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Reduced Block Commands (RBC)

Removable / Rewritable Devices

Removable/Rewriteable
Reduced Block Commands Editor:

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Working Draft – RBC Removable/Rewritable Commands

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This is a draft proposed American National Standard under development by T10, a Technical Committee of the National Committee for Information Technology Standardization (NCITS). As such, this is not a completed standard and has not been approved. The Technical Committee may modify this document as a result of comments received during public review and its approval as a standard.

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<p style="text-align: center;">Reduced Block Commands (RBC)</p> <p style="text-align: center;"><i>Proposed additions</i></p> <p style="text-align: center;">for Removable/Rewritable Storage Devices</p>

1. Scope and purpose

1.1 Scope

This proposed standard defines the reduced command set required for Removable/Rewritable storage devices *in addition* to the base commands in the RBC document.

1.2 Purpose

The addition of the commands and options herein is intended to more closely match the requirements and options specific to Removable/Rewriteable storage devices under 1394.

2 Normative references

2.1 Approved references

2.2 References under development

3 Keywords and Notation

3.1 Keywords

3.2 Glossary

3.3 Abbreviations

3.4 Conventions

Reiteration:

The following conventions should be understood by the reader in order to comprehend this standard.

3.4.1 Non-numeric values

Reiteration:

- a) The names of abbreviations, commands, fields, and acronyms used as signal names are in all uppercase (e.g., IDENTIFY DEVICE).
- b) Fields containing only one bit are usually referred to as the "name" bit instead of the "name" field.
- c) If a field is specified as not meaningful or it is to be ignored, the entity that receives the field shall not check that field.

3.4.2 Numeric values

Reiteration:

All numeric values are consistent with the RBC document. Examples are as follows:

- a) Decimal numbers are represented by Arabic numerals without subscripts or by their English names.
- b) Hexadecimal numbers are represented by digits from the character set 0 – 9 and A – F followed by the subscript 16.
- c) Binary numbers are represented by digits from the character set 0 and 1 followed by the subscript 2.

For the sake of legibility, binary and hexadecimal numbers are separated into groups of four digits separated by spaces. As an example, 42, $2A_{16}$ and $0010\ 1010_2$ all represent the same numeric value.

4 Reduced Block Commands

Table is shown for ease of reference.

The Reduced Block Command set (RBC) for SCSI block device logical units is shown in Table 1. Each command is mandatory.

Table 1 - Reduce Block Command Set

Command Name	Opcode	Reference
INQUIRY	12 ₁₆	SPC-2
MODE SELECT	55 ₁₆	SPC-2
MODE SENSE	5A ₁₆	SPC-2
READ (10)	28 ₁₆	RBC
START/STOP UNIT	1B ₁₆	RBC
SYNCHRONIZE CACHE	35 ₁₆	RBC
TEST UNIT READY	00 ₁₆	SPC-2
WRITE (10)	2A ₁₆	RBC
WRITE AND VERIFY (10)	2E ₁₆	RBC
WRITE BUFFER	3B ₁₆	SPC-2

All commands and sections are consistent with the RBC document for ease of reference.

Statements in each section are **additions** to the respective RBC command, any exceptions will be noted.

4.1 READ(10) Command

This command is unavailable until the current capabilities of the target device/media combination are identified to the initiator, and the target device is in ready state as defined in 5.3.1 Initial Response.

4.2 READ CAPACITY(10)

For Removable/Rewriteable storage devices the current device/media combination capacity shall be returned.

NOTE: There is no need for the READ CAPACITIES command.

4.3 START STOP UNIT Command

The logical unit may go to a lower power state if functionality to the initiator is maintained. If response to the host would change, an UNSOLICITED STATUS command shall be issued to notify the host of the desired power state change.

If the device desires to go to a lower power state, based on a vendor specific time out, the host shall be notified and given a reasonable time to respond. If the request is denied the device shall remain in the current power state.

For devices in sleep state, a device reset shall be required before access to the device is allowed.

The operating system shall allow a Removable/Rewriteable storage device in sleep state to eject the media without causing the media to spin up in accordance with PREVENT ALLOW MEDIUM REMOVAL.

When a Removable/Rewriteable device is initially powered-up, or has received a device reset, immediate eject of the media shall be allowed until the host has been notified that the device is in ready state, at which time media eject will be governed by the operating system. This shall be done in accordance with the PREVENT ALLOW MEDIUM REMOVAL.

4.4 SYNCHRONIZE CACHE(10) Command

4.5 WRITE(10) Command

Devices that are physically unable to lock the media (floppy drives, PCMCIA drives, Flash cards, etc.) shall set the FUA bit to one (i.e. the data is not write cached).

4.6 VERIFY(10) Command

4.7 MODE SELECT/SENSE page parameters

5 SPC-2 implementation requirements for RBC devices

5.1 INQUIRY command

5.2 MODE SELECT(10) command

Removable/Rewriteable storage devices may return a CHECK CONDITION status, sense key of ILLEGAL REQUEST if SP bit is set to 1.

5.3 MODE SENSE(10) command

Modification in italics:

NOTE – RBC devices only support Saved and Default parameter values. Since the SP bit is required to be one for the MODE SELECT command *for fixed media devices, and optional for Removable/Rewriteable devices*, Current and Saved values are the same.

5.3.1 Initial Response

Reiteration:

After a power-up condition or hard reset condition, the device shall respond in the following manner:

- a) If default values are requested, report the default values;
- b) If saved values are requested, report valid restored mode parameters, or restore the mode parameters and report them. If the saved values of the mode parameters are not able to be accessed from the non-volatile vendor-specific location, terminate the command with CHECK CONDITION status and set the sense key to NOT READY.
- c) If current values are requested, report saved values as described in b).

Addition:

- d) For Removable/Rewriteable devices the following sequence must occur:
 - A Device Reset shall be issued by the initiator to the target device.
 - The target device shall return an UNSOLICITED STATUS command with Sense Key and Sense Code set to Power on Reset.
 - When ready, the target device shall return an UNSOLICITED STATUS command with Sense Key and Sense Code of Event Status Notification, Sense Qualifier of Media Class Event, Event field of New Media Ready for Access and a Status field of Media Present and Door Closed.
 - The host issues a GET CONFIGURATION command followed by a READ CAPACITY command.
 - The host may issue a START STOP UNIT command with Power Condition of values one, two or three. If this command is not issued, the device shall assume Standby state (Power state = 3).
 - If a START STOP UNIT command is issued, the device shall return an UNSOLICITED STATUS command with Sense Key and Sense Code of Event Status Notification, a Sense Qualifier of Power Management Class Event, an Event field of Device successfully changed power states, and a Status field of 1,2 or 3.

Any errors shall be reported as defined in UNSOLICITED STATUS.

5.4 TEST UNIT READY command

5.5 WRITE BUFFER command

The additional sense code “MICROCODE HAS BEEN CHANGED” (ASC 3F₁₆, ASCQ 01₁₆) can be found in Document T10 1236-D (SPC-2) **Table 67 — ASC and ASCQ assignments** (part 5 of 10), page 87.

Removable/Rewriteable storage devices may return a CHECK CONDITION status, sense key of ILLEGAL REQUEST.

5.6 FORMAT UNIT command

Bit Byte	7	6	5	4	3	2	1	0
0	Operation Code (04 ₁₆)							
1				FmtData	CmpLst	Defect List Format		
2	Vendor Specific					Rsvd	Percent /Time	Incremental
3	Reserved							
4	Reserved							
5	Control							

The FORMAT UNIT command formats the media into addressable logical blocks. This command is not allowed for fixed media devices and is optional for Removable/Rewriteable devices.

The FmtData, CmpLst bits and Defect List Format field may be implemented for vendor specific applications but are not used in RBC.

The Percent/Time bit and the Incremental bit work together to allow the initiator to specify to the target how to report format progress; whether in a percentage of completion, or in a given amount of elapsed time.

If the Percent/Time bit is set to one, FORMAT progress will be reported in percentages. The Incremental bit then specifies the percentage interval. When set to one, the target reports progress to the initiator in 1% increments. When zero, the target reports progress in 5% increments. The default shall be 5% increments. Vendor specific applications may vary the larger percentage increment.

If the Percent/Time bit is zero, FORMAT progress will be reported in time increments. The Incremental bit then specifies the time increment. When set to one, the target reports progress to the initiator in 1 second increments. When zero, the target reports progress in 5 second increments. The default shall be 5 second increments. Vendor specific applications may vary the larger time increment.

FORMAT progress shall be reported through UNSOLICITED STATUS with a Sense Key and Sense Code of Event Status, a Sense Qualifier of Device Busy Class Event, Event field of 02₁₆ – Format Progress Report, Status Field of 03₁₆ – Device in progress, and the Time field shall contain the total number of increments (percentage complete or time in seconds) that have elapsed since command inception.

Upon successful completion of the FORMAT command, UNSOLICITED STATUS will be sent to the host with Sense Key and Sense Code of Event Status Notification, Sense Qualifier of Media Class Event, Event field of New Media Ready for Access and a Status field of Media Present and Door Closed. The host shall respond with GET CONFIGURATION followed by READ CAPACITY.

If the FORMAT command fails, the target device will issue UNSOLICITED STATUS with Sense Key and Sense Code of Event Status Notification, Sense Qualifier of Media Class Event, Event field of Media Error – Format Failed (04₁₆), and a Status field of Media Present and Door Closed.

After the problem is corrected (media replaced), and the target reports Media Ready, the initiator will respond with GET CONFIGURATION, followed by READ CAPACITY.

The Format command cannot be interrupted by the user.

5.7 EJECT MEDIA command

This command is mandatory for Removable/Rewriteable storage devices and not allowed for fixed devices. The EJECT MEDIA command will be considered immediate by the host.

EJECT button presses shall always notify the host through UNSOLICITED STATUS. EJECT commands, whether software or hardware, shall be governed by the operating system.

Physical button press eject requests shall:

- Notify the host through UNSOLICITED STATUS (Media Class Event – 01₁₆) of the eject request.
- Allow no additional commands to the target device.
- Complete all pending commands, or terminate as applicable
- Receive permission from the operating system to eject the media.

For devices that have no locking capability, no guarantee of data integrity is given if physical EJECT requests occur during completion of a command.

If the target device is in sleep state, the media will immediately eject, otherwise the target device shall wait for operating system approval before allowing the eject.

5.8 CANCEL/ABORT command

The ABORT TASK command, as defined in SPC-2 (10.4.1), allowing termination of a command at the request of the host, shall be supported by RBC devices. Devices shall respond to a CANCEL/ABORT request on a best-effort basis.

The CANCEL/ABORT command shall not change the target device state. The target device will attempt termination of the requested command, and return to the state prior to receiving the initial command.

5.9 DEVICE FAILURE Reporting

Removable/Rewriteable storage devices shall notify the host of device failure through UNSOLICITED STATUS with a Sense Key and Sense Code of Event Status Notification and a Sense Qualifier of 07₁₆ (Device Failure). The host shall respond with a TEST UNIT READY command to the target device. The target device shall return the appropriate SMART status response.

Annex A

Using GET CONFIGURATION command under RBC

Removable Medium Disk Devices under RBC shall support the **GET CONFIGURATION** command, as defined in SFF8090 version 2, revision 0.95, dated January 23, 1998. Please refer to that document for more information than is presented here on the GET CONFIGURATION command, features, and profiles; and using features and profiles.

The GET CONFIGURATION command requests that the initiator respond with the configuration of the device and medium.

The GET CONFIGURATION command is shown in Table 1.

Table 1 - GET CONFIGURATION Command

Byte	Bit	7	6	5	4	3	2	1	0
0	Operation Code (46h)								
1	LUN (Obsolete)			Reserved			RT		
2	(MSB) Starting Feature Number (LSB)								
3									
4	Reserved								
5	Reserved								
6	Reserved								
7	(MSB) Allocation Length (LSB)								
8									
9	Vendor-Specific			Reserved			NACA	Flag	Link
10	Pad								
11	Pad								

The RT (Requested Type) field indicates the set of Feature Descriptors desired from the target. The RT field definition is in Table 2.

Operation Code (46h)

Table 2 - RT field definition

RT Field	Description	Starting Feature Number (SFN) Usage
00b	Indicates that the logical unit shall return the Feature Header and all Feature Descriptors supported by the logical unit whether or not they are currently active.	The first Feature Descriptor returned shall have a feature number greater than or equal to the SFN.
01b	Indicates that the Feature Header and only those Feature Descriptors that have their Current bit set shall be returned.	
10b	Indicates that exactly one Feature Header and zero or one Feature Descriptors be returned. If the logical unit does not support the indicated feature, no Feature Descriptor is returned. Note: this may be used to request Feature 0, which is a list of Profiles.	The SFN specifies the Feature Descriptor that shall be returned.
11b	Reserved	

A.1 GET CONFIGURATION response data format

The Response Data is a Configuration Data list and shall contain a header followed by zero or more variable length Feature Descriptors. The format of the Configuration Data shall be as shown in Table 3.

Table 3 - GET CONFIGURATION response data format

Bit	7	6	5	4	3	2	1	0
0-7	Feature Header							
8-n	Feature Descriptor(s)							

The Feature Header shall be returned as shown in Table 4. The Feature Descriptor(s) shall be returned as shown in Table 5, and in each individual feature description (refer to the draft, SFF8090 version 2, revision 0.95 for more information).

Table 4 - Feature Header generic format

Bit	7	6	5	4	3	2	1	0
0	(MSB) Data Length (LSB)							
1								
2								
3								
4	Reserved							
5	Reserved							
6	(MSB) Current Profile (LSB)							
7								

The Data Length field indicates the amount of data available; given a sufficient allocation length from the ALLOCATION LENGTH field in the GET CONFIGURATION command, bytes 7-8; following this field. This length shall not be truncated due to an insufficient Allocation Length.

The Current Profile field shall indicate the target's current profile. The Current Profile for Removable Medium Disks shall be 02h, Removable Medium Disk profile.

Each feature supported by a target shall be described by a Feature Descriptor. Each Feature Descriptor has its own parameters.

The only mandatory Feature Descriptors shall be those required for the Removable Medium Profile, as shown in Table 6. All features shall be a multiple of four bytes long. The format of a Feature Descriptor is shown in Table 5.

Table 5 - Feature Descriptor generic format

Bit	7	6	5	4	3	2	1	0
0	(MSB) Feature Code (LSB)							
1								
2	Reserved	Version				Persistent	Current	
3	Additional Length							
4-n	Feature Dependent Data							
5								

The Feature Code field identifies a feature supported by the target (see Table 6 for mandatory features for Removable disks).

The Version field is reserved and shall be set to zero. Future versions of a feature shall be backward compatible; incompatible changes will be included in a different feature.

The Persistent bit, when set to zero, indicates that this feature may change its current status. When set to one, it indicates that this feature is always active. The target shall not set this bit to one if the Current bit is, or may become, zero.

The Current bit, when set to zero, indicates that this feature is not currently active and that the Feature Dependent Data may not be valid. When set to one, this feature is currently active and the Feature Dependent Data is valid.

The Additional Length field indicates the number of Feature specific bytes that follow this header. This field shall be an integral multiple of 4.

A.2 Profiles

Profiles define a base set of functions for targets. Targets that list a profile as current shall support all Features required by that Profile, but not all Features may be current. Targets may support Features in addition to those required by the Profile. A single device may implement more than one Profile, and more than one Profile may be active at any given time. All required features may not be current, depending on the medium installed. If a Not Ready response would be given to a TEST UNIT READY command, no Profile shall be current.

For example, a target with unformatted media may not be able to read or write, and the corresponding Features would not be current, but the Profile corresponding to the target/media system may be current. i.e. a removable disk drive with unformatted media loaded may claim compliance to the removable medium profile; a removable disk drive with no media loaded shall claim no Profile as current.

A.2.1 Profile 2: Removable Medium Disk

Targets identifying profile 02h as current shall support the features listed in Table 6:

Table 6 – Mandatory Features for Removable Medium Disks

Feature Number	Feature Name	Description
0000h	Profile List	A list of all profiles supported by the device
0001h	Core	Mandatory behavior for all devices
0002h	Morphing	Ability to notify host about operational changes and accept host requests to prevent operational changes
0003h	Removable Medium	The medium may be removed from the device
0010h	Random Readable,PP=1	Read ability for storage devices with random addressing
0020h	Random Writeable	Write support for randomly addressed writes.
0023h	Formattable	Support for formatting media.
0024h	Defect Management	Ability of the drive/media system to provide an apparently defect-free space
0100h	Power Management	Host and device directed power management
0101h	S.M.A.R.T.	Self Monitoring Analysis and Reporting Technology (Failure prediction)
0105h	Timeout	Ability to respond to all command within a specific time

A.2.1.1 Feature 0001h: Core

This feature describes basic target functionality. This Feature shall always be current. All commands and functions described shall always function normally.

The **INQUIRY** command shall be supported. The INQUIRY command shall always complete without an error if the Command Packet is valid.

Targets shall be able to report sense to the initiator. Logical interfaces that report automatic delivery of Logical Unit Sense Information to the initiator shall use the transport's mechanism. For other logical interfaces, the **REQUEST SENSE** command shall be supported. The REQUEST SENSE command shall not generate any new sense information unless the Command Packet is invalid.

The **MODE SENSE (10)** command shall be supported. Targets may not return Block Descriptors. PC field values of 00b, 01b, and 10b shall be implemented for all supported mode pages. Targets shall be able to report mode pages whether or not appropriate media is loaded.

The **MODE SELECT (10)** command shall be supported. The SP bit may not be supported. Targets shall be able to accept mode pages whether or not appropriate media is loaded.

The **GET CONFIGURATION** command shall be supported. Unit Attention conditions shall not be reported to the GET CONFIGURATION command.

The **TEST UNIT READY** command shall be supported. TEST UNIT READY is a legacy command used to check for the existence of media and to discover Unit Attention conditions. The GET CONFIGURATION or GET EVENT/STATUS NOTIFICATION commands should be used instead to determine media status. Unit Attention conditions can be prevented if the Morphing feature is present and is used.

Targets shall be able to report Events to the initiator. Logical interfaces that support Event reporting to the initiator shall use the transport's mechanism. For other logical interfaces, the **GET EVENT/STATUS NOTIFICATION** command shall be supported. The initiator should determine supported events by issuing a GET EVENT/STATUS NOTIFICATION command with the IMMED bit set. Zero or more event classes may be supported.

Table 7 defines the format of the Core feature (01h):

Table 7 - Feature 0001h: Core

Byte	Bit	7	6	5	4	3	2	1	0
0	(MSB)	Feature Code – 0001h							
1									
2		Reserved	Version				Persistent	Current	
3		Additional Length = 04h							
4	(MSB)	Physical Interface Standard							
5									
6									
7									

The Feature Code field shall be set to 0001h. The Persistent bit shall be set to one. The Current bit shall be set to one. The Additional Length field shall be set to 4.

The Physical Interface Standard field shall be set to the current initiator to target communication path as shown in Table 8:

Table 8 – Physical Interface Standard

Physical Interface Standard	Description	Application
00000000h	Unspecified	
01h	SCSI Family	See “SCSI Implementation Notes” on page 347 (MMC-2)
0002h	ATAPI	See “ATAPI Implementation Notes” on page 337 (MMC-2)
0003h	IEEE 1394 Family	
04-FEh	Reserved	
000FFFFh	Vendor Unique	
00010000h – 0001FFFFh	Defined by NCITS	
00020000h – 0002FFFFh	Defined by SFF	
00030000h – 0003FFFFh	Defined by IEEE	
00040000h – FFFFFFFFh	Reserved	

A.3 Event Reporting to the Initiator

A.3.1 UNSOLICITED STATUS Reporting

Under RBC, **UNSOLICITED STATUS** shall be supported, as defined in Annex B of the RBC document.

If the Physical Interface reported in bytes 4-7 of the Core Feature (see Table 7) is 03h (IEEE 1394 Family), the initiator shall set the target’s **unsolicited_status_enable** register; and the target shall report events to the initiator via UNSOLICITED STATUS as described in the RBC document.

If the UNSOLICITED STATUS Sense key is 06h (Unit Attention), with a Sense code of 29h (Power on reset, bus reset, etc.) the initiator shall respond to the target with a new GET CONFIGURATION command. If the device has been reset, the initiator shall also send a READ CAPACITY command, following the GET CONFIGURATION command.

If the UNSOLICITED STATUS Sense key is 06h with a Sense code of 7Fh (Event Status Notification), and the Sense Qualifier is 04h (Media Class Event), the initiator shall respond with a GET CONFIGURATION command; with the exception that if the event field of the Media event is 00h (Media status is unchanged), the GET CONFIGURATION command response from the initiator shall be optional.

A.3.2 GET EVENT/STATUS NOTIFICATION Command

If the Physical Interface Standard reported in the Core Feature is anything other than 03h (IEEE 1394 family), the target shall report events to the initiator through the default mechanism for the protocol, or through responses to the **GET EVENT/STATUS NOTIFICATION** command. This command operates via both polling and asynchronous modes. Implementation of the GET EVENT/STATUS NOTIFICATION commands requires implementation of the SEND EVENT command as well. These command are presented in detail in the document SFF8090 Version 2 revision 0.95 dated January 23, 1998, and will not be discussed here.

A.4 PREVENT/ALLOW MEDIUM REMOVAL Command

The **PREVENT/ALLOW MEDIUM REMOVAL** command requests that the target enable or disable the removal of the medium in the target. The prevention of media removal (when implemented) shall be accomplished through the use of a Locking Mechanism. The use of a physical locking mechanism is optional. If a non persistent prevent is issued and the target does not support a physical locking

mechanism an error shall be returned (Sense key 05 ILLEGAL REQUEST, Sense Code 24 INVALID FIELD IN COMMAND PACKET). If the operation is persistent, the prevent will not be reset when media is removed or inserted. This will allow new media to become captive without initiator interaction. The Persistent Prevent is to be used in conjunction with the GET EVENT/STATUS NOTIFICATION command, to prevent media from being ejected with dirty file system buffers.

Table 9 defines the PREVENT/ALLOW MEDIUM REMOVAL command:

Table 9 – PREVENT ALLOW MEDIUM REMOVAL Command

Bit	7	6	5	4	3	2	1	0
Byte								
0	Operation Code (1Eh)							
1	LUN(Obsolete)			Reserved				
2	Reserved							
3	Reserved							
4	Reserved						Persistent	Prevent
5	Vendor-Specific	Reserved			NACA	Flag	Link	
6	PAD							
7								
8								
9								
10								
11								

The persistent bit indicates that this will be a persistent prevent / allow command. If the prevent and Persistent bits are both 1, upon receiving this command, the target shall disable any hardware eject mechanisms, and all media, *after initial drive spin up*, shall remain locked in the drive until the initiator issues an eject request, or persistent prevent status is reset and the hardware eject mechanism again becomes available.

The persistent prevent status shall be reset upon receipt of a persistent allow command, a bus reset, or a power reset condition.

Upon insertion of new media, under persistent prevent conditions, the target eject controls shall remain functional up until the drive generates a New Media event as defined in the Media Status Events section. After this event has been generated, the media shall remain locked as defined above.

Note: The prevent command with a persistent bit of 1, shall not prevent an eject request from the initiator from succeeding.

The behavior of the prevent / allow command with a persistent bit of 0 is not effected by the persistent prevent state. The prevention of medium removal shall begin when the initiator issues a PREVENT/ALLOW MEDIUM REMOVAL command with a prevent bit of one and a Persistent bit of zero (medium removal prevented). The prevention of medium removal for the target shall terminate:

1. after the initiator has issued a PREVENT ALLOW MEDIUM REMOVAL command with a prevent bit of zero (Unlock), and the target has successfully performed a Flush cache operation; or
2. upon a hard RESET condition; or
3. upon a DEVICE RESET; or
4. if the drive does not support a locking mechanism.

While a prevention of medium removal condition is in effect (Locked) the target shall inhibit mechanisms that normally allow removal of the medium by an operator. This is also the case for changers.

The default state of the drive at power on is unlocked, unless the drive supports a prevent/allow jumper and the jumper is in the prevent state.

This command will affect the actions of the START/STOP UNIT command and other mechanisms external to this specification (manual ejection / media removal systems.) The actions for various settings of the lock / unlock / eject commands / physical buttons are shown in Table 10:

Table 10 – Actions for Lock / Unlock / Eject

Operation	Locked/ Unlocked	If Drive Not Ready (No Media)	If Drive Ready (Media Present)
Unlock (Prevent=0)	Unlocked	No Error	No Error
	Locked	No Error, Now media may be inserted	No Error, Drive door locked and will not allow media to be removed
Lock (Prevent=1)	Unlocked	No Error, Drive door locked and will not allow media to be inserted	No Error, Drive door locked and will not allow media to be removed
	Locked	No Error	No Error
Lock when the drive does not support a Locking Mechanism	Would always be Unlocked	<u>Error:</u> 05 Illegal Request 24 Invalid Field in Command Packet	<u>Error:</u> 05 Illegal Request 24 Invalid Field in Command Packet
Eject (START STOP UNIT command with LoEj set)	Unlocked	No Error and Tray is opened	No Error: Media Ejects
	Locked	<u>Error:</u> 02 Not ready 53 Media Removal Prevented	<u>Error:</u> 05 Illegal Request 53 Media Removal Prevented
Manual Eject	Unlocked	Tray opens (if tray exist)	Media is Ejected
	Locked	No operation occurs	No operation, Media stays locked in drive

Table 11 – Recommended Sense Key, ASC and ASCQ for PREVENT/ALLOW Command Errors

Sense Key	ASC	ASCQ	Description of Error
02	04	00	LOGICAL UNIT NOT READY – CAUSE NOT REPORTED
02	04	01	LOGICAL UNIT NOT READY –
02	04	02	LOGICAL UNIT NOT READY –
02	04	03	LOGICAL UNIT NOT READY –
02	3A	00	MEDIUM NOT PRESENT
05	20	00	INVALID COMMAND OPERATION CODE
05	24	00	INVALID FIELD IN COMMAND PACKET
05	25	00	LOGICAL UNIT NOT SUPPORTED
06	28	00	NOT READY TO READY TRANSITION
06	29	00	POWER ON OR HARD RESET OCCURRED
06	2E	00	INSUFFICIENT TIME FOR OPERATION
06	3F	00	DEVICE OPERATING CONDITIONS HAVE CHANGED
06	3F	01	MICROCODE HAS BEEN CHANGED