M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176
www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

Date: April 16, 2001
Submitted: April 23, 2001

Federal Communications Commission
Via: Electronic Filing

Attention: Authorization & Evaluation Division

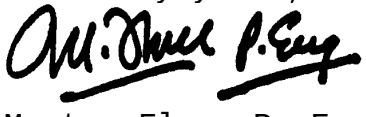
Applicant: Modular Mining Systems Inc
Equipment: 301805 (Repeater) and 301582 (Mobile)
FCC ID: FJ6-301582
FCC Rules: Radiofrequency Radiation Exposure Limits
47 CFR 1.1310
MPE - Mobiles x Fixed Based Station x

Gentlemen:

On behalf of the Applicant, enclosed please find the Calculated Supplemental Test Data Report, the whole for Environmental Assessment (MPE) of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,



Morton Flom, P. Eng.

enclosure(s)
cc: Applicant
MF/cvr

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CALCULATED ENVIRONMENTAL ASSESSMENT

for

MOBILES/FIXED BASE STATION

for

FCC ID: FCC ID: FJ6-301582
Models:301805 (Repeater) and 301582 (Mobile)

to

FEDERAL COMMUNICATIONS COMMISSION

47 CFR 1.1310 (MPE)
Radiofrequency Radiation Exposure Limits

DATE OF REPORT: April 16, 2001

ON THE BEHALF OF THE APPLICANT:

Modular Mining Systems Inc

AT THE REQUEST OF: P.O. 4500012536

Modular Mining Systems Inc
3289 East Hemisphere Loop
Tucson, AZ 85706-5028

Attention of: (520) 746-9127; FAX: 889-5790 (Headquarters)
Lyle V Johnson, Vice President, Product Eng'g
Romer Johnson, Supervisor, Product Design
(520) 806-3603; FAX: 3344
Email: johnsonr@mmsi.com
and/or Eric Gustafson, Senior RF Systems Engineer
Email: eric@mmsi.com
(520) 806-3235; FAX: -3344

SUPERVISED BY: Morton Flom, P. Eng.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) TEST REPORT (SUPPLEMENTAL)

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0140011

d) Client: Modular Mining Systems Inc
3289 East Hemisphere Loop
Tucson, AZ 85706-5028

e) Identification: Models 301805 (Repeater) and 301582 (Mobile)
FCC ID: FJ6-301582
Description: 2.4Ghz Radio

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: April 16, 2001
EUT Received: March 12, 2001

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

Morton Flom, P. Eng.

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

PAGE NO. 2 of 6.

IDENTIFICATION OF THE EQUIPMENT UNDER TEST (EUT)

NAME AND ADDRESS OF APPLICANT:

Modular Mining Systems Inc
3289 East Hemisphere Loop
Tucson, AZ 85706-5028

MANUFACTURER:

Applicant

FCC ID:	FJ6-301582
MODEL NOs:	301805 (Repeater) 301582 (Mobile)
DESCRIPTION:	2.4Ghz Radio
FREQUENCY RANGE, MHz:	2412 to 2457
POWER RATING, Watts:	0.0361 EIRP (Repeater) 0.038 EIRP (Mobile)

___ Switchable ___ Variable _x_ N/A

MODULATION:	____ AMPS
	____ TDMA
	____ CDMA
	_x_ OTHER
ANTENNA:	____ HELICAL
	____ MONOPOLE
	____ WHIP
	_x_ OTHER

NOTE: For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 0 dBd) and RF Power set to highest nominal power across all channels.

M. Flom Associates, Inc. is accredited by the American Association for Laboratory Association (A2LA) as shown in the scope below.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

M. FLOM ASSOCIATES, INC.
Chandler, AZ

for technical competence in the field of

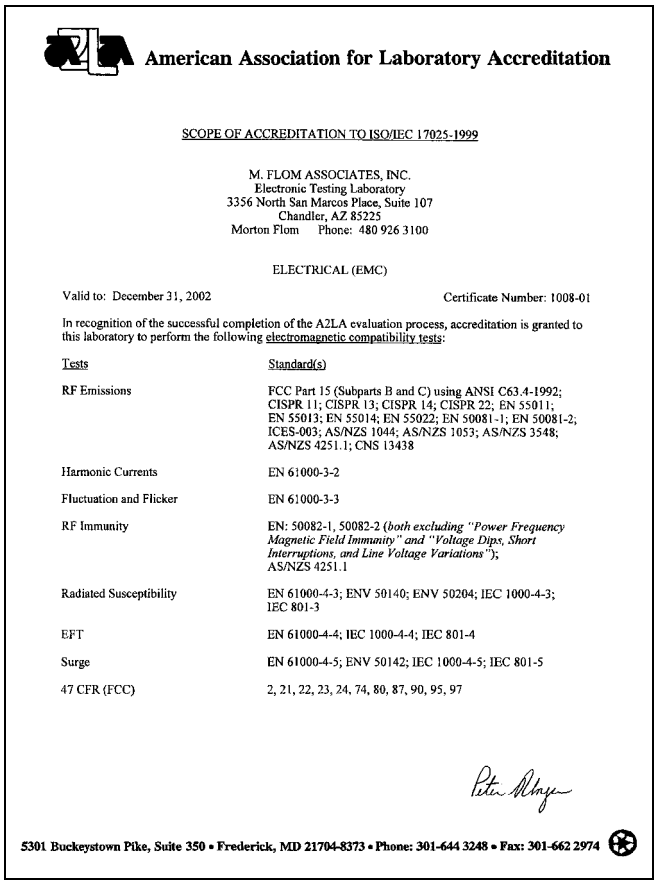
Electrical (EMC) Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002.

Presented this 2nd day of March, 2001.

President
For the Accreditation Council
Certificate Number 1008.01
Valid to December 31, 2002

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

M. FLOM ASSOCIATES, INC.
Electronic Testing Laboratory
3356 North San Marcos Place, Suite 107
Chandler, AZ 85225
Morton Flom Phone: 480 926 3100

ELECTRICAL (EMC)

Valid to: December 31, 2002 Certificate Number: 1008-01

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

Tests	Standard(s)
RF Emissions	FCC Part 15 (Subparts B and C) using ANSI C63.4-1992; CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022; EN 50081-1; EN 50081-2; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1; CNS 13438
Harmonic Currents	EN 61000-3-2
Fluctuation and Flicker	EN 61000-3-3
RF Immunity	EN: 50082-1, 50082-2 (*both excluding "Power Frequency Magnetic Field Immunity" and "Voltage Dips, Short Interruptions, and Line Voltage Variations"*); AS/NZS 4251.1
Radiated Susceptibility	EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3
EFT	EN 61000-4-4; IEC 1000-4-4; IEC 801-4
Surge	EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5
47 CFR (FCC)	2, 21, 22, 23, 24, 74, 80, 87, 90, 95, 97

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not covered by this laboratory's A2LA accreditation.

STANDARD TEST CONDITIONS and ENGINEERING PRACTICES

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

PAGE NO.	5 of 6.
Name of test:	Environmental Assessment
Specification:	FCC: 47 CFR 1.1310
Measurement Guide:	ANSI/IEEE C95.1 1992
Test Equipment:	Maximum Permissible Exposure (MPE) measurement system, consisting of: Narda 8717-1174R, Radiation meter Narda 8761D, E-field probe (300 kHz – 3 GHz) (Calibrated Nov-98)
Measurement Procedure:	1. The following measurements were performed with a Narda probe using ANSI/IEEE C95.1 as a guide. 2. Prior to making any measurements, the measurements system was calibrated in accordance with the manufacturer's procedures. 3. The EUT's radiating element (antenna) was placed on a 1 m tall table for ease of testing. For equipment normally operated on a metal surface, a ground plane was used. 4. The remaining equipment necessary to operate the EUT was maintained at a distance from the measurement arrangement suitable to minimize interference with the measurements. 5. The minimum safe distance was calculated from the formula Power Density = EIRP / $4\pi R^2$ (Peak Watts/m^2). The calculation is shown with the measurement data. 6. With the EUT operating at maximum power, a search was initiated for worst case emissions with the probe raised and lowered over a range of 0.2 to 2 meters in height and over a horizontal plane of 0^o to 360^o. 7. Average values were calculated for the whole body (0.2-2.0m), lower body (0.2-0.8m) and upper body (1.0-2.0m).
Results:	Attached.

PAGE NO. 6 of 6.

Name of test: R.F. Radiation Exposure

FCC Rules: 1.1307, 1.1310, 1.1311, 2.1091
Description, EUT: See page 2 of Test Report

LIMITS: Uncontrolled Exposure 47 CFR 1.1310 Table 1, (B)	0.3-1.234 MHz:	Limit [mW/cm^2] = 100
	1.34-30 MHz:	Limit [mW/cm^2] = ($180/f^2$)
	30-300 MHz:	Limit [mW/cm^2] = 0.2
	300-1500 MHz	Limit [mW/cm^2] = f/1500
	1500-100,000 MHz:	Limit [mW/cm^2] = 1.0

Theoretical Safe Distance, R meters

$$Rm = (\text{Peak Watts}/4\pi \times \text{Limit})^{1/2}$$

$$Fc = 2432 \text{ MHz}$$

$$\text{Limit} = 1.0 \text{ mw/cm}^2$$

Peak Power =

$$Rm = [0.038/(4\pi \times 10 \times 1.0)]^{1/2}$$

$$= 0.0174 \text{ meter}$$

$$= 1.7 \text{ cm}$$

Minimum safe distance = 20 cm for the Repeater and the Mobile Radio.

SUPERVISED BY: Morton Flom, P. Eng.

TESTIMONIAL AND STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

1. THAT the application was prepared either by, or under the direct supervision of, the undersigned.

2. THAT the technical data supplied with the application was taken under my direction and supervision.

3. THAT the data was obtained on representative units, randomly selected.

4. THAT, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

CERTIFYING ENGINEER: Morton Flom, P. Eng.