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         *              Noise Analysis rev02                                        *

  INPUT DATA FOR HRSG NOISE PREDICTION ===============
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1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7

HRSG inflow casing - GT outlet transition duct shell

Width(m)	Height(m)	Tube(Pass)
3.500	3.500	0

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	149.0	7850.0
Casing Thickness (mm)	2.0	150.0	6.0

HRSG inflow casing(Inlet Duct) - HRSG inlet duct

Width(m)	Height(m)	Tube(Pass)
4.350	8.000	0

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	149.0	7850.0
Casing Thickness (mm)	2.0	150.0	6.0

First part of main Casing - HRSG boiler shell

Width(m)	Height(m)	Tube(Pass)
4.350	23.000	0

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	149.0	7850.0
Casing Thickness (mm)	2.0	150.0	6.0

Second part of main Casing - HRSG boiler shell

Width(m)	Height(m)	Tube(Pass)
4.350	23.000	16

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	128.0	7850.0
Casing Thickness (mm)	2.0	75.0	6.0

Third part of main Casing - HRSG boiler Shell

Width(m)	Height(m)	Tube(Pass)
4.350	23.000	27

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	75.0	7850.0
Casing Thickness (mm)	2.0	75.0	6.0

Main Outlet duct of hrsg - HRSG outlet duct shell

Width(m)	Height(m)	Tube(Pass)
4.350	23.000	93

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	128.0	7850.0
Casing Thickness (mm)	0.0	0.0	6.0

Main Stack Inlet area of hrsg -HRSG main stack wall

Width(m)	Height(m)	Tube(Pass)
8.800	23.000	93

	Inner	Mineral Wool	OutCasing
Casing Density (kg/m3)	7930.0	128.0	7850.0
Casing Thickness (mm)	0.0	0.0	6.0

Main Stack Height(m)	Platform Height(m)	Diameter(m)
50.000	29.000	5.800

By-Pass Stack Height(m)	Platform Height(m)	Diameter(m)
50.000	29.000	6.600

Insertion Loss of Gas Silencer

31) Exhaust Gas Silencer	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

NOISE ANALYSIS DETIALS ========================

HRSG inflow casing - GT outlet transition duct shell

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-10.9	-10.9	-10.9	-10.9	-10.9	-10.9	-10.9	-10.9	-10.9	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
7) Transmission Loss	dB	-29.5	-34.3	-34.7	-38.6	-39.0	-43.0	-47.9	-52.7	-57.6	
9) SPL of Casing Outside Surface	dB(A)	56.3	64.6	75.4	80.9	79.9	81.1	81.5	72.4	43.4	87.4
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	34.3	42.6	53.4	58.9	57.9	59.2	59.5	50.4	21.4	65.4
11) Pressure Power Level(Lw)	dB	95.7	90.8	91.5	89.5	83.1	81.1	80.3	71.4	44.5	98.8

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HRSG inflow casing(Inlet Duct) - HRSG inlet duct

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-15.4	-15.4	-15.4	-15.4	-15.4	-15.4	-15.4	-15.4	-15.4	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
7) Transmission Loss	dB	-29.5	-34.3	-34.7	-38.6	-39.0	-43.0	-47.9	-52.7	-57.6	
9) SPL of Casing Outside Surface	dB(A)	51.7	60.1	70.8	76.4	75.4	76.6	76.9	67.8	38.9	82.8

8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	29.7	38.1	48.8	54.4	53.4	54.6	54.9	45.9	16.9	60.9
11) Pressure Power Level(Lw)	dB	91.1	86.3	86.9	85.0	78.6	76.6	75.7	66.8	40.0	94.3

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First part of main Casing - HRSG boiler shell

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
7) Transmission Loss	dB	-29.5	-34.3	-34.7	-38.6	-39.0	-43.0	-47.9	-52.7	-57.6	
9) SPL of Casing Outside Surface	dB(A)	47.1	55.5	66.2	71.8	70.8	72.0	72.3	63.3	34.3	78.2
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	25.2	33.5	44.3	49.8	48.8	50.0	50.4	41.3	12.3	56.3
11) Pressure Power Level(Lw)	dB	86.5	81.7	82.3	80.4	74.0	72.0	71.1	62.3	35.4	89.7

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Second part of main Casing - HRSG boiler shell

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
5) Insertion loss of tube bundles	dB	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-5.0	
7) Transmission Loss	dB	-28.3	-33.2	-33.5	-37.5	-37.9	-41.8	-46.7	-51.6	-56.5	
9) SPL of Casing Outside Surface	dB(A)	46.3	54.6	65.4	70.9	69.9	71.2	71.5	61.4	30.4	77.4
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	24.3	32.6	43.4	48.9	47.9	49.2	49.5	39.4	8.4	55.4
11) Pressure Power Level(Lw)	dB	85.7	80.8	81.5	79.5	73.1	71.2	70.3	60.4	31.5	88.8

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Third part of main Casing - HRSG boiler Shell

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
5) Insertion loss of tube bundles	dB	-1.9	-2.0	-2.3	-3.1	-3.5	-4.4	-5.4	-9.7	-13.9	
7) Transmission Loss	dB	-27.9	-32.8	-33.1	-37.1	-37.5	-41.4	-46.3	-51.2	-56.1	
9) SPL of Casing Outside Surface	dB(A)	46.8	55.0	65.5	70.2	68.8	69.1	68.5	55.1	21.9	75.7
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	24.8	33.1	43.5	48.2	46.8	47.1	46.5	33.1	0.0	53.7
11) Pressure Power Level(Lw)	dB	86.2	81.2	81.6	78.8	72.0	69.1	67.3	54.1	23.1	89.0

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Main Outlet duct of hrsg - HRSG outlet duct shell

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
5) Insertion loss of tube bundles	dB	-6.7	-7.2	-8.2	-10.2	-13.3	-18.1	-24.6	-33.6	-43.0	
7) Transmission Loss	dB	-25.3	-30.2	-30.5	-34.4	-34.8	-38.8	-43.7	-48.6	-53.4	
9) SPL of Casing Outside Surface	dB(A)	44.7	52.5	62.3	65.8	61.6	58.1	51.9	33.9	-4.5	69.0
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	22.7	30.5	40.3	43.8	39.6	36.1	29.9	11.9	0.0	47.0
11) Pressure Power Level(Lw)	dB	84.1	78.7	78.4	74.4	64.8	58.1	50.7	32.9	23.1	86.3

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Main Stack Inlet area of hrsg -HRSG main stack wall

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) PWL - Internal SPL	dB	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1	
4) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
5) Insertion loss of tube bundles	dB	-6.7	-7.2	-8.2	-10.2	-13.3	-18.1	-24.6	-33.6	-43.0	
6) Loss in an elbow	dB	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
7) Transmission Loss	dB	-25.3	-30.2	-30.5	-34.4	-34.8	-38.8	-43.7	-48.6	-53.4	
9) SPL of Casing Outside Surface	dB(A)	38.6	46.4	56.2	59.7	55.6	52.1	45.8	27.8	-10.6	62.9
8) Measurement area 1m distance	dB	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	
10) Sound Pressure Level(Lp)	dB(A)	16.6	24.4	34.2	37.7	33.6	30.1	23.8	5.8	0.0	40.9
11) Pressure Power Level(Lw)	dB	78.0	72.6	72.3	68.3	58.8	52.1	44.6	26.8	23.1	80.3

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HRSG main stack mouth discharge to atm

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
4) Insertion loss of tube bundles	dB	-6.7	-7.2	-8.2	-10.2	-13.3	-18.1	-24.6	-33.6	-43.0	
5) Loss in an elbow,Inside & Opening	dB	-4.0	-4.0	-4.0	-4.0	-4.0	-5.0	-5.0	-6.0	-6.0	
6) Emitted from the stack outlet Lw	dB(A)	85.9	98.6	108.7	116.2	112.5	111.9	110.6	96.4	62.9	119.8
7) Directivity index(135.0 deg.)	dB	-3.0	-4.0	-6.0	-8.0	-10.0	-13.0	-16.0	-18.0	-20.0	
8) Excess attenuation factor(Nor.)	dB	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.6	-1.6	-5.7	
9) Geometric spreading factor(GL)	dB(A)	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	
10) Sound Pressure Level(GL)	dB(A)	38.2	49.9	58.0	63.4	57.6	53.9	49.3	32.1	0.0	65.8
11) Diverg(at 1 m & 90 deg. from Stk)	dB	-21.8	-22.8	-23.8	-25.8	-27.8	-29.8	-31.8	-33.8	-35.8	
12) SPL (at 1m from Stack out)	dB(A)	64.1	75.8	84.9	90.4	84.7	82.1	78.8	62.6	27.1	93.0
13) Pressure Power Level(Lw)	dB	125.3	124.8	124.8	124.8	115.7	111.9	109.4	95.4	64.0	131.2

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Stack Height	m	50.00
Main Platform	m	29.00

Straight distance from stack surface to GL+1.5m 48.50 m
Straight distance from stack surface to PL+1.5m 19.50 m
Straight distance from stack mouth exit to GL+1.5m 68.59 m
Straight distance from stack mouth exit to PL+1.5m 27.58 m

HRSG bypass stack mouth discharge to atm

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
3) A-Weighting Correction Factor	dB	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	
4) Loss in an elbow,Inside & Opening	dB	-4.0	-4.0	-4.0	-4.0	-4.0	-5.0	-5.0	-6.0	-6.0	
31) Exhaust Gas Silencer	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5) Emitted from the stack outlet Lw	dB(A)	92.6	105.8	116.9	126.4	125.8	130.0	135.2	130.0	105.9	137.9
7) Directivity index(135.0 deg.)	dB	-3.0	-4.0	-6.0	-8.0	-10.0	-13.0	-16.0	-18.0	-20.0	
8) Excess attenuation factor(Nor.)	dB	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.6	-1.6	-5.7	
8) Geometric spreading factor(GL)	dB	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7	
9) Sound Pressure Level(GL)	dB(A)	44.9	57.1	66.2	73.6	70.9	72.0	73.9	65.7	35.5	79.3
10) Diverg(at 1 m & 90 deg. from Stk)	dB	-22.7	-23.7	-24.7	-26.7	-28.7	-30.7	-32.7	-34.7	-36.7	
11) SPL (at 1m from Stack out)	dB(A)	69.9	82.1	92.2	99.7	97.1	99.3	102.5	95.3	69.2	106.7
12) Pressure Power Level(Lw)	dB	132.0	132.0	133.0	135.0	129.0	130.0	134.0	129.0	107.0	141.3

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By-Pass Stack Height m 50.00
Main Platform m 29.00
Straight distance from stack surface to GL+1.5m 48.50 m
Straight distance from stack surface to PL+1.5m 19.50 m
Straight distance from stack mouth exit to GL+1.5m 68.59 m
Straight distance from stack mouth exit to PL+1.5m 27.58 m

Sound Level - Summary table

1) Frequency	Hz	31.50	63.00	125.00	250.00	500.00	1000.00	2000.00	4000.00	8000.00	Over all
2) G/T PWL	dB	136.0	136.0	137.0	139.0	133.0	135.0	139.0	135.0	113.0	145.7
Measurement area 1m distance - HRSG boiler body											
10) Sound Pressure Level(Lp)	dB(A)	34.3	42.6	53.4	58.9	57.9	59.2	59.5	50.4	21.4	65.4
10) Sound Pressure Level(Lp)	dB(A)	29.7	38.1	48.8	54.4	53.4	54.6	54.9	45.9	16.9	60.9
10) Sound Pressure Level(Lp)	dB(A)	25.2	33.5	44.3	49.8	48.8	50.0	50.4	41.3	12.3	56.3
10) Sound Pressure Level(Lp)	dB(A)	24.3	32.6	43.4	48.9	47.9	49.2	49.5	39.4	8.4	55.4
10) Sound Pressure Level(Lp)	dB(A)	24.8	33.1	43.5	48.2	46.8	47.1	46.5	33.1	0.0	53.7
10) Sound Pressure Level(Lp)	dB(A)	22.7	30.5	40.3	43.8	39.6	36.1	29.9	11.9	0.0	47.0
10) Sound Pressure Level(Lp)	dB(A)	16.6	24.4	34.2	37.7	33.6	30.1	23.8	5.8	0.0	40.9
SPL of HRSG main stack mouth discharge to atm											
9) Geometric spreading factor(GL)	dB(A)	38.2	49.9	58.0	63.4	57.6	53.9	49.3	32.1	0.0	65.8
15) Sound Pressure Level(at Platform)	dB(A)	45.3	57.0	65.1	70.5	64.8	61.3	56.9	40.8	5.3	73.0
12) SPL (at 1m from Stack out)	dB(A)	64.1	75.8	84.9	90.4	84.7	82.1	78.8	62.6	27.1	93.0
SPL of HRSG bypass stack mouth discharge to atm											
9) Sound Pressure Level(GL)	dB(A)	44.9	57.1	66.2	73.6	70.9	72.0	73.9	65.7	35.5	79.3
14) SPL (at Platform)	dB(A)	51.9	64.1	73.2	80.7	78.1	79.3	81.5	74.3	48.2	86.7
11) SPL (at 1m from Stack out)	dB(A)	69.9	82.1	92.2	99.7	97.1	99.3	102.5	95.3	69.2	106.7
00) Total dB of HRSG (GL)	dB(A)	46.2	58.1	67.1	74.2	71.5	72.4	74.2	65.9	35.8	79.7

SPL is sound pressure level,which is dependent on the distance and environment and is easily measured with a sound level meter. SPL values should be referred to distance.PWL is sound power level and is a measure of the total acoustic power radiated by a given source. PWL is a constant for a given source and is independent of the envirnment.It cannot be measured directly but must be calculated.