

A&E Specifications

RoadRunner 4K™ High Definition Mobile Recording System

Version 1.0

A. Recorder:

1. The system shall be provided in compatible and interchangeable formats that support simultaneous recording of up to four (4), eight (8), twelve (12), or up to sixteen (16) high definition cameras and an equal number of microphones (up to four (4), eight (8), twelve (12), or up to sixteen (16)).
2. The system shall support two additional audio channels capable of synchronizing to user-selectable cameras.
3. The Recorder shall support up to four (4), eight (8), twelve (12) or sixteen (16) standard analog cameras inputs with optional video encoder(s).
4. The Recorder shall provide PoE (Power over Ethernet) to high definition cameras directly with no additional hardware required.
5. The system shall be capable of recording all cameras at the highest resolution and quality at a minimum of 30 images per second per camera.
6. The Recorder shall be ruggedized and secure with lockable recording media without the need for an additional enclosure.
7. The system shall include a driver event switch that features a system status “heartbeat” style health indicator to provide visual confirmation that the system is operating properly.
8. The system shall be capable of simultaneous recording, playback and remote access allowing multiple users to review video without interruption of recording.
9. The system shall save the serial number of the hard disk drive to the system log in order to record and track the replacement of the recording media.
10. The system shall record onto a removable hard disk drive up to 8.0TB.
11. All storage shall be removable. Systems that move data between multiple storage devices shall not be acceptable.
12. Fully redundant removable RAID data packs shall be provided as an option. Redundant recording shall duplicate storage completely and shall include all cameras and entire storage duration.
13. The system shall record onto a removable hard disk drive equipped with a key lock to prevent tampering, and shall be ‘swappable’ for use in any same model Recorder, regardless of the number of cameras supported.
14. The system shall be capable of maintaining one (1) month of recorded high definition video at a rate of 30 images per second on every camera simultaneously on a single on-board drive.
15. The system shall be made entirely of new materials and shall be engineered and constructed with rugged materials to protect the system from environmental elements including shock, dust and humidity.
16. The Recorder shall be Mil-Spec Rated: STD-810F and SAE Rated: J1455 for vibration and shock and include a shock absorbing mounting kit.
17. The system shall be capable of configuring video quality, resolution and recording speed individually for each camera.

18. The Recorder shall record video in user adjustable resolution setting of U-HD (3840x2160), F-HD (1920x1080), HD 1280x720), W-D1 (864x480), Q-HD (640x360) or W-CIF (432x240).
19. The system shall not require defragmentation, maintenance or any other housekeeping operations that may interrupt recording when the vehicle ignition is powered on.
20. All recorded data shall be immediately available on the removable storage media; The system shall not require a waiting period or completion of any processes prior to obtaining access.
21. The recorder shall feature an eSATA port for virtually unlimited onboard storage options.
22. The system shall include an optional built-in heater for operating in temperatures as low as -20°F. Systems that require an additional enclosure to comply with this requirement are not acceptable.
23. The system shall have an optional hard disk player and software to allow for transferring of files directly from the HDD to a PC, where the images can be printed, emailed or saved onto another storage media.
24. The system shall feature a built-in 3-axis accelerometer capable of tagging video or sending alarm notification when the vehicle exceeds a pre-determined G-force setting.
25. The system shall be FCC approved and shall be powered by 12 or 24 VDC vehicle power supply connected by 12 gauge wire and protected from spikes, surges and reverse polarity operating between 9 and 36 VDC.
26. The Recorder shall meet the requirements of ISO 7637-2 “Electrical disturbances from conduction and coupling”. The Recorder shall provide regulated 12-volt power for all peripherals (up to 40 watts).
27. The Recorder shall have the option to remain operating for a pre-determined length of time after the vehicle power is terminated, up to twenty-four hours.
28. The system shall feature pre-event recording that allows the system to record up to five (5) minutes of video prior to system activation (manually, motion activation, etc.).
29. The system shall be capable of streaming live video to first responders through cellular or wireless LAN options.
30. The system shall feature a built-in GPS receiver.
31. The system shall be equipped with a minimum of two (2) USB ports to allow for exporting video clips using CDRW, HDD or USB flash memory. The Recorder shall include a functional Gigabit Ethernet port for system configuration and transmission of video using software over 802.11, LAN/WAN or cellular networks.
32. The system shall support geo-fencing to automate changes to the router / wireless LAN. The system shall automatically switch from AP mode to allow connection to supervisor or police vehicles while away from the facility, and switch to client mode to allow connection to facility wireless when the vehicle is within the vicinity of the facility.
33. The Recorder shall feature H.264 and H.265 “Main Profile” video compression for superior video quality, network performance and recording duration. “Constrained Baseline Profile” or “Baseline Profile” type H.264/H.265 is not acceptable.
34. The system shall be capable of on-board viewing, downloading and control via laptop using the included software.
35. The Recorder dimensions shall not exceed: 11.2” x 3.9” x 13.9” (WxHxD).
36. The Recorder shall be compatible with a facility-based Recorder system and allow for software interoperability between vehicle and facility recording systems.
37. Onboard system components shall be removable / replaceable as an entire component to minimize vehicle down times and simplify maintenance.

38. Proposers shall explain how IP cameras are set-up and configured for use during initial set up and for field replacement and/or adding additional cameras if needed at a later time.
39. Video clip samples shall be provided to display video quality recorded at the maximum recording quality and rate while maintaining on-board video on a single hard disk drive for ___ days, utilizing the hard disk drive specified in the base bid of this proposal.

B. Software / Firmware:

1. License-free software that is capable of live viewing, playback, calendar and event searches, and administration shall be provided at no extra cost, and shall be compatible with Windows® 7 and Windows® 8.
2. All future software updates for license-free software shall be included free of charge.
3. The software shall provide various levels of user access rights that allow and restrict access to various functions. The software shall feature 256 user passwords and 64 user groups.
4. When equipped with GPS, the system shall provide historical and live software mapping display routes of the vehicle location and speed charts.
5. When equipped with GPS, the system software shall be capable of connecting to pre-recorded video by selecting a point on the map or selecting a point on the speed chart to view from that speed or location.
6. To retrieve recorded video, the software shall provide searches by: event, time lapse, time and date, vehicle location and vehicle speed. Optional software shall allow for easy fleet-wide searches and wireless download of video based solely upon the date and a general map location.
7. The software shall display the current time and date on the video.
8. When events are detected, the unit shall display the event information and allow users to access the remote site directly to search the image associated with the event.
9. The included software shall allow the user to connect to multiple units simultaneously and allow for viewing a minimum of 64 camera views at one time. Optional management software shall feature secure, instant live access to simultaneously provide live viewing to multiple parties with no reduction in video quality or additional use of wireless bandwidth.
10. The system shall feature optional software for automated event video upload to a central server repository.
11. The system shall include optional software with advanced backend capabilities for automatic download of video clips and the ability to classify event video data.
12. The system shall feature optional software for large-scale remote viewing and admin functions for up to 256 simultaneous users and for viewing up to hundreds of camera views at one time.
13. The software shall allow for automated software upgrades and simultaneous updates to multiple sites.
14. Image adjustments, PTZ control and alarm out controls shall be administered utilizing the software.
15. The software shall be capable of synchronizing the time of all Recorder systems utilizing a “master Recorder” or to GPS time (if applicable). Daylight savings adjustments shall be automatic.
16. Software settings shall allow the system (when networked) to send email notification for any system event including video loss, camera obstruction, hard drive “full status”, etc. Optional software shall supply health information of the video system with error logs, reports and automatic notification for: video blind events, video loss events, disk errors, disk temperature events, fan errors, recorder

errors, disk almost full and disk S.M.A.R.T (Self-monitoring, analysis and reporting technology) events.

17. Software settings shall allow the system to send notification to the vehicle driver or external systems for any system event including video loss, camera obstruction, hard drive “full status”, etc. When networked, the system shall be capable of sending notification to a central location. Optional management software shall support fleet-wide email notification of system events as well as a fleet—wide health summary featuring camera and Recorder health reports.
18. Options for archiving/retrieving video shall include: Saving a video clip as a Windows Media Player (.avi) file, saving as an image (.bmp), or saving video as a self-executable format (.exe).
19. Video clips saved using the self-executable format (.exe) shall be encrypted and viewed without the use of any software, providing the ability to easily transfer secure video evidence.
20. Video clips shall include the option of viewing a single camera or multiple cameras on a single screen.
21. Executable video clips shall display GPS map location vehicle and speed upon playback and metadata from other onboard systems.
22. Video clips shall provide the option of saving a portion of the video clip (shorter in length and/or reducing the number of cameras) in order to make a smaller video clip from the original.
23. The software shall feature the option to archive video clips requiring a password for reviewing.

C. Management Software

1. Management software shall provide fleet-wide status reports, event logs, on-demand and automated video clip retrieval for easy fleet-wide video management.
2. Management software shall provide access to an unlimited number of users and feature multiple user access-levels with password protection to ensure system settings are secure.
3. Software licenses shall be provided on a per-vehicle basis, and shall include 36 months of maintenance (software updates) at no additional charge.
4. Software shall include both a client-based and web-based user interface options.
5. Users shall be capable of programming the software to automatically download video clips based on specific event types.
6. All data logs and video clips shall be available for viewing anytime (regardless of current connection status) once the video clip has been uploaded.
7. Users shall be capable of requesting download of custom video clips.
8. Video clips scheduled or manually requested shall automatically download when the vehicle connects to the network.
9. Software shall provide “connection status” to easily determine if a vehicle has not recently connected to the network.
10. The user shall be capable of requesting multiple video clips simultaneously from multiple sites.
11. Software shall provide chain of custody reports with a complete history of system and user actions associated with each video clip.
12. Users with granted permission rights shall be capable of classifying reviewed video clips to save to temporary or long-term storage or schedule for deletion.

13. Administrative users shall be capable of programming the software with an adjustable time period for storing the event log, temporary storage, long-term storage and deletion grace period (by which video clips are stored for a period time prior to deletion).
14. Video clips associated with error events may be requested for: review of the clip, review of the chain of custody report associated with the clip, preserving the clip in long-term storage and downloading/archiving the clip.
15. Management software shall include a recording log that displays each Recorder's total recording time and the number of recording segments to assist in diagnosing potential recording issues.
16. Management software shall be compatible with all Recorder systems proposed.
17. Software shall provide customizable categories that will allow users to classify video clips based upon pre-determined criteria.
18. Software shall support sorting of video clips based upon classification status.
19. A user tasked with categorizing clips shall be able to quickly locate video clips not yet classified.
20. Users shall be capable of inserting and saving notes or comments regarding a specific video clip to document essential data regarding a clip.
21. Management software shall allow users to view the last location of each vehicle in the fleet with a graphical map interface.
22. Search capabilities shall support the download of video clips by location in a specified time period – software shall upload video clips for all vehicles within the location and time parameters selected.
23. Management software shall provide secure video streaming capabilities.
24. Video streaming capabilities shall support on-demand live connectivity to multiple users without degradation of video quality.

D. HD Cameras:

1. All cameras shall utilize 48 volt PoE (Power over Ethernet), supplied from the Recorder.
2. Interior cameras shall be high definition, low light, IR Illuminating with a lux rating of 0.
3. Interior cameras shall be color with a built-in high sensitivity microphone.
4. Camera resolution setting options shall be U-HD (3840x2160), F-HD (1920x1080), HD (1280x720), W-D1 (864x480), Q-HD (640x360) or W-CIF (432x240).
5. Exterior cameras shall be impact and tamper-resistant and rated a minimum of IP66 for proven durability in exterior mobile applications.
6. Exterior cameras shall feature a UV coated dome for additional exterior protection.

E. Warranty, Service & Support:

1. All hardware shall include a warranty of two (2) years parts and labor.
2. Unlimited telephone and email technical support shall be provided at no additional charge for the life of the system.
3. Additional extended warranty and service contracts shall be available.