

## SMART IP CCTV SYSTEM TECHNICAL SPECIFICATIONS

### Technical Specifications of Smart IP CCCTV Cameras Monitoring & Recording System

#### IP video Surveillance System SCOPE:

1. The specification of Video Surveillance System cover up technical specifications and requirement of H.265+ compression based Smart Video Analysis IP Video surveillance system incorporated of features and function of Video Analytics, Lowest space consumption, Early alert management, Motion Detection, System Alarm, Network Alarm, Low Light Colour Image Capturing and as per technical specification of system. System incorporated components of IP Fixed Dome & Bullet camera, Network Video Recorders, LED Display Monitor, Network Switches, and this all supported on indoor & Camera outdoor Weather Conditions, Video management Software builtin NVR, etc. for video surveillance of \_\_\_\_\_premises (**\*\*Customer Name.** )
2. The System shall be based on non-proprietary open architecture ONVIF S Profile Compliance; it can work and integrate with any make of ONVIF Compliance Hardware & Software. Similarly cameras should be compatible with minimum 5 brands of Video Management software. In the Same Way Network Video Recorders should be compatible with minimum 5 brands of ONVIF Compliant cameras.
3. The System can be supported difference types of video analytics such as face detection, people counting, object detection, crowd detection, tripwire, perimeter, scene and de focus detection, motion detection & many more and that should Triggering alarm activation and it automatically generate alarm trigger sends message command to control centre and its supports trigger action for a start object monitoring, Video capturing, snapshot, Single screen display, alarm sound, E-MAIL, third party equipment controls and many more.
4. Entire System should be IP surveillance systems shall essential H.265+ and H.264+ Main & High Profile combined video compression and Entire System has to be capable of generating 25/30 fps on each stream to viewing on LAN/WAN and Network Video Recorders supported Video & Audio Stream Recording and it is capable to record 25/30fps with up to 4K Input Camera Resolution for each Channel.

#### 1. Fixed Focused dome camera

| H.265+ 1080p fixed focus Smart IP ExIR dome camera                                                                                                                                                                                          | Compliance<br>Yes or No | Non Compliance<br>(if any) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------|
| <b>General Characteristics:</b>                                                                                                                                                                                                             |                         |                            |
| The camera Should be pure Day/Night 1080p Dome camera with built-in smart function and high resolution image quality.                                                                                                                       |                         |                            |
| The camera Should have Progressive Scan CMOS-based sensor for a sharper, more detailed picture with a 16:9 image format.                                                                                                                    |                         |                            |
| The Camera Should have H.265+, H.265, H.264, MJPEG Triple Hardware compression, and it support configurable streaming/compression.                                                                                                          |                         |                            |
| The camera Should have super Wide dynamic ratio (WDR) Min.100dB and Dynamic noise reduction (3DNR), which actively analyses the contents of a scene and reduces noise/light exposure artifacts accordingly.                                 |                         |                            |
| The camera shall be fitted with a fixed 2.8mm, F1.2 lens with a lens view angle more than 102°. Should have built-in IR and capable to capture colour images at 0.05lux light condition, and IR should support min.25M at 0 lux conditions. |                         |                            |
| The Camera shall have third party software/hardware ONVIF compatibility and also have supported directly VLC player monitor by Real Time Streaming Protocol. It should support at least 5 different brands ONVIF/RTSP Equipment.            |                         |                            |
| The camera should support dual power i.e. PoE & external power at a same time. In case one fails the other should take over.                                                                                                                |                         |                            |
| <b>Technical Specifications:</b>                                                                                                                                                                                                            |                         |                            |
| <b>Video:</b>                                                                                                                                                                                                                               |                         |                            |

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|                               |                                                                                          |  |  |
|-------------------------------|------------------------------------------------------------------------------------------|--|--|
| Sensor type                   | 1/2.8-inch CMOS                                                                          |  |  |
| Sensor pixels                 | Effective 1920 x 1080P                                                                   |  |  |
| Lux Sensitivity               | 0.05 lux at color, 0.01 lux at B/W, 0.0 lx (IR)                                          |  |  |
| Wide Dynamic range            | Super ≥100dB                                                                             |  |  |
| True Day/Night                | Auto, Color, Black & White, smart IR                                                     |  |  |
| Shutter speed                 | Auto/Manual (1/30 [1/25] to 1/10000)                                                     |  |  |
| Video compression             | H.265+, H.264 MP(Main), HP(High), BP(Baseline) profile, M-JPEG                           |  |  |
| Main Stream                   | 25fps @1920x1080P, 1280x960P, 1280x720P                                                  |  |  |
| Second Stream                 | 15/25/30fps @ D1/CIF/QCIF                                                                |  |  |
| Bitrate                       | ≥128kbps ~ 16mbps, VBR & CBR                                                             |  |  |
| Triple Stream                 | Main Stream, Second Stream, Third Stream                                                 |  |  |
| Night Vision Distance         | Min.25m(82ft), IR 850 nm,                                                                |  |  |
| Night Vision Function         | IR Cut Filter, Smart IR Control                                                          |  |  |
| Lens type                     | Fixed focus 2.8mm                                                                        |  |  |
| Coverage Angle                | >102°                                                                                    |  |  |
| White balance                 | ATW/AWB/Manual                                                                           |  |  |
| <b>Alarms &amp; Trigger:</b>  |                                                                                          |  |  |
| Other Intelligent Detection   | Motion Detection, Port Alarm, IP & MAC Conflict, Network Lost Detection, Privacy masking |  |  |
| Alarm Trigger Out             | On-screen Alerts/PTZ Trigger/Link Out, FTP, EMAIL                                        |  |  |
| <b>Network &amp; Control:</b> |                                                                                          |  |  |
| Unit configuration            | Via web browser, PC surveillance software, NVR                                           |  |  |
| Protocols                     | TCP(IPv4)/UDP/HTTP/HTTPS/RTSP/FTP/NTP/DHCP/DNS/SMTP/SNMP/UPnP                            |  |  |
| Ethernet                      | 10/100 Base-T, auto-sensing, half/full duplex, RJ45                                      |  |  |
| Third party NVR/ Software     | ONVIF Profile S, SDK, RTSP                                                               |  |  |
| User/remote access            | Min.4 Level/8 Users, Min.4 Users Access at the Same Time                                 |  |  |
| <b>Electrical:</b>            |                                                                                          |  |  |
| Input voltage                 | +12 VDC and POE                                                                          |  |  |
| Power consumption             | Less than 6W                                                                             |  |  |
| PoE                           | IEEE 802.3af (802.3at Type 1)                                                            |  |  |
| Lighting/TVS Protection       | TVS 4KV, Lightning/Surge 1KV Protection LAN & Power                                      |  |  |
| <b>Mechanical:</b>            |                                                                                          |  |  |
| Pan/Tilt                      | Pan: 0° ~ 355°, Tilt 0° ~ 75°                                                            |  |  |
| Enclosure                     | Durable IP66 Standard, 3Axis rotation                                                    |  |  |
| <b>Environmental:</b>         |                                                                                          |  |  |
| Operating temperature         | -30 °C to +60 °C (-22 °F to +140 °F)                                                     |  |  |
| Humidity                      | 20% to 90% relative humidity (non condensing)                                            |  |  |
| Ingress protection            | Indoor dome Metal/IP66                                                                   |  |  |
| <b>Certifications:</b>        |                                                                                          |  |  |
| CE, FCC/UL, RoHS Complaint    |                                                                                          |  |  |
| <b>Approved make</b>          |                                                                                          |  |  |
| AXIS, AVTRON, BOSCH, Sony,    |                                                                                          |  |  |

## SMART IP CCTV SYSTEM TECHNICAL SPECIFICATIONS

### 2. Fixed Focused bullet camera

| H.265+ 1080p fixed focus Smart IP ExIR Bullet camera                                                                                                                                                                                     |                                                                                          | Compliance<br>Yes or No | Non Compliance<br>(if any) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------|----------------------------|
| <b>General Characteristics:</b>                                                                                                                                                                                                          |                                                                                          |                         |                            |
| The camera Should be pure Day/Night 1080p bullet camera with built-in smart function and high resolution image quality.                                                                                                                  |                                                                                          |                         |                            |
| The camera Should have Progressive Scan CMOS-based sensor for a sharper, more detailed picture with a 16:9 image format.                                                                                                                 |                                                                                          |                         |                            |
| The Camera Should have H.265+, H.265, H.264, MJPEG Triple Hardware compression, and it support configurable streaming/compression.                                                                                                       |                                                                                          |                         |                            |
| The camera Should have super Wide dynamic ratio (WDR) Min.100dB and Dynamic noise reduction (3DNR), which actively analyses the contents of a scene and reduces noise/light exposure artifacts accordingly.                              |                                                                                          |                         |                            |
| The camera shall be fitted with a fixed 4mm, F1.2 lens with a lens view angle more than 89°. Should have built-in IR and capable to capture colour images at 0.05lux light condition, and IR should support min.40M at 0 lux conditions. |                                                                                          |                         |                            |
| The Camera shall have third party software/hardware ONVIF compatibility and also have supported directly VLC player monitor by Real Time Streaming Protocol. It should support at least 5 different brands ONVIF/RTSP Equipment.         |                                                                                          |                         |                            |
| The camera should support dual power i.e. PoE & external power at a same time. In case one fails the other should take over.                                                                                                             |                                                                                          |                         |                            |
| <b>Technical Specifications:</b>                                                                                                                                                                                                         |                                                                                          |                         |                            |
| <b>Video:</b>                                                                                                                                                                                                                            |                                                                                          |                         |                            |
| Sensor type                                                                                                                                                                                                                              | 1/2.8-inch CMOS                                                                          |                         |                            |
| Sensor pixels                                                                                                                                                                                                                            | Effective 1920 x 1080P                                                                   |                         |                            |
| Lux Sensitivity                                                                                                                                                                                                                          | 0.05 lux at color, 0.01 lux at B/W, 0.0 lx (IR)                                          |                         |                            |
| Wide Dynamic range                                                                                                                                                                                                                       | Super ≥100dB                                                                             |                         |                            |
| True Day/Night                                                                                                                                                                                                                           | Auto, Color, Black & White, smart IR                                                     |                         |                            |
| Shutter speed                                                                                                                                                                                                                            | Auto/Manual (1/30 [1/25] to 1/10000)                                                     |                         |                            |
| Video compression                                                                                                                                                                                                                        | H.265+, H.264 MP(Main), HP(High), BP(Baseline) profile, M-JPEG                           |                         |                            |
| Main Stream                                                                                                                                                                                                                              | 25fps @1920x1080P, 1280x960P, 1280x720P                                                  |                         |                            |
| Second Stream                                                                                                                                                                                                                            | 15/25/30fps @ D1/CIF/QCIF                                                                |                         |                            |
| Bitrate                                                                                                                                                                                                                                  | ≥128kbps ~ 16mbps, VBR & CBR                                                             |                         |                            |
| Triple Stream                                                                                                                                                                                                                            | Main Stream, Second Stream, Third Stream                                                 |                         |                            |
| Night Vision Distance                                                                                                                                                                                                                    | Min.25m(82ft), IR 850 nm,                                                                |                         |                            |
| Night Vision Function                                                                                                                                                                                                                    | IR Cut Filter, Smart IR Control                                                          |                         |                            |
| Lens type                                                                                                                                                                                                                                | Fixed focus 4mm                                                                          |                         |                            |
| Coverage Angle                                                                                                                                                                                                                           | >89°                                                                                     |                         |                            |
| White balance                                                                                                                                                                                                                            | ATW/AWB/Manual                                                                           |                         |                            |
| <b>Alarms &amp; Trigger:</b>                                                                                                                                                                                                             |                                                                                          |                         |                            |
| Other Intelligent Detection                                                                                                                                                                                                              | Motion Detection, Port Alarm, IP & MAC Conflict, Network Lost Detection, Privacy masking |                         |                            |
| Alarm Trigger Out                                                                                                                                                                                                                        | On-screen Alerts/PTZ Trigger/Link Out, FTP, EMAIL                                        |                         |                            |
| <b>Network &amp; Control:</b>                                                                                                                                                                                                            |                                                                                          |                         |                            |
| Unit configuration                                                                                                                                                                                                                       | Via web browser, PC surveillance software, NVR                                           |                         |                            |

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|                            |                                                               |  |  |
|----------------------------|---------------------------------------------------------------|--|--|
| Protocols                  | TCP(IPv4)/UDP/HTTP/HTTPS/RTSP/FTP/NTP/DHCP/DNS/SMTP/SNMP/UPnP |  |  |
| Ethernet                   | 10/100 Base-T, auto-sensing, half/full duplex, RJ45           |  |  |
| Third party NVR/Software   | ONVIF Profile S, SDK, RTSP                                    |  |  |
| User/remote access         | Min.4 Level/8 Users, Min.4 Users Access at the Same Time      |  |  |
| <b>Electrical:</b>         |                                                               |  |  |
| Input voltage              | +12 VDC and POE                                               |  |  |
| Power consumption          | Less than 6W                                                  |  |  |
| PoE                        | IEEE 802.3af (802.3at Type 1)                                 |  |  |
| Lighting/TVS Protection    | TVS 4KV, Lightning/Surge 1KV Protection LAN & Power           |  |  |
| <b>Mechanical:</b>         |                                                               |  |  |
| Pan/Tilt                   | Pan: 0° ~ 355°, Tilt 0° ~ 75°                                 |  |  |
| Enclosure                  | Durable IP66 Standard, 3Axis rotation                         |  |  |
| <b>Environmental:</b>      |                                                               |  |  |
| Operating temperature      | -30 °C to +60 °C (-22 °F to +140 °F)                          |  |  |
| Humidity                   | 20% to 90% relative humidity (non condensing)                 |  |  |
| Ingress protection         | Indoor dome Metal/IP66                                        |  |  |
| <b>Certifications:</b>     |                                                               |  |  |
| CE, FCC/UL, RoHS Complaint |                                                               |  |  |
| <b>Approved make</b>       |                                                               |  |  |
| AXIS, AVTRON, BOSCH, Sony  |                                                               |  |  |

### 3. 2HDD Embedded Storage System & Management Server

| H.265+ Embedded storage network video recorder                                                                                                                                                                                                                                                                                                            | Compliance<br>Yes or No | Non Compliance<br>(if any) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------|
| <b>General Characteristics:</b>                                                                                                                                                                                                                                                                                                                           |                         |                            |
| The Embedded NVR Should supports triple compression record profile H.265+, H.265, H.264 (MP, HP, BP), MJPEG Hardware compression and it configurable for compression and streaming. H.265+ should save at least 50% Lower space than H.264 Compression.                                                                                                   |                         |                            |
| The NVR Should supports and process advanced IVA functions such as face detection, people counting, tripwire, perimeter, crowd, object detection, video quality detection, Lens/scene switch detection, etc and against event it generates the notification, alarm, Screen alert, third party system activation and so-on.                                |                         |                            |
| The NVR Should have Smart Recording function wherein user can set different modes like IVA, Schedule, Motion, Port, Resolution, i-frame record and it should also have the function of smart playback wherein it should target IVA in recorded video footage and it can be search by filtering such as face detection, tripwire, perimeter and many more. |                         |                            |
| The NVR Should have at least 80MBPS incoming and 80MBPS outgoing Bandwidth throughput, and it can connect up to minimum 30user simultaneously to NVR.                                                                                                                                                                                                     |                         |                            |
| The NVR Should capable to encoding up to 4K(8MP) IP camera resolution, Each Channel must support real time 25/30 frame rate which can be set with different bit rate between 64Kbps ~ 16Mbps.                                                                                                                                                             |                         |                            |
| The NVR should have ANR(Automatic Network Replenishment) function to support offline stored videos of IP Camera automatically download from to NVR Hard Drive when network                                                                                                                                                                                |                         |                            |

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|                                  |                                                                                                                                                                                                        |  |  |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| re-established                   |                                                                                                                                                                                                        |  |  |
| <b>Technical Specifications:</b> |                                                                                                                                                                                                        |  |  |
| <b>NVR Specification</b>         |                                                                                                                                                                                                        |  |  |
| Video Compression                | H.265+, H.265, H.264+, H.264 Compression                                                                                                                                                               |  |  |
| Audio Compression                | ADPCM-DV14/G.711A/G.711U                                                                                                                                                                               |  |  |
| NVR OS                           | Embedded Linux                                                                                                                                                                                         |  |  |
| Input Resolution                 | IP Camera Input at 4K/6MP/5MP/4MP/3MP/<br>1080P/960P/720P/4CIF/DCIF/2CIF/CIF/QCIF                                                                                                                      |  |  |
| Display Live & Record Ch         | 20CH/16CH/10CH/9CH/8CH/6CH/4CH/1CH                                                                                                                                                                     |  |  |
| Record Resolution                | 4K(3840x2160,3264x2448,3296x2472)/6MP(2752x2208,3008x2008,2408x2008)/5MP(2560x1920,2592x1944,2592x1920,2528x2128/4MP(2560x1440,2592x1520)/3MP(2048x1536)/1920x1080/1280x960/1280x720/VGA/4CIF/CIF/QCIF |  |  |
| Record Frame Rate                | Each Channel Mainstream 25fps(P)/30fps(N), Sub stream 25fps(P)/30fps(N)                                                                                                                                |  |  |
| Record Stream Mode               | VBR / CBR                                                                                                                                                                                              |  |  |
| Record Stream Rate               | Min 32kbps ~ to 16384KBPS Auto/Manual Selectable                                                                                                                                                       |  |  |
| Second Stream & Mode             | D1/CIF/QCIF & VBR / CBR                                                                                                                                                                                |  |  |
| Recording Method                 | IVA Alarm, Schedule, Manual, Alarm, Motion                                                                                                                                                             |  |  |
| Playback Channel                 | Min.16CH/8CH/4CH/1CH                                                                                                                                                                                   |  |  |
| Smart Function                   | Smart Record, Smart Playback, Record Tag, IVA Record                                                                                                                                                   |  |  |
| Alarm Pre & Post Record          | 10 ~ 600 sec(Pre), 5 ~ 60sec(Post)                                                                                                                                                                     |  |  |
| Audio Output (intercom)          | Yes, 1CH Input & Output                                                                                                                                                                                |  |  |
| Playback Function                | Play, Pause, Stop, Rewind, Fast & Slow play, Next & Previous file, Next & Previous Camera, Full screen, Repeat, Shuffle, Backup selection, Digital Zoom                                                |  |  |
| Harddisk Interface               | Min 2 HDD SATA Port or Better                                                                                                                                                                          |  |  |
| Harddisk Capacity                | Min up to 8TB Each Port or Better                                                                                                                                                                      |  |  |
| HDD Management                   | HDD Grouping & Quota, HDD hibernation & Faulty alarm, Back UP, Redundant for Each Channel or all Channel                                                                                               |  |  |
| ANR                              | Automatically Download Stored Video of Camera SD Card, When Camera online                                                                                                                              |  |  |
| VGA & Video Output               | HDMI up to 4K, VGA Port up to 1080P                                                                                                                                                                    |  |  |
| Bandwidth Throughput             | 80M Incoming, 80 Outgoing                                                                                                                                                                              |  |  |
| Remote Connection                | 32                                                                                                                                                                                                     |  |  |
| IVA Channels                     | All Ch @ iVA Input Process from Camera                                                                                                                                                                 |  |  |
| Intelligent Video analysis       | Auto tracking/People counting/ Face detection/<br>Crowd/Foreign or Missing Object/ Tripwire/Perimeter/<br>Running /Loitering/Parking/Scene Change/Blur Image/<br>Abnormal Audio                        |  |  |
| Motion Detection                 | Zones:396(22x18), Sensitivity level 1 ~ 6                                                                                                                                                              |  |  |
| Event Support                    | Snap, Audio Hint, OSD, Video Recording, Alarm Out, PTZ Trigger                                                                                                                                         |  |  |
| Network Port                     | RJ45 - 10/100MBPS                                                                                                                                                                                      |  |  |
| USB                              | 2 Port                                                                                                                                                                                                 |  |  |
| Onvif Compliant                  | Yes S Profile                                                                                                                                                                                          |  |  |
| Email & FTP                      | Video Loss, Video Blind, Motion Detection                                                                                                                                                              |  |  |

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|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Smart Search & Record      | IVA Video Playback, Smart IVA Record                                                                                                       |  |  |
| Digital Zooming            | YES, up to 4X or better                                                                                                                    |  |  |
| Image Capture              | Yes, Automatically by schedule or manual                                                                                                   |  |  |
| Back up Through            | USB Disk/HDD, USB DVD-RW, Network download                                                                                                 |  |  |
| Network Protocol           | TCP/UDP/HTTP/MULTICAST/UPnP/DHCP/PPPoE/DDNS/NFS/FTP/NTP/HTTPS/RTSP/SMTP/HTTPS/SADP/SNMP, Auto Search in Network                            |  |  |
| Alarm Output               | 1CH Out                                                                                                                                    |  |  |
| Special Function           | Digital Zooming, Image Capture , Video Loss Detection, Quick playback & backup, Remaining Bandwidth Display, Flow Monitor, Capture Package |  |  |
| Mobile Viewing             | P2P Cloud, I-Phone, IPAD, Android, DDNS                                                                                                    |  |  |
| Web Browser                | IE, Firefox, Chrome                                                                                                                        |  |  |
| Language                   | English & Many More                                                                                                                        |  |  |
| Operating Temperature      | 10°C ~ +55°C, 10% ~ 90% RH                                                                                                                 |  |  |
| <b>Certifications:</b>     |                                                                                                                                            |  |  |
| CE, FCC/UL, RoHS Complaint |                                                                                                                                            |  |  |
| <b>Approved make</b>       |                                                                                                                                            |  |  |
| AXIS, AVTRON, BOSCH, Sony  |                                                                                                                                            |  |  |