



# Utilization of the Digital dividend in Macedonia

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# Digital Dividend 1 (790-862 MHz)

## National Frequency Allocation Table from 2007

Civil users	Government	Notes	International documents	ETSI standard
790 - 862 MHz FIXED BROADCASTING LAND MOBILE	790 - 862 MHz Fixed  B7	ST 61 SRD microphone: 470-862 MHz SAP/SAB	ERC REC 70-03	EN 300 422

Governmental decision on 05.10.2010 that the frequency band 790-862 MHz, after analogue switch off will be used for mobile service according to the appropriate EU/CEPT Documents - ECC/DEC/(09)03. Implementation into NFAT from 2011

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790 - 862 MHz FIXED  BROADCASTING  LAND MOBILE	790 - 862 MHz Fixed  B7	GE06 SRD microphone: 470-862 MHz SAP/SAB  <b>MFCN</b>	ERC REC 70-03  <b>ECC/DEC/(09)03</b>	EN 300 422  <b>MKC EN 301 908</b>

# Digital Dividend 1 (790-862 MHz)

2011 Change of the national Plan for assignment and utilization of frequencies in order to Implement ECC/DEC/(09)03

790-791	791-796	796-801	801-806	806-811	811-816	816-821	821-832	832-837	837-842	842-847	847-852	852-857	857-862
Guard band	Downlink						Duplex gap	Uplink					
1 MHz	30 MHz (6 blocks of 5 MHz)						11 MHz	30 MHz (6 blocks of 5 MHz)					

2013 Auction for 800 & 1800 bands

- Three licenses for 2x10 MHz frequency block (band 800)
- If there is no interest for some 2x10 MHz frequency block it will be divided onto two 2x5 MHz and auctioned in the second round of auction

# Digital Dividend 1 (790-862 MHz)

Auction results (800 MHz band together with 1800 MHz band)

Operator	ONE	T-Mobile	VIP
downlink (MHz)	791-801	801-811	811-821
uplink (MHz)	832-842	842-852	852-862

Operator	ONE	T-Mobile	VIP
uplink (MHz)	1740-1755	1755-1770	1770-1785
downlik (MHz)	1835-1850	1850-1865	1865-1880

One time fee 30,9 million EUR (10.3 mill each operator)

Coverage obligations: 2 years – 4 years – 6 years -> 20% - 40% - 70% of population.

Authorization is granted for the period of 20 years (01.12.2013 – 01.12.2033)

**1 December 2013 T-Mobile announced availability of LTE network in capitol city Skopje and one rural area**

# Digital Dividend 2(694-790 MHz)

Same procedure as for the Digital Dividend 1

1. International decision (WRC-15), change of RR
2. Change of the NFAT in order to add mobile service on a primary basis
3. EU/ECC decision for harmonized use of the band
4. Public consultation and debate
5. Government decision for the future use of the band
6. Auction for frequencies
7. Licenses issued to operators
8. Network implementation and operation

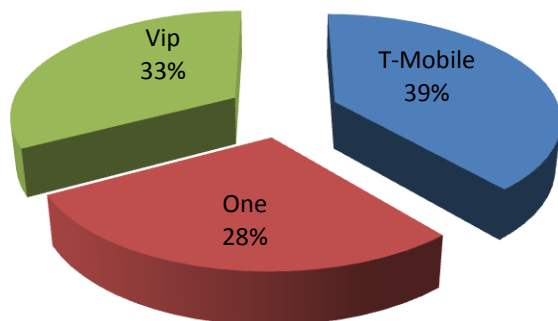
# Digital Dividend 2(694-790 MHz)

Current use of the band

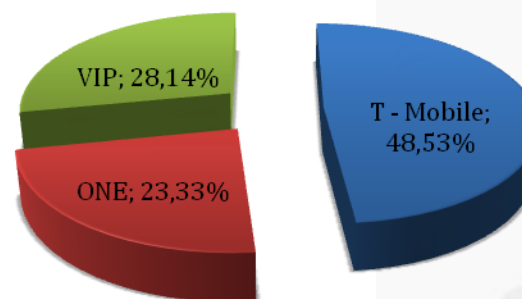
ALLOTMENT ZONE	DIGI PLUS MULTIMEDIJA			PUBLIC ENTERPRISE MACEDONIAN BROADCASTING		ONE	
	MUX 1	MUX 2	MUX 3	MUX 4	MUX 5	MUX 6	MUX 7
D1 CRN VRV/SKOPJE	26	28	30	23	52	33	45
D1 CRN VRV/VELES						40	47
D2 STRACIN	21	41	46	37	42	50	56
D3 TURTEL	22	32	43	24	39	38	55
D4 BOSKIJA	21	37	49	34	41	57	54
D5 PELISTER	25	29	33	22	37	38	42
D6 VLAJ	32	39	41	26	36	44	50
D7 STOGOVO	51	57	59	28	43	35	31
D8 POPOVA SAPKA	24	34	38	27	36	41	50
License Validity	04.06.2019			06.03.2022		31.05.2023	

# Mobile Spectrum assignments

Assigned spectrum per operators



Subscribers by Q2/2013



Frequency Band	Frequency range	T—Mobile	ONE	VIP
800	790-862 MHz	2 × 10 MHz	2 × 10 MHz	2 × 10 MHz
900	880 – 915 /925 – 960 MHz	2 × 12,5 MHz	2 × 12,5 MHz	2 × 10 MHz
1800	1710 – 1785 /1805 – 1880 MHz	2 × 25 MHz	2 × 15 MHz	2 × 35 MHz
1900	1900 – 1920 MHz	1 × 5 MHz		—
2100	1920 – 1980 /2110 – 2170 MHz	2 × 15 MHz	2 × 10 MHz	—
Sum	—	130 MHz	95 MHz	110 MHz

Regulator should allocate frequencies to the market parties according to efficient use of frequencies !

# Available “fresh” spectrum

Frequency Band	Frequency range	Available
800	790-862 MHz	0
900	880 – 915 /925 – 960 MHz	0
1800	1710 – 1785 /1805 – 1880 MHz	0
1900	1900 — 1920 MHz	15 MHz
2100	1920 – 1980 /2110 – 2170 MHz	2 × 35 MHz
2600	2500-2690 MHz	190 MHz
3.5	3410-3800 MHz	358.5 MHz
Sum	—	633.5 MHz

## Conclusion

**Use of the Digital Dividend 2 (694-790 MHz) after 2020**



# Digital Dividend 3 (?-694)

