Guangdong-Hong Kong-Macao
Pearl River Delta
Regional Air Quality Monitoring Network

January to March 2015

Statistical Summary of the First Quarter Monitoring Results

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1. Foreword

Since the Pearl River Delta (PRD) Regional Air Quality Monitoring Network came into operation on 30 November 2005, it has been reporting PRD Regional Air Quality Index (RAQI) to the public on daily basis. Starting from 2006, a half-yearly and an annual air quality monitoring reports were published every year. The network was enhanced and expanded in September 2014 and the network was renamed "Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Monitoring Network" (the "Network") accordingly.

With the enhancement of the Network, the update of the national ambient air quality standards and the increase of reporting frequency of monitoring results, we have been reporting real time monitoring data of the Network on an hourly basis to replace the daily RAQI through a new internet platform and publish a quarterly air quality monitoring report to replace the previous half-yearly report and continue the publishing of annual air quality monitoring reports starting from 2014. The quarterly report is mainly a brief statistical summary of the monitoring results of the regional air quality in a quarter while the annual report, in addition to the reporting of the relevant data, will provide a more detailed analysis and comparison of the condition of air quality in the year. Since the fourth quarterly report in 2014, statistical summary of carbon monoxide (CO) and fine suspended particulates ($PM_{2.5}$ or FSP) has been added in addition to the results of respirable suspended particulates (PM_{10} or RSP), Sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and ozone (O_3).

This report, "Statistical Summary of the 2015 First Quarter Monitoring Results of PRD Regional Air Quality Monitoring Network", is the fifth one published in the form of a quarterly report and is the second one reporting the statistical summaries of the six pollutants (i.e. PM_{10}, SO_2, NO_2, O_3, CO and $PM_{2.5}$) in the Network.

2. Introduction to Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network

The PRD Regional Air Quality Monitoring Network was jointly established by the Guangdong Provincial Environmental Monitoring Centre (GDEMC) and the Environmental Protection Department of the Hong Kong Special Administrative Region (HKEPD) from 2003 to 2005. The network came into operation on 30 November 2005.

In view of the needs of air pollution control and economic development of the region, the environmental protection departments of Guangdong and Hong Kong have worked in collaboration with the environmental protection cum meteorological authority of Macao to enhance the network by extending the coverage of monitoring area to the 3 places, i.e. Guangdong, Hong Kong and Macao, in September 2014. The enhancement include the increase of number of monitoring station from 16 to 23 to further improve the spatial distribution; and the addition of two more monitoring parameters, i.e. CO and $PM_{2.5}$, to enrich the air quality monitoring information. The network was then renamed "Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Monitoring Network". The GDEMC, HKEPD, Environmental Protection Bureau of Macau SARG and Meteorological and Geophysical Bureau of Macao SARG have jointly established the "Quality Management Committee of Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network" to undertake quality management and dissemination of information for the Network.

The Network comprises 23 automatic air quality monitoring stations (see Figure 2.1) across the PRD region. Ten of these stations are operated by the Environmental Monitoring Centres of the individual cities in Guangdong while eight regional stations are operated by the GDEMC. The four stations located in Hong Kong are managed by the HKEPD and the remaining one in Macao is operated by Meteorological and Geophysical Bureau of Macao SARG.

All stations are installed with equipment to measure the ambient concentrations of PM_{10}, $PM_{2.5}$, SO_2, NO_2, O_3 and CO.

Annexes A and B set out, respectively, the site information of the monitoring stations in the Network and the methods used for measuring air pollutant concentrations.

Figure 2.1：Spatial Distribution of Monitoring Stations in the Network

3. Operation of the Network

The operation of the Network was generally smooth in the first quarter of 2015. The average hourly monitoring data capture rates of all monitoring stations in the Network was 96%.

4. Statistical Analysis of Pollutant Concentrations

Table 4.1a to Table 4.6b list the statistical summaries of monitoring results of the ambient concentrations of the six air pollutants (SO_2, NO_2, O_3, CO, PM_{10} and $PM_{2.5}$) during the reporting period from January to March 2015, and their brief comparisons with the short-term air quality indicators of the class II limits of the latest national "Ambient Air Quality Standards" (NAAQS) (GB3095-2012).

Table 4.1a：The monthly maxima and minima of hourly averages of SO_2

[Class II limit: 500 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0	59	1	49	1	24	0
Modiesha (Guangzhou)	4	83	3	73	3	62	0
Wanqingsha (Guangzhou)	12	110	5	77	5	71	0
Tianhu (Guangzhou)	0	66	2	50	4	32	0
Zhudong (Guangzhou)	8	97	6	49	7	69	0
Liyuan (Shenzhen)	5	46	4	41	4	22	0
Jinjuzui (Foshan)	4	112	4	60	1	63	0
Huijingcheng (Foshan)	5	131	2	53	2	71	0
Tangjia (Zhuhai)	1	58	1	47	1	25	0
Donghu (Jiangmen)	7	116	6	145	8	74	0
Duanfen (Jiangmen)	2	75	1	49	1	38	0
Huaguoshan (Jiangmen)	7	126	3	51	3	70	0
Chengzhong (Zhaoqing)	6	186	6	130	4	52	0
Xiapu (Huizhou)	4	43	4	42	4	18	0
Xijiao (Huizhou)	3	89	2	59	2	75	0
Jinguowan (Huizhou)	5	39	5	45	4	23	0
Zimaling (Zhongshan)	2	98	2	54	3	67	0
Nanchengyuanling (Dongguan)	8	88	5	101	6	67	0
Tap Mun (Hong Kong)	3	51	3	32	3	20	0
Tsuen Wan (Hong Kong)	8	116	8	95	8	74	0
Yuen Long (Hong Kong)	3	66	3	39	3	35	0
Tung Chung (Hong Kong)	7	97	7	50	7	32	0
Taipa Grande (Macao)	3	93	3	43	3	115	0

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.1b：The monthly maxima and minima of daily averages of SO_2

[Class II limit: 150 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	3	27	2	23	13	13	0
Modiesha (Guangzhou)	6	43	6	32	4	31	0
Wanqingsha (Guangzhou)	17	60	6	35	9	37	0
Tianhu (Guangzhou)	2	37	5	33	6	16	0
Zhudong (Guangzhou)	12	45	7	31	10	34	0
Liyuan (Shenzhen)	6	21	6	25	6	12	0
Jinjuzui (Foshan)	5	48	5	34	6	26	0
Huijingcheng (Foshan)	8	63	4	34	5	46	0
Tangjia (Zhuhai)	4	20	5	31	2	9	0
Donghu (Jiangmen)	8	44	8	37	9	33	0
Duanfen (Jiangmen)	4	39	2	31	2	17	0
Huaguoshan (Jiangmen)	11	51	4	33	8	43	0
Chengzhong (Zhaoqing)	8	46	9	29	6	31	0
Xiapu (Huizhou)	4	26	4	23	5	9	0
Xijiao (Huizhou)	5	29	3	21	3	24	0
Jinguowan (Huizhou)	5	23	5	21	5	11	0
Zimaling (Zhongshan)	6	33	4	26	4	21	0
Nanchengyuanling (Dongguan)	9	49	6	36	7	39	0
Tap Mun (Hong Kong)	4	15	4	16	3	10	0
Tsuen Wan (Hong Kong)	9	39	8	37	8	41	0
Yuen Long (Hong Kong)	4	22	3	21	4	15	0
Tung Chung (Hong Kong)	10	41	8	28	7	18	0
Taipa Grande (Macao)	5	39	4	21	4	35	0

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.1c：The monthly averages of SO_2

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	15	10	13
Modiesha (Guangzhou)	23	16	15
Wanqingsha (Guangzhou)	32	17	14
Tianhu (Guangzhou)	15	15	10
Zhudong (Guangzhou)	26	16	22
Liyuan (Shenzhen)	14	11	8
Jinjuzui (Foshan)	23	14	13
Huijingcheng (Foshan)	27	14	18
Tangjia (Zhuhai)	11	12	4
Donghu (Jiangmen)	18	15	16
Duanfen (Jiangmen)	18	11	9
Huaguoshan (Jiangmen)	32	16	18
Chengzhong (Zhaoqing)	27	19	19
Xiapu (Huizhou)	13	10	7
Xijiao (Huizhou)	16	8	10
Jinguowan (Huizhou)	12	9	6
Zimaling (Zhongshan)	18	10	9
Nanchengyuanling (Dongguan)	27	17	15
Tap Mun (Hong Kong)	10	8	6
Tsuen Wan (Hong Kong)	18	18	15
Yuen Long (Hong Kong)	11	9	7
Tung Chung (Hong Kong)	18	15	11
Taipa Grande (Macao)	16	11	10

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).

Table 4.2a：The monthly maxima and minima of hourly averages of NO_2

[Class II limit: 200 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	5	278	11	184	1	146	11
Modiesha (Guangzhou)	21	263	11	207	16	179	10
Wanqingsha (Guangzhou)	19	186	5	144	6	156	0
Tianhu (Guangzhou)	5	89	0	32	1	71	0
Zhudong (Guangzhou)	8	138	5	76	4	98	0
Liyuan (Shenzhen)	8	260	5	167	7	115	6
Jinjuzui (Foshan)	18	208	5	150	10	163	2
Huijingcheng (Foshan)	19	392	7	197	16	176	7
Tangjia (Zhuhai)	1	126	1	199	1	87	0
Donghu (Jiangmen)	18	166	13	129	12	104	0
Duanfen (Jiangmen)	7	74	4	88	6	100	0
Huaguoshan (Jiangmen)	11	138	2	173	1	112	0
Chengzhong (Zhaoqing)	4	136	1	91	7	109	0
Xiapu (Huizhou)	4	60	7	43	7	55	0
Xijiao (Huizhou)	4	56	4	56	0	50	0
Jinguowan (Huizhou)	6	64	2	78	0	38	0
Zimaling (Zhongshan)	7	148	6	119	7	136	0
Nanchengyuanling (Dongguan)	1	223	1	168	9	124	5
Tap Mun (Hong Kong)	6	93	4	106	3	37	0
Tsuen Wan (Hong Kong)	11	272	15	210	12	214	12
Yuen Long (Hong Kong)	15	364	14	201	11	161	7
Tung Chung (Hong Kong)	10	283	6	183	3	175	9
Taipa Grande (Macao)	15	179	8	135	10	108	0

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.2b：The monthly maxima and minima of daily averages of NO_2

[Class II limit: 80 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	37	175	21	105	27	68	17
Modiesha (Guangzhou)	44	157	21	122	31	97	23
Wanqingsha (Guangzhou)	38	104	16	92	24	94	5
Tianhu (Guangzhou)	6	37	2	23	3	24	0
Zhudong (Guangzhou)	19	95	13	51	20	60	1
Liyuan (Shenzhen)	22	126	14	95	20	71	3
Jinjuzui (Foshan)	35	131	14	100	29	94	13
Huijingcheng (Foshan)	43	154	13	131	31	113	24
Tangjia (Zhuhai)	8	69	15	59	16	65	0
Donghu (Jiangmen)	27	96	18	93	21	68	7
Duanfen (Jiangmen)	14	51	7	59	8	41	0
Huaguoshan (Jiangmen)	31	83	6	82	11	70	2
Chengzhong (Zhaoqing)	13	89	9	61	12	75	3
Xiapu (Huizhou)	7	38	10	29	10	35	0
Xijiao (Huizhou)	8	24	8	24	10	23	0
Jinguowan (Huizhou)	10	31	6	37	1	19	0
Zimaling (Zhongshan)	22	90	11	90	13	72	2
Nanchengyuanling (Dongguan)	16	105	3	75	17	65	3
Tap Mun (Hong Kong)	8	32	7	32	7	20	0
Tsuen Wan (Hong Kong)	51	166	46	126	50	110	35
Yuen Long (Hong Kong)	37	171	27	123	34	83	22
Tung Chung (Hong Kong)	30	177	19	121	13	85	22
Taipa Grande (Macao)	27	109	21	91	24	56	5

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.2c：The monthly averages of NO_2

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	74	55	44
Modiesha (Guangzhou)	81	60	55
Wanqingsha (Guangzhou)	62	46	47
Tianhu (Guangzhou)	16	10	11
Zhudong (Guangzhou)	42	29	36
Liyuan (Shenzhen)	53	40	37
Jinjuzui (Foshan)	74	49	52
Huijingcheng (Foshan)	80	49	62
Tangjia (Zhuhai)	40	35	32
Donghu (Jiangmen)	63	44	43
Duanfen (Jiangmen)	28	22	23
Huaguoshan (Jiangmen)	48	32	34
Chengzhong (Zhaoqing)	46	27	36
Xiapu (Huizhou)	21	18	19
Xijiao (Huizhou)	17	15	17
Jinguowan (Huizhou)	20	16	10
Zimaling (Zhongshan)	47	37	35
Nanchengyuanling (Dongguan)	48	30	41
Tap Mun (Hong Kong)	15	15	11
Tsuen Wan (Hong Kong)	81	78	72
Yuen Long (Hong Kong)	77	63	50
Tung Chung (Hong Kong)	76	62	43
Taipa Grande (Macao)	62	46	41

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).

Table 4.3a：The monthly maxima and minima of hourly averages of O_3

[Class II limit: 200 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	1	417	1	430	1	170	3
Modiesha (Guangzhou)	4	172	4	190	4	192	0
Wanqingsha (Guangzhou)	0	260	2	254	2	168	16
Tianhu (Guangzhou)	16	327	26	210	8	211	28
Zhudong (Guangzhou)	2	222	3	163	2	198	4
Liyuan (Shenzhen)	1	223	1	151	1	134	1
Jinjuzui (Foshan)	1	205	2	213	2	174	2
Huijingcheng (Foshan)	2	207	3	178	0	200	1
Tangjia (Zhuhai)	35	127	7	145	8	129	0
Donghu (Jiangmen)	1	226	2	176	1	164	3
Duanfen (Jiangmen)	3	225	4	217	1	160	7
Huaguoshan (Jiangmen)	1	224	1	162	0	204	7
Chengzhong (Zhaoqing)	4	179	5	150	5	144	0
Xiapu (Huizhou)	1	182	2	158	1	142	0
Xijiao (Huizhou)	0	221	2	191	0	253	6
Jinguowan (Huizhou)	6	242	8	218	4	186	19
Zimaling (Zhongshan)	0	184	1	155	2	104	0
Nanchengyuanling (Dongguan)	4	255	4	198	4	213	11
Tap Mun (Hong Kong)	20	237	4	172	7	166	4
Tsuen Wan (Hong Kong)	3	129	1	124	2	139	0
Yuen Long (Hong Kong)	1	149	1	131	1	132	0
Tung Chung (Hong Kong)	2	183	2	137	0	138	0
Taipa Grande (Macao)	2	239	8	214	6	153	4

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.3b：The monthly maxima and minima of daily maximum 8-hour averages of O_3 [Class II limit: 160 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	15	125	14	124	2	136	0
Modiesha (Guangzhou)	29	144	27	155	7	152	0
Wanqingsha (Guangzhou)	30	184	32	215	10	137	4
Tianhu (Guangzhou)	70	265	57	205	35	206	8
Zhudong (Guangzhou)	21	163	25	145	6	162	2
Liyuan (Shenzhen)	15	166	31	120	22	123	1
Jinjuzui (Foshan)	17	148	16	152	3	142	0
Huijingcheng (Foshan)	15	131	14	142	3	159	0
Tangjia (Zhuhai)	50	108	27	124	19	102	0
Donghu (Jiangmen)	20	171	16	152	2	129	1
Duanfen (Jiangmen)	31	196	51	181	6	148	3
Huaguoshan (Jiangmen)	19	190	20	148	2	158	3
Chengzhong (Zhaoqing)	31	123	31	138	7	126	0
Xiapu (Huizhou)	35	151	46	141	14	118	0
Xijiao (Huizhou)	51	168	49	163	24	187	3
Jinguowan (Huizhou)	69	198	67	184	20	139	11
Zimaling (Zhongshan)	15	134	21	128	3	92	0
Nanchengyuanling (Dongguan)	39	181	46	172	15	162	7
Tap Mun (Hong Kong)	73	187	62	165	30	157	7
Tsuen Wan (Hong Kong)	27	105	16	107	8	124	0
Yuen Long (Hong Kong)	20	109	20	113	15	115	0
Tung Chung (Hong Kong)	24	113	18	125	9	130	0
Taipa Grande (Macao)	33	163	41	168	13	137	2

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.3c：The monthly averages of O_3

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	33	36	20
Modiesha (Guangzhou)	46	52	26
Wanqingsha (Guangzhou)	58	61	38
Tianhu (Guangzhou)	102	93	67
Zhudong (Guangzhou)	51	52	31
Liyuan (Shenzhen)	50	52	46
Jinjuzui (Foshan)	41	47	25
Huijingcheng (Foshan)	35	46	20
Tangjia (Zhuhai)	65	71	42
Donghu (Jiangmen)	46	47	26
Duanfen (Jiangmen)	72	72	51
Huaguoshan (Jiangmen)	51	48	25
Chengzhong (Zhaoqing)	48	51	30
Xiapu (Huizhou)	62	67	43
Xijiao (Huizhou)	63	62	45
Jinguowan (Huizhou)	94	89	64
Zimaling (Zhongshan)	33	40	27
Nanchengyuanling (Dongguan)	49	65	40
Tap Mun (Hong Kong)	98	90	77
Tsuen Wan (Hong Kong)	47	46	35
Yuen Long (Hong Kong)	40	43	36
Tung Chung (Hong Kong)	49	53	46
Taipa Grande (Macao)	54	68	51

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).

Table 4.4a：The monthly maxima and minima of hourly averages of CO

[Class II limit: 10 mg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.4	6.5	0.8	2.3	0.5	3.1	0
Modiesha (Guangzhou)	0.4	3.3	0.7	3.1	0.8	3.0	0
Wanqingsha (Guangzhou)	0.5	2.1	0.4	1.7	0.3	2.3	0
Tianhu (Guangzhou)	0.3	1.6	0.3	1.7	0.3	1.5	0
Zhudong (Guangzhou)	0.5	1.9	0.3	1.4	0.4	1.9	0
Liyuan (Shenzhen)	0.6	2.8	0.7	2.1	0.7	1.6	0
Jinjuzui (Foshan)	0.3	3.6	0.1	2.5	0.2	2.8	0
Huijingcheng (Foshan)	0.6	3.3	0.2	2.9	0.1	2.5	0
Tangjia (Zhuhai)	0.4	2.4	0.6	3.0	0.3	1.9	0
Donghu (Jiangmen)	0.0	3.1	0.4	3.2	0.0	3.0	0
Duanfen (Jiangmen)	0.4	1.8	0.3	1.7	0.2	1.4	0
Huaguoshan (Jiangmen)	0.8	2.6	0.5	2.2	0.3	1.9	0
Chengzhong (Zhaoqing)	0.2	3.1	0.3	4.3	0.5	3.3	0
Xiapu (Huizhou)	0.0	3.9	0.0	2.2	0.4	2.1	0
Xijiao (Huizhou)	0.4	1.9	0.4	2.1	0.2	1.9	0
Jinguowan (Huizhou)	0.5	1.6	0.4	1.5	0.2	1.5	0
Zimaling (Zhongshan)	0.5	2.7	0.0	3.5	0.3	2.8	0
Nanchengyuanling (Dongguan)	0.0	2.2	0.4	1.6	0.4	2.0	0
Tap Mun (Hong Kong)	0.5	2.3	0.4	1.3	0.4	1.0	0
Tsuen Wan (Hong Kong)	0.5	1.7	0.6	2.2	0.7	1.5	0
Yuen Long (Hong Kong)	0.5	2.6	0.4	2.0	0.4	1.6	0
Tung Chung (Hong Kong)	0.3	1.6	0.2	1.6	0.2	1.4	0
Taipa Grande (Macao)	0.4	1.9	0.7	2.0	0.5	1.4	0

Remark : All concentration units are in milligrams per cubic metre (mg/m^3).

Table 4.4b：The monthly maxima and minima of daily averages of CO

[Class II limit: 4 mg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.6	2.3	1.0	1.5	0.8	1.8	0
Modiesha (Guangzhou)	0.6	1.9	0.8	1.4	1.0	1.9	0
Wanqingsha (Guangzhou)	0.5	1.8	0.5	1.4	0.4	1.5	0
Tianhu (Guangzhou)	0.4	1.4	0.4	1.2	0.4	1.2	0
Zhudong (Guangzhou)	0.7	1.7	0.5	1.2	0.6	1.5	0
Liyuan (Shenzhen)	0.7	1.6	0.8	1.5	0.8	1.2	0
Jinjuzui (Foshan)	0.6	2.2	0.2	1.7	0.5	1.6	0
Huijingcheng (Foshan)	0.9	2.0	0.4	1.4	0.3	1.8	0
Tangjia (Zhuhai)	0.6	2.1	0.7	2.7	0.3	1.7	0
Donghu (Jiangmen)	0.4	1.6	0.5	1.2	0.2	1.8	0
Duanfen (Jiangmen)	0.5	1.3	0.4	1.2	0.3	1.0	0
Huaguoshan (Jiangmen)	0.9	1.8	0.6	1.7	0.5	1.4	0
Chengzhong (Zhaoqing)	0.6	1.8	0.7	2.0	0.8	2.4	0
Xiapu (Huizhou)	0.9	1.6	0.7	1.5	0.6	1.3	0
Xijiao (Huizhou)	0.6	1.2	0.6	1.0	0.4	1.5	0
Jinguowan (Huizhou)	0.6	1.4	0.6	1.0	0.3	1.1	0
Zimaling (Zhongshan)	0.7	1.9	0.6	2.9	0.5	2.1	0
Nanchengyuanling (Dongguan)	0.6	1.7	0.5	1.2	0.6	1.2	0
Tap Mun (Hong Kong)	0.6	1.2	0.5	1.1	0.4	0.8	0
Tsuen Wan (Hong Kong)	0.6	1.4	0.8	1.4	0.9	1.2	0
Yuen Long (Hong Kong)	0.7	1.8	0.5	1.4	0.5	0.9	0
Tung Chung (Hong Kong)	0.5	1.2	0.2	1.1	0.4	1.0	0
Taipa Grande (Macao)	0.6	1.5	0.8	1.7	0.6	1.3	0

Remark : All concentration units are in milligrams per cubic metre (mg/m^3).

Table 4.4c：The monthly averages of CO

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	1.4	1.3	1.1
Modiesha (Guangzhou)	1.2	1.1	1.3
Wanqingsha (Guangzhou)	0.9	0.9	0.8
Tianhu (Guangzhou)	0.7	0.7	0.6
Zhudong (Guangzhou)	1.0	0.9	0.8
Liyuan (Shenzhen)	1.0	1.1	1.0
Jinjuzui (Foshan)	1.3	0.8	1.0
Huijingcheng (Foshan)	1.3	0.8	0.9
Tangjia (Zhuhai)	1.3	1.4	1.2
Donghu (Jiangmen)	0.9	0.8	0.8
Duanfen (Jiangmen)	0.8	0.8	0.7
Huaguoshan (Jiangmen)	1.3	1.0	0.9
Chengzhong (Zhaoqing)	1.1	1.2	1.2
Xiapu (Huizhou)	1.2	1.0	0.9
Xijiao (Huizhou)	0.9	0.8	0.7
Jinguowan (Huizhou)	0.9	0.8	0.7
Zimaling (Zhongshan)	1.3	1.5	1.1
Nanchengyuanling (Dongguan)	1.1	0.9	0.9
Tap Mun (Hong Kong)	0.8	0.7	0.6
Tsuen Wan (Hong Kong)	0.9	1.1	1.0
Yuen Long (Hong Kong)	1.1	0.9	0.7
Tung Chung (Hong Kong)	0.7	0.6	0.6
Taipa Grande (Macao)	1.1	1.1	0.8

Remark : All concentration units are in milligrams per cubic metre (mg/m^3).

Table 4.5a：The monthly maxima and minima of daily averages of PM_{10}

[Class II limit: 150 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	19	169	18	136	13	118	2
Modiesha (Guangzhou)	20	231	19	154	18	137	4
Wanqingsha (Guangzhou)	18	142	17	143	21	113	0
Tianhu (Guangzhou)	2	113	13	129	5	75	0
Zhudong (Guangzhou)	23	164	23	145	15	93	4
Liyuan (Shenzhen)	25	143	23	113	22	79	0
Jinjuzui (Foshan)	23	157	17	144	20	142	1
Huijingcheng (Foshan)	31	232	19	161	19	138	7
Tangjia (Zhuhai)	13	140	17	126	15	72	0
Donghu (Jiangmen)	26	167	29	160	25	158	4
Duanfen (Jiangmen)	11	122	23	142	19	80	0
Huaguoshan (Jiangmen)	26	193	27	168	20	141	6
Chengzhong (Zhaoqing)	10	156	25	149	15	109	2
Xiapu (Huizhou)	9	136	19	115	13	74	0
Xijiao (Huizhou)	7	100	16	113	7	75	0
Jinguowan (Huizhou)	9	107	22	122	10	74	0
Zimaling (Zhongshan)	20	156	17	152	21	93	2
Nanchengyuanling (Dongguan)	16	172	15	130	15	82	2
Tap Mun (Hong Kong)	16	121	19	121	8	84	0
Tsuen Wan (Hong Kong)	25	95	24	142	19	72	0
Yuen Long (Hong Kong)	25	192	23	162	27	84	2
Tung Chung (Hong Kong)	21	160	20	172	21	73	2
Taipa Grande (Macao)	22	178	24	153	32	95	2

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.5b：The monthly averages of PM_{10}

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	74	66	44
Modiesha (Guangzhou)	98	79	57
Wanqingsha (Guangzhou)	81	70	47
Tianhu (Guangzhou)	60	62	33
Zhudong (Guangzhou)	89	75	50
Liyuan (Shenzhen)	64	60	44
Jinjuzui (Foshan)	84	71	52
Huijingcheng (Foshan)	104	80	52
Tangjia (Zhuhai)	72	69	34
Donghu (Jiangmen)	90	82	59
Duanfen (Jiangmen)	71	72	44
Huaguoshan (Jiangmen)	105	95	64
Chengzhong (Zhaoqing)	87	82	54
Xiapu (Huizhou)	70	61	38
Xijiao (Huizhou)	57	59	36
Jinguowan (Huizhou)	65	67	37
Zimaling (Zhongshan)	72	72	48
Nanchengyuanling (Dongguan)	85	68	45
Tap Mun (Hong Kong)	74	65	36
Tsuen Wan (Hong Kong)	58	72	45
Yuen Long (Hong Kong)	83	81	52
Tung Chung (Hong Kong)	68	75	41
Taipa Grande (Macao)	87	85	55

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).

Table 4.6a：The monthly maxima and minima of daily averages of $PM_{2.5}$

[Class II limit: 75 μg/m^3]

Monitoring Station	January 2015		February 2015		March 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	12	120	14	106	9	70	7
Modiesha (Guangzhou)	8	131	11	97	7	70	8
Wanqingsha (Guangzhou)	14	98	15	118	14	79	9
Tianhu (Guangzhou)	4	78	9	104	4	54	3
Zhudong (Guangzhou)	18	132	17	118	9	69	18
Liyuan (Shenzhen)	14	104	15	98	13	42	4
Jinjuzui (Foshan)	16	108	12	110	14	93	11
Huijingcheng (Foshan)	24	161	18	134	13	86	21
Tangjia (Zhuhai)	22	116	24	122	13	59	12
Donghu (Jiangmen)	20	121	21	122	14	104	21
Duanfen (Jiangmen)	6	77	15	106	11	49	5
Huaguoshan (Jiangmen)	15	113	20	118	9	88	14
Chengzhong (Zhaoqing)	5	122	20	126	11	89	24
Xiapu (Huizhou)	4	69	12	67	5	43	0
Xijiao (Huizhou)	6	85	15	99	5	63	5
Jinguowan (Huizhou)	5	69	14	75	6	51	0
Zimaling (Zhongshan)	24	118	13	130	15	77	13
Nanchengyuanling (Dongguan)	15	130	19	110	14	74	10
Tap Mun (Hong Kong)	26	84	16	107	7	46	8
Tsuen Wan (Hong Kong)	9	92	16	120	13	54	6
Yuen Long (Hong Kong)	20	138	18	134	19	59	15
Tung Chung (Hong Kong)	14	107	12	137	13	43	7
Taipa Grande (Macao)	13	115	14	125	16	54	13

Remark : All concentration units are in micrograms per cubic metre (μg/m^3).

Table 4.6b：The monthly averages of $PM_{2.5}$

Monitoring Station	January 2015	February 2015	March 2015
Luhu (Guangzhou)	49	48	29
Modiesha (Guangzhou)	56	49	30
Wanqingsha (Guangzhou)	58	54	32
Tianhu (Guangzhou)	42	46	25
Zhudong (Guangzhou)	64	58	34
Liyuan (Shenzhen)	46	46	27
Jinjuzui (Foshan)	55	51	34
Huijingcheng (Foshan)	72	63	36
Tangjia (Zhuhai)	61	58	33
Donghu (Jiangmen)	67	61	36
Duanfen (Jiangmen)	43	48	27
Huaguoshan (Jiangmen)	59	69	37
Chengzhong (Zhaoqing)	64	66	42
Xiapu (Huizhou)	37	34	21
Xijiao (Huizhou)	47	48	28
Jinguowan (Huizhou)	41	42	23
Zimaling (Zhongshan)	56	57	37
Nanchengyuanling (Dongguan)	63	55	36
Tap Mun (Hong Kong)	53	48	25
Tsuen Wan (Hong Kong)	41	51	30
Yuen Long (Hong Kong)	60	59	37
Tung Chung (Hong Kong)	43	48	25
Taipa Grande (Macao)	55	55	33

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).

Annex A：Site Information of Monitoring Stations

Monitoring Stations	Address	Area Type	Sampling Height (Above P.D.)	Above Ground	Date Commenced Operation
Luhu (Guangzhou)	Jufong Garden of Luhu Park (Big yard, No. 11 Luhu Park)	City	30m	9m	1993
Modiesha (Guangzhou)	Modiesha Street, Haizhu District	City	95m	45m	Dec 2011
Wanqingsha (Guangzhou)	HKUST Fok Ying Tung Research Institute, Nansha	Mixed educational/ commercial and residential/industrial	54m	28m	Oct 2004
Tianhu (Guangzhou)	Tianhu Park, Conghua	Background : rural	251m	13m	Oct 2004
Zhudong (Guangzhou)	Zhudong Village Committee, Chini Town, Huadu District	Rural	19m	10m	Dec 2011
Liyuan (Shenzhen)	Shennan Zhong Road, Futian District	City	38m	12m	Sep 1997
Jinjuzui (Foshan)	Foshan City Communist Party School, Jinjuzui, Shunde District	Tourist and cultural /educational	27m	17m	Oct 1999
Huijingcheng (Foshan)	No. 127, Fenjiang Nan Road, Chancheng District	Urban: mixed residential/commercial/ industrial	24m	14m	Feb 2000
Tangjia (Zhuhai)	Qiao Island Mangrove Monitoring Station, Tangjia Town	Mixed educational/ commercial and residential/industrial	13m	13m	Jan 2010
Donghu (Jiangmen)	Donghu Park, Jiangmen	City	17.5m	5m	Nov 2001
Duanfen (Jiangmen)	Duanfen Middle School, Taishan	Rural	15m	12m	Dec 2011
Huaguoshan (Jiangmen)	Huaguoshan, Taoyuan, Heshan	Rural	25m	15m	Feb 2012
Chengzhong (Zhaoqing)	No. 17, Qintian Road, Zhaoqing	Urban: mixed residential/commercial	21m	16m	Jun 2001
Xiapu (Huizhou)	No. 4 Xiabuhengjiang Road No. 3, Huicheng District	Urban: commercial	49m	20m	Dec 1999
Xijiao (Huizhou)	Xijiao Village Committee, Boluo County	Rural	39m	12m	Dec 2011
Jinguowan (Huizhou)	Jinguowan Ecological Farm, Huizhou	Residential	77m	8m	Oct 2004

Monitoring Stations	Address	Area Type	Sampling Height (Above P.D.)	Above Ground	Date Commenced Operation
Zimaling (Zhongshan)	Zimaling Park, Zhongshan	Mixed residential/ commercial	45 m	7m	Aug 2002
Nancheng-yuanling (Dongguan)	Nanchengyuanling Community, Dongguan	Mixed residential/ commercial/industrial	33 m	18m	Sep 2010
Tap Mun (Hong Kong)	Tap Mun Police Station	Background: rural	26m	11m	Apr 1998
Tsuen Wan (Hong Kong)	60 Tai Ho Road, Tsuen Wan	Urban: mixed residential/commercial/ industrial	21m	17m	Aug 1988
Yuen Long (Hong Kong)	Yuen Long District Office, 269 Castle Peak Road, Yuen Long	New Town: residential	31m	25m	Jul 1995
Tung Chung (Hong Kong)	6 Fu Tung Street, Tung Chung	New Town: residential	34.5m	27.5m	Apr 1999
Taipa Grande (Macao)	Rampa do Observatorio, Taipa Grande	Rural	120m	10m	Mar 1999

Annex B：Measurement Methods of Air Pollutant Concentration

Pollutants	Measuring Principles
SO_2	UV fluorescence / Differential Optical Absorption Spectroscopy
NO_2	Chemiluminescence / Differential Optical Absorption Spectroscopy
O_3	UV absorption / Differential Optical Absorption Spectroscopy
PM_{10}	Oscillating microbalance (TEOM) Beta particulate monitor
$PM_{2.5}$	Oscillating microbalance (TEOM) Beta particulate monitor Hybrid nephelometric/radiometric particulate mass monitor
CO	Gas filter correlation infrared absorption method Non-dispersive infrared absorption method