

**Source :** Sweden  
**Title :** SCIF format + required tests  
**Purpose :** Discussion

## **1. Introduction**

Assuming an new format, e.g. SCIF, needs to be defined, there are two major questions which need to be answered :

- what is the purpose of this format ?
  - why define this format ?
  - which are the target cameras / displays ?
  - which applications do we aim at ?
- which tests have to be carried out to prove that the chosen format satisfies all our requirements ?

This paper will discuss both questions by listing possible proposals and hopefully we will find an answer by elimination during the discussion.

## **2. Purpose of a new coding format**

Assumed that the input and the output format of the high quality service is the interlaced CCIR 601 and a new format is needed to guarantee interworking between a 50 Hz and a 60 Hz world. Two possibilities are left over ( assuming a new single coding format is added ) :

- the new intermediate coding format will always be used
- the new intermediate coding format will only be used when a connection need to be established between 50 and 60 Hz countries

The new coding format is an intermediate step toward a completely progressive world. Conversions are needed for the moment, because no progressive material is present and because progressive displays are few in number. The idea is to go to a completely progressive link where also the coding will / can benefit.

In this case the question need to be answered whether we plan to broaden our mind beyond the CCITT perspectives. In that case the format need to be considered carefully, since it might trigger of production of the first really world wide standard input / output product. Relation to other groups who work towards progressive formats might / must be considered.

## **3. Connections for the three possible targets**

When going for a single format, at least 3 different targets can be distinguished. When looking at Figure 1, the following sequences of conversion / coding steps can be set up for the different targets :

### 3.1 Interlaced input output, intermediate format which is always used

The following connections will be operational : (see Figure 1)

- 50 Hz ---> 50 Hz (1) (8) (10) (11) (3)
- 60 Hz ---> 60 Hz (4) (9) (10) (12) (6)
- 50 Hz ---> 60 Hz (1) (8) (10) (12) (6)
- 60 Hz ---> 50 Hz (4) (9) (10) (11) (3)

### 3.2 Interlaced input output, intermediate format only for interworking

The following connections will be operational : (see Figure 1)

- 50 Hz ---> 50 Hz (1) (2) (3)
- 60 Hz ---> 60 Hz (4) (5) (6)
- 50 Hz ---> 60 Hz (1) (8) (10) (12) (6)
- 60 Hz ---> 50 Hz (4) (9) (10) (11) (3)

### 3.3 Progressive input output, interlaced input a temporal solution

The following connections will be operational : (see Figure 1)

- 50 Hz ---> progressive (1) (8) (10) (13)
- 60 Hz ---> progressive (4) (9) (10) (13)
- progressive ---> progressive (7) (10) (13)

## 4. Tests that need to be performed

It has to be considered seriously whether it is sufficient just to test whether conversion does not cause a terrible degradation, or whether the picture quality for the combination of conversion and coding has to be tested.

All possible tests for the three different targets are listed in paragraphs 4.1, 4.2 and 4.3.

#### 4.1 Tests if 3.1 is the target

- |                    |                       |           |               |
|--------------------|-----------------------|-----------|---------------|
| • 50 Hz ---> 50 Hz | (1) (8) (11) (3)      | no coding | <i>test 1</i> |
| • 60 Hz ---> 60 Hz | (4) (9) (12) (6)      | no coding | <i>test 2</i> |
| • 50 Hz ---> 60 Hz | (1) (8) (12) (6)      | no coding | <i>test 3</i> |
| • 60 Hz ---> 50 Hz | (4) (9) (11) (3)      | no coding | <i>test 4</i> |
| • 50 Hz ---> 50 Hz | (1) (8) (10) (11) (3) | coding    | <i>test 5</i> |
| • 60 Hz ---> 60 Hz | (4) (9) (10) (12) (6) | coding    | <i>test 6</i> |
| • 50 Hz ---> 60 Hz | (1) (8) (10) (12) (6) | coding    | <i>test 7</i> |
| • 60 Hz ---> 50 Hz | (4) (9) (10) (11) (3) | coding    | <i>test 8</i> |

#### 4.2 Tests if 3.2 is the target

Note these tests are a subset of the tests in 4.1

- |                    |                       |           |               |
|--------------------|-----------------------|-----------|---------------|
| • 50 Hz ---> 60 Hz | (1) (8) (12) (6)      | no coding | <i>test 3</i> |
| • 60 Hz ---> 50 Hz | (4) (9) (11) (3)      | no coding | <i>test 4</i> |
| • 50 Hz ---> 60 Hz | (1) (8) (10) (12) (6) | coding    | <i>test 7</i> |
| • 60 Hz ---> 50 Hz | (4) (9) (10) (11) (3) | coding    | <i>test 8</i> |

### 4.3 Tests if 3.3 is the target

• 50 Hz ---> progressive	(1)	(8)	(13)	no coding	<i>test 9</i>
• 60 Hz ---> progressive	(4)	(9)	(13)	no coding	<i>test 10</i>
• 50 Hz ---> progressive	(1)	(8)	(10) (13)	coding	<i>test 11</i>
• 60 Hz ---> progressive	(4)	(9)	(10) (13)	coding	<i>test 12</i>
• progressive ---> progressive	(7)	(10)	(13)	coding	<i>test 13</i>

## 5. Conclusion

A unified decision has to be made on what the purpose of the new coding format(s) is. This includes a decision on our target camera and display, both on long and short time bases.

If these targets have been clarified, the right tests have to be carried out. In point 4, tests for the different targets are listed.

If one should desire to go for a dual format, as mentioned in AVC-215, the exercise has to be repeated by setting up new connections and defining new tests.

## INPUT

## CODING/CONVERSION

## OUTPUT

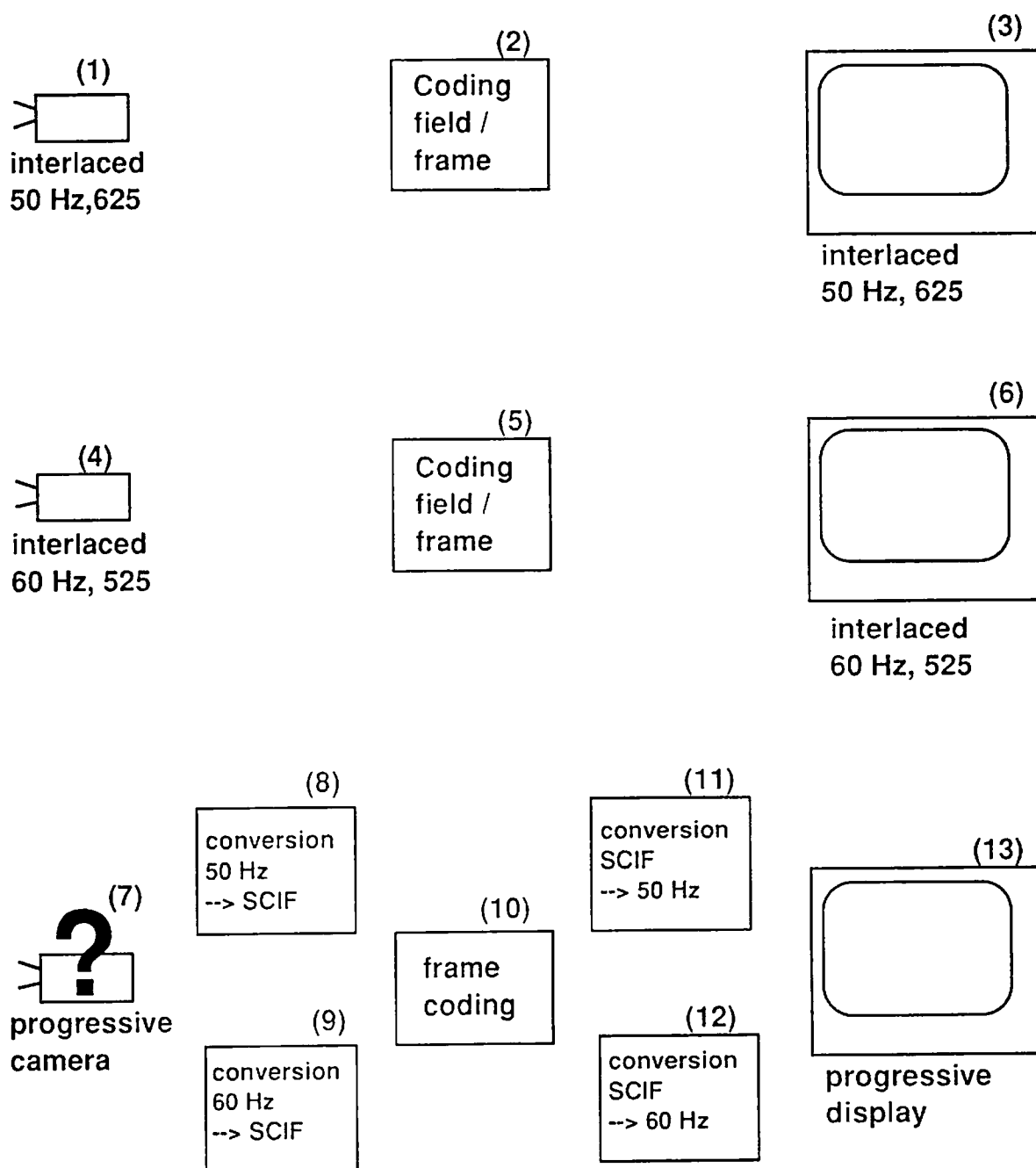


Figure 1

Overview of possible building blocks  
(Completeness is not claimed !!!)