

## A&E Specifications

### RoadRunner In-Car Digital Video Systems

---

Version 3.0

1. The system hardware shall support up to 4 cameras.
2. The hardware shall support 2 independent audio channels.
3. The digital video recording system shall be capable of simultaneous recording and playback, allowing the user to review pre-recorded video without interruption of recording.
4. 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.
5. The Digital Video Recorder shall be Mil-Spec Rated: STD-810F and SAE Rated: J1455 for vibration and include a shock absorbing mounting kit.
6. Recording shall be done on a removable hard disk drive equipped with a key lock to prevent tampering, and shall be 'swappable' for use in any same model DVR.
7. The system shall record onto a removable hard disk drive with size options up to 4.0TB.
8. No videotapes or videotape recorders shall be used.
9. The DVR unit shall include a manufacturer's warranty of a minimum of 2 years parts and labor, all other items including hard disk drives, cameras, etc. shall be covered by a warranty of a minimum of 1 year.
10. The system shall be FCC approved and shall be powered by 12 or 24 VDC vehicle power supply connected by 14 gauge wire and protected from spikes, surges and reverse polarity operating between a range of 9 to 30 VDC.
11. The DVR shall meet the requirements of ISO 7637-2 "Electrical disturbances from conduction and coupling". Power to 12-volt cameras shall be provided directly from the DVR unit.
12. The DVR shall have the option to remain operating for a pre-determined length of time after the vehicle power is terminated, up to 60 minutes.
13. The system shall feature pre-event recording that allows the system to record up to 5 minutes of video prior to system activation (manually, activation of overhead lights, audio, etc.).
14. The DVR shall not exceed the dimensions: 11.8" x 4.8" x 14.6" (WxHxD) and shall not exceed 19lbs in weight.
15. The system shall have a minimum recording and playback rate of 30 images per second per camera and shall be capable of recording and playback of each individual camera at 30 images per second.
16. The system shall be capable of storing a minimum of 750 hours of evidence-quality video at 30 IPS on a single in-car hard disk drive without overwriting or requiring the transfer of video.

17. The DVR shall feature H.264 video compression for superior video quality, recording duration and optimal network performance.
18. The system shall be equipped with two (2) USB ports to allow for exporting video clips using CDRW, HDD or USB flash memory.
19. Video clips shall be secured from tampering using proprietary chained-frame watermarking with each individual frame featuring 128-bit encryption.
20. The software shall include an option for exporting video clips in password-protected watermarked and encrypted file.
21. 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® XP, Vista and Windows® 7.
22. The included software shall feature automatic scheduled health system checks and fleet-wide programming and updates.
23. The DVR shall include a functional Ethernet port for system configuration and transmission of video using the Remote Administrative Software over 802.11, LAN/WAN or cellular networks.
24. Software shall provide a remote monitoring function for video images in real time from single or multiple sites.
25. The Software shall feature automatic email notification for events, camera obstructions and notification of user-defined HDD full status (in percentages).
26. 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.
27. The included Software shall allow access to up to 256 cameras from up to 64 vehicles simultaneously.
28. All functions of the Software shall be password protected.
29. Any future software upgrades shall be provide free of cost.
30. The Software shall allow for automated software upgrades and simultaneous updates to multiple sites.
31. The Software shall allow for fleet-wide time synchronization through GPS time or a utilizing a "master DVR".
32. To retrieve recorded video, the software shall allow for searches by: Event, Time Lapse, or Time & Date.
33. The system shall feature an optional GPS interface that features integrated mapping and speed charts which feature a graphical display for selecting video playback from historical mapping and speed.
34. Image adjustments, PTZ control and alarm out controls shall be administered through the included Software.

35. Options for archiving/retrieving video shall include: Saving a video clip as an AVI file, saving as an image (JPEG, BMP), or saving video as a self-executable format (.exe)
36. Video clips saved using the self-executable format (.exe) shall be watermarked, encrypted and should be viewed without using any additional software, to allow for easy transferring of video evidence.
37. The system shall be capable of in-vehicle viewing and control via laptop computer using the included Software. The system shall include an optional driver control panel and 7" LCD screen for on board display and control without using a laptop.
38. The system shall have an optional hard disk player and software to allow for transferring of files directly from the hard disk drive to a PC, where the images can be printed, emailed or saved onto another storage media.
39. An optional rear passenger compartment camera shall include a microphone for audio recording inside the vehicle. The second camera shall be equipped with IR illumination for viewing in dark conditions and a minimum lux rating of .01.
40. The system shall include an optional 40 Channel 2.4Ghz wireless audio kit with a minimum operating range of 800ft.
41. The system shall not use or require servers for primary storage.