Questionnaire 1 (Clarification) Exemption 1c of RoHS Annex IV

Wording of the requested exemption

Lead in infra-red light detectors

Requested validity: *7 years*

1. Background

Bio Innovation Service, UNITAR and Fraunhofer IZM have been appointed[1] by the European Commission through for the evaluation of applications for the review of requests for new exemptions and the renewal of exemptions currently listed in Annexes III and IV of the RoHS Directive 2011/65/EU.

LASER COMPONENTS has submitted a request for the renewal of the above-mentioned exemption, which has been subject to a first review. As a result we have identified that there is some information missing. Against this background the questions below are intended to clarify some aspects concerning the request at hand.

We ask you to kindly answer the below questions until September 1st 2020 latest.

2. Acronyms and Definitions

GaSb	gallium antimony
InAs	indium arsenic
IR	infrared
LC	Laser Components

3. Questions

1. Hamamatsu offers a technology based on InAs/GaSb that is commercially available since September 2019. (https://www.hamamatsu.com/eu/en/news/featured-products_technologies/2019/20190828000000.html). It can detect mid-infrared light up to 14.3µm. Can you mention applications for which this alternative technology would be suitable, e.g. less demanding ones where they could replace lead-containing IR detectors?

   This new technology offered by Hamamatsu appears to require cooling in liquid nitrogen (operates at -196°C) and so any applications that require use of the detector at ambient temperatures would not be applicable. Due to the dangers of liquid nitrogen, this is technically impractical in portable applications and for uses where untrained employees may be at risk, such as in factories. It is also impractical when the detectors are used in inaccessible locations as it will not be possible to refill with liquid nitrogen. If additional

[1] It is implemented through the specific contract 070201/2020/832829/ENV.B.3 under the Framework contract ENV.B.3/FRA/2019/0017

energy is a requirement for cooling (as electrically cooled versions are not yet available), such as battery powered applications that require low power consumption, such as portable hazardous gas monitors, would also be unable to utilize this solution.

In addition, the photosensitive area offered by the Hamamatsu alternative is 0.1mm^2 so it would not be suitable for inhomogeneous environments (e.g. remote temperature measurements or spark detectors).

Other applications, which fall outside the above parameters would have to compare the relative detectivity at the required wavelengths, sensitivity, signal-to-noise ratio and response time for the Hamamatsu technology to the current solutions. Although there is some very limited information published by Hamamatsu, more detailed information would be required and all applications would require testing of samples for situational testing.

Hamamatsu's detector (as shown in their press release), is very large in comparison with PbS and PbSe detectors so if used would require complete redesign of equipment, if the technical performance proves to be adequate. Use of these detectors would make some products much larger, which may be technically impractical for some applications. We understand that Hamamatsu is not yet in full scale production of these detectors and currently is able to offer only very small numbers for evaluation (only 10 in the first year) and even by 2022, only small numbers will be available.

2. You request the renewal of exemption 1(c) for EEE also for category 9. We assume that category 9 devices which use the IR detectors are industrial monitoring and control instruments. If so, exemption 1(c) would expire in July 2024.

    a. Do you produce or know products in category 9 using the IR detectors in the scope of your exemption request that are not industrial monitoring and control instruments?

    Several end-use applications including physical property and chemical analysers and spectrometers are used by students in universities. Use by students may not fall under the definition of industrial monitoring and control instruments which is defined as equipment intended only for professional users.

    b. If not, is there a specific reason why you apply now already for the renewal of the exemption for category 9?

    As some end uses are in medical devices and also appear to be in non-industrial monitoring and control instruments, we are requesting this exemption now, for all end uses.

3. You also apply for the renewal of the exemption for in-vitro diagnostics (cat. 8). The exemption expires in July 2023 for these types of EEE.

    a. Does LC manufacture EEE of category 8 that is not used in in-vitro diagnostics?

    LC manufactures PbS and PbSe detectors and is submitting this renewal request on behalf of its customers who are EEE manufacturers. LC does not always know the end uses of its detectors when these are supplied and so it is possible that some of LC's customers use these detectors in IVD applications, however we cannot confirm this or provide any example IVD uses.

    b. If not, are there specific reasons why you apply for the renewal of the exemption for in-vitro diagnostics now already?

Ideally IVD medical device manufacturers who use these detectors will provide input during the stakeholder consultation, however smaller companies are often not aware of these consultations and some may be unwilling to submit information that they regard as confidential.

4. Could your exemption request be restricted to medical devices (cat. 8) other than in-vitro diagnostics?

   Yes, if it can be proven that there are no essential IVD end uses. All category 9 uses should also be included.

Please note that answers to these questions will be published as part of the evaluation of this request. If your answers contain confidential information, please provide a version that can be made public along with a confidential version, in which proprietary information is clearly marked.