



October 31, 2013

Öko-Institut e.V.  
Carl-Otto Gensch  
P.O. Box 17 71  
D - 79017 Freiburg , Germany

Dear Carl-Otto Gensch

3M Company ("3M") supports the request for renewal of Exemption 39 of Annex III of Directive 2011/65/EU, request 2013-2, by QD Vision, Inc. 3M shares interest in the renewal of this exemption for quantum dot technologies that are being developed to enable liquid crystal displays (LCD) to give a technically superior image with a much higher range of colors than is currently possible from other commercially available LCDs. The quantum dot light control films currently fall under exemption 39 and renewal will allow this technology to continue commercialization past the current expiration date. In addition, 3M has submitted a request for a new exemption (Request 2013-5), which allows more variety in designs for future product development of these films.

3M is a recognized leader in the development and manufacture of large format precision optical quality films, including backlight films for LCD displays, and has proved our ability to develop and scale multiple "new-to-the-world" enhancement films to supply the entire electronic industry.

3M validates the data supplied by QD Vision, Inc. ("QDV") and can confirm from our own research that no substitutes exist that provide both the performance and energy efficiency of quantum dot technology based on cadmium. In addition, 3M would like to provide clarity around commercialization of the quantum dot light control films, supplement the technical data, and supply 3M's recommendations for the proposed wording to this exemption as set forth below:

1. With respect to Section 9 of QDV's renewal request, we note that we have commercialized a quantum dot enhancement film (QDEF) and this is currently in mass production. This film has been available in commercial tablet devices starting in 3<sup>rd</sup> quarter of 2013.
2. We supplement Section 4.A.7 of QDV's renewal request with the following: Quantum Dot Enhancement Film Cadmium Emissions Analysis, SourceOne, Inc (see Request 2013-5, Section 3.4 Quantum Dot Light Control Film Efficiency for additional detail).
3. We echo QDV's position on gaps for cadmium free alternatives as set forth in Section 7.A of QDV's renewal request as follows: "Proposed plan to develop substitutes and timetable." Replacement of cadmium – commercial estimated in 7 years (by 2021) (minimum). The only potential high color quality substitute that does not have significantly higher energy consumption is Cd-free QD films. Cd-free QD research (based on InP) predicted to reach current color quality and energy consumption performance with only prototypes available by 2019. Time to full-scale commercialization expected by July 2021.
4. We further supplement QDV's wording for the exemption renewal as follows: "Cadmium in colour converting II-VI LEDs (<10 µg Cd per mm<sup>2</sup> of light-emitting area) and

3M Company  
Optical Systems Division

3M Center  
Building 235-1E-54  
St. Paul, MN 55144-1000

in light control films (<20 µg of Cadmium /cm<sup>2</sup> of screen area) for use in solid state illumination or display systems" (see Request 2013-5 for additional detail).

To summarize, 3M supports the renewal request (2013-2) with the new wording as suggested above.

Sincerely,



Ty Silberhorn  
Vice President  
3M Optical Systems  
3M Center, Bldg. 235-01-E-54 | St. Paul, MN 55144  
Office: 651 736 7504