

110kV 13923 #33-#35

Zhejiang Wending Environmental Engineering Co.,Ltd

1.	.....	1
2.	.....	8
3.	.....	11
4.	.....	14
5.	.....	17
6.	.....	20
7.	.....	21
8.	.....	23
9.	.....	24
10.	.....	32
11.	.....	34
12.	.....	37

1.

	110kV 13923		#33-#35	
	680			
	15157326578		/	/
				2018-330402-44-02-02 5227-000
				D442
()	/		(%)	/
()	267		7	2.62%
()	/			2019

1.1.

1.1.1.

		[2017]18		4
		64.5km		3
1#				
	12	/		1#
		07		
	110kV			
110kV	13923		#33-#35	

2018-330402-44-02-025227-000				110kV
683.25m	4			
682				
				44
		2018		
181.				
		HJ24 2014		110kV
13923	#33-#35			
1.2.				
1.2.1.				
		2014	2015.01.01	
		2018		24
2018.12.29				
			2018.01.01	
		2018	2018.10.26	
		(2018	)	2018.12.29
			2005.4.01	2016.11.07
			2019.12.29	
		682	2017	10 1
	44			2017
9 1	2018	4 28		
				364 2018

3 1

2016

1.2.2.

HJ2.1-2016

HJ2.4-2009

HJ19-2011

HJ24 2014

HJ681-2013

GB8702 2014

GB3096-2008

GB12523-2011

1.2.3.

1

4

1.2.4.

1-1

1-1

1	GB50545-2010	110kV~750kV	

1.2.5.

1-2

1-2

1	110kV 13923 #33-#35		2017 11

1.3.

1.3.1.

HJ24-2014

1-3

1-3

3

110kV

300m

1.4.

110kV

683.25m

4

1.4.1.

1

1.4.2.

110kV

13923

#33

30

#1

#2

#35

14

#3

0.345km

0.38km

0.240km

3

2

1

2

1-4

1-4 110kV

	683.25m
	LGJ-300/25

1.4.3.

4

#2

GJH31

#1

#3

#4

GJH34

30

1.5.

GB50545 2010

1-5

1-6

1-5

	()	
--	-----	--

110kV 13923 #33-#35

	1	
	1	
	1	S07

1-6 110kV

		6.0m
		7.0m
		5.0m
		7.0m
		6.0m
		2.0 m
		3.0m
		6.0m

1.6.

110kV 13923

35kV

2.

2.1.

2.1.1.

121 18 30 15 31 02 94 120 18
78
3915

3 4

1

2.1.2.

) 4.17m(
24

2.1.3.

2.62m/s 15.9 1185.2mm
NW E - SE 3 8 11 12
15.9 228 2126
1200 5-8 47%
3.4 /

2.1.4.

() ()

13802.31km² 268.93km²

57 9590.1km² 80

42.22km² 311.15km² 7.89%

3.5km/km²

A

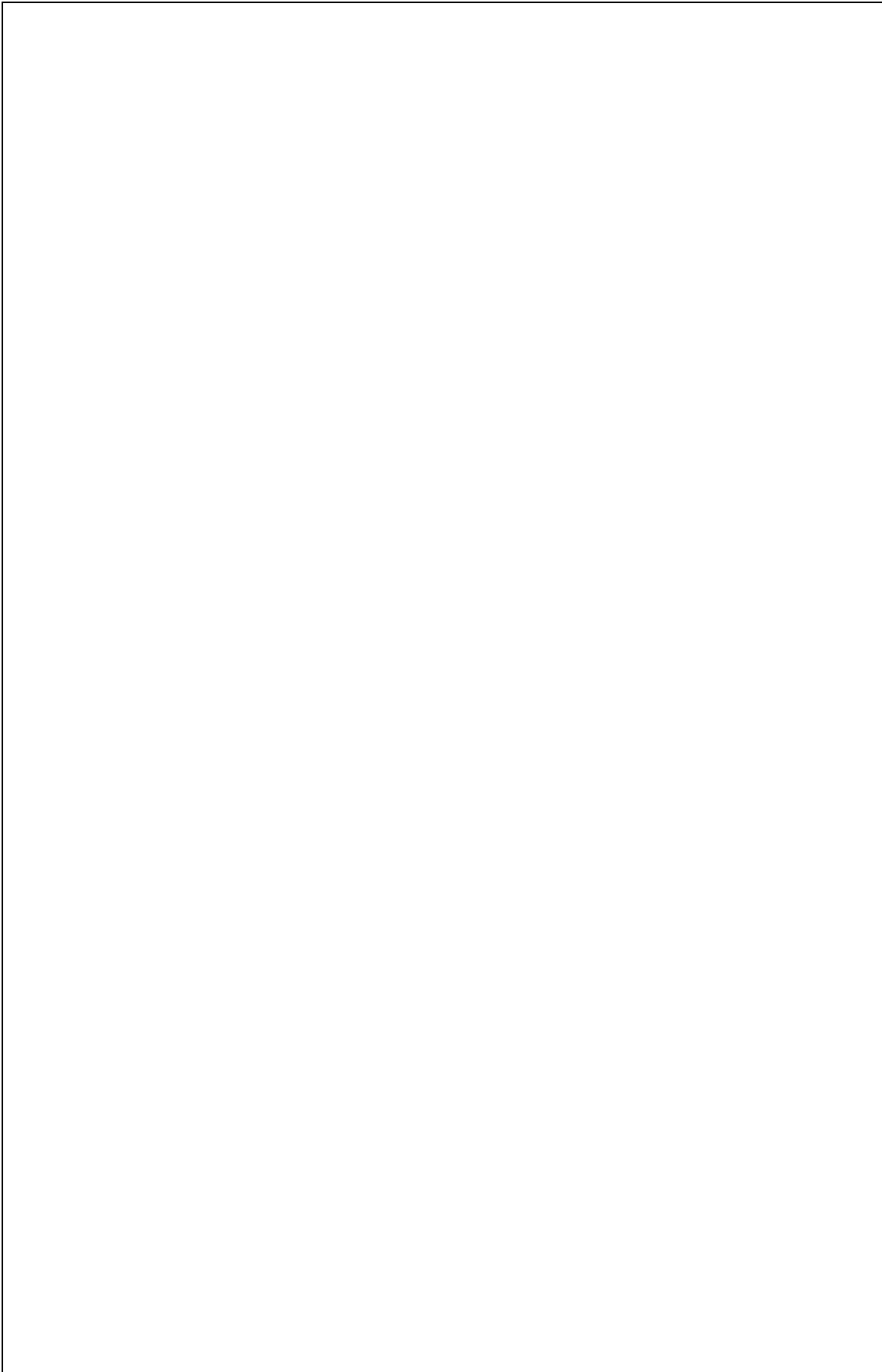
276.3 98

11d 23d 1990 2d 1987

10 50% 11.2m³/s 90% 3.14m³/s

42.6m³/s 49.9m³/s

2.1.5.



3.

3.1.

110kV

2018 4 3

AWA6228

3

3-1

3-1

				dB			
110kV	13923		4a	51.4		43.8	
	#33-#35		2	46.5		40.3	

3.1-1

(GB3096 2008)

3.2.

3-2

3-1

3-2

1		2m	1	1	E B Z2
2			1	1	E B Z4a
3			1	1	E B

E

4kV/m

B

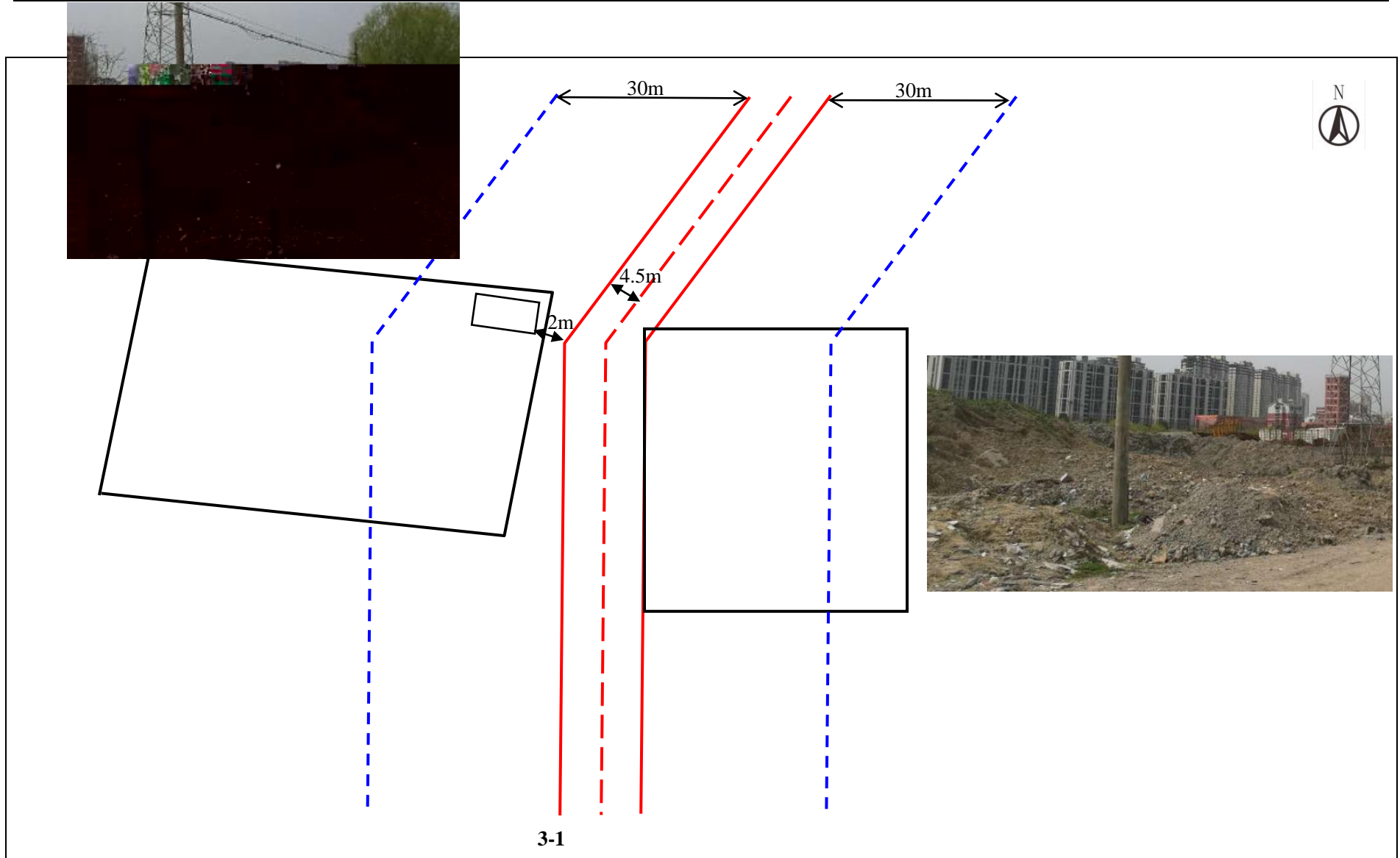
0.1mT

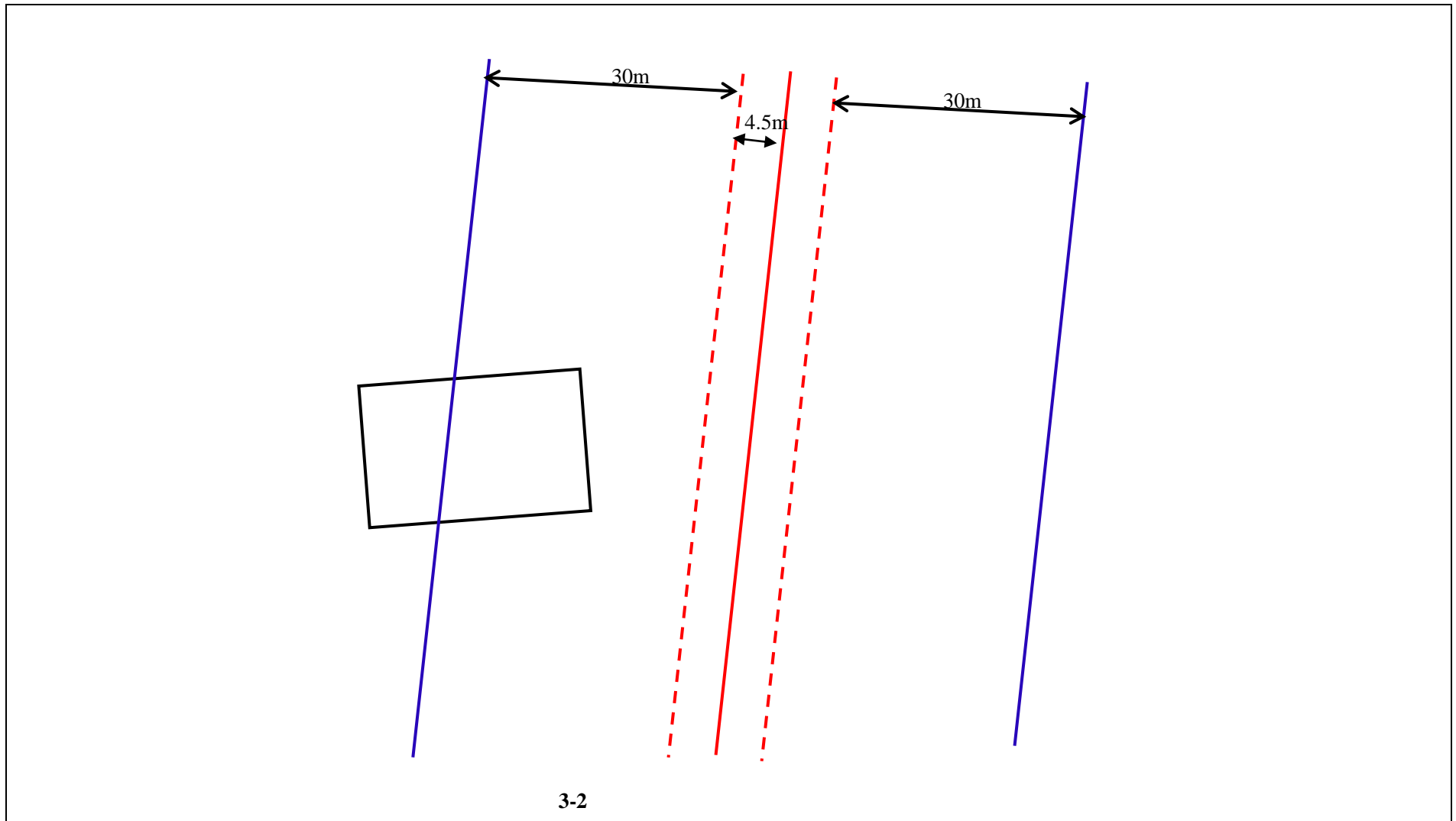
Z2

GB3096-2008 2

Z4a

GB3096-2008 4a





4.

(GB3096 2008) 4-1

4-1 dB

0	50	40
1	55	45
2	60	50
3	65	55
4	4a	70
	4b	70

S07

GB/T15190-2014 S07 35m 4a
 70dB(A) 55dB(A) 2 60dB(A)
 50dB(A)

:

GB3095 2012 4-2

4-2 mg/m³

1	TSP()	0.30
2	PM ₁₀ ()	0.15

:

2015 146

GB3838-2002 4-3

4-3 GB3838-2002 mg/L pH

pH BOD₅ NH₃-N TP

	:		
		GB8702-2014	50Hz
		4kV/m	
100 T			
	50Hz		10kV/m

GB12523-2011

4-4

4-4

dB A

70	55

GB16297-1996

4-5

4-5

	mg/m ³	m	kg/h	(mg/m ³)
	120	15	3.5	1.7pan2

300mg/m³

110kV

4

4m²

100m²

250m³

16m²

400m²

1000m³

50cm

5.3.2.

50Hz

110kV

6.

				()	()
				/	/
				/	/
				/	/
()					
110kV 13923 #33-#35					
0400- -4-4					
0402- -0-2	5				

7.

7.1.

7.1.1.

TSP

C_xH_y CO NO_x

7.1.2.

2m³

7.1.3.

7.1.4.

7.1.5.

110kV

4

16m²

1

30

110kV~750kV

GB50545-2010

4.5m

3

50cm

#33 #35

7.2.

7.2.1.

7.2.2.

110kV

13923

#33-#35

4a

2

7.2.3.

7.2.4.

7.2.5.

8.

			1.0		
			5.0		
			1.0		
		7			--

9.

9.1.

HJ24 2014
10m
30m
GB8702-2014
50Hz 4kV/m
100 T

9.2.

1.5m
HJ681-2013
HI-3604
SG2012-XJ04
2019 9 5 2020 9 4
2017F33-10-1216755001
9-1

9-1

2019	11	28	
		10	52

5
2
9-2 110kV 0.133 2.424kV/m
0.025 0.093 μT
4kV/m 100 μT

9-2

		kV/m		
1		2.424	0.093	110kV
2		0.268	0.091	/
3		0.133	0.025	/

9.3.

110kV

9.3.1.

110kV 13923 #33-#35
9-3 110kV 13923
#34-#35 9-4
6

9-3

		110kV #34-#35	13923
	110kV	110kV	
	LGJ-300/25	LGJ-300/25	
	7m	7m	

9-4 110kV 13923 #34-#35

m	kV/m	T
0	1.357	1.995
2	1.427	2.434
4	1.530	2.665
6	1.482	2.626
8	1.357	2.175
10	1.192	1.684
15	0.786	0.866
20	0.513	0.492
25	0.346	0.309
30	0.246	0.210

110kV 13923 #34-#35

0.246~1.530 kV/m 0.210~2.665 T 4kV/m
100 T

9.3.2.

HJ24 2014 C D

1

r

h

$$\begin{bmatrix} U_1 \\ U_2 \\ \vdots \\ U_n \end{bmatrix} = \begin{bmatrix} \lambda_{11} & \lambda_{12} & \cdots & \lambda_{1n} \\ \lambda_{21} & \lambda_{22} & \cdots & \lambda_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ \lambda_{n1} & \lambda_{n2} & \cdots & \lambda_{nn} \end{bmatrix} \begin{bmatrix} Q_1 \\ Q_2 \\ \vdots \\ Q_n \end{bmatrix} \quad 1$$

[Q]

[λ]

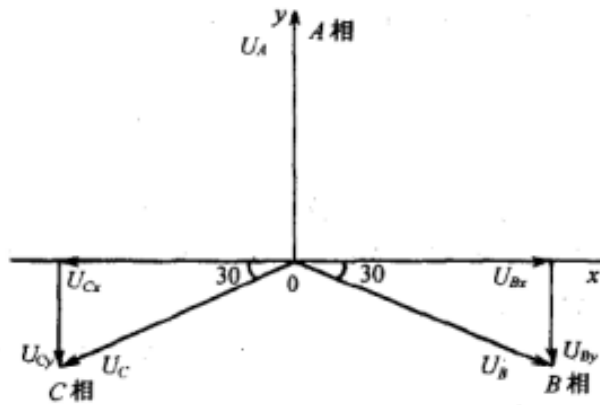
n n

[U]

1.05

110kV

$$U_A=U_B=U_C=110 \cdot 1.05/\sqrt{3} = 66.7\text{kV} \quad 2$$



9 1

$$U_A = (66.7 + j0)\text{kV}$$

$$U_B = (-33.3 + j57.5)\text{kV}$$

$$U_C = (-33.3 - j57.5)\text{kV}$$

3

[λ]

i j

9-2 λ

$$\lambda_{ii} = \frac{1}{2\pi\epsilon_0} \ln \frac{2h_i}{R_i}$$

$$\lambda_{ij} = \frac{1}{2\pi\epsilon_0} \ln \frac{L_{ij}}{L'_{ij}} \quad 4$$

$$\lambda_{ii} = \lambda_{ij}$$

$$\epsilon_0 = \frac{1}{36\pi} \times 10^{-9} \text{ F/m}$$

R_i

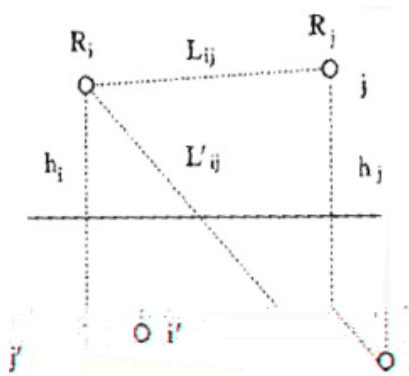
$$R_i = R^n \sqrt{\frac{nr}{R}} \quad 5$$

R m 9-3

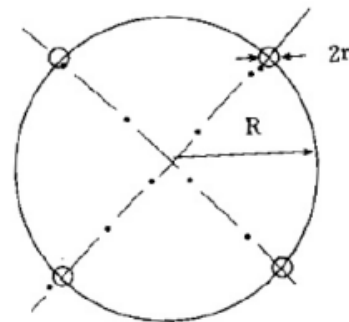
n

r m

$[U]$ $[\lambda]$ 6-1 $[Q]$



9 2



9 3

$$\bar{U}_i = U_{iR} + jU_{ii} \quad 6$$

$$\bar{Q}_i = Q_{iR} + jQ_{ii} \quad 7$$

6

$$[U_R] = [\lambda][Q_R] \quad 8$$

$$[U_l] = [\lambda][Q_l]$$

$$x \quad y \quad E_x \quad E_y$$

$$E_x = \frac{1}{2\pi\epsilon_0} \sum_{i=1}^m Q_i \left(\frac{x - x_i}{L_i^2} - \frac{x - x_i}{(L_i')^2} \right) \quad 9$$

$$E_y = \frac{1}{2\pi\epsilon_0} \sum_{i=1}^m Q_i \left(\frac{y - y_i}{L_i^2} - \frac{y + y_i}{(L_i')^2} \right) \quad 10$$

$$x_i \quad y_i \quad i \quad i=1 \quad 2 \quad m$$

m

$$L_i, L_i' \quad i \quad m$$

6-8

$$\overline{E}_x = \sum_{i=1}^m E_{ixR} + j \sum_{i=1}^m E_{ixI} = E_{xR} + jE_{xI} \quad 11$$

$$\overline{E}_y = \sum_{i=1}^m E_{iyR} + j \sum_{i=1}^m E_{iyI} = E_{yR} + jE_{yI} \quad 12$$

E_{xR}

E_{xI}

E_{yR}

E_{yI}

$$\overline{E} = (E_{xR} + jE_{xI})\overline{x} + (E_{yR} + jE_{yI})\overline{y} = \overline{E}_x + \overline{E}_y \quad 13$$

$$E_x = \sqrt{E_{xR}^2 + E_{xI}^2} \quad 14$$

$$E_y = \sqrt{E_{yR}^2 + E_{yI}^2} \quad 15$$

$$H = \frac{I}{2\pi\sqrt{h^2 + L^2}}$$

16

I I

h

L

3

a. 110kV

b. 265A

c.

GJH34

4.5m

0m

4m

4.5m

4.5m

d. LGJ-300/25 23.76mm

333.31mm²

e. ABC

110kV

9-5

9-5 110kV

	6m		7m	
	E kV/m	B	E kV/m	B
0m	1.90	5.24	1.42	3.89
2m	1.72	5.70	1.29	4.17
3m	1.72	5.53	1.27	4.07
4m	1.71	5.13	1.26	3.85
6m	1.41	3.95	1.09	3.14

8m	0.96	2.84	0.81	2.39
10m	0.65	2.03	0.58	1.79
12m	0.48	1.49	0.44	1.36
16m	0.31	0.87	0.29	0.82
20m	0.22	0.56	0.21	0.54
30m	0.11	0.24	0.10	0.24

9-3 6m

1.90kV/m 5.70 7m
 1.42kV/m 4.17
 (6m 7m)

9.3.3.

9-6

9-6

				kV/m	μT
	9m	2m	3m	1.15	2.43
	9m		4m	1.31	2.99
	9m	15m	4m	0.065	1.62

5m

9m

GB8702-2014 4kV/m 100 T

9.3.4.

110kV 13923

#33-#35

4kV/m 100μT 50Hz
 10kV/m

10.

10.1.

10.1.1.

10.1.2.

10.2.

10.2.1.

10.2.2.

1.5m

A

10.2.3.

10-1

10-1

		1	
		1	

[2017]4

3

12

5

11.

11.1.

11-2

	47.25		1.
		71	2.
	50		3.
	-		4.
0402-	50		5.
-0-2			6.
	50		
	50	2	

#33

50cm

11.2.**11-3**

	0400- -4-4 0402- -0-2	/
		/
	110kV	
	11-1~11-2	/

12.

12.1.

110kV 13923 #33-#35 110kV
683.25m 4

12.2.

1#
110kV 13923 #33-#35

12.3.

110kV 13923 #33-#35

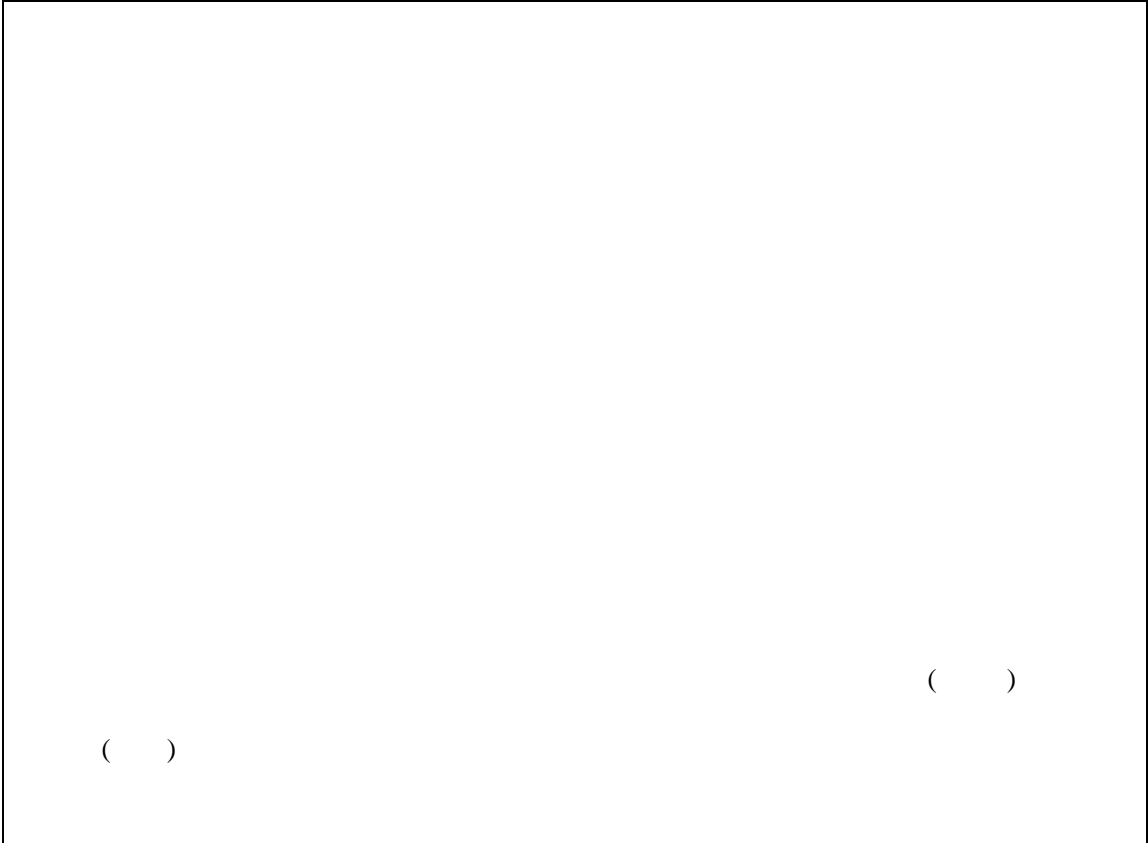
12.4.

2011 2013

12.5.

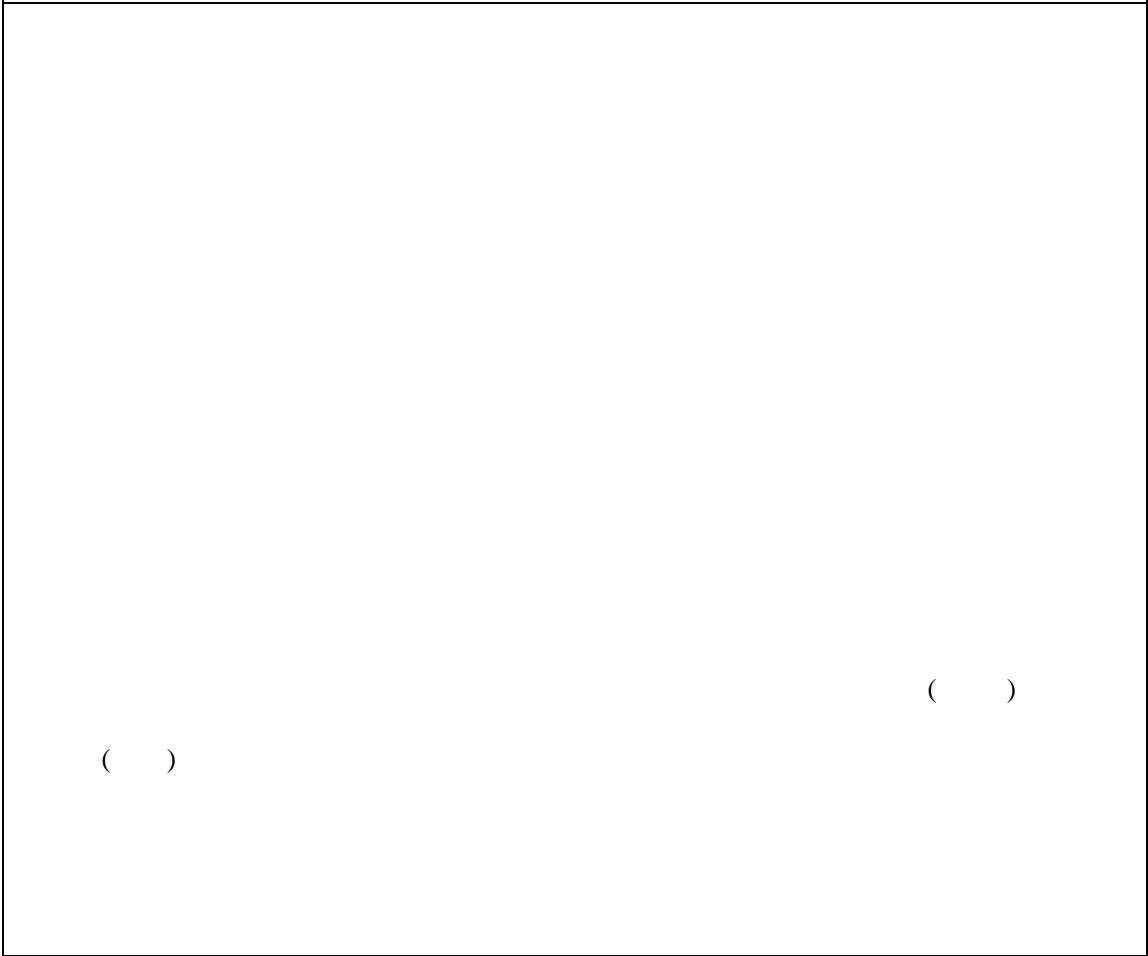
110kV
(GB3096 2008)

110kV 0.091 2.424kV/m
0.025 0.268 μ T
4kV/m



()

()



()

()