**Obligatory requirements** Annex 2

Declare compliance with individual items of the list by checking a box placed next to each parameter. If some parameter is (are) not fulfilled but an alternative solution is available place an asterisk to a checkbox and provide explanation at the end of the document.

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| --- | --- |
| Brand new, previously unused (no overhauled devices or part are accepted) | Yes |
| Minimum warranty period of 1 (one year) | Yes (1) |
| SDD type with thermoelectrical cooling without the need of using additional cooling media | Yes |
| Compactible with inclined port of a large chamber of the Tescan Vega 3XM SEM | Yes |
| Includes all required mechanical coupling items, electronics, cabling, computer, and software to ensure complete analytical and imaging functionality when teamed with the SEM above | Yes |
| Allows complete SEM stage control | Yes |
| Provides electron beam control and selection of imaging modes | Yes |
| Allows processing of SEM signals (e.g. brightness/contrast/ gamma corrections, filtering) | Yes |
| Minimum image resolution 4096 pixels in width | Yes (2) |
| User selectable scan area, resolution and speed of scanning | Yes |
| Allows overlying of scale bars, labels etc. over SEM images | Yes |
| Spectral energy resolution of 129eV at line MnKa or better as measured according to ISO 15632:2012 | Yes (3) |
| Active area of sensor of 10mm2 or larger | Yes (4) |
| Range of detectable elements from Be (Beryllium) to U (Uranium) or wider | Yes (5) |
| Windows 10 compatible | Yes |
| Multiuser operation (user’s profiles) with possibility of private or shared items in the profile/session | Yes |
| Data (SEM imagery, spectra, maps or line-scans) from s single session organized to a project with possibility of subsequent of retrieval and (re)processing | Yes |
| Remote access and control of the system (via e.g. LAN, VPN, Remote Desktop) | Yes (6) |
| Spectral acquisition, displaying, processing, handling, and element identification |
| * Spectrum acquisition in real time, over pre-set acquisition live time or another pre-set parameter
 | Yes |
| * Automatic correction for spectral artefacts (sum peaks, escape peaks, pile-up peaks)
 | Yes |
| * Energy calibration
 | Yes |
| * Elemental identification from a single spot, multiple points, or an area with option of interactive or automatic approach or a combination of both
 | Yes |
| * Continual element identification during spectrum acquisition
 | Yes |
| * Intensity display in total counts or counts per second units
 | Yes |
| * Choice of linear or logarithmic scaling of intensity units
 | Yes |
| * Basic spectrum mathematics
 | Yes |
| * Simultaneous display of multiple spectra for mutual comparison with an option to select a single spectrum for further processing
 | Yes |
| Quantitative analysis |
| * Standard-less quantitative Analysis from a point or an area including quantification of light elements
 | Yes |
| * Default system element standardizations for standard-less analysis are provided
 | Yes |
| * Peak deconvolution with a graphic display of results to assess the correctness of procedure
 | Yes |
| * Output of results in un-normalized (raw) and normalized (recast to 100%) form
 | Yes |
| * Carbon-coating correction
 | Yes |
| * Output of results in atomic and/or weight percentage of element and in the case of oxygen- bearing substance also as a weight percentage of oxides
 | Yes |
| * Continual quantification during spectrum acquisition
 | Yes |
| * Standard-based quantitative analysis using a correction like, e.g., PAP or ɸ (p, z)
 | Yes |
| * Multi-point standard-less and standard-based quantitative analysis
 | Yes |
| Line-scans |
| * Acquisition of an element distribution line-scan with a possibility to choose arbitrary start position, orientation and length of the line to be scanned in previously acquired image
 | Yes |
| * Identification and quantification of element in line scans
 | Yes |

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| --- | --- |
| * Possibility of chose elements to be monitored in line-scan prior, during and after scanning
 | Yes |
| Maps |
| * Acquisition of element distribution maps
 | Yes |
| * User defined scan area, resolution and speed of scanning
 | Yes |
| * Identification and quantification of elements in maps
 | Yes |
| * Peak deconvolution in element distribution maps
 | Yes |
| * Hyperspectral mapping (each pixel in a map contains a complete spectrum)
 | Yes |
| * Phase map generation and processing, inc. reverse retrieval of individual phase spectra and their quantification
 | Yes (7) |
| * Particle analysis in maps with tools for processing and reporting the results
 | Yes |
| * Overlay of BSE/SE image with elemental distribution map(s)
 | Yes |
| * Overlay of scale bars, labels, etc. over map(s)
 | Yes |
| * Fully automated drift correction
 | Yes |
| Saving, exporting and reporting |
| * Acquired results (images, maps, spectra) are saved within user profile
 | Yes |
| * Possibility of reprocessing of the analytical objects once saved in user profile
 | Yes |
| * Batch processing of analytical data selected in a profile
 | Yes |
| * Report generation with a possibility to user definition of their content and layout
 | Yes |
| * Tools for advanced graphical reporting like binary or ternary plots, histograms etc.
 | Yes |
| * Export of spectral data, analytical results, line scans, and distribution maps into files readable in common programs like text spreadsheet editors (spectra in the intensity vs energy format, line scans in intensity/concentration vs distance format) or graphic editor

(maps) | Yes |
| * Export of data/images/maps/reports to PDF files
 | Yes |
| * Copy/paste function to other applications via Windows clipboard for spectra images and maps (including SEM imagery)
 | Yes |
| * Export of spectra or maps to common spectroscopic format(s)
 | Yes |

Notes:

1. Provided warranty period is 2 years
2. Maximum scanning width for image is 8192 pixels
3. Guaranteed resolution on Mn Ka is 126 eV
4. Offered solution provides 65 mm active area SDD detector
5. Be – Cf
6. Requires configuration on site supported by customers IT department
7. Requires module “phase analysis”

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Signature