# RED Risk Assessment Report

This statement covers the following products

Product Market Name: EnviroAlert EA800

Product Model Numbers: EA800-ip; EA-WTS; EA-WHS; EA-WMFS

The EnviroAlert EA800 system is an on-premise environmental monitoring solution. The system consists of an EA800-ip console and up to 12 sensor probes; a combination of up to 4 wired probes and up to 8 wireless sensors. The system can operate without using radio transmission. The console is a low voltage powered, self-contained receiver and transmitter with two attached antennas. The wireless sensors are self-contained receiver and transmitters with one attached antenna. The wireless sensors may be powered by 2 AA alkaline batteries or powered by a 12 VDC @ 100 mA connection. The wireless sensors transmit and receive signals only with the console.

The console is typically placed in a location central to the areas that require monitoring. Wired probes and wireless sensors are installed at varying distances from the console according to Winland's placement instructions. The console is capable of cloud connectivity via Ethernet allowing users remote access to sensor data. Software updates may be made locally by USB connection or remotely by the cloud connection.

The compliance assessment uses harmonized standards where possible, for Radio Equipment Directive (RED) Article 3.1a, 3.1b, 3.2, 3.3 compliance. Additional measures are taken as below.

## Article 3.1(a) Health and Safety

The electrical safety and radio frequency exposure standards under directive 2014/35/EU applied to this product have been assessed as sufficient to cover the health and safety risk of persons and also of domestic animals and property within the scope and objectives of the Directive.

### In particular:

EN61010[1] is a standard which specifies general safety requirements for equipment which by electromagnetic means tests, measures, indicates, or records one or more electrical or physical quantities. This ensures a high level of safety in the console and wireless sensors.

EN62311[2] is a standard which provides assessment methods and criteria to evaluate electronic and electrical equipment for which no dedicated product or product family standard regarding human exposure to electromagnetic fields applies against basic restrictions or reference levels on exposure of the general public related to electric, magnetic, and electromagnetic fields and induces and contact current. This standard covers the 0 Hz to 300 GHz frequency range.

In addition to the standards applied, Winland Electronics, Inc. takes the following additional steps to ensure adequate levels of product safety:

[1] https://www.iecee.org/dyn/www/f?p=106:49:0::::FSP_STD_ID:4279
[2] https://www.iecee.org/dyn/www/f?p=106:49:0::::FSP_STD_ID:6804

This equipment is designed to meet the guidelines for RF exposure and Specific Absorption Rates (SAR). These limits include a substantial safety margin designed to assure the safety of all persons, regardless of age or health.

During use, actual SAR are below accepted standard limits. The communications system spends most of the time in sleep mode, therefore the average transmit power is very low compared to the accepted standard limits.

Install equipment such that active antennas are more than 30 cm from all persons.

The product manual and the quick start guide provide instructions to meet the legislative requirements and these documents instruct the user on applicable safety measures prior to applying power.

### Additional measures

All products undergo individual inspection and functional testing during manufacture. Neither user interaction with the local nor the remote controls can change the function of the product in a way that would compromise safety or compliance of the equipment. The product manual provides instruction on what users should do in the event of a defective product, either through normal use or abuse. Tech support and the return center can repair or replace defective, damaged, or broken units.

### Foreseeable misuses/Abuse

Power source: The equipment is not designed for direct connection to an AC-Mains power source; relay outputs are intended only for use as low-voltage, low-current alarm connections. Loads exceeding the specified limitations may damage the console, or result in unsafe, improper or unreliable operation. The equipment must be powered by a limited power source per EN 60950-1 or Class 2 Supply per US National Electric Code (NEC).

General mechanical safety of console or wireless sensor: Users could be harmed by fumes resulting from burning the equipment. Bodily harm could result from units that have been physically damaged in a way that exposes sharp edges or broken glass. Such equipment must be removed from service.

Use of the product in a motor vehicle in such a way as to distract from vehicle operation is not recommended.

## Article 3.1(b) Electromagnetic Compatibility

The equipment meets essential requirements of Article 3.1(b) of Directive 2014/53/EU and the essential requirements of Article 6 of Directive 2014/30/EU regarding the electromagnetic compatibility requirements selected to ensure an adequate level of compatibility for equipment intended to be used in residential, commercial, light industrial, industrial, telecommunication center, or vehicular environments for the console and wireless sensors.

The console is EMC tested with multiple accessories – including wireless sensors, hardwire probes. All active Winland Electronics accessories comply with the applicable EMC requirements in their own right and as a system with the base console. Sensors, such as for temperature and water detection, are passive and excluded from the directive requirements.

## In particular

EN 61326-1[3] superseded by EN 301 489-1 v2.2.0[4] are standards which specify requirements for immunity and emissions regarding electromagnetic compatibility for electrical equipment, operating from a battery or supply or of less than 1,000 VAC or 1,500 VDC or from the circuit being measured. Equipment intended for professional, industrial-process, industrial-manufacturing and educational use is covered by this part.

EN 301489-1 V2.2.0[5] is a standard which specifies common technical requirements.

EN 301489-17 V3.2.0[6] and EN 301 489-3 V1.4.1[7] standards relate to immunity requirements for broadband data transmission systems.

EN 300 328 V1.9.1[8] and EN 300 328 V2.1.1[9] standards apply to spectrum and receiver blocking requirements for broadband equipment.

## Foreseeable misuses/Abuse

All Winland Electronics, Inc. accessories are tested at system level with the console. All products undergo reliability testing which includes visual inspection and assessment and functional testing. Recognized quality systems during manufacture process ensure products remain in conformity with the radio equipment directive. The product manual provides instruction on what users should do in the event of a defect, either through normal use or abuse.

The equipment is not approved for use with any RF antenna, amplifier, or antenna cable other than what is provided as part of, and integrated into, the product by Winland Electronics, Inc. The console includes two antennae installed during manufacture. Wireless sensors include one antennae each.

The product manual and quick start guide contain sufficient instructions to meet the legislative requirements and instruct the user on the applicable safety related matters before power is applied to the device. These warnings and cautions include the following:

- Connect only sensors specified in the product manual to the wired and wireless input connections. Using sensors not specified in this manual may damage the console or cause improper or unreliable operation.
- The console printed circuit board (PCB) contains electrostatic discharge (ESD) sensitive devices. To help prevent damage caused by ESD, observe appropriate ESD handling rules whenever the PCB in the console is exposed.

[3] https://www.iecee.org/dyn/www/f?p=106:49:0::::FSP_STD_ID:5275
[4] http://www.etsi.org/deliver/etsi_en/301400_301499/30148901/02.02.00_20/en_30148901v020200a.pdf
[5] http://www.etsi.org/deliver/etsi_en/301400_301499/30148901/02.02.00_20/en_30148901v020200a.pdf
[6] http://www.etsi.org/deliver/etsi_en/301400_301499/30148917/03.02.00_20/en_30148917v030200a.pdf
[7] http://www.etsi.org/deliver/etsi_en/301400_301499/30148903/01.04.01_40/en_30148903v010401o.pdf
[8] http://www.etsi.org/deliver/etsi_en/300300_300399/300328/01.09.01_60/en_300328v010901p.pdf
[9] http://www.etsi.org/deliver/etsi_en/300300_300399/300328/02.01.01_60/en_300328v020101p.pdf

## Article 3.2 Radio Spectrum

The EN radio spectrum standards applied to this product have been assessed as sufficient to cover the risks to the RF spectrum.

### In particular:

EN 300328 V1.9.1[10] is a standard which ensures wideband transmission systems (data transmission equipment operating in the band of 2.4 GHz to 2.4835 GHz and using wide band modulation techniques) that can be used in fixed, mobile, or nomadic applications.

The console and its accessories are designed and manufactured to high standards to ensure standard compliance, performance, user experience, and safety. Winland Electronics, Inc. considers the following measures sufficient to ensure conformity with the essential requirements of the Directive.

### Additional measures

The radio interfaces in the device will operate and communicate only within the band of 2405 to 2480 MHz.

All products undergo individual inspection and calibration during manufacture.

### Foreseeable misuses/Abuse

Winland products undergo reliability testing which includes visual inspection and assessment.

All products undergo individual calibration during manufacture.

The ability to update software by Ethernet on units already in the field helps to ensure devices remain up-to-date, and many potential issues can be prevented and corrected without units being physically returned for service.

Winland technical help can repair and replace defective, damaged or broken units.

[10] http://www.etsi.org/deliver/etsi_en/300300_300399/300328/01.09.01_60/en_300328v010901p.pdf