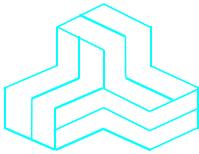


ENGINEERING TEST REPORT



**Quad-band GSM/GPRS module
Model No.: MOCGW012012
FCC ID: O69-MOCGW012012**

Applicant:

**IMetrikM2M Inc.
3450 St. Denis, Suite 202
Montreal, QC
Canada H2X 3L3**

In Accordance With

**Federal Communications Commission (FCC) Rules
RF Exposure requirements stated in KDB 447498**

UltraTech's File No.: IM2M-002Q_RFExpo

This Test report is Issued under the Authority of
Tri M. Luu, BASc
Vice President of Engineering
UltraTech Group of Labs

Date: June 27, 2012

Report Prepared by: Dharmajit Solanki

Issued Date: June 27, 2012

*The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.
This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

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NvLap Lab Code 200093-0



SL2-IN-E-1119R



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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	KDB Publication No. 447498 D01
Title:	Mobile Portable RF Exposure Procedure v04 & Equipment Authorization Policies
Purpose of Test:	Class II Permissive Change filing for Co-location with FCC ID: ZTL-RFSC1
Test Procedures:	Mobile Portable RF Exposure Procedure v04 & Equipment Authorization Policies
Environmental Classification:	<input checked="" type="checkbox"/> Commercial, industrial or business environment <input checked="" type="checkbox"/> Residential environment

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None

1.3. NORMATIVE REFERENCES

Publication	Year	Title
47 CFR Parts 0-19	2011	Code of Federal Regulations (CFR), Title 47 – Telecommunication
KDB Publication No. 447498 D01	2009	Mobile Portable RF Exposure Procedure v04 & Equipment Authorization Policies
ANSI C63.10	2009	American National Standard for Testing Unlicensed Wireless Devices
ANSI C63.4	2009	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

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

APPLICANT	
Name:	IMetrikM2M Inc.
Address:	3450 St. Denis, Suite 202 Montreal, QC Canada H2X 3L3
Contact Person:	Mr. Medhat Mahmoud Phone #: 416-305-7708 Fax #: 888-331-9577 Email Address: medhat.mahmoud@imetrikm2m.com

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	IMetrikM2M Inc.
Product Name:	Quad-band GSM/GPRS module
Model Name or Number:	MOCGW012012
Serial Number:	Test Sample
Type of Equipment:	Quad-band GSM/GPRS Cellular Module
Input Power Supply Type:	External Regulated DC Sources
Primary User Functions of EUT:	GSM/GPRS Cellular Gateway

2.3. EUT'S TECHNICAL SPECIFICATIONS

TRANSMITTER	
Equipment Type:	<ul style="list-style-type: none">▪ Mobile▪ Base Station (fixed use)
Intended Operating Environment:	Commercial, industrial or business environment
Power Supply Requirement:	5.0 VDC
RF Output Power Rating:	2.04 W (Part 22H) 1.12 W (Part 24E)
Operating Frequency Range:	824.2 - 848.8 MHz (Part 22H) 1850.2 - 1909.8 MHz (Part 24E)
RF Output Impedance:	50 Ω
Duty Cycle:	25%

2.4. RF Exposure Requirement

FCC Section(s)	Test Requirements	Compliance (Yes/No)
KDB 447498 DO1, Sections 1.1307, 1.1310, 2.1091 & 2.1093	RF Exposure	Yes
NOTE: Tests are not required for this Class II Permissive Change.		

2.5. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None

Original Grant for Licensed Module:-

TCB

GRANT OF EQUIPMENT
AUTHORIZATION

TCB

Certification

Issued Under the Authority of the
Federal Communications Commission
By:

Ultratech Engineering Labs Inc.
3000 Bristol Circle
Oakville (Ontario), L6H 6G4
Canada

Date of Grant: 06/25/2012

Application Dated: 06/25/2012

iMetrikm2m Inc.
3450 St. Denis, Suite 202
QC H2X 3L3
Montreal, QC H2X 3L3
Canada

Attention: Medhat Mahmoud , Vice President

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY
for the equipment identified hereon for use under the Commission's Rules and Regulations listed
below.

FCC IDENTIFIER: 069-MOOGW012012

Name of Grantee: iMetrikm2m Inc.

Equipment Class: PCS Licensed Transmitter

Notes: Quad-Band GSM/GPRS Module

Grant Notes	FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
	22H	824.2 - 848.8	2.04	2.5 PM	GXW
	24E	1850.2 - 1909.8	1.12	2.5 PM	GXW

Output power listed is conducted. This device is to be used in mobile or fixed applications only. For other antenna(s) not described in this filing the antenna gain including cable loss must not exceed 7.3 dBi in the 850 MHz Cellular band and 12.7 dBi in the PCS 1900 MHz band, for the purpose of satisfying the requirements of 2.1043 and 2.1091. The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons, and must not be co-located or operating in conjunction with other antennas or transmitters within a host device, except in accordance with FCC multi-transmitter product procedures. Compliance of this device in all final product configurations is the responsibility of the Grantee. OEM integrators and end-users must be provided with specific information required to satisfy RF exposure compliance for all final host devices and installations.

This device contains GSM functions that are not operational in the U.S Territories. This filing is only applicable for U.S operations.

ULTRATECH GROUP OF LABS

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File #: IM2M-002Q_RFEXPO

June 27, 2012

Original Grant of Unlicensed DTS Module:-

TCB

GRANT OF EQUIPMENT
AUTHORIZATION

TCB

Certification

Issued Under the Authority of the
Federal Communications Commission
By:

Ultratech Engineering Labs Inc.
3000 Bristol Circle
Oakville (Ontario), L6H 6G4
Canada

Date of Grant: 11/09/2011

Application Dated: 11/09/2011

Monnit Corporation
450 South Simmons Way
Suite 670
Midvale, UT 84037

Attention: Kelly Lewis , EE

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and
is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: ZTL-RFSC1

Name of Grantee: Monnit Corporation

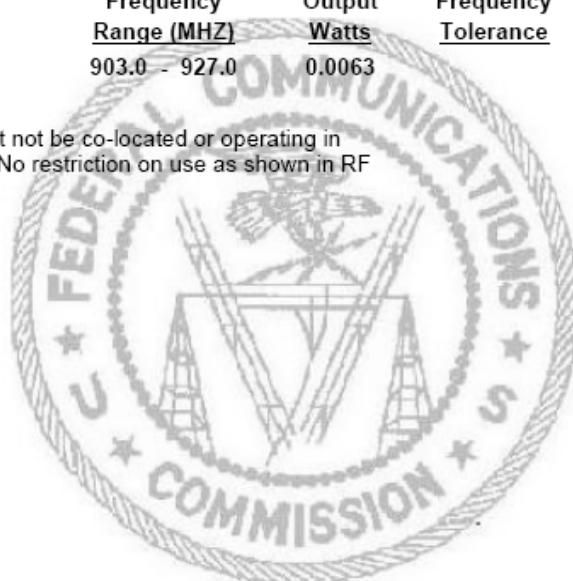
Equipment Class: Digital Transmission System

Notes: Monnit Wireless Sensor Module

Modular Type: Single Modular

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
	15C	903.0 - 927.0	0.0063		

Output power listed is conducted. This device must not be co-located or operating in conjunction with any other antenna or transmitter. No restriction on use as shown in RF Exposure compliance exhibit.



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File #: IM2M-002Q_RFEXPO

June 27, 2012

2.6. RF EXPOSURE REQUIREMENTS [§§ 15.247(i), 1.1310 & 2.1091]

The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation.

FCC 47 CFR § 1.1310:

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

2.6.1. Method of Measurements

Refer to Sections 1.1310, 2.1091

In order to demonstrate compliance with MPE requirements (see Section 2.1091), the following information is typically needed:

- (1) Calculation that estimates the minimum separation distance (20 cm or more) between an antenna and persons required to satisfy power density limits defined for free space.
- (2) Antenna installation and device operating instructions for installers (professional/unskilled users), and the parties responsible for ensuring compliance with the RF exposure requirement
- (3) Any caution statements and/or warning labels that are necessary in order to comply with the exposure limits
- (4) Any other RF exposure related issues that may affect MPE compliance

2.6.2. RF Evaluation

As per guidance provided by FCC under KDB 447498 D01, v04, Sec 8(a & b) for Transmitters and modules for use in mobile exposure conditions that allow simultaneous transmission shall comply with following.

(1) The antenna separation distance and MPE compliance boundary requirements that enable all simultaneous transmitting antennas incorporated within the host to comply with MPE limits are specified in the application filing of at least one of the certified transmitters incorporated in the host device. In addition, when transmitters certified for portable use are incorporated in a mobile host device the antenna(s) must be ≥ 5 cm from all other simultaneous transmitting antennas.

(2) All antennas in the final product must be at least 20 cm from users and nearby persons.

In order to calculate MPE compliance boundary for simultaneous transmitting antennas, the following formula will be used adding eirp power of both antennas as worst case to determine safety distance.

Calculation Method of RF Safety Distance:

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} = \frac{EIRP}{4 \cdot \pi \cdot r^2}$$

Where:
P: power input to the antenna in mW
EIRP: Equivalent (effective) isotropic radiated power added of both antennas
S: power density mW/cm²
G: numeric gain of antenna relative to isotropic radiator
r: distance to centre of radiation in cm

Antenna No	Module 1	Module 2	Total
Frequency (MHz)	824.2	903	
MPE Limit (mW/cm ²)	0.55	0.60	
Power (W)	2.04	0.0063	2.0463
Duty Cycle	25% (As shown in Original filing)	100%	
Time Averaged Power (W)	0.51	0.0063	
Highest Antenna Gain (dBi) (As approved in Original FCC filings)	7.3	5.1	
EIRP (W)	2.74	0.02	2.76

The minimum separation distance from either antennas and nearby person is calculated using the following formula:

$$r = \sqrt{\frac{P \cdot G}{4 \cdot \pi \cdot S}} = \sqrt{\frac{EIRP}{4 \cdot \pi \cdot S}}$$

S = 0.55 mW/cm² (Worst Case); EIRP = 2.76 W = 2760 mW

$$(\text{Minimum Safe Distance, } r) = \sqrt{\frac{EIRP}{4 \cdot \pi \cdot S}} = \sqrt{\frac{2760}{4 \cdot \pi \cdot (0.55)}} \approx 19.98\text{cm}$$

Evaluation of RF Exposure Compliance Requirements	
RF Exposure Requirements	Compliance with FCC Rules
Minimum calculated separation distance between antenna and persons required: *19.98 cm	Manufacturer' instruction have specified for separation distance between antenna and persons required: 20 cm.
In a mobile host device the antenna(s) must be \geq 5 cm from all other simultaneous transmitting antennas.	Manufacturer' instructions have specified more than 5 cm separation distance in the user manual. Actual distance measured is close to 8 cm between two antennas.
Antenna installation and device operating instructions for installers (professional/unskilled users), and the parties responsible for ensuring compliance with the RF exposure requirement	Antenna installation and device operating instructions shall be provided to installers to maintain and ensure compliance with RF exposure requirements.
Caution statements and/or warning labels that are necessary in order to comply with the exposure limits	Refer to User's Manual for RF Exposure Information.