



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test report file number : E057R-072

Applicant : Dadam Micro Inc.

Address : #719 Keumkang Hightech Valley, 133-1 Sangdaewon1-dong, Jungwon-gu, Seongnam Gyeonggi-do Korea

Manufacturer : Dadam Micro Inc.

Address : #719 Keumkang Hightech Valley, 133-1 Sangdaewon1-dong, Jungwon-gu, Seongnam Gyeonggi-do Korea

Type of Equipment : Wireless Thermo-Hygro Monitor

FCC ID : TH7-GMS120B1

Model / Type No. : GMS-120

Serial number : N/A

Total page of Report : 16 pages (including this page)

Date of Incoming : June 27, 2005

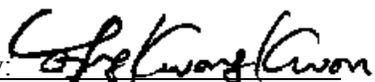
Date of issuing : July 22, 2005

SUMMARY

The equipment complies with the regulation, **FCC PART 15 SUBPART C §15.231**

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

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CONTENTS

	Page
1. VERIFICATION OF COMPLIANCE	3
2. GENERAL INFORMATION	4
2.1 PRODUCT DESCRIPTION	4
2.2 RELATED SUBMITTAL(S) / GRANT(S).....	4
2.3 TEST SYSTEM DETAILS	4
2.4 TEST METHODOLOGY	4
2.5 TEST FACILITY	5
3. SYSTEM TEST CONFIGURATION	5
3.1 JUSTIFICATION	5
3.2 EUT EXERCISE SOFTWARE	5
3.3 EQUIPMENT MODIFICATIONS	5
3.4 CONFIGURATION OF TEST SYSTEM	6
3.5 ANTENNA REQUIREMENT	6
3.6 TOTAL TRANSMISSION TIME PER 1 HOUR	7
4. PRELIMINARY TEST	7
4.1 AC POWER LINE CONDUCTED EMISSIONS TESTS	7
4.2 RADIATED EMISSIONS TESTS	7
5. FINAL RESULT OF MEASUREMENT	8
5.1 FIELD STRENGTH OF THE CARRIER TEST	8
5.4 BANDWIDTH OF THE OPERATING FREQUENCY	10
6. FIELD STRENGTH CALCULATION	12
7. LIST OF TEST EQUIPMENT	13



1. VERIFICATION OF COMPLIANCE

APPLICANT : Dadam Micro Inc.
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 CONTACT PERSON : Iksoo Jun / CEO
 TELEPHONE NO : +82-31-777-5432
 FCC ID : TH7-GMS120B1
 MODEL NO/NAME : GMS-120
 SERIAL NUMBER : N/A
 DATE : July 22, 2005

EQUIPMENT CLASS	DSC- Alarm / Remote Control Transmitter
E.U.T. DESCRIPTION	Wireless Thermo-Hygro Monitor
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/2003
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C §15.231
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.



2. GENERAL INFORMATION

2.1 Product Description

The Dadam Micro Inc., Model GMS-120 (referred to as the EUT in this report) is a transmitter for sensing outside temperature and humidity and then send the data to the receiver, Model GMS-220, FCC ID; TH7-GMS220A1, which was manufactured by Dadam Micro Inc. The EUT transmits measuring results (temperature, humidity) at regular interval. The minimum transmission interval is 1 minute. The product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
TX FREQUENCY	426.075 MHz
MODULATION	FSK
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	8.0 and 426.075 MHz
ANTENNA TYPE	Helical antenna , Built-in on the PCB in the EUT
TRANSMISSION TIME PER 1 TIME	About 24.4ms
RATED SUPPLY VOLTAGE	DC 3V, 2AA Size Alkaline Batteries
NUMBER OF LAYERS	2 LAYERS
EXTERNAL CONNECTOR	External type temperature/humidity sensor

* Remark: This equipment automatically deactivates the transmitter within not more than 1 second of being released.

Model Differences:

- No other model differences have been mentioned

2.2 Related Submittal(s) / Grant(s)

- None

2.3 Test System Details

The EUT was tested with the following all equipment used in the tested systems are: None.

2.4 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.



2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyeonggi-Do, 464-082, Korea. Description details of test facilities were submitted to the Commission on October 02, 2002. (Registration Number: 529838)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	Dadam Micro	GMS-120	N/A
RF Module Board	Automan	NFTX4C	N/A

3.2 EUT exercise Software

To get a maximum radiated emission from the EUT, the touch screen o the EUT was pushed to transmit RF signal continuously. To activate continuous transmission, software was changed as above for testing only.

To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes.

3.3 Equipment Modifications

None



3.4 Configuration of Test System

Line Conducted Test: It needs not to test this requirement, because the EUT supplies from a DC battery.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.4/2001 8.3.1.1 and 13.1.4.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3meter open area test site.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

Occupied Bandwidth Measurement:

This measurement is performed with the antenna located close enough to give a full-scale deflection of the modulated carrier on the spectrum analyzer. The plot is taken at 100kHz/division frequency span, 10 kHz resolution bandwidth and 10dB/division logarithmic display from an 8568B spectrum analyzer.

3.5 Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

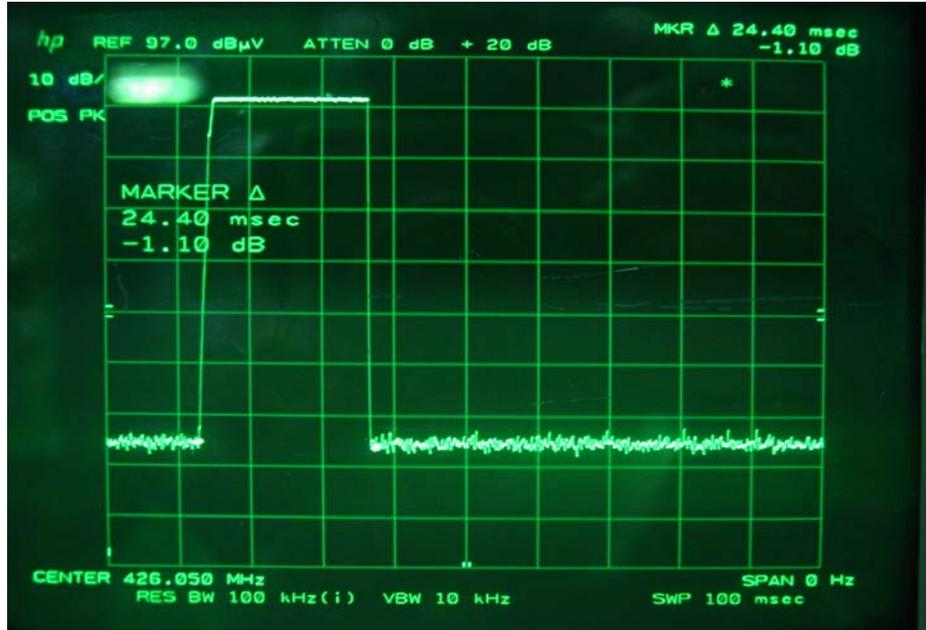
Antenna Construction:

The transmitter antenna of the EUT is screwed on the board in the EUT, so no consideration of replacement by the user.

3.6 Total Transmission Time per 1 Hour

According to the rule, 15.231(a) (3), the total transmission time of the EUT does not exceed two seconds per hour.

The transmission time per 1 carrier of the EUT is about 24.4ms and the EUT can transmit 1 carrier per minimum 1 minute according to the manual, so the maximum total transmission time of the EUT is $24.4 * 60 = 1464\text{ms}$. So the EUT meets this requirement Please refer to below photo data for 1 carrier's transmission time.



4. PRELIMINARY TEST

4.1 AC Power line Conducted Emissions Tests

Operation Mode	The Worse operating condition (Please check one only)
N/A	N/A
It is not need to test this requirement, because the power of the EUT is supplied from a DC battery.	

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
TX mode	X



5. FINAL RESULT OF MEASUREMENT

5.1 Field Strength of the Carrier Test

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 58 % Temperature: 25°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(b)
 Type of Test : Intentional Radiator
 Result : PASSED BY -6.67 dB with Average detector

EUT : Wireless Thermo-Hygro Monitor Date: June 28, 2005
 Operating Condition : TX mode
 Distance : 3 Meter

Radiated Emissions			Ant	Correction Factors			Total	FCC	
Carrier Freq. (MHz)	Amplitude (dBuV)	Detector Mode	Pol.	Antenna (dB/m)	Cable (dB)	Average Level Factor	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
426.00	56.30	Peal	H	16.14	4.45	-	76.89	100.56	-23.67
426.00	53.30	AVE	H	16.14	4.45	-	73.89	80.56	-6.67
426.00	40.40	Peak	V	16.14	4.45	-	60.99	100.56	-39.57
426.00	37.50	AVE	V	16.14	4.45	-	58.09	80.56	-22.47

*Remark: To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes, but the worst data was corrected in this report.

“Q.P.” : Quasi-Peak, “AVE”: Average, “H”: Horizontal Polarization, “V”: Vertical Polarization

Tested by: Ki-Hong, Nam / Test Engineer



5.2 Spurious Emission Test

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 58 % Temperature: 25°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(b)
 Type of Test : Intentional Radiator
 Result : PASSED BY -4.93dB at 836.00 MHz

EUT : Wireless Thermo-Hygro Monitor Date: June 28, 2005
 Operating Condition : TX mode
 Distance : 3 Meter

Radiated Emissions			Ant	Correction Factors			Total	FCC	
Carrier Freq. (MHz)	Amplitude (dBuV)	Detector Mode	Pol.	Antenna (dB/m)	Cable (dB)	Average Level Factor	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
284.00	11.40	Peak	H	20.04	3.61	-	35.05	60.56	-25.51
378.67	17.20	Peak	H	14.98	4.31	-	36.49	60.56	-24.07
852.15	11.70	Peak	H	22.58	7.10	-	41.38	60.56	-19.18
1041.47	12.60	Peak	H	24.30	8.30	-	45.20	80.56	-35.36
1088.64	14.70	Peak	H	24.35	9.01	-	48.06	80.56	-32.50
1136.12	15.50	Peak	H	24.38	9.85	-	49.73	80.56	-30.83
1278.20	13.10	Peak	H	24.75	10.50	-	48.35	80.56	-32.21
Other spurious frequencies were not found up to 4300 MHz.									

*Remark: To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes, but the worst emissions were corrected in this report.

“Q.P.” : Quasi-Peak, “AVE”: Average, “H”: Horizontal Polarization, “V”: Vertical Polarization

Tested by: **Ki-Hong, Nam / Test Engineer**



5.4 Bandwidth of the operating frequency

Humidity Level : 51 % Temperature: 22°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231 (c)
 Type of Test : Intentional Radiator
 Result : PASSED

EUT : Wireless Thermo-Hygro Monitor Date: June 28, 2005
 Operating Condition : TX mode
 Minimum Resolution
 Bandwidth : 10 kHz

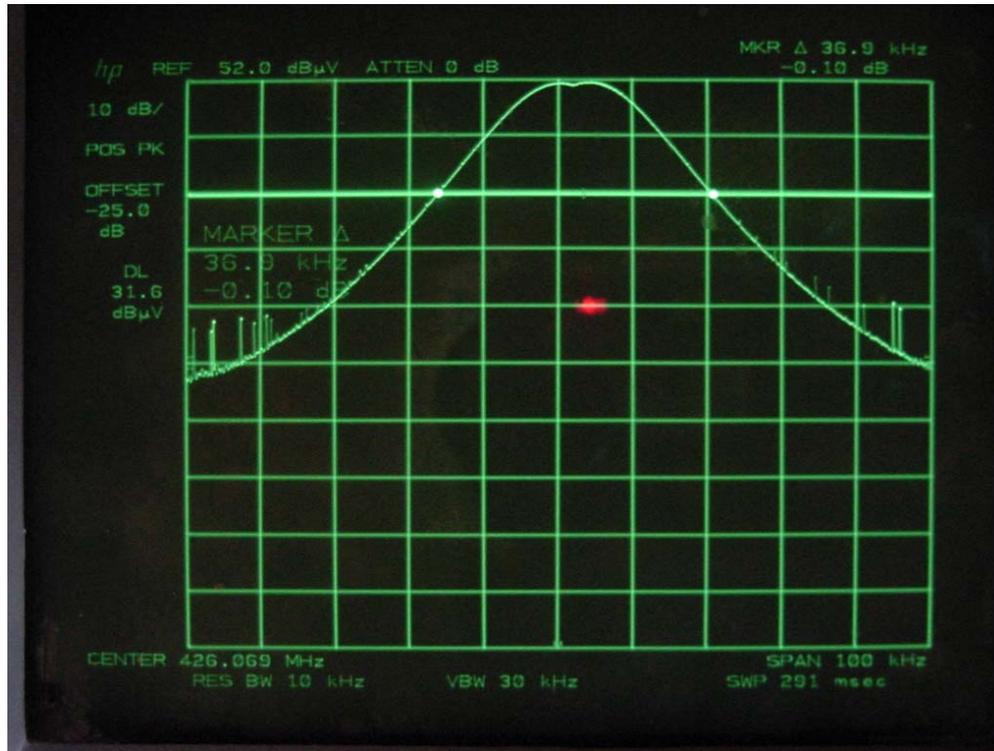
Carrier Freq. (MHz)	Bandwidth of the emission. (kHz)	Limit (kHz)	Remark
418.00	36.9	1065.0	<u>The point 20dB down from the modulated carrier</u>

Remark: Please refer to Photo Data for bandwidth for test data.

Tested by: Ki-Hong, Nam / Test Engineer



Plotted Data for bandwidth





6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)



7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	DEC/04	12MONTH	■
2.	Test receiver	R/S	ESHS10	834467/007	MAY/05	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3019A05456	MAR/05	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	MAR/05	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	MAR/05	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	JUL/04	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	JUL/04	12MONTH	■
8.	Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D294	JUN/05	12MONTH	■
9.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUL/04 NOV/04	12MONTH	
10.	RF Amplifier	HP	8347F	3307A01354	JUN/05	N/A	
11.	Spectrum Analyzer	HP	8564E	3650A00756	JUL/04	12MONTH	■
12.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
13.	Position Controller	HD	HD100	100/788	N/A	N/A	■
14.	Turn Table	HD	DS420S	N/A	N/A	N/A	■
15.	Antenna Master	HD	HD240	N/A	N/A	N/A	■
16.	Isolation Transformer	Digitek Power	DPT	DPF-22027	N/A	N/A	■
17.	Isolation Transformer	Digitek Power	DPT	DPF-22028	N/A	N/A	■
18.	Frequency Converter	Digitek Power	VFS/DEFC	N/A	N/A	N/A	■