U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

1200 New Jersey Ave, SE
Washington, D.C. 20590

MAR 10 2010

Ms. Susan Durr
Sr. Logistics Manager
Symmetricon
2300 Orchard Parkway
San Jose, CA 95131

Ref. No. 10-0018

Dear Ms. Durr:

This responds to your January 15, 2010 letter concerning the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to a device containing non-radioactive cesium metal (Cs-133). Specifically, you ask whether a device containing ten micrograms (μg) or less of cesium, a Division 4.3 dangerous when wet material, is subject to the HMR.

According to information provided with your letter, the device is a chip scale atomic clock (CSAC) that contains ≤ ten μgs of cesium metal enclosed in a hermetic cell filled with inert gas at < four psig (0.26 atm)). The cesium in the CSAC is contained within four layers of mechanical protection. A worst case scenario analysis of the temperature and pressure if the cesium is exposed to oxygen or water indicates about a 1°C temperature increase in the cell and about a six psig (0.40 atm) pressure rise. You also provide video evidence of destructive testing indicating no perceptible hazardous effects.

Based on your analysis and based on a prior interpretation provided to your company by PHMSA that less than one gram of rubidium (also a Division 4.3 dangerous when wet material) contained in an atomic clock does not pose a hazard during transportation, it is the opinion of this Office that a CSAC containing ≤ ten μgs of non-radioactive cesium metal does not pose a hazard during transportation. Therefore, provided the material does not meet the definition of any other hazard class, the CSAC is not subject to the HMR.

I hope this information is helpful. If you have further questions, please contact this office.

Sincerely,

Charles E. Betts
Chief, Standards Development
Office of Hazardous Materials Standards

Symmetricom

Der Kinderen
§173.13
Exceptions
10-0018

January 15, 2010

U.S Department of Transportation PHH-10

1200 New Jersey Avenue, SE East Building, 2nd Floor

Washington, DC 20590

Attantion: Mr. Edward T. Mazzullo

Dear Mr. Mazzullo,

Symmetricom, Inc. has developed a new chip scale atomic clock (CSAC) which is more than 100 times smaller than existing atomic clocks. The CSAC contains a very small amount (10 microgram) of cesium metal. Because of the very small quantity of cesium and the inherent hermetic construction of the CSAC product within the scope of 49 CFR § 173.13.

Symmetricom seeks a DOT Special Exemption Letter to define the CSAC as exempt from HAZMAT transport regulations within the Continental USA and its territories/islands.

Symmetricom has conducted analysis and testing on the CSAC which confirm its non-hazardous properties, as documented in the attached analysis. We provide the analysis with an accompanying movie (CSAC_cell_fracture_20091222.avi) of testing; this movie may be viewed using most media viewers (eg Windows Media Player).

Should you have any questions please do not hesitate to contact the following individuals for further clarity and/or information:

Administrative: Susan Durr
sdurr@symmetricom.com
voice: 408-964-7624

Technical: Dr. Michael Garvey
rmgarvey@symmetricom.com
voice: 978 232 1417

We look forward to a favorable decision from the Department of Transportation.

Sincerely,

Susan Durr
Sr. Logistics Manager
Symmetricom
2300 Orchard Parkway
San Jose, California 95131