

# TECHNICAL SPECIFICATION TY-05.1

## PROCUREMENT AND INSTALLATION OF IP CCTV SYSTEM

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# 1. INTRODUCTION

The CCTV system to be procured ('system') aims at enhancing the security of ADMIE premises in conjunction with the 24-hour guarding personnel.

The scope of work of this contract is the supply, installation, commissioning and technical support of the system that will survey open spaces with 24 IP cameras.

Following the installation and commissioning, the materials and software will form the IP CCTV system being an integrated functional entity where its parts, subsystems and devices will interoperate smoothly in order for the system to provide the expected overall performance.

Software will be fully compatible with hardware. Furthermore, materials with embedded software will be compatible with each other on hardware and software level and will fully satisfy the relevant specifications. The Supplier shall be responsible for compatibility and interoperability that will be certified during installation, commissioning and functional test phase of the system.

In case details of technical specifications are not mentioned explicitly, the relevant material and software shall comply with the system functional requirements.

The Supplier shall ensure full compatibility and interoperability of materials and software under all operational conditions.

Payments shall depend on certification by ADMIE of the specifications, interoperability, compatibility of materials and software during commissioning, functional test phase and warranty phase. Compatibility shall be proven for all functions of the system.

## **2. SYSTEM DESCRIPTION**

### **2.1. Generally**

Specific open spaces of ADMIE premises will be surveyed with the system cameras. Surveillance will be performed from the existing guard room where the central equipment shall be installed. The surface of the area that will be surveyed is about 50 acres. In this area, 31 buildings or building blocks are situated.

In case of intrusion, the guard shall have the possibility to remotely publicly address a voice message (page). The guard's voice or the selected pre-recorded message shall be transmitted through one or more horn speakers that shall be installed at selected points.

System design target is overall high reliability and performance that shall not be compromised by inferior specifications of any passive or active part of the system.

Due to the specific area characteristics, minor system design changes may arise in cooperation with the Supplier, mainly affecting the exact installation points of the cameras.

The system shall be expandable so as to satisfy future additional quantitative and qualitative needs.

The system consists of three parts:

- network infrastructure
- image and video recording subsystem
- sound sub-system

### **2.2. Network Infrastructure**

The network infrastructure (Figure1) will be used exclusively by the system. In total, it consists of seven (7) network switches.

The switches will be interconnected through multimode optical fibres that are already installed and terminated in 19 inch racks. The most distant switch (No.6) is situated 500m away from the central switch, in terms of cable length, with two patch panels in between.

The cameras are connected by means of network cables to the six peripheral switches.

All seven (7) racks are already installed and contain an optical patch panel where the optical fibers are already terminated. In six (6) out of the seven racks, the corresponding switch shall be installed. Especially for switch No.5, the Supplier shall provide and install one wall mounted rack in adjacent room where the switch shall be installed. The optical interconnection between the existing rack and the new rack of switch No.5 shall be performed by the Supplier.

The termination at both sides (patch panel and camera/sound subsystem) of the network cable shall incorporate appropriate overvoltage protection circuitry so as to protect cabling, switch, camera and sound system (wherever there is such connection). The Supplier shall be responsible for the design of this circuitry, the selection and provision of its components and its installation.

The central switch (No.1) of the guard room will concentrate the traffic from all other switches. The 6 peripheral switches lie on 5 branches that are connected to the central switch in a star

fashion. One of the branches has 2 switches (No.3 and 4) in series whereas the rest 4 branches have 1 switch each.

Cameras are distributed to the switches in such a way so that the maximum number of cameras per switch does not exceed 6 cameras. The unique branch with 2 switches accommodates 10 cameras in total.

Set up, operation and maintenance of the network shall be performed by means of the central computer ('PC') that shall be provided and installed by the Supplier in the guard room rack. In this existing rack, all the rest central equipment of the system shall be installed (NVR, central switch etc.) as well.

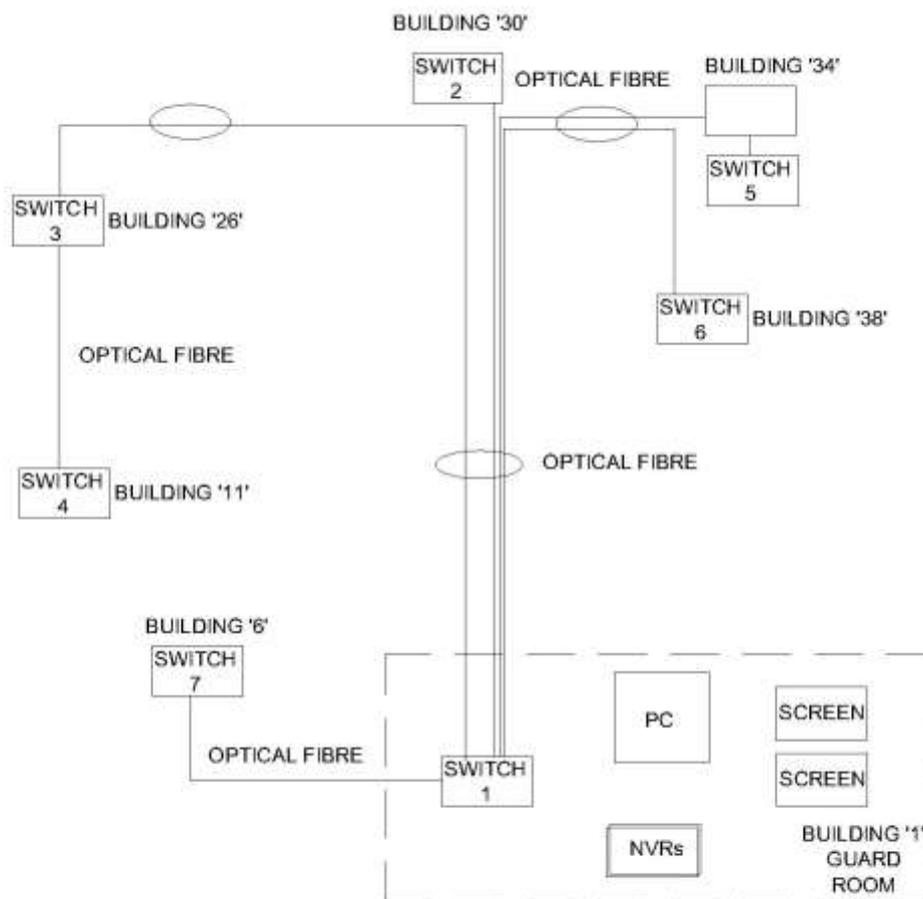


Figure 1 Network Infrastructure

### 2.3. Image and video recording subsystem

#### 2.3.1. Hardware

There will be in total 24 IP High Definition (HD) outdoor cameras. The cameras will be connected to each switch by means of network cable in a star fashion. The network cable shall be appropriate for outdoor installation withstanding UV radiation.

Open space coverage as well as initial installation point of each camera and loudspeaker has been already defined by ADMIE.

Twenty two (22) cameras will be of dome type, appropriate for mounting at external walls of buildings. The rest two (2) cameras are meant to be mounted on a mast.

Video from the cameras will be recorded by two (2) Network Video Recorders (NVRs) that shall be connected to the central switch. NVRs shall incorporate (built-in) the hard disks.

Cameras shall be evenly distributed to each NVR. That is to say, each NVR will accommodate 12 cameras.

Correspondingly, the camera images shall be evenly distributed to two (2) screens where ADMIE personnel will watch and manage the real time images of the 12 cameras on each screen as well as the stored video and events. Each of these two screens shall be connected to one NVR or to the central PC mentioned in paragraph 2.2.

The Supplier shall provide the mice and the keyboards that are required for the operation, configuration and set up of the system through the NVRs and the central PC.

In case the VMS software (§2.3.2.) runs on PC and not on NVR, the central PC (§2.2) shall be of server grade and the Supplier shall be responsible to appropriately equip it so as to fully satisfy the operational requirements of the system. In this case, the central PC shall have the required specifications to fully cover the software and interconnection requirements, e.g. connection to two (2) screens (in case they are connected to the central PC instead of the NVR), network card/s to connect to the NVRs and switch etc.

The newest Windows operation system as well as the system software will be installed on the Central PC. The Supplier shall install the operating system and the system software on the central PC.

In case the Video Management Software (VMS) runs on the PC, the 2 screens for the camera images may be connected to the PC. Also in this case 12 cameras will be assigned to each screen i.e. each screen will depict a different image.

#### 2.3.2. Software

The Supplier shall supply central (server) Video Management Software (VMS) that will run on the NVRs or on the central PC (see §2.2 and §2.3.1).

The possibility of camera peripheral viewing/managing, being client VMS, shall be provided.

In case the communication with a camera is lost, video exporting from its local memory card as well as management and maintenance of the camera by locally connecting a portable PC shall be possible.

More detailed software requirements can be found in §3.3.2.

### 2.4. Sound sub-system

For paging, it shall be possible for the guard to select one or more loudspeakers that shall be installed on external walls and on the mast, to speak on the microphone in the guard room or to select a pre-recorded message. For user convenience, this shall be performed by using the VMS through a specific camera (LINE OUT) or directly by the loudspeaker/s, in case of IP

loudspeakers. If needed, i.e. if the amplifier is not built-in into the loudspeaker, the Supplier shall supply and install an appropriate amplifier near the loudspeaker position along with the required power supplies for the loudspeaker and the amplifier as well as their interconnection cabling.

### 3. MATERIAL SPECIFICATION

#### 3.1. Generally

Every equipment shall be CE and EMC/LVD certified according to the most recent EU directives.

#### 3.2. Cameras

The following specifications refer to both camera types, dome and bullet, except if it is differently specified.

##### 3.2.1. Generally

3.2.1.2. Outdoor – weather proof

3.2.1.3. IP PoE

3.2.1.4. Dual Stream (dual codec)

3.2.1.5. Fully compatible with ONVIF standard

##### 3.2.2. OPTICAL

3.2.2.1. MPixel  $\geq 2$

3.2.2.2. CMOS sensor 1/3" - 1/2,8"

3.2.2.3. Remotely controlled motorized lens

Focal length  $(\leq 3) - (\geq 6,1\text{mm})$  remotely controlled through the network

Maximum aperture ratio  $F \leq 1,4$

3.2.2.4. Minimum light

Colour  $\leq 0,3\text{LUX}$  (fully opened aperture, 1/30sec, 50IRE)

3.2.2.5. Focus AF or remotely controlled through network

3.2.2.6. Aperture adjustment Automatic

##### 3.2.3. IMAGE

3.2.3.1. Day/Night

3.2.3.2. Resolution 1080p(1920X1080), 720p(1280X720)

3.2.3.3. AGC

3.2.3.4. Compensation of dark objects with bright background

3.2.3.5. White balance Auto / manual

3.2.3.6. Electronic shutter speed Auto

##### 3.2.4. VIDEO

3.2.4.1. Compression H.264, MJPEG

3.2.4.2. FPS @1080p  $\geq 15$  (H.264:  $\geq 30$ )

3.2.4.3. Bit Rate / video quality adjustment

##### 3.2.5. VIDEO ANALYTICS

- 3.2.5.1. Motion detection area definition
- 3.2.5.2. Virtual line passing
- 3.2.5.3. Abandoned / removed object
- 3.2.5.4. Intrusion

### 3.2.6. PHYSICAL CONNECTIONS

- 3.2.6.1. External Memory Slot for memory card Micro SD.  
The Supplier shall supply and install a 32GB memory card in each camera
- 3.2.6.2. Alarm Input
- 3.2.6.3. Alarm Output
- 3.2.6.4. Audio, IN
- 3.2.6.5. Audio, OUT
- 3.2.6.6. Audio compression G.711 u
- 3.2.6.7. Audio communication bi-directional

### 3.2.7. NETWORK

- 3.2.7.1. Connection RJ-45 10/100Base-T
- 3.2.7.2. Protocol IPv4, IPv6, TCP/IP, UDP, RTP, RTSP, NTP, HTTP,HTTPS, SSL, DHCP, FTP, SMTP, ICMP, IGMP,SNMP, DNS, DDNS
- 3.2.7.3. Security SSL
- 3.2.7.4. Streaming users ≥ 15 unicast

### 3.2.8. ENVIRONMENTAL REQUIREMENTS

- 3.2.8.1. Operation -10° C ~ +50° C <85% RH
- 3.2.8.2. IP 66
- 3.2.8.3. Vandal resistance IK10 (**only dome type**)

### 3.2.9. POWER SUPPLY

- 3.2.9.1. PoE IEEE802.3af max.15W

## 3.3. Network Video Recorder NVR and software

### 3.3.1. NVR

#### 3.3.1.1. Simultaneous performance of the following functions:

- Real time video
- Recording
- Play back
- Backup (exporting) of video files
- Support of clients through network

- 3.3.1.2. Camera number 24
- 3.3.1.3. Audio channels 24
- 3.3.1.4. Image resolution HD
- 3.3.1.5. Total recording rate at least 100Mbps

3.3.1.6. Built-in hard disk	Installed capacity 8TB Maximum capacity at least 12TB
3.3.1.7. Compatibility	ONVIF
3.3.1.8. Video compression	H.264 and MJPEG
3.3.1.9. Multiple streaming	at least 2 streams
3.3.1.10. AUDIO	
3.3.1.10.1. Bi-directional	
3.3.1.10.2. Compression	G.711 u
3.3.1.11. PHYSICAL CONNECTIONS	
3.3.1.11.1. USB	<b>≥3 USB 2.0 or 3.0*</b>
3.3.1.11.2. Screen connection	<b>HDMI*</b>
3.3.1.11.3. Ethernet	2 x RJ-45 10/100/1000Mbps
3.3.1.11.4. Audio	<b>1 audio input*</b>
3.3.1.12. Network protocol	IPv4, TCP/IP, HTTP, RTSP, UPnP, UDP, SMTP, NTP, DHCP, DNS, IP filter, PPPoE, FTP
3.3.1.13. Data security	Video and audio encryption. User and administrator access codes
3.3.1.14. Operation environment	5°C ~ +40° C <85%RH
3.3.1.15. Power supply	100-240VAC ±10% 50/60Hz
3.3.1.16. Manufacturer's warranty	3 years
3.3.1.17. Ancillaries	<b>Keyboard* and mouse</b>

**\* In case VMS runs on the NVR**

### 3.3.2. Software

3.3.2.1. Software shall be easy to use on user and administrator level.

The user shall be able to manage events and export the relevant videos easily and quickly.

If VMS user licenses are needed, they shall cover the maximum number of cameras that the NVRs can accommodate, irrespectively of the number of initially installed cameras.

In case the client VMS is not web-based and user licenses are needed, the Supplier shall provide three (3) licenses and install the software on corresponding ADMIE PCs.

As it is mentioned (§ 2.3.2), the user shall be able to export video from any camera memory, upgrade the camera software and generally perform maintenance tasks through local (on-site) connection of a laptop PC directly to the camera. If this function is not web-based, the Supplier shall supply the relevant software being compatible preferably with Windows XP and later versions. In case a user license is needed also for this software, the Supplier shall provide three (3) user licenses. The Supplier shall provide one (1) suitable laptop PC including the above mentioned software. The rest two (2) laptop PCs will be furnished by ADMIE.

3.3.2.2. VMS shall be fully compatible with ONVIF standard. It shall perform at least the following functions:

- 3.3.2.3. selection of the number of cameras and their position on the screen
- 3.3.2.3. remotely adjust zoom and focus of every camera
- 3.3.2.4. remote configuration of cameras
- 3.3.2.5. remote programming/set-up of video analytics
- 3.3.2.6. resolution as well as bit rate / video quality set-up for live and recorded video of every camera
- 3.3.2.7. remote PTZ (for future use)
- 3.3.2.8. recording based on schedule, continuous or depending on events
- 3.3.2.9. setting of the actions that shall be automatically performed in case of event
- 3.3.2.10. real time event depicting
- 3.3.2.11. recording also based on camera analytics events § 3.2.5. and storage of these events for subsequent search and export
- 3.3.2.12. recording before and after the event with adjustable time
- 3.3.2.13. event searching based on events and time
- 3.3.2.14. playback: play, fast/slow play, fast/slow rewind, step by step, full screen, zoom
- 3.3.2.15. simultaneous play back from multiple cameras
- 3.3.2.16. simultaneously exporting (backup) of multiple camera recordings to USB memory stick
- 3.3.2.17. exporting of still image from the video recording, also to external storage media
- 3.3.2.18. automatic search and recognition of IP cameras
- 3.3.2.19. access control through different codes for at least 2 levels: user level and system administrator level
- 3.3.2.20. routing of sound/voice to multiple cameras (connected to sound amplifier/loudspeaker) or directly to multiple loudspeakers that will be selected by the user in case he wishes to intervene either automatically with pre-recorded message or through the microphone (paging)
- 3.3.2.21. Bi-directional audio support
- 3.3.2.22. Log file recording user / administrator access

Generally, software shall enable the administrator to conveniently update it with patches (corrections) and new versions

Software installation on every computer, camera and NVR is Supplier's responsibility. ADMIE will provide the two (2) above mentioned laptops that are not supplied by the Supplier, based on hardware requirements given by the software manufacturer.

### **3.4. Central PC**

The Supplier shall install the central PC on a shelf of the rack that is situated in ADMIE's guard room. The PC shall cover the requirements of §2.3.1. In case the VMS runs on the PC, it shall be a server grade computer.

### **3.5. Screens**

3.5.1. Screens may be either television sets or monitors

- 3.5.2. Type LED
- 3.5.3. Diagonal 40 to 43 inch
- 3.5.4. Resolution Full HD 1920 x 1080
- 3.5.5. Image refresh rate 200Hz
- 3.5.6 Signal input port HDMI
- 3.5.7 Power supply 220VAC
- 3.5.8. Wall mounting ancillaries shall be provided

### **3.6. Network switches**

3.6.1. The switch quantity along with switch basic configuration shall be as follows:

One (1) switch (Figure 1, switch No.1) that will concentrate the overall camera traffic and will be connected to the NVRs.

It shall comprise at least:  
eight (8) ports for SFP  
four (4) 1GE network ports

Six (6) switches, each one comprising at least:  
two (2) ports for SFP and  
sixteen (16) 1GE network ports

Furthermore, the following shall be provided in order to interconnect them:  
twelve (12) SFP ≥ 1G modules for a distance of ≥800m, multimode optical fiber 62,5/125

3.6.2. Layer 2 switch

3.6.3. Switching capacity shall be suitable for the camera number that will be accommodated

3.6.4. Fanless

3.6.5. PoE IEEE803.3af with 15W per port. Overall power at least 150W.

3.6.6. To be installed in 19 inch rack

3.6.7. 220VAC power supply

3.6.8. In order for the switches to be protected from overvoltage surges and interference, they shall comprise:

3.6.8.1. metal frame at their RJ45 sockets which shall be in contact with the RJ45 connector metal frame

3.6.8.2. earthing connection point (contact or screw terminal) at the switch frame

3.6.9. Protection IP20

### 3.7. Sound subsystem

Preferably, the loudspeakers shall be IP and incorporate the sound amplifier so as to be connected directly to the corresponding switch and communicate with the VMS.

If the loudspeakers have not IP and amplifier functionality, they shall be connected to the external sound amplifier and then to the camera audio output.

Power supply of loudspeaker/amplifiers shall be mains 220VAC.

3.7.1. Loudspeaker	preferably IP
3.7.1.1. Horn type	
3.7.1.2. Audio power	50W
3.7.1.3. Outdoor	IP65
3.7.1.4. Material	aluminum with electrostatic coating brightly colored, ABS resin
3.7.1.5. Operation temperature	-10° C ~ +50° C
3.7.1.6. Ancillaries	adjustable, robust mounting bracket made of stainless steel
3.7.2. Sound amplifier	50W (preferably, built-in into the loudspeaker)
3.7.3. Microphone	Table microphone with base and activation switch

### 3.8. Network cable

For outdoor use, UV resistant

Category	S-FTP cat. 7
Outer jacket	PET

### 3.9. Network patch panels

Suitable for installation in 19' rack

Sockets for RJ45 plugs	24
Category	6a

Patch panels shall include as ancillary a suitable cable organizer.

It is noted that 19' racks are already installed at ADMIE premises, except for the switch No.5 rack.

## **4. IMPLEMENTATION SCHEDULE – ACCEPTANCE TESTS**

Quantitative acceptance of materials and software shall be performed at ADMIE premises according to the Table of Deliverables §6.1 and the Bill of Material (BoM) §5.5.

Following that, the Supplier shall install the system within maximum two (2) months.

After installation, the Supplier shall perform the commissioning and the functional test phase shall commence. Upon test phase successful completion, the following will be performed:

- final system acceptance and
- acceptance of the services that the Supplier shall have provided up to that point

Final system acceptance shall be performed three (3) months after installation completion and within this time period commissioning and functional test shall be completed.

Within the above mentioned period of 3 months, the Supplier shall provide the following services:

- system commissioning
- training of ADMIE users-guards: it shall be performed directly after system commissioning in order for the guards to have adequate time during functional test to get familiar with system usage
- restore and repair every functional and manufacturer's deviation and failure of materials, software and system

The Supplier shall complete system commissioning within maximum ten (10) days from its installation in order to spend the remaining time out of the 3 months for the functional test.

The final acceptance protocol will be signed by ADMIE and Supplier upon final acceptance.

## 5. SUPPLIER OBLIGATIONS

The Supplier guarantees that all the services that are related to this chapter shall be provided in a professional way by competent and experienced technical personnel who shall have full knowledge of the materials and software.

### 5.1. Services

#### 5.1.1. Commissioning and system functional test phase

After completion of installation by the Supplier, he shall proceed to the system commissioning.

System commissioning comprises but is not restricted to the following tasks:

- set up, configuration and programming of network infrastructure
- camera addressing and routing and their allocation to the NVRs
- camera set-up, configuration and programming, including their video analytics
- set-up, configuration and programming of NVRs
- set-up and configuration of VMS

Following commissioning, system functional test shall commence. During functional test phase, the Supplier shall restore and repair every functional and manufacturer's deviation and failure as well as non efficient system operation that may arise. These include:

- defects and failures of materials and software due to initial manufacturer
- problems, failures and non efficient operation due to incompatibility of materials and software
- defective and incomplete installation as well as set-up, configuration and programming of materials and software during commissioning

The Supplier is responsible for provision of materials and spares for repairs during test phase given that warranty of good performance is valid for this period.

Prerequisites for the successful completion of final acceptance and the signature of the relevant protocol are:

- restoration of all the above mentioned functional, manufacturing deviations and failures as well as of any non efficient system operation and
- proven users' ability to perform their tasks during test phase. This ability shall be based on the timely training and provision of documentation by the Supplier.
- provision by the Supplier to ADMIE of the documentation for the equipment, the system and the as-built drawings

### 5.1.2. Training

The Supplier shall provide training to ADMIE personnel at ADMIE premises in Rouf area. The Supplier shall provide to every trainee printed training material.

User training (theoretical and practical):

It shall be provided to ten (10) guards. Upon training completion, the guards, being the users of the system, shall be able to fully take advantage of the system potential and facilities.

The scope of user training shall include but not be restricted to:

- searching and exporting to external storage media (e.g. memory stick) of video relevant to events
- identification of system malfunctions and defects to inform the Supplier

Upon training completion, users shall be able to perform their tasks independently of Supplier support.

During test phase, system operation will be performed by the guards.

The Supplier shall submit a user training plan

### **5.2. Documentation and drawings**

The Supplier shall timely provide two (2) documentation copies (in Greek or English) in paper form and two (2) copies in electronic form for every kind and type of equipment and software as well as for the system.

System documentation shall include:

- as-built drawings detailed down to cabling and equipment connection pin level
- documentation for software installation and upgrade
- user and maintenance manuals

User manuals shall enable the users to fully perform their tasks independently and in an efficient way, as described in §5.1.2. 'Training'.

Especially user documentation aimed for the guards shall be in Greek.

In case manufacturer's documentation for equipment and software that will be handled by the guards is only in English, the Supplier shall provide concise user documentation in Greek, in addition to the English manuals.

### **5.3. Warranty**

The Supplier shall guarantee that every material, software and the system as a whole will be free from any defect. The warranty shall be valid for three (3) years starting from the quantitative acceptance. If the period between quantitative acceptance and final acceptance extends more than five (5) months and for this extension the Supplier is responsible, the

warranty shall be extended for a period of time equal to the time that the final acceptance was shifted.

If during the warranty there is a defect in material or software, ADMIE will notify the Supplier and the Supplier shall free of charge:

1. repair or replace on site the material or software within twenty four (24) hours from ADMIE notification in order for the system to continue operating
2. extend the current warranty for the system for a period of time equal to the time needed for the system to normally re-operate, under the condition that the time period of operation interruption or non-efficient operation exceeds three 3 days

During the warranty validity period, spare part cost shall be borne by the Supplier.

The warranty shall cover every software and its functions, including camera embedded software.

During the warranty validity period, the Supplier shall provide to ADMIE, free of charge, patches/updates and new software versions:

- whenever those are issued by the manufacturer. The Supplier shall dully inform ADMIE when such patch/update or version is issued
- whenever ADMIE finds a defect in the software

In both above mentioned cases, the patch/update or new version shall be installed by the Supplier.

The patches/updates and new versions shall be accompanied be documentation about:

- the defects that are fixed
- the compatibility with other material versions and other products of the relevant manufacturer
- any functional improvements

The software fixes/new versions shall not adversely affect the interoperability of the system parts. Furthermore, the fixes/new versions shall be compatible with the installed materials and software.

The Supplier shall proceed to the necessary tests to confirm the restoration of the defect and the continuing system operability and material/software compatibility following the installation of a software patch/new version or a material repair or replacement. Also, the Supplier is responsible to keep the existing configuration and set up of the software and material after his actions.

The warranty shall include but not be restricted to restoration of system defects/malfunctions that are due to the following reasons:

- incompatibility of materials or software
- installation of fixes/new versions of software
- imperfect or incomplete Supplier's actions during system installation and commissioning

Any material or spare part that replaces a defective one in terms of the warranty, will be property of ADMIE.

The Supplier shall guarantee that he possesses the necessary spare parts, materials and software support during the Technical Support (see below) and warranty validity period even if it is extended, under his responsibility.

#### **5.4. Technical support**

The Supplier shall provide Technical Support for a period of five (5) years after warranty expiration. The Technical Support shall include but not be restricted to all the services that are valid during the warranty, apart from spare part cost. During the Technical Support, the Supplier may additionally provide preventive maintenance, planned or not-planned, to his judgment. Preventive maintenance works and their planning shall be described in details in the Technical Proposal.

During Technical Support, ADMIE will pay for this service at the end of each year.

During Technical Support, the cost of spare parts to restore defects will be borne by ADMIE. The Supplier shall provide binding unit prices for optional materials, software and services as follows:

- for the main materials (cameras, NVRs, loudspeakers, amplifiers, switches), same or equivalent to the offered ones, for possible system extension. The price for installation, setup, configuration and commissioning shall be separately mentioned
- for additional hard disks to extend the video recording time. The price for installation, setup, configuration and commissioning shall be separately mentioned
- for any possible software license extension that may be needed if the number of users increases
- for any new software functions that are not included or are not activated e.g. PTZ cameras, plate number recognition, alarm subsystem. Prices per function or group of functions shall be submitted accompanied by detailed description of the function and its specifications, including installation cost
- for spare parts in case of defect, down to interchangeable module level

The a.m. prices shall be valid from offer submission till the end of the Technical Support period.

#### **5.5. Technical proposal contents**

The Supplier's technical proposal shall include but not be restricted to the following:

- complete material and software technical documentation including manufacturer's specifications
- compliance list that shall mention one by one every paragraph and subparagraph of the technical specifications and requirements of this Technical Specification TY-05.1

and shall refer, for every requirement, to specific paragraphs of the attached technical documentation

- complete and detailed Bill of Material (BoM) for the offered materials, software and documentation mentioning necessarily initial manufacturer, type, version, part number, order number (of initial manufacturer) and quantities
- complete material break down to interchangeable module level e.g. hard disk in the NVRs, central computer cards, camera memory cards etc. Type and quantity of modules shall be mentioned
- complete and detailed list of offered services (including training programme)
- detailed description of any preventive maintenance that will be performed by the Supplier during Technical Support
- detailed description of optional materials and services according to §5.4.
- customer list of similar systems

It is must be noted that the Technical Proposal will be rejected if it does not contain all the above mentioned data.

## 6. DELIVERABLE TABLE

### 6.1. Materials / software / documentation

		Unit of measurement	Quantity
6.1.1.	HD IP dome cameras	Ea	22
6.1.2.	HD IP bullet cameras	Ea	2
6.1.3.	NVR incl. mouse, power supply and network cables	Ea	2
6.1.3.1.	NVR keyboard*	Ea	2
6.1.4.	Complete central computer with mouse, flat screen and keyboard (server grade computer, if VMS runs on it) incl. power supply and network cables	Ea	1
6.1.5.	Display (TV or monitor) incl. power supply and screen cables	Ea	2
6.1.6.	Network switch	Ea	7
6.1.6.1.	SFP modules	Ea	12
6.1.7.	Outdoor horn loudspeaker – amplifier – power supply incl. cabling	Ea	8
6.1.8.	Table microphone incl. connection cable	Ea	1
6.1.9.	Portable PC (laptop) with installed software for direct camera connection incl. camera cable	Ea	1
6.1.10.	Network cable	m	3.000
6.1.11.	Network patch panel incl. cable organizer	Ea	7
6.1.12.	Wall mounted rack for network patch panel and switch No.5 installation	Ea	1
6.1.12.1	Optical cable to interconnect this rack to the OF rack	Ea	1
6.1.13.	Equipment/material documentation		
6.1.14.	System documentation		
6.1.15.	VMS: - in USB memory stick/CD with installation files and - installed on NVR or server	Ea	4 USB memory stick / CD + 4 installations (1 x server) + 3 x client)

6.1.15.1.	User license**	Ea	(1 x server) + (3 x client)
6.1.16.	Software for local camera connection and maintenance: - in USB memory stick/CD with installation files and - installed on the laptop	Ea	3 USB memory stick/CD + 3 laptop installations
6.1.16.1.	User license**	Ea	3
6.1.17.	Software documentation		
6.1.18.	Training plan		

\* If the VMS runs on the NVRs

\*\* If user licenses are needed

## 6.2. Services

	SERVICE
6.2.1.	System installation
6.2.2.	System commissioning and functional test period
6.2.3.	User training
6.2.4.	Warranty
6.2.5.	5- year Technical Support

## **7. SUPPLIER ELIGIBILITY**

The Supplier must possess the necessary experience, technical capability and financial strength in order to provide the materials, software and services required during the whole contract period.

He shall have proven experience and know-how in IP CCTV system engineering and integration as well as in installations and Technical Support of systems of similar kind and magnitude.

In the Technical Proposal, the Supplier shall provide a list with customers for which he successfully engineered, supplied, installed, commissioned and supported similar systems, materials and software. The list shall contain any trade mark, name of company or Public Service and address of the corresponding customers in the last four (4) years.