

Mobile Video System Specification

Live View Driver Behavior & 3-Axis Accelerometer w/GPS

1-4 Camera Video Solution w/100% Solid State Drive

Camera:

- Horizontal Resolution must be at least 600 TV Line (NTSC)
- **Horizontal Resolution less than 600 TV Line (NTSC) is not acceptable.**
- All cameras must be adjustable on 3-axis; for pan, tilt & level (Level meaning camera image must be rotatable 360 degrees to compensate for uneven mounted surfaces without having image unlevel on playback) so they can be moved or angled to match varied bus configurations.
- **Cameras that are not 3-axis adjustable for pan, tilt & level are not acceptable (Level meaning camera image must be rotatable 360 degrees to compensate for uneven mounted surfaces without having image unlevel on playback).**
- Hi-Security cameras are required incorporating heavy-duty cast or extruded metal case, capable of withstanding impact by hand, book or shoe without damage to prevent costly replacement and service when vandalized. Eggshell thin pressed sheet metal cases that can be destroyed by a single blow from a child's hand are not acceptable.
- **Camera cases that are not cast metal or extruded metal is unacceptable.**
- Hi-Security dome or turret type cameras must incorporate security type setscrews that lock down the rotating camera ball to make any camera view secure.
- **Dome or turret type cameras without locking security type set screws preventing cameras being bumped out of alignment are not acceptable.**
- Hi quality audio is essential for comprehensive liability protection, so inadequate volume can create a problem during application and use. Cameras must incorporate an audio gain amplifier circuit with a user adjustable potentiometer, to insure audio gain can be specifically set for each camera.
- **Cameras that do not incorporate an audio gain amplifier circuit with a user adjustable potentiometer; to insure audio gain can be specifically set for each camera is not acceptable.**
- Night vision via at least 23 built-in High Intensity Infra-Red Illuminating LEDs to prevent them from vandalism is required. External IR LED clusters are an easy target for vandals, and a poor substitution for a well-designed night vision camera suitable for school bus applications. High Intensity IR LEDs will glow Red when they switch on in low light offering clear
- **Cameras that do not have at least 23 built-in Infra-Red LED illumination to illuminate the entire bus, cannot record in total darkness are not acceptable.**
- Hi quality audio is a must in mobile video systems, so built in microphones are required with all cameras.
- **Cameras without built in microphones are not acceptable.**
- Ultra Hi-intensity Infra Red LEDs not only provide greater low light illumination, but the glowing red LEDs of ultra hi-intensity LEDs provide a constant reminder that the cameras are functional to passengers who cannot read the warning decals in low light environments.

- Cameras without Ultra Hi-intensity Infra Red LEDs that do not glow red in low light and do not provide clear visible indication the cameras are functional to passengers who cannot read the warning decals in low light environments are not acceptable.
- Each camera frame rate will be customer variable from 1-30 fps.
- Systems that share camera frame rates and cannot provide 30 fps per camera are not acceptable.
- Cameras must have 2- part lens assembly in order to provide a separate lens over the camera, and a different lens over the Infra Red LEDs, which are separated by physical mechanism, to avoid “ghosting”, a common refraction of LEDs that can cause a fog in the recorded images, common when cameras and LEDs share a common single piece lens.
- Cameras must have 2-piece lens assembly in order to provide a separate lens over the camera, and a different lens over the Infra Red LEDs, which are separated by physical mechanism, are not acceptable.
- NO Propriety Camera Cable Connectors; Cameras must incorporate industry standard CCTV connections of; Video-BNC, Audio-RCA & Power-2.1mm DC barrel plug to insure wide selection and future availability of cameras.
- Cameras incorporating Propriety Camera Cable Connectors, without industry standard CCTV connections of; Video-BNC, Audio-RCA & Power-2.1mm DC barrel plug are not acceptable.
- Cameras 10-Year Extended Warranty must be available to assure that customers interested can get 10-Year warranty on the entire system.
- Cameras not offering 10-Year Extended Warranty option to assure that customers interested can get 10-Year warranty on the entire system are not acceptable.

The DVR:

- DVRs with internal SIM card bay to support 3G/4G Cellular remote access is required.
- DVRs that do not incorporate internal SIM card bay to support 3G/4G Cellular remote access are not acceptable.
- DVRs with H.264 compression is required to expedite file transfer speed.
- DVRs that do not incorporate H.264 compression are not acceptable.
- DVR video files stored to Secure Drive Extended Capacity (SDXC) card, with DVR support up to 128 GB SDXC memory capacity required.
- DVR video files not stored to Secure Drive Extended Capacity (SDXC) card with DVR support up to 128 GB SDXC are not acceptable.
- Active event trigger with audio alerts to let drivers know they are exceeding safety parameters are required.
- DVRs that do not incorporate " active event trigger with audio alerts to let drivers know they are exceeding safety parameters" are not acceptable.
- Active over speed trigger with audio alerts to let drivers know they are exceeding safe speeds are required.
- DVRs that do not incorporate "Active over speed trigger with audio alerts to let drivers know they are exceeding safe speeds" are not acceptable.

- DVR must offer fixed board/housing conventional configuration, for assured frame/board contact integrity with no slide-in boards are required.
- DVRs without "Fixed board/housing conventional configuration, for assured frame/board contact integrity with no slide-in boards" that could increase failure rates are not acceptable.
- DVR operation system must be Linux to insure rock solid dependability.
- DVRs that do not provide the Linux operating system are not acceptable.
- DVR must offer Eco Driving behavior settings that can target and affect through active alerts "Increased MPG of up to 25%", if desired by the customer, must be possible through settings to enable the user to select Eco Driving parameters that can enhance driver awareness of unnecessary wasted fuel driving behaviors, and provide them active alerts when they continue to drive in a manner that wastes fuel and reduces MPG.
- DVRs that cannot target and affect through active alerts Eco Driving behavior in order to "Increased MPG of up to 25%", are not acceptable.
- DVR must offer Eco Driving behavior settings that can target and affect through active alerts "Pollution Reduction up to 20%", if desired by the customer, must be possible through settings to enable the user to select Eco Driving parameters that can enhance driver awareness of up to 20% unnecessary pollution they are causing by their poor driving behaviors, and provide them active alerts when they continue to cause unnecessary pollution.
- DVRs that cannot target and affect through active alerts of Eco Driving behaviors to offer "Pollution Reduction up to 20%", are not acceptable.
- DVR must incorporate a processor capable of recording D1 resolution on all 4 channels simultaneously, with at least 30 frames per channel, to provide fluid motion playback.
- DVR that do not incorporate a processor capable of recording D1 resolution on all 4 channels simultaneously, with at least 30 frames per channel, are not acceptable.
- DVR must incorporate a fully functional GPS Time Synchronization & automatic Daylight Savings Time (DST) function of the DVR programming, so the customer is not constantly bothered with marinating the time of the unit during DST time changes.
- DVR without a fully functional GPS Time Synchronization & automatic Daylight Savings Time (DST) function of the DVR are not acceptable.
- DVR must incorporate a USB2 port for the option of external video file storage if necessary.
- DVR that are not provided with a USB2 port for the option of external video file storage are not acceptable.
- DVR must be provided with a LAN port on the face of the DVR for setup via PC.
- DVR that are not provided with a LAN port on the face of the DVR for setup via PC are not acceptable.
- DVR must be capable of providing AVI file type for customer cross platform viewing, without the need for propriety Player Software, with AVI Video Files viewable on 3rd Party Players like VLC media player, Storm Player & Windows Media Player v12 (WMP).
- DVR that cannot provide AVI Video Files viewable on 3rd Party Players like VLC media player, Storm Player & Windows Media Player v12 (WMP) are not acceptable.
- DVR must be provided with selectable Motion Detection that permits conservation of memory if no vehicle activity sensed.
- DVR that do not offer Motion Detection that permits conservation of memory if no vehicle activity sensed are not acceptable.

- DVR must be cross platform compatible for customer video file playback on Windows XP, Vista, 7, as well as Apple Mac OSX, without the Apple Mac OSX requiring any Microsoft Windows OS emulation software.
- DVR that are not cross platform compatible for customer video file playback on Windows XP, Vista, 7, as well as Apple Mac OSX, without the Apple Mac OSX requiring any Microsoft Windows OS emulation software are not acceptable.
- DVR must offer a Driver Event Marker Button with; selectable Pre-event and Post-event times, plus DVR status indication via LEDs so the driver can monitor DVR status when the DVR is mounted in a remoter or unseen location.
- DVR that do not offer a Driver Event Marker Button with; selectable Pre-event and Post-event times, plus DVR status indication via LEDs so the driver can monitor DVR status when the DVR is mounted in a remoter or unseen location are not acceptable.
- DVR must be provided with a steel cage or lockbox of some sort that restricts access to the SD card with a key lock.
- DVR that are not provided with a steel cage or lockbox of some sort that restricts access to the SD card with a key lock are not acceptable.
- DVR Remote must have luminous buttons on the remote to permit user visual identification of remote keys in low or no light.
- DVR lacking remotes with luminous buttons on the remote to permit user visual identification of remote keys in low or no light are not acceptable.
- DVR must offer at least 4 external wired status lines for documenting events.
- DVR that do not offer at least 4 external wired status lines for documenting events are not acceptable.
- DVR resolution must offer extreme high quality image resolution of 1248x832 (NTSC)
- DVRs not offering extreme high quality image resolution of 1248x832 (NTSC) are not acceptable.
- 100% Solid State Drive (SD card based) is required to eliminate future district budgets expenditures on fragile hard drives wearing out and crashing, and insure a long lasting dependable digital memory based system.
- DVRs that do not have a 100% Solid State Drive SD card drives, are not acceptable.
- Footprint of the DVR including steel cage or lockbox must be no larger than: 6" L x 3.8"W x 1"H.
- DVRs with a footprint including steel cage or lockbox must be no larger than: 6" L x 3.8"W x 1"H are not acceptable.
- Mosaic "Blurring" feature integrated within provided Video Player software offering a minimum of 4-16 zones must be provided to protect the identity of non involved children.
- DVRs with a footprint including steel cage or lockbox must be no larger than: 6" L x 3.8"W x 1"H are not acceptable.
- 10-Year Extended Warranty must be available to assure that customers interested can get 10-Year warranty on the entire system.
- DVRs not offering 10-Year Extended Warranty must be available to assure that customers interested can get 10-Year warranty on the entire system are not acceptable.
- DVR must qualify for DVR Technology Trade-in Upgrade eligibility up to 10 years after date of sale, providing new DVR technology at 50% discount with trade-in or old, outdated or non-functional DVRs.

- DVRs not offering DVR Technology Trade-in Upgrade eligibility up to 10 years after date of sale, providing new DVR technology at 50% discount with trade-in or old, outdated or non-functional DVRs are not acceptable.

GPS Speed, On Screen Mapping

- DVR must have built in GPS module for speed and on screen mapping using Google Earth is required.
- External GPS module, or any system using non Google Earth mapping is not acceptable.
- Passive GPS speed and location must be built in on all DVRs at the time of purchase. The systems will not require service connections, service fees or use charges and will be passive in nature.
- DVRs that do not offer passive GPS at the time of purchase built into the DVR, or charge fees to the district for setup service or use are not acceptable.
- On Screen Mapping must be software derived without the need for any additional hardware on all GPS equipped DVR.
- On Screen Mapping on GPS equipped DVRs that are not software driven, and requires any additional hardware, is not acceptable.
- On Screen Mapping may not consume a valuable video channel on the DVR. A 4 channel DVR must be capable of displaying and playing back 4 camera inputs simultaneously and still showing the On Screen Mapping feature.
- GPS equipped DVRs with On Screen Mapping that consume a valuable video channel, or cycles between them are not acceptable.
- On Screen mapping must update maps automatically from the source every year those maps are updated, so customers do not get stuck with outdated maps. Meaning there cannot be any customer required action, effort or expense at all when maps are updated, including empty promises to have someone come out and update them when needed.
- Systems that require any customer interaction, effort, bother or expense to update their On Screen Mapping map files are not acceptable.

3-Axis G Sensor

- 3-Axis "G Sensor" must be built into every DVR, not an external dongle device, to detect impact, trigger "Crash" event or provide trigger for 3G cellular alert to the system administrator.
- DVRs that do not offer 3-Axis "G Sensor" as a built in feature of the DVR, are not acceptable.
- 3-Axis "G Sensor" must be user programmable for separate X,Y & Z thresholds of inertia.
- DVRs that do not offer 3-Axis "G Sensor" that are user programmable for separate X,Y & Z thresholds of inertia are not acceptable.
- 3-Axis "G Sensor" must offer Active alerts for driver awareness in order to help drivers avoid a potentially dangerous situation.
- DVRs that do not offer 3-Axis "G Sensor" with Active alerts for driver awareness in order to help drivers avoid a potentially dangerous situation are not acceptable.

- DVR must have built in 3-Axis “G Sensor” axis specific color graphical sequential representation with -2 to +2 G deviation charting must be provided on dedicated GUI, to visually demonstrate potentially dangerous driving behaviors, or inertia forces applied in an accident to aid in accident analysis.
- **DVRs without built in 3-Axis “G Sensor” axis specific color graphical sequential representation with -2 to +2 G deviation charting must be provided on dedicated GUI, to visually demonstrate potentially dangerous driving behaviors, or inertia forces applied in an accident to aid in accident analysis are not acceptable.**
- DVR must have built in 3-Axis “G Sensor” automatic Crash Trigger capability, that will clearly indicate a crash or impact has occurred during a recording period, by creating a colored indication in the sequential timeline under the video playback windows.
- **DVRs without DVR must have built in 3-Axis “G Sensor” automatic Crash Trigger capability, that will clearly indicate a crash or impact has occurred during a recording period, by creating a colored indication in the sequential timeline under the video playback windows are not acceptable.**

Video Player Software Requirements:

- Dedicated Video Player Software for the system shall be FREE of Charge to customers.
- **Venders not offering Dedicated Video Player Software for the system FREE of Charge are not acceptable.**
- Dedicated Video Player Software updates shall be FREE of Charge to customers.
- **Venders not offering Dedicated Video Player Software updates FREE of Charge to customers are not acceptable.**
- Dedicated Video Player Software shall be Without Subscription to customers.
- **Venders not offering Dedicated Video Player Software for the system FREE of Charge are not acceptable.**
- Dedicated Video Player Software shall be Without Download Limitations on customer number of download or installations.
- **Venders not offering Dedicated Video Player Software shall be Without Download Limitations on customer number of download or installations are not acceptable.**

Professional CMS Cellular Server Hosting:

- Professional CMS Cellular Server Hosting must be provided to support 3G/4G cellular functions of the system, without additional customer network server hardware, to simplify customer access to Live view Video systems.
- **CMS based systems that do not incorporate Professional CMS Cellular Server Hosting must be provided to support 3G/4G cellular functions of the system are not acceptable.**
- Professional CMS Cellular Server Hosting must support Live Event transmission of image to CMS server when Event is triggered.
- **CMS based systems that do not incorporate support Live Event transmission of image to CMS server when Event is triggered, are not acceptable.**

- Professional CMS Cellular Server Hosting must support Visual & Audio Alert to CMS Server upon Event Alert activation.
- CMS based systems that do not support Visual & Audio Alert to CMS Server upon Event Alert activation, are not acceptable.
- Professional CMS Cellular Server Hosting must support Live View Video from PC or Apple platform via Internet.
- CMS based systems that do not support Live View Video from PC or Apple platform via Internet are not acceptable.
- Professional CMS Cellular Server Hosting must support Live GPS Tracking.
- CMS based systems that do not support Live GPS Tracking, are not acceptable.
- Professional CMS Cellular Server Hosting must support GPS History display functions.
- CMS based systems that do not support GPS History display functions, are not acceptable.
- Professional CMS Cellular Server Hosting must support iPhone & Android phone CMS login & Live View Video.
- CMS based systems that do not support iPhone & Android phone CMS login & Live View Video are not acceptable.
- Professional CMS Cellular Server Hosting must support Geo-Fencing Border Violation Alerts.
- CMS based systems that do not support Geo-Fencing Border Violation Alerts, are not acceptable.
- Professional CMS Cellular Server Hosting must be available in any quantity, even a single unit, so as to not discriminate against small applications customers.
- CMS based systems that do not offer single unit availability, are not acceptable.
- Professional CMS Cellular Server Hosting pricing must not increase during annual coverage period.
- CMS based systems that do not hold Hosting pricing constant during annual coverage period are not acceptable.

Vender Requirements:

- DVR supplier OEM Corporate headquarters must be located inside the USA.
- OEM Corporate headquarters located outside the USA are not acceptable.
- DVR Vender Corporate ownership must be entirely owned by entities residing within the USA.
- DVR Vender Corporate ownership in any percentage owned by entities residing outside the USA is not acceptable.
- DVR Vender Corporate ownership must be entirely owned by USA citizens.
- DVR Vender Corporate ownership in any percentage owned by non-USA citizens is not acceptable.
- DVR Vender staff & employees must all be USA residents.
- DVR Vender with any staff or employees who are not current USA residents is not acceptable.