

DTH (Direct to Home) – The Digital Television

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REZUMAT. DTH sunt inițialele de la Direct To Home, un sistem care permite transmiterea mai multor programe de televiziune într-un pachet, programe ce pot fi recepționate cu ajutorul unei instalații digitale, direct de pe satelit, practic în orice punct situat în aria de acoperire a satelitului (așa numitul „footprint”). Sistemul presupune recepția programelor doar de pe un singur satelit, după ce acestea au fost „adunate” de pe toți sateliții pe care emit acestea și „grupate” într-un „pachet”. Pentru România acest sistem de televiziune este unul relativ nou, aflat în dezvoltare explozivă, iar lucrarea de față se vrea o radiografie a situației existente la momentul actual.

1. Introduction

Nowadays, Romania presents 3 providers that offers digital television, special romanian or translated into romanian language; there are also hungarian programs or programs translated into hungarian. This three providers are: Digi TV, Focus TV and Max TV. Momentarily it is under testing for the fourth operator, QTV, scheduled to emit starting april 2006.

In brief, the history of Romanian DTH is poled by the following events:

- December 21, 2004 – the first DTH operator is launched;
- January 29, 2005 - the first pre-paid pack, HBO, is launched;
- February 23, 2005 – the Cinemax program is presented, tax free, till the end of 2005.

2. The DIGI TV operator

The first and the most important DTH operator, regarding the number of programs, is Digi TV (acronyme from DIGItal TV). The RCS&RDS take advantage of their experience in cable television distribution and of nobody's rivalry, developing Digi TV as the leader of the DTH market. The unofficial starting of the operator was on December 21, 2004, and further the sales were growing up month after month. A lot of promotions, the program list, the low prices and the service's quality made Digi TV the most important satellite based television of Romania.

In brief:

- December 21, 2004 – first DTH operator is launched in Romania;
- March 17, 2005 – the transponder number 3 is launched;
- April 1st, 2005 – the new Hyundai HSS-1160 NA receiver starts to work;
- July 7, 2005 – the transponder number 4 is launched;
- October 21st, 2005 - Digi TV introduces the Telesport channel in the program list;
- Decembrie 7, 2005 - Digi TV launches the strongest promotion of the Romanian DTH history: free subscription at the basic package for two years subscriptions;
- December 16, 2005 - TV 1000 Balkan is launched exclusive in Romania and added to the Extra I package;
- December 23, 2005 – the transponder number 5 is launched and the testing for DIGI HU package starts.

The TV packages and their costs (excluding additional taxes) are:

- **Basic:** 41 programs; 17,8 RON;
- **Extra I:** 47 programs (includes Basic); 22,9 RON;
- **Extra II:** 50 programs (includes Basic); 19,5 RON;
- **MaxPack:** 2 programs; 12 RON;
- **Telesport:** the Telesport program; 5 RON;
- **Extra complete:** 56 programe (includes Basic, Extra I and Extra II); 24,6 RON;
- **Full:** all programs; 41,6 RON.

With around 223,000 subscribers, Digi TV is the first DTH operator in Romania. The advantages of Digi TV are the number of programs, the low prices, the possibility to rent the receiver or to buy on hire purchase. The disadvantages are the lumpish starting of the receiver in stand-by, the sound quality on some programs.

3. The Focus Sat operator

Focus Sat Romania and Eastern Space Systems launched in March 2005 the second DTH platform in Romania. Using a partnership between UPC and Focus Sat, it is planned the best digital television system because it offers to the clients the optimum mix between the European experience of UPC and the management experience of Focus Sat staff.

In brief:

- March 1st, 2005 – the second DTH Romanian operator is launched;
- May 1st, 2005 – the transponder number 2 is activated;
- May 19, 2005 – UPC, part of the american UnitedGlobalCom group, buys 50% of Focus Sat stocks;
- July 8, 2005 – the official Focus Sat launch in Romania;
- September 2, 2005 - HBO Romania is available in the Focus Sat program;
- September 24, 2005 – a new offer for the further users is presented;
- December 1st, 2005 – the Focus Sat subscribers receive the new internet by satellite offer.

The TV packages and their costs (excluding additional taxes) are:

- **Blue:** 15 programs; 15,97 RON;
- **Red:** 13 programs; 15,97 RON;
- **Film:** 2 programs; 15,97 RON;
- **Sport:** 2 programs; 15,97 RON;
- **Full:** all programs; 63,88 RON.

With around 8,600 subscribers, Focus Sat is the third DTH operator in Romania. The advantages of Digi TV are the excellent quality of the receiver and of the programs, the zero-cost receiver. The disadvantages are the lower prices and the reduced number of programs.

4. The Max TV operator

Digital Cable System, the owner of Max TV, is a group of firms, oriented to provide DTH services. Max TV is the third operator launched in Romania and started broadcasting from June 2005. This new service offers a better mobility of the viewers and promotes a new standard in the digital television receiving.

In brief:

- June 23, 2005 – the third romanian DTH operator is launched;

- September 9, 2005 - HBO Romania and Cinemax are available into Max TV package.

The TV packages and their costs (excluding additional taxes) are:

Basic: 30 programs; 18,5 RON;

Optional-payTV: 4 programs; 9,2 RON;

MaxPack: 2 programs; 12,6 RON;

Motors TV: 1 program; 1,68 RON;

Full: all programs; 41,18 RON.

With around 22,000 subscribers, Focus Sat is the second DTH operator in Romania. The advantages of Digi TV are the Viaccess compatible receiver, the medium prices (less than Focus Sat, more than Digi TV). The disadvantages are the quality of the receiving and the less number of programs.

5. Comparisons between the three operators

A study made at February 27, 2006, by Andrei Sorin Blotor, between this three operators, Digi TV, Focus Sat and Max TV, accounted for one minute each joint channel (Fig. 1):

- $24+3 \text{ channels} \times 1 \text{ minute} \times 3 \text{ operators} = 81 \text{ minutes}$;
- 24 joint channels and 3 channels Digi TV-Max TV.

For the video parameter, the medium bit-rates were added (Fig. 2):

- DigiTV (blue in the chart) = $51241:24 = 2135 \text{ kbps/medium}$
- FocusSat (red in the chart) = $47656:24 = 1986 \text{ kbps/medium}$
- MaxTV (yellow in the chart) = $46879:24 = 1953 \text{ kbps/medium}$ (low resolution).

For the resolution parameter, DigiTV and FocusSat are equal (720x576) while Max TVs' resolution varies from 352x576 and 704x576.

For the sound parameter, the situation changes (Fig. 3):

- Focus (red in the chart)
 $15 \text{ channels} \times 128 \text{ Kbps} = 1920 \text{ Kbps}$
 $6 \text{ channels} \times 96 \text{ Kbps} = 576 \text{ Kbps}$
 $3 \text{ channels} \times 192 \text{ Kbps} = 576 \text{ Kbps}$

Total= $3072 \text{ kbps}:24 \text{ channels} = 128 \text{ Kbps/medium}$

Canal	DigiTV-v	FocusSat-v	MaxTV-v	D-a	F-a	M-a	D-aver	F-aver	M-aver	D-res	F-res	M-res
TVR1	1035-2137	997-2110	1102-1586	128	128	96	1339	1208	1326	720X576	720X576	544X576
TVR2	1092-3780	880-3411	1132-2655	128	128	96	2409	2050	1913	720X576	720X576	544X576
Antena1	978-2210	506-2844	628-2680	128	128	96	1552	1609	1893	720X576	720X576	544X576
Antena3	1314-2051	1001-1607	1549-1980	128	128	96	1501	1282	1721	720X576	720X576	704X576
ProTV	1196-3502	727-2465	948-2148	128	128	128	1949	1532	1441	720X576	720X576	544X576
Acasa	1203-3342	650-2332	801-2669	128	128	96	2543	1409	2306	720X576	720X576	544X576
TVR Cultural	2134-4005	1954-3970	1299-2554	128	96	64	3178	2544	1813	720X576	720X576	480X576
Realitatea TV	2035-3513	2092-3685	1833-3324	128	128	64	2250	2658	2063	720X576	720X576	544X576
Discovery Ch	1414-3711	1572-4260	1261-2210	64	96	64	2591	2440	1818	720X576	720X576	544X576
Hallmark	969-2627	736-2488	829-2907	64	128	128	1408	1436	1956	720X576	720X576	704X576
National TV	1667-3077	1600-4328	771-3730	128	128	64	2088	2496	2061	720X576	720X576	480X576
ProTV Inter	1259-2263	1117-2103	1013-2099	128	96	64	1946	1457	1445	720X576	720X576	352X576
TVSport	2241-4799	2242-4083	2012-4354	128	96	64	3051	2835	2899	720X576	720X576	544X576
TVKlumea	1936-4302	1885-4259	3041-3134	128	96	128	2596	2559	3121	720X576	720X576	704X576
NGCRomania	1602-3667	1540-3697	1540-3669	128	128	64	2044	2504	2257	720X576	720X576	544X576
Cartoon	868-2153	328-1308	557-1758	64	96	64	1251	746	1056	720X576	720X576	480X576
CineMax	1302-2699	730-1994	759-1782	128	128	128	1719	1326	1501	720X576	720X576	544X576
HBO	1692-2463	1119-2447	706-1359	128	192	192	1938	1579	973	720X576	720X576	544X576
VH1	2021-2866	1804-2587	1217-2189	192	192	128	2440	2130	1658	720X576	720X576	544X576
Telesport	2509-3915	3351-4195	2691-4401	128	128	64	2357	2641	3002	720X576	720X576	704X576
ProCinema	1369-3504	1964-3987	1899-4008	128	128	128	2324	3080	2598	720X576	720X576	544X576
Prima	1469-2023	798-1686	974-1662	128	128	64	1761	1156	1133	720X576	720X576	544X576
Animal Planet	834-3116	1203-2757	1598-2896	64	128	64	2443	2393	2489	720X576	720X576	544X576
MTV Ro	1531-3425	1327-4308	1581-3996	192	192	128	2563	2586	2436	720X576	720X576	544X576
Antena4	1234-3989	-	1363-3063	128	-	64	2529	-	2134	720X576	-	704X576
B1	1428-3033	-	1188-3269	128	-	64	2293	-	2086	720X576	-	480X576
OTV	1825-2377	-	1193-2281	128	-	64	1893	-	1548	720X576	-	544X576

Fig. 1: DTH programs comparison

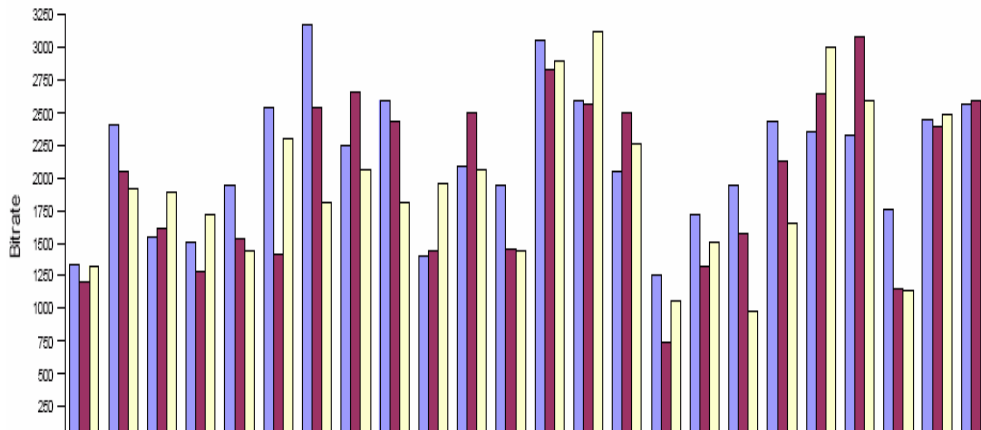


Fig. 2: DTH average bitrate comparison

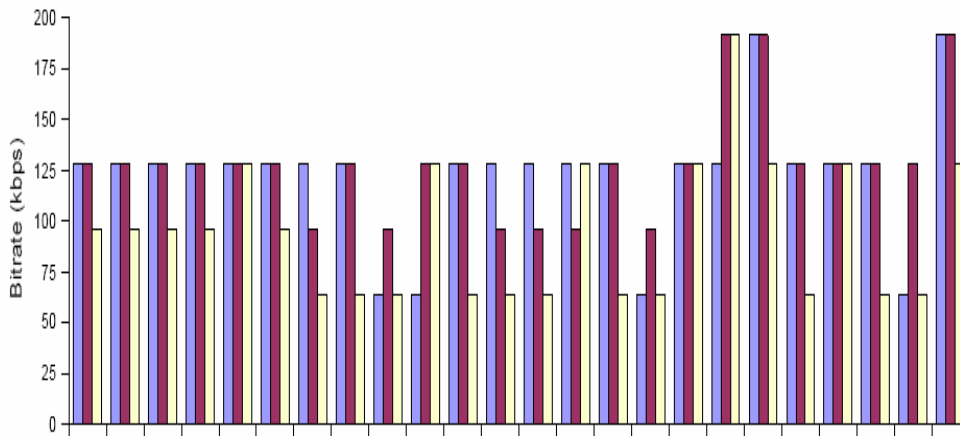


Fig. 3: DTH audio bitrate comparison

- DigiTV (blue in the chart)
 $18 \text{ channels} \times 128 \text{ Kbps} = 2304 \text{ Kbps}$
 $4 \text{ channels} \times 64 \text{ Kbps} = 256 \text{ Kbps}$
 $2 \text{ channels} \times 192 \text{ Kbps} = 384 \text{ Kbps}$

 Total = 2944 kbps:24 channels = 123 Kbps /medium
- MaxTV (yellow in the chart)
 $11 \text{ channels} \times 64 \text{ Kbps} = 704 \text{ Kbps}$
 $5 \text{ channels} \times 96 \text{ Kbps} = 480 \text{ Kbps}$
 $7 \text{ channels} \times 128 \text{ Kbps} = 896 \text{ Kbps}$
 $1 \text{ channels} \times 192 \text{ Kbps} = 192 \text{ Kbps}$

 Total= 2272 kbps:24 channels = 95 kbps/medium

And, finally:

- DIGI TV: -61 channels (41 in Basic)
 -prices from 17.8 RON to 41,6 RON
- Focus Sat: -33 channels (15 in Basic)
 -prices from 15,97 RON and 63,88 RON
- Max TV: -36 channels (30 in Basic)
 -prices from 18,5 RON and 41,18 RON

Conclusions

- Regarding from the subscription, Digi TV is the first, because it is the most accesible;
- As number of programs, Digi TV is also on the first place, this operator presenting 61 programs;
- The special offers, the increasing number of chanel, the strong promoting actions made Digi TV at the highest level, regarding to the number of subscribers;
- Regarding the quality aspect, Focus Sat is the best;
- The high quality of the receiver, the quality of the video transmission and the possibility to use a pre-payed card hoisted Focus Sat;
- The high prices, the reduced number of programs and the less promotive actions made Focus Sat to be set only on the third place, regarding to the number of users;
- At the mobility point of view, on the first place Max TV is located;
- The lowest quality of the sound, the medium number of chanel, place Max TV on the second place regarding to ther number of users.

References

www.rdi-sat.com/f2

www.rdi-dth.com

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