

## ***TS Structure for IBC 2007***

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# 1 Document overview

The purpose of the present proposal is to provide an overview of the technical configuration for the RRD live broadcast during IBC 2007.

## 2 DVB-H Transmission Parameters

### 2.1 Network parameters

Parameter	Value
Original Network ID	0002
Network ID	40961
Cell ID	0002
Platform ID	20157
Platform Name	RRD_IBC2007
Platform Provider Name	RRD ITALY
Transport Stream ID	0002
Transport Stream bit rate	6.032086 Mbit/s

### 2.2 Physical layer

Parameter	Value
Frequency Band	UHF
Channel	28
Center Frequency	530 MHz
Network Structure	MFN
Transmitter Power (ERP)	1 KW digital
Bandwidth	8 MHz
Mode	8K
Modulation	QPSK (non-hierarchical)
Code Rate	1/2
Guard Interval	1/32
TPS Signaling	CellID Signaling of DVB-H Time Slicing
Channel search	Required

## 2.3 MPE-FEC parameters

Parameter	Value
MPE FEC code rate	3/4
Burst Duration	3 s
Burst Size	1 Mbit
Peak Bit Rate per Burst	4-6 Mbps
Time Slice Period	3 s
Number of MPE-FEC Rows	512, 1024

## 2.4 PSI/Signaling

Following tables will be used: TDT, NIT, INT, PAT and PMT.  
The repetition rates are:

Repetition Rate of	Value
NIT	$\leq 1$ s
PAT	$\leq 100$ ms
PMT	$\leq 100$ ms
INT	$\leq 1$ s
TDT	$\leq 1$ s

### 3 DVB-H Content Formats

#### 3.1 TV Services

Parameter	Value
Video Codec	H.264 AVC
<i>IRD Class</i>	A, B
Profile	Baseline, 1.2
Picture Size	QVGA, 320x240
Frame Rate	25 fps
Max Bit Rate	512 kbps
Preferred Bit Rate	300 kbps
Video Encapsulation	RTP, RFC 3984
Audio Codec	HE AACv1
Audio Format	stereo
Audio Bit Rate	32 - 64 Kbps
Audio Sampling Frequency	48 KHz
Audio Encapsulation	RTP, RFC 3640
A/V Packetization Mode	1

## 4 Electronic Service Guide

There are 2 types of ESG broad casted

1. DVB-CBMS phase 1 complaint
2. OMA BCAST BMCO Test camp profile complaint

For both ESG types apply the following settings:

Parameter	Value
ESG provider id	20157
ESG provider uri	rrd.ibc2007

Text encoding will be UTF-8 wherever applicable.

ESG data rate will be in a range of 50 to 250 Kbps.

### 4.1 DVB-CBMS ESG

The broadcast ESG that will be used is based on DVB-CBMS phase 1. The receivers shall support:

- ESG bootstrapping
- SDP transmission inline style via ESG

Parameter	Value
Data Model	DVB-CBMS
Transport	ALC/FLUTE incl. CBMS extensions
Bootstrap IP Address	224.0.23.14
Bootstrap Port Number	3937

## 4.2 OMA BCAST 1.0 ESG

The broadcast ESG that will be used is based on OMA BCAST 1.0 ERP. The receivers shall support:

- ESG bootstrapping
- SDP transmission reference style via ESG

Parameter	Value
Data Model	OMA BCAST 1.0 ERP
Transport	Flute
Bootstrap IP Address	224.0.23.14
Bootstrap Port Number	9214

## 5 OMA BCAST 1.0 Service Protection and Purchase

For the scrambled services were the OMA BCAST service protection been used. There are two OMA BCAST Smartcard Profile services, one scrambled with SRTP and the other scrambled with ISMACryp. Additionally there is a stream which is scrambled with ISMACryp and features OMA BCAST Smartcard and DRM Profile simultaneously.

All scrambled services use a fixed MSK and variable MTK with a rekey interval of 30sec.

Parameter	Value
SCP SRTP PID	682
SCP SRTP serviceId	bcast://coremedia.com/service/72
SCP ISMACryp PID	683
SCP ISMACryp serviceId	bcast://coremedia.com/service/94
DRM and SCP PID	684
DRM and SCP serviceId	bcast://coremedia.com/service/160
MSKId for SCP	00000000010001
serviceBaseCid for DRM	118
serviceCidExtension for DRM	31004
SAS for DRM	000102030405060708090A0B0C0D0E0F
MSK	000102030405060708090A0B0C0D0E0F
Keystream port SCP	12045
Keystream port DRM	12046

## 6 Transport stream capture

The latest capture of the IBC 2007 prepared transport stream is provided on the RRD ftp server.

IP: 88.54.230.58

User: ibc

Password: ibc\*2007\*

Please direct any comments or problems with the provided TS capture to Christian Besler / [cbesler@rrd.tv](mailto:cbesler@rrd.tv) .

For questions regarding the BCAST based service protection, please cc [michael.stattmann@coremedia.com](mailto:michael.stattmann@coremedia.com) .

## 7 SDP Files

With the below given SDP file can any interested party retrieve the Clear to Air content provided by RRD and National Grid Wireless.

Please be aware of the line breaks due the text processor formatting rules!

```
v=0
o=RRD1 3396260301 3396260301 IN IP4 127.0.0.1
s=/live.mp4
u=http:///
e=admin@rrd.tv
c=IN IP4 239.30.1.1
a=control:*
a=range:npt=0-3000000
t=0 0
m=video 1190 RTP/AVP 96
a=rtpmap:96 H264/90000
a=control:trackID=1
a=mpeg4-esid:201
a=mid:1
a=fmtp:96 profile-level-id=42c00d; packetization-mode=1; sprop-parameter-sets=Z0LADdkBQfE=,aNuOIA==;
m=audio 1192 RTP/AVP 97
a=rtpmap:97 mpeg4-generic/48000/2
a=control:trackID=2
a=mpeg4-esid:101
a=mid:2
a=fmtp:97 streamtype=5; profile-level-id=15; mode=AAC-hbr; config=1310;
SizeLength=13; IndexLength=3; IndexDeltaLength=3; Profile=1;
```