

PROVINCIA AUTONOMA DI TRENTO

Agenzia provinciale per la protezione dell'ambiente

Settore tecnico

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Valutazione dell'impatto acustico

prodotto dalle sorgenti sonore presenti nell'area di Roncafort

Relazione descrittiva

Maggio 2002



Work area										
x min /m	x max /m	y min /m	y max /m	z min /m	z max /m	z1 /m	z2 /m	z3 /m	z4 /m	
0,00	2500,00	0,00	2000,00	190,00	700,00	193,00	193,00	193,00	193,00	

Calculation model									
Free field in fro of refl. surf /m	Simplify for	Projection Liq	Projection Flq	Min. length for sections /m	Additional factor distance criterio	Limit sound source range	Min. level difference /dB	Limit range of reflecting surfaces	Range /m
0,80	receptio: No Grid: Yes	Yes No	Yes No	1,00 1,00	1,00 1,00	No Yes	30,00	No Yes	200,00

Calculation model					
Lateral path for VDI, ISO	Lateral path for image so	Reflection	Order	Ray splitting	
receptio: Yes Grid: No	No No	Yes Yes	1 1	No No	

Parameters of ISO 9613						
Downwind propogation	Average Temperature	Relative Humidity	G	spectrum type for calculations	Ground effect enhanced	Region
Yes	15°C	50%	1,00	Overall level (A)	Yes	

Parameters of NMPB					
Average Temperature	Relative Humidity	G	spectrum type for calculations	Meteorological parameters for	
15°C	70%	1,00	Octave spectrum (linear)	Abbeville (Day) Abbeville (Night)	

Available grids												
Label	x min /m	x max /m	dx /m	y min /m	y max /m	dy /m	nx	ny	Referenc	Height/m	Range	
Griglia 0	1420,00	1910,00	5,00	160,00	600,00	5,00	99	89	relative	4,00	Rectangle	
g.v.1	0,00	151,87	2,00	190,00	230,00	2,00	76	21	relative	0,00	Vertical grid	
g.v.2	0,00	130,30	2,00	190,00	230,00	2,00	66	21	relative	0,00	Vertical grid	
Prova	1400,00	1900,00	50,00	200,00	500,00	50,00	11	7	relative	9,00	Rectangle	

Available co-ordinate systems									
Name	P1.x /m	P1.y /m	P1.z /m	P2.x /m	P2.y /m	P2.z /m	P3.x /m	P3.y /m	P3.z /m
Sistema globale	0,00	0,00	0,00	1,00	0,00	0,00	1,00	1,00	0,00
Piano XY/fronte	0,00	0,00	0,00	1,00	0,00	0,00	1,00	0,00	1,00
Piano XY/da destra	0,00	0,00	0,00	0,00	1,00	0,00	0,00	1,00	1,00

Attribution of element groups to variants						
Element group	Variante 0	Variante 1centro	Variante 1Sud	Variante bar. centro	Variante barriera S	Variante 2 sorgenti
Gruppo 0	+	+	+			
SS Centro	+	+		+		
Bonifica	+			+		
Strade	+					
Ferrovia	+					
SS Sud	+		+			
SS 2	+					+
Bonifica conbarriera	+			+		
Taratura	+					

Element groups, variants						
Element group	Bonifica barr. 2 SS	Bonifica 1 sb	Bonifica S sb	Bonifica 2SS sb	Taratura	Completa scenario 1
Gruppo 0	+	+	+	+		+
SS Centro		+			+	
Bonifica	+	+	+	+		
Strade					+	+
Ferrovia					+	+
SS Sud	+		+	+		+
SS 2	+			+		+
Bonifica conbarriera	+					
Taratura					+	

Element groups, variants				
Element group	Compl sc1 terr	Compl sc1 barr	Completa scenario 2	Compl sc2 terr
Gruppo 0	+	+	+	+
SS Centro				
Bonifica	+	+		+
Strade	+		+	+
Ferrovia	+	+	+	+
SS Sud	+	+	+	+
SS 2	+	+		
Bonifica conbarriera				
Taratura				

Point srce/ISO 9613										Variante 0
Element	Label	Element group	Z A	D0 /dB	spectrum	Emiss.- Variant	Lw /dB(A)			
EZQi001	Belotti B91 centro	SS Centro	0	0,0	Third	Giorno Notte	109,3 109,3			
EZQi003	Belotti B91 sud	SS Sud	0	0,0	Third	Giorno Notte	109,3 109,3			
EZQi008	Belotti B92 sud	SS 2	0	0,0	Third	Giorno Notte	109,3 109,3			

Point srce/ISO 9613										Variante 0	
Element	Label	Emiss. var.	Emission /dB(A)	Damping /dB	Extra ch. /dB	Lw /dB(A)					
EZQi001	Belotti B91 centro	Giorno	85,5			109,3					
EZQi003	Belotti B91 sud	Giorno	85,5			109,3					
EZQi008	Belotti B92 sud	Giorno	85,5			109,3					

Point srce/ISO 9613										Variante 0	
Element	Label	Emiss. var.	Emission /dB(A)	Damping /dB	Extra ch. /dB	Lw /dB(A)					
EZQi001	Belotti B91 centro	Notte	85,5			109,3					
EZQi003	Belotti B91 sud	Notte	85,5			109,3					
EZQi008	Belotti B92 sud	Notte	85,5			109,3					

Road /NMPB								Variante 0
Element	Label	Element group	Z A	Leq /dB(A)		Length/ m		
				Giorno	Notte			
R96 001	A22 Dir sud	Strade	0	68,1	65,2	2103,65		
R96 005	A22 Dir sud sorpasso	Strade	0	65,7	51,5	2105,25		
R96 002	A22 Dir nord	Strade	0	67,5	65,7	2105,25		
R96 006	A22 Dir nord sorpass	Strade	0	65,6	55,3	2105,25		
R96 003	Sp 235 Dir sud	Strade	0	65,0	60,0	1925,22		
R96 004	Sp 235 Dir nord	Strade	0	65,0	60,0	1924,51		
R96 007	Percorso interno	Gruppo 0	0	50,5	50,5	1599,87		

Road /NMPB							Variante 0
Element	Label	Traffic flow	Driving direction	Gradient /%	d(SQ) /m		
R96 001	A22 Dir sud	continuous flow	One-way/counter dir. of n	from coord.	0,000		
R96 005	A22 Dir sud sorpasso	continuous flow	One-way/counter dir. of n	from coord.	0,000		
R96 002	A22 Dir nord	continuous flow	One-way/in dir. of nodes	from coord.	0,000		
R96 006	A22 Dir nord sorpass	continuous flow	One-way/in dir. of nodes	from coord.	0,000		

Impatto acustico delle sorgenti sonore presenti nell'area di Roncafort

Road /NMPB							Variante 0
Element	Label	Traffic flow	Driving direction	Gradient /%	d(SQ) /m		
R96 003	Sp 235 Dir sud	continuous flow	One-way/counter dir. of n	from coord.	0,000		
R96 004	Sp 235 Dir nord	continuous flow	One-way/in dir. of nodes	from coord.	0,000		
R96 007	Percorso interno	continuous flow	2 direct./driving on the	from coord.	0,000		

Road /NMPB							Variante 0
Element	Label	Section profile	Total width /m				
R96 001	A22 Dir sud	Sezione 0	8,00				
R96 005	A22 Dir sud sorpasso	Sezione 0	8,00				
R96 002	A22 Dir nord	Sezione 0	8,00				
R96 006	A22 Dir nord sorpass	Sezione 0	8,00				
R96 003	Sp 235 Dir sud	Sezione 0	8,00				
R96 004	Sp 235 Dir nord	Sezione 0	8,00				
R96 007	Percorso interno	Sezione 0	8,00				

Road /NMPB												Variante 0
Element	Label	Emiss. var.	Q car / (car/h)	Q truck / (car/h)	v car /(km/h)	v truck /(km/h)	E car /dB(A)	E truck /dB(A)	Leq car /dB(A)	Leq truck /dB(A)	Leq tot /dB(A)	
R96 001	A22 Dir sud	Giorno	496,00	88,00	114	100	38,1	45,6	65,1	65,0	68,1	
R96 005	A22 Dir sud sorpasso	Giorno	410,00	8,00	130	100	39,3	45,6	65,4	54,6	65,7	
R96 002	A22 Dir nord	Giorno	395,00	87,00	113	100	38,0	45,6	64,0	65,0	67,5	
R96 006	A22 Dir nord sorpass	Giorno	409,00	4,00	130	100	39,3	45,6	65,4	51,6	65,6	
R96 003	Sp 235 Dir sud	Giorno	312,00	31,20	120	90	38,6	44,7	63,5	59,7	65,0	
R96 004	Sp 235 Dir nord	Giorno	312,00	31,00	120	90	38,6	44,7	63,5	59,6	65,0	
R96 007	Percorso interno	Giorno	0,00	6,00	50	50		42,7		50,5	50,5	

Road /NMPB												Variante 0
Element	Label	Emiss. var.	Q car / (car/h)	Q truck / (car/h)	v car /(km/h)	v truck /(km/h)	E car /dB(A)	E truck /dB(A)	Leq car /dB(A)	Leq truck /dB(A)	Leq tot /dB(A)	
R96 001	A22 Dir sud	Notte	104,00	74,00	113	100	38,0	45,6	58,2	64,3	65,2	
R96 005	A22 Dir sud sorpasso	Notte	8,00	2,00	130	100	39,3	45,6	48,3	48,6	51,5	
R96 002	A22 Dir nord	Notte	60,00	95,00	102	100	37,1	45,6	54,9	65,4	65,7	
R96 006	A22 Dir nord sorpass	Notte	27,00	3,00	130	100	39,3	45,6	53,6	50,4	55,3	
R96 003	Sp 235 Dir sud	Notte	50,00	22,00	120	90	38,6	44,7	55,5	58,1	60,0	
R96 004	Sp 235 Dir nord	Notte	50,00	22,00	120	90	38,6	44,7	55,5	58,1	60,0	
R96 007	Percorso interno	Notte	0,00	6,00	50	50		42,7		50,5	50,5	

Railway /SRM II (NL) - Overview rail elements		Variante 0
Explanations re. grounding and track type		
bb=5: track with blocksd and ballastbed		
bb=1: concrete single- or twin-block sleepers in ballastbed		
bb=1: concrete single- or twin-block sleepers in ballastbed		
bb=1: concrete single- or twin-block sleepers in ballastbed		
bb=1: concrete single- or twin-block sleepers in ballastbed		
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Railway /SRM II (NL) - Overview rail elements									Variante 0
Element	Label	Element group	Z A	LE,tot /dB(A)	LE,tot /dB(A)		Length/ m	Grounding	
				Giorno	Notte				
SCHt001	Brennero-Verona	Ferrovia	0	119,8	110,2		2452,34	5	
SCHt002	Verona-Brennero	Ferrovia	0	105,6	105,7		2452,96	1	
SCHt003	Binario 3D	Gruppo 0	0	91,2	91,2		719,37	1	
SCHt004	Binario 1	Gruppo 0	0	91,2	91,2		561,47	1	
SCHt005	Binario 1C	Gruppo 0	0	91,2	91,2		561,74	1	
SCHt006	Binario 3	Gruppo 0	0	91,2	91,2		714,32	1	
SCHt008	Binario 3C	Gruppo 0	0	91,2	91,2		713,63	1	
SCHt009	Binario 3E	Gruppo 0	0	91,2	91,2		715,68	1	
SCHt010	Binario interporto	Ferrovia	0	98,0	96,3		1309,89	1	
SCHt011	Tratto di unione	Ferrovia	0	96,3	96,3		100,55	1	

Impatto acustico delle sorgenti sonore presenti nell'area di Roncafort

Railway/SRM II (NL) - Train parameters									Variante 0
Element	Label	Category Giorno	Q /units/h Giorno	Q(brake) [] Giorno	v /km/h Giorno	V(brake)[k] Giorno	Lwa/dB Giorno	LE,tot /dB(A) Giorno	
SCHt001	Brennero-Verona	8	0,4000	0,0	95,0	50,0	99,7	119,8	
		9	0,1000	0,0	110,0	50,0	93,0		
		2	1,1200	0,0	95,0	50,0	109,0		
		4	19,0000	0,0	80,0	50,0	119,3		
SCHt002	Verona-Brennero	8	0,5000	0,0	95,0	70,0	94,5	105,6	
		9	0,0600	0,0	110,0	80,0	88,2		
		2	1,1000	0,0	95,0	70,0	102,9		
		4	1,0000	0,0	80,0	50,0	101,2		
SCHt003	Binario 3D	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt004	Binario 1	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt005	Binario 1C	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt006	Binario 3	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt008	Binario 3C	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt009	Binario 3E	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt010	Binario interporto	4	3,0000	0,0	20,0	50,0	98,0	98,0	
SCHt011	Tratto di unione	4	2,0000	0,0	20,0	50,0	96,3	96,3	

Railway/SRM II (NL) - Train parameters									Variante 0
Element	Label	Category Notte	Q /units/h Notte	Q(brake) [] Notte	v /km/h Notte	V(brake)[k] Notte	Lwa/dB Notte	LE,tot /dB(A) Notte	
SCHt001	Brennero-Verona	8	0,4000	0,0	95,0	50,0	99,7	110,2	
		4	2,1000	0,0	80,0	50,0	109,7		
SCHt002	Verona-Brennero	8	0,4000	0,0	95,0	50,0	93,5	105,7	
		2	0,1000	0,0	95,0	50,0	92,5		
		4	2,5000	0,0	80,0	50,0	105,2		
SCHt003	Binario 3D	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt004	Binario 1	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt005	Binario 1C	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt006	Binario 3	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt008	Binario 3C	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt009	Binario 3E	4	1,0000	0,0	1,0	50,0	91,2	91,2	
SCHt010	Binario interporto	4	2,0000	0,0	20,0	50,0	96,3	96,3	
SCHt011	Tratto di unione	4	2,0000	0,0	20,0	50,0	96,3	96,3	

Railway/SRM II (NL) - Spectra											Variante 0	
Element	Label	f/Hz Giorno	63	125	250	500	1000	2000	4000	8000	Sum	
SCHt001	Brennero-Verona	H=0.0 m LE /dB(A)	75,2	92,5	109,2	114,4	108,9	106,3	101,2	87,9	117,0	
		H=0.5 m LE /dB(A)	74,7	92,0	108,9	113,9	108,5	106,0	101,0	87,7	116,5	
SCHt002	Verona-Brennero	H=0.0 m LE /dB(A)	62,8	77,3	92,9	98,8	98,9	97,5	91,3	77,9	103,9	
		H=0.5 m LE /dB(A)	59,3	73,7	89,8	94,9	95,8	94,6	88,9	76,2	100,6	
		H=2.0 m LE /dB(A)	49,9	54,9	62,3	73,7	71,3	74,2	67,4	59,8	78,6	
		H=4.0 m LE /dB(A)	47,9	55,9	64,1	74,4	62,9	64,7	59,0	49,3	75,6	
		H=5.0 m LE /dB(A)	49,8	58,9	66,8	66,8	58,2	61,1	52,8	45,6	71,0	
SCHt003	Binario 3D	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt004	Binario 1	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt005	Binario 1C	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt006	Binario 3	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt008	Binario 3C	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt009	Binario 3E	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt010	Binario interporto	H=0.0 m LE /dB(A)	51,3	75,8	92,8	89,4	83,3	78,1	79,8	70,7	95,0	
		H=0.5 m LE /dB(A)	51,3	75,8	92,8	89,4	83,3	78,1	79,8	70,7	95,0	
SCHt011	Tratto di unione	H=0.0 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	
		H=0.5 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	

Impatto acustico delle sorgenti sonore presenti nell'area di Roncafort

Railway /SRM II (NL) - Spectra											Variante 0	
Element	Label	f/Hz Notte	63	125	250	500	1000	2000	4000	8000	Sum	
SCHt001	Brennero-Verona	H=0.0 m LE /dB(A)	66,5	83,0	99,7	104,8	99,3	96,6	91,6	78,4	107,4	
		H=0.5 m LE /dB(A)	65,3	82,4	99,4	104,3	98,9	96,3	91,4	78,1	106,9	
SCHt002	Verona-Brennero	H=0.0 m LE /dB(A)	61,3	76,0	92,6	96,9	98,3	96,7	91,5	78,3	102,9	
		H=0.5 m LE /dB(A)	60,1	75,3	92,2	96,1	97,7	96,2	91,2	77,9	102,4	
		H=2.0 m LE /dB(A)	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0
		H=4.0 m LE /dB(A)	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0
		H=5.0 m LE /dB(A)	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0	-99,0
SCHt003	Binario 3D	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt004	Binario 1	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt005	Binario 1C	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt006	Binario 3	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt008	Binario 3C	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt009	Binario 3E	H=0.0 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
		H=0.5 m LE /dB(A)	27,0	71,0	88,0	69,0	46,0	33,0	49,0	49,0	88,1	
SCHt010	Binario interporto	H=0.0 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	
		H=0.5 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	
SCHt011	Tratto di unione	H=0.0 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	
		H=0.5 m LE /dB(A)	49,5	74,0	91,0	87,6	81,5	76,3	78,0	68,9	93,3	