Response to correspondence ref # 24582

Additional information and clarifications for the equipment authorization file FCC ID PS5CT2A
Applicant: BotCorp America
Correspondence Reference Number: 24582
731 Confirmation Number: EA192994

1) Part 25 with ERP>3W needs MPE test (not estimation), please submit. Alternatively, source-based time-averaging may apply without MPE test along with 2.1091(c) categorical exclusion if justified appropriately.

For the satellite transceiver SSMS CT2A the source based time averaging may be applied as justified bellow, conform to FCC rule 2.1091 (c)(2)

For the purpose of RF Radiation exposure estimation the most conservative case scenario is considered.

The satellite transceiver SSMS CT2A operates in a time division multiple access mode (TDMA) and transmits an RF burst of maximum 1 second at a repetition interval of no less than 15 seconds. This leads to a maximum duty-cycle of 1/15.

This case is limited by the inherent TDMA operational scheme, the design of the transmission control circuitry and the hardware design of the final amplifier section. Transmissions longer than 1 second , at intervals less than 15 seconds, lead to the final amplifier thermal overloading and self-destruction.

It is noteworthy that the TDMA operational timing is a RF burst transmission of 80-millisecond transmission at intervals of no less than 15 seconds. The theoretical 15-second limit is imposed by the transmission control circuitry. Nominal operational transmission intervals are longer, typically 15 minutes intervals.

Nevertheless, for the purpose of a conservative RF radiation exposure estimation an absolute theoretical worse case scenario bounded by the design of the TDMA transmission control circuitry and physical capabilities of the hardware has been considered. This is the 1/15 duty-cycle factor (an RF burst transmission of maximum 1 second at a repetition interval on no less than 15 seconds)

According to FCC rule section 2.1091 (c)(2) “source-based” time-averaging based on an inherent property or duty cycle of a device is allowed.

The “RF Radiation Exposure Evaluation Report for the SSMS Transceiver Model SSMS CT2A”, Exhibit 10, follows the analysis method and the exposure limits specified in FCC rule section 1.1310 and the procedures specified in the FCC OET Bulletin 65, “Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Radiation”.

Exhibit 10 states that the satellite transceiver SSMS model CT2A complies with the limit specified in FCC rule section 1.1310 of 1 mW/cm^2 for general population averaged over a period of 30 minutes , for devices transmitting at frequencies above 1500 MHz.

Exhibit 10 justifies the selection of the MPE method and the source based time averaging based on a duty cycle transmission rate of maximum 1/15.

2) Op desc exhibit states 34dBm+1dB=3.16W, Form 731 has 2.5W, MPE exhibit has 3.2W. Please clarify requested grant power, and repeat/clarify all tests/exhibits at max power if needed.

The maximum power transmitted by the satellite transceiver SSMS CT2A at the antenna terminals is 35dBm = 3.16W.

In the MPE exhibit the 3.16W value has been conservatively rounded off to a single decimal value of 3.2W.

The maximum radiated power by the satellite transceiver SSMS CT2A is 12.5 dBW considering the maximum transmit antenna gain of 7.5 dBi.

The form 713 should be amended to reflect the above-mentioned values. By a regrettable error the nominal power level of 2.5 W (34dBm) has been filled, instead of the maximum transmitted power at the antenna of 3.16 W (35dBm).

The requested grant power should be 3.16W = 35dBm.

All test results and exhibits are based on a specification of the maximum transmitted power at the antenna terminals of 35 dBm = 3.16W (rounded off to single decimal value of 3.2W for conservative computation in the MPE exhibit).

Section 2.6 “Operating Power value” in Exhibit 8 (page 2.2) has been amended to correct the previously specified value and to add the maximum transmitted power value of 3.16W.
Section 2.2 “FCC identifier” has also been amended to reflect the correct FCC Identifier.
The amended Exhibit 8, revision 1.3 / Dec 20, 2002 has been resubmitted to the authorization file.

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Dec 20, 2002