



ENGINEERING AND TESTING FOR EMC AND SAFETY COMPLIANCE

AMCO Automated Systems  
FCC ID: G8JVRT01

- 1) The block diagram should show the frequencies of all oscillators in the device (CFR 2.1033(a)(5)). Please provide an updated version that includes this information.

Response: The block diagram has been modified and uploaded.

- 2) The device contains two different antennas, but it is not clear which one is which. Please provide an additional photograph that labels the Receiver and Transmit Antennas.

Response:

The antenna specification has been uploaded with the appropriate label.

- 3) The Technical description discusses an AFC state that is a quasi-TX state. Please provide more information regarding what this state is. Is this state expected to meet the requirements of 15.231(a) or (e)? Also, please explain how this mode meets the timing requirements necessary for its requirements.

Response:

The AFC is considered a quasi-TX state since it does create an RF transmission, but at a reduced power level than what the carrier operates at, and sweeps in frequency from approximately 420 MHz to 451 MHz over a 650 mSec time period in approximately 125 discrete channels that are active for approximately 5 mSec each. This transmission meets the requirements defined in 15.231e since the transmission dwells on each discrete frequency for approximately 5 mSec.

- 4) The Technical description states that the transmitter operations from 414.5 - 415 MHz, while the users manual states 413.5 - 414.55 (page 12 of 18). Please explain which is correct and correct the appropriate exhibits.

Response:

The manual has been corrected; the frequency tolerance is indeed 414.5 MHz +0.5 MHz, -1.0 MHz

- 5) The users manual page 12 of 18 appears to list the FCC ID of a different product. Please correct or add the current FCC ID to the manual as appropriate.

Response:

The manual has been corrected.



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6) Please provide a theory of operation regarding transmission duration & TX time etc. Please explain how often the device transmits. Does it ever repeat its transmission? If so, how many times and how often?

Does it only transmit once for each interrogation? Does the transmission duration ever change, or is the 15 ms stated in the report worse case? If multiple packets are transmitted in < 1 second, what is the period between transmissions? Also, please provide a plot over 5 seconds that shows that the total transmission time does not exceed 1 second. If the device repeats its packets in a reasonable period of time (< 45 seconds), please provide a plot that shows this as well.

- The device transmits only once per interrogation, and does not repeat a transmission for any interrogation. Devices are typically read once per month, but could be read as often as once per day.
- All transmissions are 15 mSec. This time duration does not change, and is never greater than 15 mSec.
- Under normal conditions, a transponder should only be interrogated once, and only reply once with a 15 msec transmission. A plot of this operation would show a single 15-msec transmission during the 5-second period. A plot, part 2.4 of the report, show that the silent time exceeds the 30 times the time of transmission.
- A transponder does not repeat packets at any time. It only sends one 15-msec packet reply for each interrogation.

7) Table 3-1 & 3-2 appear to show average measurements. Since actual average measurements are not allowed for pulsed emissions, but only duty cycle correction of the QP/PK reading, average "measurements" should not be provided as they confuse the test data. Also, please note that some of these average measurements also appear to exceed the average limits.

Response:

The average measurements have been removed from the report; only the peak measurements have been kept.

8) The test report did not provide any measurement data for > 1 GHz. Please explain the highest frequency measurement scans were made to. Where any measurable emissions seen for the 3<sup>rd</sup> and 4<sup>th</sup> harmonics?

Response:

The unit was tested in continuous transmit mode for testing purposes; the unit was probed before before being tested on the range. The 3<sup>rd</sup> and 4<sup>th</sup> harmonics were found to be very low compared to the other spurious emissions when the unit was probed. During testing on the OATS, the 3<sup>rd</sup> and 4<sup>th</sup> harmonics were found to be below the noise floor.

We hope that these responses have sufficiently answered your questions.

Sincerely,

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