

Federal Communications Commission,  
7435 Oakland Mills Road,  
Columbia, MD  
21046  
USA

3rd September 2007

**Certification Of Product to FCC R & R's, Part 15 Subpart C**  
**Multitone EkoTek Series HUB - E862WHUB**

Dear Sirs,

We wish to make application for the Certification of the above referenced equipment as part of our EkoTek Series of products, under the auspices of R & R Part 15, Subpart C, Section 15.247. Further separate Form 731's have been completed and supporting exhibits attached, for each individual equipment that further form this Series.

Based around the IEEE 802.15.4 standard for Low Rate Wireless Personal Area Networks (WPANs) and the proprietary TI chipset CC2430, the EkoTek Series of equipments form an intelligent personal security/lone-worker alarm system, which operates over a 2.4GHz, low power RF self-organising radio network. The system allows assistance calls, general and/or emergency; to be made via the radio network, with both location display and response call facilities.

Digital modulation and frequency-hopping techniques are used to enable the simultaneous carriage of traffic volume and to avoid interference from nearby equipments, also operating in the 2.4GHz ISM band e.g. WiFi.

The system comprises 4 basic equipments, 2 portable and 2 fixed, for each of which separate applications will be made. The device that is the subject of this application is the: -

**HUB (2WHUB)** - central device to the mesh network; all communication passes to and from the HUB, which can be located at any point within the network. The HUB displays alarm calls; may be configured and monitored from a PC via an Ethernet link and has external Serial ports for other alarm and paging system connections.

Other devices on the system include the: -

**Call FOB (2WCF)** - portable device worn/carried by personnel; **2-Way Pager (2WPAG)** - provides the same alarm generation facilities as the FOB, but also has the added benefit of an alphanumeric display and the **Repeater (Node)/Call-point repeater (2WREP)**. Further details of these equipments, may be found under their own applications.

**SDR** - This equipment may be classed as a Software-Defined Radio. It may be further broadly classified as a Master device. The HUB continuously transmits a Main Beacon every second, which provides system information such as time/date, quality of link to HUB, any messages (both outgoing and acknowledgement of incoming) and frequency-hopping information. Additionally, it also transmits a second localised location beacon signal every second, at a lower RF power (-14dB relative to Main Beacon nominal).

However, it is intended that the control of the software that is used to define the radio parameters, be retained within Multitone. Each unit will be pre-programmed before dispatch and the only radio parameter which may be changed during installation, is the default RF channel within the band, which is used by the HUB and possibly by the repeaters (see System Installation & Configuration Manual).

**Software Control** - The software which controls the RF parameters for all the EkoTek products is Multitone proprietary and is controlled by the company development group and company QA procedure P020/02, which forms part of our ISO 9001 certification.

As stated above, each equipment is pre-programmed before dispatch and at this time no other external access is to be allowed to the RF parameter software, apart from setting the default RF channel during network installation. The only accessible software control is for network parameter setting.

**Servicing** - It is not intended that the EkoTek products be field serviceable. They will be either returned to Multitone or our agents for repair and/or replaced with another unit.

**RF Exposure** - The nominal RF ERP of the device, is 10mW. This falls below the lower threshold category for General Population exposure (for  $f$  2.4GHz, 25mW) for  $d < 2.5$ cm. The product is intended to be desk-top or wall mounted.

**Confidentiality** - We wish to request Permanent Confidentiality for parts of this item under the terms of R & R 0.457 and as denoted on the Form 731, please see separate request letter.

**Documentation** - In addition to the product specific documentation, I have also attached the generic data sheets and overall system documents to this application. These items will also be relevant to the other related EkoTek submissions.

I hope that the information supplied enables you to make an initial assessment of the equipment. Once you have formed further questions, please do not hesitate to contact me. E-mail is probably the most efficient route.

Yours sincerely,

A handwritten signature in black ink that reads "B.R. Merchant".

B.R.Merchant  
Principal Approvals Engineer  
Multitone Electronics plc

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**Request For Confidentiality**  
**Multitone EkoTek Series HUB - E862WHUB**

Dear Sirs,

In accordance with Rule Parts 0.457 & 0.459, we hereby request that the following exhibits entered as part of the certification process for the above product, be held as Permanently Confidential.

Schematics:-

2961-8059-2; 0261-8060-2; 3061-8061-2  
2961-8150-1; 0261-8151-1; 3061-8152-1.

The reason for this request is that these items are commercially sensitive and have not, or will not be made publicly available.

Yours sincerely,

A handwritten signature in black ink that reads "B.R. Merchant".

B.R.Merchant  
Principal Approvals Engineer  
Multitone Electronics plc

