

RESPONSE TO ITEMS REQUESTED BY OET ON 19 JULY:

Re: FCC ID JM7-ICS-660098
Applicant: Innovative Control Systems Inc
Correspondence Ref. Number: 8815
731 Confirmation Number: EA93714
Date of Original E-Mail: 07/19/1999

- 1) Provide calculations that you used to derive the scaling factor based on the data you took at 10, 20 and 30 meters.
- 2) What type of modulation does the EUT employ?
- 3) What instrument did you use to make average measurements?
- 4) You submitted radiated emissions plots over 30 MHz which show many emissions over the limit, yet these frequencies do not show up in your table. Please explain.

ITEM #1: The calculations used in deriving the scaling actor used are found on page 18 and 19 of the test report. Upon review of the report, we added a line for the factor correction for 300 meters to 20 meters measurement distance. Also, the table shown at the bottom of page 22 had some incorrect data shown; the laboratory notes taken by the engineer testing the device were consulted, and the correct values are now shown. The method used to determine the scaling factors was; first calculate limits using $1/d^3$ as a scaling factor, and then to take measurements at 3 points on a radial distance from the device to confirm this factor as being appropriate.

ITEM #2: Please see the "Theory of operation" document supplied with the filing submission.

ITEM #3: The measurement instrument used was the Hewlett Packard HP8546A EMC receiver, which consists of the HP85460A rf preselector, and the HP85462A receiver/display unit. This receiver has peak, quasi-peak, and average detectors built into the receiver/display unit.

ITEM #4: The charts shown on page 25, 26, 27, and 28 are screen captures taken from the HP8546A EMI receiver, and show a signature scan of radiated transmitter emissions above 30 MHz, using a peak detector, as noted on the plots. Although compliance in this frequency range is predicated on Quasi-peak detector readings, these plots are taken using the peak detector, rather than the quasi-peak detector, for the sake of speed of data capture. A plot taken of 30-300 MHz taken using a quasi-peak detector could take many minutes, of even hours, due to the time constant required for that type of detector.

Frequency areas that show non-compliance with the limit using the peak detector are re-measured using the quasi-peak detector, after zooming in the frequency span to include those problem frequencies. {ANSI C63.4-1992; I4(2) and I4(7)} This data is found in the tabular readings found on page 21 of the report, and includes all frequencies found to have quasi-peak readings near the class B limit. A minimum of 6 or more of the highest emission levels are reported in this table.

If you have any other questions please feel free to contact me at the e-mail address shown in the message header.

Kenneth Boston
EMC lab manager
L. S. Compliance