



Test Report: 1W04319

Applicant: WaveCom Electronics Inc.
222 Cardinal Crescent
Saskatoon, Saskatchewan
S7L 6H8

**Equipment Under Test:
(EUT)** MA4070B Power Amplifier

FCC ID: OPPMA4070B

In Accordance With: **FCC Part 21 & Part 74**

Tested By: Nemko Canada Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:



G. Westwell, Wireless Technologist

Date: October 16, 2001

Total Number of Pages: 17

Authorized Copy: Soft Copy

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EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B

Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 21 & Part 74.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



TESTED BY:

Russell Grant, Wireless Group Manager

DATE: October 16, 2001

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation. The results apply only to the samples tested.

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This report applies only to the items tested.

*EQUIPMENT: MA4070B Power Amplifier**FCC ID: OPPMA4070B*

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	N/A
Audio Low-Pass Filter Response	2.1047	N/A
Modulation Limiting	2.1047	N/A
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	Complies
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	N/A(1)
Transient Frequency Behavior	—	N/A

Footnotes For N/A's: (1) This equipment is an amplifier and does not use any frequency generating circuits.

Indoor Temperature: 22 °C
 Humidity: 56 %

Outdoor Temperature: 21 °C
 Humidity: 50 %

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EQUIPMENT: MA4070B Power Amplifier

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Section 2. General Equipment Specification

Manufacturer: WaveCom Electronics Inc.

Model No.: MA4070B

Serial No.: 218776

Date Received In Laboratory: October 3, 2001

Nemko Identification No.: Item #1

Frequency: 2500 – 2686 MHz

Output Power: 31.5 dBm, 1.41 Watts

Emission Designator: D7W

Modulation: 64 QAM

EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Russell Grant	Date of Test: October 12, 2001
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Minimum Standard: ± 1 dB

Test Results: Complies

Measurement Data:

Rated:	31.5 dBm
Measured:	31.5 dBm

EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B

Section 4. Occupied Bandwidth

Para. No.: 2.1049

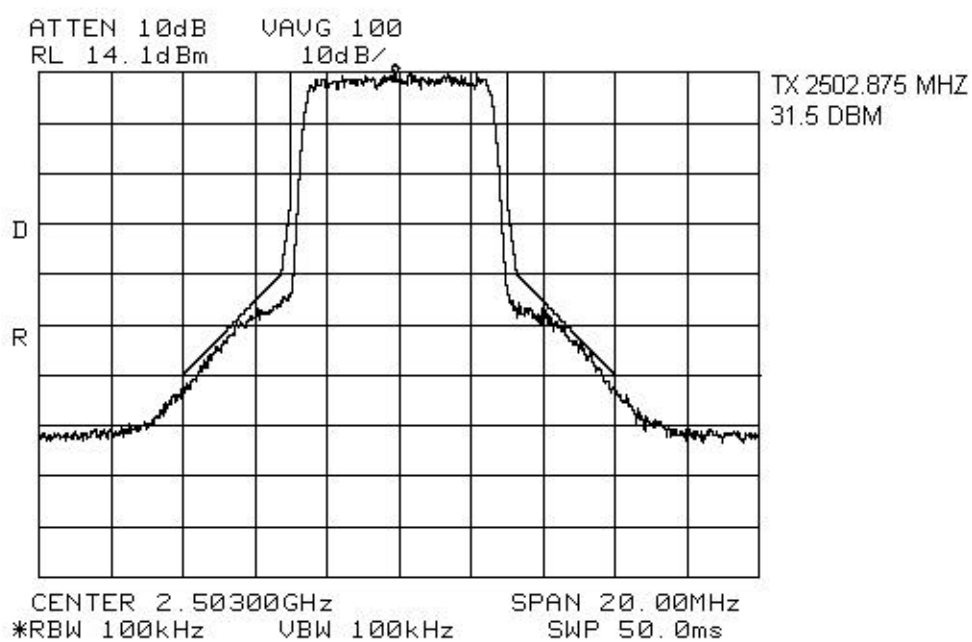
Test Performed By: Russell Grant	Date of Test: October 15, 2001
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Minimum Standard: 21.908(a), 74.936(c)

Test Results: Complies

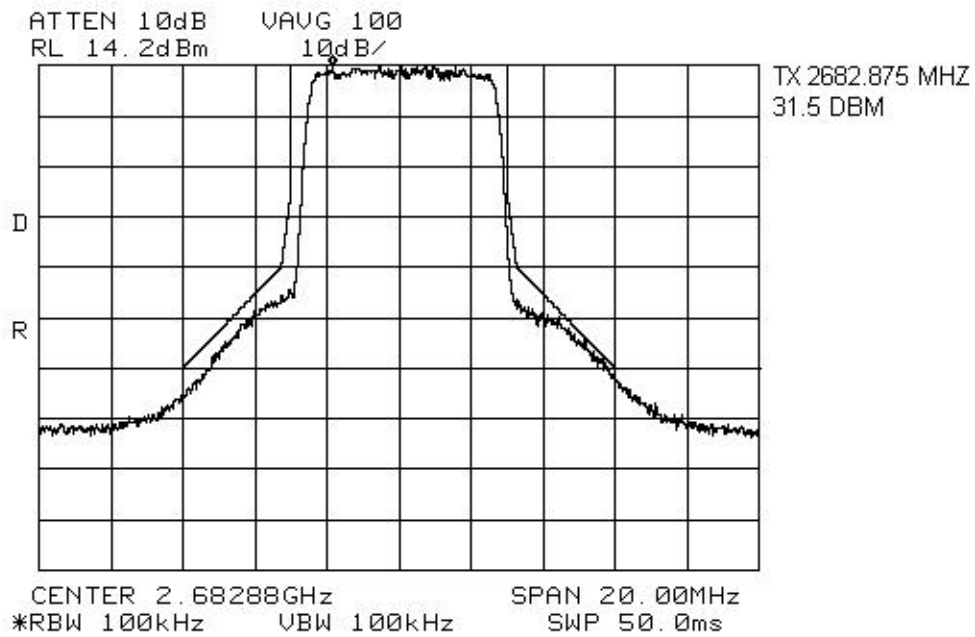
Measurement Data: See attached plots.

EQUIPMENT: MA4070B Power Amplifier
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Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Russell Grant	Date of Test: October 12, 2001
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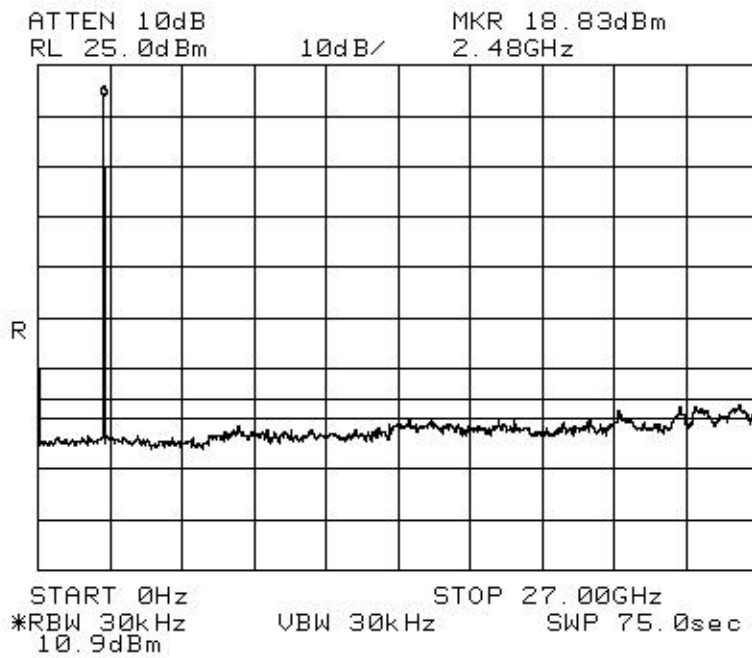
Minimum Standard: 21.908(a), 74.936(c)

Test Results: Complies

Measurement Data: See attached plots.

EQUIPMENT: MA4070B Power Amplifier

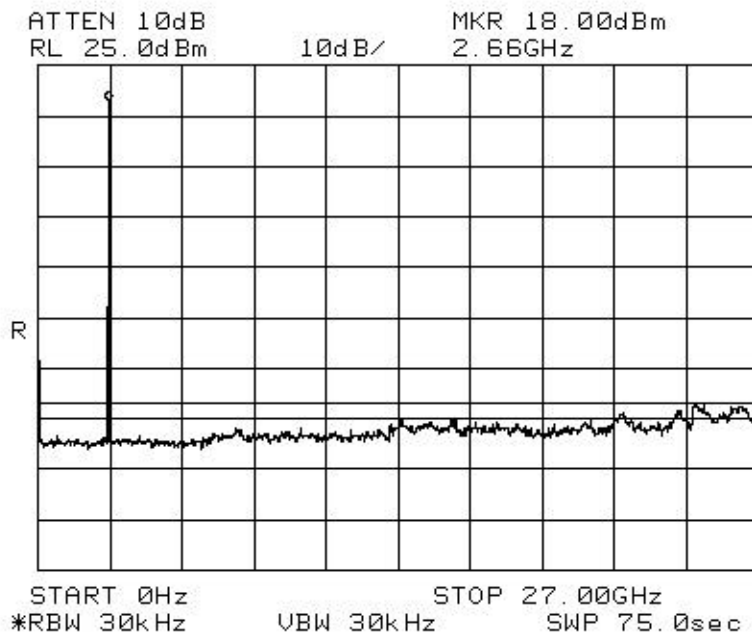
FCC ID: OPPMA4070B



Tx 2503 MHz

EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B



Tx 2683 MHz

EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B

Section 6. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Russell Grant	Date of Test: October 12, 2001
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Minimum Standard: 21.908(a), 74.936(c)

Test Results: Complies

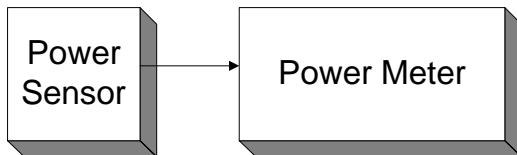
Measurement Data: See attached tabulated data.

*EQUIPMENT: MA4070B Power Amplifier**FCC ID: OPPMA4070B***Test Data - Field Strength of Spurious Emissions**

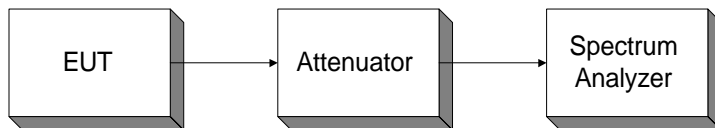
Frequency of Emission (MHz)	Polarization	Received Signal Level (dBuV)	Conversion Factor (dBuV to dBmERP)	Emission Level (dBmERP)	Limit (dBmERP)	Margin (dB)
TX 2503 MHz						
5006	V	65.8	-111.8	-46.0	-39.9	-6.1
5006	H	69.3	-111.0	-41.7	-39.9	-1.8
7509	V	48.0	-104.6	-56.6	-39.9	-16.7
7509	H	44.0	-104.5	-60.5	-39.9	-20.6
10012	V	41.8	-106.8	-65.0	-39.9	-25.1
10012	H	43.0	-104.5	-61.5	-39.9	-21.6
TX 2683 MHz						
5366	V	52.0	-110.4	-58.4	-39.9	-18.5
5366	H	53.2	-107.8	-54.6	-39.9	-14.7
8049	V	42.7	-107.5	-64.8	-39.9	-24.9
8049	H	36.0	-106.0	-70.0	-39.9	-30.1
10732	V	47.2	-105.0	-57.8	-39.9	-17.9
10732	H	39.3	-103.0	-63.7	-39.9	-23.8
Emission limit was determined from conducted power in a 30 kHz bandwidth as follows: Conducted power = 18 dBm + 2.1 dBi = 20.1 dBm ERP Limit = 20.1 dBm - 60 dB = -39.9 dBm All measurements were made using the signal substitution method with 30 kHz RBW/VBW and peak detector function.						

Section 7. Block Diagrams

Para. No. 2.1046 - R.F. Power Output



Para. No. 2.1049 - Occupied Bandwidth



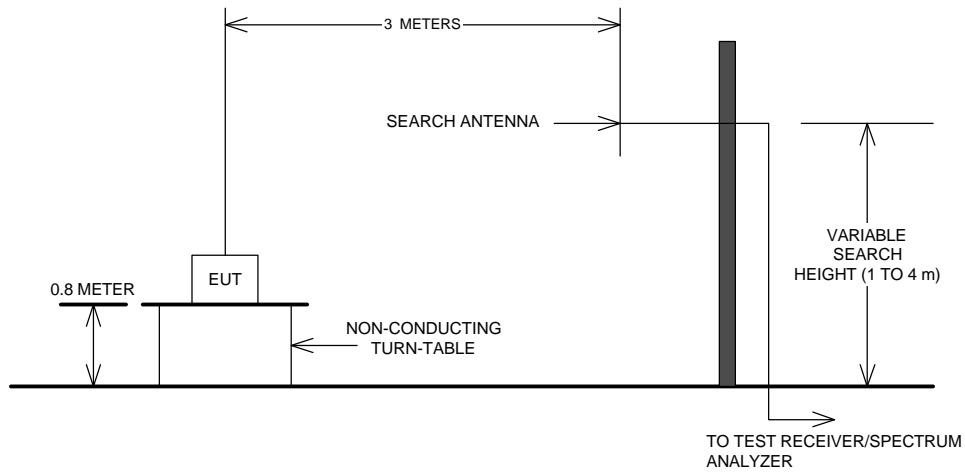
Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



EQUIPMENT: MA4070B Power Amplifier

FCC ID: OPPMA4070B

Para. No. 2.1053 - Field Strength of Spurious Radiation



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Section 8. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 08/01	June 08/02
1 Year	Attenuator	Narda	768-10	9709	COU	COU
1 Year	Attenuator	Narda	776B-20	FA001401	COU	COU
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/00	Dec. 1/01
3 Year	Standard Gain Horn	Electro-Metrics	SH-50/60-1	FA000479	July 7/00	July 7/02
1 Year	RF AMP	JCA	2-4 GHz	FA001496	COU	COU
1 Year	RF AMP	JCA	1-2 GHz	FA001498	COU	COU
1 Year	RF AMP	JCA	4-8 GHz	FA001497	COU	COU
2 Year	RF AMP	Narda	5 - 18GHz	FA001409	COU	COU
2 Year	RF AMP	Narda	18 - 26.5GHz	FA001550	COU	COU

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use