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## **A&E System Specification**

**DS-2CD5A46G0-IZ(H)SY (2.8 to 12 mm)**

**DS-2CD5A46G0-IZ(H)S (2.8 to 12 mm)/(8 to 32 mm)**

**DS-2CD5A46G1-IZ(H)S (2.8 to 12 mm)/(8 to 32 mm)**

**ALL TRADEMARKS ARE THE PROPERTIES OF THEIR RESPECTIVE OWNERS**

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## Division 28 – Electronic Safety and Security

### Section 28 20 00 – Video Surveillance

### Section 28 21 00 – Surveillance Cameras

### Section 28 21 13 – IP Cameras

### Section 28 27 00 – Video Surveillance Sensors

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## Part 1 General:

### 1.1 Summary of Requirements

#### A. Camera

1. 4 MP Varifocal Bullet Network Camera

#### B. Related Requirements

1. Section 27 15 01.13 Video Surveillance Communications Conductors and Cables
2. Section 27 20 00 Data Communications
3. Section 28 05 07.13 Power Sources for video Surveillance
4. Section 28 05 07.21 Poe Power Sources for Electronic Safety and Security
5. Section 28 05 33 Safety and Security Network Communications Equipment
6. Section 28 06 10 Schedules for Access Control
7. Section 28 23 00 Video Management System
8. Section 28 23 11 Video Surveillance – Video Management System Analytics
9. Section 28 23 13 Video Surveillance – Video Management System Interfaces
10. Section 28 33 00 Video Surveillance – Security Monitoring and Control

### 1.2 References

#### A. Abbreviations

1. ABF Auto Back Focus
2. AES Advanced Encryption Standard
3. AGC Automatic Gain Control
4. AWB Automatic White Balance
5. BLC Back Light Compensation
6. DSCP Differentiated Services Code Point
7. DHCP Dynamic Host Configuration Protocol
8. DNR Digital Noise Reduction
9. DNS Domain Name Server
10. DDNS Dynamic Domain Name Server
11. FPS frames per second
12. FTP File Transfer Protocol
13. GUI Graphical User Interface
14. HLC Highlight Compensation
15. HTTP Hypertext Transfer Protocol
16. HTTPS Secure HTTP
17. ICMP Internet Control Message Protocol
18. ICR Infrared Cut-off Filter

19. IGMP	Internet Group Management Protocol
20. IP	Internet Protocol
21. JPEG	Joint Photographic Experts Group
22. MicroSD	Removable Miniaturized Secure
23. MicroSD	Removable Miniaturized Secure Digital flash memory card
24. MPEG	Moving Pictures Experts Group
25. MWB	Manual White Balance
26. NAS	Network Attached Storage
27. NTP	Network Time Protocol over Ethernet
28. PoE	Power over Ethernet
29. PPPoE	Point-to-Point Protocol over Ethernet
30. QoS	Quality of Service
31. ROI	Region of Interest
32. RTP	Real-Time Transport Protocol
33. RTSP	Real-Time Streaming Protocol
34. SD Card	Secure Digital flash memory card
35. SMTP	Simple Mail Transfer Protocol
36. SVC	Scalable Video Coding
37. TCP	Transmission Control Protocol
38. UDP	User Datagram Protocol
39. UPnP	Universal Plug and Play
40. VMS	Video Management System
41. WB	White Balance
42. WDR	Wide Dynamic Range

## 1.3 Certifications, Standards and Ratings

### A. Reference Standards

1. EMC
  - a. FCC
    - i. 47 CFR Part 15, Subpart B
  - b. CE-EMC
    - ii. IEC/EN 61000-3-2:2014
    - iii. IEC/EN 61000-3-3:2013
    - iv. IEC/EN 55032:2015
    - v. IEC/EN 50130-4:2011+A1:2014
  - c. RCM
    - i. AS/NZS CISPR 32:2015
  - d. IC
    - i. ICES-003: Issue 6, 2016
  - e. KC
    - i. KN 32: 2015
    - ii. KN 35: 2015
2. Safety
  - a. UL
    - i. UL/cUL 60950-1
  - b. CB
    - i. IEC 60950-1:2005 + Am 1:2009 + Am 2:2013
  - c. CE-LVD

- i. EN 60950-1:2005 + Am 1:2009 + Am 2:2013
  - d. BIS
    - i. IS 13252(Part 1):2010+A1:2013+A2:2015
- 3. Sustainability
  - a. RoHS: 2011/65/EU
  - b. WEEE: 2012/19/EU
  - c. Reach: Regulation (EC) No 1907/2006
- 4. Mechanical Standards
  - a. IK10: IEC 62262:2002
  - b. IP67: IEC 60529-2013
  - c. NEMA 4X: NEMA 250-2014 (Only DS-2CD5A46G0-IZ(H)SY supports)

## 1.4 Submittals

### A. Product Data

- 1. Manufacturer's hard (physical) or soft (electronic) datasheets
- 2. Installation and operating manuals for any and all equipment required for a VMS (Video Management System)
- 3. Manufacturer's warranty documentation

## 1.5 Qualifications

### A. Requirements

- 1. This product shall be manufactured by an enterprise whose quality systems are in direct compliance with ISO-9001 protocols.
- 2. All system components shall be carefully tested and proven in actual use. Comprehensive repair and spare parts shall be given, for which the manufacturer shall provide warranty.
- 3. All systems and components used must be in compliance with requirements listed in Section 1.3.A.
- 4. All installations, integration, testing, programming, system commission, and related work shall be done by installers who are trained, authorized, and certified by the manufacturer.

## 1.6 Delivery, Storage and Handling

### A. Delivery

- 1. The camera shall be delivered in the Manufacturer's unique, sealed, undamaged package.
- 2. Any and all identification labels shall remain intact.

### B. Storage and Handling

- 1. The camera shall be protected from mechanical and environmental conditions as designated by the manufacturer.

## 1.7 Warranty and Support

### A. Warranty Agreement

- 1. The manufacturer provides a limited three-year warranty which guarantees the product to be free of any defects in workmanship or material.
- 2. The manufacturer, either by dealer incentives or additional cost, shall have partner programs in place which can extend the warranty period.

### B. Spares and Repairs

- 1. Spare parts, as well as comprehensive repair parts shall be included for all systems and components.

2. The spare and repair parts, both of warranty and non-warranty items, shall be guaranteed by the manufacturer.

**END OF SECTION**

## **Part 2 Product:**

### **2.1 Manufacturer**

#### **A. Manufacturer:**

Hangzhou Hikvision Digital Technology Co. Ltd.  
Qianmo Road 555, Binjiang District, Hangzhou  
310052, China  
Phone: +86-571-8807-5998 | Fax: +86-571-8993-5635  
Web: [www.hikvision.com](http://www.hikvision.com)

- #### **B. DS-2CD5A46G0-IZ(H)S (2.8 to 12 mm), DS-2CD5A46G0-IZ(H)S (8 to 32 mm), DS-2CD5A46G1-IZ(H)S (2.8 to 12 mm), DS-2CD5A46G1-IZ(H)S (8 to 32 mm), DS-2CD5A46G0-IZ(H)SY (2.8 to 12 mm)**

### **2.2 Product Description**

#### **A. 4 MP VF Bullet Network Camera with the following significant characteristics:**

1. The camera shall provide up to 4 MP High Resolution (2560 x 1440) in 1/1.8" progressive scan CMOS format with a frame rate of up to 30 fps.
2. The camera shall have an angle adjustment of Pan: 0° to 355°, tilt: 0° to 90° rotate: 0° to 360°.
3. The camera shall have a lens focal length of 2.8 to 12mm (Motorized Lens) with an aperture of f/1.2 to f/2.5. 2.8 to 12mm Integrated Lens Mount: A horizontal field of view of 109.2° to 38.9°, a vertical field of view of 56.2° to 21.9°, and a diagonal field of view of 134.5° to 45°.
4. The camera shall have a lens focal length of 8 to 32mm (Motorized Lens) with an aperture of f/1.8. 8 to 32mm Integrated Lens Mount: A horizontal field of view of 37.7° to 15.2°, a vertical field of view of 21° to 8.6°, and a diagonal field of view of 43.4° to 17.24°. (Only DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G0-IZ(H)SY support 8 to 32 mm lens.)
5. The camera shall have a focus that is auto, semi-auto, and manual.
6. The camera shall have an IR range of up to 165 ft. (50m) for 2.8 to 12mm lens. IR range of up to 330 ft. (100m) for 8 to 32mm lens. (Only DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G0-IZ(H)SY support 8 to 32 mm lens.)

#### **B. Imaging**

1. Minimum illumination
  - a. Color 0.002 lux at f/1.2, 0.005 lux at f/1.8, 0 lux with IR
2. Illuminator
  - a. 850 nm IR LED illuminator
  - b. Effective distance up to 50 meters in 2.8 to 12 mm focal range
  - c. Effective distance up to 100 meters in 8 to 32 mm focal range
  - d. The IR LEDs on camera should support Smart IR function to automatically adjust power to avoid image overexposure.
3. Lens and sensor
  - a. The camera shall provide up to 4 MP resolution (2560 × 1440) with 1/1.8" progressive scan CMOS format.
  - b. The camera should be equipped with a motorized lens (integrated lens mount) with optional focal length of 2.8 mm to 12 mm or 8 mm to 32 mm. (Only DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G0-IZ(H)SY support 8 to 32 mm lens.)

- c. For the camera with 2.8-12 mm lens, the field of view shall be horizontal 109.2° to 38.9°, vertical 56.2° to 21.9°, diagonal 134.5° to 45°.
  - d. For the camera with 8-32 mm lens, the field of view shall be horizontal 37.7° to 15.2°, vertical 21° to 8.6°, diagonal 43.4° to 17.24°. (Only DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G0-IZ(H)SY support 8 to 32 mm lens.)
  - e. For the 8 mm to 32 mm model, the lens shall be constant f/1.8 throughout the zoom range. For the 2.8 mm to 12 mm model, the aperture should be f/1.2 to f/2.5.
  - f. The camera shall support 3 focus control modes, auto, semi-auto, and manual.
  - g. The camera should support rapid focus technology to keep the image clear during the zooming process by predicting the zooming position.
  - h. The ICR should contain a blue glass module, which can greatly reduce ghost phenomenon.
4. Image processing
- a. The “Shutter Speed” of the camera shall be 1 s to 1/100,000 s.
  - b. The camera shall support wide dynamic range up to 140 dB.
  - c. When true WDR is on, the camera shall have the ability to provide maximum resolution of 2560 × 1440 @ 30fps.
  - d. The camera shall have image day/night switch via ICR. Five switch modes are available, staying at night, staying at day, auto switch, scheduled switch and triggering by alarm input. For auto switch, sensitivity level is selectable from 0 to 7.
  - e. Image parameters shall be adjustable on brightness, contrast, saturation, and sharpness.
  - f. The camera shall have Backlight Compensation (BLC) with configurable BLC area.
  - g. The camera shall have Highlight Compensation (HLC).
  - h. The camera shall provide digital noise reduction with selectable noise reduction level from 0 to 100 in normal mode and configurable spatial and temporal DNR level in expert mode.
  - i. The camera shall provide defog function to enhance image in foggy weather.
  - j. The camera shall support Electronic Image Stabilization (EIS).
  - k. The camera shall provide selectable white balance modes, including Auto, MWB, Outdoor, Indoor, Fluorescent Lamp, ATW, and Sodium Lamp.
  - l. Image mirror shall be supported.
  - m. The camera shall feature selectable 50/60 Hz flicker control/reduction.
  - n. The camera shall have the ability to overlay a picture (128 × 128, 24 bit, bmp format) on image.
  - o. The camera shall provide lens distortion correction for image distortion.
  - p. The camera shall offer privacy mask to block privacy areas on live image, 4 masks available.

### C. Events and Smart Features

1. Camera shall support events such as:
  - a. Line Crossing Detection – detects action of crossing a straight line of any length with detection of crossing from A to B, B to A, or A to/from B. Up to four lines supported.
  - b. Intrusion Detection – detects action of intruding a four sided polygon region of irregular shape, size, and placement. Up to four regions are supported.
  - c. Region Entrance Detection – detects actions of entering a four sided polygon region of irregular shape, size, and placement. Up to four regions are supported.
  - d. Region Exiting Detections – detects actions of leaving a four sided polygon region of irregular shape, size, and placement. Up to four regions are supported.

- e. Unattended Baggage Detection – detects objects left over in a pre-defined region such as the baggage, purse, and dangerous materials. Up to four regions are supported.
  - f. Object Removal Detection – detects objects removed from a pre-defined region, such as the exhibits on display. Up to four regions are supported.
  - g. Audio Exception – monitors sudden audio increase/decrease and audio loss. This requires connection and configuration of optional external microphone. (Only DS-2CD5A46G1-IZ(H)S supports)
  - h. Motion Detection – user-defined areas and configurable sensitivity levels in normal mode and additional image settings switch in expert mode.
  - i. Face Detection – detects and frames face on live image, and upload image.
  - j. Video Tampering – Video changed in the configured area in image.
  - k. Scene Change Detection – detect camera scene change
  - l. Defocus Detection – detects defocus of the camera
  - m. Exception – HDD full, HDD error, network disconnected, IP address conflicted, and illegal login
  - n. The camera should support all the events at same time, including line crossing, intrusion, region entrance, region exiting, unattended baggage detection, object removal detection, scene change detection, defocus detection.
2. The camera shall have the ability to count objects that crosses a pre-defined line, and display real-time data of entering and exiting.
  3. The camera shall have the ability to detect, and select best human faces, and upload face images with background.
  4. The camera shall provide arming schedule settings for events and linkage actions settings as response to detected actions.
  5. The camera shall provide linkage actions as sending email, notifying surveillance center, uploading to FTP/memory card/NAS, triggering channel recording, etc. Some of which may not be supported by certain events.
    - a. Send Email – Alarm information is sent to a configured email recipient.
    - b. Upload to FTP/Memory Card/NAS – Captured picture is sent to a configured FTP server, mounted local memory card, or configured NAS.
    - c. Notify Surveillance Center – Alarm information is sent to the surveillance center (PC or mobile client software)
    - d. Alarm Output – Send alarm signal to external devices.
    - e. Trigger Channel Recording – Trigger camera to record a video.
  6. The camera shall have Dual-VCA function. VCA information can be written in streams, and back-end devices can search for video clips contain specified type of events.
  7. Metadata
    - a. The camera should be able to provide metadata, which provides the ability to support the function of quick retrieving the relevant images from abundant video data in the backend device.
    - b. The metadata should support events including intrusion detection, line crossing, intrusion, region entrance/exit, unattended baggage detection, and object removal detection.

#### **D. Video & Audio**

1. The camera shall offer 5 defined video streams and up to 5 custom streams.
2. Compression



- a. Main stream: H.265, H.265+, H.264, H.264+
  - b. Sub stream: H.265, H.264, MJPEG
  - c. Third stream: H.265, H.264, MJPEG
  - d. Fourth stream: H.265, H.264, MJPEG
  - e. fifth stream: H.265, H.264, MJPEG
  - f. Custom stream: H.265, H.264, MJPEG
3. Streams
- a. Main stream:
    - 50Hz: 25fps (2560 × 1440, 1920 × 1080, 1280 × 720)
    - 60Hz: 30fps (2560 × 1440, 1920 × 1080, 1280 × 720)
  - b. Sub stream:
    - 50Hz: 25fps (704 × 576, 640 × 480)
    - 60Hz: 30fps (704 × 480, 640 × 480)
  - c. Third stream:
    - 50Hz: 25fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)
    - 60Hz: 30fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)
  - d. Fourth stream:
    - 50Hz: 25fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)
    - 60Hz: 30fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)
  - e. Fifth stream:
    - 50Hz: 25fps (704 × 576, 640 × 480)
    - 60Hz: 30fps (704 × 480, 640 × 480)
  - f. Custom stream:
    - 50Hz: 25fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)
    - 60Hz: 30fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)
4. H.264 and H.264+
- a. Baseline profile, main profile and high profile (H.264)
  - b. H.264+ is available for main stream
5. H.265 and H.265+
- a. Main profile (H.265)
  - b. H.265+ is available for main stream
6. The video stream bit range shall be in the range of 32 kbps to 16 mbps.
7. The camera shall provide constant and variable bit rate control.
8. Scalable Video Coding (SVC) shall be supported when H.264 or H.265 is used. With SVC on, the camera should be able to extract frames from the original video when the network bandwidth is insufficient.
9. The camera shall support audio in/out, mono sound track (Only DS-2CD5A46G1-IZ(H)S supports audio function.)
10. The camera shall provide audio function with compression standards of G.711 (64 kbps), G.722.1 (16 kbps), G.726 (16 kbps), MP2L2 (32 to 192 kbps), and PCM. (Only DS-2CD5A46G1-IZ(H)S supports audio function.)
11. The sampling rate of the camera shall be 8 kHz/16 kHz/32 kHz/44.1 kHz/48 kHz. (Only DS-2CD5A46G1-IZ(H)S supports audio function.)
12. The camera shall have environment noise filter to improve audio quality. (Only DS-2CD5A46G1-IZ(H)S supports audio function.)
13. ROI

- a. The camera shall provide Region of Interest (ROI) encoding with 4 configurable fixed areas for each stream, that is 20 in total, and dynamic face tracking.
- b. The ROI areas are encoded with better image quality than the background.
- 14. The camera shall support target cropping to cut and stream selected part of the full size image.
- 15. The camera shall have the ability to support 20 simultaneous live view.
- 16. The camera shall have smooth streaming function to improve streaming quality. Three modes are available, auto, resolution priority and error correction. In auto and resolution priority modes, bit rate and resolution are automatically adjusted to ensure streaming quality when network is poor. Error correction mode is used to correct data error and packet loss when bandwidth is sufficient.

## **E. Network**

- 1. Following network protocol shall be supported:  
TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP™, SMTP, SNMP, IGMP, 802.1X, QoS, IPv6, UDP, Bonjour™, SSL/TLS
- 2. Security
  - a. User permission control to assign different permissions to different user levels. Three user levels are available: admin, operator and user.
  - b. IP address filtering to block or allow certain IP addresses.
  - c. Password protected access not dependent on a server.
  - d. Secure activation for the first time access.
  - e. Video stream watermark.
  - f. RTSP and web authentication: digest and basic/digest
  - g. Illegal login lock to limit failed login attempts.
  - h. End-device access control via EAP-TLS1.2. Only permitted device can access to the video surveillance network to avoid the risky access of unknown devices.
  - i. The video streams can be encrypted via RTP over HTTPS, AES128 and AES256 are supported.
  - j. Signaling is encrypted via HTTP in transmission link, AES128 and AES256 are supported.
  - k. The camera chip shall have a security boot mechanism and a hardware encryption module to generate a unique encrypted root key to enhance chip safety.
  - l. The camera supports security audit log function and can record security operations. The camera stores the logs without memory card and the log cannot be modified. If it is used together with the platform, the system can store logs of six months.
- 3. System compatibility
  - a. Onvif profile G and profile S
  - b. ISAPI
  - c. SDK
- 4. Network storage
  - a. NAS (NFS, SMB/CIFS)
  - b. Auto Network Replenishment (ANR) for recording

## **F. System**

- 1. The camera support web browser and client software access:
  - a. Plug-in required web browser: IE8+, Chrome 41.0-44, Firefox30.0-51, Safari8.0-11
  - b. Plug-in free web browser: Chrome45.0+, Firefox52.0+
  - c. Client software: iVMS-4200, Hik-Connect, Hik-Central
- 2. The camera shall support up to 32 users with 3 user levels (admin, operator and user).

3. The camera shall provide 32 language options for web browser access: English, Russian, Estonian, Bulgarian, Hungarian, Greek, German, Italian, Czech, Slovak, French, Polish, Dutch, Portuguese, Spanish, Romanian, Danish, Swedish, Norwegian, Finnish, Croatian, Slovenian, Serbian, Turkish, Korean, Traditional Chinese, Thai, Vietnamese, Japanese, Latvian, Lithuanian, Portuguese (Brazil)
4. The camera should support file system backup for the firmware to ensure the stable device running in case of the abrupt power shut down or network interruption during upgrading.
5. The camera shall support heartbeat function to allow the connected device or software to acquire camera status.
6. The camera shall provide reset button on camera body and in client software to restore device the parameters.
7. The camera shall offer embedded open platform function to install and run up to 4 extra applications.

## G. Physical

1. The camera shall support lens angle adjustment: pan 355°, tilt 90°, and rotate 360°.
2. The camera shall have a built-in memory card slot, available for microSD/SDHC/SDXC memory card, capacity up to 256 GB.
3. Interfaces:
  - a. 1 RJ-45 10/100M/1000M Ethernet port
  - b. 1 RS-485 (half duplex, HIKVISION, Pelco-P, Pelco-D, self- adaptive) (Only DS-2CD5A46G1-IZ(H)S supports)
  - c. Audio: 1-ch audio in (line in) and 1-ch audio out (line out), 3.5 mm connector. (Only DS-2CD5A46G1-IZ(H)S supports)
  - d. Alarm: 2-ch alarm in and 2-ch alarm out (max. 24 VDC/VAC, max. 1A)
  - e. Power output for external devices: 12 VDC, 200mA (Only DS-2CD5A46G1-IZ(H)S supports)
  - f. Socket-style interface. It can reduce working hour spent on tidying up cables. (Only DS-2CD5A46G0-IZ(H)S supports)
4. Power supply:
  - a. DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G0-IZ(H)SY: 12 VDC  $\pm$  20%, two-core terminal block, Reverse polarity protection, PoE (802.3at, class 4)
  - b. DS-2CD5A46G1-IZ(H)S: 12 VDC  $\pm$  20%, three-core terminal block, Reverse polarity protection, PoE (802.3at, class 4)
5. Power Consumption and Current:
  - a. DS-2CD5A46G0-IZ(H)S:
    - IZS: 12 VDC, 1.08 A, max. 13 W; PoE (802.3at, 42.5 V to 57 V), 0.31 A to 0.23 A, max. 13 W
    - IZHS: 12 VDC, 1.13 A, max. 13.5 W; PoE (802.3at, 42.5 V to 57 V), 0.42 A to 0.32 A, max. 18 W
  - b. DS-2CD5A46G0-IZ(H)SY:
    - IZSY: 12 VDC, 1.0 A, max. 11 W; PoE (802.3at, class 4): 42.5 V to 57 V, 0.4 A to 0.2 A
    - IZHSY: 12 VDC, 1.2 A, max. 13.5 W; PoE (802.3at, class 4): 42.5 V to 57 V, 0.4 A to 0.3 A
  - c. DS-2CD5A46G1-IZ(H)S:
    - IZS:
      - With extra load: 12 VDC, 1.28 A, max. 15.4 W; PoE (802.3at, 42.5 V to 57 V), 0.36 A to 0.27 A, max. 15.4 W
      - Without extra load: 12 VDC, 1.08 A, max. 13 W; PoE (802.3at, 42.5 V to 57 V), 0.31 A to 0.23 A, max. 13 W

-IZHS:

With extra load: 12 VDC, 1.33 A, max. 15.9 W; PoE (802.3at, 42.5 V to 57 V), 0.50 A to 0.37 A, max. 21.2 W

Without extra load: 12 VDC, 1.13 A, max. 13.5 W; PoE (802.3at, 42.5 V to 57 V), 0.42 A to 0.32 A, max. 18 W

“with extra load” means that an extra device is connected to and powered by the camera.

6. Dimension

- a. Camera:  $\Phi 144 \times 347$  mm ( $\Phi 5.7'' \times 13.7''$ )
- b. With Package:  $405 \times 190 \times 180$  mm ( $15.9'' \times 7.5'' \times 7.1''$ )

7. Weight

- a. DS-2CD5A46G0-IZ(H)SY: Camera: approx. 2.20 kg (4.80 lb.), With Package: 2.70 kg (5.95 lb.)
- b. DS-2CD5A46G0-IZ(H)S: Camera: approx. 2.45 kg (5.40 lb.), With Package: 2.70 kg (5.95 lb.)
- c. DS-2CD5A46G1-IZ(H)S: Camera: approx. 1.85 kg (4.07 lb.), With Package: 2.95 kg (6.50 lb.)

8. Material

- a. Body: Metal

9. Environment

- a. Starting and Operating Temperature:  $-30^{\circ}\text{C}$  to  $65^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$  to  $149^{\circ}\text{F}$ ), -H:  $-40^{\circ}\text{C}$  to  $65^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $149^{\circ}\text{F}$ )
- b. Humidity: 95% or less (non-condensing)

**2.3 PC Requirement**

- A. Minimum PC** Intel® Core® 2 Duo Microprocessor, 2.6 GHz
- B. Screen Resolution** 1024 x 768 pixels or higher, 16-32-bit or 64-bit pixel color resolution

**2.4 Compatible Accessory**

**A. Bracket**

DS-2CD5A46G0-IZ(H)S and DS-2CD5A46G1-IZ(H)S:

- 1. Vertical mount: DS-1475ZJ-SUS
- 2. Corner mount: DS-1476ZJ-SUS

DS-2CD5A46G0-IZ(H)SY:

- 1. Vertical mount: DS-1475ZJ-Y
- 2. Corner mount: DS-1476ZJ-Y

**END OF SECTION**

## **Part 3 Execution**

### **3.1 Examination**

- A.** Inspect chosen area of installation prior to receiving devices and report any conditions that affect the installation process or any subsequent operation.
- B.** Please do not begin installation until all unacceptable conditions are rectified.

### **3.2 Preparation**

- A.** Devices packaged in such way to help prevent any damage during construction.

### **3.3 Installation**

- A.** Devices must be installed in accordance with the manufacturers' instructions provided, as well as instructions based off any indicated floor design specifications.
- B.** Location of installation must provide reasonable conditions for optimum device functionality. Temperature and humidity level conditions must be taken into consideration.
- C.** All installations must be performed with qualified service professionals only.
- D.** All devices must be installed in accordance with the National Electric Code or applicable local codes.
- E.** Ensure location of installation provides a minimum possibility of accidental damage.

### **3.4 Field Quality control**

- A.** Assess the compatibility of mounting screws for all equipment to be installed.
- B.** Make sure all video systems are tested properly and meet standard operational requirements.
- C.** Define, conclude, and report all issues with equipment to the manufacturers' customer service representatives.

### **3.5 Adjusting**

- A.** Execute the necessary modifications to the Video Management System for proper operation in accordance with the instructions provided by the manufacturer.
- B.** Ensure the customers unique requirements are reflected in the camera settings.

### **3.6 Demonstration**

- A.** Upon final inspection, validate the video solutions system and its device functions correctly.

## **END OF SECTION**