

Response to TCB Findings

Please supply additional internal photos of the board. The bottom view of the board is out of focus and the components are not clearly visible in general.

[Please see updated internal photos attached.](#)

The procedures of ANSI C63.4-2003 must be used for testing as required by 15.31(a)(3). The test report refers to 2000 edition of ANSI C63.4 as well as 2000 edition of FCC Part 15C. Please correct the test report as appropriate.

[Please see updated test report attached.](#)

Please note that the test report still has the original peak power measurements. Average power measurements have been completed and are in a separate report entitled "average power.pdf".

Please supply closer view of the label. The text details must be visible. Also the gap between the "FCC ID:" and the "OOX-EUM3006" must be removed in the label. Please supply an updated version.

[Please see updated "label location.pdf" attached.](#)

The physical properties of the label material and its expected lifetime must be specified. The material details supplied is noted, but further information is needed as this is an outdoor device and will be subjected to outdoor conditions.

[Please see attached the technical data for the 7872 label material. It is recommended for durable goods and is rated from -40 to 149C. It is expected that the lifetime of the label will be greater than 5 years in outdoor installations. The life expectancy of the product is 3 years.](#)

Please specify how this device meets the antenna requirements of 15.203. Either the connector must be unique or the antenna must be permanently attached to the board. Integrated antenna does not necessarily mean permanently attached. Please clarify.

[The housing which holds both the modem and antenna cards cannot be opened by the user therefore the antenna cannot be accessed by the user and as such is permanently attached.](#)

Please explain how the antenna is not accessible to the user at least before the installation. The response states that the housing can not be opened by the user. This must be justified. Permanently attached antennas are either soldered to the printed circuit board or the antenna is permanently glued with epoxy to a standard connector (at the factory).

[The removal of the plastic radome from the enclosure to access the antenna will almost certainly result in the plastic cracking or entire chunks of plastic falling out around the holes where the metal clasps are secured thereby rendering the unit not suitable for outdoor installation.](#)

[The attached "antenna assembly.pdf" shows how the antenna is assembled to the modem PCB inside the enclosure.](#)

The supporting documentation is useful, but the way the antenna is secured does not cover the antenna connector. If the user wanted to change the antenna even after the antenna is broken while removing, can substitute another antenna to the module as the connector itself is not secured. Secure plastic radome around the enclosure can not guarantee any unauthorized

antenna modification to the device, because they may still find a way to use it outdoor or indoor for that matter. If the antenna is permanently glued with epoxy to the connector on the board at the factory, then any attempt to remove the antenna from the connector will damage the antenna connector or the card itself and the device will certainly be unusable. A statement from WaveRider will be needed to satisfy this issue.

Please see "Antenna Connector Permanency" document.

Has a 50ohm/50microHenry LISN been used for AC line conducted emissions test?
Please clarify.

Yes. The EMCO 3825/2r is a dual (Line & Neutral) 50 ω H, 50 & LISN

The QP emissions on AC line conducted emissions plots appear only on certain portions of the plot. Have QP readings been taken across the whole 0.15-30MHz range? Please also specify the RBW and VBW settings used for "average" and "QP" detectors during testing.

QP measurements are taken only over the ranges where the peak measurement indicates the need for QP and/or Average measurements. In this instance, the QP data were well below the Average limit, so no Average measurements were made.
QP RBW = 9 kHz, VBW = 3 MHz.

Please supply additional plots showing the 6dB bandwidth of the emission. The plots show the 20dB points. 6dB points must be shown on plots.

Please see updated test report attached.

Please specify the RBW and VBW settings used during the conducted spurious emissions test at the antenna port.

RBW = 100 kHz, VBW = 3 MHz

In transmit mode, have "peak" emissions above 1GHz complied with 15.209 limits in restricted bands {during radiated spurious emissions test}? Please specify the RBW and VBW used for this as well.

All emissions were verified using peaks and there were no reportable emissions above 1 GHz.

All measurements below 1000MHz were made with RBW= 120kHz and VBW= 3MHz.

All measurements above 1000MHz were made with RBW = 1MHz and VBW = 3MHz.

Has the device complied with the requirements of 15.31(e) ? Please clarify.

Yes. The output power on 905, 915 and 925 stayed within +/-0.3dB of initial when 85% of AC power was applied and stayed within +/-0.4 when 115% of AC power was applied.

Per 15.247(b)(4), for antennas with gain greater than 6dBi, the conducted output power from the device must be reduced below 30dBm(1W) by the amount in dB that the directional gain of the antenna exceeds 6dBi. For antenna gain of 10.2dBi, this limitation brings the maximum conducted output power level to $30 - (10.2 - 6) = 25.8$ dBm. The peak conducted output power levels in the report all exceed this limit. Please clarify how the device complies with this section.

Please see attached "average power.pdf" which includes measurements of the fundamental frequencies for both conducted and radiated tests. All measurements were

performed using “Method 1” as outlined in “Measurement Procedure Updated for Peak Transmit Power in the Unlicensed National Information Infrastructure (U-NII) Bands”.