

# ANTENAS: Apéndices



## SIMBOLOGIA

	Amplificador		Ecuador
	Amplificador con ganancia ajustable		Filtro paso-bajo
	Amplificador con ganancia ajustable		Filtro paso-alto
	Amplificador con Control automático de ganancia		Filtro paso-banda
	Atenuador fijo		Filtro elimina-banda
	Atenuador Ajustable		Fuente de alimentación
	Antena		Mezclador
	Convertidor o conversor de canal		Mezclador con ecualizador
	Derivador de paso de 2 direcciones		Modulador
	Derivador final de 2 direcciones		Oscilador
	Derivador de paso de 4 direcciones		Separador
	Derivador final de 4 direcciones		Resistencia de carga externa (75)
	Distribuidor de 2 direcciones		Resistencia de carga interna (75)
	Distribuidor de 4 direcciones		Toma de usuario de paso
	Distribuidor de 10 direcciones		Toma de usuario final
			Toma tierra



## ASIGNACIÓN DE CANALES TV TERRESTRE

CANAL	ANCHO DE CANAL		VIDEO	AUDIO
		MHz	MHz	MHz
<b>VHF Banda I</b>	2	47...54	48,25	53,75
	3	54...61	55,25	60,75
	4	61...68	62,25	67,75
<b>VHF Banda S (baja)</b>	S1	104...111	105,25	110,75
	S2	111...118	112,25	117,75
	S3	118...125	119,25	124,75
	S4	125...132	126,25	131,75
	S4	132...139	133,25	138,75
	S6	139...146	140,25	145,75
	S7	146...153	147,25	152,75
	S8	153...160	154,25	159,75
	S9	160...167	161,25	166,75
	S10	167...174	168,25	173,75
<b>VHF Banda III</b>	5	174...181	175,25	180,75
	6	181...188	182,25	187,25
	7	188...195	189,25	194,25
	8	195...202	196,25	201,25
	9	202...209	203,25	208,75
	10	209...216	210,25	215,75
TVE1	11	216...223	217,25	222,75
	12	223...230	224,25	229,75
<b>VHF Banda S (alta)</b>	S11	230...237	231,25	236,75
	S12	237...244	238,25	243,75
	S13	244...251	245,25	250,75
	S14	251...258	252,25	257,75
	S15	258...265	259,25	264,75
	S16	265...272	266,25	271,75
	S17	272...279	273,25	278,75
	S18	279...286	280,25	285,75
	S19	286...293	287,25	292,75
	S20	293...300	294,25	299,75
<b>VHF Hiperbanda</b>	S21	302...310	303,25	308,75
	S22	310...318	311,25	316,75
	S23	318...326	319,25	324,75
	S24	326...334	327,27	332,75
	S25	334...342	335,25	340,75
	S26	342...350	343,25	348,75
	S27	350...358	351,25	356,75
	S28	358...366	359,25	364,75
	S29	366...374	367,25	372,75
	S30	374...382	375,25	380,75
	S31	382...390	383,25	388,75
	S32	390...398	391,25	396,75
	S33	398...406	399,25	404,75
	S34	406...414	407,25	412,75
	S35	414...422	415,25	420,75
	S36	422...430	423,25	428,75
	S37	430...438	431,25	436,75
	S38	438...446	439,25	444,75
	S39	446...554	447,25	452,75
	S40	454...462	455,25	460,75
	S41	462...470	463,25	468,75

  

CANAL	ANCHO DE CANAL		VIDEO	AUDIO
		MHz	MHz	MHz
<b>UHF</b>	21	470...478	471,25	476,75
	TVE2	22	478...486	479,25
B.V.	23	486...494	487,25	492,75
	24	494...502	495,25	500,75
	25	502...510	503,25	508,75
	26	510...518	511,25	516,75
	27	518...526	519,25	524,75
	28	526...534	527,25	532,75
	29	534...542	535,25	540,75
	30	542...550	543,25	548,75
	31	550...558	551,25	556,75
	32	558...566	559,25	564,75
ETB1	33	566...574	567,25	572,75
	34	574...582	575,25	580,75
	35	582...590	583,25	588,75
	36	590...598	591,25	596,75
	37	598...606	599,25	604,75
	38	606...614	607,25	612,75
ETB2	39	614...622	615,25	620,75
	40	622...630	623,25	628,75
	41	630...638	631,25	636,75
	42	638...646	639,25	644,75
T7	43	646...654	647,25	652,75
	44	654...662	655,25	660,75
	45	662...670	663,25	668,75
	46	670...678	671,25	676,75
	47	678...686	679,25	684,75
	48	686...694	687,25	692,75
	49	694...702	695,25	700,75
	50	702...710	703,25	708,75
CB	51	710...718	711,25	716,75
	52	718...726	719,25	724,75
	53	726...734	727,25	732,75
	54	734...742	735,25	740,75
	55	742...750	743,25	748,75
	56	750...758	751,25	756,75
	57	758...766	759,25	764,75
	58	766...774	767,25	772,75
	59	774...782	775,25	780,75
	60	782...790	783,25	788,75
A3	61	790...798	791,25	796,75
	62	798...806	799,25	804,75
	63	806...814	807,25	812,75
	64	814...822	815,25	820,75
T5	65	822...830	823,25	828,75
	66	830...838	831,25	836,75
	67	838...846	839,25	844,75
	68	846...854	847,25	852,75
	69	854...862	855,25	860,75
	69	854...862	855,25	860,75



**TABLA DE CANALES INCOMPATIBLES**

Canal C	Incompatible C <sub>i</sub>	Canal C	Incompatible C <sub>i</sub>	Canal C	Incompatible C <sub>i</sub>
2	5,27,38,49,60	29	34	48	53
3	7, 21, 32, 44, 56	30	35	49	54
4	9, 25, 38, 50	31	36	50	55
5	10, 42	32	37	51	56
6	11, 45	33	38	52	57
7	12,47	34	39	53	58
8	21, 50	35	40	54	59
9	22, 53	36	41	55	60
10	24, 55	37	42	56	61
11	26, 58	38	43	57	62
12	28, 60	39	44	58	63
21	26	40	45	59	64
22	27	41	46	60	65
23	28	42	47	61	66
24	29	43	48	62	67
25	30	44	49	63	68
26	31	45	50	64	69
27	32	46	52		
28	33	47	52		

En las instalaciones de antenas colectivas en las que se distribuyan combinaciones de canales indicadas en la tabla, el desacoplo entre dos tomas de televisión deberá de ser de 50 dB según la norma UNE 20-523-76.



## CANALES DE TV ANALÓGICA ASTRA

Nombre del canal	Codificado	Recibido en *	Transpondedor	Satélite
	Género	Idioma	Frec. /Polaz.	Posición Orbital
<b>123 TV</b>	Free	ASTRA reception area	<b>Trp. 47</b>	ASTRA-1C
	Shopping	German	11.17075 GHz / H	19.2°E
<b>3sat</b>	Free	ASTRA reception area	<b>Trp. 10</b>	ASTRA-1F
	Culture	German	11.347 GHz / V	19.2°E
<b>ARD - Das Erste</b>	Free	ASTRA reception area	<b>Trp. 19</b>	ASTRA-1E
	Entretenimiento	German	11.49375 GHz / H	19.2°E
<b>ARTE</b>	Free	ASTRA reception area	<b>Trp. 35</b>	ASTRA-2C
	Culture	French,German	10.99375 GHz / H	19.2°E
<b>ASTRA-Vision</b>	Free	ASTRA reception area	<b>Trp. 63</b>	ASTRA-1E
	Promo	English	10.921 GHz / H	19.2°E
<b>Astro TV</b>	Free	ASTRA reception area	<b>Trp. 47</b>	ASTRA-1C
	Special	German	11.17075 GHz / H	19.2°E
<b>Bayerisches Fernsehen</b>	Free	ASTRA reception area	<b>Trp. 45</b>	ASTRA-1C
	Entretenimiento	German	11.14125 GHz / H	19.2°E
<b>Bloomberg TV Germany</b>	Free	ASTRA reception area	<b>Trp. 11</b>	ASTRA-1F
	Business	German	11.36175 GHz / H	19.2°E
<b>BR Alpha</b>	Free	ASTRA reception area	<b>Trp. 41</b>	ASTRA-1C
	Education	German	11.08225 GHz / H	19.2°E
<b>CNBC</b>	Free	ASTRA reception area	<b>Trp. 50</b>	ASTRA-2C
	News	English	10.729 GHz / V	19.2°E
<b>CNN International</b>	Free	ASTRA reception area	<b>Trp. 28</b>	ASTRA-1B
	News	English,Spanish	11.6265 GHz / V	19.2°E
<b>DSF</b>	Free	ASTRA reception area	<b>Trp. 21</b>	ASTRA-1B
	Sports	German	11.52325 GHz / H	19.2°E
<b>Eurosport</b>	Free	ASTRA reception area	<b>Trp. 04</b>	ASTRA-1C
	Sports	Eng.,Ger.	11.2585 GHz / V	19.2°E
<b>hr fernsehen</b>	Free	ASTRA reception area	<b>Trp. 40</b>	ASTRA-2C
	Entretenimiento	German	11.0675 GHz / V	19.2°E
<b>HSE24</b>	Free	ASTRA reception area	<b>Trp. 62</b>	ASTRA-2C
	Shopping	German	10.906 GHz / V	19.2°E
<b>Kabel 1</b>	Free	ASTRA reception area	<b>Trp. 09</b>	ASTRA-1F
	Entretenimiento	German	11.33225 GHz / H	19.2°E
<b>KLKA</b>	Free	ASTRA reception area	<b>Trp. 49</b>	ASTRA-1E

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	Children	German	10.71425 GHz / H	19.2°E
<b>MDR Fernsehen</b>	Free	ASTRA reception area	<b>Trp. 43</b>	ASTRA-1C
	Entretenimiento	German	11.11175 GHz / H	19.2°E
<b>MTV</b>	Free	ASTRA reception area (except UK & Ireland)	<b>Trp. 27</b>	ASTRA-1B
	Music	German	11.612 GHz / H	19.2°E
<b>MTV 2 The Pop Channel</b>	Free	ASTRA reception area, UK	<b>Trp. 15</b>	ASTRA-1C
	Music	German	11.42075 GHz / H	19.2°E
<b>n-tv</b>	Free	ASTRA reception area	<b>Trp. 29</b>	ASTRA-1B
	News	German	11.64125 GHz / H	19.2°E
<b>N24</b>	Free	ASTRA reception area	<b>Trp. 55</b>	ASTRA-2C
	News	German	10.80275 GHz / H	19.2°E
<b>NDR-Fernsehen</b>	Free	ASTRA reception area	<b>Trp. 25</b>	ASTRA-1B
	Entretenimiento	German	11.58225 GHz / H	19.2°E
<b>Neun Live</b>	Free	ASTRA reception area	<b>Trp. 64</b>	ASTRA-1E
	Entretenimiento	German	10.9355 GHz / V	19.2°E
<b>Phoenix</b>	Free	ASTRA reception area	<b>Trp. 36</b>	ASTRA-1C
	News	German	11.0085 GHz / V	19.2°E
<b>Pro 7</b>	Free	ASTRA reception area	<b>Trp. 14</b>	ASTRA-1F
	Entretenimiento	German	11.406 GHz / V	19.2°E
<b>QVC Deutschland</b>	Free	ASTRA reception area	<b>Trp. 52</b>	ASTRA-2C
	Shopping	German	10.7585 GHz / V	19.2°E
<b>RBB Berlin</b>	Free	ASTRA reception area	<b>Trp. 47</b>	ASTRA-1C
	Entretenimiento	German	11.17075 GHz / H	19.2°E
<b>RBB Brandenburg</b>	Free	ASTRA reception area	<b>Trp. 30</b>	ASTRA-1B
	Entretenimiento	German	11.656 GHz / V	19.2°E
<b>RTL 2</b>	Free	ASTRA reception area	<b>Trp. 01</b>	ASTRA-1F
	Entretenimiento	German	11.214 GHz / H	19.2°E
<b>RTL Shop</b>	Free	ASTRA reception area	<b>Trp. 3</b>	ASTRA-1C
	Shopping	German	11.24375 GHz / H	19.2°E
<b>RTL Television</b>	Free	ASTRA reception area	<b>Trp. 02</b>	ASTRA-1F
	Entretenimiento	German	11.229 GHz / V	19.2°E
<b>Sat.1</b>	Free	ASTRA reception area	<b>Trp. 06</b>	ASTRA-1F
	Entretenimiento	German	11.288 GHz / V	19.2°E
<b>Sonnenklar TV</b>	Free	ASTRA reception area	<b>Trp. 17</b>	ASTRA-1B
	Entretenimiento	German	11.46425 GHz / H	19.2°E

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<b>Südwest Baden Württemberg</b>	Free	ASTRA reception area	<b>Trp. 48</b>	ASTRA-2C
	Entretenimiento	German	11.1855 GHz / V	19.2°E
<b>Südwest Rheinland-Pfalz</b>	Free	ASTRA reception area	<b>Trp. 61</b>	ASTRA-1E
	Entretenimiento	German	10.891 GHz / H	19.2°E
<b>Super RTL</b>	Free	ASTRA reception area	<b>Trp. 13</b>	ASTRA-1F
	Children	German	11.39125 GHz / H	19.2°E
<b>Tele 5</b>	Free	ASTRA reception area	<b>Trp. 23</b>	ASTRA-1B
	Entretenimiento	German	11.55275 GHz / H	19.2°E
<b>TV Shop Deutschland</b>	Free	ASTRA reception area	<b>Trp. 12</b>	ASTRA-1C
	Shopping	German	11.3765 GHz / V	19.2°E
<b>TV Travel Shop Germany</b>	Free	ASTRA reception area	<b>Trp. 51</b>	ASTRA-2C
	Shopping	German	10.74375 GHz / H	19.2°E
<b>Viva</b>	Free	ASTRA reception area	<b>Trp. 44</b>	ASTRA-1C
	Music	German	11.1265 GHz / V	19.2°E
<b>Viva Plus</b>	Free	ASTRA reception area	<b>Trp. 07</b>	ASTRA-1F
	Music	German	11.30275 GHz / H	19.2°E
<b>VOX</b>	Free	ASTRA reception area	<b>Trp. 05</b>	ASTRA-1F
	Entretenimiento	German	11.27325 GHz / H	19.2°E
<b>WDR-Fernsehen</b>	Free	ASTRA reception area	<b>Trp. 39</b>	ASTRA-1C
	Entretenimiento	German	11.05275 GHz / H	19.2°E
<b>XXP</b>	Free	ASTRA reception area	<b>Trp. 51</b>	ASTRA-2C
	Entretenimiento	German	10.74375 GHz / H	19.2°E
<b>ZDF</b>	Free	ASTRA reception area	<b>Trp. 33</b>	ASTRA-2C
	Entretenimiento	German	10.96425 GHz / H	19.2°E

## CANALES DE TV DIGITAL ASTRA

* Recepción en abierto condicional: Servicio encriptado pero gratuito. Tarjeta y decodificador necesarios para descryptado.			** Recepción condicionada a la <b>huella de cobertura</b> de ASTRA. Por favor, compruebe si este servicio está disponible para su localidad (correspondiendo con el tamaño de la antena) haciendo click en el número de transpondedor.		
Nombre del canal	Paquete	Tipo	* Recepción en	Transpondedor (Bitrate, FEC)	Satélite
	Codificado *	Género	Idioma	Frec. /Polaz.	Posición Orbital
<b>123 TV</b>	-	TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Shopping	German	12.4605 GHz / H	19.2°E
<b>24 Horas</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C

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	Pay TV	News	Spanish	10.979 GHz / V	19.2°E
<b>24.CZ</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	Political	Czech	10.8325 GHz / H	19.2°E
<b>2M Maroc</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Arabic	11.5675 GHz / V	19.2°E
<b>3sat</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	Culture	German	11.9535 GHz / H	19.2°E
<b>40 Latino</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Music	Spanish	10.8765 GHz / V	19.2°E
<b>40TV</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Music	Spanish	11.038 GHz / V	19.2°E
<b>AB Moteurs</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 94</b> (27500, 3/4)	ASTRA-1H
	Pay TV	Automobile	French	12.285 GHz / V	19.2°E
<b>Activi</b>	-	Interactive TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Special	German	12.4605 GHz / H	19.2°E
<b>Al Jazeera</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	News	Arabic	11.5675 GHz / V	19.2°E
<b>Amena</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Amio TV</b>	-	TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Special	German	12.4605 GHz / H	19.2°E
<b>Andalucia TV</b>	-	TV	ASTRA reception area	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Spanish	11.685 GHz / V	19.2°E
<b>ARD - Das Erste</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H

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	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>arte</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	Culture	French	11.5675 GHz / V	19.2°E
<b>arte</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	Culture	German	11.8365 GHz / H	19.2°E
<b>ASTRA-HD</b>	-	TV	ASTRA reception area	<b>Trp 102</b> (27500, 3/4)	ASTRA-1H
	Free	Promo	German	12.441 GHz / V	19.2°E
<b>ASTRA-Mosaic</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Promo	Various	12.551 GHz / V	19.2°E
<b>ASTRA-Vision</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Promo	English	12.551 GHz / V	19.2°E
<b>Astro TV</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	Health	German	12.48 GHz / V	19.2°E
<b>Audio Digital</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>AXN</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.8175 GHz / V	19.2°E
<b>Bahn TV</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	Business	German	12.633 GHz / H	19.2°E
<b>Bayerisches Fernsehen</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>BBC World</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 94</b> (27500, 3/4)	ASTRA-1H
	Free	News	English	12.285 GHz / V	19.2°E
<b>Best of Shopping</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 96</b> (27500, 3/4)	ASTRA-1H



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	Free	Shopping	French	12.324 GHz / V	19.2°E
<b>Bibel-TV</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	Religious	German	10.8325 GHz / H	19.2°E
<b>Bloomberg TV</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	News	Spanish	11.156 GHz / V	19.2°E
<b>Bloomberg TV</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Business	German	12.551 GHz / V	19.2°E
<b>Blue Movie 1</b>	-	TV	ASTRA reception area	<b>Trp 83</b> (27500, 3/4)	ASTRA-1H
	Pay TV	Adults	German	12.07 GHz / H	19.2°E
<b>Blue Movie 2</b>	-	TV	ASTRA reception area	<b>Trp 83</b> (27500, 3/4)	ASTRA-1H
	Pay TV	Adults	German	12.07 GHz / H	19.2°E
<b>Blue Movie Austria</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Pay TV	Adults	German	12.1485 GHz / H	19.2°E
<b>BR-alpha</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	Education	German	11.8365 GHz / H	19.2°E
<b>BVN TV - Het Beste van Vlaanderen en Nederlands</b>	Canal Digitaal	TV	ASTRA reception area	<b>Trp 109</b> (22000, 5/6)	ASTRA-1G
	Free	General Entertainment	Dutch	12.5742 GHz / H	19.2°E
<b>Calle 13</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish	11.156 GHz / V	19.2°E
<b>Canal Algérie</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Arabic, French	11.5675 GHz / V	19.2°E
<b>Canal Barça</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Sports	Spanish	11.479 GHz / V	19.2°E
<b>Canal Cocina</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Special	Spanish	10.8175 GHz /	19.2°E

# ANTENAS: Apéndices



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<b>Canal de Historia</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Documentary	Spanish, Catalan	10.979 GHz / V	19.2°E
<b>Canal Hollywood</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish, Catalan	10.979 GHz / V	19.2°E
<b>Canal Plus</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish	11.038 GHz / V	19.2°E
<b>Canal + 2</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	11.038 GHz / V	19.2°E
<b>Canal + ...30</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish	10.8765 GHz / V	19.2°E
<b>CanalSat Mosaique</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 96</b> (27500, 3/4)	ASTRA-1H
	Free	Promo	French	12.324 GHz / V	19.2°E
<b>Cartelera</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	?	Spanish	10.847 GHz / V	19.2°E
<b>Cartoon Network ES</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Children	Spanish	11.156 GHz / V	19.2°E
<b>Caza y Pesca</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Documentary	Spanish	11.156 GHz / V	19.2°E
<b>CC Valenciana</b>	Digital +	TV	ASTRA reception area, Spain	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Free	General Entertainment	Valencian, Spanish	10.8175 GHz / V	19.2°E
<b>Cinemanía</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish, Catalan	10.8175 GHz / V	19.2°E
<b>Cinemanía</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C

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	Pay TV	Films	Spanish	10.979 GHz / V	19.2°E
<b>Cinemanía 2</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish, Catalan	10.8175 GHz / V	19.2°E
<b>Cinemanía Rojo</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish, Catalan	10.979 GHz / V	19.2°E
<b>Clasico</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Music	Spanish	10.979 GHz / V	19.2°E
<b>Clear TV</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H
	Free	Culture	Dutch	12.6105 GHz / V	19.2°E
<b>CNBC Europe</b>	-	TV	ASTRA reception area	<b>Trp 26</b> (22000, 5/6)	ASTRA-1E
	Free	News	English	11.597 GHz / V	19.2°E
<b>CNN International</b>	-	TV	ASTRA reception area	<b>Trp 68</b> (27500, 3/4)	ASTRA-1G
	Free	News	English	11.778 GHz / V	19.2°E
<b>CNN +</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Pay TV	News	Spanish	11.6855 GHz / V	19.2°E
<b>Compra SMS</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Cosmopolitan</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	11.156 GHz / V	19.2°E
<b>C+ Deporte 1</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Sports	Spanish	10.8765 GHz / V	19.2°E
<b>C+ Deporte 2</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Sports	Spanish	10.8765 GHz / V	19.2°E
<b>C+ Deporte 3</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C

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	Pay TV	Sports	Spanish	11.038 GHz / V	19.2°E
<b>C+Cine 1</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Films	Spanish	11.3175 GHz / V	19.2°E
<b>C+Cine 2</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Films	Spanish	11.3175 GHz / V	19.2°E
<b>C+Cine 3</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Films	Spanish	11.3175 GHz / V	19.2°E
<b>D' Chamber en Direct</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Political	Luxemburgish	12.551 GHz / V	19.2°E
<b>D Cine Espanol</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Films	Spanish	10.8175 GHz / V	19.2°E
<b>D Cine Studio</b>	Digital +	TV	Spain	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Films	Spanish	11.685 GHz / V	19.2°E
<b>Demain!</b>	-	TV	ASTRA reception area	<b>Trp 20</b> (22000, 5/6)	ASTRA-1E
	Free	Education	French	11.5085 GHz / V	19.2°E
<b>Deutsche Welle</b>	-	TV	ASTRA reception area	<b>Trp 26</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	German	11.597 GHz / V	19.2°E
<b>Digital+</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Promo	Spanish	10.847 GHz / V	19.2°E
<b>Discovery Channel España</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Documentary	Spanish	11.038 GHz / V	19.2°E
<b>Disney Channel</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Children	Spanish	11.038 GHz / V	19.2°E
<b>Disney Channel +1</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F

# ANTENAS: Apéndices



	Pay TV	Children	Spanish	11.3175 GHz / V	19.2°E
<b>Documanía</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Documentary	Spanish	11.3175 GHz / V	19.2°E
<b>DSF</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	Sports	German	12.48 GHz / V	19.2°E
<b>Eins Extra</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	News	German	12.1095 GHz / H	19.2°E
<b>Eins Festival</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>Eins MuXx</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>ESC1 - Egypte</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Arabic	11.5675 GHz / V	19.2°E
<b>ETB Sat</b>	Digital +	TV	ASTRA reception area	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Basque, Spanish	11.685 GHz / V	19.2°E
<b>Euronews</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 70</b> (27500, 3/4)	ASTRA-1G
	Free	News	Eng., Fre., Ger., Ita., Port., Rus., Spa.	11.817 GHz / V	19.2°E
<b>Euronews</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	News	German	11.9535 GHz / H	19.2°E
<b>Eurosport</b>	Digital +	TV	ASTRA reception area	<b>Trp 26</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Sports	Spanish	11.597 GHz / V	19.2°E
<b>Eurosport</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	Sports	German	11.9535 GHz / H	19.2°E
<b>Expansion TV</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F

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	Pay TV	News	Spanish	11.3175 GHz / V	19.2°E
<b>FDF</b>	Digital +	TV	Spain	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Pay TV	General Entertainment	Spanish	11.685 GHz / V	19.2°E
<b>Fox España</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 56</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish, Portuguese	10.8175 GHz / V	19.2°E
<b>Fox Kids España</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Children	Spanish	11.3175 GHz / V	19.2°E
<b>Fox News</b>	Digital +	TV	Spain	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	News	English	10.8765 GHz / V	19.2°E
<b>France 5</b>	-	TV	ASTRA reception area	<b>Trp 90</b> (27500, 3/4)	ASTRA-1H
	Pay TV	Education	French	12.207 GHz / V	19.2°E
<b>Franken Sat</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>Free-X-TV</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Adults	French	10.8325 GHz / H	19.2°E
<b>Full X TV</b>	-	TV	ASTRA reception area	<b>Trp 20</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Adults	English	11.5085 GHz / V	19.2°E
<b>God Channel</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	Religious	English, German	12.1485 GHz / H	19.2°E
<b>Golf +</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Sports	Spanish	10.8765 GHz / V	19.2°E
<b>GoTV</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 115</b> (22000, 5/6)	ASTRA-1H
	Free	Music	German	12.66275 GHz / H	19.2°E
<b>GoTV</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H

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	Free	Music	German	12.69225 GHz / H	19.2°E
<b>HD1</b>	-	TV	ASTRA reception area	<b>Trp 88</b> (27500, 3/4)	ASTRA-2C
	Pay TV	General Entertainment	English	12.168 GHz / V	19.2°E
<b>hr fernsehen</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>HSE24</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	Shopping	German	12.48 GHz / V	19.2°E
<b>Iberdrola</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Infobolsa</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Business	Spanish	10.847 GHz / V	19.2°E
<b>Infobolsa basico</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Business	Spanish	10.847 GHz / V	19.2°E
<b>K-TV</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	Religious	German	12.633 GHz / H	19.2°E
<b>K1010</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	Video Games	German	12.633 GHz / H	19.2°E
<b>Kabel 1</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Kabel 1 Österreich</b>	-	TV	ASTRA reception area	<b>Trp 82</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.051 GHz / V	19.2°E
<b>Kabel 1 Schweiz</b>	-	TV	ASTRA reception area	<b>Trp 82</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.051 GHz / V	19.2°E
<b>KLKA</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H

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	Free	Children	German	11.9535 GHz / H	19.2°E
<b>KTO</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 74</b> (27500, 3/4)	ASTRA-1G
	Free	Religious	French	11.895 GHz / V	19.2°E
<b>La Caixa</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Business	Spanish	10.847 GHz / V	19.2°E
<b>La Chaîne Parlementaire</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 90</b> (27500, 3/4)	ASTRA-1H
	Free	Political	French	12.207 GHz / V	19.2°E
<b>liberty tv.com</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H
	Free	Shopping	French, German	12.6105 GHz / V	19.2°E
<b>Liebevoll TV</b>	Premiere	TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Shopping	German	12.4605 GHz / H	19.2°E
<b>Life Style</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	Shopping	German	12.633 GHz / H	19.2°E
<b>Lokal SAT</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>Love Night TV</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	Adults	German	12.1875 GHz / H	19.2°E
<b>M6 Boutique La Chaîne</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H
	Free	Shopping	French	12.6105 GHz / V	19.2°E
<b>MDR Fernsehen</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>Mensaje movil</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Messe TV</b>	-	TV	ASTRA reception area	<b>Trp 107</b> (22000, 5/6)	ASTRA-1G



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	Free	Promo	German	12.545 GHz / H	19.2°E
<b>meteo</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Weather	Spanish	10.8765 GHz / V	19.2°E
<b>Motors TV</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 114</b> (22000, 5/6)	ASTRA-1G
	Pay TV	Sports	French	12.64 GHz / V	19.2°E
<b>MoviStar</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>MTV 2 Europe</b>	CanalSatellite	TV	France, Spain, Canary Islands	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	English	11.739 GHz / V	19.2°E
<b>MTV Base</b>	CanalSatellite	TV	France, Spain, Canary Islands	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	English	11.739 GHz / V	19.2°E
<b>MTV España</b>	Digital +	TV	Spain	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	Spanish	11.739 GHz / V	19.2°E
<b>MTV France</b>	CanalSatellite	TV	France, Spain, Canary Islands	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	English	11.739 GHz / V	19.2°E
<b>MTV Hits UK</b>	CanalSatellite	TV	France, Spain, Canary Islands	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	English	11.739 GHz / V	19.2°E
<b>n-tv</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1G
	Free	News	German	12.1875 GHz / H	19.2°E
<b>N24</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	News	German	12.48 GHz / V	19.2°E
<b>National Geographic Channel</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 60</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Documentary	Spanish	10.8765 GHz / V	19.2°E
<b>NDR-Fernsehen</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General	German	12.1095 GHz / V	19.2°E

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		Entertainment		H	
<b>Neun Live</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Nick Paramount</b>	Digital +	TV	Spain	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Children	Spanish	11.156 GHz / V	19.2°E
<b>Nordlicht TV</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	General Entertainment	Luxemburgish	12.551 GHz / V	19.2°E
<b>Ocko TV</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	General Entertainment	Czech	10.8325 GHz / H	19.2°E
<b>OK Plus</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>ONCEplus</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>ONTV</b>	Premiere	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>ORF 2 Burgenland</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Kärnten</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Niederösterreich</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Oberösterreich</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Salzburg</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H

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	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Steiermark</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Tirol</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Vorarlberg</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>ORF 2 Wien</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free Conditional	General Entertainment	German	12.69225 GHz / H	19.2°E
<b>People + Arts</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Fashion	Spanish	11.156 GHz / V	19.2°E
<b>Phoenix</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	News	German	11.8365 GHz / H	19.2°E
<b>Playhouse Disney</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Children	Spanish	11.3175 GHz / V	19.2°E
<b>Playin'TV</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Pro 7</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Pro 7 Österreich</b>	-	TV	ASTRA reception area	<b>Trp 82</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.051 GHz / V	19.2°E
<b>Pro 7 Schweiz</b>	-	TV	ASTRA reception area	<b>Trp 82</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.051 GHz / V	19.2°E
<b>Quiz des Tages</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H

# ANTENAS: Apéndices



	Free	Promo	German	12.633 GHz / H	19.2°E
<b>QVC Deutschland</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Shopping	German	12.551 GHz / V	19.2°E
<b>RAI Uno</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Italian	11.5675 GHz / V	19.2°E
<b>Raze TV</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	Sports	German	10.8325 GHz / H	19.2°E
<b>RBB Berlin</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>RBB Brandenburg</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>Real Madrid TV</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Sports	Spanish	11.479 GHz / V	19.2°E
<b>Recibo Detallado</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Rhein Main TV</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	General Entertainment	German	12.633 GHz / H	19.2°E
<b>RNFplus</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>RTBF SAT</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H
	Free	General Entertainment	French	12.6105 GHz / V	19.2°E
<b>RTL 2</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1875 GHz / H	19.2°E
<b>RTL 2 Österreich</b>	-	TV	ASTRA reception area (except UK & Ireland)	<b>Trp 91</b> (27500, 3/4)	ASTRA-1H

# ANTENAS: Apéndices



	Free	General Entertainment	German	12.226 GHz / H	19.2°E
<b>RTL Österreich</b>	-	TV	ASTRA reception area (except UK & Ireland)	<b>Trp 91</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.226 GHz / H	19.2°E
<b>RTL Shop</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	Shopping	German	12.1875 GHz / H	19.2°E
<b>RTL Télé Lëtzebuerg</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	General Entertainment	Luxemburgish	12.551 GHz / V	19.2°E
<b>RTL Television</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1875 GHz / H	19.2°E
<b>RTM - Maroc</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 26</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Arabic	11.597 GHz / V	19.2°E
<b>RTP Internacional</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Portuguese	11.5675 GHz / V	19.2°E
<b>Russian Hour</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Culture	English,Russian	12.551 GHz / V	19.2°E
<b>Sat 1</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Sat 1 Österreich</b>	-	TV	ASTRA reception area	<b>Trp 82</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.051 GHz / V	19.2°E
<b>Sat 1 Schweiz</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Pay TV	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>Sky News</b>	-	TV	ASTRA reception area	<b>Trp 26</b> (22000, 5/6)	ASTRA-1E
	Free	News	English	11.597 GHz / V	19.2°E
<b>Sonnenklar TV</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H

# ANTENAS: Apéndices



	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Spi.KA TV</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	Video Games	German	12.633 GHz / H	19.2°E
<b>Sportmanía</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Sports	Spanish	11.038 GHz / V	19.2°E
<b>SR Fernsehen Südwest</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>Südwest Fernsehen BW</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>Südwest Fernsehen RP</b>	-	TV	ASTRA reception area	<b>Trp 85</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1095 GHz / H	19.2°E
<b>Super RTL</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	Children	German	12.1875 GHz / H	19.2°E
<b>Super RTL Österreich</b>	-	TV	ASTRA reception area (except UK & Ireland)	<b>Trp 91</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.226 GHz / H	19.2°E
<b>Taquilla 1</b>	Digital +	TV	Spain	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 10</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 12</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 13</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 14</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E

# ANTENAS: Apéndices



	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 15</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 2</b>	Digital +	TV	Spain	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 3</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 4</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 5</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 6</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 7</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla 8</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla 9</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>Taquilla Futbol</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.847 GHz / V	19.2°E
<b>Taquilla X</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E
	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla XX</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 18</b> (22000, 5/6)	ASTRA-1E

# ANTENAS: Apéndices



	Pay TV	Pay-per-View	Spanish	11.479 GHz / V	19.2°E
<b>Taquilla XY</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 54</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Pay-per-View	Spanish	10.788 GHz / V	19.2°E
<b>TCM Spain</b>	Digital +	TV	Spain	<b>Trp 68</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Films	English, Spanish	11.778 GHz / V	19.2°E
<b>Tele 5 (Germany)</b>	-	TV	ASTRA reception area	<b>Trp 104</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.48 GHz / V	19.2°E
<b>Tele Deporte</b>	Digital +	TV	Spain, Canary Islands	<b>Trp 38</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Sports	Spanish	11.038 GHz / V	19.2°E
<b>Telemadrid - La otra</b>	Digital +	TV	ASTRA reception area	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Spanish	11.685 GHz / V	19.2°E
<b>Telif</b>	-	TV	ASTRA reception area	<b>Trp 20</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	French	11.5085 GHz / V	19.2°E
<b>Terra Nova</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 94</b> (27500, 3/4)	ASTRA-1H
	Free	Culture, Documentary	German	12.285 GHz / V	19.2°E
<b>Tiendas Canal Club</b>	Digital +	Interactive TV	Spain, Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	General Entertainment	Spanish	10.847 GHz / V	19.2°E
<b>Toon Disney</b>	Digital +	TV	Spain	<b>Trp 8</b> (22000, 5/6)	ASTRA-1F
	Pay TV	Children	French	11.3175 GHz / V	19.2°E
<b>Traumpartner TV</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1G
	Free	Special	German	12.1875 GHz / H	19.2°E
<b>Travel</b>	-	TV	ASTRA reception area	<b>Trp 68</b> (27500, 3/4)	ASTRA-1G
	Free	Travel	English	11.778 GHz / V	19.2°E
<b>Trend Pro TV</b>	-	TV	ASTRA reception area	<b>Trp 118</b> (22000, 5/6)	ASTRA-1G



# ANTENAS: Apéndices



	Free	Shopping	German	12.699 GHz / V	19.2°E
<b>TV 6</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H
	Free	Adults	German	12.6105 GHz / V	19.2°E
<b>TV Berlin</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1485 GHz / H	19.2°E
<b>TV Canaria</b>	Digital +	TV	ASTRA reception area	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Free	Travel	English,Spanish	10.979 GHz / V	19.2°E
<b>TV Catalunya Internacional</b>	Digital +	TV	ASTRA reception area	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Catalan	11.685 GHz / V	19.2°E
<b>TV de Galicia</b>	Digital +	TV	ASTRA reception area	<b>Trp 32</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Galician,Spanish	11.685 GHz / V	19.2°E
<b>tv gusto</b>	-	TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Culture	German	12.4605 GHz / H	19.2°E
<b>TV Novelas Europa</b>	Digital +	TV	Spain,Canary Islands	<b>Trp 34</b> (22000, 5/6)	ASTRA-2C
	Pay TV	News	Spanish	10.979 GHz / V	19.2°E
<b>TV Shop Deutschland</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	Shopping	German	10.832 GHz / H	19.2°E
<b>TV Travel Shop Germany</b>	-	TV	ASTRA reception area	<b>Trp 87</b> (27500, 3/4)	ASTRA-1H
	Free	Shopping	German	12.1485 GHz / H	19.2°E
<b>TV TRWAM</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	General Entertainment	Polish	10.8325 GHz / H	19.2°E
<b>TV5</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	French	11.5675 GHz / V	19.2°E
<b>TV5 Europe</b>	-	TV	ASTRA reception area	<b>Trp 112</b> (22000, 5/6)	ASTRA-1H

# ANTENAS: Apéndices



	Free	General Entertainment	French	12.6105 GHz / V	19.2°E
<b>TV7 - Tunisie</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Arabic	11.5675 GHz / V	19.2°E
<b>TVBS</b>	-	TV	ASTRA reception area	<b>Trp 68</b> (27500, 3/4)	ASTRA-1G
	Pay TV	General Entertainment	Chinese,English	11.778 GHz / V	19.2°E
<b>TVE Internacional</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 24</b> (22000, 5/6)	ASTRA-1E
	Free	General Entertainment	Spanish	11.568 GHz / V	19.2°E
<b>TW1</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 115</b> (22000, 5/6)	ASTRA-1H
	Free	Sports, Travel, Weather	German	12.66275 GHz / H	19.2°E
<b>TW1</b>	ORF Digital	TV	ASTRA reception area	<b>Trp 117</b> (22000, 5/6)	ASTRA-1H
	Free	Sports, Travel, Weather	German	12.69225 GHz / H	19.2°E
<b>T.TV</b>	-	TV	ASTRA reception area	<b>Trp 57</b> (22000, 5/6)	ASTRA-2C
	Free	General Entertainment	Eng.,Fre.,Ger.,Luxemburgish	10.832 GHz / H	19.2°E
<b>VH-1 European</b>	Digital +	TV	Spain	<b>Trp 66</b> (27500, 3/4)	ASTRA-1G
	Pay TV	Music	English	11.739 GHz / V	19.2°E
<b>Viajar</b>	Digital +	TV	Spain,Canary Islands	<b>Trp 46</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Travel	Spanish	11.156 GHz / V	19.2°E
<b>Viva</b>	-	TV	ASTRA reception area	<b>Trp 116</b> (22000, 5/6)	ASTRA-1G
	Free	Music	German	12.6695 GHz / V	19.2°E
<b>Viva Plus</b>	-	TV	ASTRA reception area	<b>Trp 108</b> (22000, 5/6)	ASTRA-1G
	Free	Music	German	12.551 GHz / V	19.2°E
<b>Vodafone</b>	Digital +	Interactive TV	Spain,Canary Islands	<b>Trp 58</b> (22000, 5/6)	ASTRA-2C
	Pay TV	Promo	Spanish	10.847 GHz / V	19.2°E

# ANTENAS: Apéndices



<b>VOX</b>	-	TV	ASTRA reception area	<b>Trp 89</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.1875 GHz / H	19.2°E
<b>VOX Österreich</b>	-	TV	ASTRA reception area (except UK & Ireland)	<b>Trp 91</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.226 GHz / H	19.2°E
<b>WDR-Fernsehen</b>	-	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>WDR Aachen</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Bielefeld</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Dortmund</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Düsseldorf</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Essen</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Köln</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Köln</b>	None	TV	ASTRA reception area	<b>Trp 71</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.8365 GHz / H	19.2°E
<b>WDR Münster</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>WDR Siegen</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E

# ANTENAS: Apéndices



<b>WDR Wuppertal</b>	None	TV	ASTRA reception area	<b>Trp 101</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	12.4215 GHz / H	19.2°E
<b>Wellenlänge TV</b>	Premiere	TV	ASTRA reception area	<b>Trp 103</b> (27500, 3/4)	ASTRA-1H
	Free	Special	German	12.4605 GHz / H	19.2°E
<b>XXP</b>	-	TV	ASTRA reception area	<b>Trp 113</b> (22000, 5/6)	ASTRA-1H
	Free	General Entertainment	German	12.633 GHz / H	19.2°E
<b>ZDF</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	General Entertainment	German	11.9535 GHz / H	19.2°E
<b>ZDF Dokukanal</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	Documentary	German	11.9535 GHz / H	19.2°E
<b>ZDF Infokanal</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	News	German	11.9535 GHz / H	19.2°E
<b>ZDF Theaterkanal</b>	-	TV	ASTRA reception area	<b>Trp 77</b> (27500, 3/4)	ASTRA-1H
	Free	Culture	German	11.9535 GHz / H	19.2°E
<b>Zik</b>	CanalSatellite	TV	ASTRA reception area	<b>Trp 94</b> (27500, 3/4)	ASTRA-1H
	Free	Music	French	12.285 GHz / V	19.2°E

Esta información esta sujeta a cambios sin previo aviso. Para ver canales actualizados mirar en Internet en las paginas oficiales de los satelites.



**TABLA DE CONVERSIÓN DE dB $\mu$ v A  $\mu$ v**

dB $\mu$ v	$\mu$ v	dB $\mu$ v	$\mu$ v	dB $\mu$ v	mv	dB $\mu$ v	mv	dB $\mu$ v	v
0	1	30	31.6	60	1	90	31.6	120	1
1	1.1	31	35.5	61	1.1	91	35.5	121	1.1
2	1.3	32	39.8	62	1.3	92	39.8	122	1.3
3	1.4	33	44.7	63	1.4	93	44.7	123	1.4
4	1.6	34	50.1	64	1.6	94	50.1	124	1.6
5	1.8	35	56.2	65	1.8	95	56.2	125	1.8
6	2	36	63.3	66	2	96	63.3	126	2
7	2.2	37	70.8	67	2.2	97	70.8	127	2.2
8	2.5	38	79.4	68	2.5	98	79.4	128	2.5
19	2.8	39	89.1	69	2.8	99	89.1	129	2.8
10	3.2	40	100	69	3.2	100	100	130	3.2
11	3.5	41	112	70	3.5	101	112	131	3.5
12	4	42	126	71	4	102	126	132	4
13	4.5	43	141	72	4.5	103	141	133	4.5
14	5	44	158	73	5	104	158	134	5
15	5.6	45	178	74	5.6	105	178	135	5.6
16	6.3	46	200	75	6.3	106	200	136	6.3
17	7.1	47	224	76	7.1	107	224	137	7.1
18	7.9	48	251	77	7.9	108	251	138	7.9
19	8.9	49	282	78	8.9	109	282	139	8.9
20	10	50	316	79	10	110	316	140	10
21	11.2	51	355	80	11.2	111	355	141	11.2
22	12.6	52	398	81	12.6	112	398	142	12.6
23	14.1	53	447	82	14.1	113	447	143	14.1
24	15.8	54	501	83	15.8	114	501	144	15.8
25	17.8	55	562	84	17.8	115	562	145	17.8
26	20	56	631	85	20	116	631	146	20
27	22.4	57	708	86	22.4	117	708	147	22.4
28	25.1	58	794	87	25.1	118	794	148	25.1
29	28.2	59	891	89	28.2	119	891	149	28.2

Las formulas utilizadas para la conversión de a  $\mu$ v son las siguientes:

$$V_{(dB\mu v)} = 20 \cdot \log V_{(\mu v)} \Leftrightarrow V_{(\mu v)} = 10^{\frac{V_{(dB\mu v)}}{20}}$$



## ABREVIATURAS Y SIMBOLOS MATEMÁTICOS UTILIZADOS

A continuación se expone una lista de los símbolos más utilizados a lo largo del texto por orden alfabético, finalizando con los caracteres griegos.

- A: Atenuación. Se mide en dB.  
A<sub>A</sub>: Atenuación atmosférica, también denominada atenuación por la lluvia.  
A<sub>c</sub>: Atenuación en el cable.  
A<sub>d</sub>: Atenuación directa.  
A.D.C.: Analog/Digital Converter (Convertidor /analógico Digital  
A<sub>i</sub>: Atenuación inversa.  
A<sub>L</sub>: Atenuación del espacio libre (se utiliza para recepción vía satélite).  
ARTEFACTS: Grupos de pixels transmitidos erróneamente, síntoma de C/N defectuosa.  
A<sub>T</sub>: Atenuación total (suma de atenuación atmosférica y atenuación del espacio libre).  
B.: Imágenes Predictivas Bidireccionales.  
B, BW: Ancho de banda.  
B.E.R.: Velocidad de error de bit. Indica cada cuántos bits transmitidos se transmite uno erróneo.  
BLOQUE: Matriz de 8 x 8 pixels.  
C.O.F.D.M.: Coded Orthogonal Frequency Demultiplexing Modulation. Modulación de señal digital en transmisión Vía Terrestre.  
c: Coeficiente eólico.  
C: Potencia de portadora en comunicación vía satélite.  
C: Capacidad de una antena. Se mide en Faradios (F).  
Cb: Señal diferencia de color B-Y  
Cr: Señal diferencia de color R-Y  
CUADRO: Conjunto de tramas.  
D.T.H.: Direct to Home. Sistema individual de recepción de TV digital.  
C/N: Relación potencia de portadora/potencia de ruido.  
d: Distancia del satélite a la Tierra.  
D: Diámetro de un tubo de mástil.  
D: Diámetro de una antena parabólica.  
DIGITVES: Sistema Televés de distribución de TV Digital en VHF.  
D/A: Relación delante/atrás en una antena. Se mide en dB.  
dB: Decibelio.  
dBW: Decibelios por vatio.  
e<sub>N</sub>: Tensión de ruido.  
f: Factor de ruido, en unidades.  
F.E.C.: Forward Error Correction. Algoritmo que engloba la protección Reed-Solomon y la codificación de Viterbi.  
F: Figura de ruido, en dB.  
F<sub>t</sub>: Factor de ruido total de la instalación, en unidades.  
F<sub>T</sub>: Figura de ruido total de la instalación, en dB.  
F: Frecuencia.  
F<sub>e</sub>: Frecuencia de entrada.  
F<sub>im</sub>: Frecuencia imagen.  
F.I.: Frecuencia intermedia.  
f<sub>m</sub>: Frecuencia de Muestreo.  
F<sub>OL</sub>: Frecuencia del oscilador local.  
F<sub>v</sub>: Fuerza del viento.  
G.O.P.: Group Of Pictures, conjunto de 12 cuadros.  
g: Ganancia, en unidades.  
g: Gravedad.  
G: Ganancia, en dB.  
G: Constante de gravitación universal.  
G<sub>A</sub>: Ganancia de una antena, en unidades.

# ANTENAS: Apéndices



- $G_A$ : Ganancia de una antena, en dB.  
 $G_{AI}$ : Ganancia de la antena receptora (en recepción vía satélite).  
 $G_c$ : Ganancia del convertor de una antena parabólica.  
 $G/T$ : Factor de mérito en una instalación de antena parabólica. Se mide en dB/°K.  
 $G_v$ : Ganancia en tensión, en dB.  
 $G_p$ : Ganancia en potencia, en dB.  
GHz: Gigahertzios ( $10^9$  Hz).  
h: Altura de colocación del mástil de una antena.  
Hz: Hertzio.  
I: Intensidad de corriente, en amperios (A).  
I: Intraimágenes.  
I: In Carrier. Señal digital moduladora en QPSK.  
INTERLEAVING: Algoritmo que elimina ráfagas de errores.  
K: Constante de Boltzmann.  
I.R.D.: Integrated Receiver Decoder. Receptor Digital.  
Kg: Kilogramos.  
KTo: Otra forma de expresar el factor de ruido f.  
L: Inductancia de una bobina o una antena. Se mide en Henrios (H).  
L: Longitud de un dipolo de una antena.  
 $L_D$ : Longitud de un director de una antena Yagi.  
 $L_R$ : Longitud de un reflector de una antena Yagi.  
 $L_{REC}$ : Longitud geográfica de la antena receptora.  
 $L_{SAT}$ : Longitud del satélite.  
 $L_t$  o  $l_t$ : Longitud de un tubo de mástil.  
 $L_T$ : Longitud de una antena logaritmo-periódica.  
m: Masa del satélite. Se mide en Kg.  
M: Masa de la Tierra. Se mide en Kg.  
Ma: Momento flector de una antena. Se mide en Newton por metro ( $N * m$ ).  
MACROBLOQUE: Matriz de 16 x 16 pixels.  
Mm: Momento flector de un mástil.  
M.D.T.: Multiplexado por División en el Tiempo.  
 $M_T$ : Momento flector total que debe soportar un mástil.  
M.P.E.G.: Moving Pictures Expert Group.  
M.U.S.I.C.A.M.: Masking Pattern Universal Subband Integrated Coding and Multiplexing. Sistema de compresión digital de audio.  
N: Potencia de ruido. Se mide en dB o dBW.  
N: Newton (unidad de fuerza).  
NA: Tensión de ruido térmico generado por una antena. Se expresa en  $dB\mu V$   
P: Imágenes Predictivas.  
P: Potencia. Se mide en vatios (w).  
P.C.M.: Modulación por Impulsos Codificados (M.I.C.).  
P.I.D.: Program Identifier. Datos identificadores del programa en un paquete MPEG.  
PIXEL: Unidad mínima en la que se descompone una imagen digitalizada.  
 $P_N$ : Potencia de ruido. Se mide en dB o dBW.  
 $P_E$ : Potencia a la entrada de la unidad interior sintonizable. Se mide en dB o en dBW.  
pfd: Densidad de flujo de potencia. Se mide en  $w/m^2$ .  
PFD: Densidad de flujo de potencia. Se mide en dBW/m<sup>2</sup>.  
pire: Potencia isotrópica radiada equivalente. Es la potencia emitida por un satélite. Se mide en w.  
PIRE: Potencia Isotrópica Radiada Equivalente. Potencia emitirla por un satélite, medida en dBW.  
Ps: Potencia de salida.  
Pv: Presión de viento.  
Pv: Portadora de vídeo.  
Q: Quadrature. Señal digital moduladora en QPSK.  
Q.A.M.: Quadrature Amplitude Modulation. Modulación de señal digital en transmisiones de SMATV o SCATV.  
Q.P.S.K.: Quadrature Phase Shift Keying. Modulación de señal digital en transmisión Vía Satélite.



Qv:	Carga del viento.
R:	Resistencia. Se mide en ohmios ( $\Omega$ ).
REED SOLOMON:	Codificación contra errores de transmisión digital.
S:	Superficie del mástil expuesta al viento. Se mide en $m^2$ .
S <sub>A</sub> :	Superficie eficaz de una antena.
S <sub>A</sub> :	Nivel de tensión de salida de una antena. Se mide en $dB\mu v$ .
S <sub>AD</sub> :	Señal entregada por una antena dipolo. Se mide en $dB\mu v$ .
S <sub>EA</sub> :	Nivel de señal a la entrada del amplificador. Se mide en $d\ dB\mu v$ .
S&H:	Sample And Hold. Circuito de muestreo y retención.
SINC:	Función frecuencial que representa el espectro de un pulso en el tiempo.
S/N:	Relación Señal/ruido. Se mide en dB.
S <sub>SA</sub> :	Señal a la salida del amplificador. Se mide en $dB\mu v$ .
S <sub>T</sub> :	Señal en la toma de usuario. Se mide en $dB\mu v$ .
S <sub>U</sub> :	Señal en la toma de usuario. Se mide en $dB\mu v$ .
T:	Temperatura en grados Kelvin ( $^{\circ}K$ ).
T.D.C.:	Transformada Discreta del Coseno.
TA:	Temperatura de ruido de la antena receptora. En $^{\circ}K$ .
TASA BINARIA:	Velocidad de transmisión. Cantidad de bits transmitidos en un tiempo.
T <sub>c</sub> :	Temperatura de ruido del convertidor. En $^{\circ}K$ .
T <sub>N</sub> :	Temperatura de ruido del conjunto receptor.
T:	Temperatura normalizada. Tiene como valor $290^{\circ}K$ .
TRAMA:	Unidad de 13 Macrobloques.
VITERBI:	Codificación para proteger los datos en la transmisión digital.
Vt:	Velocidad de transmisión. Ver TASA BINARIA.
W:	Ancho de banda.
Y:	Señal de Luminancia
Z <sub>0</sub> :	Impedancia característica. Se mide en ohmios ( $\Omega$ ). $dB\mu v$ .

## • Letras Griegas

$\alpha$ (alfa):	Acimut.
$\beta$ (beta):	Se utiliza para calcular la elevación.
$\gamma$ (gamma):	Elevación.
$\theta$ (theta):	Latitud del lugar de recepción.
$\Theta$ (THETA):	Declinación para el montaje polar.
$\delta$ (delta):	Desplazamiento de la polarización.
$\Delta$ (DELTA):	Ángulo a medir con la brújula.
$\lambda$ (lambda):	Longitud de onda.
$\pi$ (pi):	Número pi = 3.14159
$\Psi$ Inclímetro (PSI):	Ángulo a medir por el inclinómetro.
$\Phi$ (phi):	Diferencia entre la longitud geográfica de la antena receptora y la longitud del satélite.
$\omega$ (omega):	Velocidad angular del satélite y de la Tierra.
$\Omega$ (OMEGA):	Símbolo del ohmio.
$\mu$ (mu):	Símbolo de micro ( $10^{-6}$ ).
$\eta$ (eta):	Rendimiento de una antena.

Las funciones matemáticas utilizadas son:

Log:	Logaritmo decimal. (en base 10).
Sin:	Función seno.
Cos:	Función coseno.
Tan:	Función tangente.
Arcsin:	Función arcoseno. (en la calculadora viene marcada como $\sin^{-1}$ ).
Arccos:	Función arcocoseno (en la calculadora viene marcada como $\cos^{-1}$ ).
Arctan:	Función arcotangente (en la calculadora viene marcada como $\tan^{-1}$ )