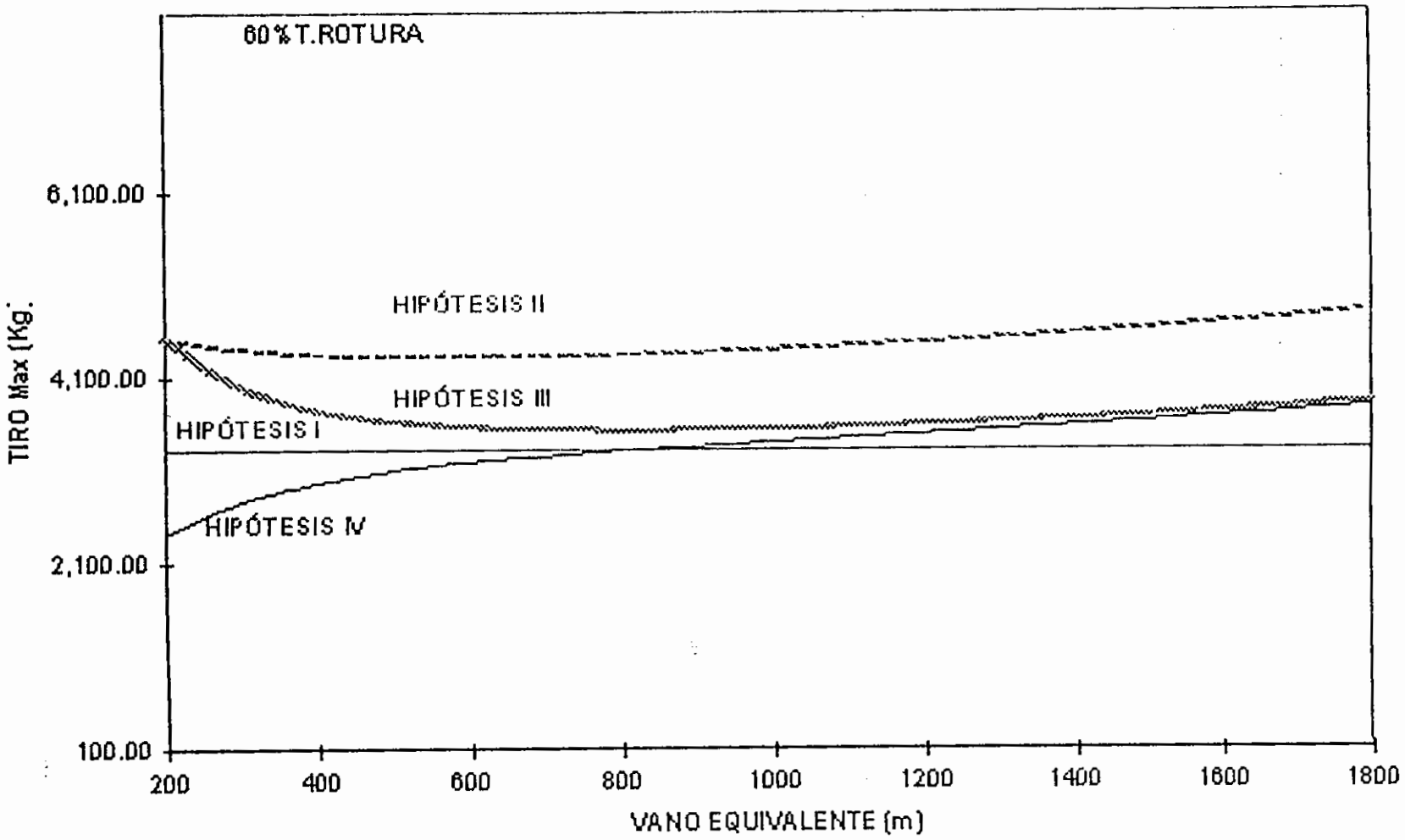
LT. 220 kV AGUAYTÍA - PARAMONGA
CÁLCULO MECÁNICO DE CONDUCTOR ASCR 1033.5 MCM
ZONA 3: 3000 < H <= 4000 m



ETESELVA S.A.

LT 220 kV AGUAYTÍA - PARAMONGA NUEVA

CÁLCULO MECÁNICO DE CONDUCTOR ASCR 1033.5 MCM

ZONA 4 **(1500 <= H <= 3000)**

HIPÓTESIS I EDS T=15°C, S/V, EDS Final =20%Trotura

HIPÓTESIS II Máximo Esfuerzo c/v T= 0°C,Hielo=0mm, V= 100 km/h, TMax=50% Trotura

HIPÓTESIS III Máximo Esfuerzo s/v T= 0°C,Hielo=0mm, V= 100 km/h, TMax=50% Trotura

HIPÓTESIS IV Flecha Máxima T= 55°C, V=0 km/h, TMax=60% Trotura

Conductor: ASCR Sección: 590.3 mm² Peso: 1.978 Kg/m Diámetro: 31.65 mm T. Ruptura(Kg): 16622.00

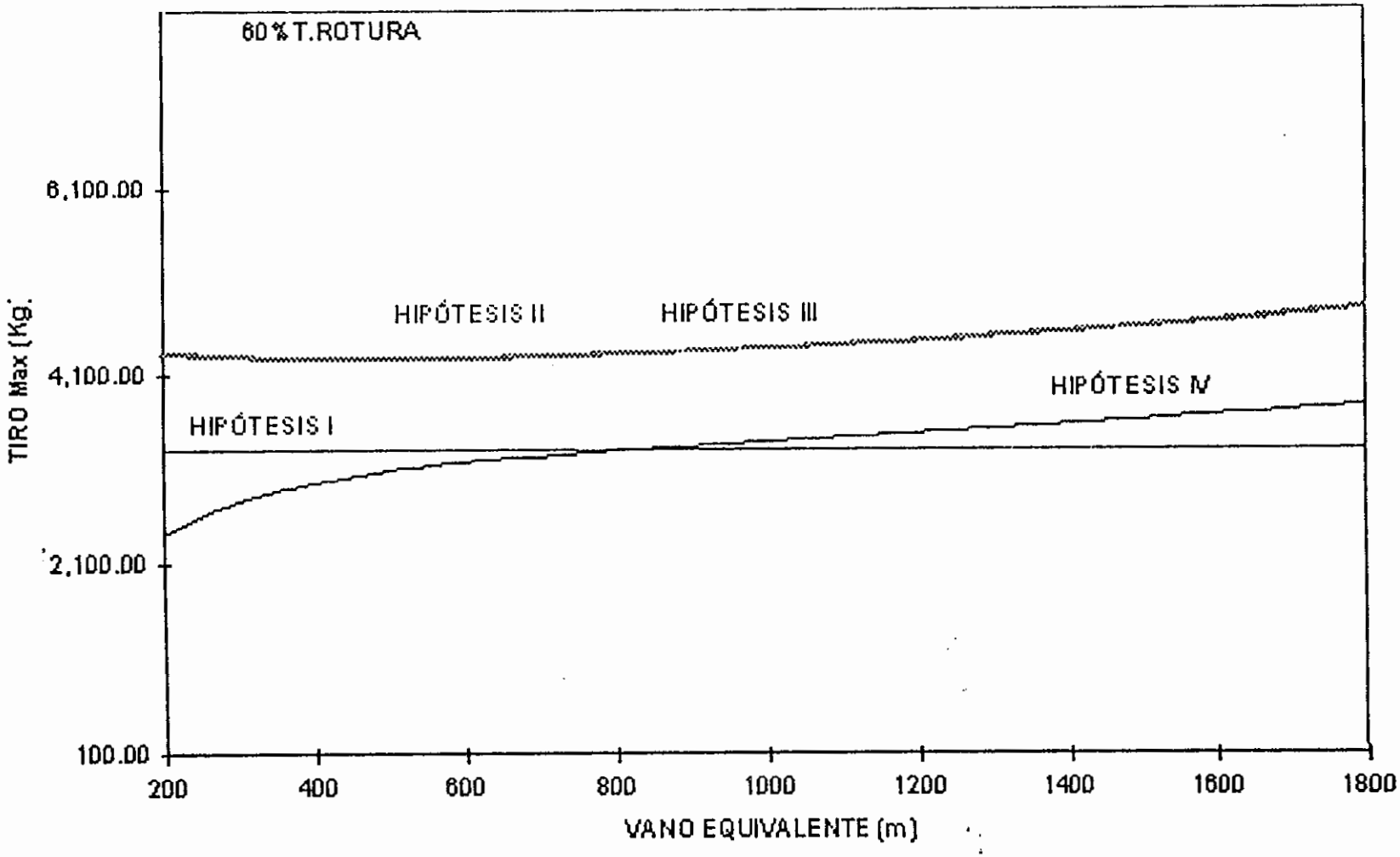
Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
200	3324.4	3330.29	2.98	4348.31	4355.46	2.87	4348.31	4355.46	2.87	2394.72	2402.89	4.13
220	3324.4	3331.52	3.6	4332.35	4341.04	3.48	4332.35	4341.04	3.48	2480.96	2490.5	4.83
240	3324.4	3332.88	4.29	4318.18	4328.56	4.16	4318.18	4328.56	4.16	2557.1	2568.12	5.57
260	3324.4	3334.35	5.03	4305.66	4317.87	4.9	4305.66	4317.87	4.9	2624.5	2637.11	6.37
280	3324.4	3335.94	5.83	4294.62	4308.82	5.69	4294.62	4308.82	5.69	2684.33	2698.62	7.23
300	3324.4	3337.65	6.7	4284.91	4301.25	6.55	4284.91	4301.25	6.55	2737.55	2753.64	8.14
320	3324.4	3339.48	7.62	4276.35	4294.98	7.47	4276.35	4294.98	7.47	2785.02	2803.02	9.1
340	3324.4	3341.42	8.61	4268.81	4289.88	8.45	4268.81	4289.88	8.45	2827.47	2847.48	10.12
360	3324.4	3343.48	9.65	4262.15	4285.81	9.49	4262.15	4285.81	9.49	2865.51	2887.66	11.2
380	3324.4	3345.67	10.75	4256.25	4282.66	10.59	4256.25	4282.66	10.59	2899.69	2924.08	12.33
400	3324.4	3347.97	11.91	4251.01	4280.31	11.75	4251.01	4280.31	11.75	2930.47	2957.21	13.52
420	3324.4	3350.38	13.14	4246.35	4278.69	12.97	4246.35	4278.69	12.97	2958.26	2987.47	14.77
440	3324.4	3352.92	14.42	4242.19	4277.72	14.25	4242.19	4277.72	14.25	2983.4	3015.2	16.07

Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
460	3324.4	3355.58	15.76	4238.46	4277.34	15.59	4238.46	4277.34	15.59	3006.2	3040.69	17.44
480	3324.4	3358.35	17.16	4235.11	4277.48	16.99	4235.11	4277.48	16.99	3026.93	3064.23	18.86
500	3324.4	3361.25	18.63	4232.1	4278.11	18.45	4232.1	4278.11	18.45	3045.81	3086.04	20.34
520	3324.4	3364.26	20.15	4229.37	4279.18	19.97	4229.37	4279.18	19.97	3063.04	3106.31	21.88
540	3324.4	3367.39	21.73	4226.91	4280.66	21.55	4226.91	4280.66	21.55	3078.79	3125.23	23.48
560	3324.4	3370.64	23.38	4224.67	4282.52	23.19	4224.67	4282.52	23.19	3093.24	3142.95	25.13
580	3324.4	3374.01	25.08	4222.64	4284.73	24.9	4222.64	4284.73	24.9	3106.5	3159.61	26.85
600	3324.4	3377.5	26.85	4220.78	4287.27	26.66	4220.78	4287.27	26.66	3118.7	3175.33	28.63
620	3324.4	3381.11	28.67	4219.08	4290.12	28.48	4219.08	4290.12	28.48	3129.95	3190.2	30.46
640	3324.4	3384.84	30.56	4217.52	4293.26	30.37	4217.52	4293.26	30.37	3140.33	3204.34	32.36
660	3324.4	3388.69	32.5	4216.09	4296.68	32.31	4216.09	4296.68	32.31	3149.93	3217.81	34.31
680	3324.4	3392.66	34.51	4214.77	4300.36	34.32	4214.77	4300.36	34.32	3158.83	3230.69	36.33
700	3324.4	3396.75	36.58	4213.56	4304.3	36.38	4213.56	4304.3	36.38	3167.08	3243.05	38.41
720	3324.4	3400.96	38.7	4212.43	4308.49	38.51	4212.43	4308.49	38.51	3174.75	3254.95	40.54
740	3324.4	3405.28	40.89	4211.39	4312.9	40.7	4211.39	4312.9	40.7	3181.89	3266.43	42.74
760	3324.4	3409.73	43.14	4210.43	4317.55	42.95	4210.43	4317.55	42.95	3188.55	3277.55	45
780	3324.4	3414.31	45.45	4209.53	4322.41	45.26	4209.53	4322.41	45.26	3194.76	3288.35	47.31
800	3324.4	3419	47.82	4208.7	4327.5	47.63	4208.7	4327.5	47.63	3200.57	3298.86	49.69
820	3324.4	3423.81	50.26	4207.92	4332.79	50.06	4207.92	4332.79	50.06	3206	3309.12	52.13
840	3324.4	3428.74	52.75	4207.2	4338.28	52.56	4207.2	4338.28	52.56	3211.09	3319.16	54.63
860	3324.4	3433.8	55.31	4206.52	4343.97	55.11	4206.52	4343.97	55.11	3215.87	3329	57.2

Vano	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
(m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
880	3324.4	3438.98	57.93	4205.89	4349.87	57.73	4205.89	4349.87	57.73	3220.35	3338.68	59.82
900	3324.4	3444.27	60.6	4205.29	4355.95	60.41	4205.29	4355.95	60.41	3224.57	3348.2	62.5
920	3324.4	3449.7	63.34	4204.73	4362.23	63.15	4204.73	4362.23	63.15	3228.54	3357.61	65.25
940	3324.4	3455.24	66.15	4204.21	4368.69	65.95	4204.21	4368.69	65.95	3232.29	3366.91	68.06
960	3324.4	3460.9	69.01	4203.72	4375.34	68.81	4203.72	4375.34	68.81	3235.82	3376.11	70.93
980	3324.4	3466.69	71.94	4203.25	4382.17	71.74	4203.25	4382.17	71.74	3239.16	3385.25	73.86
1000	3324.4	3472.6	74.92	4202.81	4389.18	74.72	4202.81	4389.18	74.72	3242.31	3394.32	76.85
1020	3324.4	3478.63	77.97	4202.4	4396.37	77.77	4202.4	4396.37	77.77	3245.29	3403.35	79.91
1040	3324.4	3484.79	81.09	4202.01	4403.74	80.89	4202.01	4403.74	80.89	3248.12	3412.34	83.02
1060	3324.4	3491.07	84.26	4201.64	4411.29	84.06	4201.64	4411.29	84.06	3250.8	3421.31	86.2
1080	3324.4	3497.47	87.5	4201.29	4419.01	87.3	4201.29	4419.01	87.3	3253.34	3430.26	89.44
1100	3324.4	3504	90.8	4200.96	4426.91	90.6	4200.96	4426.91	90.6	3255.75	3439.21	92.75
1120	3324.4	3510.65	94.16	4200.64	4434.98	93.96	4200.64	4434.98	93.96	3258.05	3448.16	96.12
1140	3324.4	3517.43	97.59	4200.34	4443.23	97.38	4200.34	4443.23	97.38	3260.23	3457.13	99.55
1160	3324.4	3524.33	101.08	4200.06	4451.64	100.87	4200.06	4451.64	100.87	3262.31	3466.12	103.04
1180	3324.4	3531.35	104.63	4199.79	4460.23	104.42	4199.79	4460.23	104.42	3264.28	3475.13	106.59
1200	3324.4	3538.5	108.24	4199.53	4468.98	108.04	4199.53	4468.98	108.04	3266.17	3484.17	110.21
1220	3324.4	3545.78	111.92	4199.28	4477.91	111.71	4199.28	4477.91	111.71	3267.97	3493.25	113.9
1240	3324.4	3553.18	115.66	4199.05	4487.01	115.46	4199.05	4487.01	115.46	3269.68	3502.38	117.64
1260	3324.4	3560.7	119.47	4198.83	4496.27	119.26	4198.83	4496.27	119.26	3271.32	3511.55	121.45
1280	3324.4	3568.36	123.33	4198.62	4505.71	123.13	4198.62	4505.71	123.13	3272.89	3520.78	125.32

Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
1300	3324.4	3576.13	127.27	4198.41	4515.31	127.06	4198.41	4515.31	127.06	3274.39	3530.07	129.26
1320	3324.4	3584.04	131.26	4198.22	4525.09	131.06	4198.22	4525.09	131.06	3275.83	3539.42	133.26
1340	3324.4	3592.07	135.32	4198.03	4535.03	135.12	4198.03	4535.03	135.12	3277.2	3548.83	137.33
1360	3324.4	3600.23	139.45	4197.85	4545.14	139.24	4197.85	4545.14	139.24	3278.52	3558.32	141.46
1380	3324.4	3608.52	143.64	4197.68	4555.41	143.43	4197.68	4555.41	143.43	3279.78	3567.87	145.65
1400	3324.4	3616.93	147.89	4197.52	4565.86	147.68	4197.52	4565.86	147.68	3280.99	3577.51	149.91
1420	3324.4	3625.48	152.21	4197.36	4576.47	152	4197.36	4576.47	152	3282.15	3587.22	154.23
1440	3324.4	3634.15	156.6	4197.21	4587.26	156.39	4197.21	4587.26	156.39	3283.27	3597.02	158.62
1460	3324.4	3642.95	161.04	4197.07	4598.21	160.83	4197.07	4598.21	160.83	3284.34	3606.9	163.07
1480	3324.4	3651.87	165.56	4196.93	4609.32	165.35	4196.93	4609.32	165.35	3285.37	3616.87	167.59
1500	3324.4	3660.93	170.14	4196.8	4620.61	169.93	4196.8	4620.61	169.93	3286.36	3626.92	172.17

LT. 220 kV AGUAYTÍA - PARAMONGA
CÁLCULO MECÁNICO DE CONDUCTOR ASCR 1033.5 MCM
ZONA 4: 1500 < H <= 3000



ETESELVA S.A.
LT 220 kV AGUAYTÍA - PARAMONGA NUEVA

CÁLCULO MECÁNICO DE CONDUCTOR ASCR 1033.5 MCM

ZONA 3	**(1500<= H)**	
HIPÓTESIS I	EDS	T=15°C, S/V, EDS Final =20%Trotura
HIPÓTESIS II	Máximo Esfuerzo c/v	T= 5°C,Hielo=0mm, V= 100 km/h, TMax=50% Trotura
HIPÓTESIS III	Máximo Esfuerzo s/v	T= 5°C,Hielo=0mm, V= 100 km/h, TMax=50% Trotura
HIPÓTESIS IV	Flecha Máxima	T= 55°C, V=0 km/h, TMax=60% Trotura

Conductor: ASCR Sección: 590.3 mm² Peso: 1.978 Kg/m Diámetro: 31.65 mm T. Ruptura(Kg): 16622.00

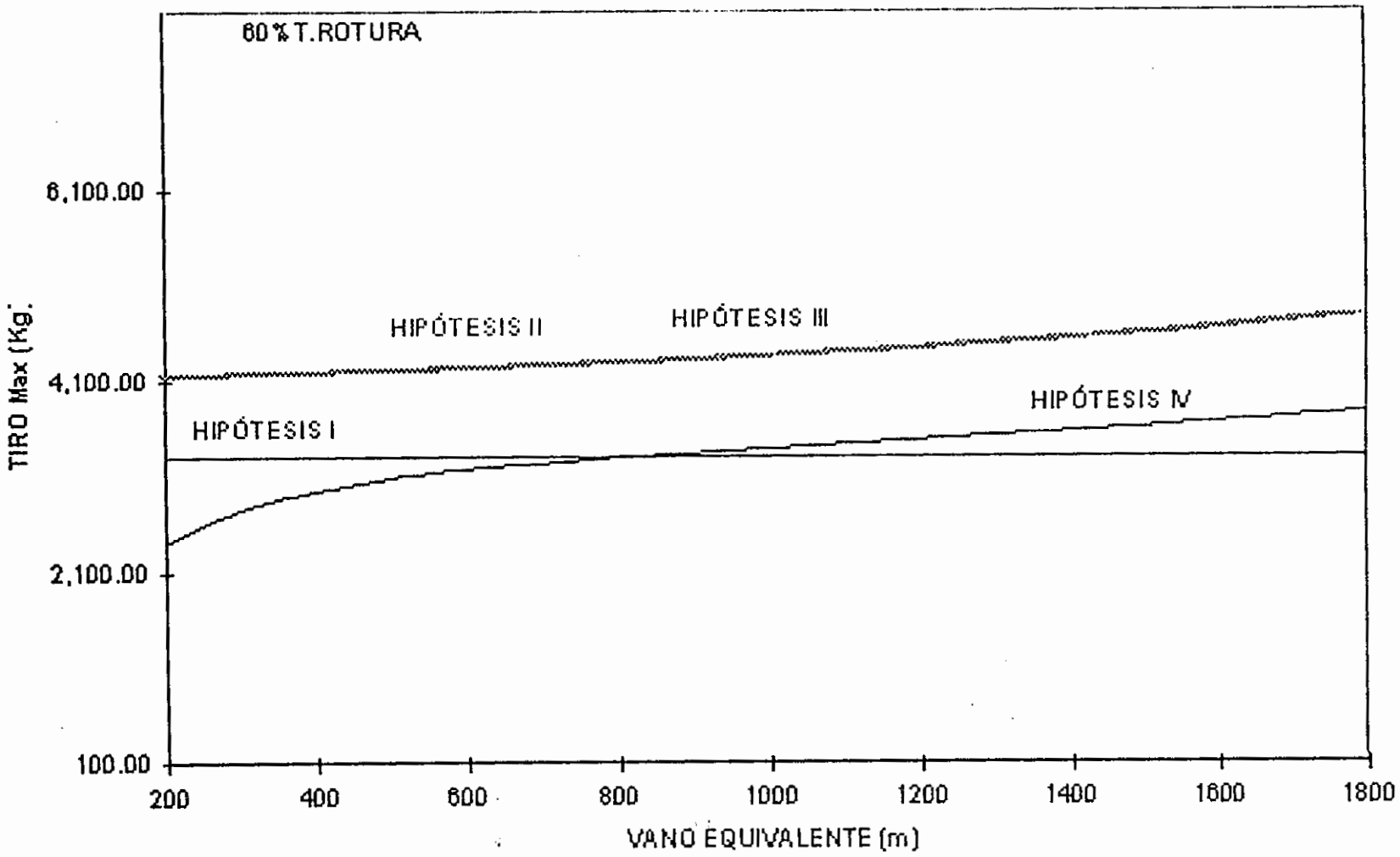
Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
200	3324.4	3330.29	2.98	4159.67	4167.15	3	4159.67	4167.15	3	2394.72	2402.89	4.13
220	3324.4	3331.52	3.6	4162.92	4171.96	3.63	4162.92	4171.96	3.63	2480.96	2490.5	4.83
240	3324.4	3332.88	4.29	4165.8	4176.56	4.31	4165.8	4176.56	4.31	2557.1	2568.12	5.57
260	3324.4	3334.35	5.03	4168.34	4180.96	5.06	4168.34	4180.96	5.06	2624.5	2637.11	6.37
280	3324.4	3335.94	5.83	4170.58	4185.2	5.86	4170.58	4185.2	5.86	2684.33	2698.62	7.23
300	3324.4	3337.65	6.7	4172.55	4189.33	6.73	4172.55	4189.33	6.73	2737.55	2753.64	8.14
320	3324.4	3339.48	7.62	4174.28	4193.37	7.65	4174.28	4193.37	7.65	2785.02	2803.02	9.1
340	3324.4	3341.42	8.61	4175.82	4197.36	8.64	4175.82	4197.36	8.64	2827.47	2847.48	10.12
360	3324.4	3343.48	9.65	4177.17	4201.32	9.68	4177.17	4201.32	9.68	2865.51	2887.66	11.2
380	3324.4	3345.67	10.75	4178.38	4205.28	10.79	4178.38	4205.28	10.79	2899.69	2924.08	12.33
400	3324.4	3347.97	11.91	4179.45	4209.25	11.95	4179.45	4209.25	11.95	2930.47	2957.21	13.52
420	3324.4	3350.38	13.14	4180.4	4213.26	13.17	4180.4	4213.26	13.17	2958.26	2987.47	14.77
440	3324.4	3352.92	14.42	4181.26	4217.31	14.46	4181.26	4217.31	14.46	2983.4	3015.2	16.07

Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
460	3324.4	3355.58	15.76	4182.03	4221.43	15.8	4182.03	4221.43	15.8	3006.2	3040.69	17.44
480	3324.4	3358.35	17.16	4182.72	4225.62	17.2	4182.72	4225.62	17.2	3026.93	3064.23	18.86
500	3324.4	3361.25	18.63	4183.34	4229.89	18.67	4183.34	4229.89	18.67	3045.81	3086.04	20.34
520	3324.4	3364.26	20.15	4183.9	4234.25	20.19	4183.9	4234.25	20.19	3063.04	3106.31	21.88
540	3324.4	3367.39	21.73	4184.41	4238.71	21.77	4184.41	4238.71	21.77	3078.79	3125.23	23.48
560	3324.4	3370.64	23.38	4184.87	4243.28	23.42	4184.87	4243.28	23.42	3093.24	3142.95	25.13
580	3324.4	3374.01	25.08	4185.3	4247.95	25.12	4185.3	4247.95	25.12	3106.5	3159.61	26.85
600	3324.4	3377.5	26.85	4185.68	4252.74	26.89	4185.68	4252.74	26.89	3118.7	3175.33	28.63
620	3324.4	3381.11	28.67	4186.04	4257.64	28.71	4186.04	4257.64	28.71	3129.95	3190.2	30.46
640	3324.4	3384.84	30.56	4186.36	4262.67	30.6	4186.36	4262.67	30.6	3140.33	3204.34	32.36
660	3324.4	3388.69	32.5	4186.66	4267.82	32.54	4186.66	4267.82	32.54	3149.93	3217.81	34.31
680	3324.4	3392.66	34.51	4186.93	4273.1	34.55	4186.93	4273.1	34.55	3158.83	3230.69	36.33
700	3324.4	3396.75	36.58	4187.19	4278.51	36.62	4187.19	4278.51	36.62	3167.08	3243.05	38.41
720	3324.4	3400.96	38.7	4187.42	4284.05	38.74	4187.42	4284.05	38.74	3174.75	3254.95	40.54
740	3324.4	3405.28	40.89	4187.64	4289.73	40.93	4187.64	4289.73	40.93	3181.89	3266.43	42.74
760	3324.4	3409.73	43.14	4187.84	4295.54	43.18	4187.84	4295.54	43.18	3188.55	3277.55	45
780	3324.4	3414.31	45.45	4188.03	4301.49	45.49	4188.03	4301.49	45.49	3194.76	3288.35	47.31
800	3324.4	3419	47.82	4188.2	4307.59	47.87	4188.2	4307.59	47.87	3200.57	3298.86	49.69
820	3324.4	3423.81	50.26	4188.37	4313.82	50.3	4188.37	4313.82	50.3	3206	3309.12	52.13
840	3324.4	3428.74	52.75	4188.52	4320.19	52.79	4188.52	4320.19	52.79	3211.09	3319.16	54.63
860	3324.4	3433.8	55.31	4188.66	4326.71	55.35	4188.66	4326.71	55.35	3215.87	3329	57.2

Vano	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
(m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
880	3324.4	3438.98	57.93	4188.79	4333.37	57.97	4188.79	4333.37	57.97	3220.35	3338.68	59.82
900	3324.4	3444.27	60.6	4188.92	4340.17	60.65	4188.92	4340.17	60.65	3224.57	3348.2	62.5
920	3324.4	3449.7	63.34	4189.04	4347.13	63.39	4189.04	4347.13	63.39	3228.54	3357.61	65.25
940	3324.4	3455.24	66.15	4189.15	4354.23	66.19	4189.15	4354.23	66.19	3232.29	3366.91	68.06
960	3324.4	3460.9	69.01	4189.25	4361.47	69.05	4189.25	4361.47	69.05	3235.82	3376.11	70.93
980	3324.4	3466.69	71.94	4189.35	4368.87	71.98	4189.35	4368.87	71.98	3239.16	3385.25	73.86
1000	3324.4	3472.6	74.92	4189.44	4376.41	74.97	4189.44	4376.41	74.97	3242.31	3394.32	76.85
1020	3324.4	3478.63	77.97	4189.53	4384.11	78.02	4189.53	4384.11	78.02	3245.29	3403.35	79.91
1040	3324.4	3484.79	81.09	4189.61	4391.95	81.13	4189.61	4391.95	81.13	3248.12	3412.34	83.02
1060	3324.4	3491.07	84.26	4189.69	4399.95	84.3	4189.69	4399.95	84.3	3250.8	3421.31	86.2
1080	3324.4	3497.47	87.5	4189.76	4408.1	87.54	4189.76	4408.1	87.54	3253.34	3430.26	89.44
1100	3324.4	3504	90.8	4189.83	4416.4	90.84	4189.83	4416.4	90.84	3255.75	3439.21	92.75
1120	3324.4	3510.65	94.16	4189.9	4424.85	94.2	4189.9	4424.85	94.2	3258.05	3448.16	96.12
1140	3324.4	3517.43	97.59	4189.96	4433.46	97.63	4189.96	4433.46	97.63	3260.23	3457.13	99.55
1160	3324.4	3524.33	101.08	4190.02	4442.22	101.12	4190.02	4442.22	101.12	3262.31	3466.12	103.04
1180	3324.4	3531.35	104.63	4190.08	4451.13	104.67	4190.08	4451.13	104.67	3264.28	3475.13	106.59
1200	3324.4	3538.5	108.24	4190.13	4460.2	108.28	4190.13	4460.2	108.28	3266.17	3484.17	110.21
1220	3324.4	3545.78	111.92	4190.18	4469.43	111.96	4190.18	4469.43	111.96	3267.97	3493.25	113.9
1240	3324.4	3553.18	115.66	4190.23	4478.81	115.7	4190.23	4478.81	115.7	3269.68	3502.38	117.64
1260	3324.4	3560.7	119.47	4190.28	4488.35	119.51	4190.28	4488.35	119.51	3271.32	3511.55	121.45
1280	3324.4	3568.36	123.33	4190.33	4498.04	123.38	4190.33	4498.04	123.38	3272.89	3520.78	125.32

Vano (m)	Hipótesis I			Hipótesis II			Hipótesis III			Hipótesis IV		
	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)	TiroH (kg)	Tmax (kg)	Flecha (m)
1300	3324.4	3576.13	127.27	4190.37	4507.89	127.31	4190.37	4507.89	127.31	3274.39	3530.07	129.26
1320	3324.4	3584.04	131.26	4190.41	4517.9	131.31	4190.41	4517.9	131.31	3275.83	3539.42	133.26
1340	3324.4	3592.07	135.32	4190.45	4528.07	135.37	4190.45	4528.07	135.37	3277.2	3548.83	137.33
1360	3324.4	3600.23	139.45	4190.49	4538.4	139.49	4190.49	4538.4	139.49	3278.52	3558.32	141.46
1380	3324.4	3608.52	143.64	4190.52	4548.88	143.68	4190.52	4548.88	143.68	3279.78	3567.87	145.65
1400	3324.4	3616.93	147.89	4190.56	4559.53	147.94	4190.56	4559.53	147.94	3280.99	3577.51	149.91
1420	3324.4	3625.48	152.21	4190.59	4570.33	152.26	4190.59	4570.33	152.26	3282.15	3587.22	154.23
1440	3324.4	3634.15	156.6	4190.62	4581.3	156.64	4190.62	4581.3	156.64	3283.27	3597.02	158.62
1460	3324.4	3642.95	161.04	4190.65	4592.42	161.09	4190.65	4592.42	161.09	3284.34	3606.9	163.07
1480	3324.4	3651.87	165.56	4190.68	4603.71	165.6	4190.68	4603.71	165.6	3285.37	3616.87	167.59
1500	3324.4	3660.93	170.14	4190.71	4615.16	170.18	4190.71	4615.16	170.18	3286.36	3626.92	172.17

LT. 220 kV AGUAYTÍA - PARAMONGA
CÁLCULO MECÁNICO DE CONDUCTOR ASCR 1033.5 MCM
ZONA 5: H <= 1500 m



ANEXO 02

DIAGRAMAS DE CARGA DE LAS ESTRUCTURAS

ETESELVA S.A.

LT 220 kV AGUYTIA - PARAMONGA

CUADROS DE CARGAS POR TIPO DE ESTRUCTURA

Estructura 22A Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	1016	1062	0	120 kg/m2	192	265	0
Combinacion II	1016	71	284	120 kg/m2	192	28	59
Combinacion III	1016	295	0	30 kg/m2	192	70	0
Combinacion IV	1016	573	1016	40 kg/m2	192	266	0
Combinacion V-A	1016	99	1896	30 kg/m2	192	12	627
Combinacion V-B	1016	49	50	30 kg/m2	192	12	627
Combinacion V	1016	246	406	30 kg/m2	192	59	94

Estructura 22B Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	2900	1555	0	120 kg/m2	575	435	0
Combinacion II	2900	75	410	120 kg/m2	575	25	105
Combinacion III	2900	420	0	30 kg/m2	575	115	0
Combinacion IV	3885	455	0	40 kg/m2	975	200	0
Combinacion V-A	2900	105	2050	30 kg/m2	575	15	670
Combinacion V-B	2900	55	2105	30 kg/m2	575	15	670
Combinacion V	2900	370	440	30 kg/m2	575	105	100

Estructura 22C Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	1360	2773	0	120 kg/m2	244	746	0
Combinacion II	1360	2092	170	120 kg/m2	244	561	46
Combinacion III	1360	2764	0	120 kg/m2	244	972	0
Combinacion IV	1360	1614	0	120 kg/m2	244	393	0
Combinacion V-A	1360	105	4041	120 kg/m2	244	5	1085
Combinacion V-B	1360	2198	3905	120 kg/m2	244	571	1047
Combinacion V-C	1360	0	105	120 kg/m2	244	0	10
Combinacion V-D	1360	2092	106	120 kg/m2	244	56	10
Combinacion VI-A	1360	106	2021	120 kg/m2	244	5	542
Combinacion VI-B	1360	2198	1952	120 kg/m2	244	571	524
Combinacion VI-C	1360	0	2127	120 kg/m2	244	0	552
Combinacion VI-D	1360	2092	2058	120 kg/m2	244	561	534
Combinacion VII-A	1360	106	4041	120 kg/m2	244	5	1084
Combinacion VII-B	1360	1152	3903	120 kg/m2	244	286	1047
Combinacion VII-C	1360	0	4147	120 kg/m2	244	0	1089
Combinacion VII-D	1360	0	4009	120 kg/m2	24	0	1052

Estructura 22D Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	2110	3900	0	120 kg/m2	580	2075	0
Combinacion IV	2110	3070	0	30 kg/m2	580	1020	0
Combinacion V-A	2110	110	0	120 kg/m2	580	5	0
Combinacion V-B	2110	2885	2025	120 kg/m2	580	1670	890
Combinacion V-D	2110	2885	110	120 kg/m2	580	1660	10
Combinacion VI-A	2110	110	2080	120 kg/m2	580	5	610
Combinacion VI-B	2110	2885	1520	120 kg/m2	580	1670	0
Combinacion VI-C	2110	0	2185	120 kg/m2	580	0	620
Combinacion VI-D	2110	2830	1625	120 kg/m2	580	1660	455
Combinacion VII-A	2110	110	4150	120 kg/m2	580	5	1220
Combinacion VII-B	2110	110	3035	120 kg/m2	580	5	890
Combinacion VII-C	2110	0	4260	120 kg/m2	580	0	1225
Combinacion VII-D	2110	2830	3145	120 kg/m2	580	830	895

Estructura 22A1 Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	1710	915	0	120 kg/m2	330	250	0
Combinacion II	1710	0	270	120 kg/m2	330	0	65
Combinacion III	1710	230	0	30 kg/m2	330	115	0
Combinacion IV	3020	300	0	40 kg/m2	970	170	0
Combinacion V-A	1710	55	2100	30 kg/m2	330	5	685
Combinacion V-B	1710	55	2150	30 kg/m2	330	5	0
Combinacion VI	1710	230	450	30 kg/m2	330	65	110
Combinacion VII	3020	40	1100	30 kg/m2	970	5	1100
Combinacion VIII	3020	0	1140	30 kg/m2	970	0	1105

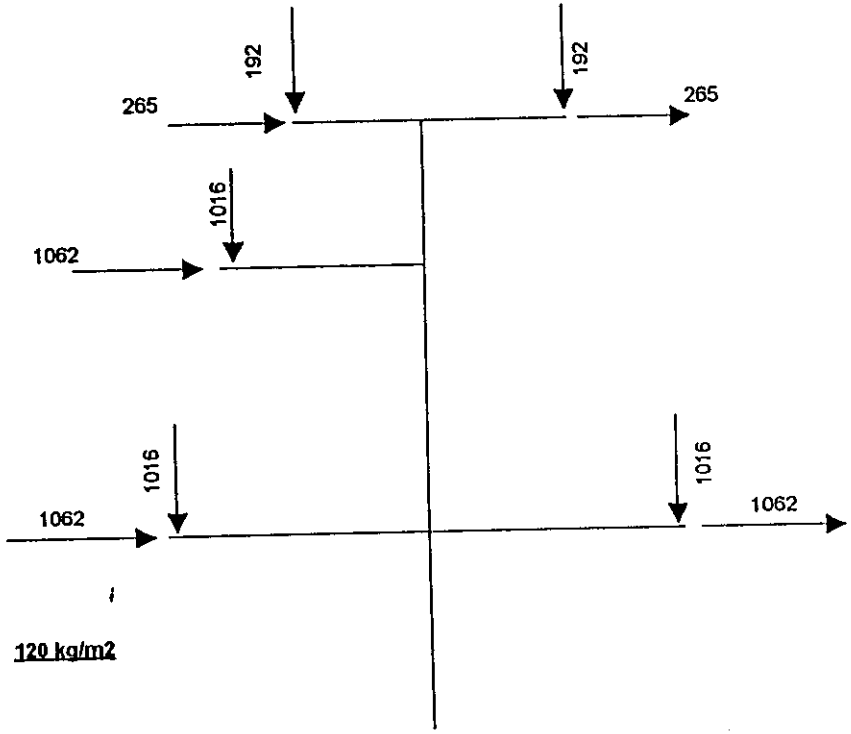
Estructura 22C1 Hipótesis	Conductor			Presión Viento	Cable de Guarda		
	CV	CT	CL		CV	CT	CL
Combinacion I	2500	3185	0	120 kg/m2	420	875	0
Combinación II	2500	2230	240	120 kg/m2	420	620	65
Combinación III	4145	3725	0	40 kg/m2	1215	1600	0
Combinación IV	2500	1760	0	30 kg/m2	420	410	0
Combinación V-A	2500	110	4300	120 kg/m2	420	5	1500
Combinacion V-B	2500	2335	4122	120 kg/m2	420	630	160
Combinacion V-C	2500	0	4405	120 kg/m2	420	0	210
Combinacion VI-A	2500	110	2150	120 kg/m2	420	5	600
Combinacion VI-B	2500	1760	0	30 kg/m2	420	410	0
Combinacion VI-C	2500	110	4300	120 kg/m2	420	5	1500
Combinacion VI-D	2500	2335	4122	120 kg/m2	420	630	160
Combinacion VII-A	2500	0	4405	120 kg/m2	420	0	210
Combinacion VII-B	2500	110	2150	120 kg/m2	420	5	600
Combinacion VII-C	2500	0	4405	120 kg/m2	420	0	1205
Combinacion VII-D	2500	1115	4260	120 kg/m2	420	310	1165

Nota : Todas la fuerzas expresadas en K

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

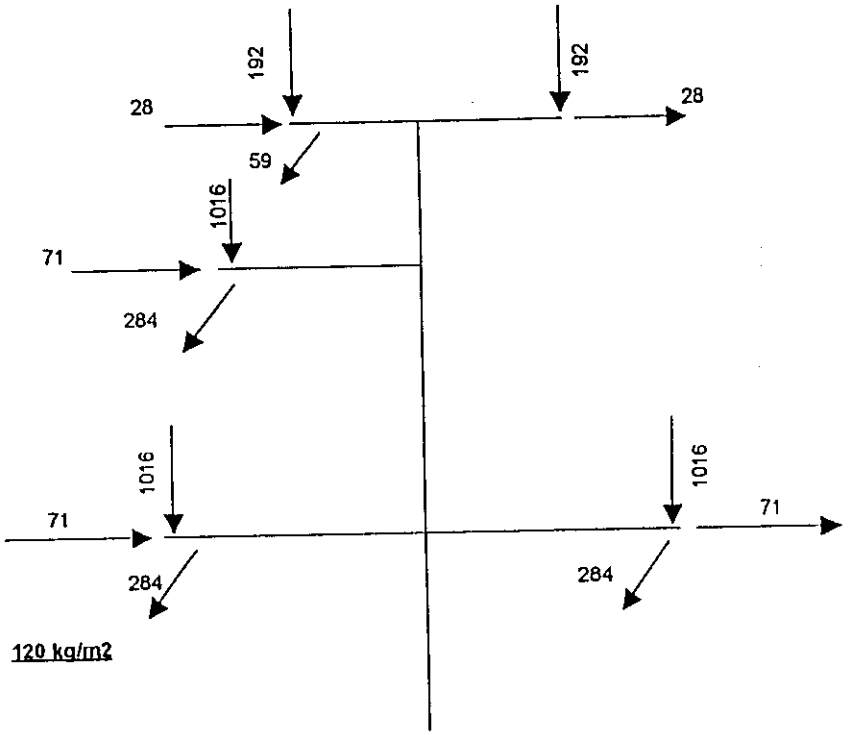
TIPO: 22A.2T



F.S. :1,5

VIENTO MÁXIMO TRANSVERSAL

Combinación I



F.S. :1,5

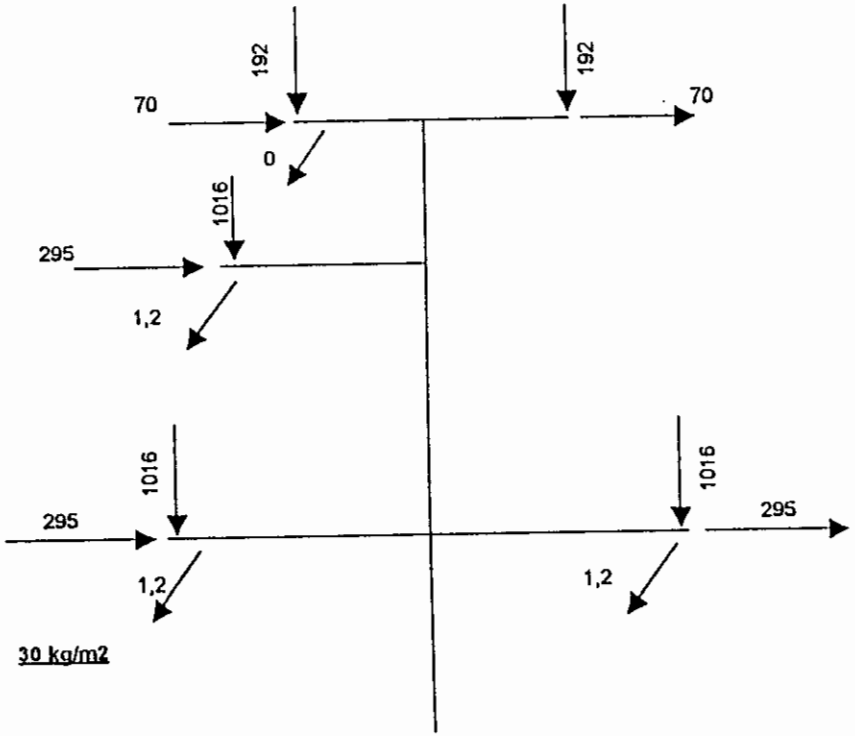
VIENTO MÁXIMO LONGITUDINAL

Combinación II

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

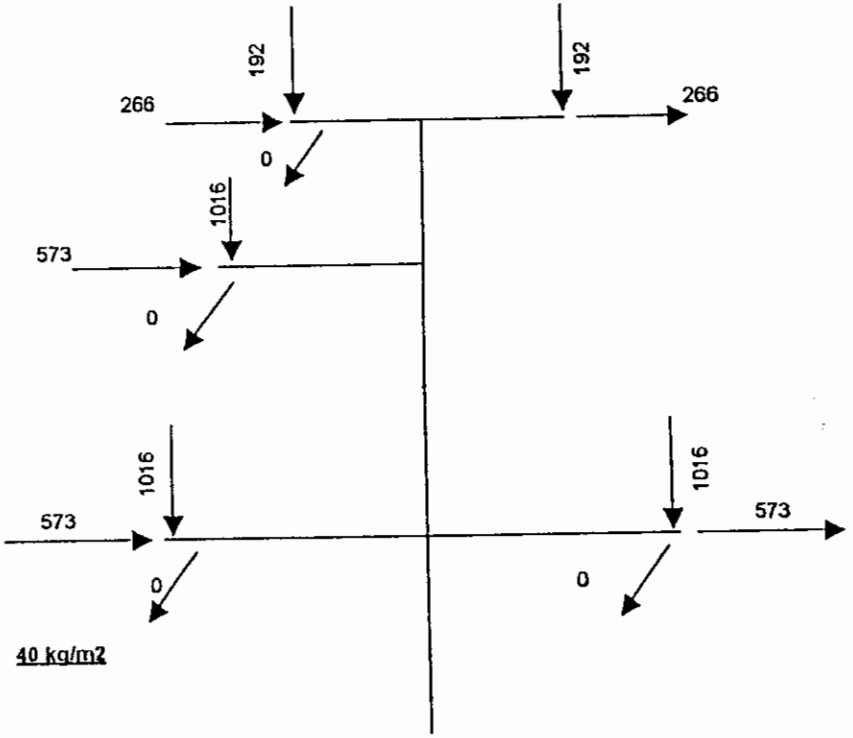
TIPO: 22A.2T



F.S. :1,2

SOBRECARGA VERTICAL

Combinación III



F.S. :1,4

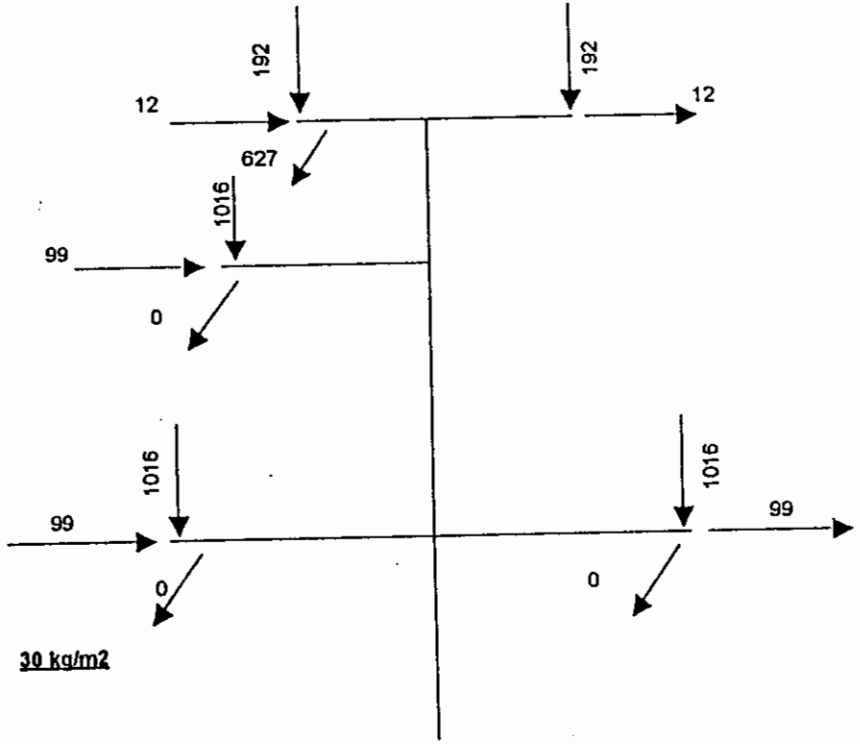
SOBRECARGA DE HIELO

Combinación IV

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

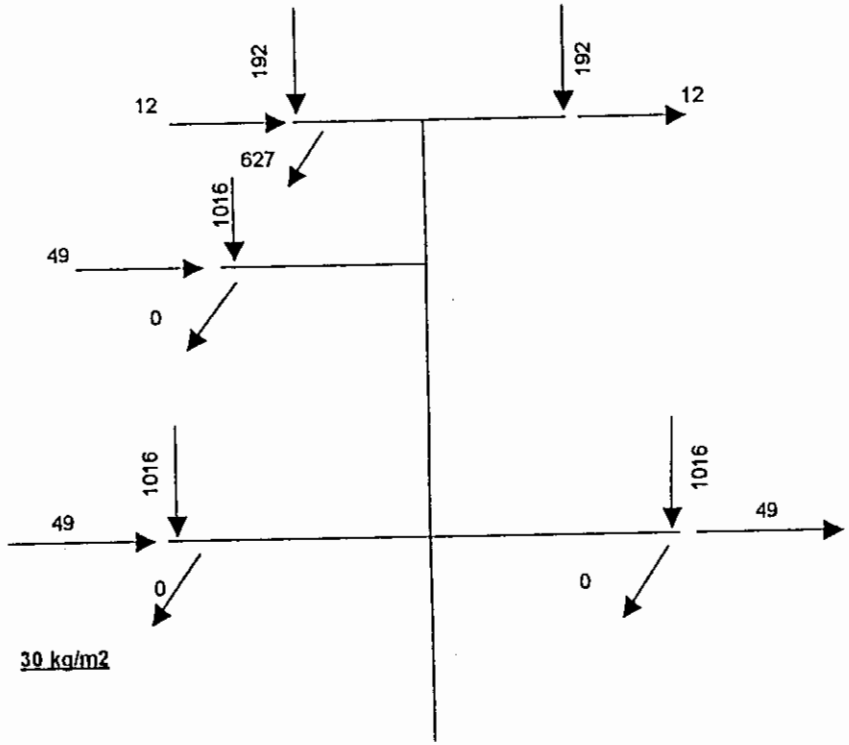
TIPO: 22A.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-A



F.S. :1,2

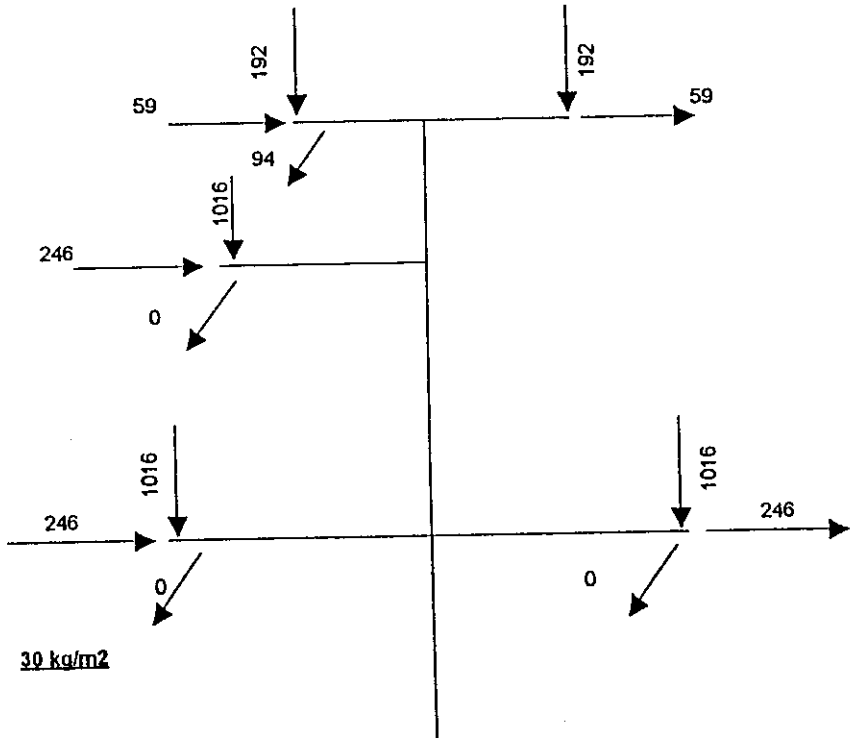
SOBRECARGA LONGITUDINAL

Combinacion V-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

TIPO: 22A.2T



F.S. :1,2

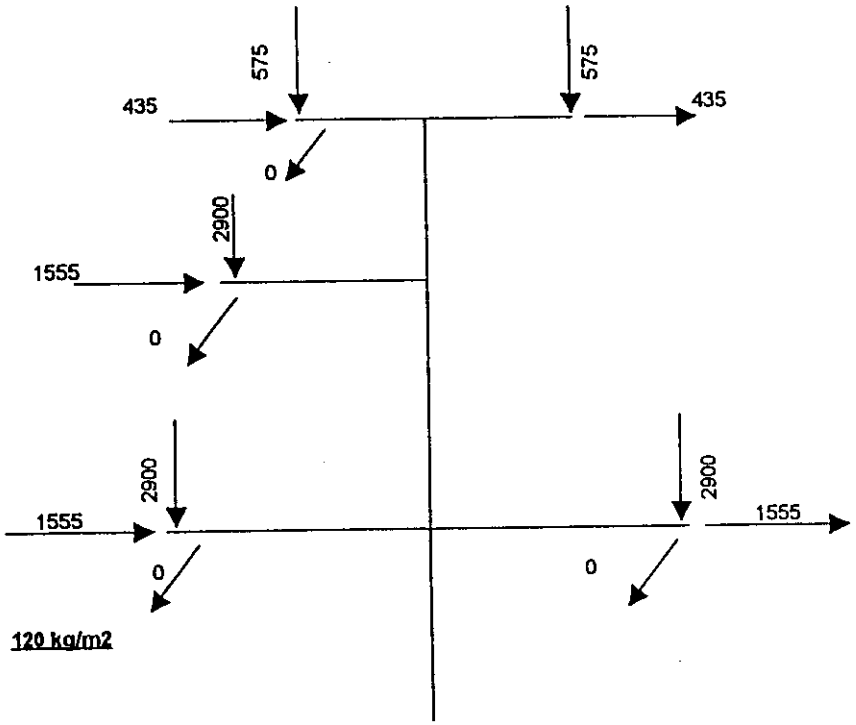
DESEQUILIBRIO LONGITUDINAL

Combinacion V

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

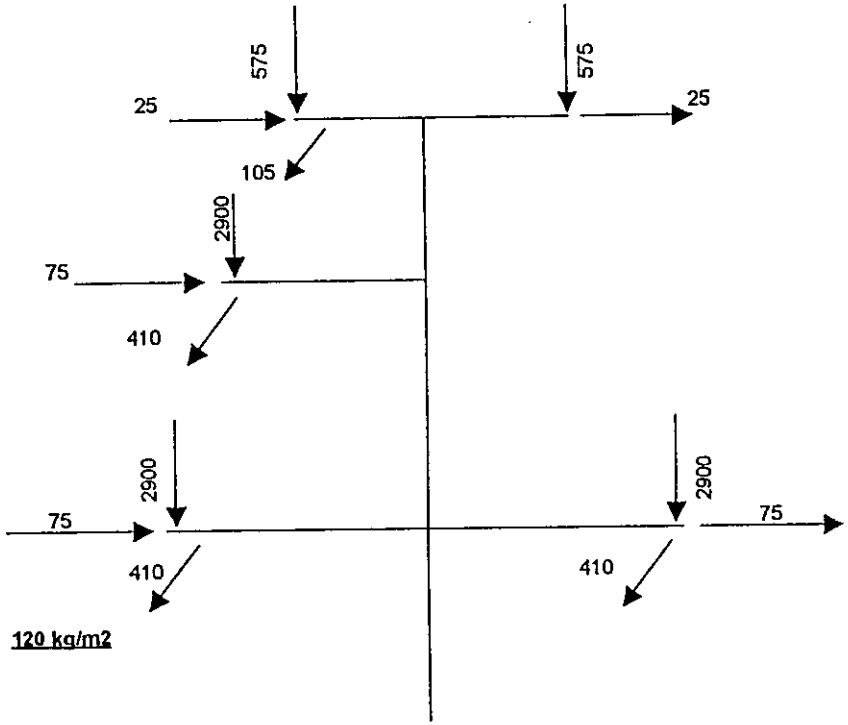
TIPO: 22B.2T



F.S. :1,5

VIENTO MÁXIMO TRANSVERSAL

Combinación I



F.S. :1,5

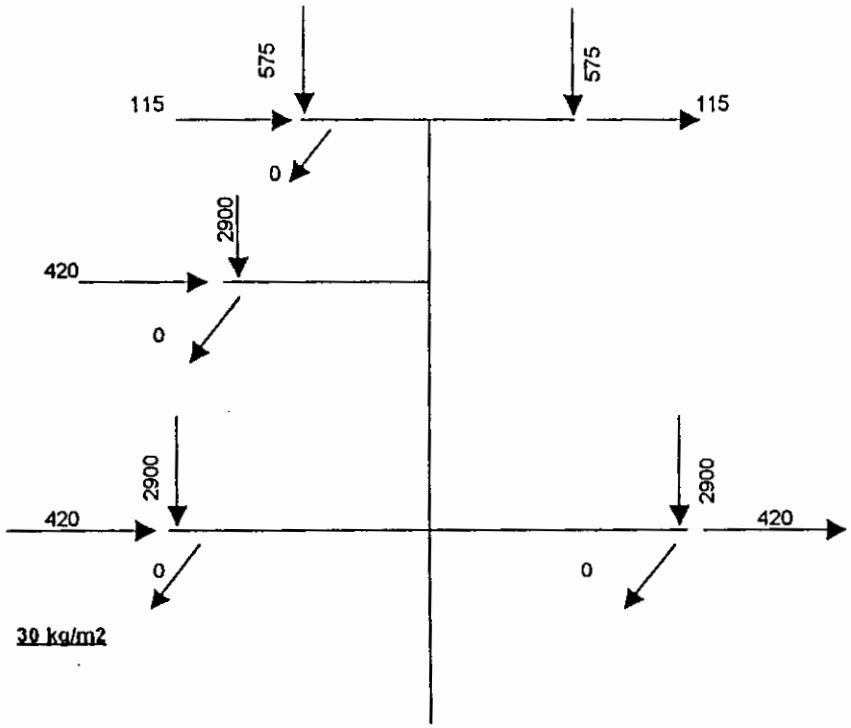
VIENTO MÁXIMO LONGITUDINAL

Combinación II

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

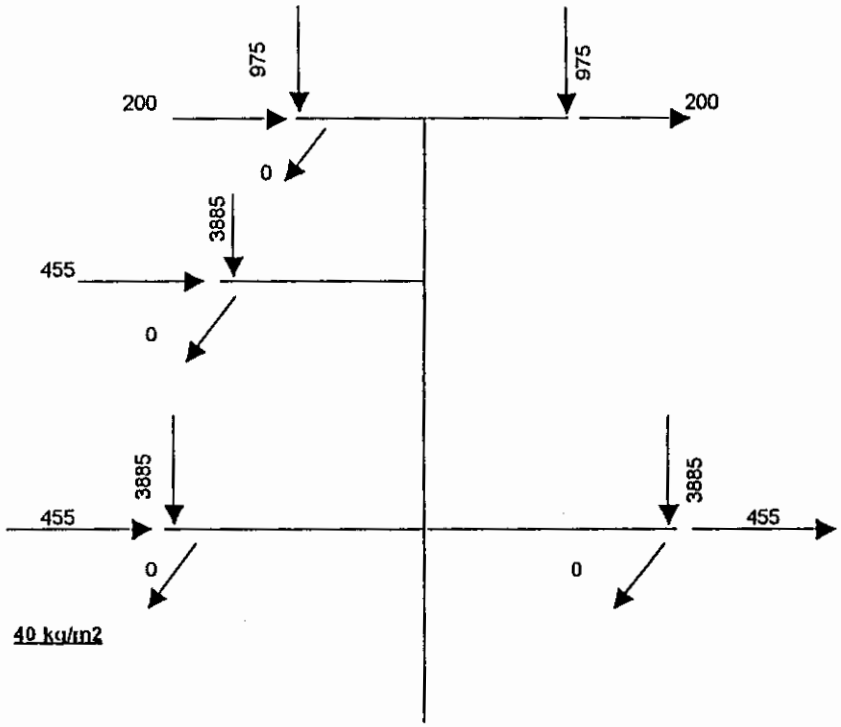
TIPO: 22B.2T



F.S. :1,2

SOBRECARGA VERTICAL

Combinación III



F.S. :1,4

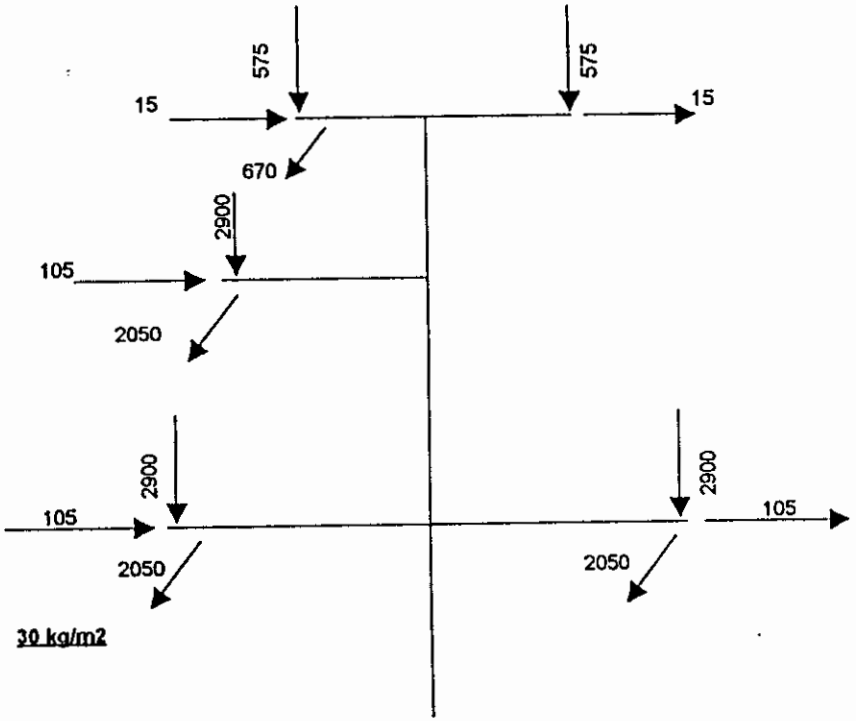
SOBRECARGA DE HIELO

Combinacion IV

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

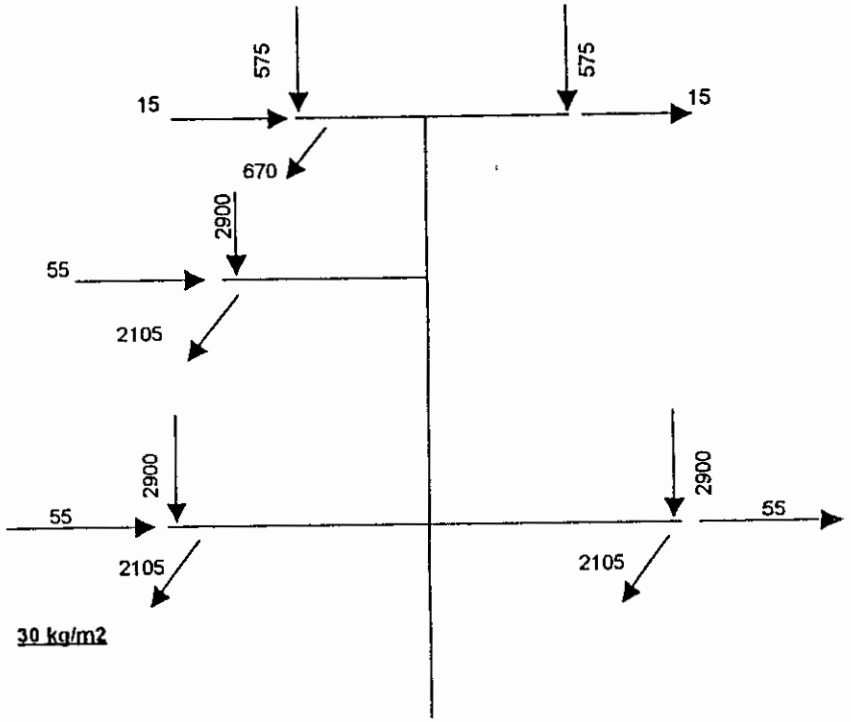
TIPO: 22B.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-A



F.S. :1,2

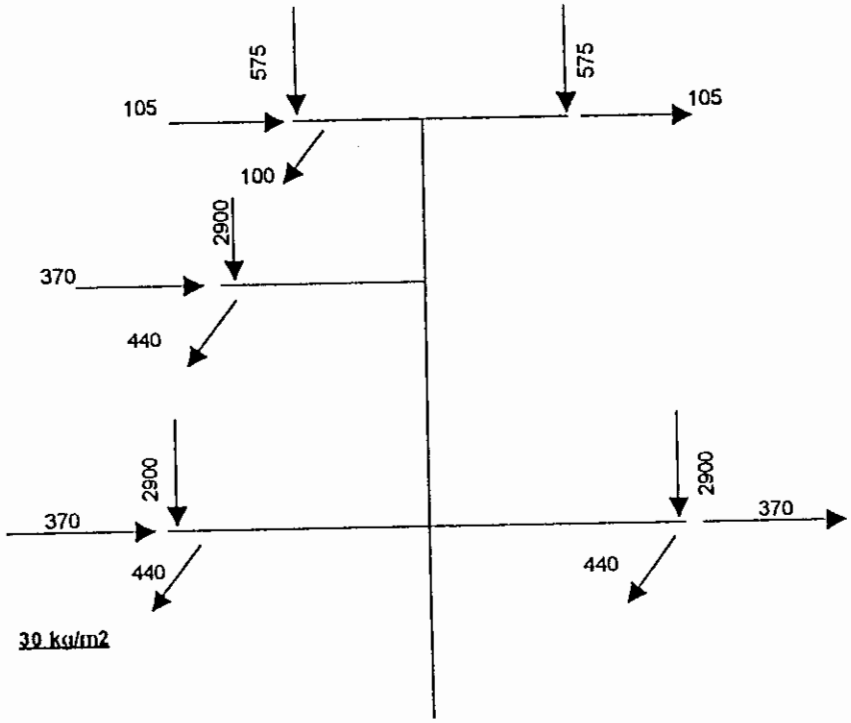
SOBRECARGA LONGITUDINAL

Combinacion V-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

TIPO: 22B.2T



F.S. :1,2

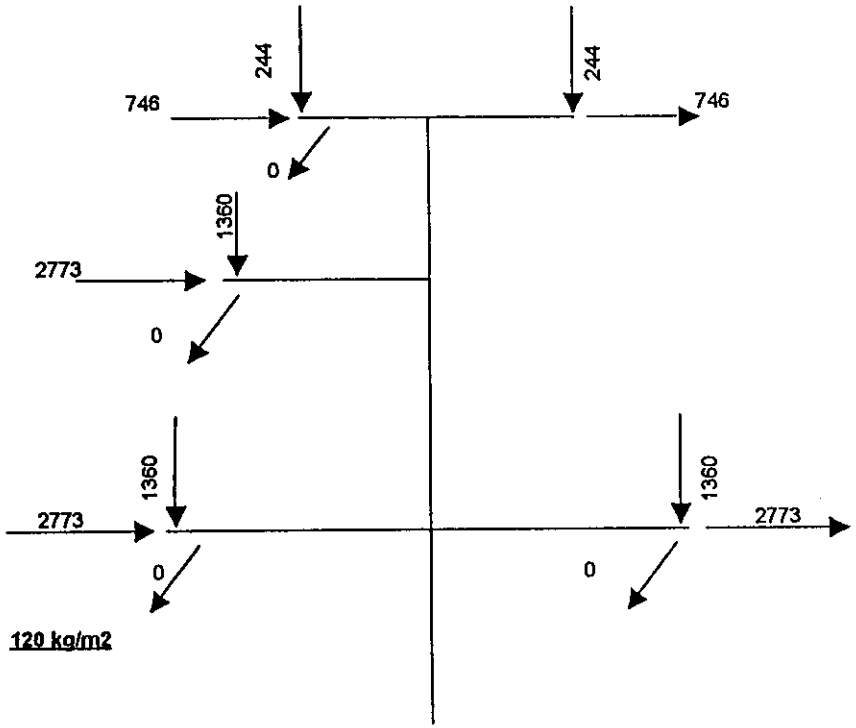
DESEQUILIBRIO LONGITUDINAL

Combinacion VI

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

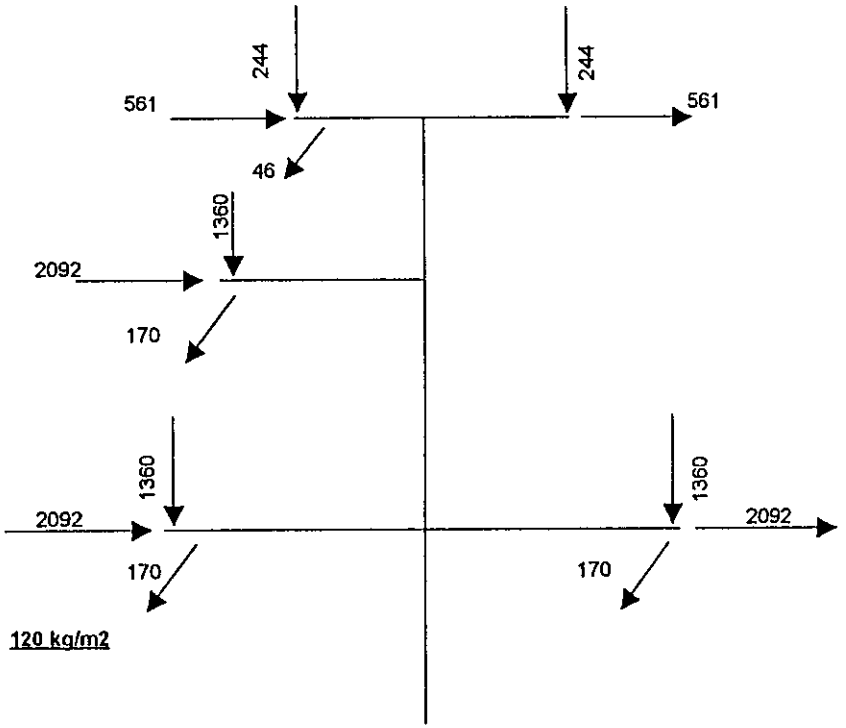
TIPO: 22C.2T



F.S. :1,5

VIENTO MÁXIMO TRANSVERSAL

Combinación I



F.S. :1,5

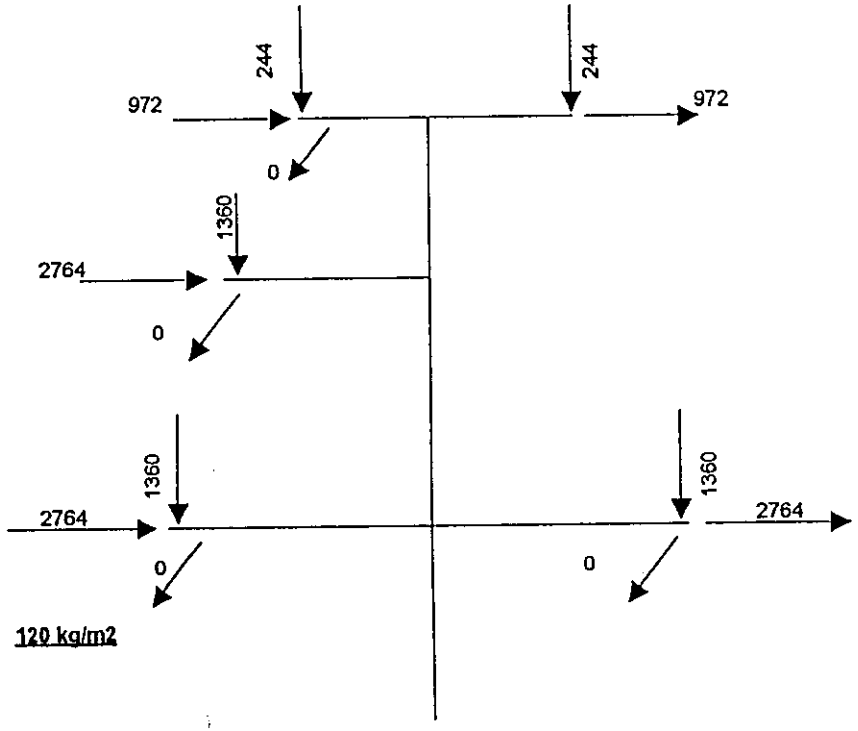
VIENTO MÁXIMO LONGITUDINAL

Combinación II

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

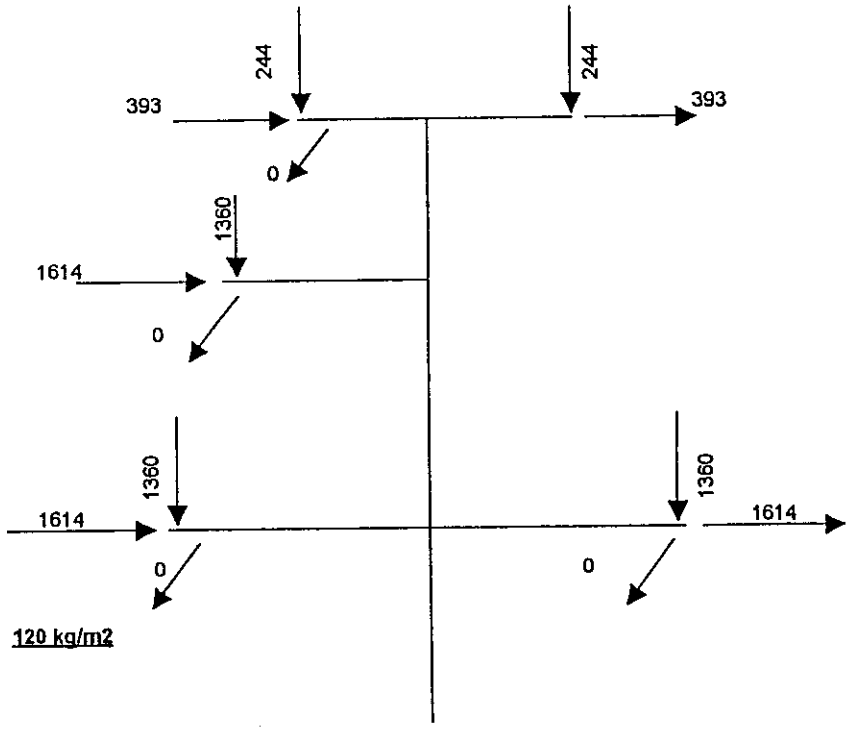
TIPO: 22C.2T



F.S. :1,4

SOBRECARGA DE HIELO

Combinación III



F.S. :1,2

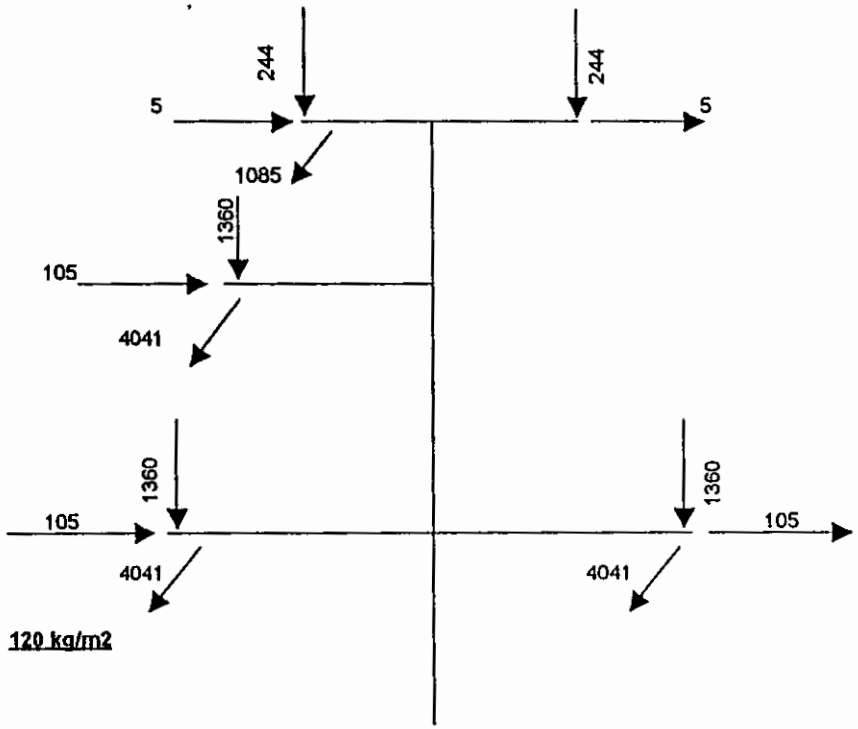
SOBRECARGA VERTICAL

Combinacion IV

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

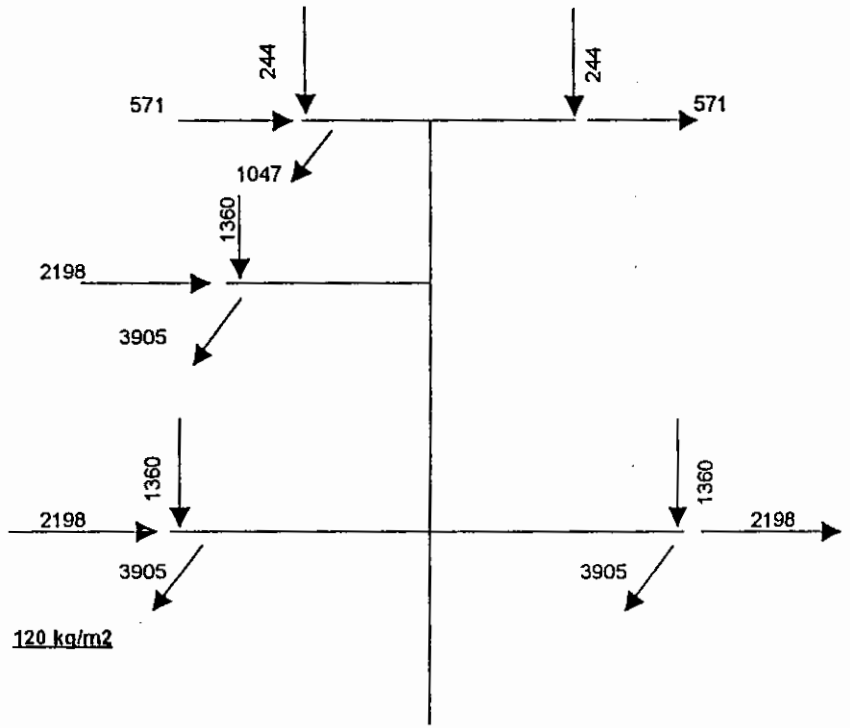
TIPO: 22C.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-A



F.S. :1,2

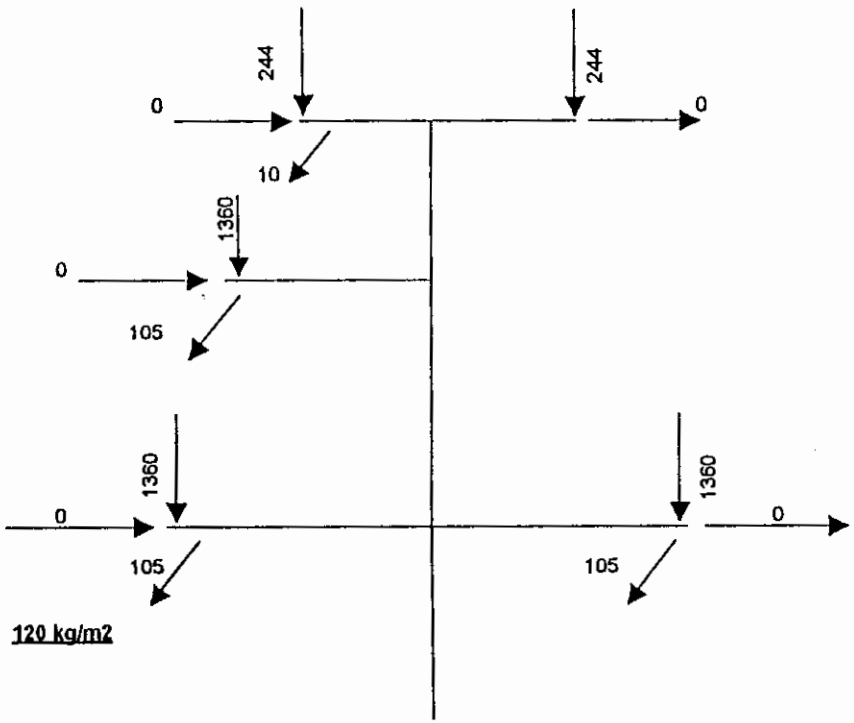
SOBRECARGA LONGITUDINAL

Combinacion V-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

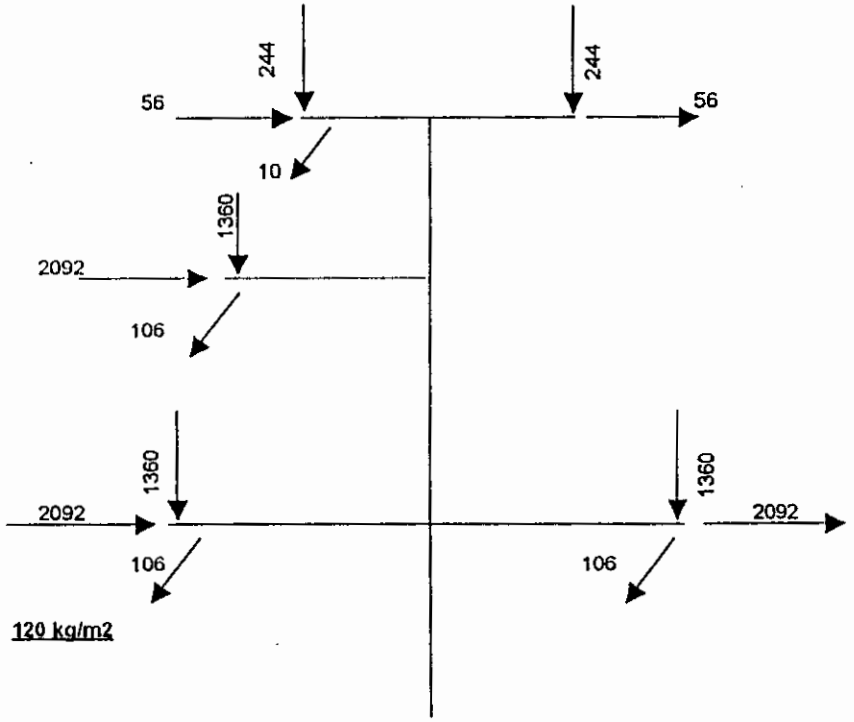
TIPO: 22C.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-C



F.S. :1,2

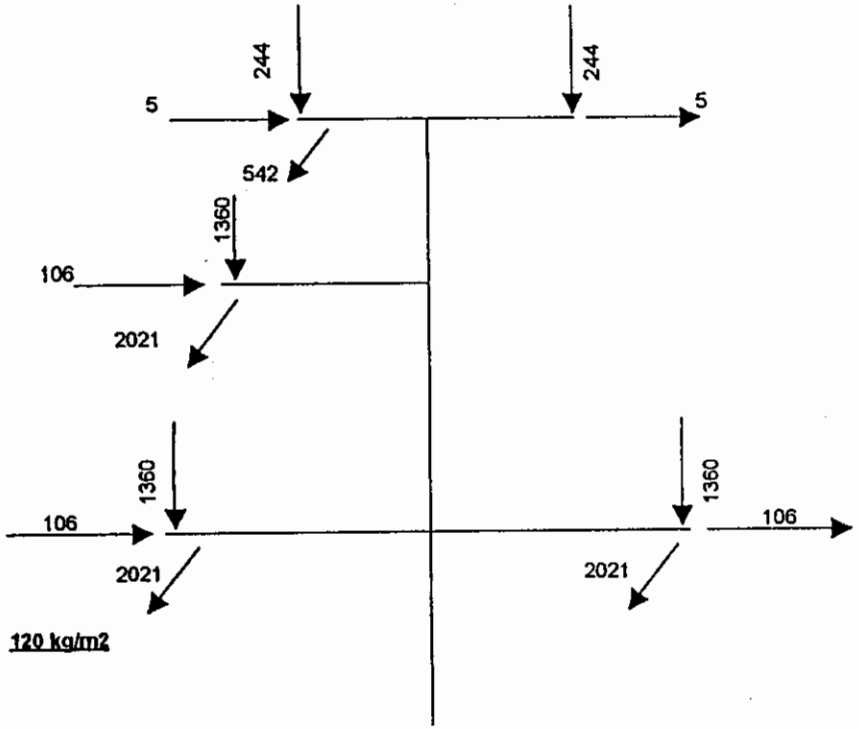
SOBRECARGA LONGITUDINAL

Combinacion V-D

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

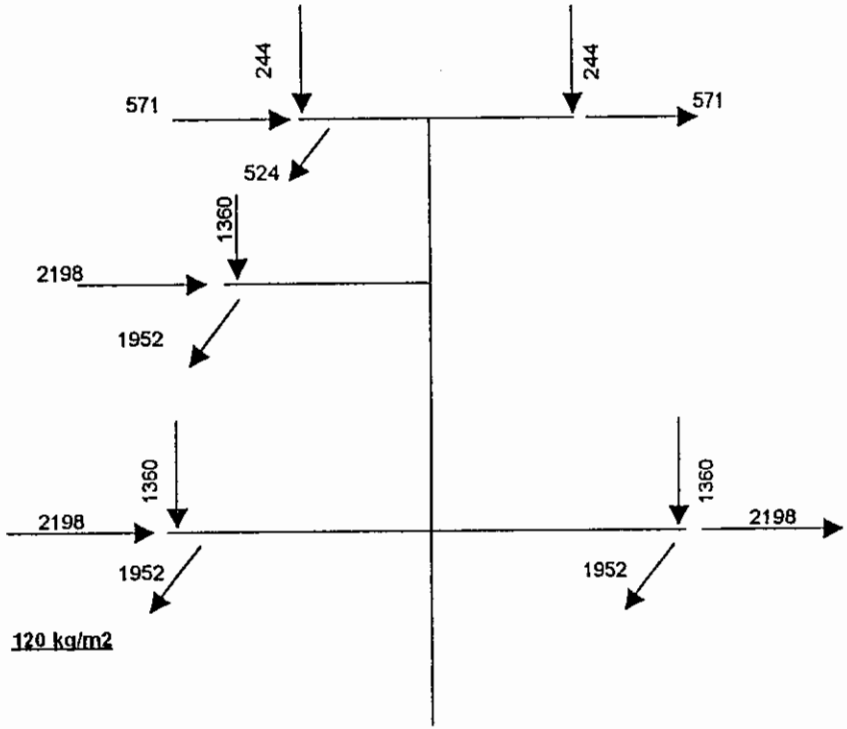
TIPO: 22C.2T



F.S. :1,5

DESEQUILIBRIO LONGITUDINAL

Combinacion VI-A



F.S. :1,5

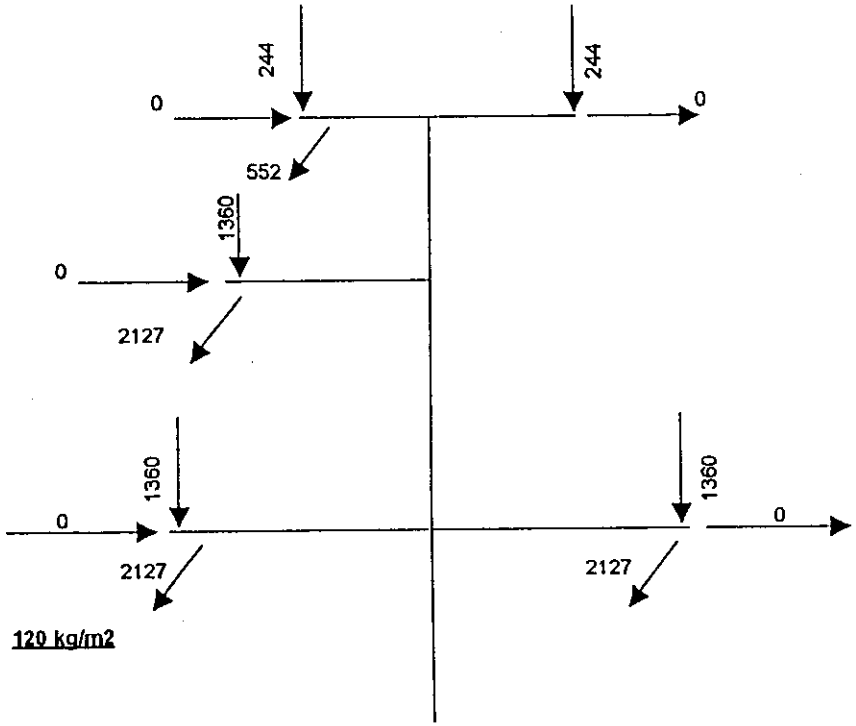
DESEQUILIBRIO LONGITUDINAL

Combinacion VI-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

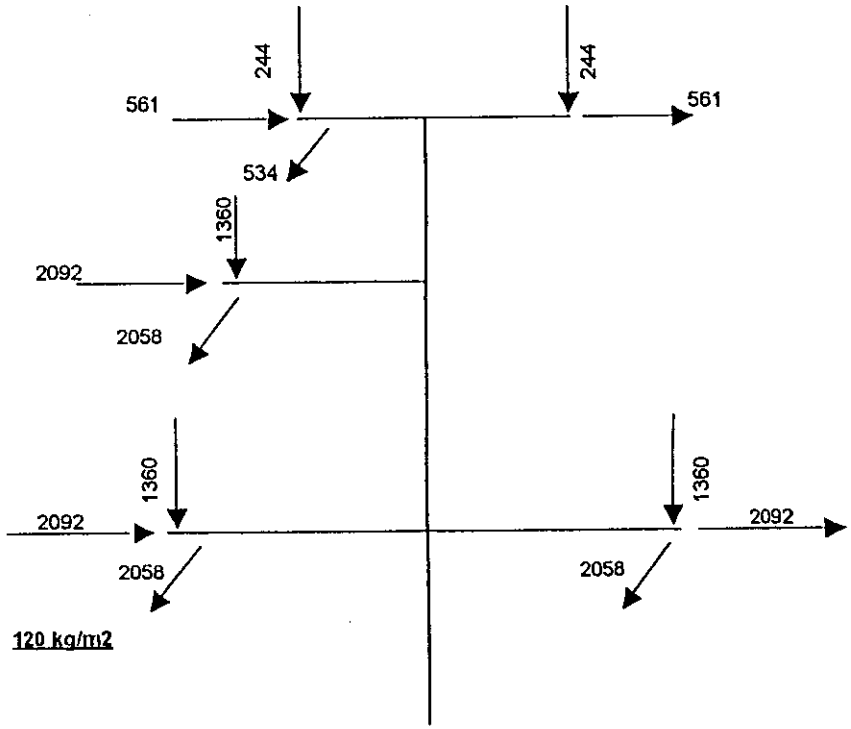
TIPO: 22C.2T



F.S. :1,5

DESEQUILIBRIO LONGITUDINAL

Combinacion VI-C



F.S. :1,5

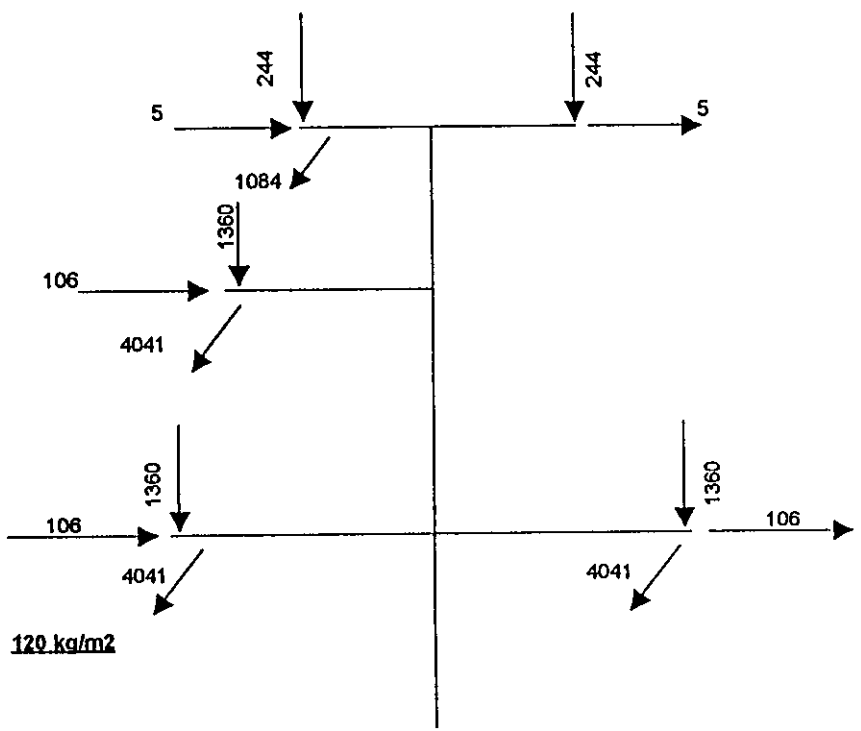
DESEQUILIBRIO LONGITUDINAL

Combinacion VI-D

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

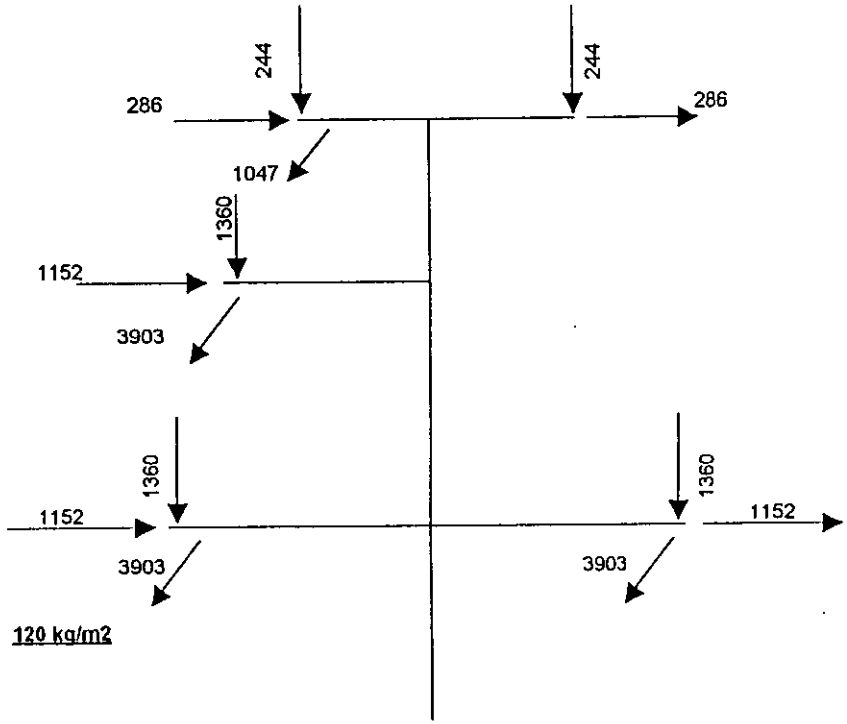
TIPO: 22C.2T



F.S. :1,1

TENDIDO

Combinacion VII-A



F.S. :1,1

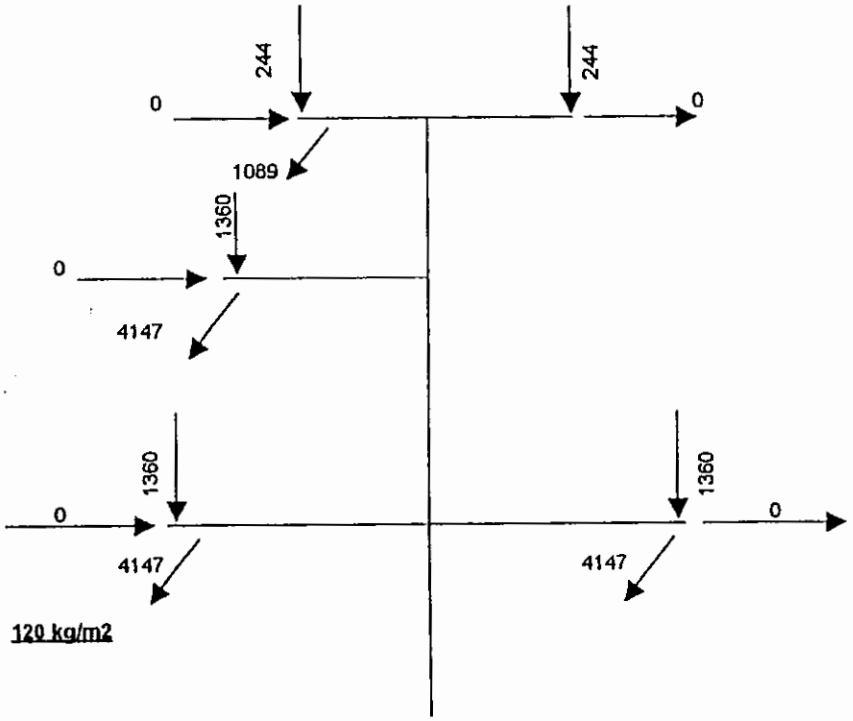
TENDIDO

Combinacion VII-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

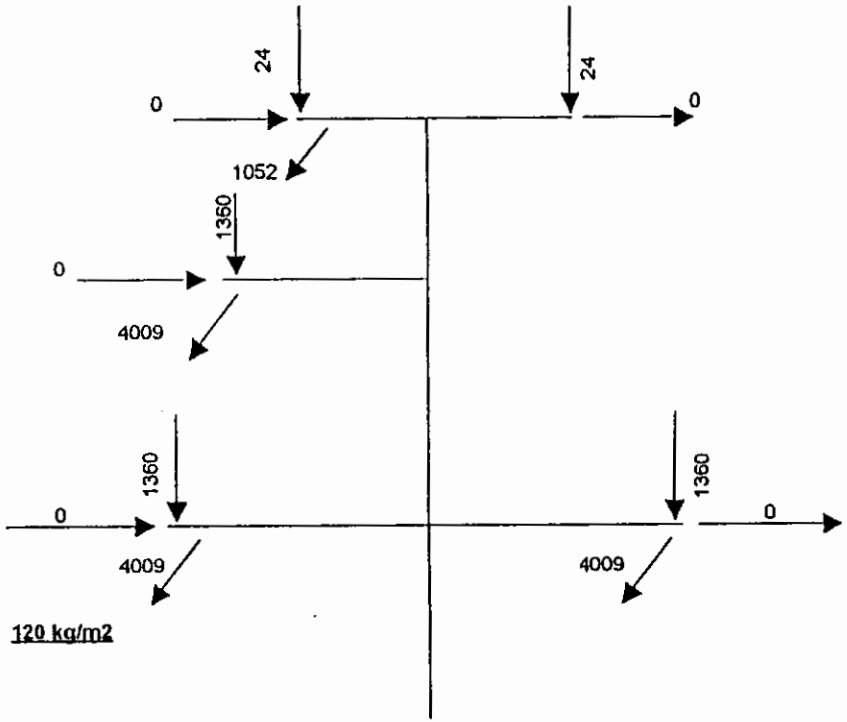
TIPO: 22C.2T



F.S. :1,1

TENDIDO

Combinacion VII-C



F.S. :1,1

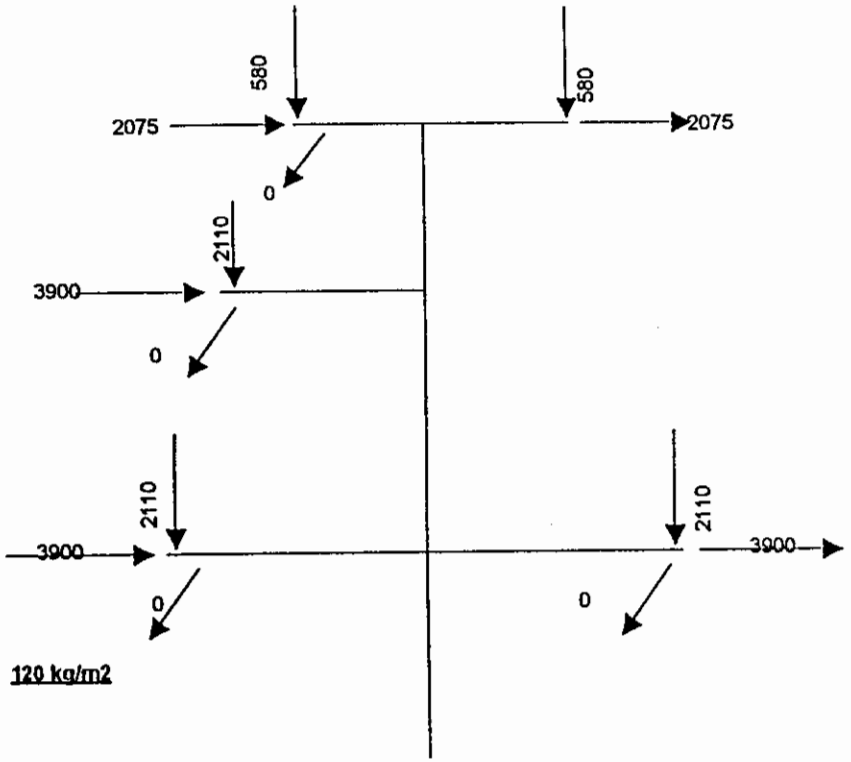
TENDIDO

Combinacion VII-D

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

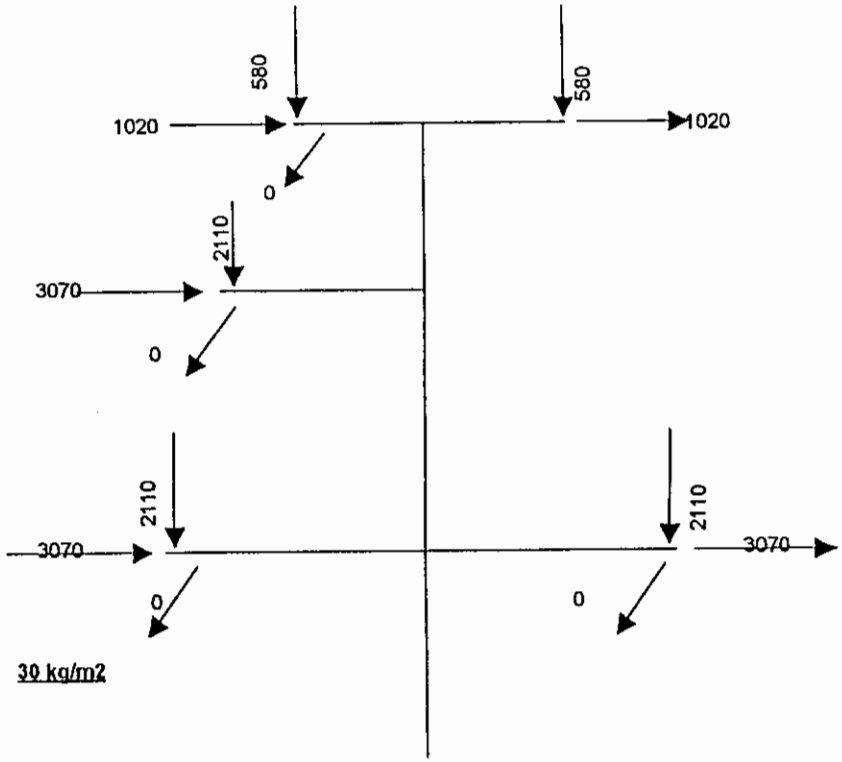
TIPO: 22D.2T



F.S. :1,5

VIENTO MÁXIMO LONGITUDINAL

Combinación I



F.S. :1,2

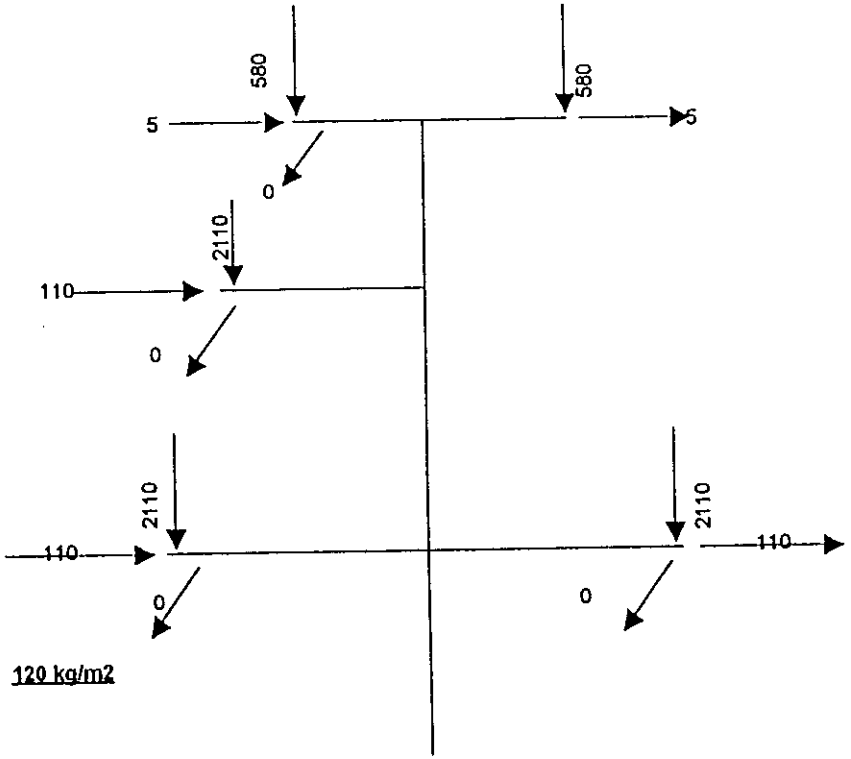
SOBRECARGA VERTICAL

Combinacion IV

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

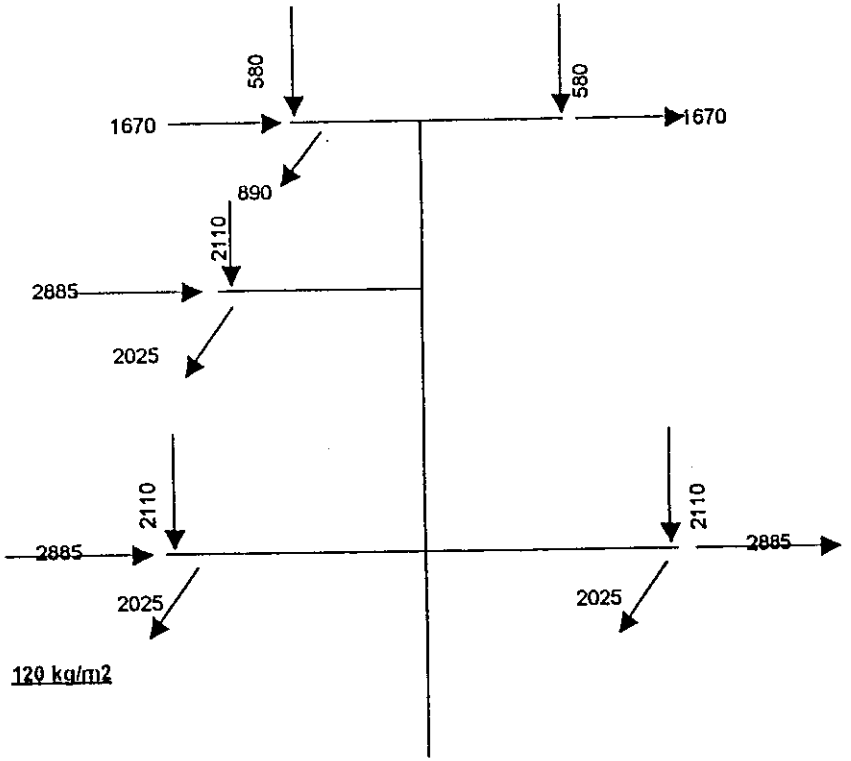
TIPO: 22D.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-A



F.S. :1,2

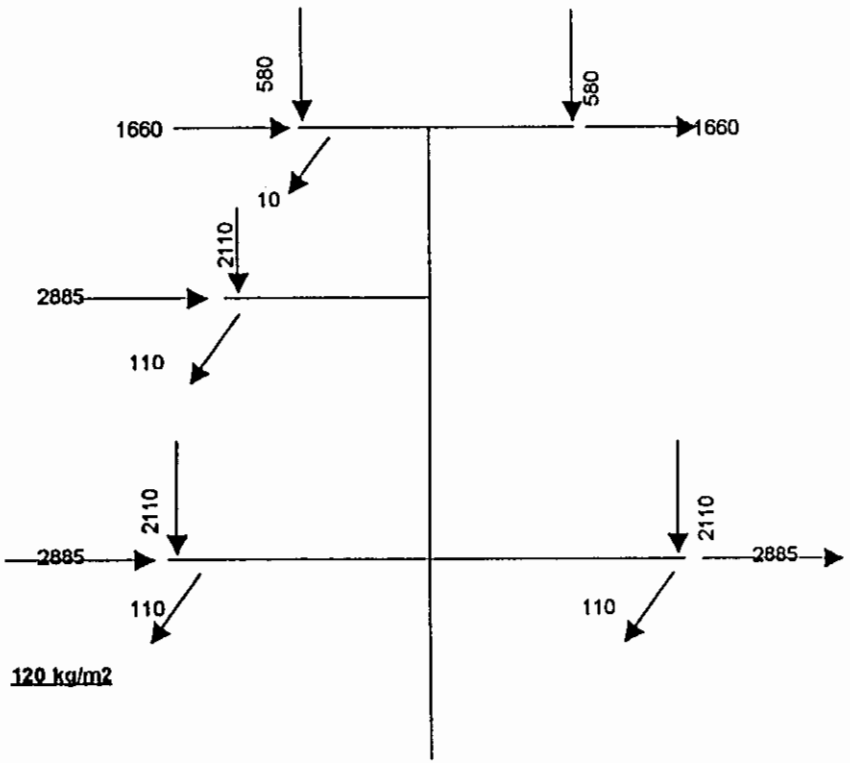
SOBRECARGA LONGITUDINAL

Combinacion V-B

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

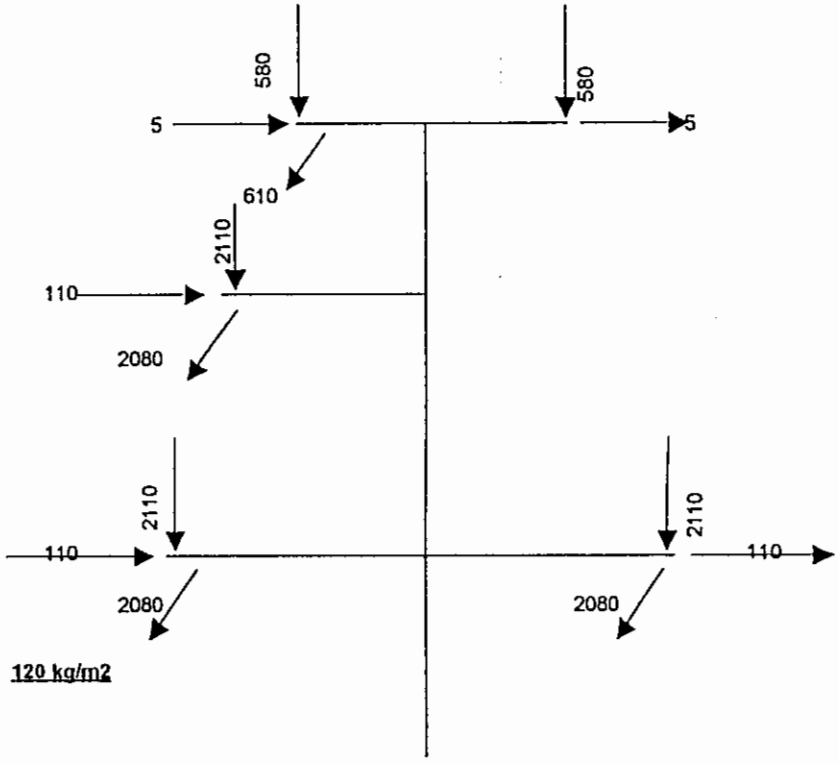
TIPO: 22D.2T



F.S. :1,2

SOBRECARGA LONGITUDINAL

Combinacion V-D



F.S. :1,5

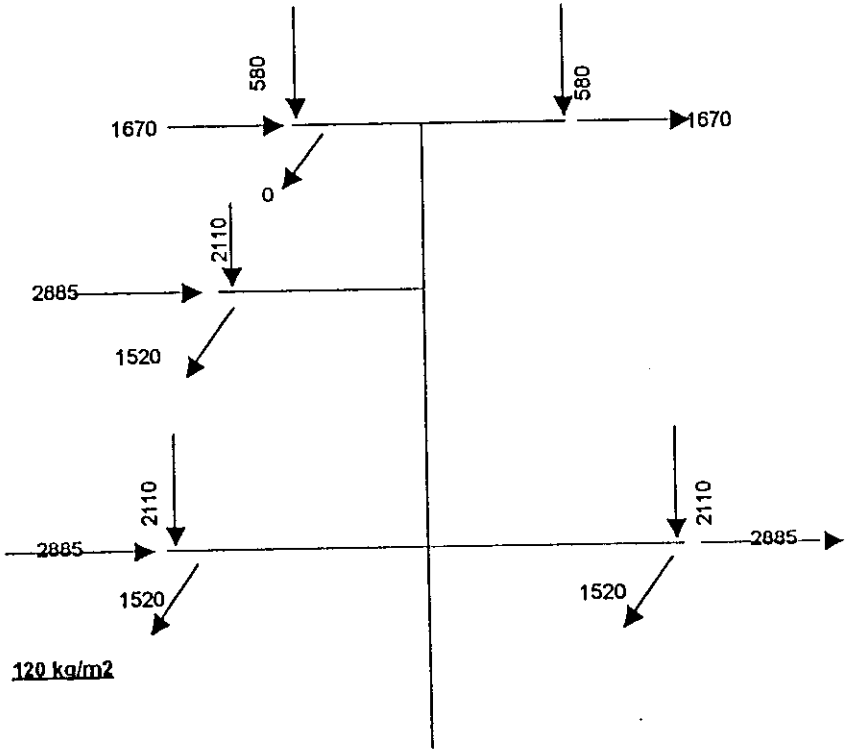
DESEQUILIBRIO LONGITUDINAL

Combinacion VI-A

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

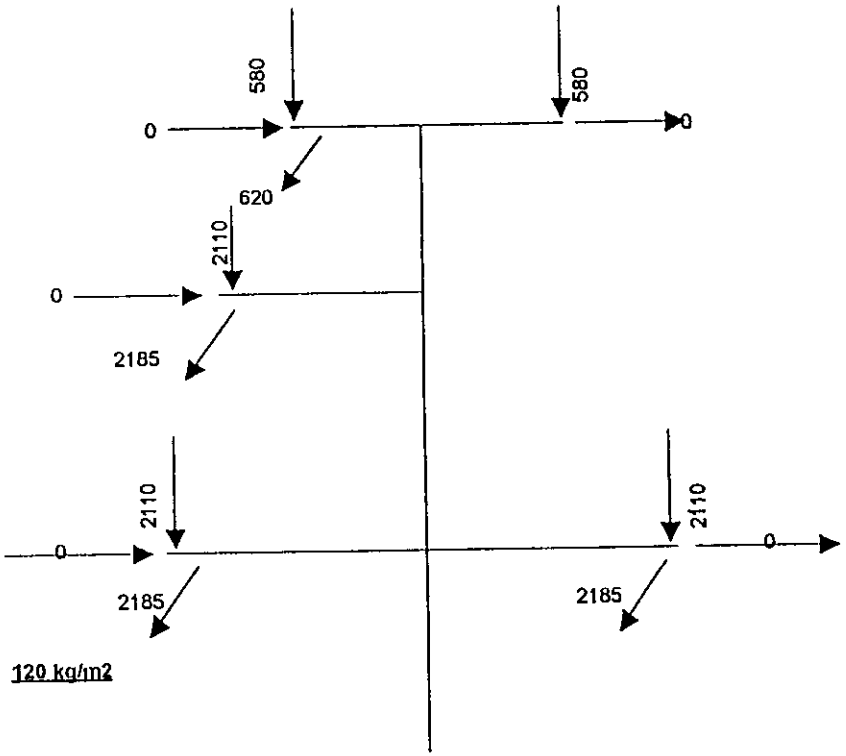
TIPO: 22D.2T



F.S. :1,5

DESEQUILIBRIO LONGITUDINAL

Combinacion VI-B



F.S. :1,5

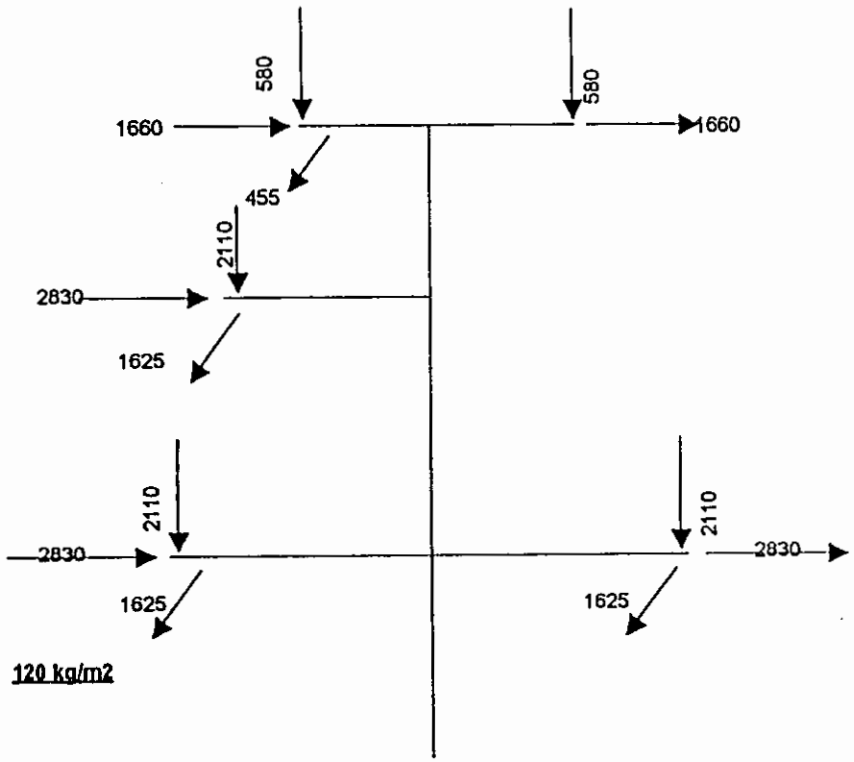
DESEQUILIBRIO LONGITUDINAL

Combinacion VI-C

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

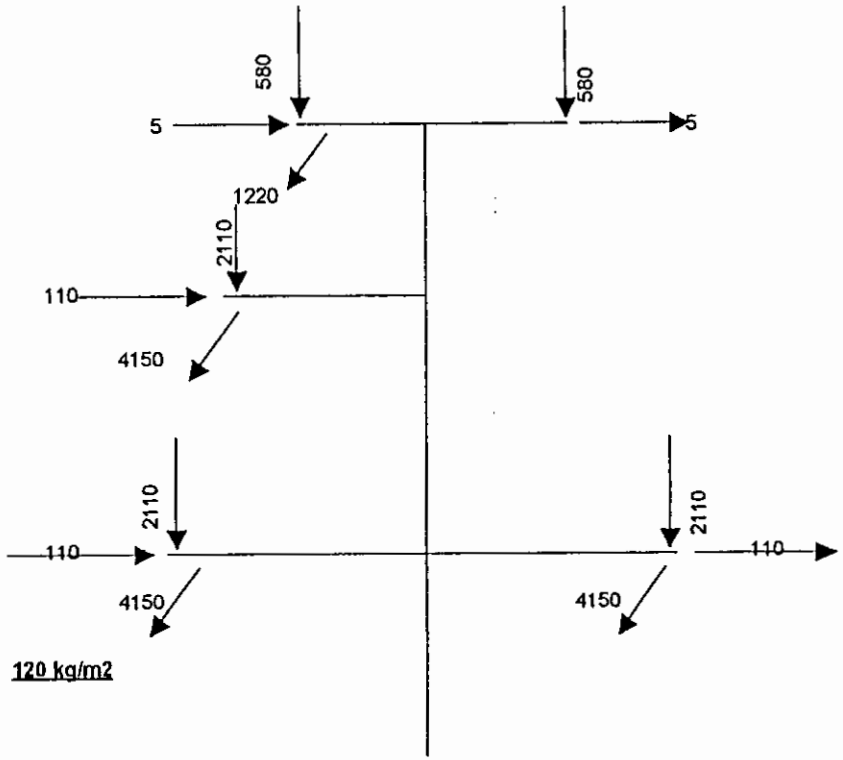
TIPO: 22D.2T



F.S. :1,5

DESEQUILIBRIO LONGITUDINAL

Combinacion VI-D



F.S. :1,1

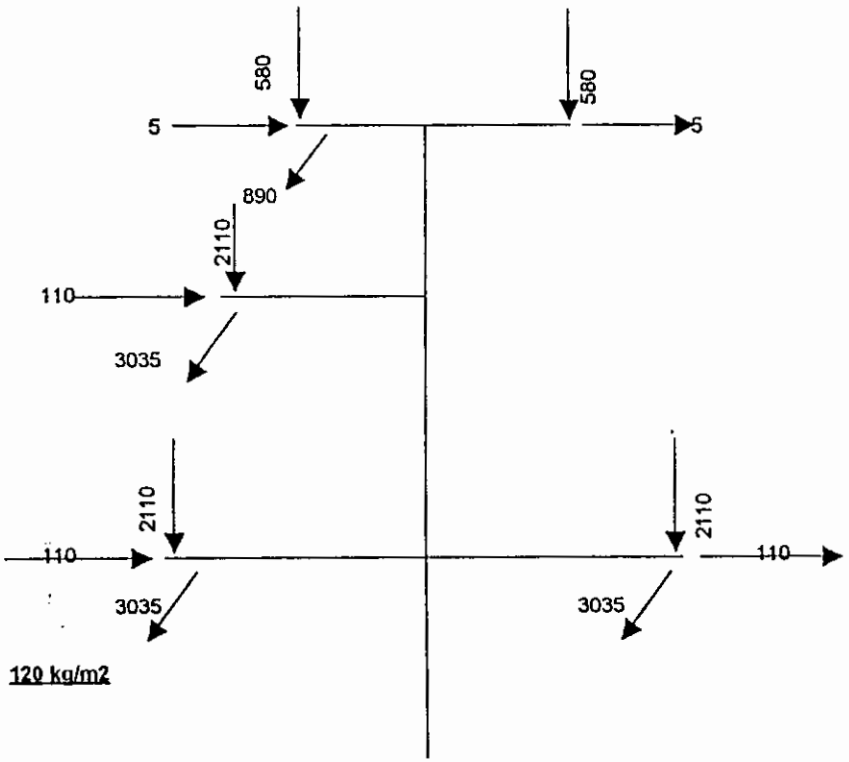
TENDIDO

Combinacion VII-A

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

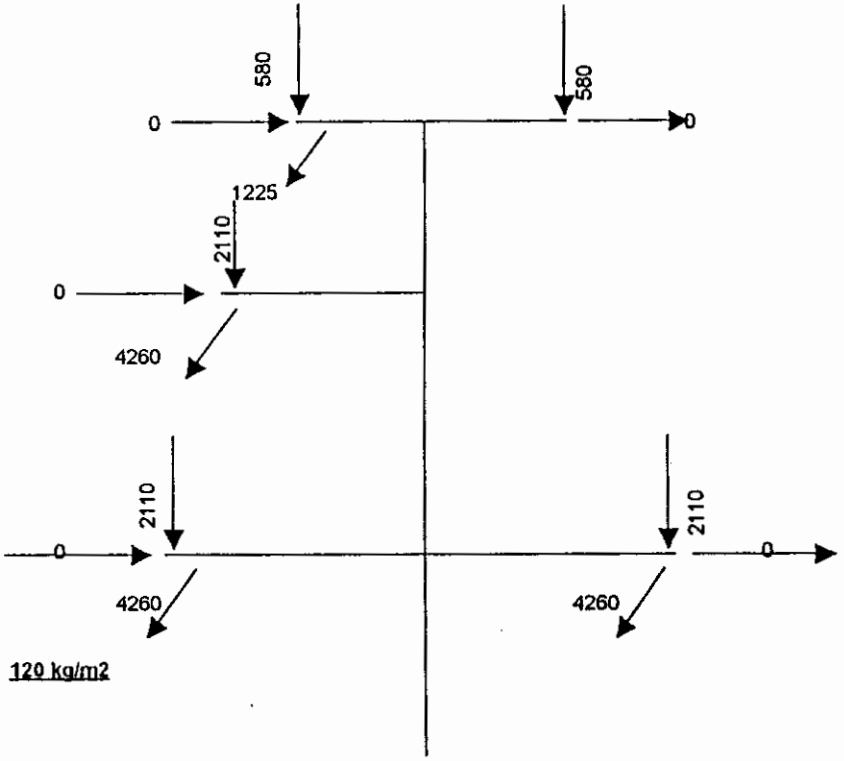
TIPO: 22D.2T



F.S. :1,1

TENDIDO

Combinacion VII-B



F.S. :1,1

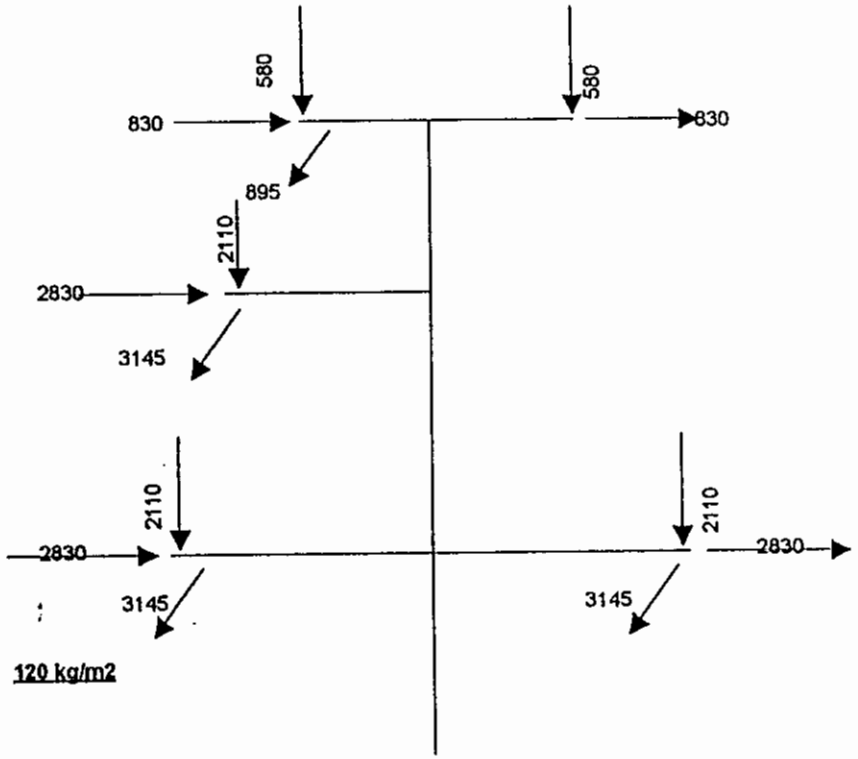
TENDIDO

Combinacion VII-C

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

TIPO: 22D.2T



F.S. :1,1

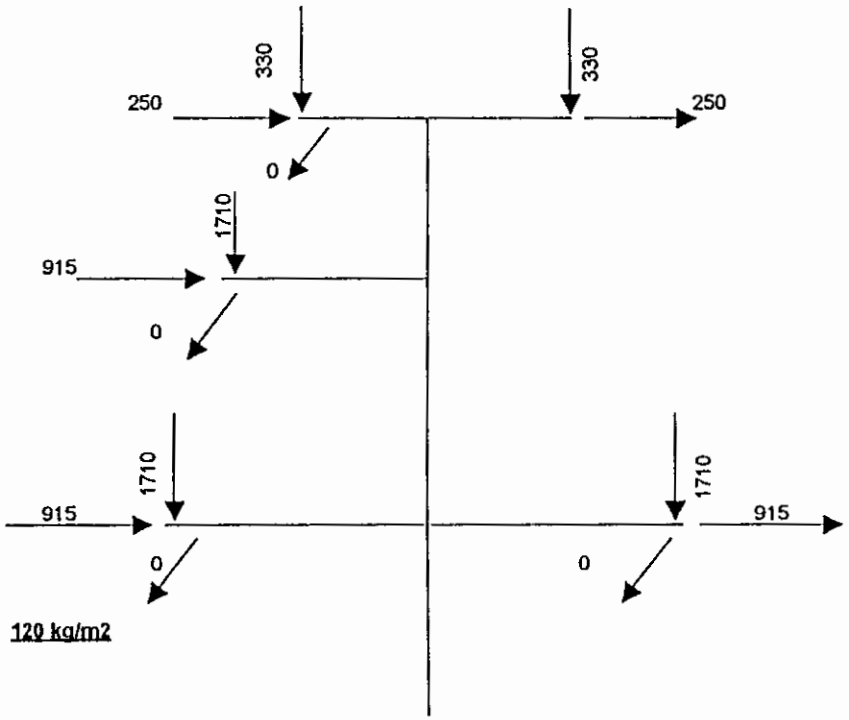
TENDIDO

Combinacion VII-D

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

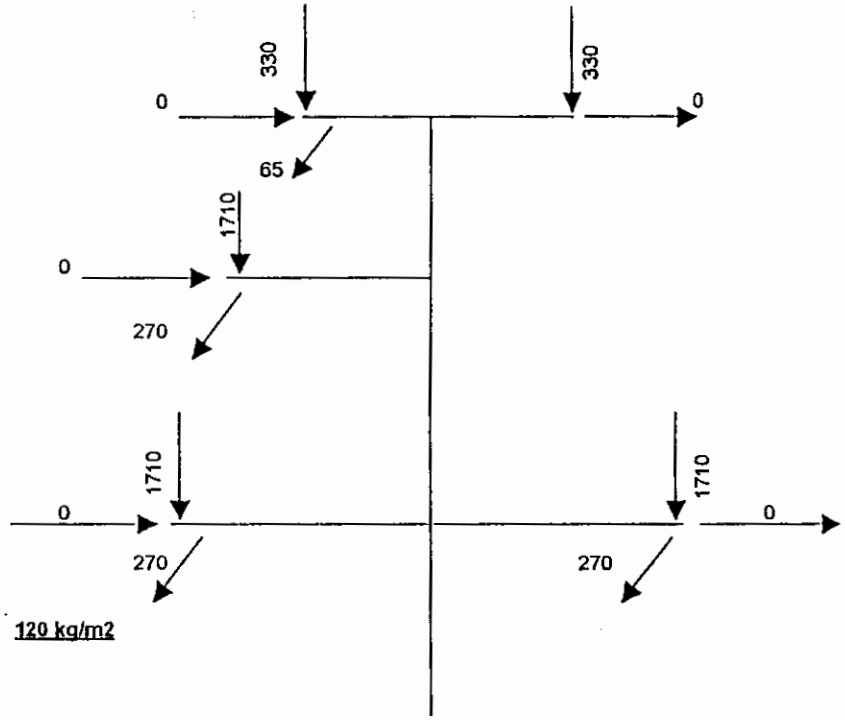
TIPO: 22A1.2T



F.S. :1,5

VIENTO MÁXIMO TRANSVERSAL

Combinación I



F.S. :1,5

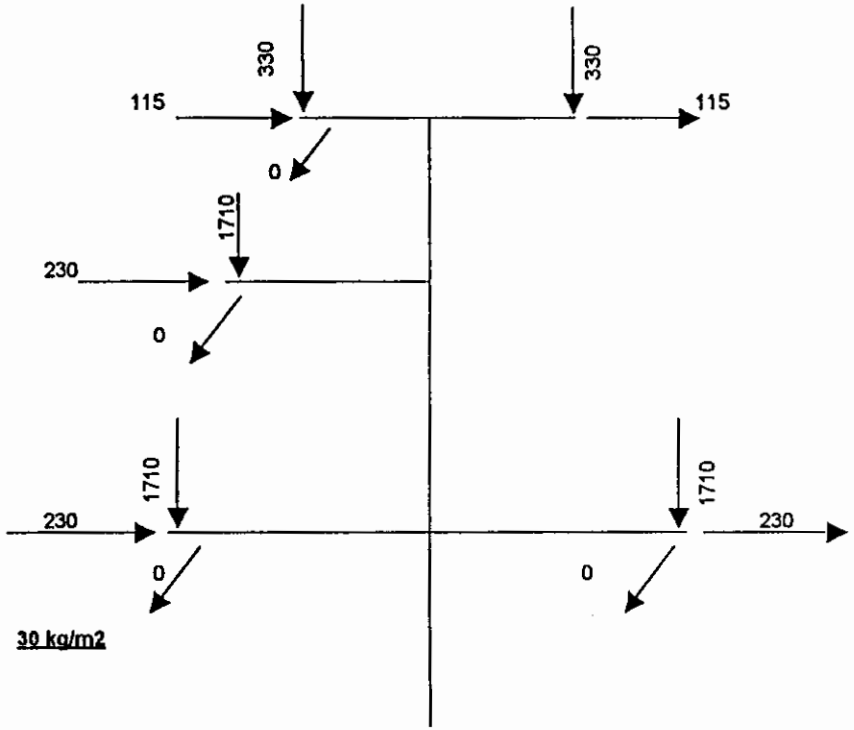
VIENTO MÁXIMO LONGITUDINAL

Combinación II

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

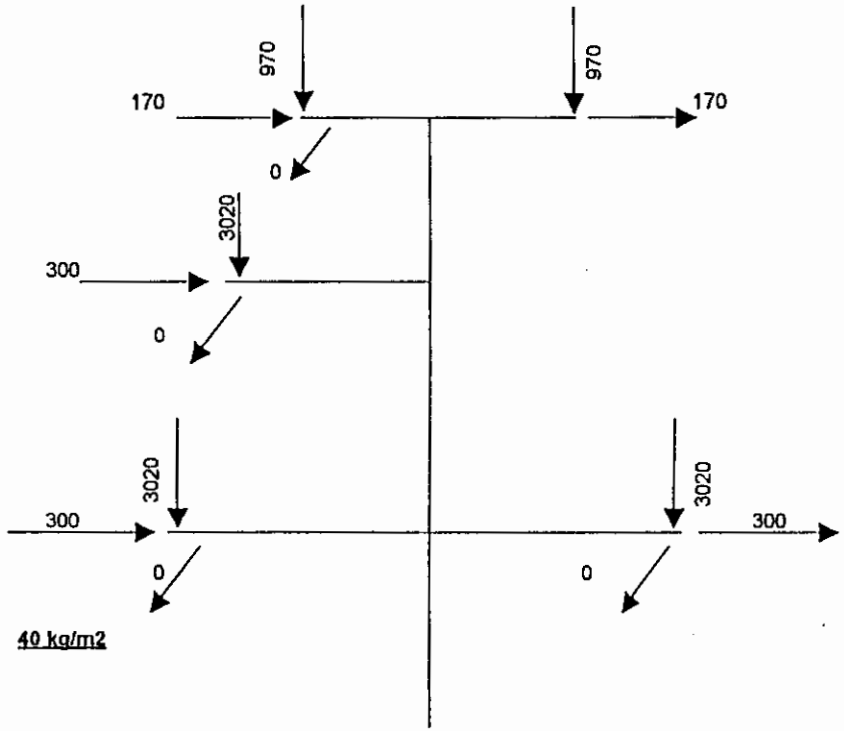
TIPO: 22A1.2T



F.S. :1,2

SOBRECARGA VERTICAL

Combinación III



F.S. :1,4

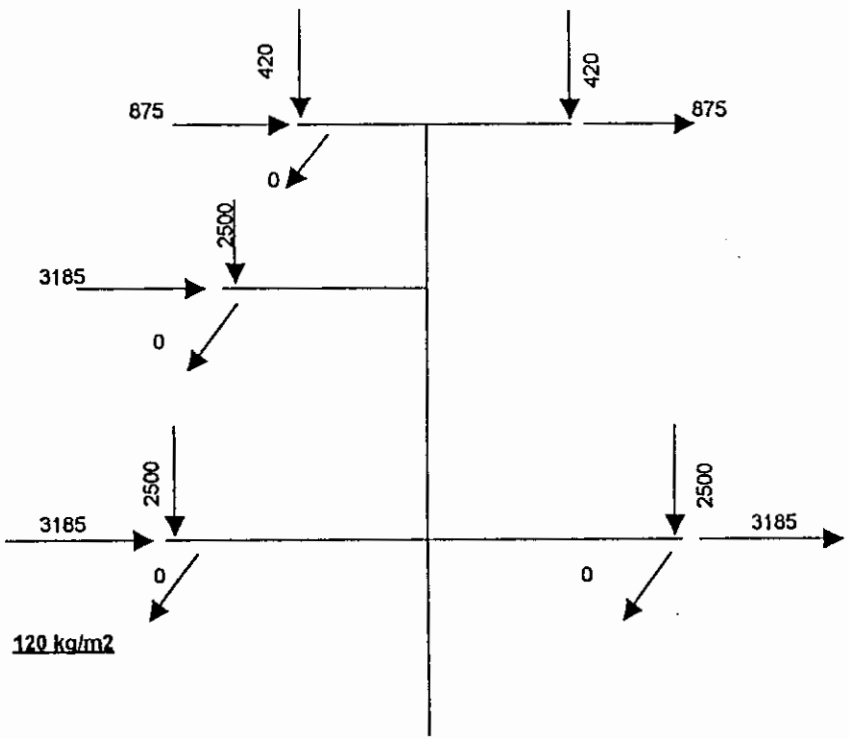
SOBRECARGA DE HIELO

Combinacion IV

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

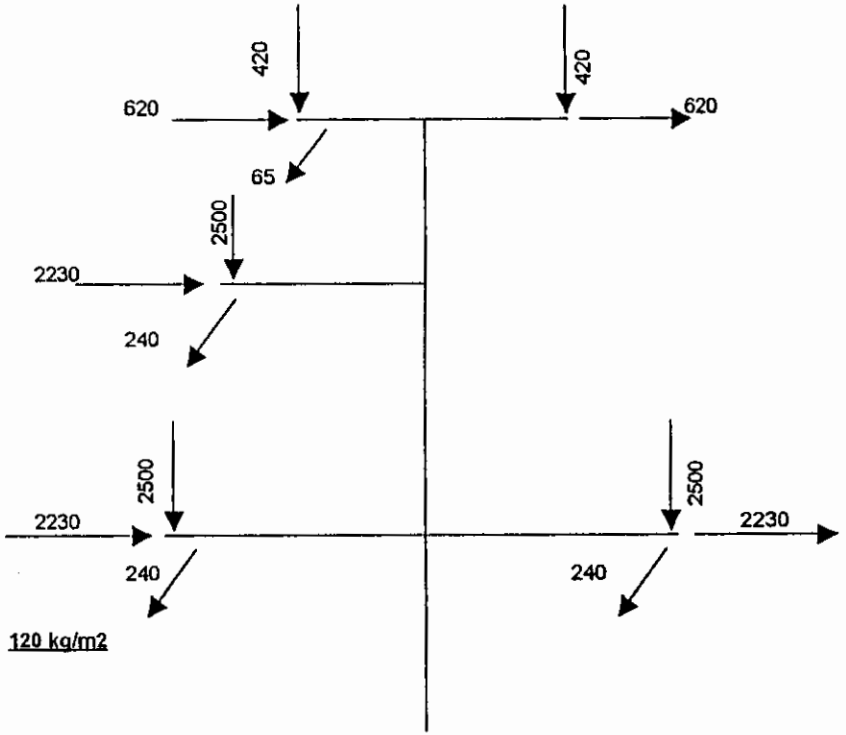
TIPO: 22C1.2T



F.S. :1,5

VIENTO MÁXIMO TRANSVERSAL

Combinación I



F.S. :1,5

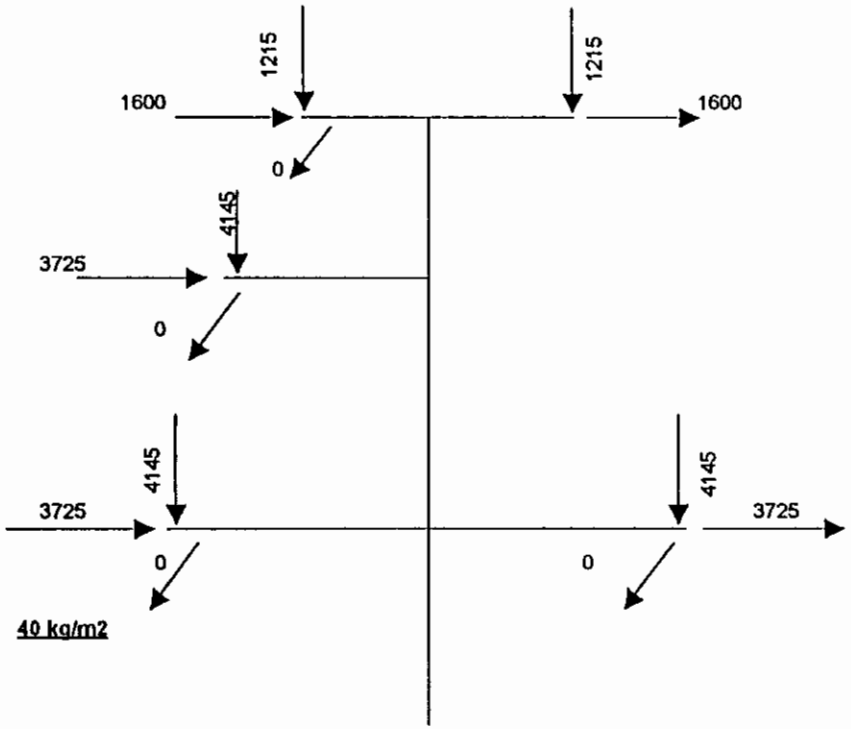
VIENTO MÁXIMO LONGITUDINAL

Combinación II

ETESELVA S.A.
L.T. 220 kV AGUAYTIA - PARAMONGA

DIAGRAMA DE CARGA DE ESTRUCTURA

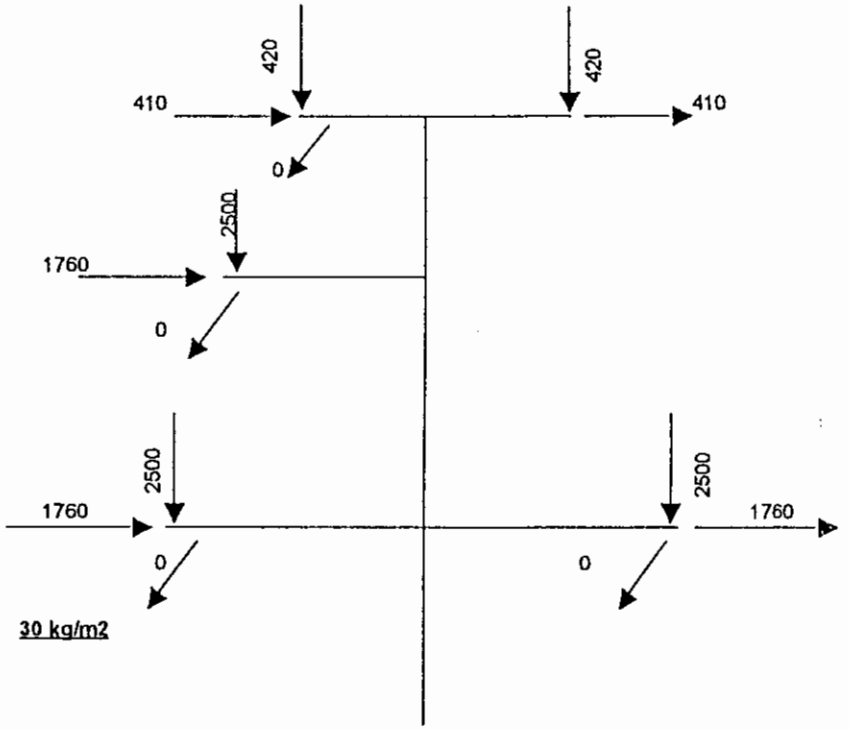
TIPO: 22C1.2T



F.S. :1,4

SOBRECARGA DE HIELO

Combinación III



F.S. :1,2

SOBRECARGA VERTICAL

Combinacion IV

ANEXO 03

VERIFICACIÓN DE CONDICIONES OPERATIVAS DE LA LT

ETESELVA S.A.

LÍNEA DE TRANSMISIÓN 220 kV: AGUAYTÍA - TINGO MARÍA - PARAMONGA

TRAMO L2251 Zona: 5

HIPÓTESIS II: Tensión Máxima c/v

Pv (kg/m2)45 Diám. Cond.(mm): 31.65

							Cargas según distribución		Cargas según D.Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	DFV (kg)	DFT (kg)
1	22D.2T	114.97	303.35	148.6	131.8	43.68	723.5	3216.7	3195.0	3900.0	2471.5	683.3
2	22C.2T	263.58	338.21	145.0	146.8	-37.71	-1324.0	2833.0	2480.0	2773.0	1156.0	-60.0
3	22A.2T	408.62	342.6	361.9	253.5	0.00	-905.2	361.0	1016.0	1062.0	110.8	701.0
4	22A.2T	770.5	316.31	240.7	301.3	0.00	-623.0	429.1	1016.0	1062.0	393.0	632.9
5	22D.2T	1011.15	301.09	304.2	272.4	-57.35	-668.4	4225.4	3195.0	3900.0	2526.6	-325.4
6	22A.2T	1315.35	285.58	339.0	321.6	0.00	-579.8	458.0	1016.0	1062.0	436.2	604.0
7	22A.2T	1654.3	283.43	349.0	344.0	0.00	-764.2	489.9	1016.0	1062.0	251.8	572.1
8	22A.2T	2003.28	283.13	355.0	352.0	0.00	-814.7	501.3	1016.0	1062.0	201.3	560.7
9	22A.2T	2358.26	283.13	606.2	480.6	0.00	-1051.1	684.5	1016.0	1062.0	-35.1	377.5
10	22A.2T	2964.42	296.5	152.2	379.2	0.00	-691.6	540.0	1016.0	1062.0	324.4	522.0
11	22A.2T	3116.6	331.45	312.0	232.1	0.00	-807.2	330.5	1016.0	1062.0	208.8	731.5
12	22C.2T	3428.59	336.59	390.3	351.1	-30.49	-784.2	2604.5	2480.0	2773.0	1695.8	168.5
13	22A.2T	3818.89	346.77	729.0	559.7	0.00	-1546.1	797.1	1016.0	1062.0	-530.1	264.9
14	22A.2T	4547.92	346.75	542.7	635.9	0.00	-1540.4	905.6	1016.0	1062.0	-524.4	156.4
15	22A.2T	5090.63	335.93	359.5	451.1	0.00	-944.3	642.5	1016.0	1062.0	71.7	419.5
16	22A.2T	5450.08	349.02	408.6	384.0	0.00	-1004.6	546.9	1016.0	1062.0	11.4	515.1
17	22A.2T	5858.68	349.4	341.2	374.9	0.00	-942.6	534.0	1016.0	1062.0	73.4	528.0
18	22A.2T	6199.91	351.73	277.2	309.2	0.00	-621.6	440.4	1016.0	1062.0	394.4	621.6
19	22C.2T	6477.1	352.52	322.8	300.0	0.00	-682.7	427.3	2480.0	2773.0	1797.3	2345.7
20	22A.2T	6799.93	354.2	468.0	395.4	0.00	-1072.8	563.2	1016.0	1062.0	-56.8	498.8
21	22A.2T	7267.93	351.7	437.1	452.6	0.00	-1036.6	644.6	1016.0	1062.0	-20.6	417.4
22	22A.2T	7705.07	354.25	459.6	448.4	0.00	-1113.6	638.6	1016.0	1062.0	-97.6	423.4
23	22A.2T	8164.64	352.17	456.0	457.8	0.00	-1024.3	652.0	1016.0	1062.0	-8.3	410.0
24	22A.2T	8620.61	358	463.2	459.6	0.00	-1133.5	654.5	1016.0	1062.0	-117.5	407.5
25	22A.2T	9083.79	359.94	474.0	468.6	0.00	-1134.4	667.4	1016.0	1062.0	-118.4	394.6
26	22A.2T	9557.75	360.27	489.9	481.9	0.00	-1117.8	686.4	1016.0	1062.0	-101.8	375.6
27	22A.2T	10047.6	364.8	456.0	472.9	0.00	-1157.0	673.6	1016.0	1062.0	-141.0	388.4
28	22A.2T	10503.61	366.07	463.8	459.9	0.00	-1109.2	655.0	1016.0	1062.0	-93.2	407.0
29	22A.2T	10967.36	366.24	468.1	465.9	0.00	-1090.6	663.6	1016.0	1062.0	-74.6	398.4
30	22A.2T	11435.44	369.1	479.4	473.7	0.00	-1142.0	674.7	1016.0	1062.0	-126.0	387.3
31	22A.2T	11914.82	370.92	461.7	470.5	0.00	-1111.1	670.2	1016.0	1062.0	-95.1	391.8
32	22A.2T	12376.5	374.27	474.7	468.2	0.00	-1128.1	666.8	1016.0	1062.0	-112.1	395.2
33	22A.2T	12851.23	376.7	459.9	467.3	0.00	-1118.2	665.6	1016.0	1062.0	-102.2	396.4
34	22A.2T	13311.11	378.95	457.1	458.5	0.00	-1109.5	653.0	1016.0	1062.0	-93.5	409.0
35	22A.2T	13768.2	379.67	457.9	457.5	0.00	-1064.6	651.6	1016.0	1062.0	-48.6	410.4
36	22A.2T	14226.05	383.67	481.2	469.5	0.00	-1137.2	668.7	1016.0	1062.0	-121.2	393.3
37	22A.2T	14707.21	386.13	464.7	473.0	0.00	-1121.0	673.6	1016.0	1062.0	-105.0	388.4
38	22A.2T	15171.95	389.64	431.0	447.9	0.00	-1125.2	637.9	1016.0	1062.0	-109.2	424.1
39	22A.2T	15602.91	392.06	428.9	429.9	0.00	-917.1	612.3	1016.0	1062.0	98.9	449.7
40	22A.2T	16031.81	396.2	388.3	408.6	0.00	-1084.8	581.9	1016.0	1062.0	-68.8	480.1
41	22A.2T	16420.06	399.05	583.0	485.6	0.00	-1381.1	691.7	1016.0	1062.0	-365.1	370.3
42	22A.2T	17003.08	364.49	442.9	512.9	0.00	-766.9	730.5	1016.0	1062.0	249.1	331.5
43	22A.2T	17445.93	383.8	448.0	445.4	0.00	-1281.6	634.4	1016.0	1062.0	-265.6	427.6

							Cargas según distribución		Cargas según D.Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	DFV (kg)	DFT (kg)
44	22A.2T	17893.97	389.45	365.2	406.6	0.00	-973.8	579.1	1016.0	1062.0	42.2	482.9
45	22A.2T	18259.16	392.77	366.9	366.0	0.00	-735.3	521.3	1016.0	1062.0	280.7	540.7
46	22A.2T	18626.03	408.7	345.1	356.0	0.00	-927.6	507.0	1016.0	1062.0	88.4	555.0
47	22A.2T	18971.12	414.26	329.3	337.2	0.00	-738.4	480.2	1016.0	1062.0	277.6	581.8
48	22A.2T	19300.39	425	454.0	391.6	0.00	-1129.7	557.8	1016.0	1062.0	-113.7	504.2
49	22A.2T	19754.37	412.05	351.1	402.5	0.00	-767.2	573.3	1016.0	1062.0	248.8	488.7
50	22C1.2T	20105.44	423.61	1082.4	716.7	-14.51	-1522.7	2030.3	4145.0	3725.0	2622.3	1694.7
51	22C1.2T	21187.85	510.93	1141.2	1111.8	22.68	-2046.9	3128.8	4145.0	3725.0	2098.1	596.2
52	22C1.2T	22329.03	796.98	1133.0	1137.1	2.98	-2513.9	1827.6	4145.0	3725.0	1631.1	1897.4
53	22D1.2T	23462.05	1183	451.7	792.4	-4.22	-5321.8	1424.2	5526.7	4966.7	204.8	3542.5
54	22A.2T	23913.73	974.13	328.0	389.8	0.00	-1218.3	555.2	1016.0	1062.0	-202.3	506.8
55	22C1.2T	24241.73	804.6	1328.7	828.3	6.63	-313.0	1644.5	4145.0	3725.0	3832.0	2080.5
56	22D1.2T	25570.41	709.29	524.8	926.7	3.84	-1895.5	1588.0	5526.7	4966.7	3631.2	3378.6
57	22A.2T	26095.19	725.89	792.5	658.6	0.00	-1392.7	938.0	1016.0	1062.0	-376.7	124.0
58	22B.2T	26887.65	768.31	490.5	641.5	0.00	-1576.4	913.6	3885.0	1555.0	2308.6	641.4
59	22A.2T	27378.16	789.16	494.4	492.4	0.00	-836.2	701.4	1016.0	1062.0	179.8	360.6
60	22A.2T	27872.52	857.86	516.0	505.2	0.00	-1406.2	719.5	1016.0	1062.0	-390.2	342.5
61	22D.2T	28388.52	912.82	161.4	338.7	18.20	-2234.7	1764.7	3195.0	3900.0	960.3	2135.3
62	22A.2T	28549.96	875.07	275.1	218.3	0.00	-663.7	310.9	1016.0	1062.0	352.3	751.1
63	22A.2T	28825.07	789.85	341.9	308.5	0.00	-1001.8	439.4	1016.0	1062.0	14.2	622.6
64	22D1.2T	29166.94	669	1317.2	829.5	0.00	-171.3	1181.4	5526.7	4966.7	5355.4	3785.2
65	22D1.2T	30484.12	820.68	195.8	756.5	0.00	-811.6	1077.5	5526.7	4966.7	4715.0	3889.2
66	22B.2T	30679.96	904.08	203.1	199.5	0.00	-1922.1	284.1	3885.0	1555.0	1962.9	1270.9
67	22A.2T	30883.04	909.57	674.8	438.9	0.00	-317.8	625.1	1016.0	1062.0	698.2	436.9
68	22A.2T	31557.79	1042	282.8	478.8	0.00	-688.3	681.9	1016.0	1062.0	327.7	380.1
69	22D1.2T	31840.56	1141.89	1203.6	743.2	0.00	-2442.8	1058.5	5526.7	4966.7	3083.8	3908.2
70	22B.2T	33044.18	1364.02	102.3	653.0	0.00	-737.3	930.0	3885.0	1555.0	3147.7	625.0
71	22B.2T	33146.5	1405.02	574.8	338.6	0.00	-2519.5	482.2	3885.0	1555.0	1365.5	1072.8
72	22B.2T	33721.28	1399.87	904.8	739.8	0.00	-1739.0	1053.7	3885.0	1555.0	2146.0	501.3
73	22C1.2T	34626.1	1387.01	316.4	610.6	0.00	-1179.8	869.6	4145.0	3725.0	2965.2	2855.4
74	22A.2T	34942.48	1406.31	539.3	427.9	0.00	266.4	609.4	1016.0	1062.0	749.6	452.6
75	22D1.2T	35481.81	1622.81	368.3	453.8	0.00	-4194.6	646.3	5526.7	4966.7	1332.0	4320.3
76	22A.2T	35850.11	1502.29	489.5	428.9	0.00	-708.1	610.9	1016.0	1062.0	307.9	451.1
77	22A.2T	36339.61	1374.15	465.4	477.5	0.00	-1187.3	680.0	1016.0	1062.0	-171.3	382.0
78	22A.2T	36805.04	1240.46	454.6	460.0	0.00	-380.6	655.2	1016.0	1062.0	635.4	406.8
79	22C.2T	37259.66	1210.51	495.6	475.1	17.76	-364.0	1910.1	2480.0	2773.0	2116.0	862.9
80	22A.2T	37755.31	1269.86	408.7	452.2	0.00	-793.3	644.0	1016.0	1062.0	222.7	418.0
81	22A.2T	38164	1342.64	445.3	427.0	0.00	-955.4	608.2	1016.0	1062.0	60.6	453.8
82	22A.2T	38609.31	1434.48	633.7	539.5	0.00	-1300.2	768.4	1016.0	1062.0	-284.2	293.6
83	22A.2T	39243.01	1564.63	389.1	511.4	0.00	-1009.2	728.4	1016.0	1062.0	6.8	333.6
84	22A.2T	39632.11	1676.6	195.6	292.4	0.00	-785.4	416.4	1016.0	1062.0	230.6	645.6
85	22A.2T	39827.72	1720.56	305.9	250.7	0.00	-1554.9	357.1	1016.0	1062.0	-538.9	704.9
86	22B.2T	40133.59	1727.47	202.6	254.3	0.00	-2007.1	362.1	3885.0	1555.0	1877.9	1192.9
87	22A.2T	40336.24	1662.57	862.6	532.6	0.00	-793.0	758.6	1016.0	1062.0	223.0	303.4
88	**22A.2T**	**41198.79**	**1504.21**	**250.9**	**556.7**	**0.00**	**-975.1**	**792.9**	**1016.0**	**1062.0**	**40.9**	**269.1**
89	22A.2T	41449.69	1473.58	152.9	201.9	0.00	-1213.7	287.6	1016.0	1062.0	-197.7	774.4
90	22A.2T	41602.62	1437.52	603.2	378.1	0.00	-602.7	538.5	1016.0	1062.0	413.3	523.5
91	22C1.2T	42205.84	1309.78	1118.0	860.6	0.00	-1244.9	1225.7	4145.0	3725.0	2900.1	2499.3

							Cargas según distribución		Cargas según D.Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	DFV (kg)	DFT (kg)
92	22C1.2T	43323.8	1323.04	262.3	690.1	0.00	-1825.1	982.9	4145.0	3725.0	2319.9	2742.1
93	22A.2T	43586.1	1322.15	598.8	430.5	0.00	-135.9	613.2	1016.0	1062.0	880.1	448.8
94	22A.2T	44184.9	1432.52	387.2	493.0	0.00	-1025.0	702.1	1016.0	1062.0	-9.0	359.9
95	22A.2T	44572.06	1526.69	479.4	433.3	0.00	-882.1	617.1	1016.0	1062.0	133.9	444.9
96	22A.2T	45051.49	1673.76	221.8	350.6	0.00	-451.3	499.4	1016.0	1062.0	564.7	562.6
97	22A.2T	45273.29	1764.33	157.9	189.8	0.00	-809.7	270.4	1016.0	1062.0	206.3	791.6
98	22D.2T	45431.15	1810.14	431.8	294.8	-62.21	-3256.7	4569.6	3195.0	3900.0	-61.7	-669.6
99	22A.2T	45862.91	1669.93	444.9	438.3	0.00	-950.3	624.3	1016.0	1062.0	65.7	437.7
100	22A.2T	46307.78	1548.55	736.2	590.5	0.00	-1592.4	841.1	1016.0	1062.0	-576.4	220.9
101	22A.2T	47043.96	1327.7	377.9	557.0	0.00	-1353.8	793.4	1016.0	1062.0	-337.8	268.6
102	22A.2T	47421.87	1228.1	282.7	330.3	0.00	-372.8	470.4	1016.0	1062.0	643.2	591.6
103	22C.2T	47704.58	1171.98	704.9	493.8	0.00	-292.5	703.3	2480.0	2773.0	2187.5	2069.7
104	22A.2T	48409.47	1199.73	183.2	444.0	0.00	-431.3	632.4	1016.0	1062.0	584.7	429.6
105	22A.2T	48592.65	1238.35	304.5	243.8	0.00	-1409.9	347.3	1016.0	1062.0	-393.9	714.7
106	22A.2T	48897.1	1232.87	556.7	430.6	0.00	-1436.4	613.2	1016.0	1062.0	-420.4	448.8
107	22A.2T	49453.8	1170.01	304.1	430.4	0.00	-658.1	613.0	1016.0	1062.0	357.9	449.0
108	22A.2T	49757.94	1160.44	604.9	454.5	0.00	-1433.2	647.4	1016.0	1062.0	-417.2	414.6
109	22A.2T	50362.89	1111.4	192.8	398.9	0.00	-717.1	568.1	1016.0	1062.0	298.9	493.9
110	22A.2T	50555.72	1103.74	282.0	237.4	0.00	-449.1	338.2	1016.0	1062.0	566.9	723.8
111	22D.2T	50837.75	1097.1	319.2	300.6	18.78	-1737.2	1740.7	3195.0	3900.0	1457.8	2159.3
112	22B.2T	51156.99	1017.9	303.9	311.6	0.00	-257.2	443.7	3885.0	1555.0	3627.8	1111.3
113	22A.2T	51460.87	976.53	634.5	469.2	0.00	-672.6	668.3	1016.0	1062.0	343.4	393.7
114	22D.2T	52095.41	958.14	461.7	548.1	-31.60	-1194.0	2940.5	3195.0	3900.0	2001.0	959.5
115	22A.2T	52557.07	958.42	501.2	481.4	0.66	-1417.2	731.7	1016.0	1062.0	-401.2	330.3
116	22B.2T	53058.26	934.72	250.7	376.0	0.00	-384.4	535.5	3885.0	1555.0	3500.6	1019.5
117	22A.2T	53308.99	951.56	271.8	261.2	0.00	-754.6	372.1	1016.0	1062.0	261.4	689.9
118	22A.2T	53580.74	961.23	283.3	277.5	0.00	-831.1	395.2	1016.0	1062.0	184.9	666.8
119	22C.2T	53864.01	955.3	435.7	359.5	13.46	-1044.7	1455.4	2480.0	2773.0	1435.3	1317.6
120	22A.2T	54299.73	925.87	562.5	499.1	0.00	-1182.7	710.8	1016.0	1062.0	-166.7	351.2
121	22A.2T	54862.19	898.49	412.9	487.7	0.00	-1204.7	694.6	1016.0	1062.0	-188.7	367.4
122	22A.2T	55275.11	882.61	295.0	354.0	0.00	-788.2	504.1	1016.0	1062.0	227.8	557.9
123	22A.2T	55570.14	872.8	362.8	328.9	0.00	-699.5	468.5	1016.0	1062.0	316.5	593.5
124	22A.2T	55932.94	858.75	586.0	474.4	0.00	-1382.8	675.7	1016.0	1062.0	-366.8	386.3
125	22A.2T	56518.92	805.32	634.9	610.4	0.00	-1434.6	869.4	1016.0	1062.0	-418.6	192.6
126	22A.2T	57153.83	758.03	376.9	505.9	0.00	-1041.1	720.6	1016.0	1062.0	-25.1	341.4
127	22A.2T	57530.76	756.89	200.6	288.7	0.00	-594.5	411.2	1016.0	1062.0	421.5	650.8
128	22A.2T	57731.32	749.15	778.4	489.5	0.00	-1637.5	697.1	1016.0	1062.0	-621.5	364.9
129	22A.2T	58509.67	650.5	441.0	609.7	0.00	-1068.7	868.3	1016.0	1062.0	-52.7	193.7
130	22B.2T	58950.69	648.8	1013.0	727.0	0.00	-790.6	1035.5	3885.0	1555.0	3094.4	519.5
131	22B.2T	59963.74	872.47	54.1	533.6	0.00	-1762.8	759.9	3885.0	1555.0	2122.2	795.1
132	22D.2T	60017.81	874.73	818.0	436.1	-36.31	-1833.7	3153.0	3195.0	3900.0	1361.3	747.0
133	22D.2T	60835.84	809.41	884.6	851.3	78.31	-1582.7	6005.1	3195.0	3900.0	1612.3	-2105.1
134	22B.2T	61720.42	841.42	72.5	478.6	0.00	-1499.0	681.6	3885.0	1555.0	2386.0	873.4
135	22A.2T	61792.94	840.73	689.2	380.8	0.00	-990.6	542.4	1016.0	1062.0	25.4	519.6
136	**22B.2T**	**62482.1**	**794.17**	**987.9**	**838.5**	**0.00**	**-2161.9**	**1194.3**	**3885.0**	**1555.0**	**1723.1**	**360.7**
137	22D.2T	63469.99	692.47	426.9	707.4	50.63	-1432.9	4351.5	3195.0	3900.0	1762.1	-451.5
138	22A.2T	63896.86	676.13	596.5	511.7	0.00	-1017.8	728.8	1016.0	1062.0	-1.8	333.2
139	22A.2T	64493.37	690.2	488.9	542.7	0.00	-1583.4	773.0	1016.0	1062.0	-567.4	289.0

							Cargas según distribución		Cargas según D.Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	DFV (kg)	DFT (kg)
140	22A.2T	64982.32	662.08	489.8	489.4	0.00	-954.0	697.0	1016.0	1062.0	62.0	365.0
141	22A.2T	65472.1	663.19	431.6	460.7	0.00	-954.6	656.1	1016.0	1062.0	61.4	405.9
142	22A.2T	65903.69	674.87	557.2	494.4	0.00	-1392.2	704.1	1016.0	1062.0	-376.2	357.9
143	22A.2T	66460.87	667.6	410.3	483.7	0.00	-916.6	689.0	1016.0	1062.0	99.4	373.0
144	22B.2T	66871.15	694.84	562.7	486.5	5.69	-1699.2	1091.2	3885.0	1555.0	2185.8	463.8
145	22A.2T	67433.88	643.89	431.9	497.3	0.00	-940.6	708.3	1016.0	1062.0	75.4	353.7
146	22A.2T	67865.79	637	401.9	416.9	0.00	-830.2	593.8	1016.0	1062.0	185.8	468.2
147	22A.2T	68267.71	641.3	260.2	331.1	0.00	-822.7	471.5	1016.0	1062.0	193.3	590.5
148	22A.2T	68527.89	649.95	464.5	362.3	0.00	-843.5	516.0	1016.0	1062.0	172.5	546.0
149	22A.2T	68992.37	651.22	601.0	532.7	0.00	-1074.3	758.7	1016.0	1062.0	-58.3	303.3
150	22A.2T	69593.32	693.57	111.0	356.0	0.00	-616.7	507.0	1016.0	1062.0	399.3	555.0
151	22C.2T	69704.32	706.03	565.8	338.4	7.81	-1221.8	1038.1	2480.0	2773.0	1258.2	1734.9
152	22A.2T	70270.14	717.16	422.8	494.3	0.00	-1151.8	704.0	1016.0	1062.0	-135.8	358.0
153	22A.2T	70692.98	725.1	346.0	384.4	0.00	-1079.6	547.5	1016.0	1062.0	-63.6	514.5
154	22A.2T	71039.02	732.9	459.4	402.7	0.00	-513.1	573.6	1016.0	1062.0	502.9	488.4
155	22A.2T	71498.39	773.96	555.6	507.5	0.00	-1518.6	722.8	1016.0	1062.0	-502.6	339.2
156	22D1.2T	72053.99	789.49	1001.3	778.5	-50.87	-2369.2	4451.5	5526.7	4966.7	3157.4	515.2
157	22D.2T	73055.31	700.86	107.1	554.2	0.00	-1412.0	789.3	3195.0	3900.0	1783.0	3110.7
158	22A.2T	73162.38	689.84	0.0	53.5	0.00	314.8	76.2	1016.0	1062.0	701.2	985.8

ETESELVA S.A.

LÍNEA DE TRANSMISIÓN 220 kV: AGUAYTÍA - TINGO MARÍA - PARAMONGA

TRAMO L2252 Zona: 5

HIPÓTESIS II: Tensión Máxima c/v

Pv (kg/m2) : 45 Diám. Cond.(mm): 31.65

							Cargas según Distribución		Cargas Según D. Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	□FV (kg)	□FT (kg)
1	22D.2T	93.97	683.66	201.2	147.6	-55.56	-656.5	4064.5	3195.0	3900.0	2538.5	-164.5
2	22A.2T	295.13	713.73	211.8	206.5	0.00	-675.9	294.1	1016.0	1062.0	340.1	767.9
3	22C.2T	506.89	729.43	403.1	307.5	-10.50	-833.6	1200.8	2480.0	2773.0	1646.4	1572.2
4	22A.2T	910.03	765.2	430.4	416.8	0.00	-905.9	593.6	1016.0	1062.0	110.1	468.4
5	22A.2T	1340.41	810.33	270.8	350.6	0.00	-295.2	499.3	1016.0	1062.0	720.8	562.7
6	22B.2T	1611.18	879.34	379.9	325.3	-2.50	-1639.3	645.5	3885.0	1555.0	2245.7	909.5
7	22B.2T	1991.1	898.98	332.7	356.3	0.00	-557.2	507.4	3885.0	1555.0	3327.8	1047.6
8	22A.2T	2323.75	951.51	411.8	372.2	0.34	-1684.7	555.0	1016.0	1062.0	-668.7	507.0
9	22A.2T	2735.52	932.63	317.3	364.6	1.98	-805.1	663.3	1016.0	1062.0	210.9	398.7
10	22B.2T	3052.85	931.58	343.1	330.2	0.00	-389.8	470.3	3885.0	1555.0	3495.2	1084.7
11	22B.2T	3395.97	962.81	292.9	318.0	0.00	-1286.8	452.9	3885.0	1555.0	2598.2	1102.1
12	22A.2T	3688.87	955.04	274.9	283.9	0.00	-483.1	404.3	1016.0	1062.0	532.9	657.7
13	22A.2T	3963.74	962.7	701.5	488.2	0.00	-1358.1	695.3	1016.0	1062.0	-342.1	366.7
14	22B.2T	4665.19	960.08	687.7	694.6	0.00	-1637.0	989.3	3885.0	1555.0	2248.0	565.7
15	22B.2T	5352.93	974.85	679.8	683.8	0.00	-1993.8	973.9	3885.0	1555.0	1891.2	581.1
16	22B.2T	6032.75	942.31	541.4	610.6	5.83	-1768.5	1294.4	3885.0	1555.0	2116.5	260.6
17	22A.2T	6574.1	891.65	622.4	581.9	0.00	-1665.8	828.7	1016.0	1062.0	-649.8	233.3
18	22B.2T	7196.52	798.65	838.0	730.2	0.00	-945.0	1040.0	3885.0	1555.0	2940.0	515.0
19	22C.2T	8034.47	850.91	193.0	515.5	0.00	-54.1	734.2	2480.0	2773.0	2425.9	2038.8
20	22A.2T	8227.51	926.76	322.8	257.9	0.00	-1336.8	367.3	1016.0	1062.0	-320.8	694.7
21	22B.2T	8550.28	994.94	203.8	263.3	0.00	-2340.0	375.0	3885.0	1555.0	1545.0	1180.0
22	22A.2T	8754.1	956.47	766.3	485.1	0.00	-769.5	690.9	1016.0	1062.0	246.5	371.1
23	22A.2T	9520.43	899.8	158.8	462.5	0.00	-755.3	658.8	1016.0	1062.0	260.7	403.2
24	22A.2T	9679.18	902.77	378.3	268.5	0.00	-849.1	382.4	1016.0	1062.0	-166.9	679.6
25	22A.2T	10057.48	893.78	193.1	285.7	0.00	-492.6	406.9	1016.0	1062.0	523.4	655.1
26	22A.2T	10250.56	899.38	223.2	208.1	0.00	-673.3	296.4	1016.0	1062.0	342.7	765.6
27	22A.2T	10473.75	897.66	421.4	322.3	0.00	-772.2	459.0	1016.0	1062.0	243.8	603.0
28	22C.2T	10895.15	893.56	959.8	690.6	0.00	-1169.5	983.6	2480.0	2773.0	1310.5	1789.4
29	22B.2T	11854.99	1021.86	264.4	612.1	0.00	-1344.6	871.8	3885.0	1555.0	2540.4	683.2
30	22A.2T	12119.39	1075.12	325.6	295.0	0.00	-1656.2	420.2	1016.0	1062.0	-640.2	641.8
31	22A.2T	12445.01	1063.15	220.9	273.3	0.00	-604.3	389.2	1016.0	1062.0	411.7	672.8
32	22A.2T	12665.95	1067.19	446.5	333.7	0.00	-445.7	475.3	1016.0	1062.0	570.3	586.7
33	22B.2T	13112.41	1098.88	1059.4	752.9	-0.61	-2470.8	1117.0	3885.0	1555.0	1414.2	438.0
34	22B.2T	14171.77	1049.85	193.8	626.6	0.22	-1318.2	908.6	3885.0	1555.0	2566.8	646.4
35	22A.2T	14365.57	1055.28	642.4	418.1	0.00	-380.6	595.5	1016.0	1062.0	635.4	466.5
36	22A.2T	15008.01	1163.8	242.3	442.4	0.00	-1655.0	630.1	1016.0	1062.0	-639.0	431.9
37	22A.2T	15250.35	1172.41	390.3	316.3	0.00	-1164.2	450.5	1016.0	1062.0	-148.2	611.5
38	22B.2T	15640.6	1159.55	923.5	656.9	0.00	-1459.2	935.5	3885.0	1555.0	2425.8	619.5
39	22B.2T	16564.061	1167.44	384.7	654.1	0.00	-1068.0	931.5	3885.0	1555.0	2817.0	623.5
40	22B.2T	16948.711	1217.04	526.6	455.6	0.00	-2231.1	648.9	3885.0	1555.0	1653.9	906.1
41	22A.2T	17475.289	1157.52	250.1	388.3	0.00	-1025.9	553.1	1016.0	1062.0	-9.9	508.9
42	22A.2T	17725.391	1129.29	353.0	301.6	0.00	-1181.1	429.5	1016.0	1062.0	-165.1	632.5
43	22A.2T	18078.43	1047.41	443.8	398.4	0.00	-1291.2	567.5	1016.0	1062.0	-275.2	494.5

							Cargas según Distribución		Cargas Según D. Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	□FV (kg)	□FT (kg)
44	22B.2T	18522.24	926.94	1140.9	792.4	0.75	-252.8	1183.3	3885.0	1555.0	3632.2	371.7
45	22B.2T	19663.189	1075.05	164.6	652.8	7.39	-895.3	1467.7	3885.0	1555.0	2989.7	87.3
46	22B.2T	19827.811	1135.37	141.3	152.9	8.56	-1439.2	842.1	3885.0	1555.0	2445.8	712.9
47	22A.2T	19969.061	1146.19	732.0	436.6	0.00	-995.3	621.9	1016.0	1062.0	20.7	440.1
48	22A.2T	20701.09	1209.48	278.3	505.2	0.00	-1231.5	719.5	1016.0	1062.0	-215.5	342.5
49	22A.2T	20979.43	1245.96	257.2	267.8	0.00	-1190.3	381.4	1016.0	1062.0	-174.3	680.6
50	22D1.2T	21236.66	1243.22	1281.7	769.4	0.00	-3154.5	1095.9	5526.7	4966.7	2372.2	3870.8
51	22D1.2T	22518.32	897.28	1355.2	1318.4	-15.77	-896.3	3009.5	5526.7	4966.7	4630.3	1957.1
52	22C1.2T	23873.551	1336.89	166.1	760.7	10.77	-2277.5	1865.1	4145.0	3725.0	1867.5	1859.9
53	22B.2T	24039.65	1387.6	522.7	344.4	-4.92	-2655.8	849.4	3885.0	1555.0	1229.2	705.6
54	22B.2T	24562.33	1311.66	472.1	497.4	2.47	-637.2	888.9	3885.0	1555.0	3247.8	666.1
55	22B.2T	25034.471	1320.54	300.7	386.4	0.00	-1760.7	550.4	3885.0	1555.0	2124.3	1004.6
56	22A.2T	25335.16	1265.51	187.5	244.1	0.00	-773.5	347.7	1016.0	1062.0	242.5	714.3
57	22A.2T	25522.68	1224.38	223.8	205.6	0.00	-1283.7	292.9	1016.0	1062.0	-267.7	769.1
58	22C1.2T	25746.439	1129.48	1318.2	771.0	0.00	-901.8	1098.1	4145.0	3725.0	3243.2	2626.9
59	22D1.2T	27064.66	961.63	344.0	831.1	0.00	97.5	1183.7	5526.7	4966.7	5429.2	3783.0
60	22A.2T	27408.619	1101.32	120.8	232.4	0.00	-1564.5	330.9	1016.0	1062.0	-548.5	731.1
61	22A.2T	27529.381	1129.09	152.9	136.8	0.00	-575.5	194.9	1016.0	1062.0	440.5	867.1
62	22D.2T	27682.279	1144.64	508.5	330.7	-65.21	-513.4	4905.5	3195.0	3900.0	2681.6	-1005.5
63	22B.2T	28190.82	1247.9	817.2	662.9	0.00	-2467.1	944.1	3885.0	1555.0	1417.9	610.9
64	22B.2T	29008.061	1262.67	853.7	835.5	0.00	-860.0	1189.9	3885.0	1555.0	3025.0	365.1
65	22D1.2T	29861.77	1527.68	1130.9	992.3	0.00	-4644.4	1413.3	5526.7	4966.7	882.3	3553.4
66	22C1.2T	30992.689	1344.88	630.8	880.8	0.00	-702.5	1254.5	4145.0	3725.0	3442.5	2470.5
67	22A.2T	31623.461	1478.45	119.8	375.3	0.00	-1040.9	534.5	1016.0	1062.0	-24.9	527.5
68	22A.2T	31743.23	1500.61	763.4	441.6	0.00	-1021.4	628.9	1016.0	1062.0	-5.4	433.1
69	22B.2T	32506.66	1659.58	680.1	721.8	0.00	-2432.3	1028.0	3885.0	1555.0	1452.7	527.0
70	22B.2T	33186.809	1706.07	766.8	723.5	0.00	-2960.6	1030.4	3885.0	1555.0	924.4	524.6
71	22D.2T	33953.609	1549.6	306.3	536.6	0.00	-1217.8	764.2	3195.0	3900.0	1977.2	3135.8
72	22A.2T	34259.922	1503.56	788.7	547.5	0.00	-830.4	779.8	1016.0	1062.0	185.6	282.2
73	22A.2T	35048.66	1482.55	157.9	473.3	0.00	-1352.4	674.2	1016.0	1062.0	-336.4	387.8
74	22B.2T	35206.609	1471.71	869.6	513.8	0.00	-1164.0	731.7	3885.0	1555.0	2721.0	823.3
75	22A.2T	36076.172	1427.91	180.6	525.1	0.00	-607.7	747.9	1016.0	1062.0	408.3	314.1
76	22A.2T	36256.801	1459.89	438.4	309.5	0.00	-1634.2	440.8	1016.0	1062.0	-618.2	621.2
77	22A.2T	36695.23	1431.55	249.1	343.7	0.00	-1107.0	489.6	1016.0	1062.0	-91.0	572.4
78	22A.2T	36944.281	1396.2	500.9	375.0	0.00	-535.2	534.1	1016.0	1062.0	480.8	527.9
79	22A.2T	37445.211	1382.67	683.0	592.0	0.00	-1370.3	843.1	1016.0	1062.0	-354.3	218.9
80	22A.2T	38128.219	1378.74	394.1	538.6	0.00	-956.3	767.0	1016.0	1062.0	59.7	295.0
81	22A.2T	38522.32	1410.55	425.1	409.6	0.00	-1251.9	583.4	1016.0	1062.0	-235.9	478.6
82	22B.2T	38947.422	1425.43	755.5	590.3	0.00	-1946.3	840.7	3885.0	1555.0	1938.7	714.3
83	22A.2T	39702.879	1372.21	154.4	454.9	0.00	-859.1	647.9	1016.0	1062.0	156.9	414.1
84	22C1.2T	39857.301	1365.14	712.1	433.3	0.00	-373.6	617.1	4145.0	3725.0	3771.4	3107.9
85	22D.2T	40569.449	1484.13	0.0	356.1	-18.81	-1602.3	1869.2	3195.0	3900.0	1592.7	2030.8

ETESELVA S.A.

LÍNEA DE TRANSMISIÓN 220 kV: AGUAYTÍA - TINGO MARÍA - PARAMONGA

TRAMO L2252 Zona: 3

HIPÓTESIS II: Tensión Máxima c/v

Pv (kg/m2) 45 Diám. Cond.(mm): 31.65

							Cargas según Distribución		Cargas Según D. Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	□FV (kg)	□FT (kg)
206	22D.2T	104178.26	3012.41	809.4	404.7	0.00	-2091.6	576.4	3195.0	3900.0	1103.4	3323.6
207	22B.2T	104987.66	2817.07	598.5	703.9	-2.65	-307.6	1199.2	3885.0	1555.0	3577.4	355.8
208	22B.2T	105586.13	2876.82	942.1	770.3	1.52	-969.8	1210.3	3885.0	1555.0	2915.2	344.7
209	22A.2T	106528.22	3194.2	293.7	617.9	0.00	-1445.9	880.1	1016.0	1062.0	-429.9	181.9
210	22A.2T	106821.95	3311.18	395.6	344.7	0.00	-1077.1	490.9	1016.0	1062.0	-61.1	571.1
211	22A.2T	107217.56	3453.87	233.0	314.3	0.00	-976.6	447.6	1016.0	1062.0	39.4	614.4
212	22A.2T	107450.56	3530.21	266.0	249.5	0.00	-742.7	355.3	1016.0	1062.0	273.3	706.7
213	22A.2T	107716.52	3611.72	167.0	216.5	0.00	-388.3	308.4	1016.0	1062.0	627.7	753.6
214	22B.2T	107883.56	3675.18	246.2	206.6	0.00	-2357.1	294.2	3885.0	1555.0	1527.9	1260.8
215	22B.2T	108129.72	3662.27	391.6	318.9	0.00	-2360.5	454.2	3885.0	1555.0	1524.5	1100.8
216	22B.2T	108521.33	3488.41	747.0	569.3	0.00	-404.2	810.8	3885.0	1555.0	3480.8	744.2
217	22A.2T	109268.33	3358.72	122.9	435.0	0.00	-1274.7	619.5	1016.0	1062.0	-258.7	442.5
218	22B.2T	109391.26	3331.48	1038.7	580.8	0.00	-510.1	827.2	3885.0	1555.0	3374.9	727.8
219	22C1.2T	110429.95	3326.52	395.3	717.0	0.00	-171.2	1021.1	4145.0	3725.0	3973.8	2703.9
220	22A.2T	110825.20	3480.22	624.4	509.8	0.00	-853.3	726.1	1016.0	1062.0	162.7	335.9
221	22A.2T	111449.59	3805.36	146.5	385.4	0.00	-293.8	548.9	1016.0	1062.0	722.2	513.1
222	22B.2T	111596.06	3918.39	158.4	152.4	0.00	-2148.7	217.1	3885.0	1555.0	1736.3	1337.9
223	22B.2T	111754.47	3961.34	718.4	438.4	0.00	-4170.2	624.4	3885.0	1555.0	-285.2	930.6
224	22C1.2T	112472.88	3682.27	792.9	755.7	0.00	304.9	1076.3	4145.0	3725.0	3840.1	2648.7
225	22B.2T	113265.81	3800.81	201.6	497.3	0.00	-409.2	708.2	3885.0	1555.0	3475.8	846.8
226	22B.2T	113467.38	3872.81	635.0	418.3	0.00	-2598.8	595.7	3885.0	1555.0	1286.2	959.3
227	22A.2T	114102.34	3854.68	363.0	499.0	0.00	-1109.6	710.7	1016.0	1062.0	-93.6	351.3
228	22A.2T	114465.38	3867.6	259.2	311.1	0.00	-633.3	443.1	1016.0	1062.0	382.7	618.9
229	22A.2T	114724.54	3888.04	294.9	277.0	0.00	-1272.2	394.5	1016.0	1062.0	-256.2	667.5
230	22A.2T	115019.41	3861.45	805.9	550.4	0.00	-1178.0	783.9	1016.0	1062.0	-162.0	278.1
231	22B.2T	115825.34	3839.5	430.0	618.0	0.00	-1655.1	880.1	3885.0	1555.0	2229.9	674.9
232	22A.2T	116255.34	3815.74	516.8	473.4	0.00	-708.3	674.3	1016.0	1062.0	307.7	387.7
233	22B.2T	116772.16	3838.75	631.0	573.9	0.00	-1785.0	817.4	3885.0	1555.0	2100.0	737.6
234	22A.2T	117403.19	3823.42	253.7	442.4	0.00	-851.2	630.0	1016.0	1062.0	164.8	432.0
235	22A.2T	117656.88	3835.47	325.5	289.6	0.00	-1132.7	412.5	1016.0	1062.0	-116.7	649.5
236	22B.2T	117982.38	3813.25	273.0	299.3	0.00	-1562.0	426.2	3885.0	1555.0	2323.0	1128.8
237	22D.2T	118255.41	3747.4	867.4	570.2	0.00	-546.5	812.1	3195.0	3900.0	2648.5	3087.9
238	22B.2T	119122.77	3715.59	293.0	580.2	0.00	-386.2	826.3	3885.0	1555.0	3498.8	728.7
239	22A.2T	119415.73	3777.64	461.1	377.0	0.00	-493.3	537.0	1016.0	1062.0	522.7	525.0
240	22B.2T	119876.80	3929.93	301.9	381.5	0.00	-218.6	543.3	3885.0	1555.0	3666.4	1011.7
241	22B.2T	120178.72	4081.53	115.1	208.5	0.00	-2114.0	297.0	3885.0	1555.0	1771.0	1258.0
242	22B.2T	120293.80	4097.74	577.9	346.5	0.00	-2828.8	493.5	3885.0	1555.0	1056.2	1061.5
243	22B.2T	120871.66	3925.3	280.5	429.2	0.00	-259.4	611.3	3885.0	1555.0	3625.6	943.7
244	22A.2T	121152.16	3901.33	430.7	355.6	0.00	-627.3	506.4	1016.0	1062.0	388.7	555.6
245	22A.2T	121582.84	3883.34	422.9	426.8	0.00	-1305.7	607.9	1016.0	1062.0	-289.7	454.1
246	22B.2T	122005.77	3845.8	375.2	399.1	0.00	-2004.8	568.4	3885.0	1555.0	1880.2	986.6
247	22A.2T	122381.00	3731.3	267.8	321.5	0.00	-683.7	457.9	1016.0	1062.0	332.3	604.1

							Cargas según Distribución		Cargas Según D. Carga		Diferencia de Cargas	
No. de Estructura	Tipo	Progresiva (m)	Cota (m)	Vano horiz. (m)	Vano viento (m)	Ang. Topog. (°)	F. Vert. (kg)	F. Transv. (kg)	F. Vert. (kg)	F. Trans. (kg)	□FV (kg)	□FT (kg)
248	22A.2T	122648.75	3656.85	353.1	310.4	0.00	-971.2	442.2	1016.0	1062.0	44.8	619.8
249	22D.2T	123001.90	3545.17	348.0	350.6	38.30	-680.8	3335.6	3195.0	3900.0	2514.2	564.4
250	22B.2T	123349.91	3457.62	867.7	607.9	0.00	-358.1	865.8	3885.0	1555.0	3526.9	689.2
251	22B.2T	124217.65	3465.25	221.6	544.7	7.00	-1141.5	1305.2	3885.0	1555.0	2743.5	249.8
252	22A.2T	124439.30	3478.72	418.1	319.9	0.00	-675.8	455.6	1016.0	1062.0	340.2	606.4
253	22B.2T	124857.41	3510.54	629.5	523.8	-4.60	-401.8	1094.7	3885.0	1555.0	3483.2	460.3
254	22A.2T	125486.95	3701.65	117.5	373.5	0.00	-960.8	532.0	1016.0	1062.0	55.2	530.0
255	22D.2T	125604.45	3746.65	326.7	222.1	-25.27	-2389.8	2223.6	3195.0	3900.0	805.2	1676.4
256	22B.2T	125931.19	3709.94	829.2	578.0	0.00	-821.8	823.2	3885.0	1555.0	3063.2	731.8
257	22A.2T	126760.38	3748.47	108.1	468.7	0.00	-494.4	667.5	1016.0	1062.0	521.6	394.5
258	22A.2T	126868.51	3770.3	400.9	254.5	0.00	-840.6	362.5	1016.0	1062.0	175.4	699.5
259	22A.2T	127269.44	3832.53	271.6	336.3	0.00	-985.8	478.9	1016.0	1062.0	30.2	583.1
260	22A.2T	127541.05	3855.06	515.5	393.6	0.00	-908.8	560.5	1016.0	1062.0	107.2	501.5
261	22B.2T	128056.58	3936.68	558.8	537.2	0.00	-1474.8	765.1	3885.0	1555.0	2410.2	789.9
262	22B.2T	128615.38	3997.62	749.2	654.0	0.00	-2611.0	931.5	3885.0	1555.0	1274.0	623.5
263	22A1.2T	129364.59	3919.94	403.1	576.1	0.00	-1493.4	820.6	3020.0	915.0	1526.6	94.4
264	22A.2T	129767.65	3874.69	206.0	304.5	0.00	-466.2	433.7	1016.0	1062.0	549.8	628.3
265	22A1.2T	129973.66	3862.16	725.8	465.9	0.00	-1611.8	663.6	3020.0	915.0	1408.2	251.4
266	22B.2T	130699.45	3751.14	238.9	482.3	0.00	-1731.2	687.0	3885.0	1555.0	2153.8	868.0
267	22A.2T	130938.34	3683.92	361.5	300.2	0.00	-1284.6	427.6	1016.0	1062.0	-268.6	634.4
268	22D1.2T	131299.86	3554.56	1333.8	847.7	0.00	-149.7	1207.3	5526.7	4966.7	5376.9	3759.4
269	22D1.2T	132633.70	3675.22	292.7	813.3	0.00	-600.3	1158.3	5526.7	4966.7	4926.4	3808.4
270	22D.2T	132926.36	3807.83	73.5	183.1	-24.17	-3623.5	2102.2	3195.0	3900.0	-428.5	1797.8
271	22A.2T	132999.84	3790.66	476.9	275.2	0.00	-562.4	392.0	1016.0	1062.0	453.6	670.0
272	22A.2T	133476.78	3673.19	614.0	545.5	0.00	-556.5	776.9	1016.0	1062.0	459.5	285.1
273	22A.2T	134090.77	3640.27	153.6	383.8	0.00	-1304.5	546.6	1016.0	1062.0	-288.5	515.4
274	22D1.2T	134244.38	3613.77	1259.9	706.8	0.00	-1647.0	1006.6	5526.7	4966.7	3879.6	3960.0
275	22D1.2T	135504.31	3496.02	166.5	713.2	-0.78	-439.2	1073.4	5526.7	4966.7	5087.5	3893.3
276	22A.2T	135670.78	3534.3	745.9	456.2	0.00	-1096.4	649.7	1016.0	1062.0	-80.4	412.3
277	22D.2T	136416.72	3717	365.2	555.6	1.31	-3847.0	890.6	3195.0	3900.0	-652.0	3009.4
278	22C.2T	136781.91	3603.78	1002.4	683.8	0.00	-366.4	973.9	2480.0	2773.0	2113.6	1799.1
279	22B.2T	137784.28	3616.01	122.4	562.4	-0.50	-2272.2	838.0	3885.0	1555.0	1612.8	717.0
280	22A.2T	137906.64	3589.39	731.3	426.8	0.00	-790.8	607.9	1016.0	1062.0	225.2	454.1
281	22B.2T	138637.91	3506.59	486.3	608.8	0.00	-2316.5	867.0	3885.0	1555.0	1568.5	688.0
282	22D.2T	139124.19	3358.59	259.7	373.0	-50.27	-248.8	4122.7	3195.0	3900.0	2946.2	-222.7
283	22A.2T	139383.86	3324.44	811.3	535.5	0.00	-1263.5	762.7	1016.0	1062.0	-247.5	299.3
284	22B.2T	140195.14	3232.02	446.9	629.1	0.00	-245.2	896.0	3885.0	1555.0	3639.8	659.0
285	22A.2T	140642.02	3317.79	156.2	301.6	0.00	-1165.3	429.5	1016.0	1062.0	-149.3	632.5
286	22A.2T	140798.25	3343.18	526.4	341.3	0.00	-705.7	486.1	1016.0	1062.0	310.3	575.9
287	22A.2T	141324.69	3423.46	333.7	430.1	0.00	-1035.8	612.5	1016.0	1062.0	-19.8	449.5
288	22A.2T	141658.36	3476.73	72.6	203.1	0.00	-829.9	289.3	1016.0	1062.0	186.1	772.7
289	22A.2T	141730.97	3479.98	377.1	224.9	0.00	-1259.7	320.2	1016.0	1062.0	-243.7	741.8
290	22A.2T	142108.06	3451.21	488.4	432.7	0.00	-954.3	616.3	1016.0	1062.0	61.7	445.7
291	**22A.2T**	**142596.45**	**3431.79**	**388.7**	**438.6**	**0.00**	**-369.7**	**624.6**	1016.0	1062.0	**646.3**	**437.4**
292	22A.2T	142985.19	3480.07	526.5	457.6	0.00	-1393.1	651.8	1016.0	1062.0	-377.1	410.2
293	22A.2T	143511.70	3515.58	420.5	473.5	0.00	-997.5	674.4	1016.0	1062.0	18.5	387.6
294	22A.2T	143932.19	3551.8	758.2	589.3	0.00	-924.4	839.4	1016.0	1062.0	91.6	222.6