PRESS RELEASE

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New Release 4.0 of EMVA 1288 Standard for Camera Characterization in Effect

Barcelona, 21 June, 2021. The EMVA today announced that the new release 4.0 of the EMVA 1288 Standard for objective characterization of industrial cameras, which is successfully used worldwide, has become effective. The release takes into account the rapid development of camera and image sensor technology. The documents of the standard are published [here]. The EMVA 1288 standard, hosted by EMVA, is part of the global G3 standardization initiative in which the five leading machine vision organizations A3, CMVU, EMVA, JIIA, and VDMA cooperate.

Until the previous Release 3.1 dated back December 2016, the application of the EMVA 1288 standard with a simple linear model was limited to cameras with a linear response and without any pre-processing. While this model is being continued with some improvements in the 'Release 4.0 Linear', a new module 'Release 4.0 General' has been added in the latest release. With it, the characterization of a non-linear camera or a camera with unknown pre-processing is possible even without any model due to the universal system-theoretical approach of the EMVA 1288 standard. Just as with the linear camera model, all application-related quality parameters can be measured in this way. With both modules "Linear" and

"General" the same measurements are performed. Depending on the camera characteristics, the proper evaluation either according to the linear or general model is applied.

In addition, Release 4.0 includes numerous expansions to characterize the latest generation of image sensors and cameras according to the application. The most important of these are:

- Extended wavelength range from UV to SWIR range.
- Raw data of any given image acquisition modality can now be characterized according to the standard.
- The versatile and universal analysis tools of the EMVA 1288 standard can also be applied to quantities calculated and derived from multiple channels. For polarization image sensors, these are, for example, the degree of polarization and the polarization angle.
- Inhomogeneities are measured in detail and now decomposed into column, row, and pixel variations. They can now be determined with a new method at all intensity levels from just two captured images.
- Optionally, cameras with optics or with illumination as given by the position of the exit pupil of the optics for which the image sensor was designed can be measured according to the standard. Thus, the standard is now also suitable for image sensors with pixels shifted towards the edge.
- A more suitable measure for the linearity of the characteristic curve is introduced.

Along with the new version of the standard, the EMVA has prepared an extensive training program. Two- or three-day training programs for the new Release 4.0 will be held regularly in near future in cooperation with EMVA member companies. The new training program will also continue the successfully introduced certification program at expert level. This is

intended for anyone who wants to acquire the necessary knowledge to perform EMVA 1288 measurements themselves and understand the measurement results in detail, whether in the development of new cameras, in quality control, or to understand exactly how a camera behaves for a specific application.

About EMVA

The European Machine Vision Association is a non-for-profit and non-commercial association representing the Machine Vision industry in Europe. The association was founded in 2003 to promote the development and use of vision technology in all sectors, and represents members from within Europe, North America, and Asia. The EMVA is open for all types of organizations having a stake in machine vision, computer vision, embedded vision or imaging technologies: manufacturers, system and machine builders, integrators, distributors, consultancies, research organizations and academia. All members – as the 100% owners of the association – benefit from the networking, cooperation, standardization, and the numerous and diverse activities of the EMVA. The EMVA is the host of four global machine vision standards: The two widely established standards GenICam and EMVA 1288 as well as the two standardization initiatives Open Optics Camera Interface (OOCI) and Embedded Vision Interface Standard (emVision).