FILL ITEM

References	SMPTE 377-1 - MXF - File Format Specification Chapitre 6.3.3 - KLV Fill Items [P34]
KLV Model	Data Item
Universal Label	`06.0e.2b.34.01.01.01.02.03.01.02.10.01.00.00.00 (SMPTE)` `06.0e.2b.34.01.01.01.01.03.01.02.10.01.00.00.00 (Interop)`

PREFACE

This is a particular KLV : it is useless...

Voila, you can leave this chapter now :)

METADATA

To be more specific, this KLV contains no meaningful data. It is only used to align bits between one KLV and the next.

Within the **Value** field, there is a sequence of `0x0` bytes or meaningless data used to align an end of a partition or a KLV with the start of the next partition or KLV.

A **Fill Item** is often found at the end of a **Header** Partition. Sometimes, depending of the Essence Type, Fill Item will appear between each KLV that contains essence (for example: Frame -> Fill -> Next Frame, ...).

The minimal size of **Fill Item** KLV is 17 octets (16 octets for the UL field + a minimum of 1 octet for the Length field in BER format, and no data in the **Value** field).

In a SMPTE MXF OP-1a within a DCP, when a Fill Item is present in the **Header**, it must be the last KLV in the **Header** partition. Which is not necessarily the case in other types of MXF, such as Rushes MXF like ARRIRaw, where Fill Items can appear (almost) anywhere.

An example with this MXF:

offset	uuid	ber	data-size	
0	060e2b34.02050101.0d010201.01020400	83.000078	120	00
140	060e2b34.02050101.0d010201.01050100	83.000596	1430	00
1590	060e2b34.02530101.0d010101.01012f00	83.0000be	190	3c
1800	060e2b34.02530101.0d010101.01013000	83.0000d8	216	3c
2036	060e2b34.02530101.0d010101.01011800	83.00005c	92	3c
2148	060e2b34.02530101.0d010101.01012300	83.000048	72	3c
2240	060e2b34.02530101.0d010101.01013600	83.0000a0	160	3c
2420	060e2b34.02530101.0d010101.01013b00	83.000070	112	3c
2552	060e2b34.02530101.0d010101.01010f00	83.000050	80	3c
2652	060e2b34.02530101.0d010101.01011400	83.00004b	75	3c
2747	060e2b34.02530101.0d010101.01013b00	83.00006e	110	3c
2877	060e2b34.02530101.0d010101.01010f00	83.000050	80	3c
2977	060e2b34.02530101.0d010101.01011100	83.00006c	108	3c
3105	060e2b34.02530101.0d010101.01013700	83.000116	278	3c
3403	060e2b34.02530101.0d010101.01013b00	83.000070	112	3c
3535	060e2b34.02530101.0d010101.01010f00	83.000050	80	3c
3635	060e2b34.02530101.0d010101.01011400	83.00004b	75	3c
3730	060e2b34.02530101.0d010101.01013b00	83.00006e	110	3c
3860	060e2b34.02530101.0d010101.01010f00	83.000050	80	3c
3960	060e2b34.02530101.0d010101.01011100	83.00006c	108	3c
4088	060e2b34.02530101.0d010101.01012900	83.0000bd	189	3c
4297	060e2b34.02530101.0d010101.01015a00	83.0000b5	181	3c
4498	060e2b34.01010102.03010210.01000000	83.002e5a	11866	00
16384	060e2b34.02050101.0d010201.01030400	83.000078	120	00
16524	060e2b34.01020101.0d010301.15010801	83.009cc8	40136	ff
56680	060e2b34.02050101.0d010201.01040400	83.000078	120	00
56820	060e2b34.02530101.0d010201.01100100	83.000083	131	3c
56971	060e2b34.02050101.0d010201.01110100	83.000028	40	00

And in the ARRIRaw rush :

```
    offset | uuid                                 | ber       :        data-size
         0 | 060e2b34.02050101.0d010201.01020400 | 83.000088  :              136
       156 | 060e2b34.01010102.03010210.01000000 | 83.000150  :              336
       512 | 060e2b34.02050101.0d010201.01050100 | 83.000866  :             2150
      2682 | 060e2b34.01010102.03010210.01000000 | 83.000172  :              370
      3072 | 060e2b34.02530101.0d010101.01012f00 | 83.0000b7  :              183
      3275 | 060e2b34.02530101.0d010101.01013000 | 83.00008c  :              140
      3435 | 060e2b34.02530101.0d010101.01011800 | 83.00005c  :               92
      3547 | 060e2b34.02530101.0d010101.01012300 | 83.000048  :               72
      3639 | 060e2b34.02530101.0d010101.01013600 | 83.0000cc  :              204
      3863 | 060e2b34.02530101.0d010101.01013b00 | 83.000050  :               80
     (...)
      9841 | 060e2b34.02530101.0d010101.01011100 | 83.00006c  :              108
      9969 | 060e2b34.0213010d.0f010402.01010100 | 83.06a5d3  :           435667
    445656 | 060e2b34.01010102.03010210.01000000 | 83.07a114  :           499988
    945664 | 060e2b34.02050101.0d010201.01030400 | 83.000088  :              136
    945820 | 060e2b34.01010102.03010210.01000000 | 83.000150  :              336
    946176 | 060e2b34.02530101.0d010201.01100100 | 83.00008b  :              139
    946335 | 060e2b34.01010102.03010210.01000000 | 83.000f4d  :             3917
    950272 | 060e2b34.02050101.0d010301.04010100 | 83.000039  :               57
    950349 | 060e2b34.02430101.0d010301.04010201 | 83.000043  :               67
    950436 | 060e2b34.02430101.0d010301.04010301 | 83.00011b  :              283
    950739 | 060e2b34.01010102.03010210.01000000 | 83.000019  :               25
    950784 | 060e2b34.0102010d.0f010301.01010100 | 83.bdd82c  :         12441644
  13392448 | 060e2b34.01010102.03010210.01000000 | 83.000dac  :             3500
  13395968 | 060e2b34.01020101.0d010301.16050300 | 83.001770  :             6000
  13401988 | 060e2b34.01010102.03010210.01000000 | 83.000068  :              104
  13402112 | 060e2b34.01020101.0d010301.16050301 | 83.001770  :             6000
  13408132 | 060e2b34.01010102.03010210.01000000 | 83.000068  :              104
  13408256 | 060e2b34.01020101.0d010301.16050302 | 83.001770  :             6000
  13414276 | 060e2b34.01010102.03010210.01000000 | 83.000068  :              104
  13414400 | 060e2b34.01020101.0d010301.16050303 | 83.001770  :             6000
  13420420 | 060e2b34.01010102.03010210.01000000 | 83.000068  :              104
  13420544 | 060e2b34.01020101.0d010301.16050304 | 83.001770  :             6000
  13426564 | 060e2b34.01010102.03010210.01000000 | 83.000068  :              104
  13426688 | 060e2b34.02050101.0d010301.04010100 | 83.000039  :               57
  13426765 | 060e2b34.02430101.0d010301.04010201 | 83.000043  :               67
  13426852 | 060e2b34.02430101.0d010301.04010301 | 83.00011b  :              283
  (...)
```

You can see some **Fill Items** with random data.