Guangdong-Hong Kong-Macao

Pearl River Delta

Regional Air Quality Monitoring Network

April to June 2015

Statistical Summary of the Second Quarter Monitoring Results

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Approved by	**:**	**Quality Management Committee of Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network**
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Contents

List of Tables

List of Figures

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 Second Quarter Monitoring Results of PRD Regional Air Quality Monitoring Network", is the sixth one published in the form of a quarterly report and is the third 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 second quarter of 2015. The average hourly monitoring data capture rate of all monitoring stations in the Network was 95.4%.

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 April to June 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	April 2015		May 2015		June 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	1	43	1	27	1	27	0
Modiesha (Guangzhou)	4	71	3	69	3	55	0
Wanqingsha (Guangzhou)	6	98	4	33	5	35	0
Tianhu (Guangzhou)	4	49	0	19	5	29	0
Zhudong (Guangzhou)	9	84	5	72	5	61	0
Liyuan (Shenzhen)	6	34	4	32	6	40	0
Jinjuzui (Foshan)	6	69	2	38	5	70	0
Huijingcheng (Foshan)	5	101	6	62	0	67	0
Tangjia (Zhuhai)	1	34	1	24	1	21	0
Donghu (Jiangmen)	8	78	7	47	7	40	0
Duanfen (Jiangmen)	0	41	0	21	0	9	0
Huaguoshan (Jiangmen)	4	155	4	65	2	50	0
Chengzhong (Zhaoqing)	4	304	1	568	3	216	1
Xiapu (Huizhou)	5	46	6	24	7	78	0
Xijiao (Huizhou)	3	181	0	64	6	76	0
Jinguowan (Huizhou)	1	29	5	26	3	21	0
Zimaling (Zhongshan)	4	45	5	26	1	39	0
Nanchengyuanling (Dongguan)	6	78	6	48	7	43	0
Tap Mun (Hong Kong)	3	27	4	25	4	26	0
Tsuen Wan (Hong Kong)	8	87	8	94	8	63	0
Yuen Long (Hong Kong)	3	33	4	26	3	48	0
Tung Chung (Hong Kong)	7	31	3	40	2	15	0
Taipa Grande (Macao)	2	93	1	63	2	33	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	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	2	19	5	13	3	10	0
Modiesha (Guangzhou)	8	34	6	24	6	21	0
Wanqingsha (Guangzhou)	8	26	5	16	5	20	0
Tianhu (Guangzhou)	6	33	3	13	8	16	0
Zhudong (Guangzhou)	15	40	10	31	9	27	0
Liyuan (Shenzhen)	7	17	7	10	7	15	0
Jinjuzui (Foshan)	7	35	5	21	6	24	0
Huijingcheng (Foshan)	9	45	13	27	7	36	0
Tangjia (Zhuhai)	2	11	2	9	2	6	0
Donghu (Jiangmen)	9	33	7	17	9	16	0
Duanfen (Jiangmen)	1	18	0	11	1	3	0
Huaguoshan (Jiangmen)	7	42	6	26	4	18	0
Chengzhong (Zhaoqing)	11	65	14	71	10	61	0
Xiapu (Huizhou)	5	16	7	10	8	22	0
Xijiao (Huizhou)	5	22	4	22	10	24	0
Jinguowan (Huizhou)	4	13	5	9	5	10	0
Zimaling (Zhongshan)	5	18	6	9	1	11	0
Nanchengyuanling (Dongguan)	6	31	8	26	8	19	0
Tap Mun (Hong Kong)	5	12	5	8	5	10	0
Tsuen Wan (Hong Kong)	9	34	9	35	9	31	0
Yuen Long (Hong Kong)	5	17	5	15	4	18	0
Tung Chung (Hong Kong)	7	18	3	19	2	6	0
Taipa Grande (Macao)	2	24	2	19	2	9	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	April 2015	May 2015	June 2015
Luhu (Guangzhou)	10	7	6
Modiesha (Guangzhou)	18	13	13
Wanqingsha (Guangzhou)	15	9	8
Tianhu (Guangzhou)	13	7*	11
Zhudong (Guangzhou)	25	20	18
Liyuan (Shenzhen)	10	8	9
Jinjuzui (Foshan)	18	9	13
Huijingcheng (Foshan)	22	19	19
Tangjia (Zhuhai)	4	5	3
Donghu (Jiangmen)	15	11	11
Duanfen (Jiangmen)	6	1	1
Huaguoshan (Jiangmen)	25*	14*	9
Chengzhong (Zhaoqing)	31	33	27
Xiapu (Huizhou)	9	8	11
Xijiao (Huizhou)	13	12	15
Jinguowan (Huizhou)	8	7	7
Zimaling (Zhongshan)	9	7	7
Nanchengyuanling (Dongguan)	16	12	11
Tap Mun (Hong Kong)	7	6	6
Tsuen Wan (Hong Kong)	19	19	19
Yuen Long (Hong Kong)	10	8	8
Tung Chung (Hong Kong)	11	7	3
Taipa Grande (Macao)	11	4	4

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).
* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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

[Class II limit: 200 μg/m^3]

Monitoring Station	April 2015		May 2015		June 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	10	198	9	124	6	110	0
Modiesha (Guangzhou)	12	185	12	169	13	107	0
Wanqingsha (Guangzhou)	2	147	0	97	2	85	0
Tianhu (Guangzhou)	0	41	0	27	0	36	0
Zhudong (Guangzhou)	9	122	0	93	0	67	0
Liyuan (Shenzhen)	9	179	7	159	7	98	0
Jinjuzui (Foshan)	3	137	8	149	2	90	0
Huijingcheng (Foshan)	10	151	11	194	4	105	0
Tangjia (Zhuhai)	4	96	6	95	6	57	0
Donghu (Jiangmen)	8	143	7	99	4	73	0
Duanfen (Jiangmen)	2	64	0	25	0	16	0
Huaguoshan (Jiangmen)	3	100	2	80	0	54	0
Chengzhong (Zhaoqing)	1	91	6	126	1	59	0
Xiapu (Huizhou)	5	98	1	104	1	55	0
Xijiao (Huizhou)	5	50	0	39	2	46	0
Jinguowan (Huizhou)	0	60	1	44	0	46	0
Zimaling (Zhongshan)	1	103	1	103	1	55	0
Nanchengyuanling (Dongguan)	4	116	1	147	1	106	0
Tap Mun (Hong Kong)	1	66	1	60	0	38	0
Tsuen Wan (Hong Kong)	15	252	14	168	11	116	1
Yuen Long (Hong Kong)	11	192	3	147	5	63	0
Tung Chung (Hong Kong)	0	166	0	106	1	71	0
Taipa Grande (Macao)	3	134	2	134	2	60	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	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	21	81	21	75	27	74	1
Modiesha (Guangzhou)	31	100	28	103	27	67	4
Wanqingsha (Guangzhou)	13	57	9	56	8	47	0
Tianhu (Guangzhou)	2	24	0	11	3	16	0
Zhudong (Guangzhou)	21	63	14	57	12	30	0
Liyuan (Shenzhen)	19	87	21	70	18	49	1
Jinjuzui (Foshan)	19	89	16	89	9	58	2
Huijingcheng (Foshan)	22	85	21	119	18	49	5
Tangjia (Zhuhai)	15	40	11	49	11	25	0
Donghu (Jiangmen)	13	64	13	59	9	34	0
Duanfen (Jiangmen)	4	42	1	19	1	9	0
Huaguoshan (Jiangmen)	6	68	8	40	6	30	0
Chengzhong (Zhaoqing)	4	62	12	54	6	40	0
Xiapu (Huizhou)	11	43	8	44	7	28	0
Xijiao (Huizhou)	12	28	2	18	6	19	0
Jinguowan (Huizhou)	1	30	7	24	5	29	0
Zimaling (Zhongshan)	3	44	2	41	2	13	0
Nanchengyuanling (Dongguan)	15	82	5	84	4	41	2
Tap Mun (Hong Kong)	6	28	4	21	3	15	0
Tsuen Wan (Hong Kong)	42	116	47	84	36	65	8
Yuen Long (Hong Kong)	28	86	21	63	20	42	2
Tung Chung (Hong Kong)	5	100	5	74	5	29	2
Taipa Grande (Macao)	11	63	7	65	7	22	0

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

Table 4.2c：The monthly averages of NO_2

Monitoring Station	April 2015	May 2015	June 2015
Luhu (Guangzhou)	46	44	41
Modiesha (Guangzhou)	57	47	38
Wanqingsha (Guangzhou)	32	25	19
Tianhu (Guangzhou)	11	6*	10
Zhudong (Guangzhou)	37	28	20
Liyuan (Shenzhen)	43	36	30
Jinjuzui (Foshan)	46	36	20
Huijingcheng (Foshan)	46	48	27
Tangjia (Zhuhai)	25	21	15
Donghu (Jiangmen)	32	25	17
Duanfen (Jiangmen)	16	5	5
Huaguoshan (Jiangmen)	32*	20*	14
Chengzhong (Zhaoqing)	30	31	19
Xiapu (Huizhou)	22	17	20
Xijiao (Huizhou)	19	10	12
Jinguowan (Huizhou)	12	13	14
Zimaling (Zhongshan)	19	10	6
Nanchengyuanling (Dongguan)	34	27	19
Tap Mun (Hong Kong)	14	9	8
Tsuen Wan (Hong Kong)	68	61	50
Yuen Long (Hong Kong)	48	37	27
Tung Chung (Hong Kong)	45	24	14
Taipa Grande (Macao)	31	17	10

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

* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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

[Class II limit: 200 μg/m^3]

Monitoring Station	April 2015		May 2015		June 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	1	337	1	266	1	206	22
Modiesha (Guangzhou)	4	314	4	311	4	250	25
Wanqingsha (Guangzhou)	0	362	0	269	4	121	46
Tianhu (Guangzhou)	6	332	8	204	8	300	85
Zhudong (Guangzhou)	2	274	2	180	0	283	37
Liyuan (Shenzhen)	1	216	1	234	6	106	4
Jinjuzui (Foshan)	2	259	3	224	4	188	28
Huijingcheng (Foshan)	0	306	0	230	1	182	26
Tangjia (Zhuhai)	14	150	8	134	6	78	0
Donghu (Jiangmen)	1	256	2	119	3	86	14
Duanfen (Jiangmen)	2	215	10	215	5	83	16
Huaguoshan (Jiangmen)	1	285	1	271	1	99	40
Chengzhong (Zhaoqing)	2	187	7	488	8	191	4
Xiapu (Huizhou)	1	327	1	155	1	191	20
Xijiao (Huizhou)	0	336	0	222	0	237	40
Jinguowan (Huizhou)	2	396	0	159	2	174	34
Zimaling (Zhongshan)	2	227	2	215	2	130	15
Nanchengyuanling (Dongguan)	4	343	4	308	4	282	36
Tap Mun (Hong Kong)	3	216	5	160	5	93	8
Tsuen Wan (Hong Kong)	1	178	1	104	3	58	0
Yuen Long (Hong Kong)	1	264	1	199	1	69	4
Tung Chung (Hong Kong)	0	244	0	190	1	71	3
Taipa Grande (Macao)	6	250	9	220	12	76	12

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	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	20	229	6	150	20	147	0
Modiesha (Guangzhou)	23	244	14	169	29	152	0
Wanqingsha (Guangzhou)	14	273	25	217	42	102	4
Tianhu (Guangzhou)	58	301	61	161	73	284	8
Zhudong (Guangzhou)	18	232	30	155	62	176	2
Liyuan (Shenzhen)	7	162	29	161	33	73	1
Jinjuzui (Foshan)	16	213	17	188	40	120	0
Huijingcheng (Foshan)	12	273	9	148	26	128	0
Tangjia (Zhuhai)	33	136	34	127	25	60	0
Donghu (Jiangmen)	10	197	18	84	20	62	1
Duanfen (Jiangmen)	13	197	41	189	36	80	3
Huaguoshan (Jiangmen)	13	234	39	247	38	81	3
Chengzhong (Zhaoqing)	22	167	26	169	60	132	0
Xiapu (Huizhou)	25	255	41	113	42	164	0
Xijiao (Huizhou)	26	271	57	158	64	184	3
Jinguowan (Huizhou)	37	313	51	140	51	144	11
Zimaling (Zhongshan)	7	192	31	168	37	80	0
Nanchengyuanling (Dongguan)	26	255	36	199	47	172	7
Tap Mun (Hong Kong)	36	198	43	144	50	85	7
Tsuen Wan (Hong Kong)	7	126	8	88	13	40	0
Yuen Long (Hong Kong)	7	173	22	153	25	60	0
Tung Chung (Hong Kong)	4	175	32	122	29	66	0
Taipa Grande (Macao)	17	213	37	186	32	67	4

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

Table 4.3c：The monthly averages of O_3

Monitoring Station	April 2015	May 2015	June 2015
Luhu (Guangzhou)	47	29	36
Modiesha (Guangzhou)	56	34	44
Wanqingsha (Guangzhou)	73	46	44
Tianhu (Guangzhou)	98	71*	91
Zhudong (Guangzhou)	59	47	56
Liyuan (Shenzhen)	49	43	32
Jinjuzui (Foshan)	60	40	42
Huijingcheng (Foshan)	66	28	43
Tangjia (Zhuhai)	57	40	36
Donghu (Jiangmen)	51	27	26
Duanfen (Jiangmen)	68	56	43
Huaguoshan (Jiangmen)	69*	46*	36
Chengzhong (Zhaoqing)	59	56	59
Xiapu (Huizhou)	69	47	49
Xijiao (Huizhou)	61	55	60
Jinguowan (Huizhou)	88	63	51
Zimaling (Zhongshan)	56	37	37
Nanchengyuanling (Dongguan)	71	51	52
Tap Mun (Hong Kong)	73	62	45
Tsuen Wan (Hong Kong)	35	19	16
Yuen Long (Hong Kong)	42	29	24
Tung Chung (Hong Kong)	46	40	35
Taipa Grande (Macao)	57	49	41

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).
* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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

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

Monitoring Station	April 2015		May 2015		June 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.3	2.0	0.4	2.1	0.1	4.2	0
Modiesha (Guangzhou)	0.4	4.5	0.1	1.8	0.1	1.4	0
Wanqingsha (Guangzhou)	0.2	1.7	0.1	1.1	0.1	0.9	0
Tianhu (Guangzhou)	0.2	1.2	0.1	0.9	0.1	0.8	0
Zhudong (Guangzhou)	0.3	2.0	0.0	1.7	0.2	1.1	0
Liyuan (Shenzhen)	0.4	2.5	0.4	2.4	0.3	2.7	0
Jinjuzui (Foshan)	0.7	2.6	0.5	2.3	0.1	1.4	0
Huijingcheng (Foshan)	0.3	2.0	0.3	2.5	0.2	1.4	0
Tangjia (Zhuhai)	0.2	1.8	0.1	0.9	0.3	2.5	0
Donghu (Jiangmen)	0.0	2.3	0.0	1.7	0.0	1.6	0
Duanfen (Jiangmen)	0.2	1.2	0.2	0.9	0.2	0.9	0
Huaguoshan (Jiangmen)	0.5	1.4	0.5	1.5	0.0	1.3	0
Chengzhong (Zhaoqing)	0.0	2.4	0.1	2.5	0.2	1.8	0
Xiapu (Huizhou)	0.5	2.5	0.5	2.3	0.4	1.4	0
Xijiao (Huizhou)	0.2	1.8	0.2	2.0	0.3	1.6	0
Jinguowan (Huizhou)	0.3	4.2	0.1	1.2	0.1	1.7	0
Zimaling (Zhongshan)	0.2	2.7	0.4	1.8	0.1	1.4	0
Nanchengyuanling (Dongguan)	0.3	2.4	0.4	2.1	0.5	1.4	0
Tap Mun (Hong Kong)	0.5	1.3	0.4	0.8	0.5	0.7	0
Tsuen Wan (Hong Kong)	0.5	1.5	0.4	1.5	0.4	1.1	0
Yuen Long (Hong Kong)	0.3	1.6	0.3	1.2	0.3	0.8	0
Tung Chung (Hong Kong)	0.3	1.4	0.3	1.0	0.3	0.6	0
Taipa Grande (Macao)	0.7	2.0	0.4	1.1	0.4	0.6	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	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.6	1.5	0.6	1.4	0.5	1.4	0
Modiesha (Guangzhou)	0.6	2.0	0.2	1.3	0.2	1.1	0
Wanqingsha (Guangzhou)	0.4	1.3	0.3	0.7	0.3	0.6	0
Tianhu (Guangzhou)	0.3	0.9	0.2	0.7	0.3	0.6	0
Zhudong (Guangzhou)	0.4	1.2	0.1	1.1	0.4	0.7	0
Liyuan (Shenzhen)	0.5	1.5	0.5	1.2	0.4	0.8	0
Jinjuzui (Foshan)	0.8	1.7	0.7	1.7	0.5	1.1	0
Huijingcheng (Foshan)	0.4	1.2	0.4	1.5	0.4	0.9	0
Tangjia (Zhuhai)	0.3	1.2	0.1	0.8	0.3	0.6	0
Donghu (Jiangmen)	0.2	0.8	0.2	1.0	0.1	0.9	0
Duanfen (Jiangmen)	0.3	0.9	0.3	0.7	0.2	0.4	0
Huaguoshan (Jiangmen)	0.5	1.2	0.5	1.2	0.1	0.8	0
Chengzhong (Zhaoqing)	0.2	1.2	0.4	1.4	0.4	1.0	0
Xiapu (Huizhou)	0.6	1.2	0.7	1.3	0.5	1.0	0
Xijiao (Huizhou)	0.3	1.5	0.3	1.2	0.4	0.7	0
Jinguowan (Huizhou)	0.4	1.3	0.4	0.8	0.3	1.3	0
Zimaling (Zhongshan)	0.4	1.5	0.5	1.3	0.5	1.0	0
Nanchengyuanling (Dongguan)	0.4	1.3	0.6	1.6	0.6	1.1	0
Tap Mun (Hong Kong)	0.5	1.2	0.4	0.7	0.5	0.7	0
Tsuen Wan (Hong Kong)	0.7	1.3	0.6	1.0	0.5	0.8	0
Yuen Long (Hong Kong)	0.5	1.2	0.4	0.9	0.4	0.6	0
Tung Chung (Hong Kong)	0.3	1.2	0.4	0.8	0.3	0.5	0
Taipa Grande (Macao)	0.7	1.6	0.4	1.0	0.4	0.5	0

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

Table 4.4c：The monthly averages of CO

Monitoring Station	April 2015	May 2015	June 2015
Luhu (Guangzhou)	1.0	0.9	0.9
Modiesha (Guangzhou)	1.1	0.8	0.6
Wanqingsha (Guangzhou)	0.8	0.5	0.4
Tianhu (Guangzhou)	0.6	0.4*	0.5
Zhudong (Guangzhou)	0.8	0.5	0.6
Liyuan (Shenzhen)	0.8	0.7	0.6
Jinjuzui (Foshan)	1.2	1.0	0.7
Huijingcheng (Foshan)	0.8	0.7	0.5
Tangjia (Zhuhai)	0.7	0.5	0.5
Donghu (Jiangmen)	0.4	0.4	0.4
Duanfen (Jiangmen)	0.5	0.4	0.3
Huaguoshan (Jiangmen)	0.9*	0.8*	0.5
Chengzhong (Zhaoqing)	0.8	0.8	0.6
Xiapu (Huizhou)	0.9	0.9	0.7
Xijiao (Huizhou)	0.7	0.7	0.5
Jinguowan (Huizhou)	0.6	0.6	0.6
Zimaling (Zhongshan)	0.8	0.8	0.8
Nanchengyuanling (Dongguan)	0.8	0.9	0.8
Tap Mun (Hong Kong)	0.8	0.5	0.6
Tsuen Wan (Hong Kong)	0.9	0.7	0.6
Yuen Long (Hong Kong)	0.8	0.6	0.5
Tung Chung (Hong Kong)	0.6	0.5	0.4
Taipa Grande (Macao)	1.0	0.7	0.4

Remark : All concentration units are in milligrams per cubic metre (mg/m^3).
* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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

[Class II limit: 150 μg/m^3]

Monitoring Station	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	15	106	24	73	22	51	0
Modiesha (Guangzhou)	17	123	28	76	26	56	0
Wanqingsha (Guangzhou)	19	87	14	49	15	41	0
Tianhu (Guangzhou)	7	97	6	51	13	48	0
Zhudong (Guangzhou)	24	122	22	65	19	47	0
Liyuan (Shenzhen)	20	121	17	52	28	48	0
Jinjuzui (Foshan)	18	113	22	58	16	42	0
Huijingcheng (Foshan)	20	111	19	58	21	42	0
Tangjia (Zhuhai)	18	99	12	41	7	28	0
Donghu (Jiangmen)	28	108	20	69	2	44	0
Duanfen (Jiangmen)	19	81	5	42	7	31	0
Huaguoshan (Jiangmen)	24	140	18	70	18	49	0
Chengzhong (Zhaoqing)	21	132	25	76	26	61	0
Xiapu (Huizhou)	13	90	15	55	13	43	0
Xijiao (Huizhou)	10	78	11	48	14	41	0
Jinguowan (Huizhou)	11	72	16	52	16	37	0
Zimaling (Zhongshan)	19	96	14	49	12	26	0
Nanchengyuanling (Dongguan)	13	105	19	67	15	41	0
Tap Mun (Hong Kong)	13	69	14	44	13	27	0
Tsuen Wan (Hong Kong)	12	76	14	36	11	29	0
Yuen Long (Hong Kong)	28	97	14	40	14	27	0
Tung Chung (Hong Kong)	17	82	11	38	11	24	0
Taipa Grande (Macao)	22	110	10	48	9	39	0

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

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

Monitoring Station	April 2015	May 2015	June 2015
Luhu (Guangzhou)	52	35	35
Modiesha (Guangzhou)	64	44	42
Wanqingsha (Guangzhou)	44	27	24
Tianhu (Guangzhou)	50	25*	31
Zhudong (Guangzhou)	64	39	38
Liyuan (Shenzhen)	45	32	37
Jinjuzui (Foshan)	52	32	26
Huijingcheng (Foshan)	53	33	29
Tangjia (Zhuhai)	40	21	18
Donghu (Jiangmen)	51	35	24
Duanfen (Jiangmen)	38	18	15
Huaguoshan (Jiangmen)	63*	36*	27
Chengzhong (Zhaoqing)	61	44	37
Xiapu (Huizhou)	49	34	31
Xijiao (Huizhou)	46	27	26
Jinguowan (Huizhou)	41	31	28
Zimaling (Zhongshan)	44	23	19
Nanchengyuanling (Dongguan)	47	32	25
Tap Mun (Hong Kong)	33	26	18
Tsuen Wan (Hong Kong)	36	24	18
Yuen Long (Hong Kong)	48	24	19
Tung Chung (Hong Kong)	37	21	15
Taipa Grande (Macao)	47	26	22

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).
* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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

[Class II limit: 75 μg/m^3]

Monitoring Station	April 2015		May 2015		June 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	12	106	14	86	10	29	2
Modiesha (Guangzhou)	6	82	13	58	10	33	1
Wanqingsha (Guangzhou)	12	48	5	32	8	19	0
Tianhu (Guangzhou)	6	61	4	26	7	28	0
Zhudong (Guangzhou)	16	73	16	38	11	36	0
Liyuan (Shenzhen)	11	62	10	36	6	17	0
Jinjuzui (Foshan)	12	84	11	48	9	27	1
Huijingcheng (Foshan)	13	88	11	58	10	26	1
Tangjia (Zhuhai)	14	70	6	24	6	14	0
Donghu (Jiangmen)	9	62	8	26	7	39	0
Duanfen (Jiangmen)	8	50	2	22	3	14	0
Huaguoshan (Jiangmen)	11	88	9	42	9	26	3
Chengzhong (Zhaoqing)	16	100	16	49	15	37	3
Xiapu (Huizhou)	9	52	6	43	4	30	0
Xijiao (Huizhou)	7	59	7	35	10	36	0
Jinguowan (Huizhou)	7	49	6	24	7	20	0
Zimaling (Zhongshan)	12	69	9	31	6	24	0
Nanchengyuanling (Dongguan)	16	84	13	54	13	29	1
Tap Mun (Hong Kong)	7	46	8	28	7	15	0
Tsuen Wan (Hong Kong)	8	52	6	22	5	13	0
Yuen Long (Hong Kong)	19	68	9	25	6	14	0
Tung Chung (Hong Kong)	9	54	5	22	4	12	0
Taipa Grande (Macao)	15	67	2	27	2	12	0

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	April 2015	May 2015	June 2015
Luhu (Guangzhou)	37	26	17
Modiesha (Guangzhou)	32	22	17
Wanqingsha (Guangzhou)	25	15	12
Tianhu (Guangzhou)	33	15*	18
Zhudong (Guangzhou)	42	25	25
Liyuan (Shenzhen)	26	16	11
Jinjuzui (Foshan)	32	21	16
Huijingcheng (Foshan)	33	22	15
Tangjia (Zhuhai)	31	13	10
Donghu (Jiangmen)	28	15	14
Duanfen (Jiangmen)	22	9	6
Huaguoshan (Jiangmen)	37*	20*	14
Chengzhong (Zhaoqing)	41	28	22
Xiapu (Huizhou)	29	19	17
Xijiao (Huizhou)	33	20	19
Jinguowan (Huizhou)	26	16	15
Zimaling (Zhongshan)	33	15	12
Nanchengyuanling (Dongguan)	34	22	17
Tap Mun (Hong Kong)	20	14	10
Tsuen Wan (Hong Kong)	22	12	8
Yuen Long (Hong Kong)	34	14	10
Tung Chung (Hong Kong)	21	11	7
Taipa Grande (Macao)	28	10	7

Remark : All concentration units are in micrograms per cubic metre ($\mu g/m^3$).
* The average hourly monitoring data capture rate of certain pollutant is below 85%.

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