PROFESSIONAL DIGITAL SPECIFICATIONS

1-4 Camera 100% Solid State Drive (SSD) Based

The Camera:

- The cameras are the eyes of the digital system and should be very high quality to provide sharp, clear hi resolution images when viewed.
- Horizontal Resolution 420 TV Line (NTSC)

- All cameras must be adjustable on 3-axis; for pan, tilt & level 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.

- Hi-Security cameras are required incorporating heavy-duty cast or extruded steel 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 is not acceptable.
- Camera cases that are not cast steel or extruded steel is unacceptable.

- Night vision via at least 23 built-in 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.
- 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 on school bus systems, with independent adjustable microphone gain at the camera, as well as in the DVR setup menu, to assure customers of audio enhancement both mechanically in the camera itself and via software in the DVR setup menu.
- Cameras without "Hi quality audio, with independent adjustable microphone gain at the camera, as well as in the DVR setup menu, to assure customers of audio enhancement both mechanically in the camera itself and via software in the DVR setup menu" 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 come with a 5-Year Warranty
- Cameras without a 5-Year Warranty are not acceptable.

The DVR:

- The DVR must be "Made in USA". There is absolutely no reason to help finance Communist China with US tax payer funds when an American made DVRs is available.
- DVRs that are not "Made in USA" are not acceptable.

- The DVR manufacture must adhere to strict US EPA standards in the manufacture to assure that manufacture of this product does not violate US EPA Clean Air & Water Standards. US tax dollars should not be used to reward the largest environment polluters on the planet.
- DVR manufacture that does not adhere to strict US EPA standards to assure that manufacture of their DVR does not violate US EPA Clean Air & Water Standards are not acceptable.

- DVR must come with a 5-Year Warranty, to protect the district.
- DVRs without a 5-Year Warranty are not acceptable.

- Linux operating system is required on the bus mounted DVR to assure the OS that is not susceptible to MS Windows related security concerns, MS Windows viral attack or typical MS Windows hacking. Bus DVR must operate on the Linux operation system to insure that level of reliability and durability in a mobile environment.
- A DVR that does not offer the stability of the Linux operations system in the bus DVR is not acceptable.

- DVR must be capable of providing a Free Vehicle Summary report as a built in function at no charge to the district, that will document vehicle activity via trip start to stop, dates, times, distances, hours driven, idle times and events triggered for each vehicle in the fleet.
- DVRs that are not capable of providing a Free Vehicle Summary Report are not acceptable.

- DVR must be 4 channels to support 4 video and audio channels.
- DVRs that cannot support 4 channels of video are not acceptable.

- Wireless download capability (WiFi) hardware is required internally in each DVR for downloading of video recorded events to school provided wireless environment, with the addition of a industrial grade externally mounted WiFi wireless vehicle antenna to assure professional performance not obtainable from DVR mounted antennas.
- Systems that do not have internal DVR WiFi modules and external vehicle mounted antennas are not acceptable.

- D1 Resolution for every channel, not shared in any way, is required for the high-resolution images and fluid real time playback necessary in criminal courts litigation, with lower resolution selectable by user.
- DVRs that do not have the ability to provide high resolution D1 images from each channel (not shared in any way)) at 30FPS per channel (not shared) are not acceptable

- Driver Control Device with: “Function Select”, built in DVR Status Indicator, Event Marker is required to permit the driver to verify DVR “power on” as well as “recording” status along with the Event marker button. “Function Select” is a built in forward thinking provision to readily integrate new system features and enhancements into the Driver Control Device without additional delay or cost to the district, as the unit will already have “F1” – “F5” buttons indicated for those future enhancements and features not yet advertised or released.
- Systems that do not offer Driver Control Device with: “Function Select”, built in DVR Status Indicator, Event Marker to permit the driver to verify DVR “power on” as well as “recording” status along with the Event marker button, and at least 5 additional buttons dedicated for future enhancements and features not yet advertised or released are not acceptable.

- 100% Solid State Drive (SSD) 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 (SSD) are not acceptable.

- Minimum of built in 64 Gig Solid State Drive (SSD) internal memory is required.
- Less than built in 64 Gig Solid State Drive (SSD) internal memory is not acceptable.

- DVR must be able to download Meta Data, or Events data files to a USB Thumb Drive for redundant data integrity during download when WiFi networks are not the preferred data transfer mode. This provided multiple levels of administrator access to the video files and offers each level the same data to download from without the risk of damaging a fragile hard drive or a potentially lost CF card.
- DVR that are not able to download Meta Data, or Events data files to a USB Thumb Drive for redundant data integrity during download when WiFi networks are not the preferred data transfer mode are not acceptable.

- Records at true "real time" minimum of 30 frames per second (fps) on up to 4 cameras, individual camera fps rates (from 1 to 30 fps) can be programmed while the DVR is operating.
- DVRs with camera frame rates less than 30 frames per second (fps) on all channels simultaneously are not acceptable.

- The DVR manufacture must adhere to strict US Department of Labor (DOL) standards in the manufacture to assure that manufacture of this product does not violate US Department of Labor (DOL) guidelines. US tax dollars should not be used to reward those who may be building products with child labor in offshore sweatshops.
- DVR manufacture that does not adhere to strict US Department of Labor (DOL) standards to assure that manufacture of their DVR does not violate US Department of Labor (DOL) guidelines are not acceptable.

- The DVR casing must be made of aluminum to act as a heat sink to draw heat away from the DVR processor and memory storage device, as heat is a primary restriction on mobile DVR function, and can greatly contribute to potential long-term component failure.
- DVR casings not made of aluminum to act as a heat sink to draw heat away from the DVR processor and memory storage device are not acceptable.

Warranty

- 5-Year Parts & Labor Warranty are required as a standard on the DVR & SSD and camera, with additional years of warranty coverage available.
- Less than 5-Year Parts & Labor Warranty on the DVR, SSD and cameras is not acceptable.

GPS, 3-Axis G Sensor & Live Viewing 3G/4G Features (Option)

GPS Speed & On Screen Mailing

- GPS speed and location must be available as an option 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 as an option, 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 2 channel DVR must be capable of displaying and playing back 2 camera inputs simultaneously and still showing the On Screen Mapping feature. 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 cycle 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 available as a internal DVR slide in Field Upgrade, not an external dongle device, to detect impact, trigger "Crash" event or provide trigger for e-mail alert to the system administrator, or trigger 3G/4G cellular Live View or Data Streaming of the event.
- DVRs that do not offer 3-Axis "G Sensor" available as a internal DVR slide in Field Upgrade, are not acceptable.

Live View via 3G/4G

- Live View must be available and supported via back end software on all DVRs to permit the customer to view through a PC the cameras in the vehicle when the vehicle is in a cellular service network. Hardware and service is to be provided by the cellular service provider.
- DVRs that do not offer Live View supported via back end software on all DVRs are not acceptable.