# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

# Contract title: Supply of Video-sensor camera system ****and**** equipments for the monitoring rooms

# Publication reference: IPA ITMNEAL/TBR-MOD/SUP/04

# p 1 /…

**Columns 1-2 should be completed by the contracting authority**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words ‘compliant’ or ‘yes’ are not sufficient)
* Column 4 allows the tenderer to make comments onits proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

| **1. Item number** | **2. Specifications required** | **3. Specifications offered** | **4. Notes, remarks,  ref to documentation** | **5. Evaluation committee’s notes** |
| --- | --- | --- | --- | --- |
| 1. **Optical Sensor (Lot 1)** | The system consists on the optical sensor, control unit and the operation office. The system must be designed and manufactured for smoke detection and smoke-like events. Forest fires, dump fires, fires on military training grounds and fires on industrial plants must be detected from this system, also it must give early warnings such is alert message with the exact location. Full picture must be provided from the system, each image must be viewed at any time in real time.   About the optical sensor, it must be able for day and night surveillance with a high quality resolution. it must be equipped with at least 3 sensors, monochrome, multispectral and NIR sensor.  Good detection must be provided in minimum light conditions. The sensor must have the color channel and seperate day – night channel. The optical sensor must be optically calibrated according to the terrain. In order to have the highest accuracy available, the repeatability must not be more than ± 0,025°. The sensor must have optical filters in order to increase the contrast of smoke to the near environment. The sensor must be equipped with synchronized multispectral analysis in real time, high resolution still sensors, and low light mode, optimized Signal to Noise Ratio, boosted Dynamic Range and calibrated optical system. The image must be captured in 1920x1200 pixel with the C-MOS Sensor in daytime operation and grayscale/color mode. Global shutter must be at least 30 µs, and at least 45 frames per second. In night mode operation it must capture a 1920x1080 pixel image, rolling shutter must be at least 10 µs and at least 50 frames per second. Transmission mode must be with Burst option or equivalent, not less than 110 fps and with continually mode, at least 35 fps. Also, On-site raw data processing must be mandatory for this device.  The optical sensor must have tilt and rolling sensors for object geolocation improvement and for movement’s compensation in the mounting platforms. The device must have a 360° continuous horizontal rotation and a -90° to +45° range in vertical rotation. The horizontal rotation speed must be up to 110°/sec and the vertical rotation speed must be up to 55°/sec. The coverage area must be at least 65.000 Hectare and the coverage radius must be at least 14.5km. In optimum conditions it must be up to 35 km or more. The revolution time must be between 3-7 minutes in day time and 8-13 minutes at night. The data transmission must be at least 7GB per month.  Installation conditions: It is required to install the sensor at least 4.5 meters above tree tops (Roof installation, Spotter towers or Radio towers installations), the temperature range must not be lower than -45oC and it must withstand temperature up to 50oC. Also, since it will be installed in a high spot it must withstand wind resistance up to 50 m/sec and the deviation must not be bigger than 1.5 degrees. It must be built to withstand harsh environment and long-term operation. The protection class must be at least IP66 according to NEMA 250 Type 4X, IEC 62262, ISO 4892-2, IEC/EN 60529, IEC 60068-2-6 and IEC 60068-2-27. Grounding and lighting rod is required with the camera in order to prevent lightning protection.  About the dimensions, the optical sensor must not be higher than 575 mm, wider than 395mm and deeper than 245 mm.  The communication standard must be accomplished according to EN 62368-1 and IEC 60950-22. The sensor must be able to connect via Ethernet 1000 Base-Tx or Ethernet 1000 Base-Fx interface.  The device must be connected with the control unit and the operating voltage must be 24VDC. The power consumption must not be higher than 210W (if the heating and movement is included).  The optical sensor must be manufactured according to EMC Regulation specifically: RCM AS/NZS CISPR 32 Class A, EN 61000-6-1 and EN 61000-6-2, ICES-003 Class A, EN 55024, IEC 62236-4, EN 55032 Class A and ICES-003 Class A.  For every standard mentioned above, all their equivalents are also accepted. |  |  |  |
| 1. **Control Unit (Lot 1)** | The control unit must be used to control the optical sensor and to make the connection between that sensor and the control office. The image processing must be made by this unit, also all the components must be monitored by this device. The data from the camera sensor to the control unit must be transmitted via optical fiber. The connection with the control office must be made either by a point-to-point radio connection or a mobile radio connection.  About the dimensions the width must be at least 710mm but it must not be wider than 740mm, the height must not be more than 1020 mm and the depth of the unit must vary from 635 to 660 mm. The operated voltage must be 1 phase 115/230VAC 50-60Hz or 24VDC. The control unit must be equipped with a function-securing UPS in order to ensure full operation 24/7.  The unit must be equipped with a cooling and heating system. The power consumption must not be more than 375W while the air conditioner is on and it must not be more than 310W while the heating is on. Also the max power consumption must not exceed 585W.  The control unit must be manufactured for special climatic conditions. It must be designed in order to withstand temperatures from -35°C to +50°C. The protection class must be at least IP55. The control unit cabinet must be designed with front door with an opening angel 135°. To ensure maximal protection it must be equipped with a 3-point locking swing lever handle.  The control unit must be equipped with 3x4 mm2 cable for AC connection or 2x10 mm2 for DC connection or equivalent. For the connection with the camera 2x4mm2 cable is required. The sensor data and the WAN must be connected with LWL 2xST or equivalent. Grounding cable, minimum 16 mm2 is required.  Inside the cabinet a control computer must be installed, at least core i5 or equivalent with 8GB RAM and SSD drive. Operating system must be Windows 8 or newer version. Remote Examination and Self Control Unit for Unmanned Equipment must be integrated in the unit in order to increase the reliability.  Also an ETH-DSL or ETH-LTE router (or equivalent)must be integrated inside the cabinet. |  |  |  |
| 1. **PTZ Camera for tower surveillance (Lot 1)** | In order to guarantee the tower and the surrounding territory CCTV camera is required for surveillance. PTZ camera must ensure 1920x1080 HDTV 1080p image, it must cover a pan/tilt 360° / -90° ...+45° for difficult environments; ICR and WDR technology must be available to detect day and night images. The camera must be manufactured to work in outdoor ambient, it must be at least IP66 and it must withstand temperatures from -45° to 50°C. The camera must be adapted with the Office software plug-in for recording/playback function and for camera control function. |  |  |  |
| 1. **Installation and the training (Lot 1)** | The tenderer must guarantee coverage analysis, coverage optimization and calculation based on coordinates and height of tower in order to find the perfect place where to install the optical sensor. Also all the technical requirement on sites regarding the communication, power supply, security and integration of third-party equipment must be provided by the tenderer.  The tenderer must provide on-site installation assistance of hardware and software components with qualified supervisors. Also remote technical support by a manufacturer’s company engineer must be provided for software and hardware installation of the products.  The tenderer must guarantee the tower installation. The tower where the optical sensor will be mounted must be from 20m to 50m high(depending on the terrain and best solution). It must be constructed in a proper way to withstand earthquakes at least 9 of Richter magnitude scale and must withstand wind resistance up to 50m/sec or more. The material used for the tower must be galvanized steel and the foundation of the tower must be with reinforced concrete.  The tenderer must guarantee the full installation of the system including the optical sensor, control unit and all the mechanical/electrical accessories.  About the training, the tenderer must ensure the training of the personnel, at least 2 persons must be trained how to use the software and the training must last not less than 2 days.  The whole system must be powered by 2 different systems, from the electrical grid and in case of emergency from a local Electric generator. The Electric generator must be provided from the tender including all the other necessary devices and equipments for this system (electrical cables, cable connectors, container with ventilation for the electrical generator etc) The container with ventilation for the electrical generator must have enough space for the storage of the generator and must have a secure system in order to avoid to be stolen. |  |  |  |
| 1. **Control system office (Lot 2)** | The tenderer must guarantee the installation of the electronic/electrical devices. The office consist on: the worksation, the SQL Server, a proffesional router, at least one monitor and all the electrical accessories for the installation. The control office must be used for data visualization, remote control of the optical sensors, processing smoke alerts, display of complete alert messages (including position data of the fire detected), data archiving and general data evaluation. The office must run on a PC that is connected to the towers via the transmission path deployed. The software must be designed to support multiple monitor displaying user interface, sensor images (stills as well as near-live and live video streams) and digital maps. The map must assure the proper setting of the telemetry and triangulation options. The system must be designed so that each operator monitors and controls up to 16 towers. The operator must have full access to all data available to the tower computer without interrupting the detection process at the tower. This includes access to the archived images that are used for comparison purposes, giving the operator all the tools to identify differences over time on his own. The control office must be designed in order to provide Automatic and operator requested visualization of the panorama and alert message images, Digital maps and terrain models with live markers indicating the location of events, Conversion between different earth co-ordinate systems (UTM, Gauss-Krueger), Automatic horizon recognition, Manual specification of areas to be excluded from smoke detection, Alert image sequence showing that part of the image sequence that was the reason for the alert as a near-live video stream, Near-live and live video streams, User-defined presentation of all data, User adjustable settings to parameterize each sensor regarding, Control of wall display and other external equipment, Automatic storage of data for later re-use and archiving, Logging of all relevant user actions for later evaluation of discrepancies in the fire detection, Electronic communication with service personnel at the service and maintenance office.  The operating office must have a central server for comprehensive data storage. The system must be equipped with Firewall Office/Manager software or any equivalent software package for workplace/s. The workplaces must run as (VM) on the server so the multiprocessor performance of the server must be available to all of them. The server and the data storage must be redundantly and they must have active failover functionality so if any component fails the other take over its functions. Also custom maps integration must be provided by the tenderer. Self-diagnostic software and control software for smoke detection for day and night time must be installed and configured in accordance with the terrain. |  |  |  |
| 1. **Workstation (Lot 2)** | The workstation PC must be equipped with a processor at least i5 generation Intel Core or equivalent, Ram must be minimum 16GB and the hard disk must not be less than 2TB HDD/SSD. The operating system must be at least Windows 10. The Workstation must be equipped with a GbE Interface in order to have a good connection with the internet. USB one free connection for dongle purpose must be present to the workstation in order to allow the operator for different modifications. Workstation must be equipped with a 24” monitor with resolution at least 1920x1200 and it must support 4 monitors with 1920x1200 resolution scale. |  |  |  |
| 1. **SQL Server (Lot 2)** | The control system must include a SQL Unit Server with a Intel Core processor, minimum i5 or equivalent. Also it must be built with a **RAM, minimum of 16GB.** The Hard Disk must not be less than 256 GB and it must be “**Solid State Drive”.** |  |  |  |