



U.S. Department  
of Transportation

Pipeline and Hazardous  
Materials Safety  
Administration

1200 New Jersey Avenue, SE  
Washington, DC 20590

OCT 17 2017

Dr. Ram Arvikar  
Director Global Quality & Compliance  
Vectron International, Inc.  
267 Lowell Rd.  
Hudson, NH 03051

Reference No. 16-0194


Dear Dr. Arvikar:

This letter is in response to your November 23, 2016, letter and subsequent phone conversations requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the classification of a hazardous material. Specifically, you indicate that your company markets a Rubidium oscillator/Atomic clock containing less than one (1) gram of rubidium and ask if it meets the definition of a Class 4 hazardous material. You note that a previous PHMSA interpretation (Reference No. 08-0154) indicates that when less than one gram of rubidium is contained in an atomic clock it does not pose a risk during transportation and is not subject to the HMR. Furthermore, you provided test data of both an impact and drop simulation. The results of the test demonstrate no evidence of spontaneous combustion or damage to the capsule or the oscillator.

In accordance with § 173.22, it is the shipper's responsibility to class and describe a hazardous material in accordance with Parts 172 and 173 of the HMR. Note that previous interpretations were not a determination of whether rubidium is a Class 4 hazardous material but whether the amount and form in which it is transported presents an unreasonable risk to health and safety or property. This Office does not generally perform this function. However, based on the subsequent test data you have provided and previous PHMSA interpretation, it is the opinion of this Office that as long as the one gram or less of Rubidium in your atomic clock is hermetically sealed in glass, and the glass capsule is adequately protected from breakage and is an integral internal component of the atomic clock, and the atomic clock does not meet the definition of any other hazard class, it is not subject to the HMR.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,



Dirk Der Kinderen  
Chief, Standards Development  
Standards and Rulemaking Division

Geller  
§ 173.2  
Definitions  
16-0194

**Dodd, Alice (PHMSA)**

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**From:** INFOCNTR (PHMSA)  
**Sent:** Friday, November 25, 2016 12:22 PM  
**To:** Hazmat Interps  
**Subject:** FW: Request for Letter of Interpretation for AccuBeat Rubidium Oscillators  
**Attachments:** VIREquest for LoI Accubeat Rubidium oscillators.doc

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Shante/Alice,

Please submit this as a letter of interpretation. Mr. Arvikar spoke with Isaac.

Please let me know if you have any questions.

Thanks,  
Jordan

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**From:** Arvikar, Ram [<mailto:rarvikar@vectron.com>]  
**Sent:** Wednesday, November 23, 2016 3:13 PM  
**To:** INFOCNTR (PHMSA)  
**Subject:** Request for Letter of Interpretation for AccuBeat Rubidium Oscillators

U.S. Department of Transportation  
PHMSA

Attached is a request for a Letter of Interpretation for AccuBeat Rubidium frequency standards which are marketed by Vectron International.

These Rubidium standards are similar to those offered by another manufacturer, Symmetricom for which there is a LoI already posted on the PHMSA web site (Document # 080154). Vectron is requesting a similar LoI referencing the AccuBeat Rubidium standards.

Thank you very much.  
Sincerely,

Ram Arvikar  
Vectron International

Ram J. Arvikar  
Dir. Global Quality & Compliance  
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<http://www.vectron.com>

To:  
U.S. Department of Transportation  
Pipeline and Hazardous Material Safety Administration  
[infocntr@dot.gov](mailto:infocntr@dot.gov)

Nov. 23, 2016

**Subject: Request for Letter of Interpretation for AccuBeat Rubidium Oscillators**

Vectron International, a leading frequency control products company, markets Rubidium oscillators/Atomic clocks which are standards used as a frequency source. These are accurate timing devices used in many applications such as wireless base stations, precision test and measurement equipment, network timing sources and military communications equipment

These oscillator products are manufactured by Vectron's partner AccuBeat Ltd. in Israel, and contain Rubidium internally. Specifically the products are AccuBeat model numbers AR133xx, AR40 and Nano Atomic Clock (NAC). Technical details and performance specifications for these oscillators can be found on Vectron's website: [https://www.vectron.com/products/rubidium/rubidium\\_index.htm](https://www.vectron.com/products/rubidium/rubidium_index.htm) and on AccuBeat website: <http://www.accubeat.com>

Vectron is requesting a letter of interpretation to state that these oscillator products are not Class 4 hazardous items and can be safely transported domestically and internationally since the Rubidium content in these products is < 1 gm and the material does not meet the definition of a flammable solid Hazard Class 4 per 49CFR 173.2. The U.S. Department of Transportation (DoT) and the International Air Transport Association (IATA) already have published an interpretative guidance statement for similar products from another manufacturer (Symmetricom) (Document # 080154) that states that frequency standards containing Rubidium below 1 gm are not regarded as Class 4 hazardous materials for commercial transportation<sup>1</sup>. Vectron would like to request a similar letter of interpretation for the AccuBeat Rubidium oscillators AR133xx, AR40 and NAC products.

For any questions or additional information related to this request, please contact the undersigned.

Thank you Very much.

Sincerely,

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Dr. Ram Arvikar  
Director Global Quality & compliance  
Vectron International, Inc.  
Tel: (603)-577-6860/[rarvikar@vectron.com](mailto:rarvikar@vectron.com)

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<sup>1</sup><http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Interpretation%20Files/2008/080154.pdf>