other than that specified in this section, the Federal Motor Carrier Safety Administration must publish notice of change in the FEDERAL REGISTER and the material must be available to the public. All of the approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to *http:// www.archives.gov/federal-register/cfr/ibr-locations.html*. Also, it is available for inspection at the Federal Motor Carrier Safety Administration, Office of Bus and Truck Standards and Operations (MC–PS), 1200 New Jersey Ave., SE., Washington, DC 20590–00001, (202) 366–4325, and is available from the sources listed in paragraphs (b) and (c) of this section.

(b) *Institute of Electrical and Electronic Engineers (IEEE)*. 3 Park Avenue, New York, New York 10016–5997. Web page is *http://www.ieee.org/web/publications/ home;* telephone is (800) 678–4333.

(1) "IEEE Standard for Information Technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications," IEEE Computer Society, Sponsored by the LAN/MAN Standards Committee: June 12, 2007 (IEEE Std. 802.11–2007). Incorporation by reference approved for § 395.16(i); and appendix A to part 395, paragraph 2.3.

(2) [Reserved]

(c) *Universal Serial Bus Implementers Forum (USBIF)*. 3855 SW. 153rd Drive, Beaverton, Oregon 97006. Web page is *http://www.usb.org;* telephone is (503) 619–0426.

(1) "Universal Serial Bus Specification," Compaq, Hewlett-Packard, Intel, Lucent, Microsoft, NEC, Philips; April 27, 2000 (Revision 2.0). Incorporation by reference approved for § 395.16(i) and Appendix A to part 395, paragraph 2.2.

(2) [Reserved]

(d) *American National Standards Institute (ANSI)*. 11 West 42nd Street, New York, New York 10036. Web page is *http://webstore.ansi.org;* telephone is (212) 642–4900.

(1) "ANSI INCITS 446–2008, American National Standard for Information Technology—Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone (10/28/2008)," (ANSI INCITS 446–2008). Incorporation by reference approved for § 395.16(f); appendix A to part 395, paragraph 1.3, Table 2; and appendix A to part 395, paragraph 3.1.1.3. (For further information, *see also* the Geographic Names Information System (GNIS) at *http:// geonames.usgs.gov/domestic/index.html*.

(2) [Reserved]

[75 FR 17248, Apr. 5, 2010]

APPENDIX A TO PART 395—ELECTRONIC ON-BOARD RECORDER PERFORMANCE SPECIFICATIONS

1. Data Elements Dictionary for Electronic On-Board Recorders (EOBRs)

1.1 To facilitate the electronic transfer of records to roadside inspection personnel and compliance review personnel, and provide the ability of various third-party and proprietary EOBR devices to be interoperable, a consistent electronic file format and record layout for the electronic RODS data to be recorded are necessary. This EOBR data elements dictionary provides a standardized and consistent format for EOBR output data.

EOBR Data File Format

1.2 Regardless of the particular electronic file type (such as ASCII or XML) ultimately used for recording the electronic RODS produced by an EOBR, RODS data must be recorded according to a "flat file" database model format. A flat file is a simple database in which all information is stored in a plain text format with one database "record" per line. Each of these data records is divided into "fields" using delimiters (as in a comma-separate-values data file) or based on fixed column positions. Table 1 below presents the general concept of a flat data file consisting of data "fields" (columns) and data "records" (rows).

Table 1: Flat Data File Database Model

FIELDS ➡

	Person First Name	Person Last Name	Driver PIN	Event Date	Event Time	Status Code
RECORDS	William	Smith	978354	20050718	12:11	D
	William	Smith	978354	20050718	15:17	SB
	William	Smith	978354	20050718	18:53	D
	William	Smith	978354	20050718	21:43	ON
	William	Smith	978354	20050718	22:14	OFF
	William	Smith	978354	20050719	06:25	ON
	William	Smith	978354	20050719	06:47	D
	William	Smith	978354	20050719	13:32	SB
	William	Smith	978354	20050719	15:27	D
	William	Smith	978354	20050719	20:04	SB

1.3 The data elements dictionary describes the data fields component of the above framework. Individual data records must be generated and recorded whenever there is a change in driver duty status, an EOBR diagnostic event (such as power-on/off, self test, *etc.*), or when one or more data fields of an existing data record are later amended. In the last case, the corrected record must be recorded and noted as "current" in the "Event Status Code" data field, with the original record maintained in its unedited form and noted as "historical" in the "Event Status Code" data field. The EOBR Data Elements Dictionary is described in Table 2. The event codes are listed in Table 3.

TABLE 2—EOBR DATA ELEMENTS DICTIONARY

Data element	Data element definition	Type	Length	Valid values and notes
Driver Identification Data				
Driver First Name	First name of the driver	A	35	*See* Note 1.
Driver Last Name	Last name, family name, or surname of the driver.	A	35	*See* Note 1.
Driver PIN/ID	Numeric identification number assigned to a driver by the motor carrier.	A	40	
Vehicle Identification Data				
Tractor Number	Motor carrier assigned identification number for tractor unit.	A	10	
Trailer Number	Motor carrier assigned identification number for trailer.	A	10	
Tractor VIN Number.	Unique vehicle ID number assigned by manufacturer according to US DOT regulations.	A	17	
Co-Driver Data				
Co-Driver First Name.	First name of the co-driver	A	35	*See* Note 1.
Co-Driver Last Name.	Last name, family name or surname of the co-driver.	A	35	*See* Note 1.
Co-Driver ID	Numeric identification number assigned to a driver by the motor carrier.	A	40	

TABLE 2—EOBR DATA ELEMENTS DICTIONARY—Continued

Data element	Data element definition	Type	Length	Valid values and notes
Company Identification Data				
Carrier USDOT Number.	USDOT Number of the motor carrier assigned by FMCSA.	N	8	
Carrier Name	Name or trade name of the motor carrier company appearing on the Form MCS–150.	A	120	
Shipment Data				
Shipping Document Number.	Shipping document number	A	40	
Event Data				
Event Sequence ID.	A serial identifier for an event that is unique to a particular vehicle and a particular day.	N	4	0001 through 9999.
Event Status Code	Character codes for the four driver duty status change events, State border crossing event, and diagnostic events.	A	3	OFF = Off Duty SB = Sleeper Berth D = On Duty Driving ON = On Duty Not Driving DG = Diagnostic.
Event Date	The date when an event occurred	N (Date)	8	UTC (universal time) recommended. Format: YYYYMMDD.
Event Time	The time when an event occurred	N (Time)	6	UTC (universal time) recommended. Format: HHMMSS (hours, minutes, seconds).
Event Latitude	Latitude of a location where an event occurred.	N	2,6	Decimal format: XX.XXXXXX.
Event Longitude ...	Longitude of a location where an event occurred.	N	3,6	Decimal format: XXX.XXXXXX.
Place Name	The location codes must correspond, at a minimum, to ANSI INCITS 446–2008, "American National Standard for Information Technology—Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone (10/28/2008)," where "GNIS Feature Class" = "Populated Place" (incorporated by reference, *see* §395.18). (For further information, see also the Geographic Names Information System (GNIS) at *http://geonames.usgs.gov/domestic/index.html.*	N	5	Unique within a FIPS state code. Lookup list derived from GNIS.
Place Distance Miles.	Distance in miles to nearest populated place from the location where an event occurred.	N	4	
Total Vehicle Miles	Total vehicle miles (as noted on vehicle odometer or as measured by any other compliant means such as vehicle location system, *etc.*).	N	7	With total vehicle mileage recorded at the time of each event, vehicle miles traveled while driving, *etc.,* can be computed.
Event Update Status Code.	A status of an event, either Current (the most up-to-date update or edit) or Historical (the original record if the record has subsequently been updated or edited).	A	1	C = Current, H = Historical.
Diagnostic Event Code.	For diagnostic events (events where the "Event Status Code" is noted as "DG"), records the type of diagnostic performed (*e.g.,* power-on, self test, power-off, etc.).	A	2	(*See* Table 3).
Event Error Code	Error code associated with an event	A	2	(*See* Table 3).
Event Update Date	The date when an event record was last updated or edited.	N (Date)	8	UTC (universal time) recommended. Format: YYYYMMDD.
Event Update Time.	Then time when an event record was last updated or edited.	N (Time)	6	UTC (universal time) recommended. Format: HHMMSS (hours, minutes, seconds).

TABLE 2—EOBR DATA ELEMENTS DICTIONARY—Continued

Data element	Data element definition	Type	Length	Valid values and notes
Event Update Person ID.	An identifier of the person who last updated or edited a record.	A	40	
Event Update Text	A textual note related to the most recent record update or edit.	A	60	Brief narrative regarding reason for record update or edit.

NOTE 1: This element must not be included in the records downloaded from an EOBR or support system at roadside.

TABLE 3—EOBR DIAGNOSTIC EVENT CODES

Code class	Code	Brief description	Full description
General System Diagnostic	PWR_ON	Power on	EOBR initial power-on.
General System Diagnostic	PWROFF	Power off	EOBR power-off.
General System Diagnostic	TESTOK	test okay	EOBR self test successful.
General System Diagnostic	SERVIC	Service	EOBR Malfunction (return unit to factory for servicing).
General System Diagnostic	MEMERR	memory error	System memory error.
General System Diagnostic	LOWVLT	Low voltage	Low system supply voltage.
General System Diagnostic	BATLOW	battery low	Internal system battery backup low.
General System Diagnostic	CLKERR	clock error	EOBR system clock error (clock not set or defective).
General System Diagnostic	BYPASS	Bypass	EOBR system bypassed (RODS data not collected).
Data Storage Diagnostic	INTFUL	internal memory full	Internal storage memory full (requires download or transfer to external storage).
Data Storage Diagnostic	DATACC	Data accepted	System accepted driver data entry.
Data Storage Diagnostic	EXTFUL	external memory full.	External memory full (smartcard or other external data storage device full).
Data Storage Diagnostic	EXTERR	external data access error.	Access external storage device failed.
Data Storage Diagnostic	DLOADY	download yes	EOBR data download successful.
Data Storage Diagnostic	DLOADN	download no	Data download rejected (unauthorized request/wrong Password).
Driver Identification Issue	NODRID	no driver ID	No driver information in system and vehicle is in motion.
Driver Identification Issue	PINERR	PIN error	Driver PIN/identification number invalid.
Driver Identification Issue	DRIDRD	Driver ID read	Driver information successfully read from external storage device (transferred to EOBR).
Peripheral Device Issue	DPYERR	display error	EOBR display malfunction.
Peripheral Device Issue	KEYERR	keyboard error	EOBR keyboard/input device malfunction.
External Sensor Issue	NOLTLN	no latitude longitude.	No latitude and longitude from positioning sensor.
External Sensor Issue	NOTSYC	no time synchronization.	Unable to synchronize with external time reference input.
External Sensor Issue	COMERR	communications error.	Unable to communicate with external data link (to home office or wireless service provider).
External Sensor Issue	NO_ECM	no ECM data	No sensory information received from vehicle's Engine Control Module (ECM).
External Sensor Issue	ECM_ID	ECM ID number mismatch.	ECM identification/serial number mismatch (with preprogrammed information).

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2. Communications Standards for the Transmittal of Data Files From Electronic On-Board Recorders (EOBRs)

2.1 EOBRs must produce and store RODS in accordance with the file format specified in this Appendix and must be capable of a one-way transfer of these records through wired and wireless methods to authorized safety officials upon request.

2.2 *Wired.* EOBRs must be capable of transferring RODS using the ''Universal Serial Bus Specification (Revision 2.0)'' (incorporated by reference, see §395.18). Each EOBR device must implement a single USB compliant interface featuring a Type A connector. The USB interface must implement the Mass Storage class (08h) for driverless operation.

2.3 *Wireless.* EOBRs must be capable of transferring RODS using one of the following wireless standards:

2.3.1 802.11g–2003 standard as defined in the 802.11–2007 base standard for wireless communication ''IEEE Standard for Information Technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications'' (IEEE Std. 802.11–2007) (incorporated by reference, *see* §395.18).

2.3.2 Commercial Mobile Radio Services (*e.g.*, cellular).

3. Certification of EOBRs To Assess Conformity With FMCSA Standards

3.1 The following outcome-based performance requirements must be included in the self-certification testing conducted by EOBR manufacturers:

3.1.1 Location

3.1.1.1 The location description for the duty status change must be sufficiently precise to enable enforcement personnel to quickly determine the vehicle's geographic location at each change of duty status on a standard map or road atlas.

3.1.1.2 When the CMV is in motion, location and time must be recorded at intervals of no greater than 60 minutes. This recorded information must be available for an audit of EOBR data, but is not required to be displayed on the EOBR's visual output device.

3.1.1.3 Location codes derived from satellite or terrestrial sources, or a combination thereof must be used. The location codes must correspond, at minimum, to the GNIS maintained by the United States Geological Survey.

3.1.2 Distance traveled

3.1.2.1 Distance traveled may use units of miles or kilometers driving during each on-duty driving period and total for each 24-hour period for each driver operating the CMV.

3.1.2.2 If the EOBR records units of distance in kilometers, it must provide a means to display the equivalent distance in English units.

3.1.2.3 If the EOBR obtains distance-traveled information from a source internal to the CMV, the information must be accurate to the CMV's odometer.

3.1.3 Date and time

3.1.3.1 The date and time must be reported on the EOBR output record and display for each change of duty status and at such additional entries as specified under ''Location.''

3.1.3.2 The date and time must be obtained, transmitted, and recorded in such a way that it cannot be altered by a motor carrier or driver.

3.1.3.3 The time must be coordinated to the Universal Time Clock (UTC) and must not drift more than 60 seconds per month.

3.1.4 File format and communication protocols: The EOBR must produce and transfer a RODS file in the format and communication methods specified in sections 1.0 and 2.0 of this Appendix.

3.1.5 Environment

3.1.5.1 [Reserved]

3.1.5.2 Vibration and shock—The EOBR must meet industry standards for vibration stability and for preventing electrical shocks to device operators.

3.2 The EOBR and EOBR support systems must be certified by the manufacturer as evidence that their design has been sufficiently tested to meet the requirements of §395.16 under the conditions in which they would be used.

3.3 The exterior faceplate of EOBRs must be marked by the manufacturer with the text 'USDOT–EOBR' as evidence that the device has been tested and certified as meeting the performance requirements of §395.16.

[75 FR 17248, Apr. 5, 2010, as amended at 75 FR 55491, Sept. 13, 2010]

PART 396—INSPECTION, REPAIR, AND MAINTENANCE