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Chief, Authorization Branch  
Federal Communications Commission  
7435 Oakland Mills Road  
Columbia, MS 21046

Subject: Request for unlicensed Modular Transmitter Approval.

Reference: FCC 07-56A1 47 CFR 15.212

To Whom It May Concern:

Wisair, Ltd. hereby requests FCC Equipment Authorization as a Singular Modular Transmitter of the Wisair Model 601SD-D, UWB Module, FCC ID: RN2601SD\_D. Wisair intends to manufacture this device and market it under several brand names and brand I.D.s as a computer accessory or as an item connected to another equipment.

This letter addresses the information required by points one through eight of 47 CFR 15.212.

1. The modular transmitter must have its own RF shielding. All shielding necessary for normal operation is accomplished by the multi-layer construction of the printed wiring board which incorporates multiple ground layers in its construction. As this transmitter is designed to operate stand-alone in its own enclosure, connected to an industry-standard USB interface, no additional shielding is incorporated to minimize coupling.
2. The modular transmitter must have buffered modulation/data inputs. The Wisair 601SD-D UWB Module receives data via the industry-standard USB 2.0 interface. This USB interface is implemented within the WSR601SD integrated circuit as may be seen on sheet five of the schematic diagram included in the filing for FCC Equipment Authorization. The USB interface limits the data rate to those defined by the USB standard.
3. The modular transmitter must have its own power supply regulation. The Wisair 601SD-D UWB module receives power from the USB interface via the standard USB connector. This +5 Volt source is regulated on the module to produce the four power domains required by the module circuitry; +3.3V, +1.8V, +1.5V and +1.2V. The power regulation topology may be seen on sheet two of the schematic diagram included in the filing for FCC Equipment Authorization.
4. the modular transmitter antenna must comply with the antenna and transmission system requirements of section 15.203,15.204(b) and 15.204(c) the antenna of the Wisair 601SD-D UWB module is a ceramic LTCC component, OMRON p/n WXA-N2SL, which is permanently soldered to the printed wiring board.



5. The modular transmitter must be tested in a stand-alone configuration. As described in section 2.5.3 of the test report included in the filing for FCC equipment authorization, the 601SD-D UWB module was tested without a plastic housing, connected to the USB port of a P.C as it usually intends to operate. The 601SD-D is designed with an industry standard USB connector as its electrical and mechanical interface to a host or a device system.
6. The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying the FCC identification number. An example of the label which will be used is included in the filling of the FCC equipment Authorization.
7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter part 15.519 if the FCC rules and regulation requires that a UWB transmitter shall transmit only when it is sending information to an associated receiver. That rules part also requires that the UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgement of the reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting. This requirement is met by design and is implemented by the firmware encoded into the device.
8. The modular transmitter must comply with any applicable RF exposure requirements in its final configuration. From the measurement data we can see that the peak detected EIRP at 3 meters distance and 8 MHz RBW yields a result of  $-27.55\text{dBm}$ . Translated to 20 cm this would yield a result of  $-4.03\text{ dBm}$ . Correlating this to a worst-case scenario with a 50 MHz RBW would yield  $20.4\text{ dBm EIRP}$ .  $20.4\text{ dBm}$  is equal to  $110\text{mW EIRP}$ . Plugging this into the above equation yields:

$$S \approx \frac{110}{4 \cdot (20)^2} \approx 0.0219\text{mW} / \text{cm}^2$$

Based on these worse case calculations the device is well below the maximum permissible exposure limit of  $1\text{mW}/\text{cm}^2$  by a large margin.

David Meshulam  
Vice-President, R&D