

## **EXHIBIT 6**

Application for Receiver

### **CERTIFICATION**

Under CFR Title 47, Part 15.109

**GRANTEE: SmarTire Systems, Inc.**

**FCC ID: NATRX433-2**

August 14, 2001

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# APPLICATION FOR CERTIFICATION

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**TEST: FIELD STRENGTH OF RADIATED EMISSIONS**

Grantee: SmartTire Systems, Inc.

FCC ID: NATRX433-2

**Setup:**

The equipment under test (EUT) was configured and operated in accordance with the applicable provisions of ANSI C63.4-1992, Section 6, 12. Measurements were made in accordance with applicable paragraphs of Section 8.2.2 and 8.2.3, Section 12.1.1.1 Appendix D, Section 12.1.4 and Appendix H3 and H4.

The EUT was placed on a 1 by 1.5 meter table located 40 cm above a 2-meter diameter non-metallic turntable that sits 40 cm above the 15 X 30 meter ground plane at Spectrum's Open Area Test Site. The bi-conical or log-periodic antenna was mounted on a tower spaced at a three meters distance, and arranged for adjustment in height (1-4 meters) and vertical/horizontal polarization to maximize the emissions levels when combined with turntable rotation of the EUT. The dual ridged guide antenna was mounted on a tripod at one-meter height and adjusted for vertical or horizontal antenna orientation. A HP 8562A spectrum analyzer with a HP 8447F, Option H64 amplifier and a HP 83006A pre-amplifier were used for the peak measuring instrumentation.

**Discussion:**

No modifications were required prior to the final radiated emissions measurements reported herein.

The EUT is a 433 MHz receiver used in the SmartTire Passenger Car Tire Monitoring System. One of the three versions of the receiver would be installed in a passenger vehicle and used to receive signals and display status of passenger tire pressure sensors installed on the wheels. All three version of receiver use the identical receiver board. The Basic Receiver has LED's to display status while the High End Display and High End Remote Display versions both have a identical LCD Display connected either directly or remotely via a cable to the Basic Receiver. A transmitter/ sensor would be installed either on the rim or in place of the valve for each wheel depending on the model of transmitter. Each transmitter reports back to the receiver with pressure status and temperature status regardless of vehicle movement. If a change in excess of 1 lb is detected the 4 to 6 minute normal cycle transmit interval is interrupted. The information is transmitted immediately, being considered a safety issue, as in the case of a punctured tire and treated accordingly.

The receiver was powered with a 12-volt external power supply connected to the cigarette lighter plug connector.

Preliminary measurements were made as described in Section 8.3.11 and 13.1.4.1 with the receiver operating as described. During preliminary measurements only two emissions of significance were detected with the receive antenna in close proximity to the EUT. The low level of the second harmonic and broadband energy observed at six inches was not measurable at 3 meters even with the use of an amplifier.

The EUT configuration is detailed in the photographs included with this report.

The final set of measurements as specified in Section 8.3.1.2 and 13.1.4.2 were made as specified in Section 13.1.1. The receiver was observed while positioned in three mutually orthogonal planes with the horizontal position "on its back antenna parallel to ground plane", the worst case. The EUT's cigarette lighter plug 12 VDC power cord and remote cable (for the one version) were manipulated to different positions endeavoring to raise emission levels. The 12 Volt source was an Astron VS-35-M power supply during the measurements. RBW and VBW of 100 kHz were used for measurements below 1 GHz. Above 1 GHz peak measurements were made with a RBW and VBW of 1 MHz. We also endeavored to maximize levels of the emissions with EUT rotation and adjustment of antenna height.

Measurements were made over the frequency range of 30 - 5000 MHz. A HP 8447F pre-amplifier was used during these measurements.

The receiver operating at its nominal 433.92 MHz. A transmitter/sensor was activated to ensure receiver operation via observing the display, then deactivated.

No receiver emissions were measurable at 3 meters with the use of a preamp so the antenna was moved in to 1 meter and still no emissions were measurable for any of the three versions. We specifically looked for the LO and harmonics in detail.

Measurements were made on all three packaging versions of the receiver, the Basic Receiver, the High End Display and High End Remote Display versions with the LCD Display connected either directly or remotely to the Basic Receiver.

No receiver antenna conducted emissions measurements were made due to the permanent antenna. The antenna type is a PCB mounted coil antenna.

### **Conclusion:**

The SmarTire Systems, Inc., FCC ID: NATRX433-2, when operated and measured as discussed above, meets the receiver radiated spurious emissions requirements under Title 47, CFR Part 15.109(a). This receiver is *not subject to the transition provisions of Part 15.37*.