



Founded 1950

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

TEST REPORT NO.: DTB01R98-0853

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
PISTOL GRIP TRANSMITTER, DTB SERIAL NO. 1

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



TABLE OF CONTENTS

<u>Subject</u>	<u>Paragraph</u>	<u>Page No.</u>
Abstract	1.0	2
References	2.0	3
Administrative Information	3.0	4
Test Program Outline	4.0	5
General Test Information	5.0	6

<u>Enclosures</u>	<u>Number of Pages</u>	<u>Number of Photos</u>
(1) Test Equipment List	1	-
(2) Radiated Emission, Intentional Radiator, 30 MHz to 5 GHz	13	2
(3) Occupied Bandwidth	3	1
(4) Physical Inspection Forms	2	-
(5) A2LA Scope of Accreditation	1	-



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 Pistol Grip Transmitter, DTB Serial No. 1, manufactured by P-Q Controls, Inc.

The 418 MHz Pistol Grip Transmitter 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 Pistol Grip Transmitter

Quantity Received: One

DTB Serial No.: 1

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.



Founded 1950

Enclosure 1

Test Equipment List

98-0853

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 Pistol Grip Transmitter 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 Pistol Grip Transmitter 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 Pistol Grip Transmitter 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	388 MHz	Vertical	3.77 dB at 388 MHz
	422 MHz		14.66 dB at 422 MHz
	422 MHz	Horizontal	3.86 dB at 422 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 45.3Ω resistor in series with another 45.3Ω resistor, with a 5Ω resistor to ground from the junction of the two 45.3Ω resistors, was wired between the RF module and the antenna.

The radiated emission test was then repeated on the 418 MHz Pistol Grip Transmitter.

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 Pistol Grip Transmitter.

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



Founded 1950

Test Item : Pistol Grip Transmitter

Customer : PQ Controls

Test Condition : Transmitting

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

Test: Radiated Field Strength Measurements **Met Requirement** Yes No

Date : 6 Aug 1998

Serial No. : None

Job No. : 400267-00-000

Antenna Pol.: Vertical

Units : dB μ V/m

Remarks : INITIAL TEST

Data Reviewed By: ✓ - *Signature* **Test Performed By:** *Signature*

Test Title: Radiated Emissions

Test Procedure: FCC Part 15, Sub-Part C

Customer: P Q Controls

Test Item: Pistol Grip Transmitter

Model Num.: N/A

Part Num.: N/A

Serial Num.: DTB #1

Mode of Op.: Normal Operation

Comment: Limit Relaxed by 6 dB

INITIAL TEST

67.5

65.0

62.5

60.0

57.5

55.0

52.5

50.0

47.5

45.0

42.5

40.0

37.5

35.0

32.5

30.0

27.5

25.0

22.5

20.0

17.5

15.0

12.5

10.0

7.5

5.0

2.5

0.0

Spurious Emission Spec. Limit = 60.0 dB

Frequency

Factor Files

3 BW Table

File Name:

1 RE Data

2.40267_xmtrel(spec limit)

3.401272_harmonicrel(spec limit)

1.00 GHz

1.0005 GHz

5.00 GHz

27.55 mW (1.00 GHz)

1.00 GHz

1.0005 GHz

5.00 GHz

4.000

3.000

2.500

2.000

1.500

1.000

5.000

4.000

3.000

2.000

1.000







Founded 1950

Test Item : Pistol Grip Transmitter

Date : 6 Aug 1998

Customer : PQ Controls

Serial No. : None

Test Condition : Transmitting

Antenna Pol.: Horizontal

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

Units : dB μ V/m

Test: Radiated Field Strength Measurements

Met Requirement Yes No

Remarks : INITIAL TEST

Data Reviewed By:

Test Performed By:

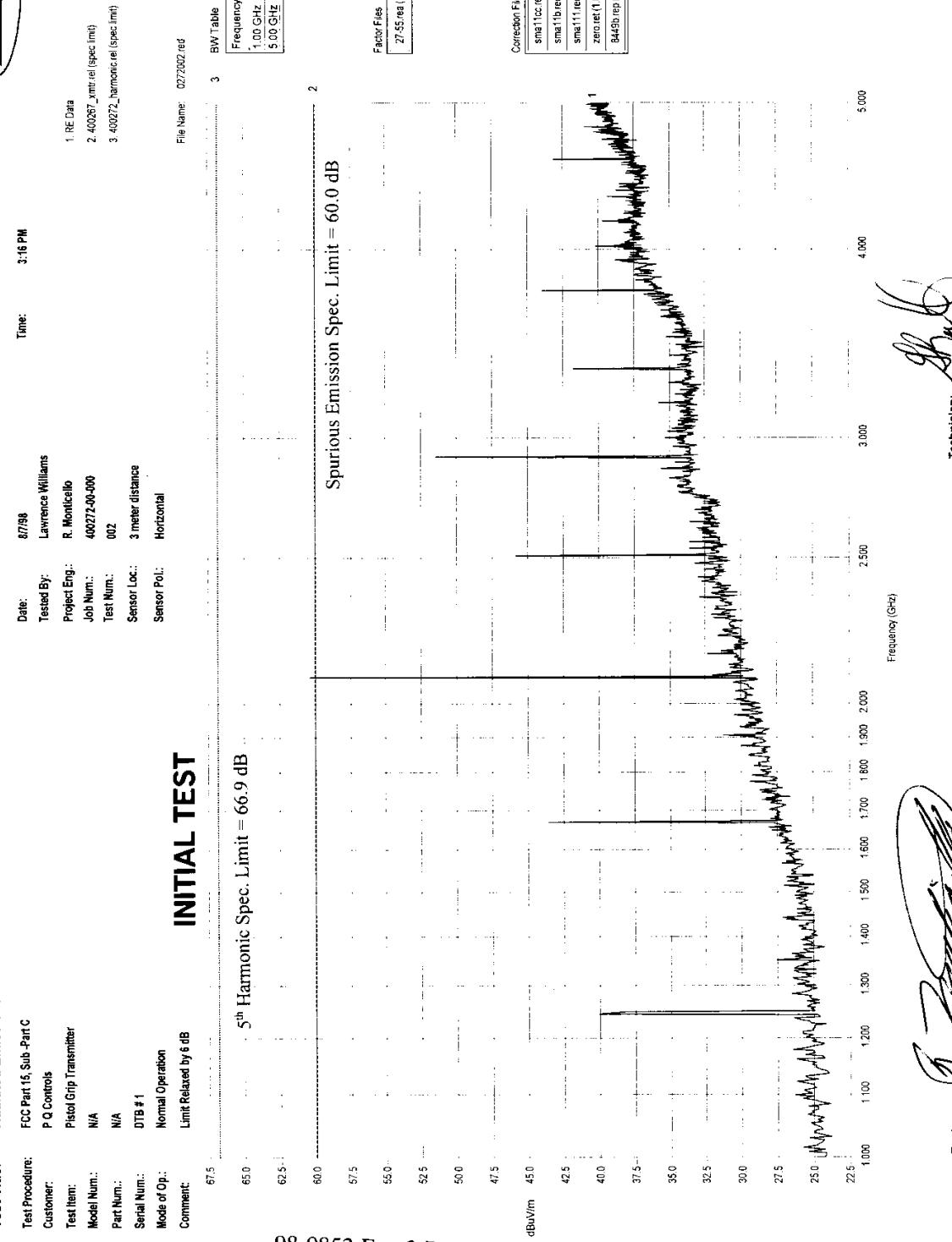
Test Title: Radiated Emissions
Test Procedure: FCC Part 15, Sub-Part C
Customer: P Q Controls
Test Item: Pistol Grip Transmitter
Mode Num.: N/A
Part Num.: N/A
Serial Num.: DTB #1
Mode of Op.: Nominal Operation
Comment: Limit Relaxed by 6 dB

INITIAL TEST

67.5
65.0
62.5
60.0

5th Harmonic Spec. Limit = 66.9 dB

98-0853 Enc 2 Pg 6





Founded 1950

Date : 14 Oct 1998

Test Item : Pistol Grip Transmitter

Customer : PQ Controls

Test Condition : Transmitting

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

Detector Function : Quasi-Peak Units : dBuV/m

Units : dBuV/m

Serial No.:

Job No. : 400267-00-000

Distance : 3 Meter

Antenna Polarization: Vertical

Bandwidth: 120 kHz (CISPR)

Radiated Field Strength Measurements

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)

Engineer :

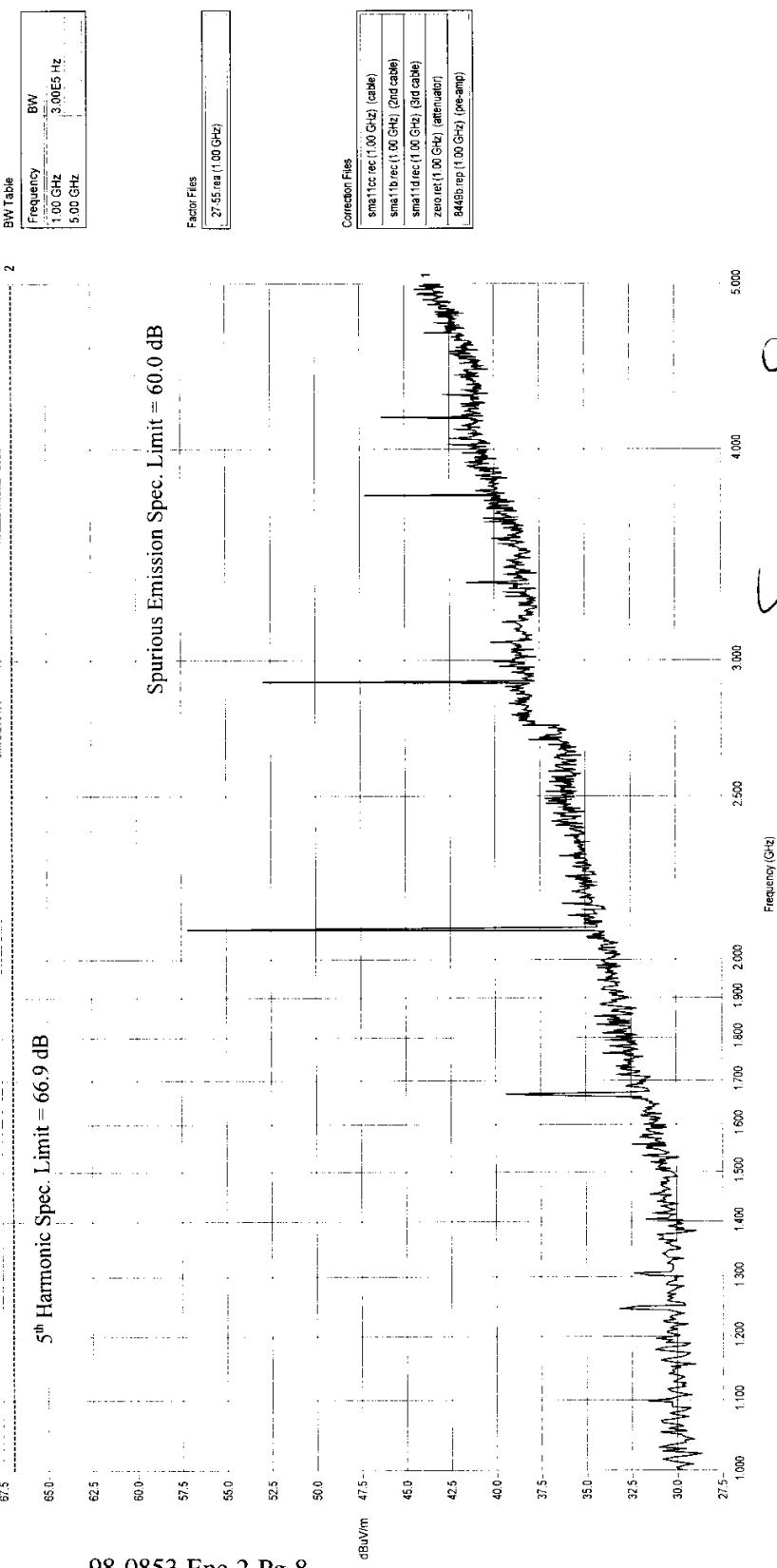
Technician

Test Title:		Radiated Emissions	
Test Procedure:	FCC Part 15, Sub Part C	Customer:	Platof Grip Transmitter
Test Item:		Model Num.:	N/A
		Part Num.:	N/A
		Serial Num.:	DTB # 1
		Mode of Op.:	Normal Operation
		Comment:	Limit Related by 6 dB

98-0853 Enc 2 Pg 8

RFTEST

Test Procedure:	FCC Part 15, Sub-Part C	Date:	10/14/98	Time:	11:13 AM
Customer:	P Q Controls	Tested By:	MMG N. MOY	1. RE Data	
Test Item:	Proto Grip Transmitter	Project Eng.:	R. Monticello	2. 40267_xmt rel [spec. limit]	
Model Num.:	N/A	Job Num.:	400267-00400		
Part Num.:	N/A	Test Num.:	0272914		
Serial Num.:	DTB # 1	Sensor Loc.:	3 meter distance		
Mode of Op.:	Normal Operation	Sensor Pol.:	Vertical Pol.		
Comment:	Limit Relaxed by 6 dB				



Tag

118



Test Item : Pistol Grip Transmitter

Customer : PQ Controls

Test Condition : Transmitting

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

Detector Function : Quasi-Peak Units : dBuV/m

Radiated Field Strength Measurements **RETEST** **Met Requirement** Yes No

Date : 14 Oct 1998

Serial No.:

Job No. : 400267-00-000

Distance : 3 Meter

Antenna Polarization: Horizontal

Bandwidth: 120 kHz (CISPR)

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)

Engineer : Technician :

Test Title: Radiated Emissions
Test Procedure: FCC Part 15, Sub Part C
Customer: P Q Controls
Test Item: Pistol Grip Transmitter
Model Num.: N/A
Part Num.: N/A
Serial Num.: DTB #1
Mode of Op.: Normal Operation
Comment: Limit Relaxed by 6 dB

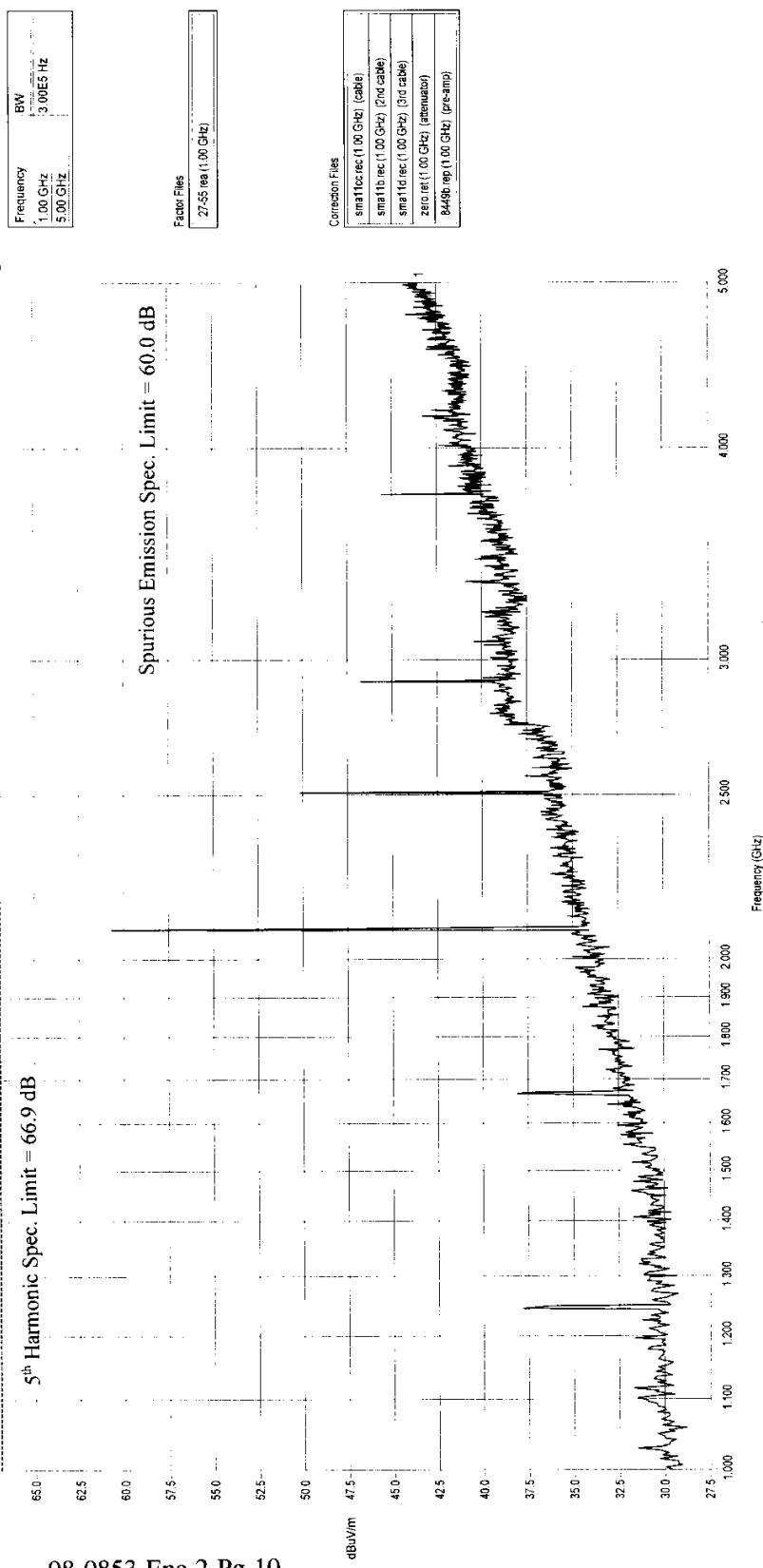
RETEST

Date: 10/14/98
Tested By: MING N. MOY
Project Eng.: R. Monticello
Job Num.: 400267-00-000
Test Num.: 07/2013
Sensor Loc.: 3 meter distance
Sensor Pol.: Horizontal Pol

1 RE Data
2 400267_xmit.ref (spec limit)



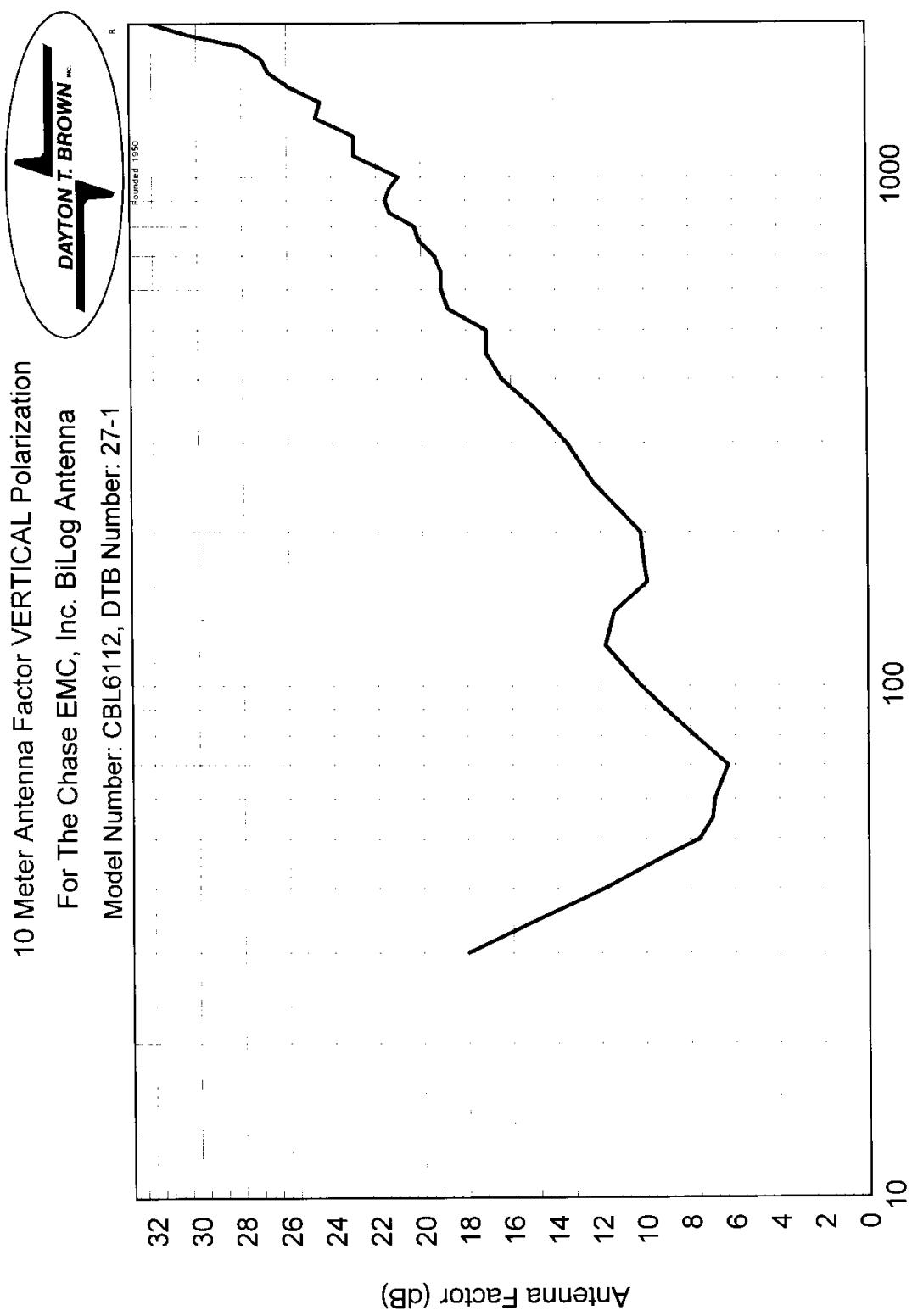
98-0853 Enc 2 Pg 10



Engineer:

Technician:

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

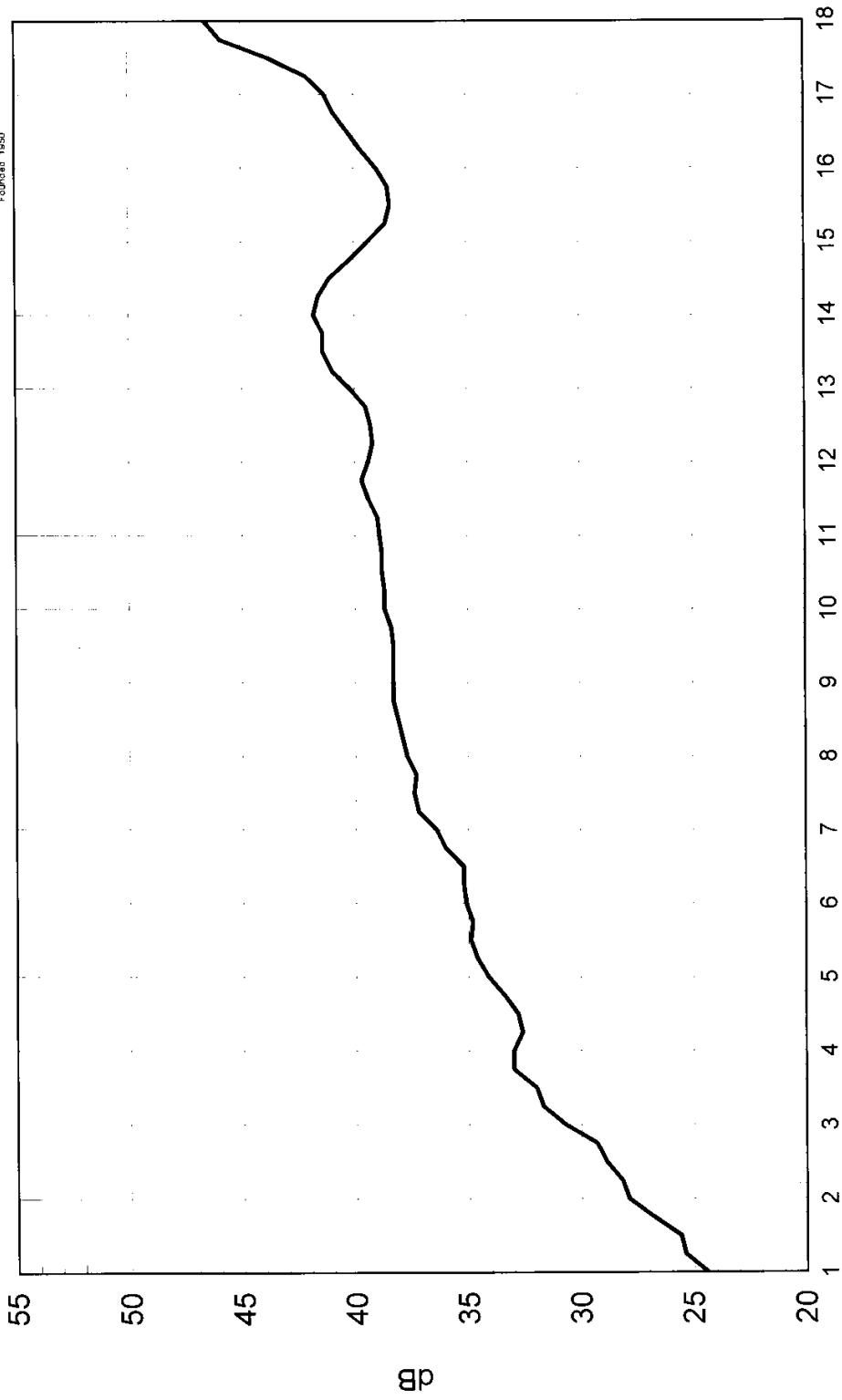


Antenna Factor (dB) = 18.48 11.9 9.7 7.6 7 6.9 6.3 7.8 9.1 10.2 11.8 11.4 9.9 10.1 10.2 12.3 13.5 14.9 16.4 17.1 17.8 19.1 19.8 19.4 20.1 20.3 21.4 21.6 21.4 21

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

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

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

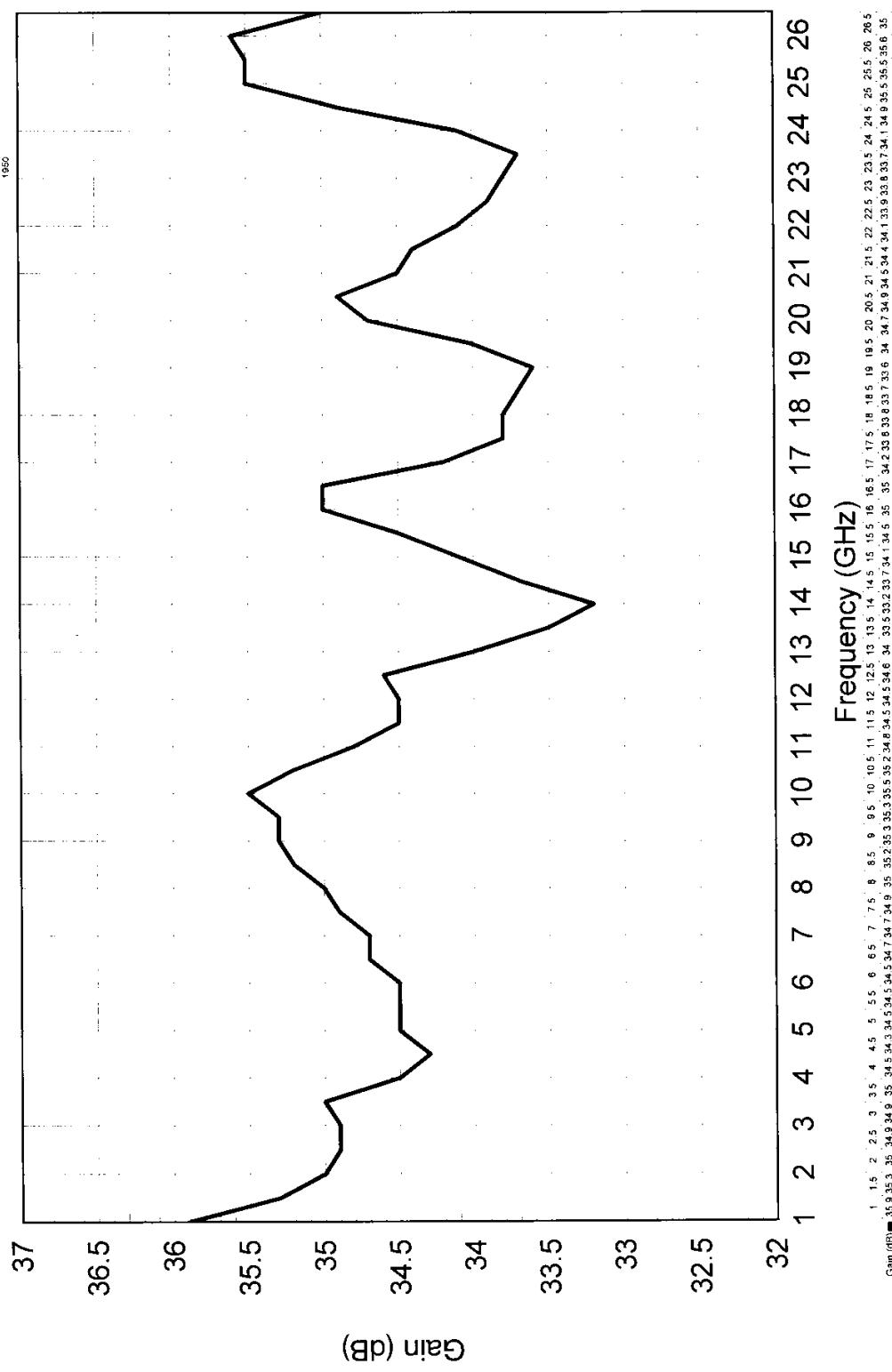


CAL DATE 23 OCT 1996
DUE DATE 18 OCT 1998

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

Gain Correction Factor
For The Hewlett Packard Pre-Amplifier
Model Number: HFP8449B. DTB Number: 71-11

The logo for Dayton T. Brown, Inc. is located in the top right corner. It features a stylized 'T' shape with a horizontal bar extending from its top. The text 'DAYTON T. BROWN, INC.' is written vertically along the left side of the 'T'.



98-0853 Enc 2 Pg 13



TESTED FOR P-Q CONTROLS, INC.

ITEM: 418 MHz PISTOL GRIP TRANSMITTER

RADIATED EMISSION, 30 TO 1000 MHz

JOB NO. 40267-00-000

DTB01R98-0853

S/N

DTB-1

FILE NO. 98-2842

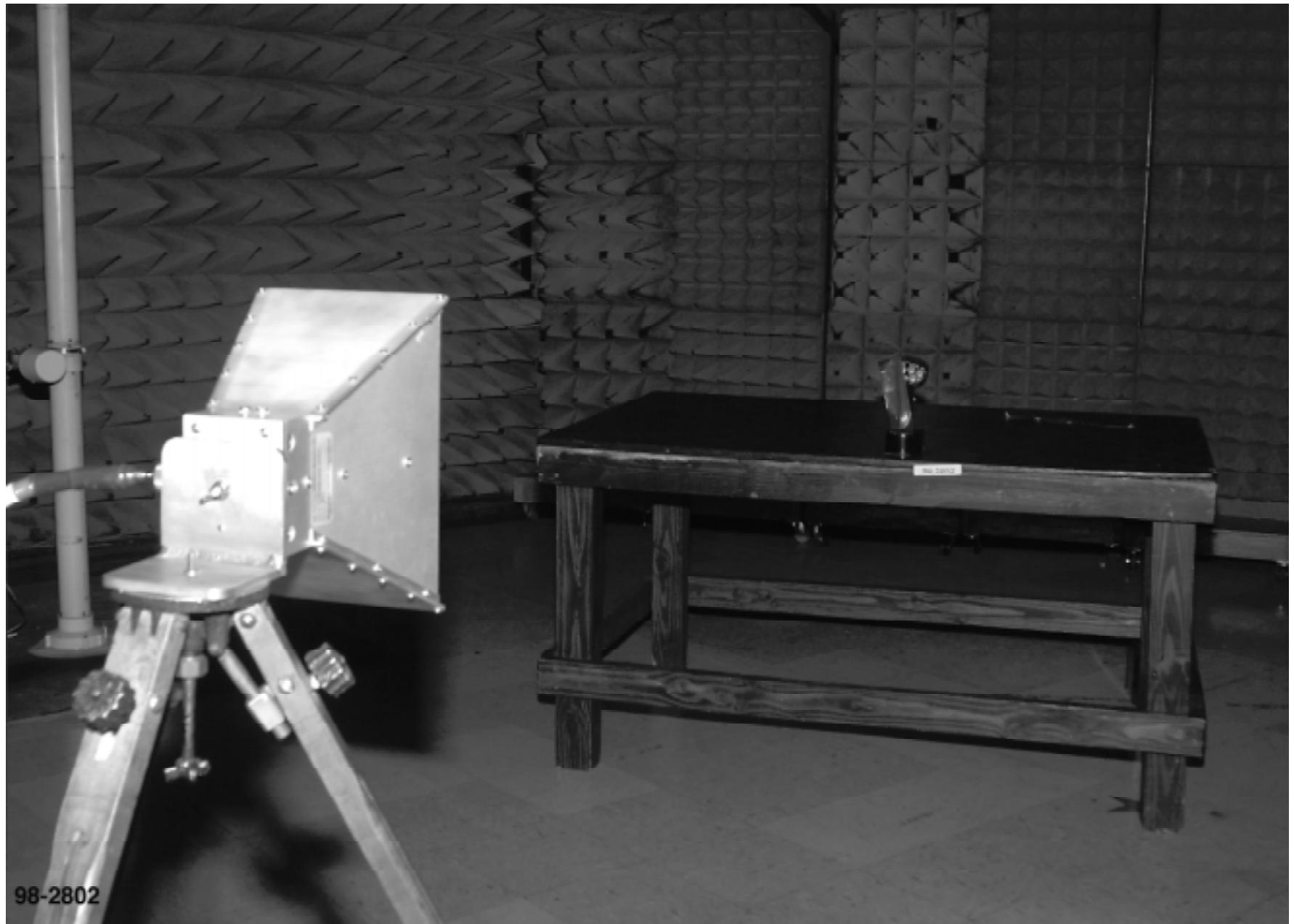
ENCLOSURE 2

6 AUGUST 1998

PHOTO 1

Founded 1950





TESTED FOR P-Q CONTROLS, INC.
ITEM: 418 MHz PISTOL GRIP TRANSMITTER

JOB NO. 400267-00-000

DTB01R98-0853

RADIATED EMISSION, 1 TO 2 GHz

FILE NO. 98-2802

ENCLOSURE 2

S/N DTB-1

10 AUGUST 1998

PHOTO 2

98-2802

Founded 1950





Enclosure 3

Occupied Bandwidth

98-0853



OCCUPIED BANDWIDTH

Test Procedure

The occupied bandwidth of the 418 MHz Pistol Grip Transmitter 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 Pistol Grip Transmitter was 363.0 kHz at the 20-dB down point.

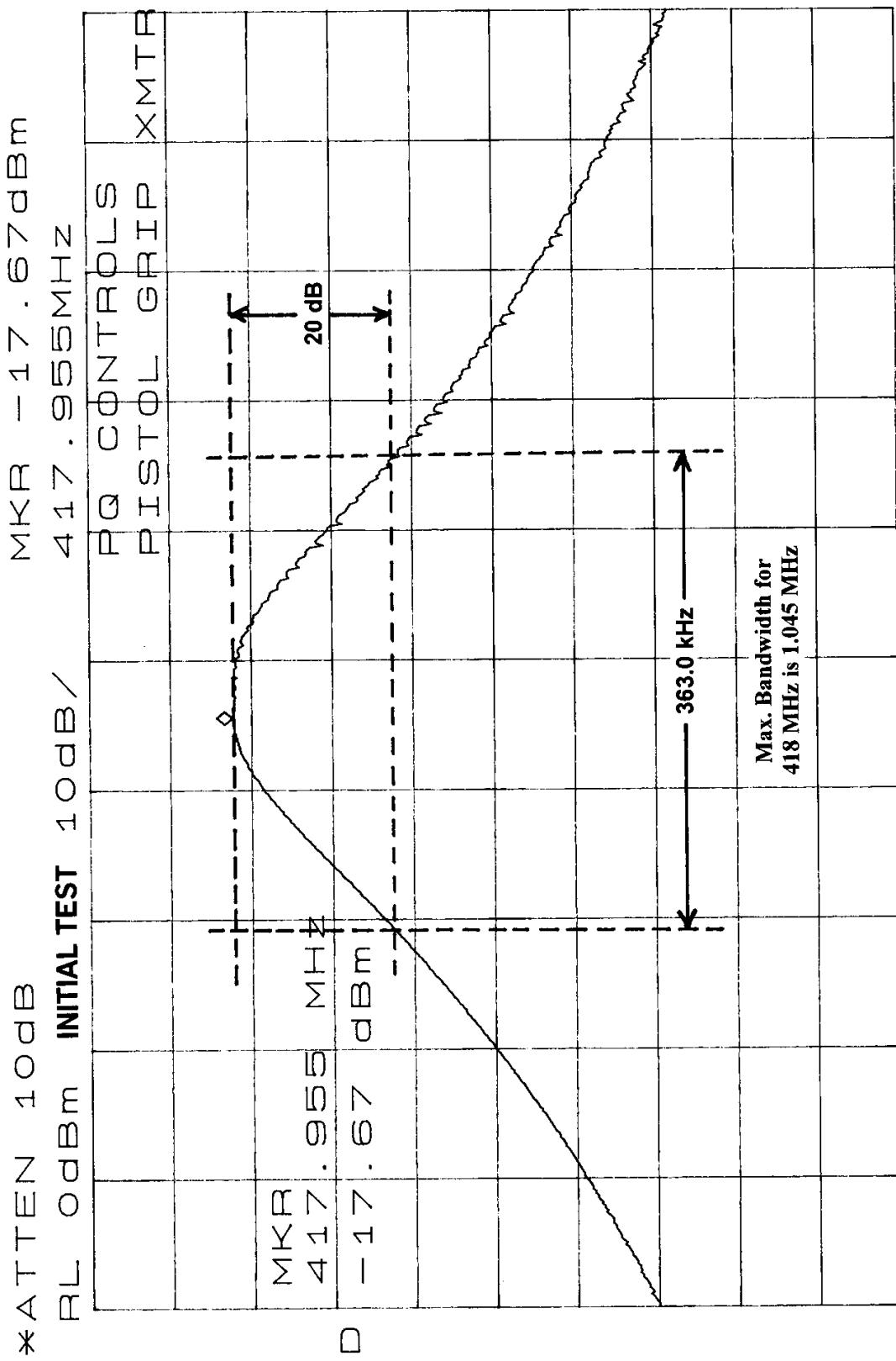
Detailed test results for the initial occupied bandwidth test can be observed on page 2 of this enclosure.

To reduce the radiated emissions from the 418-MHz Pistol Grip Transmitter, a network consisting of a 45.3Ω resistor in series with another 45.3Ω resistor, with a 5Ω resistor to ground from the junction of the two 45.3Ω 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 Pistol Grip Transmitter 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.

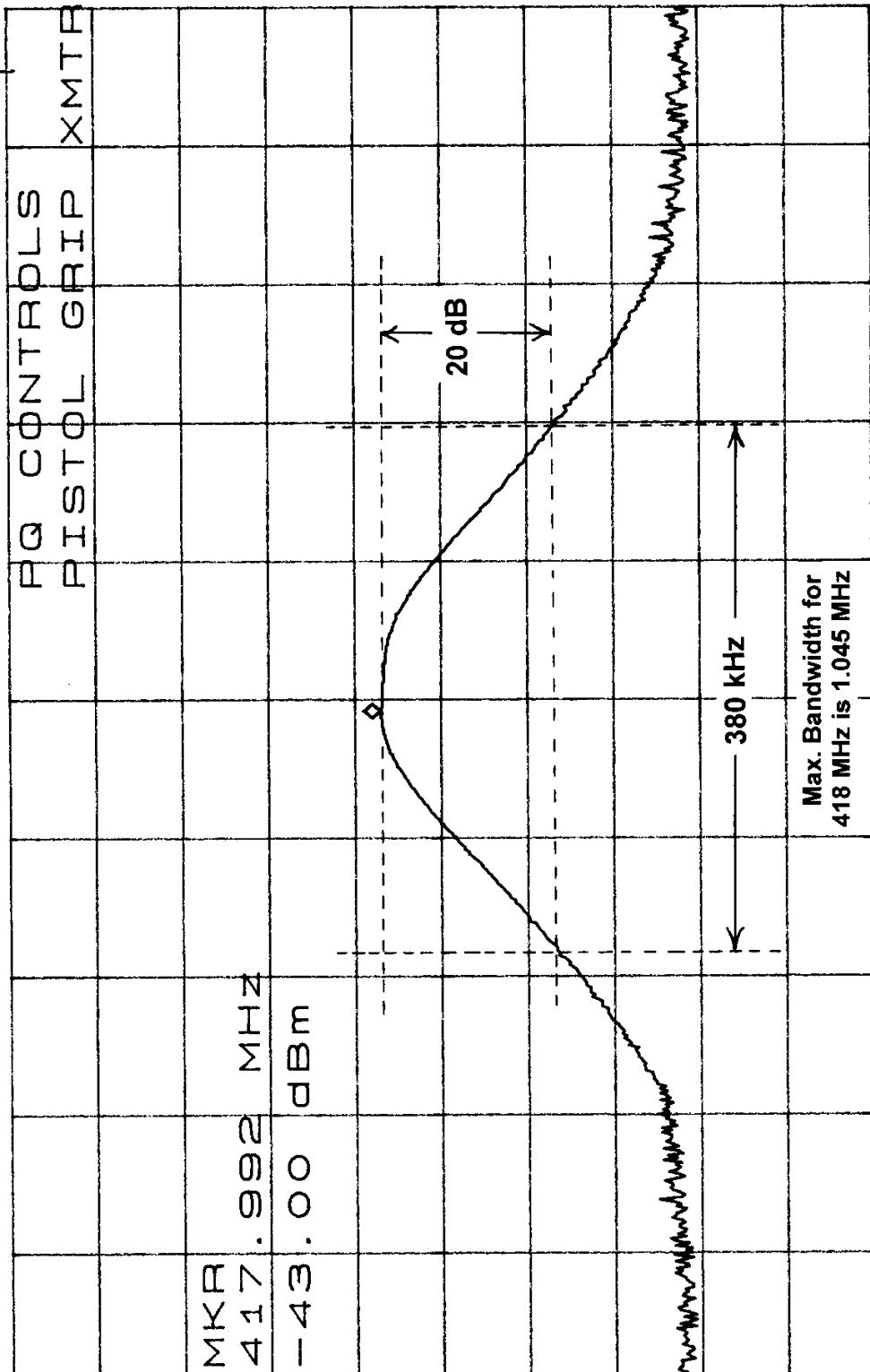


CENTER 418.000MHz
 *RBW 100kHz VBW 100kHz
 *SPAN 1.000MHz *SWP 50ms
 R. B. Smith

200

ATTEN 10dB
RL 0dB RETEST 10dB /

CNT -43.00dBm 418.02 MHz



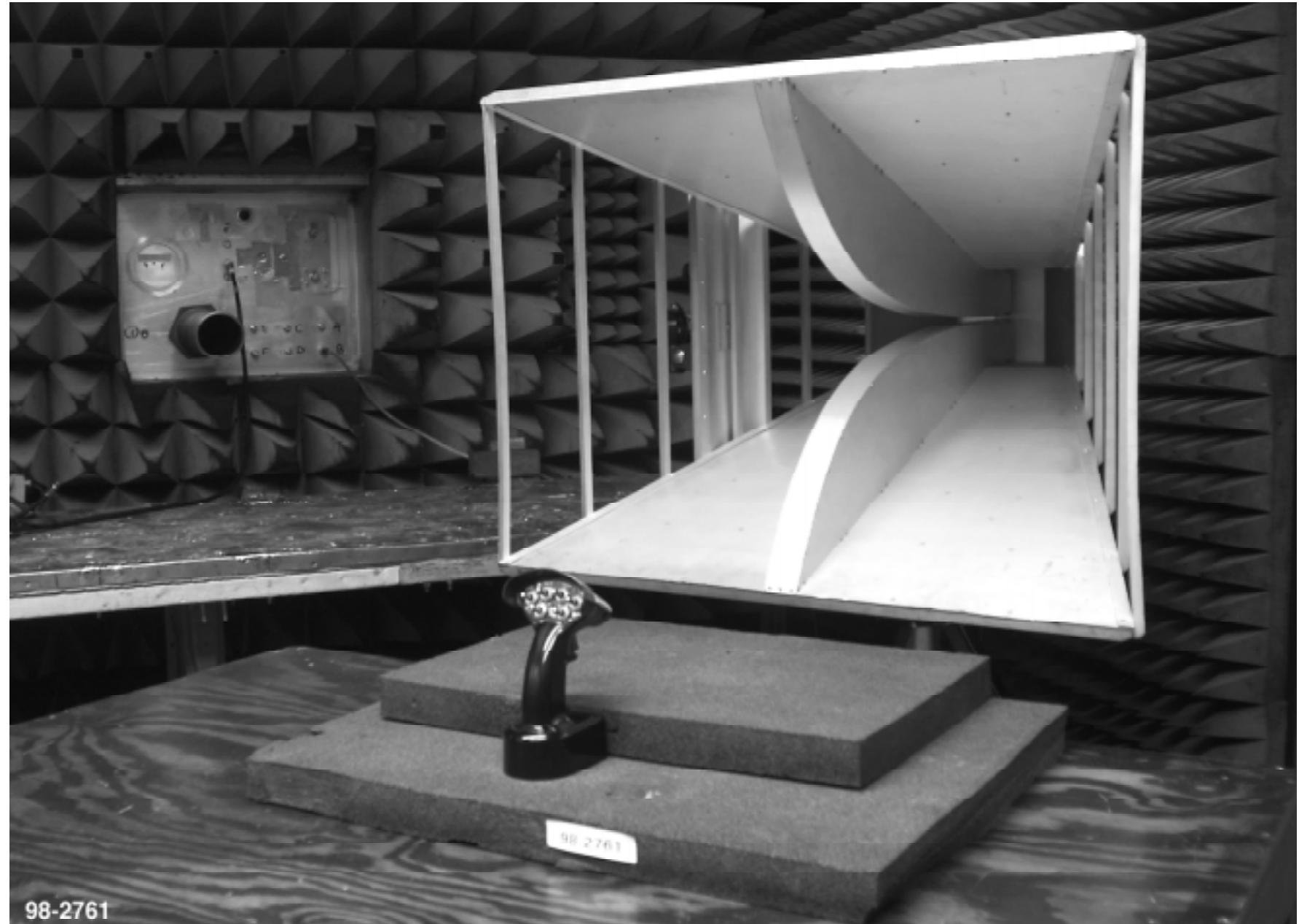
CENTER 418.000MHz
*RBW 100KHz

SPAN 1.000MHz
SWP 50ms

TESTED FOR P-Q CONTROLS, INC.
ITEM: 418 MHz PISTOL GRIP TRANSMITTER
JOB NO. 40267-00-000
DTB01R98-0853

FILE NO. 98-2761
ENCLOSURE 3

S/N DTB-1
4 AUGUST 1998
PHOTO 1



98-2761



Founded 1950

Enclosure 4

Physical Inspection Forms

98-0853



Founded 1950

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 Pistol Grip Transmitter

SERIAL NO. DTB 1

A PRE TEST INSPECTION REVEALED :

✓

NO ANOMALIES

NO ANOMALIES DUE TO TESTING

THE FOLLOWING

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

Technician

A handwritten signature in black ink that reads "Lawrence W. Brown".

Engineer

A handwritten signature in black ink that reads "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 Pistol Grip Transmitter

SERIAL NO. DTB 1

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

Two handwritten signatures are present. The top signature, written in cursive, appears to read "R. Monticello". The bottom signature, also in cursive, appears to read "R. Monticello". Both signatures are placed over the lines for the technician and engineer respectively.



Founded 1950

Enclosure 5

A2LA Scope of Accreditation

98-0853



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; Electrical 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

GM: 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

Rosemarie M. Robinson



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)

Impedance
Inductance
Lightning
Magnetism
Power Transmission
Resistivity

Conductivity

AC/DC

Current (AC/DC)

Insulation Resistance

Electrostatic (ESD)

Voltage (AC/DC)

EMI/RFI

Lightning

Conducted Emissions

Input Power Variations

Conducted Transient Susceptibility

Magnetic Field Emission

Conducted Susceptibility (Immunity)

Magnetic Field Susceptibility

Radiated Emissions (0 A.T.S. Method)

Harmonics

Radiated Emissions

RF Power Handling

Shielded Room Method

Shielding Effectiveness

Radiated Susceptibility (Immunity)

Stirred Mode

Radiated Transient Susceptibility

Transmissibility

Electrostatic Discharge (ESD)

Site Survey

Electromagnetic Pulse (EMP)

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; Packaging & Containers; Pipes, Hoses, Fittings, and Valves.

Using the following sources of standards:

ANSI, AS/NZS, CFR, CISPR, EN, ENV, FCC, IEC, Commercial Aviation, Military, GM, 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 A. Abrey



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, 65014, 55015, 55022, 60555-2, 60555-3, 66601-1-2, 61000-4-1, 61000-4-2, 61000-4-4, 61000-4-5, 61000-4-7, 61000-4-8, 61000-4-11, 61000-4-12, 61000-4-13, 61000-4-14, 61000-4-15, 61000-4-16, 61000-4-17, 61000-4-18, 61000-4-19, 61000-4-20, 61000-4-21, 61000-4-22, 61000-4-23, 61000-4-24, 61000-4-25, 61000-4-26, 61000-4-27, 61000-4-28, 61000-4-29, 61000-4-30, 61000-4-31, 61000-4-32, 61000-4-33, 61000-4-34, 61000-4-35, 61000-4-36, 61000-4-37, 61000-4-38, 61000-4-39, 61000-4-40, 61000-4-41, 61000-4-42, 61000-4-43, 61000-4-44, 61000-4-45, 61000-4-46, 61000-4-47, 61000-4-48, 61000-4-49, 61000-4-50, 61000-4-51, 61000-4-52, 61000-4-53, 61000-4-54, 61000-4-55, 61000-4-56, 61000-4-57, 61000-4-58, 61000-4-59, 61000-4-60, 61000-4-61, 61000-4-62, 61000-4-63, 61000-4-64, 61000-4-65, 61000-4-66, 61000-4-67, 61000-4-68, 61000-4-69, 61000-4-70, 61000-4-71, 61000-4-72, 61000-4-73, 61000-4-74, 61000-4-75, 61000-4-76, 61000-4-77, 61000-4-78, 61000-4-79, 61000-4-80, 61000-4-81, 61000-4-82, 61000-4-83, 61000-4-84, 61000-4-85, 61000-4-86, 61000-4-87, 61000-4-88, 61000-4-89, 61000-4-90, 61000-4-91, 61000-4-92, 61000-4-93, 61000-4-94, 61000-4-95, 61000-4-96, 61000-4-97, 61000-4-98, 61000-4-99, 61000-4-100, 61000-4-101, 61000-4-102, 61000-4-103, 61000-4-104, 61000-4-105, 61000-4-106, 61000-4-107, 61000-4-108, 61000-4-109, 61000-4-110, 61000-4-111, 61000-4-112, 61000-4-113, 61000-4-114, 61000-4-115, 61000-4-116, 61000-4-117, 61000-4-118, 61000-4-119, 61000-4-120, 61000-4-121, 61000-4-122, 61000-4-123, 61000-4-124, 61000-4-125, 61000-4-126, 61000-4-127, 61000-4-128, 61000-4-129, 61000-4-130, 61000-4-131, 61000-4-132, 61000-4-133, 61000-4-134, 61000-4-135, 61000-4-136, 61000-4-137, 61000-4-138, 61000-4-139, 61000-4-140, 61000-4-141, 61000-4-142, 61000-4-143, 61000-4-144, 61000-4-145, 61000-4-146, 61000-4-147, 61000-4-148, 61000-4-149, 61000-4-150, 61000-4-151, 61000-4-152, 61000-4-153, 61000-4-154, 61000-4-155, 61000-4-156, 61000-4-157, 61000-4-158, 61000-4-159, 61000-4-160, 61000-4-161, 61000-4-162, 61000-4-163, 61000-4-164, 61000-4-165, 61000-4-166, 61000-4-167, 61000-4-168, 61000-4-169, 61000-4-170, 61000-4-171, 61000-4-172, 61000-4-173, 61000-4-174, 61000-4-175, 61000-4-176, 61000-4-177, 61000-4-178, 61000-4-179, 61000-4-180, 61000-4-181, 61000-4-182, 61000-4-183, 61000-4-184, 61000-4-185, 61000-4-186, 61000-4-187, 61000-4-188, 61000-4-189, 61000-4-190, 61000-4-191, 61000-4-192, 61000-4-193, 61000-4-194, 61000-4-195, 61000-4-196, 61000-4-197, 61000-4-198, 61000-4-199, 61000-4-200, 61000-4-201, 61000-4-202, 61000-4-203, 61000-4-204, 61000-4-205, 61000-4-206, 61000-4-207, 61000-4-208, 61000-4-209, 61000-4-210, 61000-4-211, 61000-4-212, 61000-4-213, 61000-4-214, 61000-4-215, 61000-4-216, 61000-4-217, 61000-4-218, 61000-4-219, 61000-4-220, 61000-4-221, 61000-4-222, 61000-4-223, 61000-4-224, 61000-4-225, 61000-4-226, 61000-4-227, 61000-4-228, 61000-4-229, 61000-4-230, 61000-4-231, 61000-4-232, 61000-4-233, 61000-4-234, 61000-4-235, 61000-4-236, 61000-4-237, 61000-4-238, 61000-4-239, 61000-4-240, 61000-4-241, 61000-4-242, 61000-4-243, 61000-4-244, 61000-4-245, 61000-4-246, 61000-4-247, 61000-4-248, 61000-4-249, 61000-4-250, 61000-4-251, 61000-4-252, 61000-4-253, 61000-4-254, 61000-4-255, 61000-4-256, 61000-4-257, 61000-4-258, 61000-4-259, 61000-4-260, 61000-4-261, 61000-4-262, 61000-4-263, 61000-4-264, 61000-4-265, 61000-4-266, 61000-4-267, 61000-4-268, 61000-4-269, 61000-4-270, 61000-4-271, 61000-4-272, 61000-4-273, 61000-4-274, 61000-4-275, 61000-4-276, 61000-4-277, 61000-4-278, 61000-4-279, 61000-4-280, 61000-4-281, 61000-4-282, 61000-4-283, 61000-4-284, 61000-4-285, 61000-4-286, 61000-4-287, 61000-4-288, 61000-4-289, 61000-4-290, 61000-4-291, 61000-4-292, 61000-4-293, 61000-4-294, 61000-4-295, 61000-4-296, 61000-4-297, 61000-4-298, 61000-4-299, 61000-4-300, 61000-4-301, 61000-4-302, 61000-4-303, 61000-4-304, 61000-4-305, 61000-4-306, 61000-4-307, 61000-4-308, 61000-4-309, 61000-4-310, 61000-4-311, 61000-4-312, 61000-4-313, 61000-4-314, 61000-4-315, 61000-4-316, 61000-4-317, 61000-4-318, 61000-4-319, 61000-4-320, 61000-4-321, 61000-4-322, 61000-4-323, 61000-4-324, 61000-4-325, 61000-4-326, 61000-4-327, 61000-4-328, 61000-4-329, 61000-4-330, 61000-4-331, 61000-4-332, 61000-4-333, 61000-4-334, 61000-4-335, 61000-4-336, 61000-4-337, 61000-4-338, 61000-4-339, 61000-4-340, 61000-4-341, 61000-4-342, 61000-4-343, 61000-4-344, 61000-4-345, 61000-4-346, 61000-4-347, 61000-4-348, 61000-4-349, 61000-4-350, 61000-4-351, 61000-4-352, 61000-4-353, 61000-4-354, 61000-4-355, 61000-4-356, 61000-4-357, 61000-4-358, 61000-4-359, 61000-4-360, 61000-4-361, 61000-4-362, 61000-4-363, 61000-4-364, 61000-4-365, 61000-4-366, 61000-4-367, 61000-4-368, 61000-4-369, 61000-4-370, 61000-4-371, 61000-4-372, 61000-4-373, 61000-4-374, 61000-4-375, 61000-4-376, 61000-4-377, 61000-4-378, 61000-4-379, 61000-4-380, 61000-4-381, 61000-4-382, 61000-4-383, 61000-4-384, 61000-4-385, 61000-4-386, 61000-4-387, 61000-4-388, 61000-4-389, 61000-4-390, 61000-4-391, 61000-4-392, 61000-4-393, 61000-4-394, 61000-4-395, 61000-4-396, 61000-4-397, 61000-4-398, 61000-4-399, 61000-4-400, 61000-4-401, 61000-4-402, 61000-4-403, 61000-4-404, 61000-4-405, 61000-4-406, 61000-4-407, 61000-4-408, 61000-4-409, 61000-4-410, 61000-4-411, 61000-4-412, 61000-4-413, 61000-4-414, 61000-4-415, 61000-4-416, 61000-4-417, 61000-4-418, 61000-4-419, 61000-4-420, 61000-4-421, 61000-4-422, 61000-4-423, 61000-4-424, 61000-4-425, 61000-4-426, 61000-4-427, 61000-4-428, 61000-4-429, 61000-4-430, 61000-4-431, 61000-4-432, 61000-4-433, 61000-4-434, 61000-4-435, 61000-4-436, 61000-4-437, 61000-4-438, 61000-4-439, 61000-4-440, 61000-4-441, 61000-4-442, 61000-4-443, 61000-4-444, 61000-4-445, 61000-4-446, 61000-4-447, 61000-4-448, 61000-4-449, 61000-4-450, 61000-4-451, 61000-4-452, 61000-4-453, 61000-4-454, 61000-4-455, 61000-4-456, 61000-4-457, 61000-4-458, 61000-4-459, 61000-4-460, 61000-4-461, 61000-4-462, 61000-4-463, 61000-4-464, 61000-4-465, 61000-4-466, 61000-4-467, 61000-4-468, 61000-4-469, 61000-4-470, 61000-4-471, 61000-4-472, 61000-4-473, 61000-4-474, 61000-4-475, 61000-4-476, 61000-4-477, 61000-4-478, 61000-4-479, 61000-4-480, 61000-4-481, 61000-4-482, 61000-4-483, 61000-4-484, 61000-4-485, 61000-4-486, 61000-4-487, 61000-4-488, 61000-4-489, 61000-4-490, 61000-4-491, 61000-4-492, 61000-4-493, 61000-4-494, 61000-4-495, 61000-4-496, 61000-4-497, 61000-4-498, 61000-4-499, 61000-4-500, 61000-4-501, 61000-4-502, 61000-4-503, 61000-4-504, 61000-4-505, 61000-4-506, 61000-4-507, 61000-4-508, 61000-4-509, 61000-4-510, 61000-4-511, 61000-4-512, 61000-4-513, 61000-4-514, 61000-4-515, 61000-4-516, 61000-4-517, 61000-4-518, 61000-4-519, 61000-4-520, 61000-4-521, 61000-4-522, 61000-4-523, 61000-4-524, 61000-4-525, 61000-4-526, 61000-4-527, 61000-4-528, 61000-4-529, 61000-4-530, 61000-4-531, 61000-4-532, 61000-4-533, 61000-4-534, 61000-4-535, 61000-4-536, 61000-4-537, 61000-4-538, 61000-4-539, 61000-4-540, 61000-4-541, 61000-4-542, 61000-4-543, 61000-4-544, 61000-4-545, 61000-4-546, 61000-4-547, 61000-4-548, 61000-4-549, 61000-4-550, 61000-4-551, 61000-4-552, 61000-4-553, 61000-4-554, 61000-4-555, 61000-4-556, 61000-4-557, 61000-4-558, 61000-4-559, 61000-4-560, 61000-4-561, 61000-4-562, 61000-4-563, 61000-4-564, 61000-4-565, 610