IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	1G1AK15F967600462
User	ak
Case Number	side underride test
EDR Data Imaging Date	06/02/2018
Crash Date	06/02/2018
Filename	1G1AK15F967600462_ACM.CDRX
Saved on	Saturday, June 2 2018 at 12:37:10
Imaged with CDR version	Crash Data Retrieval Tool 17.7
Imaged with Software Licensed to (Company Name)	Accident Research Specialists, PLLC
Reported with CDR version	Crash Data Retrieval Tool 17.7
Reported with Software Licensed to (Company Name)	Accident Research Specialists, PLLC
EDR Device Type	Airbag Control Module
Event(s) recovered	Non-Deployment

Comments

No comments entered.

Data Limitations

Recorded Crash Events:
There are two types of recorded crash events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH. A Non-Deployment Event may contain Pre-Crash and Crash data. The SDM can store up to one Non-Deployment Event. This event can be overwritten by an event that has a greater SDM recorded vehicle velocity change. This event will be cleared by the SDM, after approximately 250 ignition cycles. This event can be overwritten by a second Deployment Event, referred to as Deployment Event #2, if the Non-Deployment Event is not locked. The data in the Non-Deployment Event file will be locked, if the Non-Deployment Event occurred within five seconds of a Deployment Event. A locked Non Deployment Event cannot be overwritten or cleared by the SDM.
The second type of SDM recorded crash event is the Deployment Event. It also may contain Pre-Crash and Crash data. The SDM can store up to two different Deployment Events. If a second Deployment Event occurs any time after the Deployment Event, the Deployment Event #2 will overwrite any non-locked Non-Deployment Event. Deployment Events cannot be overwritten or cleared by the SDM. Once the SDM has deployed an air bag, the SDM must be replaced.

Data:
-SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. For Deployment Events, the SDM can record up to 220 milliseconds of data after Deployment criteria is met and up to 70 milliseconds before Deployment criteria is met. For Non-Deployment Events, the SDM can record up to the first 300 milliseconds of data after algorithm enable. Velocity Change data is displayed in SAE sign convention.
-The CDR tool displays time from Algorithm Enable (AE) to time of Deployment command in a Deployment event and AE to time of maximum SDM recorded vehicle velocity change in a Non-Deployment event. Time from AE begins when the first air bag system enable threshold is met and ends when Deployment command criteria is met or at maximum SDM recorded vehicle velocity change. Air bag systems such as frontal, side, or rollover, may be a source of an enable. The time represented in a CDR report can be that of the enable of one air bag system to the Deployment time of another air bag system.
-Maximum Recorded Vehicle Velocity Change is the maximum square root value of the sum of the squares for the vehicle's combined "X" and "Y" axis change in velocity. If a CDR Printout user were to calculate resultant velocity change using X and Y axis time history data, the calculated value may be different than the Maximum SDM Recorded Velocity Change parameter value displayed in the CDR report. This is due to the rounding that occurs within the SDM while calculating the Maximum SDM Recorded Velocity Change value.
-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.
-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following:
    -Significant changes in the tire's rolling radius
    -Final drive axle ratio changes
    -Wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit.
-Pre-Crash data is recorded asynchronously. The 1.0 second Pre-crash data value (most recent recorded data point) is the data point last sampled before AE. That is to say, the last data point may have been captured just before AE but no more than 1.0 second before AE. All subsequent Pre-crash data values are referenced from this data point.
-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:
       -The SDM receives a message with an "invalid" flag from the module sending the pre-crash data
       -No data is received from the module sending the pre-crash data
       -No module is present to send the pre-crash data
-Vehicle speed, Transmission Gear Select, and Transmission Actual Gear will be marked as invalid for manual transmission vehicles
-Pre-crash data associated with this event will always be for the first event even if it is not recorded.

-Driver's and Passenger's Belt Switch Circuit Status indicates the status of the seat belt switch circuit, except: The Passenger Belt Switch Circuit Status for 2005 vehicles is available only on the Cadillac STS. The Passenger Belt Switch Circuit Status for 2006 Chevrolet Cobalt Sport Coupe (AP) model vehicles, with the option package that includes Recaro brand seats (RPO ALV), always reports a default value of "Buckled," because there is no passenger belt switch with the Recaro seat option. The Passenger Belt Switch Circuit Status for 2010 Chevrolet Cobalt and 2010 Pontiac G5 vehicles, with RPO Z49, will report a default value of "Buckled". The Passenger Belt Switch Circuit Status for 2010 and 2011 Chevrolet HHR, with the LS or LT trim package and RPO Z49, will report a default value of "Buckled".
-The Time Between Non-Deployment to Deployment Events is displayed in seconds. If the time between the two events is greater than five seconds, "N/A" is displayed in place of the time. If the value is negative, then the Deployment Event occurred first. If the value is positive, then the Non-Deployment Event occurred first. Time Between events is measured from end of one event to the beginning of a next event. An event may occur within 5 seconds of another event, known as an extended event. This occurs when three or more sequential events are separated by more than 5 seconds but each event in the sequence is no more than 5 seconds apart from a subsequent event. Pre-crash data is locked to the first event in an extended event.
-If power to the SDM is lost during a crash event, all or part of the crash record may not be recorded.
-The ignition cycle counter relies upon the transitions through OFF->RUN->CRANK power-moding messages, on the GMLAN communication bus, to increment the counter. Applying and removing of battery power to the module will not increment the ignition counter.
-Steering Wheel Angle data is displayed as a positive value when the steering wheel is turned to the right and a negative value when the steering wheel is turned to the left, except for Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7). For Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7), when the steering wheel is turned to the right, a negative value will be displayed and when the steering wheel is turned to the left, a positive value will be displayed. The Steering Wheel Angle data is reported in 16 degree increments.
-If more than one event is recorded, use the follow to determine which event the Multiple Event Data is associated with:
       -If a Deployment event and not locked Non-Deployment event are recorded, the Multiple Event Data is associated with the Deployment event.
       -If a Deployment event and a locked Non-Deployment event are recorded, then the Multiple Event Data is associated with both events.
       -If a Deployment event and Deployment event #2 are recorded, then the Multiple Event Data is associated with both events.
-All data should be examined in conjunction with other available physical evidence from the vehicle and scene.

Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Status Data (Pre-Crash) is transmitted to the SDM, by various vehicle control modules, via the vehicle's communication network.
-The Belt Switch Circuit is wired directly to the SDM.

Hexadecimal Data:
Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR tool.

01016_SDMEps_r009

Multiple Event Data

Associated Events Not Recorded	0
An Event(s) Preceded the Recorded Event(s)	No
An Event(s) was in Between the Recorded Event(s)	No
An Event(s) Followed the Recorded Event(s)	No
The Event(s) Not Recorded was a Deployment Event(s)	No
The Event(s) Not Recorded was a Non-Deployment Event(s)	No

System Status At AE

Vehicle Identification Number	**1AK15F*6*600462
Low Tire Pressure Warning Lamp (If Equipped)	Invalid
Vehicle Power Mode Status	Run
Remote Start Status (If Equipped)	Inactive
Run/Crank Ignition Switch Logic Level	Active
Brake System Warning Lamp (If Equipped)	OFF

System Status At 1 second

Transmission Range (If Equipped)	Neutral
Transmission Selector Position (If Equipped)	Neutral
Traction Control System Active (If Equipped)	Invalid
Service Engine Soon (Non-Emission Related) Lamp	OFF
Service Vehicle Soon Lamp	OFF
Outside Air Temperature (degrees F) (If Equipped)	86
Left Front Door Status (If Equipped)	Closed
Right Front Door Status (If Equipped)	Closed
Left Rear Door Status (If Equipped)	Unused
Right Rear Door Status (If Equipped)	Unused
Rear Door(s) Status (If Equipped)	Closed

Pre-crash data

| Parameter	-2 sec	-1 sec
Reduced Engine Power Mode	OFF	OFF
Cruise Control Active (If Equipped)	Invalid	Invalid
Cruise Control Resume Switch Active (If Equipped)	Invalid	Invalid
Cruise Control Set Switch Active (If Equipped)	Invalid	Invalid

Pre-Crash Data

| Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Vehicle Speed (MPH)	6	12	17	25	29
Engine Speed (RPM)	0	0	0	0	0
Percent Throttle	34	34	34	34	34
Accelerator Pedal Position (percent)	0	0	0	0	0
Antilock Brake System Active (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Lateral Acceleration (feet/s²)(If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Yaw Rate (degrees per second) (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Steering Wheel Angle (degrees) (If Equipped)	0	0	0	0	0

Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Vehicle Dynamics Control Active (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid

System Status At Non-Deployment

Ignition Cycles At Investigation	22092
SIR Warning Lamp Status	OFF
SIR Warning Lamp ON/OFF Time (seconds)	655200
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	1859
Ignition Cycles At Event	22092
Ignition Cycles Since DTCs Were Last Cleared	254
Driver's Belt Switch Circuit Status	UNBUCKLED
Passenger Belt Switch Circuit Status (If Equipped)	BUCKLED
Automatic Passenger SIR Suppression System Validity Status at AE	Valid
Automatic Passenger SIR Suppression System Status at AE	Air Bag Suppressed
Diagnostic Trouble Code at Event Enable, fault number: 1	N/A
Diagnostic Trouble Code at Event Enable, fault number: 2	N/A
Diagnostic Trouble Code at Event Enable, fault number: 3	N/A
Diagnostic Trouble Code at Event Enable, fault number: 4	N/A
Diagnostic Trouble Code at Event Enable, fault number: 5	N/A
Diagnostic Trouble Code at Event Enable, fault number: 6	N/A
Maximum SDM Recorded Vehicle Velocity Change (MPH)	34.56
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	290
Driver First Stage Deployment Loop Commanded	No
Driver Second Stage Deployment Loop Commanded	No
Driver Side Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop Commanded	Yes
Driver (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Driver (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Driver Knee Deployment Loop Commanded	No
Passenger First Stage Deployment Loop Commanded	No
Passenger Second Stage Deployment Loop Commanded	No
Passenger Side Deployment Loop Commanded	No
Passenger Pretensioner Deployment Loop Commanded	Yes
Passenger (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Passenger (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Passenger Knee Deployment Loop Commanded	No
Second Row Left Pretensioner Deployment Loop Commanded	No
Third Row Left Roof Rail/Head Curtain Loop Commanded	No
Second Row Right Pretensioner Deployment Loop Commanded	No
Third Row Right Roof Rail/Head Curtain Loop Commanded	No
Second Row Center Pretensioner Deployment Loop Commanded	No
Crash Record Locked	No
Vehicle Event Data (Pre-Crash) Associated With This Event	Yes
Deployment Event Recorded in the Non-Deployment Record	No
Event Recording Complete	Yes

1G1AK15F967600462 Longitudinal Axis Non Deployment Data

Legend: ■ SDM Recorded Velocity Change (MPH)
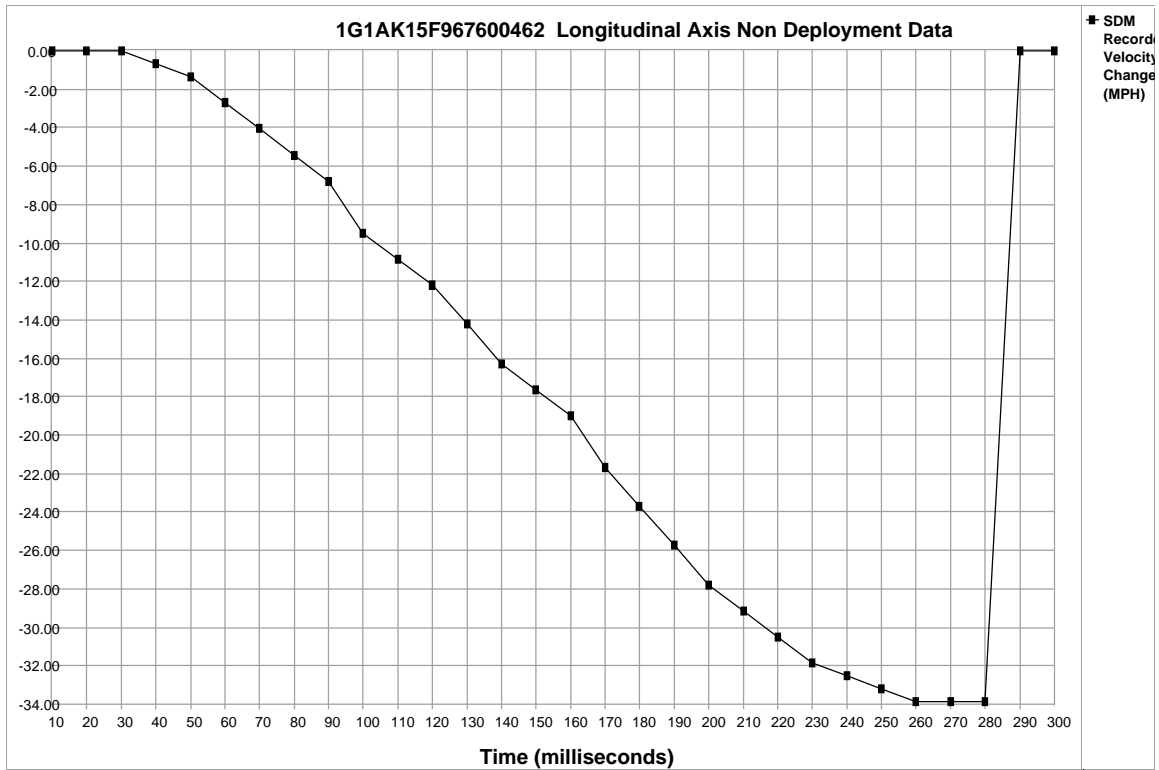
Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
SDM Longitudinal Axis Recorded Velocity Change (MPH)	0.00	0.00	0.00	-0.68	-1.36	-2.71	-4.07	-5.42	-6.78	-9.49	-10.84	-12.20	-14.23	-16.26	-17.62
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
SDM Longitudinal Axis Recorded Velocity Change (MPH)	-18.98	-21.69	-23.72	-25.75	-27.79	-29.14	-30.50	-31.85	-32.53	-33.21	-33.88	-33.88	-33.88	0.00	0.00

1G1AK15F967600462 Lateral Axis Non Deployment Data

SDM Recorded Velocity Change (MPH)
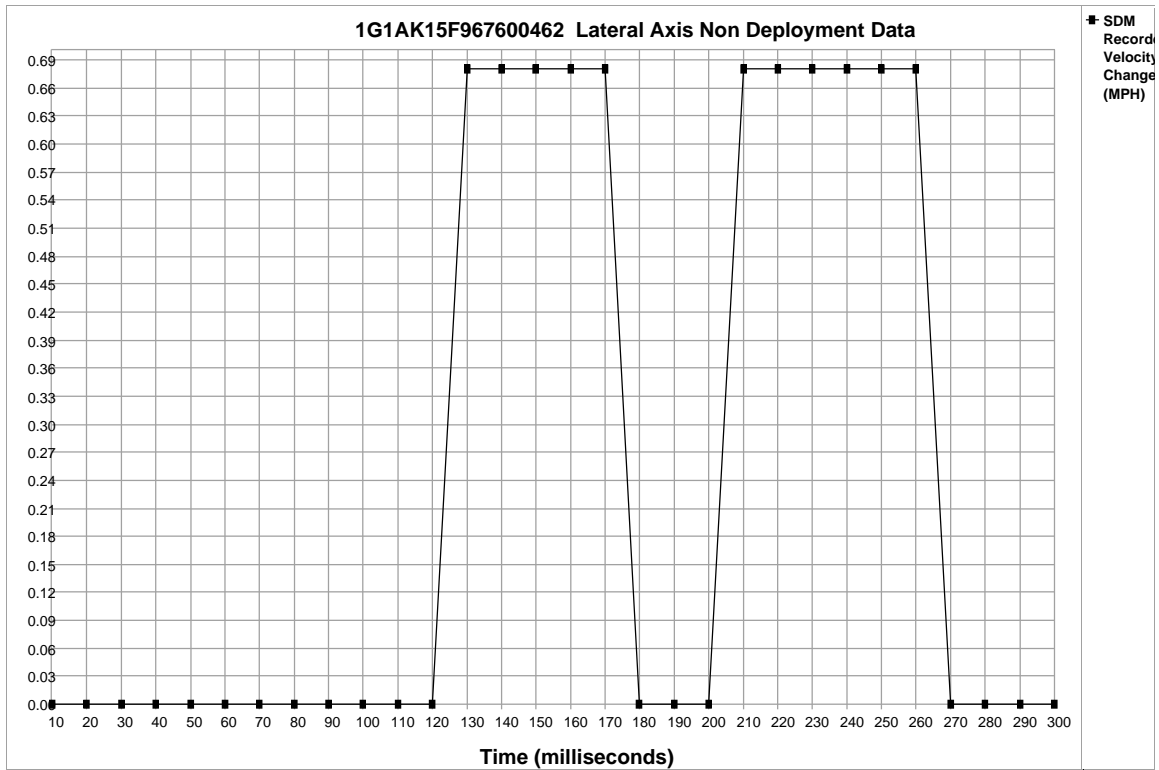
Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
SDM Lateral Axis Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.68	0.68
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
SDM Lateral Axis Recorded Velocity Change (MPH)	0.68	0.68	0.00	0.00	0.00	0.68	0.68	0.68	0.68	0.68	0.68	0.00	0.00	0.00	0.00

Hexadecimal Data

```
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$02   10 00 00 00 00 00 00
$03   01 00 00 00 00 00 00
$04   00 00 00 00 00 00 00
$05   00 00 00 00 00 00 00
$06   00 0A 00 00 0A 90 11
$07   00 89 00 00 00 00 00
$08   00 FF 00 00 00 00 00
$09   03 14 7E 00 00 00 00
$0A   00 00 00 00 00 00 00
$0B   00 00 01 0F 01 00 00
$0C   00 00 00 00 00 00 00
$0D   00 00 00 00 00 00 00
$0E   00 00 00 00 00 00 00
$0F   00 00 00 00 00 00 00
$10   47 31 41 4B 31 35 46
$11   39 36 37 36 30 30 34
$12   36 32 00 00 00 00 00
$13   00 00 00 00 00 00 00
$14   00 00 00 00 00 00 00
$15   00 00 00 00 00 00 00
$16   03 06 0C 16 34 00 00
$17   00 00 00 00 00 00 00
$18   00 00 00 00 00 00 00
$19   00 00 00 00 00 00 00
$1B   3F 00 00 67 00 7A 00
$1C   3F 00 00 02 00 1A 00
$1D   00 00 00 00 00 00 00
$1E   00 00 00 00 00 00 00
$1F   28 00 00 00 00 00 00
$20   40 00 00 00 00 00 00
$21   00 00 00 00 F0 00 00
$22   00 94 00 00 00 00 00
$24   00 00 00 00 00 00 00
$25   00 00 00 00 00 00 00
$26   00 00 00 00 00 00 00
$27   FF 00 FF 00 00 00 00
$2A   00 00 00 00 00 00 00
$2B   00 00 00 00 00 00 00
$2D   00 00 00 00 00 00 00
$2E   00 FF F0 07 42 00 00
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$31   00 00 00 00 00 00 00
$32   00 00 00 80 00 00 00
$33   58 58 58 58 58 00 00
$34   00 00 00 00 00 00 00
$35   2F 29 1B 13 09 00 00
$36   00 00 00 00 00 00 00
$37   00 00 00 09 09 00 E2
$38   8C 00 00 00 03 C0 00
$39   00 00 00 00 00 80 00
$3A   00 00 00 00 00 80 00
$3B   03 06 0C 00 00 00 00
$3C   00 00 00 00 00 00 C0
$3D   31 41 4B 31 35 46 00
$3E   36 60 04 62 00 00 00
$3F   00 00 90 00 00 00 00
$40   20 A5 00 00 00 00 00
$41   10 10 00 00 00 00 00
$42   00 FF F0 07 43 00 00
$43   FE 56 4C 00 00 00 00
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$45   00 00 00 00 00 00 00
$46   00 00 00 00 00 00 00
$47   00 00 00 00 00 00 00
$48   00 FF 00 FE 00 FC 00
$49   00 FA 00 F8 00 F6 00
$4A   00 F2 00 F0 00 EE 00
$4B   01 EB 01 E8 01 E6 00
$4C   01 E4 01 E0 00 DD 00
$4D   00 DA 00 D7 01 D5 00
$4E   01 D3 01 D1 01 D0 00
$4F   01 CF 01 CE 00 CE 00
$50   00 CE 00 00 00 00 00
$51   70 00 00 00 00 00 00
$52   00 00 00 00 00 00 00
$53   1D 0A 29 00 00 00 00
$54   00 00 00 00 00 00 00
$55   00 00 00 00 00 00 00
$67   00 00 00 00 00 00 00
$68   F8 F8 90 C0 00 00 00
$69   80 FF FF FF FF 00 00
$6A   FF FF FF 00 00 00 00
$6B   FF FF FF FF FF FF 00
$6C   FF FF FF FF FF FF 00
$6D   FF FF FF FF FF FF 00
$6E   FF FF FF FF FF FF 00
$6F   FF FF FF FF FF FF 00
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$75   FF FF FF FF FF FF 00
$76   FF FF FF FF FF FF 00
$77   FF FF FF FF FF FF 00
$78   F0 00 00 F0 00 00 00
$79   81 FF FF FF 00 00 00
$7A   82 FF FF 00 00 00 00
$7B   FF FF FF FF FF FF 00

$01   41 55 01 02 03 04 52 53 41 32 03 09 01 AA AA 01
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$03   41 54 01 02 03 04 52 53 41 32 03 09 01 AA AA 01
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$05   42 55 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
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$08   FF FF FF FF
$0D   41 48 32 39 35 31 52 35 31 30 39 32 30 37 4D 59
$0E   01 5A 4B 31
$0F   41 4A 01 02 03 04 52 45 41 32 30 32 33 30 30 30
$10   01 02 03 04
$13   42 52 30 31 33 34 56 31 05 31 35 30 31 32 33 31
$14   01 5A 74 02
$17   42 54 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
$18   FF FF FF FF
$21   33 19 2A B4 E6 87 91 9A
$22   90 11
$23   31 41 FA FA FA FA FA
$24   31 41 FA FA FA FA FA
$25   32 41 FA FA FA FA FA
$26   32 41 FA FA FA FA FA
$40   00 00
$41   3F 00 00 02 00 1A
$42   F0 C4
$43   00 00 8E 80
$44   C6 00 00 FC C0 C0
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$46   FF 1A 1A 64 64
$47   0A 64 06 04 04 05 0A 06 04 0A 00 00 FA 00 00 FF 04 64
$48   18 08 08
$B0   58
$B1   FD FE 00
$B2   FF FF FF FF FF
$B4   41 53 39 30 31 31 32 31 30 31 39 42 20 20 20 20
$B7   50 AA 04 0F 03
$B8   41 57 68 09 19
$C1   30 46 30 33
$CA   30 46 30 33
$CB   01 5A D1 33
$CC   01 5A D1 33
$D1   00 00
$DB   00 00
$DC   00 00
```

Disclaimer of Liability

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