RF Exposure Evaluation
FCC ID: N3A-NWS01IN

1. Client Information

Applicant	:	Netatmo
Address	:	17, route de la Reine - 92100 Boulogne Billancourt - France
Manufacturer	:	Netatmo
Address	:	17, route de la Reine - 92100 Boulogne Billancourt - France

2. General Description of EUT

EUT Name	:	Netatmo Weather Station	
Models No.	:	NWS01	
Model Difference	:	N/A.	
Product Description	:	Bluetooth Operation Frequency: 2402MHz~2480MHz 802.11b/g Operation Frequency: 2412MHz~2462MHz RF: 916 MHz	
		Number of Channel:	802.11b/g/n:11 Channels see note Bluetooth Operation Frequency: 2402MHz~2480MHz RF: 1 channel 916MHz
		Out Power	802.11b: 18.72 dBm 802.11g: 16.75 dBm 802.11n (20M): 15.82 dBm Bluetooth 1 Mbps: 2.31 dBm Bluetooth 3 Mbps: -1.24 dBm RF(916MHz): 92.20 dBuV/m@3m
		Antenna Gain:	0 dBi Integral Antenna
		Modulation Type:	802.11b: CCK, QPSK, BPSK 802.11g: OFDM 802.11n (20M): OFDM GFSK 1Mbps(1 Mbps) π/4-DQPSK(2 Mbps) 8-DPSK(3 Mbps) RF(916MHz):GFSK

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	:	Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps Bluetooth: 1Mbps~3Mbps
Power Supply	:	DC Voltage supplied from AC/DC adapter DC Voltage supplied by AAA battery.	
Power Rating	:	AC Adapter: Input: 100~240V 50/60Hz 1.6A Output: 5V 1000mA DC 5.0V by USB cable from PC. DC 6.0V by 4*AAA batteries	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

Note:

(1) The WIFI and Bluetooth use the same antenna, and WIFI and Bluetooth can't transmission at the same time.

MPE Calculations for Bluetooth

1. **No Evaluation required if power is below**
   （60/f(GHz) mW） where f is the transmit frequency of the EUT.

2. **Calculation:**
   EIRP= P+G
   Where P=Conducted Output Power (dBm)
   G=Power Gain of the Antenna (dBi)

   So

Bluetooth				
Test Mode	**Conducted Power (dBm)**	**Antenna Gain (dBi)**	**EIRP (dBm)**	**EIRP (mW)**
1 Mbps	**2.31**	**0**	**2.31**	**1.702**
3 Mbps	**-1.24**	**0**	**-1.24**	**0.752**

3. **Conclusion:**

No SAR Evaluation required since Transmitter EIRP is bellow FCC threshold.

Note

For a more detailed features description, please refer to the RF Test Report.

MPE Calculations for WIFI

4. Antenna Gain:

External Antenna: 0 dBi.

5. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

6. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

7. Test Result:

Band	Channel	Frequency (MHz)	Power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
802.11b	CH1	2412	18.25	0	20	0.013
	CH6	2437	18.35	0	20	0.014
	CH11	2462	18.72	0	20	0.015
802.11g	CH1	2412	16.86	0	20	0.010
	CH6	2437	16.75	0	20	0.009
	CH11	2462	16.61	0	20	0.009
802.11n (20M)	CH1	2412	15.82	0	20	0.008
	CH6	2437	15.45	0	20	0.007
	CH11	2462	15.68	0	20	0.007

8. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm^2)
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n (2412~2462 MHz)
MPE limit S: 1 mW/ cm^2
The MPE is calculated as 0.015mW / cm^2 < limit 1 mW / cm^2. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note
For a more detailed features description, please refer to the RF Test Report.