Test Frequency						
		0.05	0.10	0.20	0.50	1.00	2.00	5.00
Channel 3	Amp. ABS	0.86	0.86	0.86	0.85	0.85	0.84	0.80
	Phase ABS	-0.1	-0.3	-0.5	-1.2	-2.0	-3.8	-7.4
	Amp RS	0.14	0.14	0.14	0.15	0.15	0.17	0.23
Channel 5	Amp. ABS	0.82	0.82	0.82	0.82	0.81	0.80	0.78
	Phase ABS	-0.2	-0.4	-0.7	-1.7	-3.2	-5.9	-13.4
	Amp RS	0.18	0.18	0.18	0.19	0.20	0.22	0.30
Channel 7	Amp. ABS	0.74	0.74	0.74	0.74	0.74	0.73	0.72
	Phase ABS	-0.3	-0.7	-1.0	-2.8	-5.6	-10.9	-27.3
	Amp RS	0.26	0.26	0.26	0.26	0.28	0.31	0.49
Channel 9	Amp. ABS	0.75	0.75	0.75	0.75	0.74	0.74	0.72
	Phase ABS	-0.3	-0.5	-1.2	-2.7	-5.6	-10.6	-26.7
	Amp RS	0.25	0.25	0.25	0.25	0.27	0.31	0.48
Channel 11	Amp. ABS	0.76	0.76	0.76	0.76	0.75	0.73	0.63
	Phase ABS	-0.6	-1.2	-2.3	-5.9	-11.6	-22.7	-54.3
	Amp RS	0.24	0.24	0.24	0.26	0.30	0.43	0.81