

ENGINEERING AND TEST DIVISION
CHURCH STREET, BOHEMIA, LONG ISLAND, NEW YORK 11716 (516) 589-6300

TEST REPORT NO.: DTB01R98-0854

DAYTON T. BROWN, INC. JOB NO.: 400267-00-000

CUSTOMER: P-Q CONTROLS, INC.
95 DOLPHIN ROAD
BRISTOL, CT 06010

SUBJECT: FCC CODE OF FEDERAL REGULATIONS, 47 CFR, PART 15,
SUB-PART C TESTING PERFORMED ON ONE 418 MHz
TRANSMITTER WITH SWITCHES, DTB SERIAL NO. 2

PURCHASE ORDER NO.: 24905B

ATTENTION: MR. DAVID SCHUMANN

THIS REPORT CONTAINS: SIX PAGES AND FIVE ENCLOSURES

TEST ENGINEER	 R. MONTICELLO
DEPARTMENT SUPERVISOR	 K. CUMMINGS
OPERATIONS MANAGER	 D. MELORE
DATE	3 DECEMBER 1998

THE DATA CONTAINED IN THIS REPORT WAS OBTAINED BY TESTING IN
COMPLIANCE WITH THE APPLICABLE TEST SPECIFICATION AS NOTED



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1.0 ABSTRACT

This report details the results of the FCC Code of Federal Regulations, 47 CFR, Part 15, Sub-Part C testing performed on one 418 MHz Transmitter with Switches, DTB Serial No. 2, manufactured by P-Q Controls, Inc.

The 418 MHz Transmitter with Switches was found to be in compliance with the radiated portions of the FCC Code of Federal Regulations, 47 CFR, Part 15, Sub-Part C, specification limits.

Detailed test results can be observed in Enclosures 2 and 3 of this report.

The test results recorded in this report relate only to those items tested.

This report shall not be reproduced, except in full, without the written approval of Dayton T. Brown, Inc.



2.0 REFERENCES

- (a) Customer Purchase Order No.: 24905B
- (b) Dayton T. Brown, Inc. Job No.: 400267-00-000
- (c) Test Specification: Code of Federal Regulations, 47 CFR, Part 15, Sub-Part C
- (d) Test Procedure: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, ANSI C63.4-1992, dated 17 July 1992



3.0 ADMINISTRATIVE INFORMATION

Customer: P-Q Controls, Inc.
95 Dolphin Road
Bristol, CT 06010

Manufacturer: P-Q Controls, Inc.

Test Item: 418 MHz Transmitter with Switches

Quantity Received: One

DTB Serial No.: 2

Test Start Date: 5 August 1998

Test Completion Date: 14 October 1998

Disposition of Test Item: The test sample was returned to P-Q Controls, Inc. on 14 October 1998.



4.0 TEST PROGRAM OUTLINE

Description of Test Method

Radiated Emission, Intentional Radiator,
30 MHz to 5 GHz

Occupied Bandwidth

Results

Met the specification
requirements.

Met the specification
requirements



5.0 GENERAL TEST INFORMATION

Setup

For the radiated emission test in the frequency range of 30 to 1000 MHz, the test sample was set up in a climate controlled open field site that measures 44 feet long by 24 feet wide by 24 feet high.

For the radiated emission test in the frequency range of 1 to 5 GHz, the test sample was set up in an anechoic chamber that measures 30 feet wide by 32 feet long by 12 feet high.

Unit Operation:

Operational Mode Tested - Transmit Mode - The test sample was transmitting at 418.0 MHz.



Enclosure 1

Test Equipment List

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.



<u>TEST</u>	<u>ITEM</u>	<u>MANUFACTURER</u>	<u>DTB NO.</u>	<u>EQUIPMENT CHARACTERISTIC</u>	<u>MODEL</u>	<u>SERIAL NO.</u>	<u>CALIBRATION DUE DATE</u>
Radiated Emission	BiLog Antenna	Chase-York	27-1	30 - 2000 MHz	CBL 6112	2055	4/4/99
Occupied Bandwidth	Double Ridge Waveguide Antenna	Electro-Mechanics Co.	27-40	200 - 2000 MHz	3106	2035	11/28/99
Radiated Emission	Double Ridge Waveguide Antenna	Electro-Mechanics Co.	27-55	1.0 - 18 GHz	3115	2072	10/18/98
Radiated Emission	Metering Module	Electro-Metrics	65-142-1	10 kHz - 1.0 GHz	CRM 25	136	7/12/99
Radiated Emission	Analyzer, Interference	Electro-Metrics	65-143	10 kHz - 1.0 GHz	EMC 25 Mk III	656	7/5/99
Occupied Bandwidth	Plotter A & B Size	Hewlett-Packard	65-205-1	HPIB & Serial Interface	7550A	2848A-22163	-
Rad. Emiss., Occupied Bandwidth	Spectrum Analyzer	Hewlett-Packard	65-247	10 kHz - 26.5 GHz	8563A	3220A-01924	11/8/98
Radiated Emission	Preamplifier	Hewlett-Packard	71-11	1 - 26.5 GHz 30 dB Gain	8449B	3008A-00284	12/13/98
Rad. Emiss., Occupied Bandwidth	Anechoic Facility	Dayton T. Brown, Inc.	-	30 ft x 32 ft 12 ft High	-	Anechoic Room	-
Radiated Emission	FCC Facility	Dayton T. Brown, Inc.	-	44 ft x 24 ft 24 ft High	-	FCC Site	-



Enclosure 2

Radiated Emission,
Intentional Radiator, 30 MHz to 5 GHz

RADIATED EMISSION,
INTENTIONAL RADIATOR, 30 MHz to 5 GHz

Test Procedure

A radiated emission test, in the frequency range of 30 to 1000 MHz, was performed on the 418 MHz Transmitter with Switches while it was mounted on a wooden table that was standing on a conductive turntable.

For the frequency range of 30 to 1000 MHz, measurements were made utilizing a manually tuned interference measurement receiver which was located in the instrumentation room below the ground plane.

The interference measurement receiver was connected to the measurement antenna which was located 3 meters from the turntable for the frequency range of 30 to 1000 MHz.

A linear polarized antenna was utilized for the measurements. The antenna height was varied between 1 and 4 meters and the test sample was rotated 360° to ensure maximum pickup from the test sample.

A radiated emission test, in the frequency range of 1 to 5 GHz, was performed on the 418 MHz Transmitter with Switches while it was mounted on a wooden table in an anechoic chamber.

For the frequency range of 1 to 5 GHz, measurements were made utilizing a spectrum analyzer located in a shielded enclosure which was attached to the anechoic enclosure.

The spectrum analyzer was connected to the measurement antenna, which was located 3 meters from the table for the frequency range of 1 to 5 GHz, with a length of 50Ω coaxial cable.

The 418 MHz Transmitter with Switches utilizes pulse modulation with a 50% duty cycle.

Any emissions not reported were at least 20 dB below the specification limits.

Measurements were made utilizing the following bandwidth and detector function:

Frequency Range	CISPR Bandwidth	Detector Function
30 to 1000 MHz	120 kHz	Quasi-Peak
1 to 5 GHz	100 kHz	Peak

The antenna per meter factors of the antennas utilized are depicted in the figures contained in this enclosure.



RADIATED EMISSION,
INTENTIONAL RADIATOR, 30 MHz to 5 GHz
(Continued)

Initial Test Results

Emission levels above the FCC Code of Federal Regulations, 47 CFR, Part 15, Sub-Part C, specification limits were observed as follows:

Mode	Frequency	Antenna Polarization	Level and Freq. above Spec.
Transmitting	418 MHz	Vertical	0.28 dB at 418 MHz
	2.09 GHz		5.1 dB at 2.09 MHz
	418 MHz	Horizontal	0.86 dB at 418 MHz

Detailed initial test results for the radiated emission test for intentional radiators can be observed on pages 3 through 6 of this enclosure.

A network consisting of a 10 μ h choke in series with a 100 pf capacitor in series with a 21.5 Ω resistor which was in series with another 21.5 Ω resistor with a 47.3 Ω resistor to ground from the junction of the two 21.5 Ω resistors, was wired between the RF module and the antenna.

The radiated emission test was then repeated on the 418 MHz Transmitter with Switches.

The test setup employed is depicted in the photographs contained in this enclosure.

Retest Results

No emission levels above the FCC Code of Federal Regulations, 47 CFR, Part 15, Sub-Part C, specification limits were observed when the above mentioned network was installed in the 418 MHz Transmitter with Switches.

Detailed retest results for the radiated emission test for intentional radiators can be observed on pages 7 through 10 of this enclosure.



Serial No. : None

Job No. : 400267-00-000

Antenna Pol.: VerticalUnits : dB μ V/m

Customer : PQ Controls

Test Condition : Transmitting

Specification : FCC Rules & Reg., Part 15, Sub-Part C

Test: Radiated Field Strength Measurements

Met Requirement Yes ☐ No ☒

[illegible]

Data Reviewed By:

Test Performed By:



Test Title: Radiated Emissions

Test Procedure: FCC Part 15, Sub-Part C

Customer: P Q Controls

Test Item: Transmitter with Switches

Model Num.: N/A

Part Num.: N/A

Serial Num.: DTB #2

Mode of Op.: Normal Operation

Comment: Limit Relaxed by 6 dB

Date: 8/7/88

Tested By: Lawrence Williams

Project Eng.: R. Monticello

Job Num.: 400272-00-000

Test Num.: 004

Sensor Loc.: 3 meter distance

Sensor Pol.: Vertical

Time: 3:31 PM

- 1. RE Data
- 2. 400267_mtr.rel (spec limit)
- 3. 400272_harmonic.rel (spec limit)

File Name: 0272034.red

INITIAL TEST

BW Table	
Frequency	BW
1.00 GHz	1.00ES Hz
5.00 GHz	

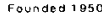


Factor Files	
27-55 rel (1.00 GHz)	

Correction Files	
sm110rec (1.00 GHz) (cable)	
sm110b.ec (1.00 GHz) (2nd cable)	
sm111.rec (1.00 GHz) (3rd cable)	
zero rel (1.00 GHz) (attenuator)	
8449b.ec (1.00 GHz) (pre-amp)	

Engineer: *R. Monticello*

Technician: *Sh. Williams*



Date : 5 Aug 1998

Serial No. : None

Job No. : 400267-00-000

Antenna Pol.: Horizontal

Met Requirement Yes ☐ No ☒

Met Requirement Yes ☐ No ☒

Remarks : **INITIAL TEST**

R. Funtis

Lawrence Williams



Test Title: Radiated Emissions

Test Procedure: FCC Part 15, Sub-Part C
Customer: P Q Controls
Test Item: Transmitter with Switches
Model Num.: N/A
Part Num.: N/A
Serial Num.: DTB # 2
Mode of Op.: Normal Operation
Comment: Limit Relaxed by 6 dB

Date: 8/7/88
Tested By: Lawrence Williams
Project Eng.: R. Monticello
Job Num.: 400772-00-000
Test Num.: 003
Sensor Loc.: 3 meter distance
Sensor Pol.: Horizontal

Time: 3:23 PM

- 1. RE Data
- 2. 400267_mtrnrl (spec limit)
- 3. 400272_harmonic (rel (spec limit))

INITIAL TEST

File Name: 0272003.rtd

BW Table	
Frequency	BW
1.00 GHz	1.00E5 Hz
5.00 GHz	

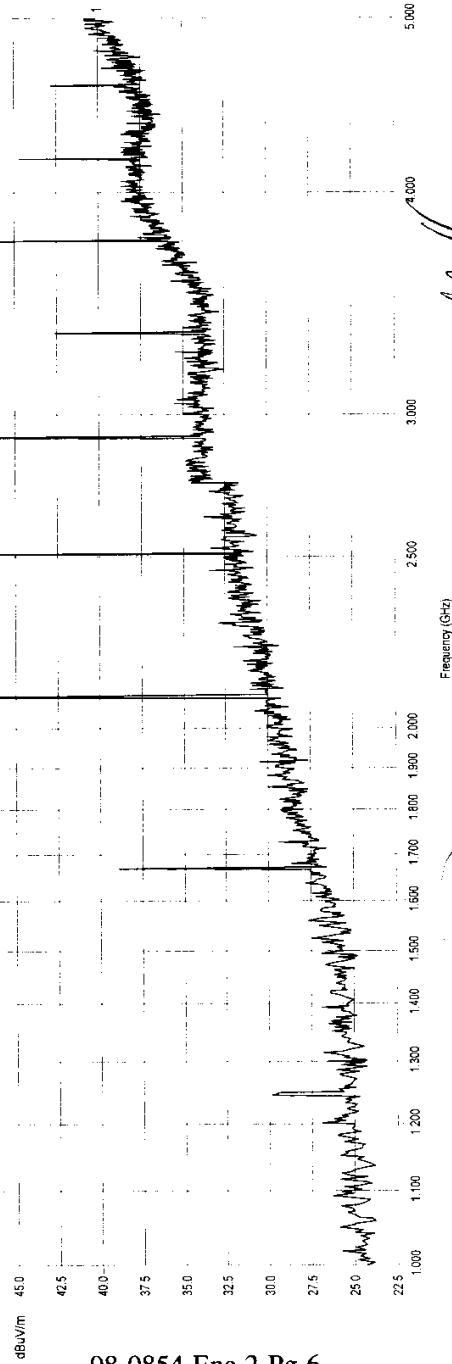
5th Harmonic Spec. Limit = 66.9 dB

62.4 dB

Spurious Emission Spec. Limit = 60.0 dB

Factor Files	
27-55	rel (1.00 GHz)

Connection Files	
sm11cc	rec (1.00 GHz) (cable)
sm11b	rec (1.00 GHz) (2nd cable)
sm11i	rec (1.00 GHz) (3rd cable)
zero	rel (1.00 GHz) (attenuator)
8449a	rel (1.00 GHz) (ref-amp)



Engineer: *R. Monticello*

Technician: *Shute*



Date : 14 Oct 1998

Serial No.:

Job No. : 400267-00-000

Distance : 3 Meter

Units : dBuV/m

Antenna Polarization: Vertical

Bandwidth: 120 kHz (CISPR)

RETEST

Met Requirement Yes ☒ No ☐

Remarks : * Indicates above Specification Limit; A - Indicates Ambient; Total Indicated = Meter Indicated + Antenna Factor + Cable Loss - Pre-Amp Gain
(Using BiLog Antenna DTB No. 27-1; Calibration Due : 12 April 1998)

Technician :



Test Title: Radiated Emissions

Test Procedure: FCC Part 15, Sub-Part C
Customer: P.Q. Controls
Test Item: Transmitter with Switches
Model Num.: N/A
Part Num.: N/A
Serial Num.: DTB # 2
Mode of Op.: Normal Operation
Comment: Limit Related by 6 dB

Date: 10/14/98
Tested By: MING N. MOY
Project Eng.: R. Monticello
Job Num.: 400267-00-000
Test Num.: 0272015
Sensor Loc.: 3 meter distance
Sensor Pol.: Vertical Pol.

Time: 11:19 AM

- 1. RE Data
- 2. 400267 _control (spec limit)

RETEST

File Name: 0272015.reb

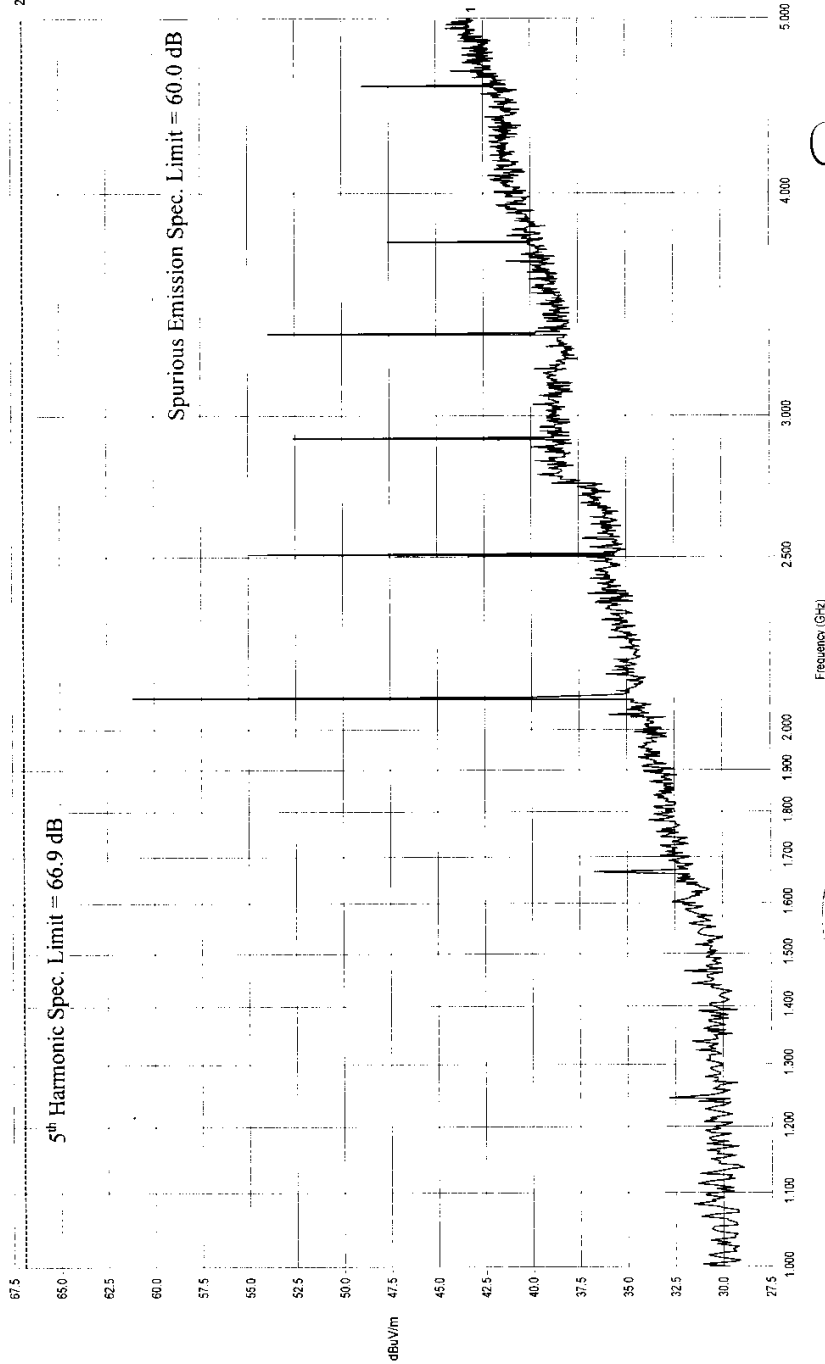
BW Table	
Frequency	BW
1.00 GHz	3.0005 Hz
5.00 GHz	

Factor Files

27.55.rea (1.00 GHz)

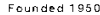
Correction Files

sm116c.rec (1.00 GHz) (cable)
sm116b.rec (1.00 GHz) (2nd cable)
sm116d.rec (1.00 GHz) (3rd cable)
zero.rec (1.00 GHz) (attenuator)
8449c.rec (1.00 GHz) (pre-amp)



Technician: *Jimmy S. Ensey*

Engineer: *R. Monticello*



Date : 14 Oct 1998

Serial No.:

Job No. : 400267-00-000

Distance : 3 Meter

Antenna Polarization: Horizontal

Met Requirement Yes ☒ No ☐

Remarks : * Indicates above Specification Limit; A - Indicates Ambient; Total Indicated = Meter Indicated + Antenna Factor + Cable Loss - Pre-Amp Gain
(Using BiLog Antenna DTB No. 27-1; Calibration Due : 12 April 1998)

Technician :



Test Title: Radiated Emissions

Test Procedure: FCC Part 15, Sub-Part C
Customer: P Q Controls
Test Item: Transmitter with Switches
Model Num.: N/A
Part Num.: N/A
Serial Num.: DTB # 2
Mode of Op.: Normal Operation
Comment: Limit Relaxed by 6 dB

Date: 10/14/98
Tested By: MING N. MOY
Project Eng.: R. Monticello
Job Num.: 400267-40-000
Test Num.: 0272016
Sensor Loc.: 3 meter distance
Sensor Pol.: Horizontal Pol.

Time: 11:23 AM

- 1. RE Data
- 2. 400267_rmr.ral (spec limit)

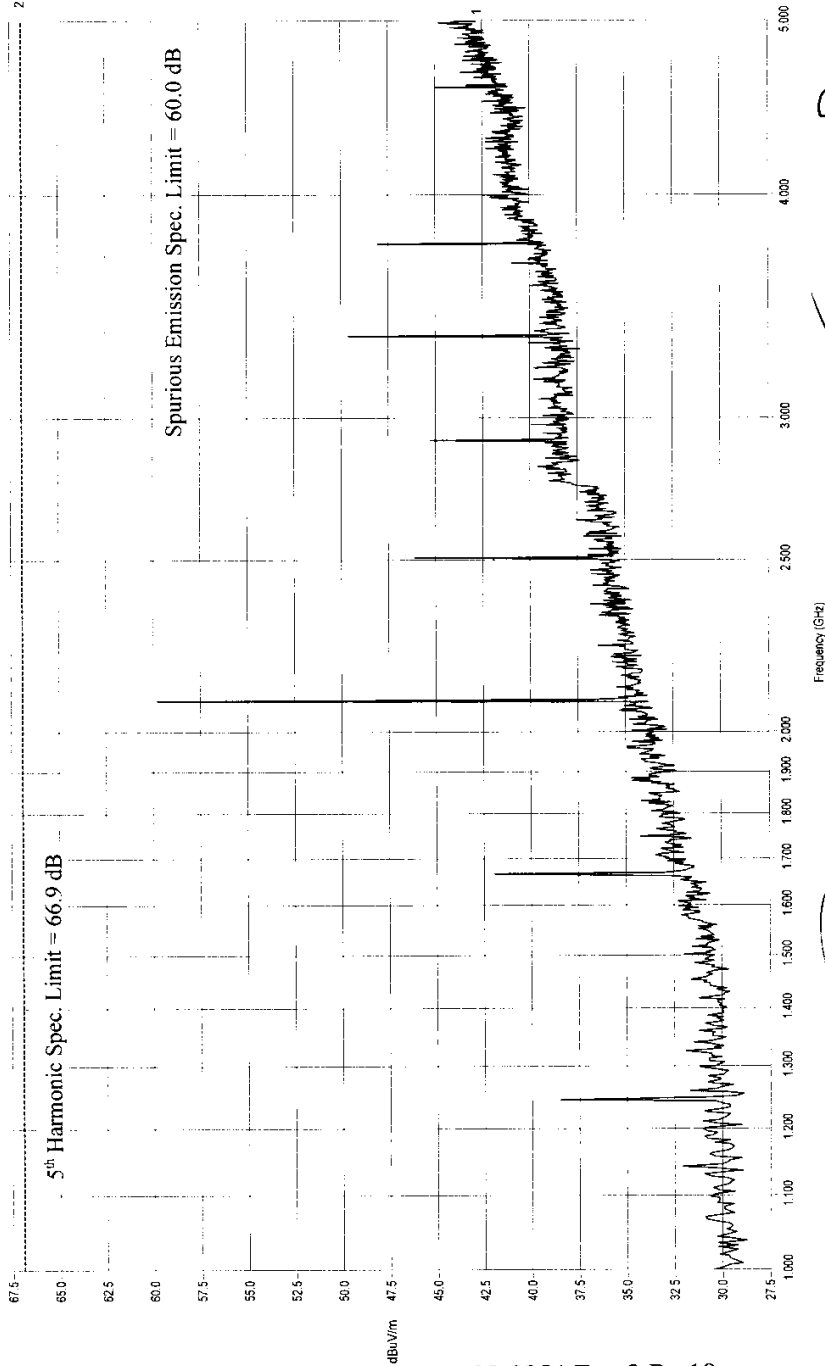
RETEST

File Name: 0272016.ral

BW Table	
Frequency	BW
1.00 GHz	3.00ES Hz
5.00 GHz	

Factor Files	
27.55 rra (1.00 GHz)	

Correction Files	
sm110c rec (1.00 GHz) (cable)	
sm110b rec (1.00 GHz) (2nd cable)	
sm110d rec (1.00 GHz) (3rd cable)	
zero ref (1.00 GHz) (attenuator)	
8448b rep (1.00 GHz) (pre-amp)	



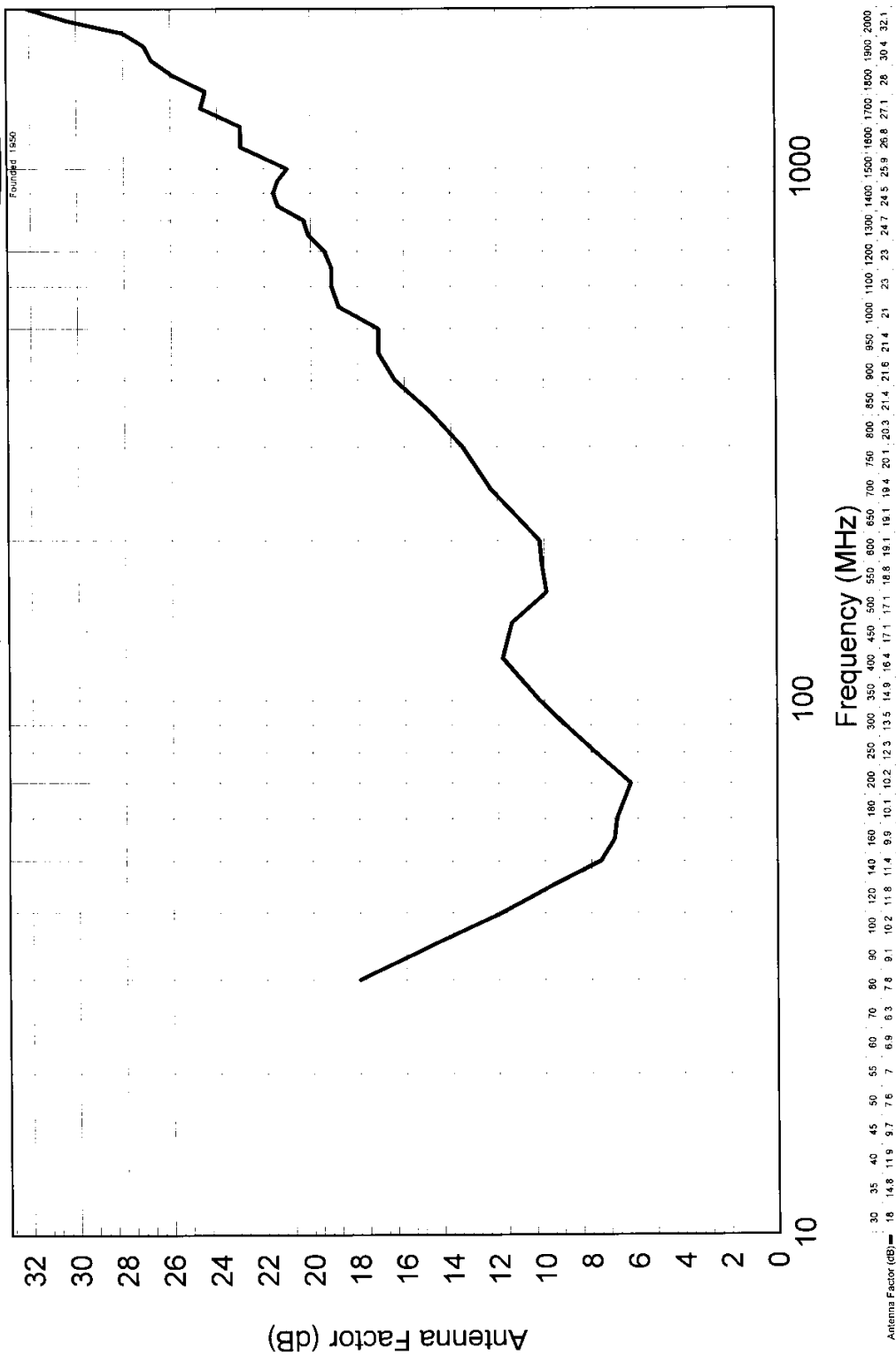
Engineer:

[Signature]

Technician:

[Signature]

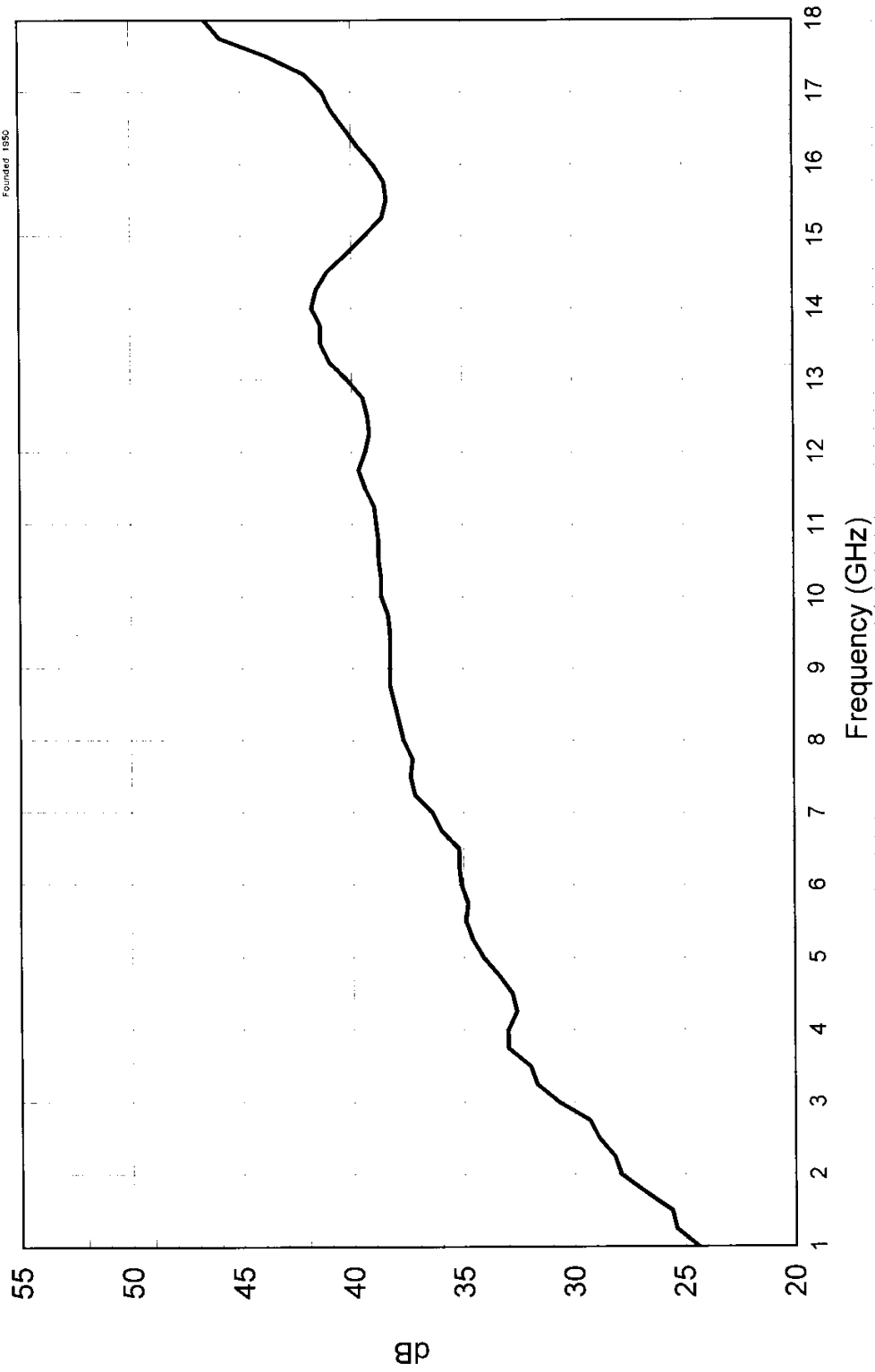
10 Meter Antenna Factor VERTICAL Polarization
 For The Chase EMC, Inc. BiLog Antenna
 Model Number: CBL6112, DTB Number: 27-1



Cal Date: 10 April 1998
 Due Date: 4 April 1999

Add Factors Shown Here in dB to
 Meter Indicated in dBuV to Convert to
 Field Intensity in dBpV/m

Antenna Factor For The
EMCO Model 3115
Double Ridge Waveguide Antenna DTB No 27-55

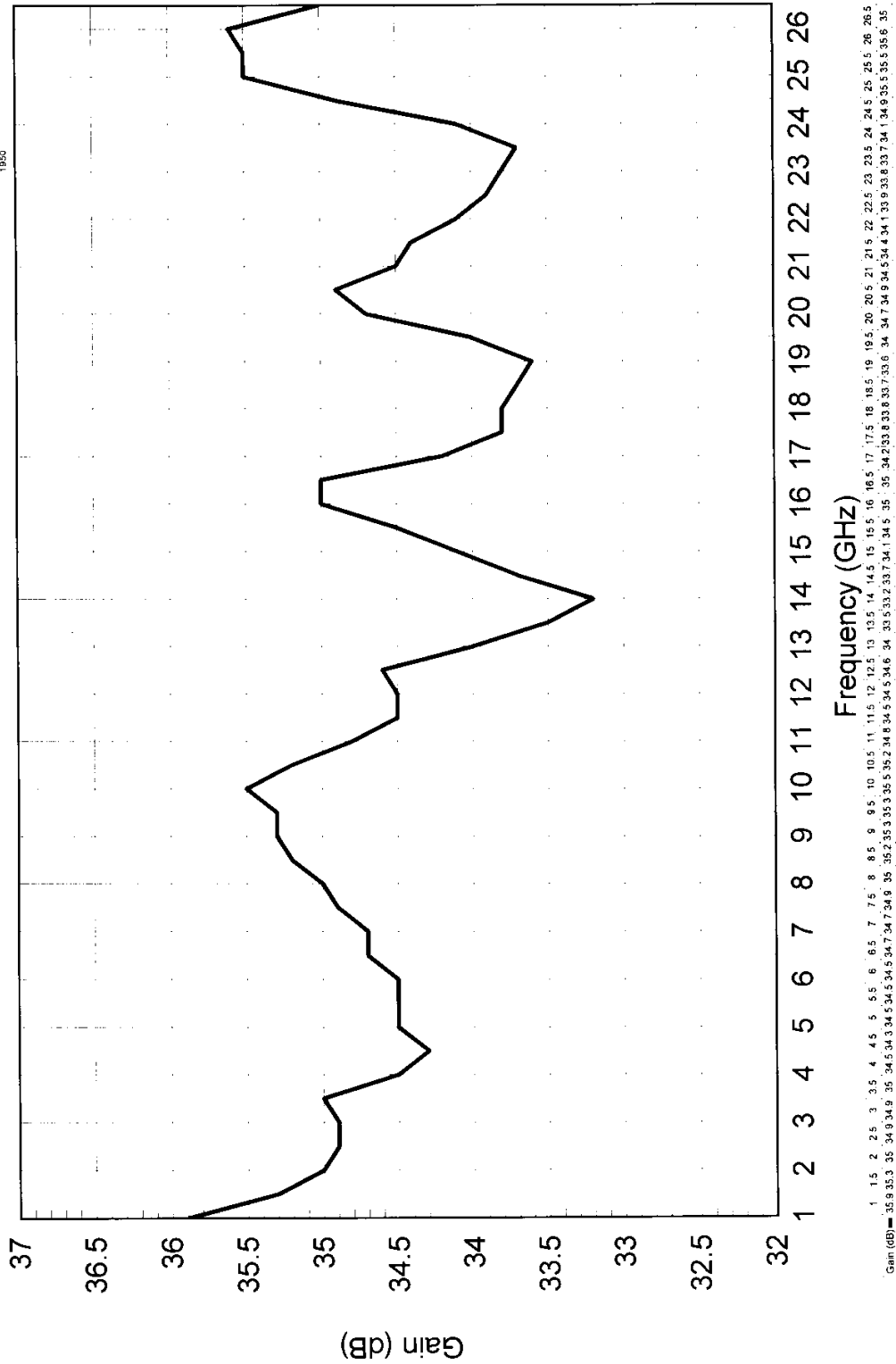


Add Factors Shown Here in dB to
Meter Indicated in dBuV
to Convert to Field Intensity in dBuV/m

CAL DATE 23 OCT 1996
DUE DATE 18 OCT 1998

Gain Correction Factor For The Hewlett Packard Pre-Amplifier

Model Number: HP8449B, DTB Number: 71-11



Cal Date: 19 Dec 1996
Due Date: 13 Dec 1998

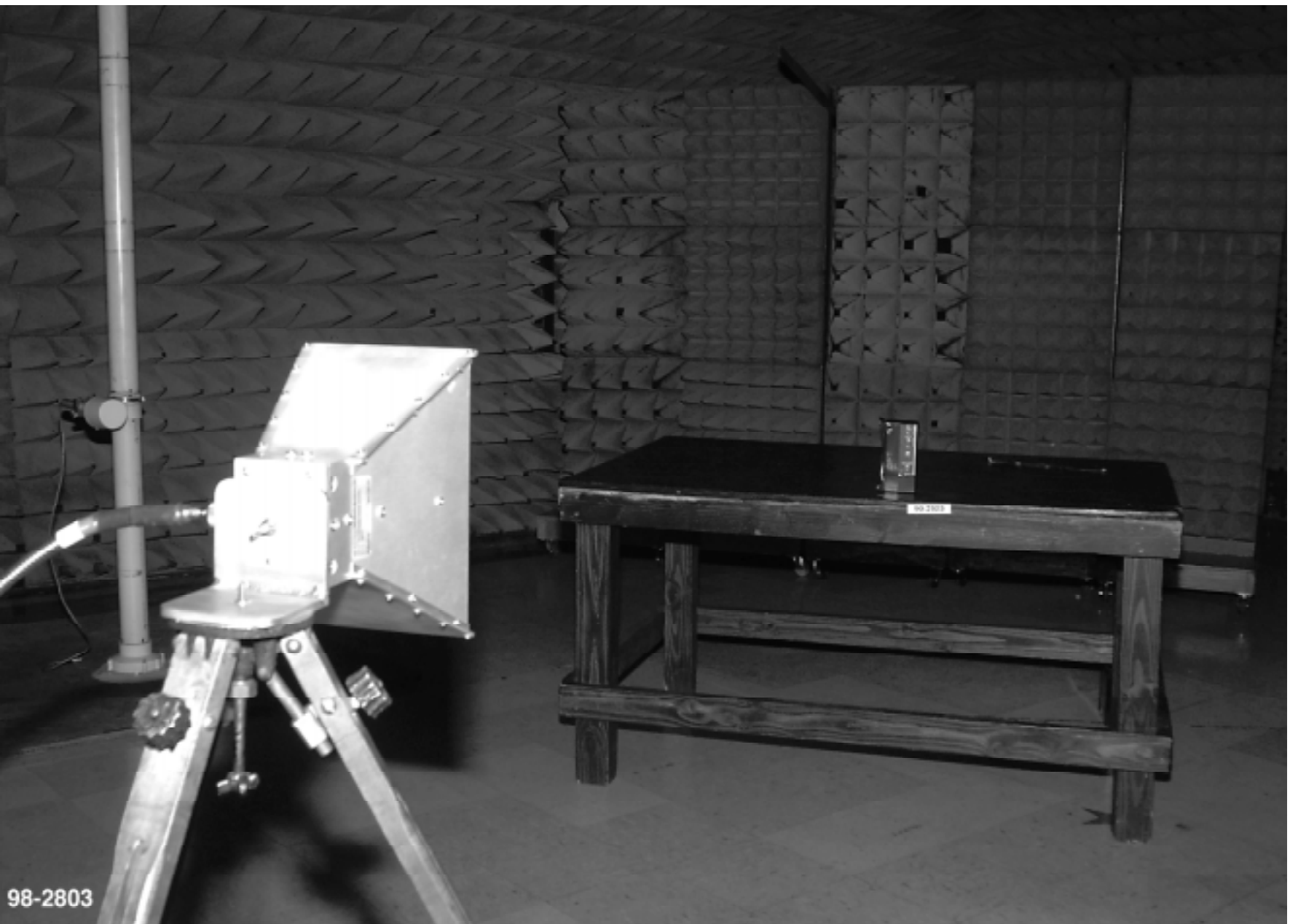


TESTED FOR P-Q CONTROLS, INC.
ITEM: 418 MHz TRANSMITTER WITH SWITCHES
JOB NO. 400267-00-000
DTB01R98-0854

RADIATED EMISSION, 30 TO 1000 MHz
FILE NO. 98-2843
ENCLOSURE 2

S/N DTB-2
6 AUGUST 1998
PHOTO 1





TESTED FOR P-Q CONTROLS, INC.
ITEM: 418 MHz TRANSMITTER WITH SWITCHES
JOB NO. 400267-00-000
DTB01R98-0854

RADIATED EMISSION, 1 TO 5 GHz
FILE NO. 98-2803
ENCLOSURE 2

S/N DTB-2
10 AUGUST 1998
PHOTO 2





Enclosure 3

Occupied Bandwidth



OCCUPIED BANDWIDTH

Test Procedure

The occupied bandwidth of the 418 MHz Transmitter with Switches was measured using a spectrum analyzer with a bandwidth setting of 100 kHz. The spectrum analyzer was operated in the "Max Hold" mode.

The test sample has an operating frequency of 418.0 MHz. The maximum allowed bandwidth for devices operating above 70 MHz and below 900 MHz is 0.25% of the center frequency.

The maximum allowed bandwidth is calculated as follows:

$$418.0 \text{ MHz} \times 0.0025 = 1.0450 \text{ MHz}$$

The occupied bandwidth was determined at the points 20 dB down from the carrier.

The test setup employed is depicted in the photograph contained in this enclosure.

Test Results

The test sample met the occupied bandwidth test. The measured occupied bandwidth for the 418 MHz Transmitter with Switches was 363.0 kHz at the 20-dB down point.

Detailed test results for the initial occupied bandwidth test can be observed on page 2 of this enclosure.

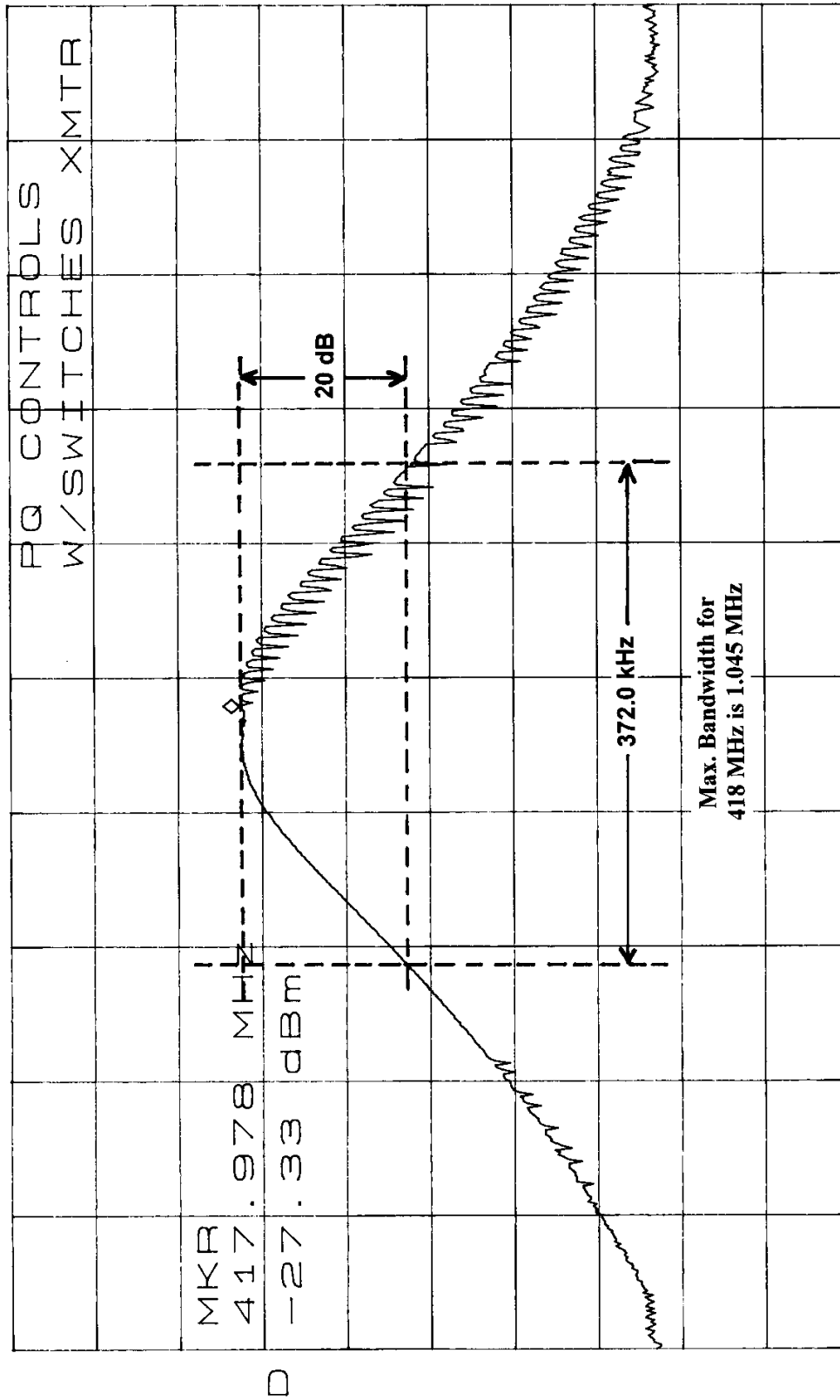
To reduce the radiated emissions from the 418 MHz Transmitter with Switches, a network consisting of a 10 μ h choke in series with a 100 pf capacitor in series with a 21.5 Ω resistor, which was in series with another 21.5 Ω resistor with a 47.3 Ω resistor to ground from the junction of the two 21.5 Ω resistors, was wired between the RF module and the antenna.

The occupied bandwidth test was performed again due to the above mentioned change to the test sample.

The test sample met the occupied bandwidth test. The measured occupied bandwidth for the 418 MHz Transmitter with Switches was 380.0 kHz at the 20-dB down point.

Detailed test results for the retest of the occupied bandwidth test can be observed on page 3 of this enclosure.

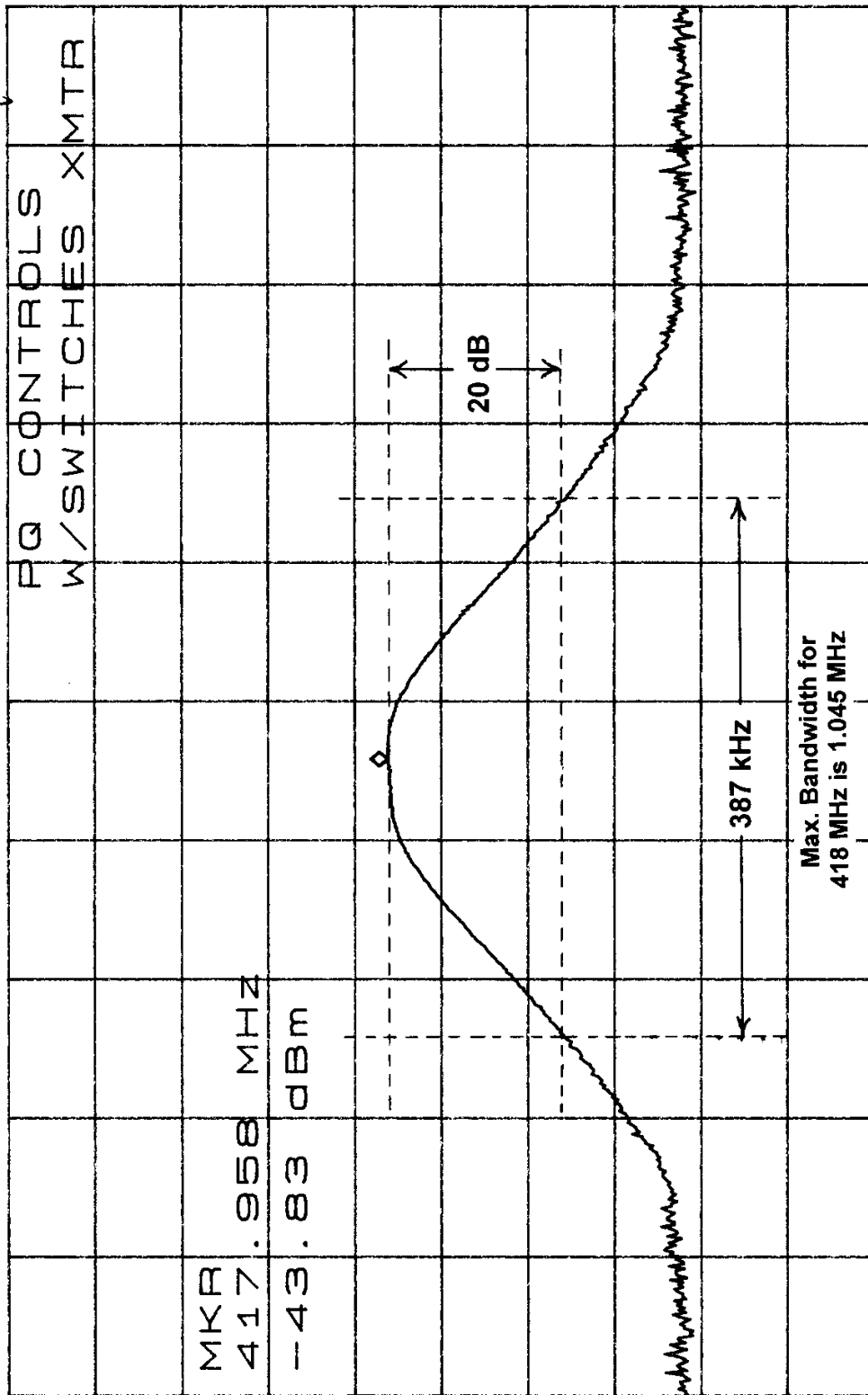
*ATTEN 10dB MKR -27.33dBm
 RL 0dBm INITIAL TEST 10dB/ 417.978MHz



CENTER 418.000MHz SPAN 1.000MHz
 *RBW 100kHz *SWP 50ms

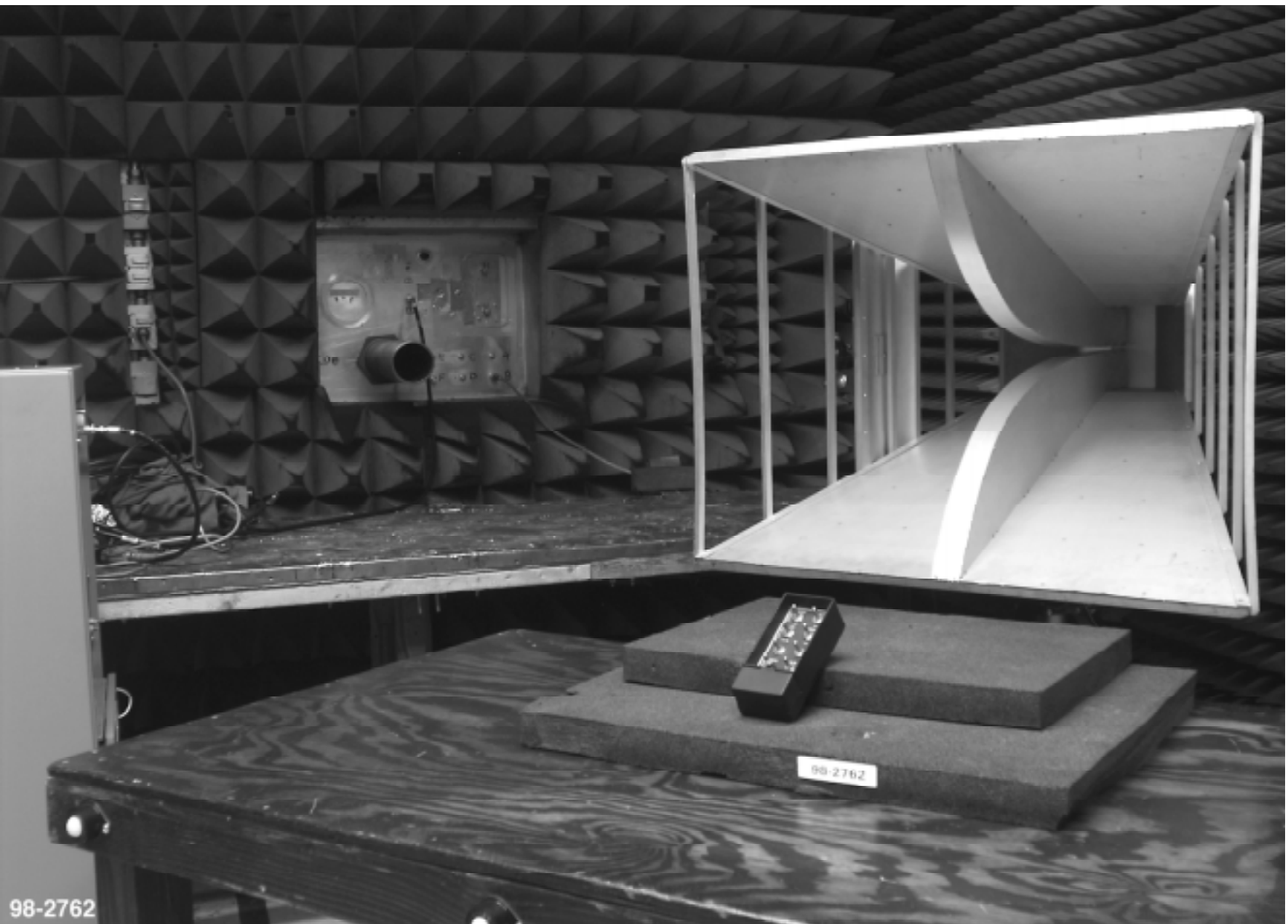
R. Smith

ATTN 10dB
 RL 0dBm
 RETEST
 10dB/
 CNT -43.83dBm
 417.96 MHz
 PQ CONTROLS
 W/SWITCHES XMTR



CENTER 418.000MHZ
 *RBW 100KHZ
 SPAN 1.000MHZ
 SWP 50ms

R. [Signature]



TESTED FOR P-Q CONTROLS, INC.
ITEM: 418 MHz TRANSMITTER WITH SWITCHES
OCCUPIED BANDWIDTH
JOB NO. 400267-00-000
FILE NO. 98-2762
ENCLOSURE 3
DTB01R98-0854

S/N DTB-2
4 AUGUST 1998
PHOTO 1





Enclosure 4

Physical Inspection Forms



PHYSICAL INSPECTION FORM

JOB NUMBER 400267-00-000 DATE 8-5-98
CUSTOMER: P-Q Controls, Inc. ENGINEER R. Monticello
TEST FCC SPECIFICATION 47 CFR, Part 15
ITEM Transmitter With Switches SERIAL NO. DTB 2

A PRE TEST INSPECTION REVEALED :

✓

NO ANOMALIES

NO ANOMALIES DUE TO TESTING

THE FOLLOWING

Photograph Taken ?? NO

If Yes, Photo Number N/A

Technician

Lawrence Williams

Engineer

R. Monticello



PHYSICAL INSPECTION FORM

JOB NUMBER 400267-00-000 DATE 10-14-98
CUSTOMER: P-Q Controls, Inc. ENGINEER R. Monticello
TEST FCC SPECIFICATION 47 CFR, Part 15
ITEM Transmitter With Switches SERIAL NO. DTB 2

A POST TEST INSPECTION REVEALED :

✓ NO ANOMALIES
NO ANOMALIES DUE TO TESTING
THE FOLLOWING

Photograph Taken ?? NO If Yes, Photo Number N/A

Technician

Engineer

[Signature]
R. Monticello



Enclosure 5

A2LA Scope of Accreditation



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990

DAYTON T. BROWN, INC.
Church Street
Bohemia, NY 11716
Charles Gortakowski Phone: 516 589 6300

ACOUSTICS & VIBRATION

Valid To: December 31, 1998

Certificate Number: 0767-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following acoustics & vibration tests:

Vibration (Sine, Random, Gunfire, Shipboard)

Buzz, Squeak and Rattle

Combined Environments and Reliability (Temperature, Humidity and Vibration)

Pyroshock

Sound Power and Measurements

Airborne and Structureborne Noise Measurement

On the following types of materials and products:

Aircraft Components & Systems; Automotive Components & Systems; Shipboard Components & Systems; Railroad & Industrial Vehicle Components & Systems; Information Technology & Telecommunication Equipment & Systems; Electronic Components & Systems; Medical Electronic Equipment; Military Equipment & Hardware.

Using the following standards:

Military: MIL-STD-810, MIL-STD-167-1, MIL-S-901, MIL-STD-202, MIL-STD-781, MIL-E-16400, MIL-STD-108, MIL-STD-2036, MIL-T-28800, MIL-STD-740-1, MIL-STD-740-2, NAVMAT P-9492
Commercial: RTCA/DO-160
ANSI: S1.2, S1.35
GN: 9103P, 9104P, 9110P, 9125P, 9128P, 9140P, 9144P, 9154P, 9163P, 9175P
FORD: DVT1.12.00-007-AC, ES-F5VB-54043B13-AA
Chrysler: PF-9007, PF-9531, PF-6897, PF-8243, PF-9164
Telephony: Bellcore GR-1089

Russell M. Robinson



American Association for Laboratory Accreditation

SUPPLEMENT TO THE SCOPE OF ACCREDITATION
TO ISO/IEC GUIDE 25-1990 AND EN 45001

DAYTON T. BROWN, INC.
Church Street
Bohemia, NY 11716
Charles Gortakowski Phone: 516 589 6300

ELECTRICAL (EMC)

Valid as of: November 18, 1997
Valid until: December 31, 1998

Certificate Number: 0767-02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electrical tests:

AS/NZS 3548

Code of Federal Regulations (CFR) 47, FCC Method Part 15 using ANSI C63.4

Code of Federal Regulations (CFR) 47, FCC Method Part 68

CISPR 22

EN: 50081-1, 50081-2, 50082-1, 50082-2, 50091-1, 50091-2, 55011, 55013, 55014, 55015, 55022, 60555-2, 60555-3, 60601-1-2, 61000-4-1, 61000-4-2, 61000-4-4, 61000-4-5, 61000-4-7, 61000-4-8, 61000-4-11

ENW: 50140, 50141, 50142, 50204

IEC: 601, 601-1-2, 801-1 (1000-4-1), 801-2 (1000-4-2), 801-3 (1000-4-3), 801-4 (1000-4-4), 801-5 (1000-4-5), 801-6 (1000-4-6), 1000-4-7, 1000-4-8, 1000-4-11, 1000-3-2, 1000-3-3

Commercial Aviation: RTCA/DO-160, FAA Advisory Circular 20-136, Boeing D200Z001, Boeing WZZ7J00

Military: MIL-STD-461 (A,B,C & D), MIL-STD-462, MIL-STD-1399, MIL-STD-704, MIL-E-16400, MIL-STD-2036, MIL-STD-1275A(AT), MIL-STD-202

GN: 9100P, 9105P, 9109P, 9110P, 9112P, 9113P, 9114P, 9115P, 9116P, 9117P, 9119P, 9120P, 9103P, 9104P, 9125P, 9128P, 9140P, 9144P, 9154P, 9163P, 9175P

Chrysler PF9164

Telephony Bellcore GR-1089

ANSI/IEEE: IEEE-587-1980, IEEE-C62.41, IEEE-C62.32

TEMPEST: NST ISSAM Tempest/1-92, NACSEM 5100, NACSIM 5100A, NACSEM 5112, KAG-30A/TSEC

VCCI

Peter Almy



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990 AND EN 45001

DAYTON T. BROWN, INC.
Church Street
Bohemia, NY 11716
Charles Gortakowski Phone: 516 589 6300

ELECTRICAL (EMC)

Valid To: December 31, 1998

Certificate Number: 0767-02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electrical tests:

Capacitance
AC Capacitance
AC Loss Characteristics
Permittivity
(Dielectric Loss Constant)
Conductivity
Current (AC/DC)
Electrostatic (ESD)
EMP

Impedance
Inductance
Lightning
Magnetism
Power Transmission
Resistivity
AC/DC
Insulation Resistance
Voltage (AC/DC)

EMI/RFI

Conducted Emissions
Conducted Susceptibility
Conducted Susceptibility (Immunity)
Radiated Emissions (O.A.T.S. Method)
Radiated Emissions
Shielded Room Method
Radiated Susceptibility (Immunity)
Radiated Transient Susceptibility
Electrostatic Discharge (ESD)
Electromagnetic Pulse (EMP)
Electrical Fast Transient (EFT)

Lightning
Input Power Variations
Magnetic Field Emission
Magnetic Field Susceptibility
Harmonics
RF Power Handling
Shielding Effectiveness
Stimmed Mode
Transmissibility
Site Survey
TEMPEST

On the following types of materials and products:

Aerospace Components & Systems; Automotive Components & Systems; Shipboard Components & Systems; Railroad & Industrial Vehicle Components & Systems; Information Technology & Telecommunication Equipment & Systems; Electrical & Electronic Components & Systems; Medical Electronic Equipment; Military Equipment & Hardware.

Using the following sources of standards:

ANSI, AS/NZS, CFR, CISPR, EN, ENEC, FCC, IEC, Commercial Aviation, Military, GN, Chrysler, Telephony, ANSI/IEEE, TEMPEST, VCCI

A supplemental scope, identifying the full range of tests and types of tests, is available from A2LA or the laboratory.

Peter Almy



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990

DAYTON T. BROWN, INC.
Church Street
Bohemia, NY 11716
Charles Gortakowski Phone: 516 589 6300

MECHANICAL

Valid To: December 31, 1998

Certificate Number: 0767-03

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following mechanical tests:

Compression
Fatigue
Shear
Stress
Metallography
Hardness
Fracture
Torsion

Tensile (Room, High & Low Temperatures)
NDT (Dye Penetrant & Magnetic Particle)

Environmental Simulation

Acceleration
Explosion
Temperature/Altitude
Salt Fog/Salt Spray
Temperature/Shock
Altitude
Dust
Wind & Rain
Humidity
Drop/Impact
Fungus
Sun/Solar Radiation
Combined Environments
Water Immersion
Sand

Durability (Horn Life Actuation/Horn Blow Mechanism)

High/Low Temperature/Humidity/Vibration

High Pressure Burst (Air & Hydraulic)

Shock (1/2 Sine, Sawtooth, Trapezoid)

On the following types of materials and products:

Aerospace Components & Systems; Automotive Components & Systems; Shipboard Components & Systems; Railroad & Industrial Components & Systems; Information Technology & Telecommunication Equipment & Systems; Electrical & Electronic Components & Systems; Medical Electronic Equipment; Military Equipment & Hardware; Packaging & Containers; Pipes, Hoses, Fittings, and Valves.

Using the following standards:

Military: MIL-STD-810, MIL-STD-167-1, MIL-S-901, MIL-STD-202, MIL-STD-781, MIL-E-16400, MIL-STD-108, MIL-STD-2036, MIL-T-28800, NAVMAT P-9492, MIL-STD-6866, MIL-T-7743, MIL-STD-410

Commercial: RTCA/DO-160

ASTM: B117, D1141, G23, E18, D2240, B567, F8, E1444

GN: 9110P, 9103P, 9104P, 9125P, 9128P, 9140P, 9144P, 9154P, 9163P, 9175P

FORD: DVT1.12.00-007-AC, ES-F5VB-54043B13-AA

Chrysler: PF-9007, PF-9531, PF-6897, PF-8243, PF-9164

Telephony: Bellcore GR-1089

Russell M. Robinson