Guangdong-Hong Kong-Macao

Pearl River Delta

Regional Air Quality Monitoring Network

July to September 2015

Statistical Summary of the Third 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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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 Third Quarter Monitoring Results of PRD Regional Air Quality Monitoring Network", is the seventh one published in the form of a quarterly report and is the fourth 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 third quarter of 2015. The average hourly monitoring data capture rate of all monitoring stations in the Network was 96.1%.

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 July to September 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/m³]

Monitoring Station	July 2015		August 2015		September 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	1	23	1	58	1	31	0
Modiesha (Guangzhou)	3	68	3	48	3	43	0
Wanqingsha (Guangzhou)	3	42	4	56	5	57	0
Tianhu (Guangzhou)	1	36	0	27	0	33	0
Zhudong (Guangzhou)	5	77	5	84	5	81	0
Liyuan (Shenzhen)	5	28	6	33	5	28	0
Jinjuzui (Foshan)	6	58	7	104	6	41	0
Huijingcheng (Foshan)	2	58	4	73	3	79	0
Tangjia (Zhuhai)	1	19	1	23	1	30	0
Donghu (Jiangmen)	8	66	7	59	8	53	0
Duanfen (Jiangmen)	0	27	0	25	0	20	0
Huaguoshan (Jiangmen)	3	78	3	93	4	308	0
Chengzhong (Zhaoqing)	3	245	4	203	5	124	0
Xiapu (Huizhou)	8	34	5	88	6	84	0
Xijiao (Huizhou)	5	42	5	430	6	48	0
Jinguowan (Huizhou)	5	51	1	47	2	41	0
Zimaling (Zhongshan)	1	37	2	37	3	99	0
Nanchengyuanling (Dongguan)	6	45	1	59	2	51	0
Tap Mun (Hong Kong)	4	26	4	29	5	23	0
Tsuen Wan (Hong Kong)	6	41	6	63	6	42	0
Yuen Long (Hong Kong)	2	39	3	38	4	28	0
Tung Chung (Hong Kong)	2	19	2	21	2	16	0
Taipa Grande (Macao)	2	106	2	70	2	51	0

Remark : All concentration units are in micrograms per cubic metre (μg/m³).

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

[Class II limit: 150 μg/m^3]

Monitoring Station	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	2	8	4	13	4	13	0
Modiesha (Guangzhou)	3	15	3	21	4	18	0
Wanqingsha (Guangzhou)	4	23	7	24	9	21	0
Tianhu (Guangzhou)	2	20	2	14	2	18	0
Zhudong (Guangzhou)	10	32	8	25	7	29	0
Liyuan (Shenzhen)	7	14	7	16	8	16	0
Jinjuzui (Foshan)	10	31	11	31	10	21	0
Huijingcheng (Foshan)	7	27	7	29	7	27	0
Tangjia (Zhuhai)	2	9	2	9	3	13	0
Donghu (Jiangmen)	10	23	12	31	11	25	0
Duanfen (Jiangmen)	1	12	1	8	1	3	0
Huaguoshan (Jiangmen)	5	26	3	22	15	29	0
Chengzhong (Zhaoqing)	4	50	7	53	10	44	0
Xiapu (Huizhou)	8	15	5	18	8	26	0
Xijiao (Huizhou)	6	18	6	80	6	19	0
Jinguowan (Huizhou)	6	15	5	25	6	12	0
Zimaling (Zhongshan)	2	13	3	17	4	20	0
Nanchengyuanling (Dongguan)	8	20	4	23	5	25	0
Tap Mun (Hong Kong)	5	10	5	12	6	13	0
Tsuen Wan (Hong Kong)	8	22	10	21	7	19	0
Yuen Long (Hong Kong)	4	16	5	18	4	16	0
Tung Chung (Hong Kong)	2	8	3	11	3	11	0
Taipa Grande (Macao)	3	18	3	14	3	13	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	July 2015	August 2015	September 2015
Luhu (Guangzhou)	5	8	8
Modiesha (Guangzhou)	7	7	10
Wanqingsha (Guangzhou)	9	12	14
Tianhu (Guangzhou)	8	6	10
Zhudong (Guangzhou)	19	15	19
Liyuan (Shenzhen)	9	11	10
Jinjuzui (Foshan)	15	17	15
Huijingcheng (Foshan)	15	16	16
Tangjia (Zhuhai)	4	4	6
Donghu (Jiangmen)	14	18	17
Duanfen (Jiangmen)	4	3	2
Huaguoshan (Jiangmen)	16	10	20
Chengzhong (Zhaoqing)	22	24	20
Xiapu (Huizhou)	10	10	12
Xijiao (Huizhou)	10	12	11
Jinguowan (Huizhou)	8	10	8
Zimaling (Zhongshan)	5	7	9
Nanchengyuanling (Dongguan)	12	13	13
Tap Mun (Hong Kong)	7	8	8
Tsuen Wan (Hong Kong)	13	14	11
Yuen Long (Hong Kong)	8	10	9
Tung Chung (Hong Kong)	4	5	5
Taipa Grande (Macao)	7	7	6

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	July 2015		August 2015		September 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	11	139	4	167	8	153	0
Modiesha (Guangzhou)	14	128	13	129	16	119	0
Wanqingsha (Guangzhou)	0	111	5	110	3	102	0
Tianhu (Guangzhou)	1	41	0	35	0	38	0
Zhudong (Guangzhou)	0	76	0	96	0	64	0
Liyuan (Shenzhen)	7	100	8	132	7	125	0
Jinjuzui (Foshan)	2	100	8	112	12	102	0
Huijingcheng (Foshan)	4	113	11	154	8	138	0
Tangjia (Zhuhai)	6	58	5	61	4	70	0
Donghu (Jiangmen)	7	76	7	78	7	94	0
Duanfen (Jiangmen)	5	47	3	39	5	28	0
Huaguoshan (Jiangmen)	2	68	1	59	0	63	0
Chengzhong (Zhaoqing)	1	63	3	82	1	84	0
Xiapu (Huizhou)	4	63	5	71	5	71	0
Xijiao (Huizhou)	0	46	0	34	2	37	0
Jinguowan (Huizhou)	3	54	4	69	0	42	0
Zimaling (Zhongshan)	1	67	5	51	3	57	0
Nanchengyuanling (Dongguan)	1	79	6	117	6	97	0
Tap Mun (Hong Kong)	1	46	1	66	1	47	0
Tsuen Wan (Hong Kong)	7	211	14	247	12	216	3
Yuen Long (Hong Kong)	3	119	7	160	6	120	0
Tung Chung (Hong Kong)	0	125	1	132	2	148	0
Taipa Grande (Macao)	2	68	2	77	4	84	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	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	26	71	28	57	27	81	1
Modiesha (Guangzhou)	28	63	30	64	29	63	0
Wanqingsha (Guangzhou)	5	46	15	53	18	50	0
Tianhu (Guangzhou)	1	17	3	16	3	22	0
Zhudong (Guangzhou)	7	36	11	44	12	38	0
Liyuan (Shenzhen)	21	54	22	66	22	55	0
Jinjuzui (Foshan)	10	54	18	56	27	54	0
Huijingcheng (Foshan)	21	60	25	69	25	70	0
Tangjia (Zhuhai)	10	36	13	32	12	29	0
Donghu (Jiangmen)	10	47	13	46	16	47	0
Duanfen (Jiangmen)	6	22	6	19	8	18	0
Huaguoshan (Jiangmen)	8	35	8	29	6	35	0
Chengzhong (Zhaoqing)	8	30	13	42	19	42	0
Xiapu (Huizhou)	13	34	12	30	11	38	0
Xijiao (Huizhou)	4	21	5	16	7	21	0
Jinguowan (Huizhou)	7	23	9	29	4	18	0
Zimaling (Zhongshan)	5	35	8	28	7	33	0
Nanchengyuanling (Dongguan)	11	39	22	53	13	45	0
Tap Mun (Hong Kong)	2	17	4	26	4	21	0
Tsuen Wan (Hong Kong)	41	100	39	96	38	91	8
Yuen Long (Hong Kong)	18	62	25	82	28	74	1
Tung Chung (Hong Kong)	5	70	17	78	20	86	1
Taipa Grande (Macao)	5	32	7	33	10	35	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	July 2015	August 2015	September 2015
Luhu (Guangzhou)	38	43*	47
Modiesha (Guangzhou)	39	47	46
Wanqingsha (Guangzhou)	19	30	33
Tianhu (Guangzhou)	9	8	11
Zhudong (Guangzhou)	21	25	22
Liyuan (Shenzhen)	33	44	33
Jinjuzui (Foshan)	27	39	39
Huijingcheng (Foshan)	36	46	46
Tangjia (Zhuhai)	17	19	19
Donghu (Jiangmen)	20	25	27
Duanfen (Jiangmen)	12	10	12
Huaguoshan (Jiangmen)	17	18	20
Chengzhong (Zhaoqing)	16	25	28
Xiapu (Huizhou)	20*	22	21
Xijiao (Huizhou)	11	10	13
Jinguowan (Huizhou)	12	16	9
Zimaling (Zhongshan)	14	17	16
Nanchengyuanling (Dongguan)	22	32	29
Tap Mun (Hong Kong)	8	13	9
Tsuen Wan (Hong Kong)	59	64	57
Yuen Long (Hong Kong)	35	47	42
Tung Chung (Hong Kong)	28	42	36
Taipa Grande (Macao)	16	20	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 4.3a：The monthly maxima and minima of hourly averages of O_3

[Class II limit: 200 μg/m^3]

Monitoring Station	July 2015		August 2015		September 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	1	270	1	301	1	260	41
Modiesha (Guangzhou)	4	322	4	342	3	326	105
Wanqingsha (Guangzhou)	5	257	3	355	2	307	123
Tianhu (Guangzhou)	10	249	17	282	12	279	115
Zhudong (Guangzhou)	2	299	2	273	1	258	78
Liyuan (Shenzhen)	2	192	2	226	2	206	7
Jinjuzui (Foshan)	4	270	4	332	3	315	133
Huijingcheng (Foshan)	1	264	2	273	3	314	94
Tangjia (Zhuhai)	8	86	1	92	1	88	0
Donghu (Jiangmen)	2	218	1	279	1	266	76
Duanfen (Jiangmen)	4	232	3	322	2	146	29
Huaguoshan (Jiangmen)	3	301	2	194	3	173	16
Chengzhong (Zhaoqing)	5	255	3	272	3	285	75
Xiapu (Huizhou)	1	170	1	231	1	245	27
Xijiao (Huizhou)	0	209	0	233	0	293	27
Jinguowan (Huizhou)	1	198	1	244	1	240	24
Zimaling (Zhongshan)	2	225	2	273	1	288	64
Nanchengyuanling (Dongguan)	4	350	1	331	2	311	124
Tap Mun (Hong Kong)	2	252	3	333	3	307	33
Tsuen Wan (Hong Kong)	2	220	1	318	2	235	15
Yuen Long (Hong Kong)	1	231	1	390	1	231	33
Tung Chung (Hong Kong)	0	255	1	332	1	237	52
Taipa Grande (Macao)	2	235	2	287	1	249	65

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	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	23	239	7	252	3	184	14
Modiesha (Guangzhou)	34	260	21	278	12	270	24
Wanqingsha (Guangzhou)	55	226	50	237	31	249	27
Tianhu (Guangzhou)	65	222	71	246	60	256	22
Zhudong (Guangzhou)	58	256	11	226	26	211	19
Liyuan (Shenzhen)	21	167	15	180	27	163	5
Jinjuzui (Foshan)	40	222	25	264	21	268	34
Huijingcheng (Foshan)	34	227	28	234	9	274	24
Tangjia (Zhuhai)	35	66	15	73	12	72	0
Donghu (Jiangmen)	16	181	11	249	12	223	21
Duanfen (Jiangmen)	47	199	47	277	10	134	8
Huaguoshan (Jiangmen)	35	262	27	170	9	141	5
Chengzhong (Zhaoqing)	60	236	41	234	35	248	17
Xiapu (Huizhou)	27	159	25	200	39	206	9
Xijiao (Huizhou)	45	177	42	207	40	235	12
Jinguowan (Huizhou)	35	180	36	222	38	195	10
Zimaling (Zhongshan)	42	206	23	239	17	231	18
Nanchengyuanling (Dongguan)	38	259	38	272	41	260	31
Tap Mun (Hong Kong)	44	186	34	274	56	273	14
Tsuen Wan (Hong Kong)	12	161	8	216	14	161	5
Yuen Long (Hong Kong)	22	194	14	281	12	176	9
Tung Chung (Hong Kong)	35	225	11	260	22	185	13
Taipa Grande (Macao)	32	214	23	252	8	232	15

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

Table 4.3c：The monthly averages of O_3

Monitoring Station	July 2015	August 2015	September 2015
Luhu (Guangzhou)	46	52	57
Modiesha (Guangzhou)	55	68	72
Wanqingsha (Guangzhou)	74	73	84
Tianhu (Guangzhou)	83	98	106
Zhudong (Guangzhou)	66	53	65
Liyuan (Shenzhen)	50	46	69
Jinjuzui (Foshan)	66	67	78
Huijingcheng (Foshan)	59	66	69
Tangjia (Zhuhai)	36	31	32
Donghu (Jiangmen)	33	57	68
Duanfen (Jiangmen)	65	66	26
Huaguoshan (Jiangmen)	58	50	46
Chengzhong (Zhaoqing)	64	70	70
Xiapu (Huizhou)	55	61	75
Xijiao (Huizhou)	61	59	63
Jinguowan (Huizhou)	58	62	78
Zimaling (Zhongshan)	58	56	74
Nanchengyuanling (Dongguan)	68	75	86
Tap Mun (Hong Kong)	65	62	94
Tsuen Wan (Hong Kong)	33	33	51
Yuen Long (Hong Kong)	44	38	57
Tung Chung (Hong Kong)	51	42	65
Taipa Grande (Macao)	59	59	75

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	July 2015		August 2015		September 2015		Exceedance Hours
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.3	1.6	0.5	1.7	0.4	1.6	0
Modiesha (Guangzhou)	0.3	1.3	0.2	1.3	0.2	1.7	0
Wanqingsha (Guangzhou)	0.2	1.3	0.4	1.4	0.1	1.3	0
Tianhu (Guangzhou)	0.4	1.2	0.1	1.1	0.2	1.1	0
Zhudong (Guangzhou)	0.2	1.1	0.1	1.5	0.3	1.4	0
Liyuan (Shenzhen)	0.4	1.8	0.7	1.7	0.6	1.3	0
Jinjuzui (Foshan)	0.5	1.7	0.5	1.9	0.6	1.6	0
Huijingcheng (Foshan)	0.3	1.6	0.2	1.3	0.4	1.6	0
Tangjia (Zhuhai)	0.3	1.4	0.5	1.4	0.4	1.0	0
Donghu (Jiangmen)	0.2	1.5	0.2	1.3	0.4	1.7	0
Duanfen (Jiangmen)	0.3	1.1	0.2	1.2	0.1	1.7	0
Huaguoshan (Jiangmen)	0.2	1.5	0.1	1.3	0.2	1.6	0
Chengzhong (Zhaoqing)	0.1	1.5	0.1	1.9	0.1	2.8	0
Xiapu (Huizhou)	0.1	1.5	0.5	1.9	0.3	2.4	0
Xijiao (Huizhou)	0.2	1.5	0.1	1.3	0.2	1.5	0
Jinguowan (Huizhou)	0.2	1.1	0.2	1.5	0.5	1.1	0
Zimaling (Zhongshan)	0.3	1.5	0.3	1.5	0.4	2.5	0
Nanchengyuanling (Dongguan)	0.1	1.3	0.3	1.4	0.3	1.2	0
Tap Mun (Hong Kong)	0.4	1.2	0.5	1.2	0.5	1.1	0
Tsuen Wan (Hong Kong)	0.5	1.2	0.5	1.5	0.6	1.4	0
Yuen Long (Hong Kong)	0.1	1.1	0.1	1.3	0.2	1.1	0
Tung Chung (Hong Kong)	0.2	1.3	0.2	1.4	0.2	1.0	0
Taipa Grande (Macao)	0.3	1.1	0.0	1.7	0.2	1.0	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	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	0.4	1.1	0.6	1.3	0.5	1.2	0
Modiesha (Guangzhou)	0.5	0.9	0.4	1.0	0.4	1.4	0
Wanqingsha (Guangzhou)	0.3	0.9	0.5	0.8	0.2	1.1	0
Tianhu (Guangzhou)	0.4	0.9	0.4	0.9	0.3	0.9	0
Zhudong (Guangzhou)	0.4	1.0	0.4	1.2	0.5	0.9	0
Liyuan (Shenzhen)	0.5	0.9	0.7	1.3	0.7	1.1	0
Jinjuzui (Foshan)	0.7	1.2	0.6	1.2	0.7	1.3	0
Huijingcheng (Foshan)	0.4	1.1	0.4	0.9	0.5	1.1	0
Tangjia (Zhuhai)	0.5	1.2	0.5	1.2	0.4	0.8	0
Donghu (Jiangmen)	0.3	1.0	0.3	0.9	0.6	1.0	0
Duanfen (Jiangmen)	0.3	0.8	0.3	0.8	0.3	0.8	0
Huaguoshan (Jiangmen)	0.3	1.2	0.4	0.9	0.4	1.2	0
Chengzhong (Zhaoqing)	0.5	1.1	0.5	1.2	0.7	1.3	0
Xiapu (Huizhou)	0.5	1.0	0.7	1.2	0.7	1.1	0
Xijiao (Huizhou)	0.4	0.7	0.3	0.6	0.4	0.8	0
Jinguowan (Huizhou)	0.4	0.9	0.4	0.8	0.5	1.0	0
Zimaling (Zhongshan)	0.4	1.1	0.4	1.2	0.5	1.2	0
Nanchengyuanling (Dongguan)	0.5	1.0	0.5	1.0	0.4	0.9	0
Tap Mun (Hong Kong)	0.5	1.0	0.5	1.0	0.5	0.9	0
Tsuen Wan (Hong Kong)	0.6	1.0	0.6	1.1	0.7	1.1	0
Yuen Long (Hong Kong)	0.3	0.9	0.3	0.8	0.4	0.7	0
Tung Chung (Hong Kong)	0.4	1.0	0.4	1.1	0.2	0.9	0
Taipa Grande (Macao)	0.4	0.8	0.1	0.9	0.3	0.8	0

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

Table 4.4c：The monthly averages of CO

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

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	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	27	119	28	95	28	87	0
Modiesha (Guangzhou)	24	104	30	97	23	93	0
Wanqingsha (Guangzhou)	15	82	19	91	21	74	0
Tianhu (Guangzhou)	17	66	15	75	2	92	0
Zhudong (Guangzhou)	21	93	33	92	17	94	0
Liyuan (Shenzhen)	18	60	19	80	17	78	0
Jinjuzui (Foshan)	18	72	22	70	16	81	0
Huijingcheng (Foshan)	24	81	24	71	21	95	0
Tangjia (Zhuhai)	10	45	12	86	18	90	0
Donghu (Jiangmen)	21	74	23	115	27	83	0
Duanfen (Jiangmen)	6	63	10	93	10	88	0
Huaguoshan (Jiangmen)	17	94	25	103	20	106	0
Chengzhong (Zhaoqing)	26	95	32	112	26	96	0
Xiapu (Huizhou)	16	69	21	73	19	77	0
Xijiao (Huizhou)	12	50	17	65	20	94	0
Jinguowan (Huizhou)	8	71	20	70	16	78	0
Zimaling (Zhongshan)	16	70	15	82	11	86	0
Nanchengyuanling (Dongguan)	26	80	21	68	31	100	0
Tap Mun (Hong Kong)	12	50	14	67	16	69	0
Tsuen Wan (Hong Kong)	15	62	13	78	12	71	0
Yuen Long (Hong Kong)	14	66	15	86	18	77	0
Tung Chung (Hong Kong)	9	64	10	76	10	60	0
Taipa Grande (Macao)	13	69	12	100	14	90	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	July 2015	August 2015	September 2015
Luhu (Guangzhou)	44	56	54
Modiesha (Guangzhou)	46	54	59
Wanqingsha (Guangzhou)	36	45	45
Tianhu (Guangzhou)	34	41	49
Zhudong (Guangzhou)	41	55	55
Liyuan (Shenzhen)	31	40	42
Jinjuzui (Foshan)	37	43	49
Huijingcheng (Foshan)	38	44	49
Tangjia (Zhuhai)	24	38	43
Donghu (Jiangmen)	36	53	52
Duanfen (Jiangmen)	30	31	39
Huaguoshan (Jiangmen)	43	53	57
Chengzhong (Zhaoqing)	43	54	60
Xiapu (Huizhou)	38	46	50
Xijiao (Huizhou)	30	39	49
Jinguowan (Huizhou)	34	39	44
Zimaling (Zhongshan)	33	37	43
Nanchengyuanling (Dongguan)	38*	49*	56
Tap Mun (Hong Kong)	26	31	35
Tsuen Wan (Hong Kong)	26	34	35
Yuen Long (Hong Kong)	31	38	39
Tung Chung (Hong Kong)	27	30	29
Taipa Grande (Macao)	35	39	42

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/m³]

Monitoring Station	July 2015		August 2015		September 2015		Exceedance Days
	Min	Max	Min	Max	Min	Max	
Luhu (Guangzhou)	12	75	14	62	17	56	0
Modiesha (Guangzhou)	10	69	10	57	10	58	0
Wanqingsha (Guangzhou)	8	40	9	57	14	73	0
Tianhu (Guangzhou)	10	50	9	53	4	56	0
Zhudong (Guangzhou)	16	76	24	69	14	71	1
Liyuan (Shenzhen)	6	42	7	52	8	52	0
Jinjuzui (Foshan)	13	55	12	48	11	57	0
Huijingcheng (Foshan)	14	64	14	60	17	50	0
Tangjia (Zhuhai)	6	50	5	54	4	59	0
Donghu (Jiangmen)	10	56	8	84	13	54	1
Duanfen (Jiangmen)	2	44	3	56	3	69	0
Huaguoshan (Jiangmen)	9	63	13	67	11	73	0
Chengzhong (Zhaoqing)	14	65	17	74	18	66	0
Xiapu (Huizhou)	10	49	9	52	11	67	0
Xijiao (Huizhou)	10	46	12	53	12	75	0
Jinguowan (Huizhou)	6	47	9	49	9	57	0
Zimaling (Zhongshan)	7	57	8	62	7	71	0
Nanchengyuanling (Dongguan)	14	51	10	55	15	71	0
Tap Mun (Hong Kong)	6	44	8	51	6	49	0
Tsuen Wan (Hong Kong)	8	49	7	55	5	48	0
Yuen Long (Hong Kong)	9	51	9	56	10	53	0
Tung Chung (Hong Kong)	4	48	4	49	5	38	0
Taipa Grande (Macao)	0	49	1	62	2	57	0

Remark : All concentration units are in micrograms per cubic metre (μg/m³).

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

Monitoring Station	July 2015	August 2015	September 2015
Luhu (Guangzhou)	26	35	35
Modiesha (Guangzhou)	22	30	33
Wanqingsha (Guangzhou)	18	29	34
Tianhu (Guangzhou)	24	28	32
Zhudong (Guangzhou)	29	41	41
Liyuan (Shenzhen)	19	24	27
Jinjuzui (Foshan)	24	29	33
Huijingcheng (Foshan)	25	32	34
Tangjia (Zhuhai)	18	23	25
Donghu (Jiangmen)	25	32	32
Duanfen (Jiangmen)	16	18	24
Huaguoshan (Jiangmen)	26	33	35
Chengzhong (Zhaoqing)	26	36	40
Xiapu (Huizhou)	23	29	33
Xijiao (Huizhou)	24	30	38
Jinguowan (Huizhou)	19*	25	28
Zimaling (Zhongshan)	21	26	31
Nanchengyuanling (Dongguan)	23	32	38
Tap Mun (Hong Kong)	17	22	24
Tsuen Wan (Hong Kong)	15	22	22
Yuen Long (Hong Kong)	19	24	29
Tung Chung (Hong Kong)	15	19	18
Taipa Grande (Macao)	14	17	24

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