220

.

2026 09 .

..... 1

..... 12

..... 29

..... 42

..... 62

..... 71

..... 77

..... 78

1 79

2 79

3 80

4 80

5 80

6 81

7 108

	220		
	2608-350900-04-01-282365		
	1 220kV 119 43 13.689 26 48 48.263 119 43 20.197 26 48 48.625 119 44 28.552 26 46 22.501 2 220kV 119 44 28.088 26 46 20.995		
	—161 — 100 kV	m² / km	17591m² 2893.49m² 637m² 3496.08m² 220kV 13.72km 6.4km I 0.44km II 0.48km
/		/	2026 18
	17754		1062
%	5.98%		12
	1 HJ 24-2020 B 2 1		

1.1-1

2026 104

2026 104

1.1

2024

2

2026 9 4

2026 18

1.2

2026

2026 14

2 1 ˇ 1

ZH35098110009

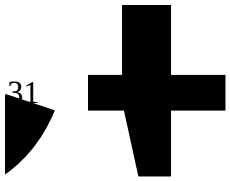
ZH35098120009

1.2-1

1.3

2006

31



2023 56

1.2-1

ZH3509 8110009			1	1. 1 1 2 3 2. 3. 4. 1. 2.	1 12# 14# 15# 16# 17# 18# 19# 7 1189 2023 56 2 3 4 5 6 7	
			2		/	/
			3		/	/
			4			

1.

1

ZH3509
8120009

1. + 1

2. +

2

3

.

1.2-1

1.3-1

1.3-2 10#~16#

1.3-3 17#~21#

220kV 220kV

SVC

220kV

35kV 4

35kV 35kV

2

220kV 220kV 220kV

220kV 13.72km

6.4km 220kV 0.44km 0.48km 220kV

2×JNRLH60/LB1A-630/45

48 OPGW 2*7km

2 48 2*1.1km

220kV 0.44km 0.48km 220kV

0.66km 0.62km

2×ZC-YJLW02-Z-127/220—1600mm²

2.1-1

2.1-1

		2×240MVA VAST-BJX-220	
	220kV	2	
	35kV	20	
	35kV	2 SVC	
	35kV	2	
		1 2 220kV GIS 3 35kV	
		220kV	
		220kV	
		220kV 220kV 220kV +	

		220kV	
		13.72km 6.4km 220kV 0.44km 0.48km 220kV	
		1 2 ZC-YJLW02-Z-127/220-1600mm^2 2 2 JNRLH60/LB1A-630/45	
		2 48 OPGW ZC-YJV-8.7/15-1 300mm^2	
		220-GH11S 19 220-GH11TS 2	
		1 2.5m*1.6m(W*H) 250m 2 2.5m*1.4m(W*H) 30m	

2.2

2.2.1

1

2

2

2.2.2

2 240MVA 50t 58.8m^3

GB50229-

2.3 220kV

	220kV			2	
	6.4km		4.88km		1.31
	I 964MVA			e	
	V=35m/s C=0mm				
	2×JNRLH60/LB1A-630/45				
	2 48 OPGW				
	220-GH11S 19 220-GH11TS 2				
	100				
	0~400m				
	2 4 3 10kV 4 35kV 3 110kV 7 220kV 3				

2.3-2

220kV

I 0.44km
II 0.48km

I 960MVA

e

2×ZC-YJLW02-Z-127/220-1×1600mm^2

GIS

ZC-Y@1

2.3-3 3

2.3-3

	(m)	(°)			
			(m)	(m)	
220-HG11S-SZC3	36.0	0°	600	1000	1
220-HG11S-SZC4	36.0	0°	800	1400	2
	39.0				1
	45.0				1
220-HG11S-SZCK1	48.0	0°	480	850	1
220-HG11S-SJC1	36.0	0°~20°	450	650	1
220-HG11S-SJC2	24.0	20°~40°	450	650	1
	36.0				1
220-HG11S-SJC3	30.0	40°~60°	450	650	1
220-HG11S-SDJC1	30.0	0°~40°	450	650	1
220-HG11S-SJDC2	27.0	40°~90°	450	650	1
220-HG11S-SZCK2	72.0	0°	500	900	1
220-HG11S-SJCK1	72.0	0°~20°	500	800	1
220-HG11S-SJCK2	46.0	20°~40°	450	650	2
220-HG11S-SJCK3	57.0	60°~90°	450	650	1
220-HG1S-JZY	21.0	60°~90°	250	250	2
220-HG11TS-JZGD1	24.0	0°~40°	200	300	1
	33.0				1
					21

3

2.3-4

2.3-4

	100%

2.3.4

2.3-5

2.3-5

	1	35kV	1	
	2	35kV	1	
	3	35kV	1	

4	110kV	1
5	110kV	1
6	110kV	2
7	110kV	2
8	220kV	1
9	220kV	1
10	220kV	1
1		1

1800m^2

220kV

2.4-1

2.4-1

				/
		/		
		/		

3

2200m^3

2200m^3

2.5m*1.6m(W*H)

250m 2.5m*1.4m(W*H) 30m

1105m^3 1105m^3

21 2893.48m^3

2893.48m^3

2.4-2

2.4-2

	m^3	m^3	m^3	m^3
#1				
#2				
#3				
#4				
#5				
#6				
#7				
#8				
#9				
#10				
#11				
#12				
#13				
#14				

#15				
#16				
#17				
#18				
#19				
#20				
#21				

2.5

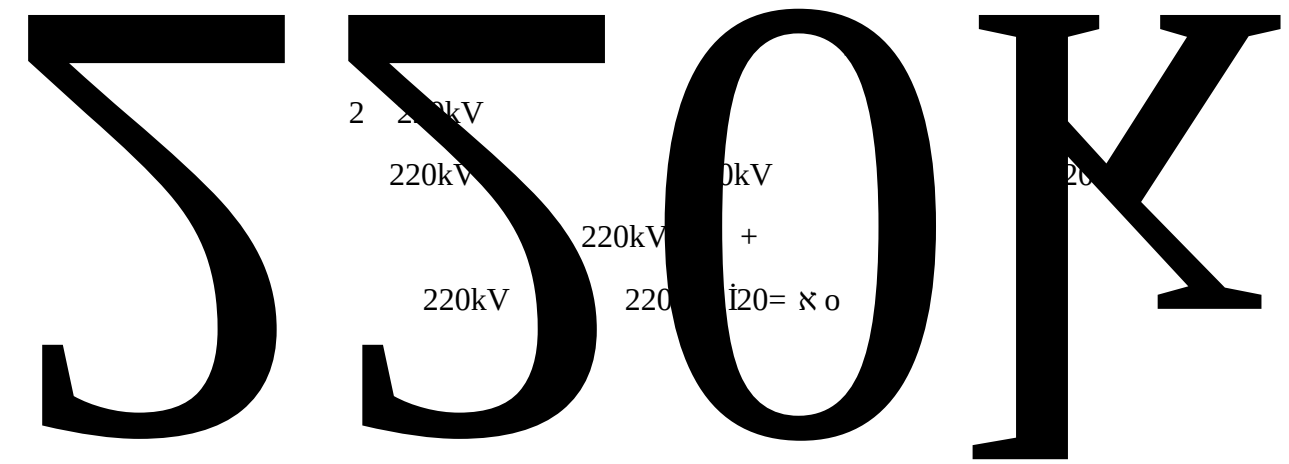
1

220kV

220kV GIS 2 35kV

1

SVC

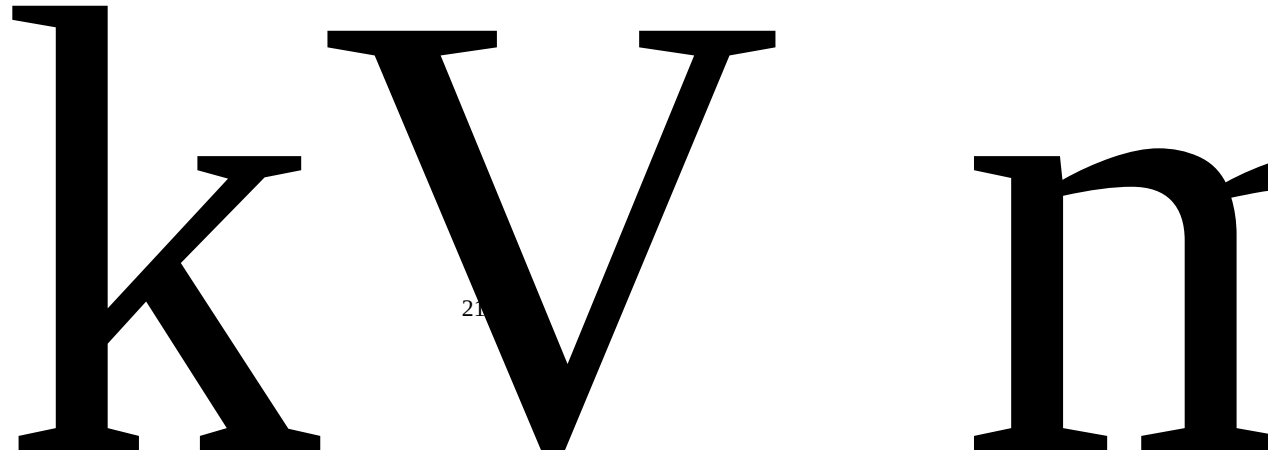


2 220kV

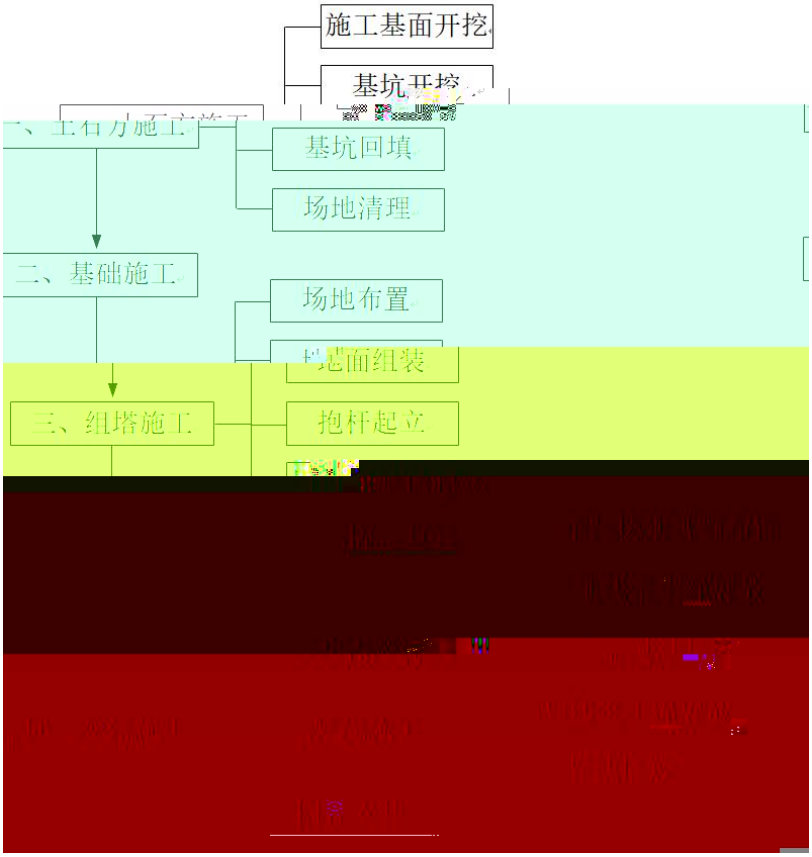
220kV 0kV 20

220kV +

220kV 220 İ20= ᵡ o



	3
	2.6 2.6.1 2.6.2



2.6-1

1

A B C D I 15m

60m 8m

II 30m

2.0m

2m

2

a

b c

— —

—

3

4

12# 14# 15# 16# 17# 18# 19# 7

2.6.3

1

30m

2

3

2.7

1

2

2.8

12

	220kV

3.1

2012 61

-

1

17591m^2

700m^2

2893.49m^2

12# 14# 15# 16# 17# 18# 19# 7

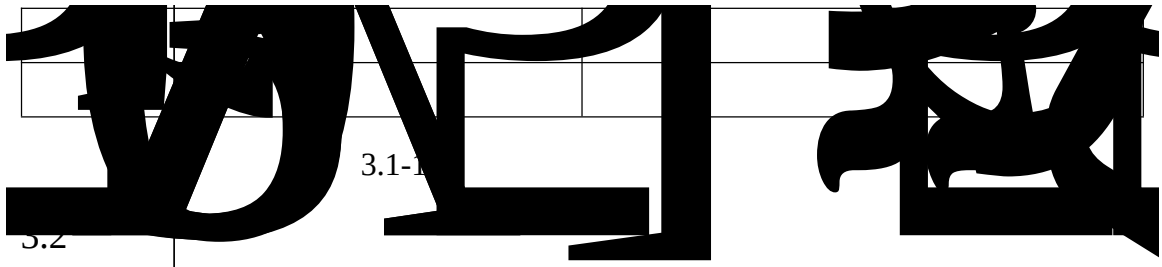
1189m^2

2

14

3

4



3.1-1

3.2

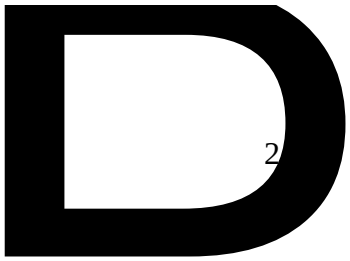
2025

2025 SO_2 4 μg/m^3 NO_2 11 μg/m^3 PM_{10} 26 μg/m^3 $PM_{2.5}$ 16 μg/m^3 CO 95 0.8 mg/m^3 O_3 8 90 110 μg/m^3

3.3

220kV 5 ³ @ l’

2026 ¤ 8 1 ~2



2 3

4 11~12

3.3-1

1 2

3 4 1.5m

#5~#6

2026 8 1 ~2

3.5

40m 5~8

2 220kV 200m 220kV

40m 9

3 220kV 500m 220kV

300m 220kV 300m

1000m 1000m

300m 10

3.7

1

3.7-1 10

2

220kV 5m

220kV 40m 4

1 2 3 4

1 2 3 220kV

220kV 40m

5 1

2 3 1 2 3

220kV

6

1 2 3 4 3.7-2

5~8

3

220kV 200m 220kV

40m

#16~#17

#5~#6

3.7-1

	2024 2	10		12# 14# 15# 16# 17# 18# 19# 7 1189m² 4095m

3.7-2

m m

m

1 1 / / 1.6

13m

≤4kV/m

3.7-3

						m	m		m	
1				1	/	/	1.6		13m	1

3.8

3.8.1

GB 3095-2026

3.8-1

		mg/m^3	mg/m^3	
SO_2		0.060	0.020	GB 3095-2026
		0.150	0.050	
	1	0.500	0.150	
NO_2		0.040	0.030	
		0.080	0.050	
	1	0.200	0.200	
CO		4	4	
	1	10	10	
O_3	8	0.160	0.160	
	1	0.200	0.200	
PM_{10}		0.060	0.050	
		0.120	0.100	
$PM_{2.5}$		0.030	0.025	
		0.060	0.050	
TSP		/	0.200	
		/	0.300	
2026 3 1 ~2030 12 31 GB 3095-2026				2031 1 1

3.8.2

#5~#6 1

GB3096-2008 1 [≤55dB A ≤45dB A]

GB3096-2008 3 [≤65dB A ≤55dB A]

3.8.3

GB8702-2014 50Hz

4000V/m

100μT

3.9.4

GB8702-2014 1

3.9-3

3.9-3

4000V/m

100μT7

10kV/m GB8702-2014

21184.48m^2

3496.08m^2

B

220kV

220kV

4.2.2

1 12# 14# 15# 16# 17# 18# 19#

1189

2023 56

2 1.2-1

3

4

5

4.2.4

1

2

4.2.5

4.2.6

1

2

3

4

5

6

4.2.7

4.3

1

220kV

220kV

خي

2

220kV

pH SS COD BOD_5

220kV

4

220kV

220kV

4.4

4.4.1

4.4.2

1 1 2

3 4 1.5m

GB8702-2014 1

≤4kV/m ≤100μT

2 220kV

GB8702-2014

≤4kV/m ≤100μT 220kV

3 220kV

GB8702-2014

≤4kV/m ≤100μT

4 GB

8702-2014 1

4 6.5m

1.5m 6.0368kV/m



GB

0kV/m 100μT

7.5m

m 5.7 6kV/m

28.9087μT GB 8702-2014 1

4kV/m GB

8702-2014 1 100μT 7.5m

6 12.5m 1.5m

3.7345kV/m 22.5433μT

GB 8702-2014 1

4kV/m 100μT 12.5m 1.5m

93%

7 13m 1.5m

3.5705kV/m 21.6938μT

6kV-1000kV JB/T 10088-2016

240MVA L_{WA} 96dB A

4.4-1

4.4-1

			/m					
			X	Y	Z	/dB(A)		
1	1#	VAST-BJX-220	-101	-48	1.2	96	/	
2	2#	VAST-BJX-220	-84	-53	1.2	96	/	

2

4.4-2

GB12348-2008 3 [

≤65dB A ≤55dB A]

GB3096-2008 3 [≤65dB A ≤55dB A]

4.4-2 dB A

			42.07	42.07			65	55		
			40.87	40.87			65	55		
			37.81	37.81			65	55		
			54.57	54.57			65	55		
			50.08	50.08			65	55		
1			41.10	41.10			65	55		
2			39.57	39.57			65	55		
3			34.99	34.99			65	55		
			51.47	51.47			65	55		

4										

4.4.3.2

1

220KV ~

I II

220KV ~ I II

4.4-3

4.4-3

220KV ~ I II

220kV 220kV

2

4.4-4 220KV ~ I II

				%		KPa		m/s		
2026	8	1		26	37	60	74	99.3	100.9	0.7 2.0
2026	8	2		26	36	60	75	100.7	101.1	0.7 2.3

3

220KV ~ I II 4.4-1 4.4-2

4.4-1 220KV ~ I II 1

4.4-2 220KV ~ I II 2

4

220KV ~ I II 4.4-5

8

4.4-5 220KV ~ I II

			dB A	
2026 8 1 2	N5	1		
	N6	2		
	N7	3		
	N8	1		
	N9	2		
GB3096-2008 1			55	45

220KV ~ I II

GB3096-2008 1

[≤55dB A ≤45dB A]

3

GB3096-2008 1 [≤55dB A

≤45dB A]

GB3096-2008 1 [≤55dB A ≤45dB A]

4.4.4

220kV 2

0.2m^3/d COD 400mg/L BOD_5 200mg/L SS

220mg/L NH_3-N 25mg/L

4.4.5

2

0.5kg/ ·d 0.4t/a

4.5

1 2026

2026 14

2 1 1

ZH35098110009

ZH35098120009

2 HJ1113-2020

4.5-1

3 4.6-1

4.6

220kV

4.6-1

1

2023 56

4

5

6

1 220kV ~ 220kV

2

220kV

1 5#-6# 5#-6#
13m
1.6m 13m

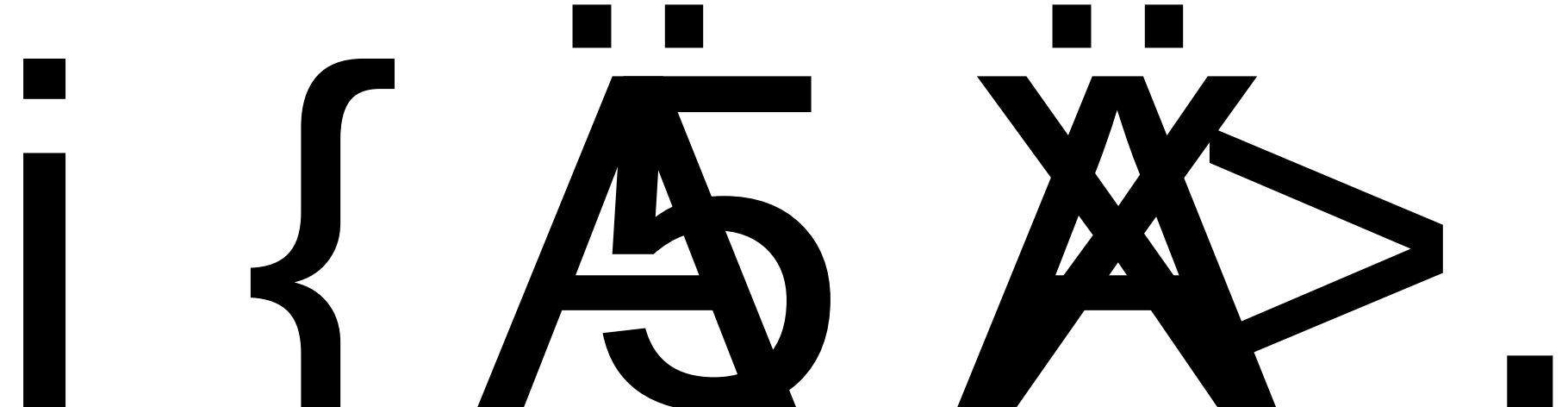
2

1 12# 14# 15# 16# 17# 18# 19# 7
1189m^2 4095m

2 5#-6# 5#-6#
13m
1.6m 13m

3 16#-17#
13m

4 10#-11#



		9
		/
	1. 300 2. 3. 4. 5. 6. 7. 8. 2.	1 2 1.

		1 2
	X956	
		/
		/
		/
	220KV ~ 220KV	

		/
		/

5.1

1

2

	4
	5

5.2

1

1

2

3

4

5

6

5.6

5.9Ď R'ƒ‘ à

900-025-31 1 /5~10

2

900-220-08 50t/ 1 60m^3

GB18597-2023 1m

10^{-7} cm/s 2mm

10^{-10} cm/s

3

5.11

1

2

3 6.5m

13m

5.12

5.12.1

5.12.2

900-220-08

3

220kV

1 60m^3

2 240MVA 50t 58.8m^3

GB50229-2019

100%

60m^3

5.12.3

1

2

3 1 60m^3

4

5.12.4

1

2

2018 990

5.13

1

1

2

3

5.13-1

5.13-1

5m

1 HJ681-2013

1 4

1

1

1m

A

GB3096-2008

2 GB12348-2008

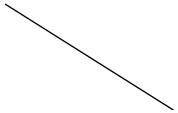
17754 1062

5.98% 5.11-1

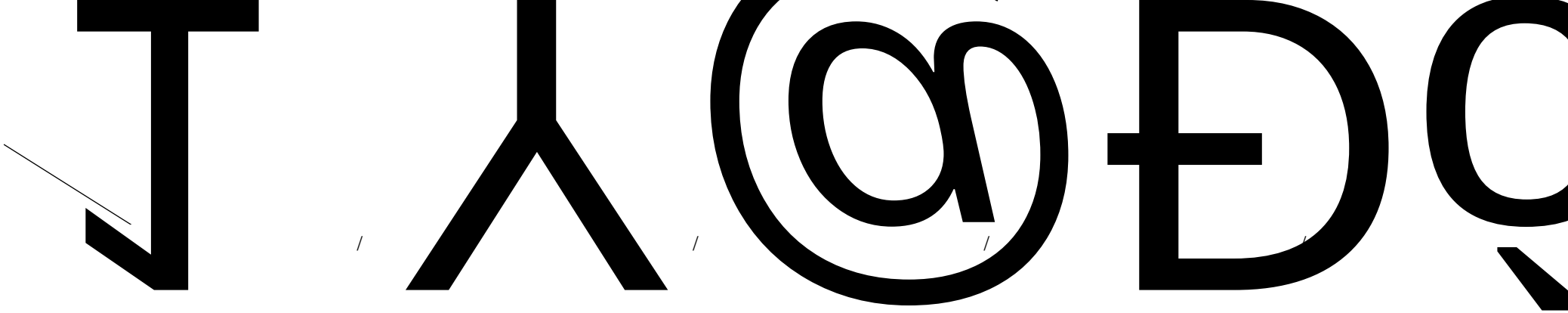
5.11-1

	150	
	78	
	78	
	96	
	540	
	120	
	1062	
	17754	
%	5.98	

	1			
	2		/	/



5



/ / / /

2

3

/ / / /

1

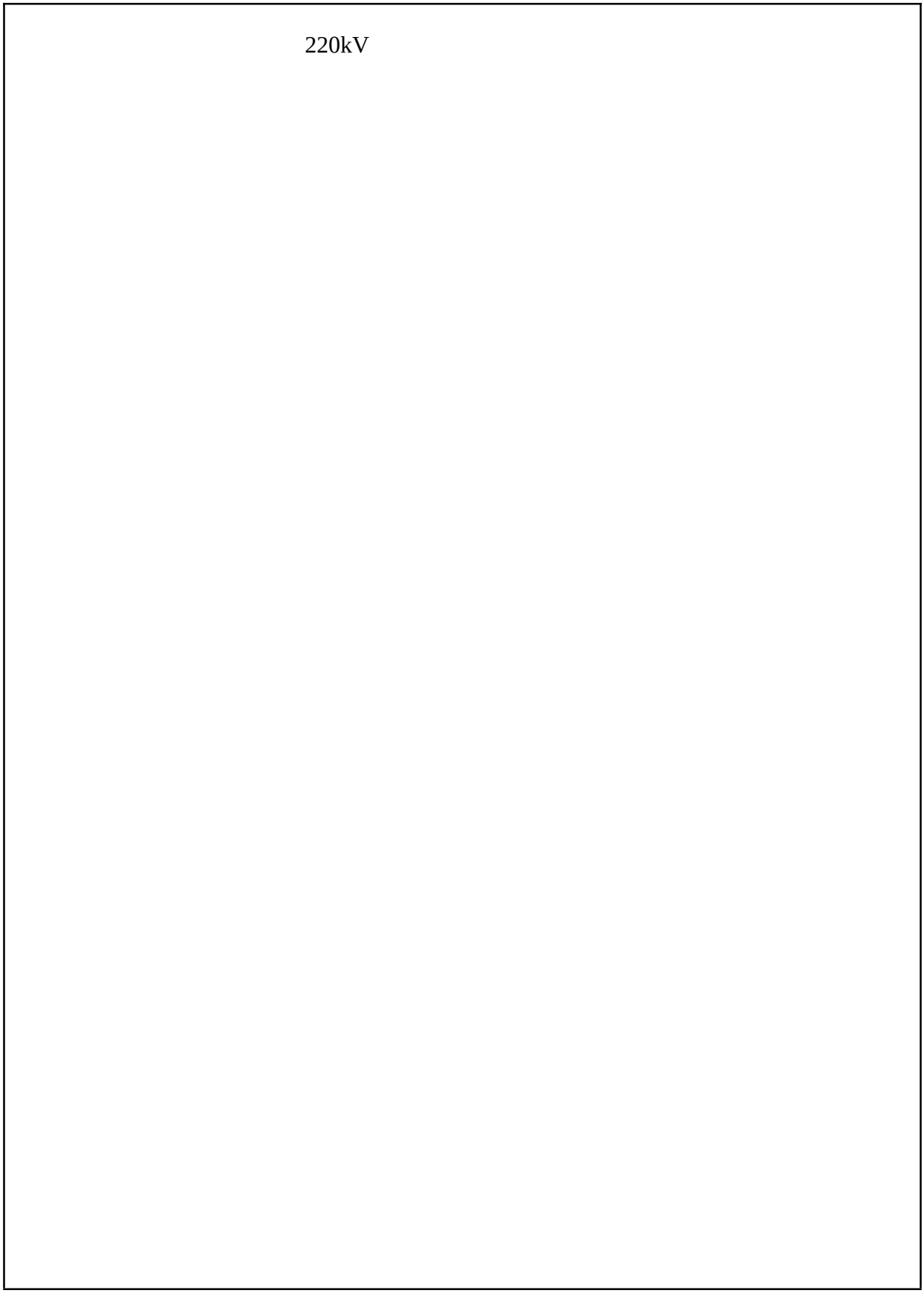
2

GB12348-2008 3
[. 65dB

GB12523-2025 [
3 70dB A
55dB A]

	1 2 3 4 5 6		1 900-025-31 1 /5~10 2 900-220-08 50t/ 1 60m^3 GB18597-2023 1m 10^{-7} cm/s 2mm 10^{-10} cm/s 3	
	/	/		GB8702-2014

			6.5m 13m	
	/	/	/	/
	/	/	HJ681-2013 5m 1 4 1 1	GB8702-2014
			GB3096-2008 1m 1 4 1 1	GB3096-2008
	/	/	/	/


220kV

220

1 2.2-1

	4000V/m	GB8702-2014	
	100μT		
	10kV/m		
	100μT		

3

3.1

220kV

HJ24-2020 2

220kV +

15m

HJ24-2020 2

3.2

220kV 40m 220kV

5m 220kV 40m

4

6 1

2 3 4 3.7-2 5~8

5

2026 8 1 2 220kV

40m 220kV

40m

1 3.3-1

1.5m

GB8702-2014 1

≤4kV/m ≤100μT

6

6.1

1 6.1-1

1 6.1-1

2×240MVA

6.2

6.2.1

1 6.2-1

6.2.3

2026 8 1 2 220kV

8

4 240MVA

1

2

1 6.2-2

			%	KPa	m/s	
2026 8 1		26 37	60 74	99.3 100.9	0.7 2.0	
2026 8 2		26 36	60 75	100.7 101.1	0.7 2.3	

3

1 6.2-2

1 6.2-2

4

1 6.2-3

1 6.2

1 6.2-3 220kV

2.6 149.1V/m Ä 0.961 3.494μT Ä

GB 8702-2014 4kV/m Ã

100μT

6.2.4

ĭ 220kV¥m¾ %’I ¾ %ū

2±0kV в ˆ 20› Ÿ,Ö ñÖ'Y"@ρñ¾€Ð¤ñ¾Ò@

˜ $ ‰Ú¿ Ρ | W

GB 8702-2014 ˆ 4000V/m 100μT

Ä

6.3

1 6.3-1

4

1 6.3-2

1 6.3-2

		V/m	μT
R14	~		
R15	~ 0m		
R16	~ 1m		
R17	~ 2m		
R18	~ 3m		
R19	~ 4m		
R20	~ 5m		

1 6.3-2 220KV ~ I II 219.4~334V/m 3.049~6.003μT GB8702-2014 50Hz 4kV/m 100μT

6.3.4

220KV ~ I II

6.4

HJ24-2020

220kV

6.4.1

HJ24-2020

1

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

[U]

[Q]

[λ] n (n)

[U] 1.05

[λ]

i j … i’ j’ …

——— ——

——— ——

$_0$: $_0$ $\frac{1}{36}$ 10^9 /

h_i

L_{ij} i j

' : i j

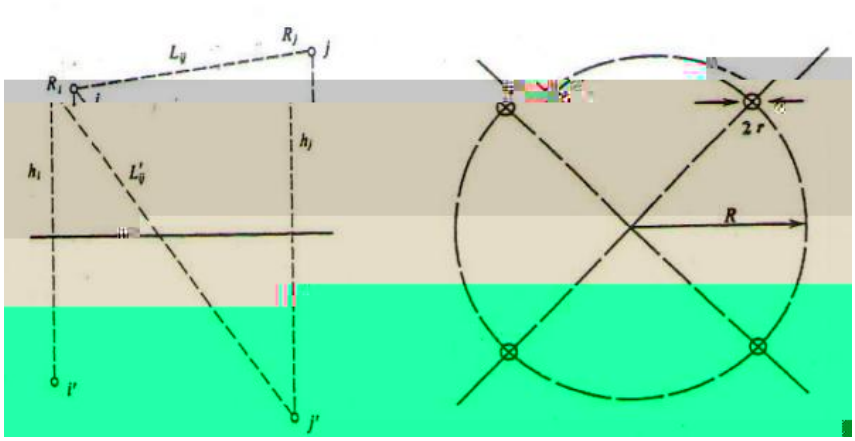
R_i Ri

$\sqrt{}$

R

n

r



[U] [λ] [Q]

(x y) Ex Ey

$$E_x = \frac{1}{2\pi\varepsilon_0} \sum_{i=1}^{m} Q_i \left(\frac{x - x_i}{L_i^2} - \frac{x - x_i}{(L'_i)^2} \right)$$

xi yi i (i=1 2 …m)

m

i



ExR

ExI

EyR

EyI

$$\vec{E} = (E_{xR} + jE_{xI})\vec{x}_0 + (E_{yR} + jE_{yI})\vec{y}_0 = E_x\vec{x}_0 + E_y\vec{y}_0$$

式中

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

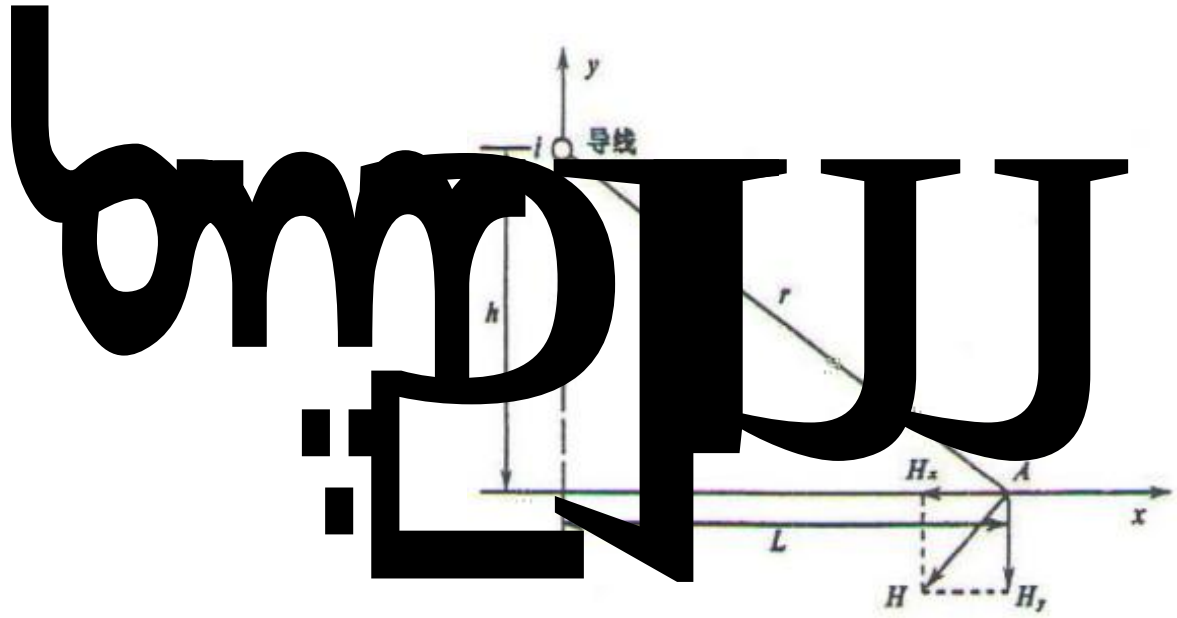
$$E_y = \sqrt{E_{yR}^2 + E_{yI}^2}$$

2

$$\frac{1}{2\sqrt{\quad}}$$

I i

,



6.4.2

HJ24-2020

110kV~750kV GB50545-2010 220kV

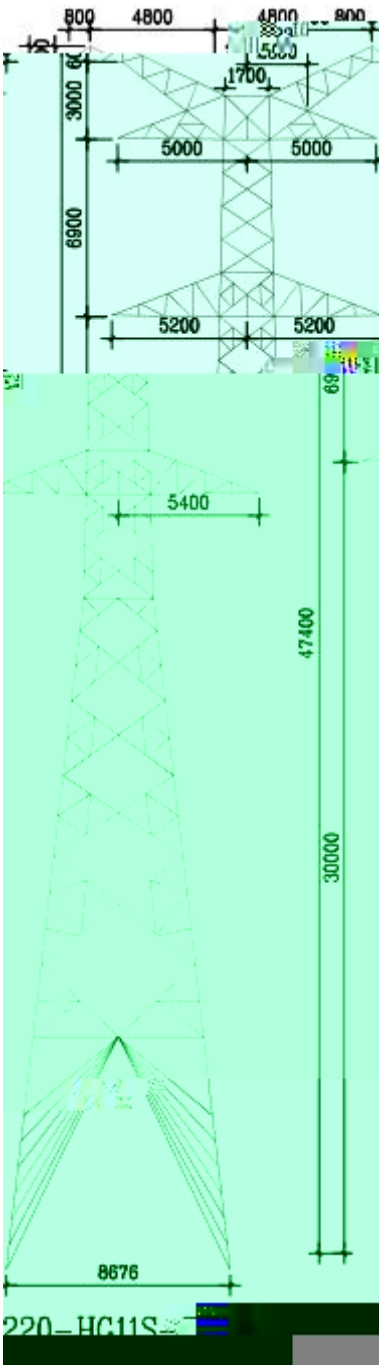
6.5m 7.5m

6.5m

110kV~750kV GB50545-2010 220kV

6m 15m

21m


800
4800
4800
800
1700
3000
5000
5000
6900
5200
5200
5400
47400
30000
8676

1 6.4-1

6.4.3

6.5m 7.5m 8.5m 9.5m 10.5m 11.5m 12.5m 13m 21m

-50~50m 1.5m

1 6.4-2 1 6.4-3

1 6.4-2 1 6.4-3 1

6.4-4 1 6.4-5

1 6.4-2 1.5m 1

m	6.5m		7.5m		8.5m		9.5m		10.5m	
	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
-50										
-49										
-48										
-47										
-46										
-45										
-44										
-43										
-42										
-41										
-40										
-39										
-38										
-37										
-36										
-35										
-34										
-33										
-32										
-31										
-30										

6.5m 7.5m 8.5m

m

m	6.5m		7.5m		8.5m		9.5m		10.5m	
	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
-6										
-5										
-4										
-3										
-2										
-1										
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										

	6.5m		7.5m		8.5m		9.5m		10.5m	
m	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	

m	6.5m		7.5m		8.5m		9.5m		10.5m	
	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

1　6.4-3　1.5m　2

m	11.5m		12.5m		13m		21m	
	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
-50								
-49								
-48								
-47								
-46								
-45								
-44								
-43								
-42								
-41								
-40								
-39								
-38								
-37								
-36								
-35								
-34								
-33								
-32								
-31								
-30								

	11.5m		12.5m		13m		21m	
m	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
-29								
-28								
-27								
-26								
-25								
-24								
-23								
-22								
-21								
-20								
-19								
-18								
-17								
-16								
-15								
-14								
-13								
-12								
-11								
-10								
-9								
-8								

	11.5m		12.5m		13m		21m
m	kV/m	μT	kV/m	μT	kV/m	μT	kV/m

m	11.5m		12.5m		13m		21m	
	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								

	11.5m		12.5m		13m		21m	
m	kV/m	μT	kV/m	μT	kV/m	μT	kV/m	μT
40								
41								
42								
43								
44								
45								
46								
47								

7

1 6.4-2 1.5m

6.5m

1 6.4-3 1.5m

13m

1	6.4-4	1.5m 13m
1	6.4-5	1.5m 13m

1 6.5-1

		m		m	m	kV/m	μT
		1.6	13	13	1.5		
		0	0	13	1.5		
1		17	28.4	21	1.5		
2		0	9	21	1.5		
3		0	2	21	1.5		
4		17m	/		1.5		
		GB8702-2014	1			4	100

ш

3 220kV

GB8702-2014

≤4kV/m ≤100μT 4

GB 8702-2014 1

4 6.5m

1.5m 6.0368kV/m 27.5506μT

GB 8702-2014 1

10kV/m 100μT

5 7.5m

1.5m 5.7196kV/m 28.9087μT

GB 8702-2014 1

4kV/m GB 8702-2014 1

100μT 7.5m

6 12.5m 1.5m

3.7345kV/m 22.5433μT

GB 8702-2014 1 4kV/m

100μT 12.5m 1.5m

93%

7 13m 1.5m

3.5705kV/m 21.6938μT

GB 8702-2014 1 4kV/m

100μT 13m 1.5m 89%

8 13m

21m 220kV

GB 8702-2014 1

9 110kV~750kV

GB50545-2010 6.5m 13m

1

3

4

5

.

6

7	1#-20#

8 20# -

10

11 1

12 2

13

14

15

1

2

3

4

5

6

7

8

9

10