



RF Exposure Evaluation Report

APPLICANT : Advantech Co., Ltd.
EQUIPMENT : HandHeld Terminal
BRAND NAME : Advantech
MODEL NAME : PWS-430
FCC ID : M82-PWS-430
FILING TYPE : Certification
STANDARD : OET Bulletin 65 Supplement C (Edition 01-01)

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with FCC OET Bulletin 65 Supplement C (Edition 01-01), and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



Table of Contents

REVISION HISTORY	3
1. RF EXPOSURE INTRODUCTION	4
2. ADMINISTRATION DATA	6
2.1 Testing Laboratory	6
2.2 Applicant	6
2.3 Manufacturer.....	6
3. GENERAL INFORMATION	7
3.1 Description of Equipment Under Test (EUT)	7
4. RF EXPOSURE EVALUATION	8
4.1 Radio Frequency Radiation Exposure Evaluation.....	8



1. RF Exposure Introduction

Requirements

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile and portable and are defined as follows:

▪ Fixed installation:

Fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.

▪ Mobile Devices:

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR 2.1091.

▪ Portable Devices:

A portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR 2.1093)



The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows:

▪ **Occupational/controlled Exposure:**

In general, occupational/controlled exposure limits are applicable to situation in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure. Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks.

▪ **General Population/Uncontrolled Exposure:**

The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.



2. Administration Data

2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

2.2 Applicant

Company Name	Advantech Co., Ltd.
Address	No. 1, Alley 20, Lane 26, Rueiguang Road, NeiHu District, Taipei 114, R.O.C.

2.3 Manufacturer

Company Name	Advantech Co., Ltd.
Address	No. 1, Alley 20, Lane 26, Rueiguang Road, NeiHu District, Taipei 114, R.O.C.



3. General Information

3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	HandHeld Terminal
Brand Name	Advantech
Model Name	PWS-430
FCC ID	M82-PWS-430
Tx Frequency	WLAN2.4G : 2412 MHz ~ 2462 MHz Bluetooth : 2402 MHz ~ 2480 MHz
Rx Frequency	WLAN2.4G : 2412 MHz ~ 2462 MHz Bluetooth : 2402 MHz ~ 2480 MHz
Antenna Type	WLAN2.4G : Fixed Internal Antenna Bluetooth : Fixed Internal Antenna
HW Version	A101
SW Version	v307
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth (1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK Bluetooth EDR (3Mbps): 8-DPSK
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



4. RF Exposure Evaluation

4.1 Radio Frequency Radiation Exposure Evaluation

Per KDB 447498, when device output power $\leq 60/f_{(GHz)}$ mW, SAR measurement is not required.

No evaluation required if power is below this power threshold:

Frequency Range (GHz)	Power Threshold (mW)	Power Threshold (dBm)
2.4 ~ 2.48	24.19	13.84

Maximum measured WLAN conducted output power for the EUT:

WLAN Maximum Output Power (dBm)
12.09

Threshold for no RF exposure evaluation is 13.84 dBm.

The WLAN highest transmitting power of this device is 12.09 dBm.

No evaluation required if power is below this power threshold:

Frequency (GHz)	Power (mW)	Power (dBm)
2.48	24.19	13.84

Maximum measured Bluetooth transmitter power for the EUT:

Maximum Output Power (dBm)
-1.85

Threshold for no RF exposure evaluation is 13.84 dBm.

The Bluetooth highest transmitting power of this device is -1.85 dBm.

No evaluation required if power is below this power threshold:

Conclusion:

No RF exposure evaluation required since transmitter output power is below the power threshold.