ALMEDIO

ABEX
Product Introduction

No.M30066

2010.01 Rev.1

TEST BD-R/ -RE

For Checking BD Drives, BD Players and BD Recorders

ABD-R820W/ -RE820W

1. Purpose of use, Features

ABD-R820W/ -RE820W are designed for confirmation of various kind of operation, evaluation, measurement and adjustment of BD Drives, Players and Recorders.

2. Specifications

- Disc type
  - ABD-R820W : BD-R Disc Single Sided Single Layer
  - ABD-RE820W : BD-RE Disc Single Sided Single Layer
- Capacity : 25 Gbytes
- Physical Characteristics
  - ABD-R820W : Complies with BD-R Part1 Basic Format Specifications Ver. 1.3
  - ABD-RE820W : Complies with BD-RE Part1 Basic Format Specifications Ver. 2.1
- File System : Since it is used for various purposes, file system is not UDF2. 5 structure.
- BCA : Exist

Note) Please be careful not to erase the content from, nor overwrite ABD-RE820W.

3. Principal use

- Data reading check
- Access check
- Seek time check

4. Content

- Address No., M-sequence data, Check Sum and specific ASCII code are recorded in User data.

(1) Data area

- Logical Sector : 000000 – BA73FFh
- Physical Sector : 100000 – CA73FFh

(2) User Data Structure

Group	Byte Number In User Data	Contents	Code
A	0 1 2 3	MSB 00 10 00 00h + Sequential Sector Number LSB	Binary
	4, 5	Character Code " " (20h)	ASCII
	6 7 8 9	MSB Sequential Sector Number LSB	Binary
	10, 11	Character Code " " (20h)	ASCII
	12 13 14 15	MSB ECC Block Number (1 Block = 32 Sectors) LSB	Binary
	16 17 18 19 20 21 22 23	Character Code "A" (41h) Character Code "B" (42h) Character Code "E" (45h) Character Code "X" (58h) Character Code " " (20h) Character Code "B" (42h) Character Code "D" (44h) Character Code " " (20h)	ASCII
B	24 2043	M-Sequence(2^{32}-1)Data	Binary
C	2044, 2045	Character Code " " (20h)	ASCII
D	2046 2047	LSB of Check Sum MSB of Check Sum	Binary

MSB = Most Significant Byte LSB = Least Significant Byte

(3) Generation of M-sequence data

- The following function is used for the generation polynomial equation that generates M-sequence data.
  Polynomial = 1E0000401h
  The data notation adopts the method of making MSB to the left and LSB to the right.
- The default value of M-sequence data is used Sequential Sector Number +1 of each sector, the direct of bit shift move to lower bit.

(4) Generation process of M-sequence data

1. The primitive polynomial equation is shifted by 1 bit to the lower bit and the result is stored into IFED (32bits data).
   IFED = F0000200h
2. 32bits Work Register is stored with the Sequential Sector Number +1.
3. If the LSB of the work register is 1, then Flag LSBF=1, else, flag LSBF=0.
4. The data in register is shifted by 1 bit to the lower bit bringing 0 into MSB.
   (The data of LSB is cleared off.)
5. If LSBF=1, the work register is Exclusive-Ored with the IFED and replaced by the result.
   If LSBF=0, the work register is left unchanged.
6. The work register is ANDed with "FFFF", in order to get the lower 16bits as the 2 bytes of the result.
   The lower bytes of the result is stored into the lower address.
7. Keeping the work register unchanged, return to process No.3 for the next address value. This process is repeated 1009 times to generate the user data in sector.

(5) Calculation of Check Sum

In order to check data within the User Data, Check Sum is recorded in the last 2 bytes (16bits) of this area. The Check Sum is achieved by considering 16 bits as 1 word in the User Data and accumulating all the words besides the Check Sum Bytes, and taking the lower 16 bits (2 bytes) as the result. The lower bytes of this result stored into Byte Number 2046 of the User Data, and the higher Bytes into 2047.

(6) User data sample

・User Data at Logical Sector Number (LSN) 000000h

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	ASCII
000000	00	10	00	00	20	20	00	00	00	00	20	20	00	00	00	00	. . . .
000010	41	42	45	58	20	42	44	20	00	02	00	01	80	00	40	00	ABEX BD . . . . . @.
000020	20	00	10	00	08	00	04	00	02	00	01	00	00	02	00	01	. . . . .
000030	80	00	40	80	20	C0	10	E0	08	F0	04	78	02	3C	01	1E	. . @. . . . . x. <. .
000040	00	0D	80	06	40	03	A0	81	D0	C0	68	E0	34	F0	1A	78	. . . . @. . . . . h.4. .x
000050	0D	3C	06	1C	03	0E	01	05	80	00	40	80	20	C0	10	E0	. <. . . . . @. . . .
:																	
0007E0	4E	BF	A7	5F	D3	AD	E9	D4	74	68	3A	34	1D	1A	0E	0F	N. . _. . . . th:4. . . .
0007F0	87	87	C3	C1	E1	62	70	B3	B8	D9	DC	6C	20	20	90	F2	. . . . . bp. . . . l . .

・User Data at Logical Sector Number (LSN) BA73FFh

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	ASCII
000000	00	CA	73	FF	20	20	00	BA	73	FF	20	20	00	05	D3	9F	. . s. . . s. . . . .
000010	41	42	45	58	20	42	44	20	00	3A	00	9D	80	4E	40	A7	ABEX BD . : . . . N@.
000020	A0	D3	D0	E9	E8	74	74	BA	3A	5D	9D	2E	4E	15	A7	0A	. . . . . tt. :] . .N. . .
000030	53	07	A9	01	D4	02	6A	01	B5	00	5A	02	2D	01	96	02	S. . . . . j. . . Z. -. . .
000040	4B	01	A5	02	52	03	A9	81	D4	C2	6A	61	B5	B0	5A	DA	K. . . R. . . . . ja. . Z.
000050	2D	ED	96	74	4B	3A	25	9F	92	4D	C9	26	64	11	B2	88	-. . tK: %. . M. &d. . .
:																	
0007E0	07	21	83	12	41	8B	A0	C7	D0	63	E8	31	F4	18	7A	0C	. ! . . A. . . . c. 1. . z.
0007F0	3D	06	1E	81	8F	40	47	22	23	13	91	0B	20	20	85	0F	=. . . . @G"#. . . . .

<Proper handling of the disc>
Do not write on the surface with a pen and others, nor put a sticker on it.
Do not expose the disc to direct sunlight, nor leave it in the place of high temperature and high humidity.
After playing, store the disc in its own case.

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