

Question to survey the member's opinion #1

Pioneer Corporation

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1. Format Unit command behavior:

Format Unit command with allocation size (Number of Blocks field $\neq 0$) makes the re-writable user data area of the contiguous LBA space. A RZone of the Number of Blocks is located on the DVD-RW DL disc. If the Number of Blocks exceeds Layer 0 capacity, the RZone that is the contiguous condition is located on Layer 0 and Layer 1.

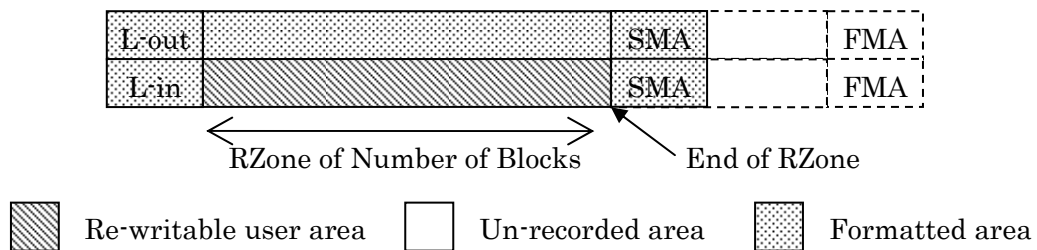


Figure 1: Example Format Unit command Format type=0h

1.1. Fast re-format system:

DVD-RW DL disc has the fast re-format system that uses flags, OR1 and OR0. RW-DL disc will take 1 hour for full format operation. The fast re-format system reduces this burden time.

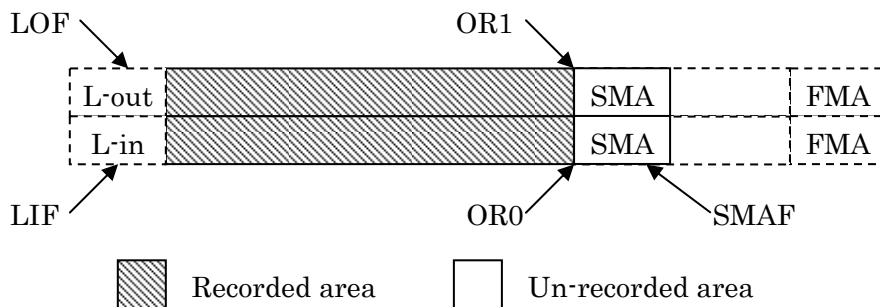


Figure 2: Fast re-format help system

Table 1: Fast re-format system parameters

Parameter	Description
LIF	Lead-in area is recorded.
LOF	Lead-out area is recorded.
SMAF	Middle Area is recorded at OR0+1.
OR0	Area between Lead-in and OR0 is recorded.
OR1	Area between Lead-out and OR1 is recorded.

Once these areas are recorded, drive needs not record them again at the re-format operation after logical erase operation of the Quick format. Drive only needs to modify the RW Physical format information and RMD information at the re-format operation.

1.2. Pioneer proposal at June meeting

Pioneer proposed that drive *shall not* modify (*shall not* fill by null data) the user data area of DVD-RW DL disc by Format Unit command of any options if the requested capacity (number of blocks) of the user data area has been recorded. For example, when the RW-DL disc is fully formatted, drive does not perform any data writing on the RW-DL disc. The Format Unit command of the Format type=00h to the fully formatted RW-DL disc does not modify the user data area at all. Then all user data remains as is after the Format Unit command. Usually file system of the host will rewrite the file system information, and then old user data will be un-readable. If desired, host may perform filling null data to erase the original data.

1.3. Discussion in the meeting

In the discussion there were several comments.

Pioneer's proposal changes the Format Unit command behavior too much.

Actually drive vender may use Pioneer method. But it should be vender selection.

If it is vender selection, host cannot use the fast re-format operation. It should be formalized.

Only Format type=00h is mandatory for DVD-RW.

1.4. Action item

Pioneer makes document to survey the Fuji/T10 member's opinion.

2. Question about re-format operation of Mt. Fuji specification

Pioneer would like to know the member's opinion especially software vendors. Please send your favorite option to reflector.

There are three options.

1. All format type **shall not** modify the recorded user data area.
2. Format type Grow Session (11h) and Quick Grow (13h) **shall not** modify the recorded user data area. Other format type behavior is vender specific.
3. New Format Code of the Send disc structure command is used for the fast re-format operation. It specifies the capacity to be allocated.

2.1. Merit/demerit

Option	Merit	Demerit
1	<ul style="list-style-type: none">* Usually host uses Format type=00h. Host and drive need not change the implementation.* Media manufacture can sell the pre-formatted RW-DL disc.	<ul style="list-style-type: none">* The Format type=00h operation does not perform any data write action. Original user data remains. To erase the user data, host needs to fill the user data area up by Write command.
2	<ul style="list-style-type: none">* Host can perform fast re-format operation by Format type 11h /13h.	<ul style="list-style-type: none">* To allow the pre-formatted RW-DL disc by the media manufacture, to use the fast re-format operation, host shall use Format type 11h/13h.* Drive manufacture needs to support the Format type 11h/13h to support the fast re-format.
3	<ul style="list-style-type: none">* Host can perform fast re-format operation by Send Disc Structure command.	<ul style="list-style-type: none">* To allow the pre-formatted RW-DL disc by the media manufacture, to use the fast re-format operation, host shall use Send disc structure command.

For example, Pioneer drive supports only Format type 00h, 10h and 15h. Option 1 does not require any change of the usual products.