Guangdong-Hong Kong-Macao

Pearl River Delta

Regional Air Quality Monitoring Network

January to March 2016

Statistical Summary of the First 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 a 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 Quality 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 2016 First Quarter Monitoring Results of PRD Regional Air Quality Monitoring Network", is the ninth one published in the form of a quarterly report and is the sixth 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. carbon monoxide (CO) and fine suspended particulates ($PM_{2.5}$), to enrich the air quality monitoring information. The network was accordingly renamed "Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network" (the "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

Remark: For the boundary of the administrative division of the Macao Special Administrative Region, according the Decree n.º665 of the State Council of the People's Republic of China, "the map of the administrative division of the Macao Special Administrative Region" was approved at the 116th Executive Meeting of the State Council on 16 December 2015.

3. Operation of the Network

Owing to the extensive renovation work at the Tap Mun monitoring station in Hong Kong, the station was temporarily suspended from 30 November, 2015 to 26 February, 2016 .

The operation of the Network was generally smooth in the first quarter of 2016. The average hourly monitoring data capture rate of all monitoring stations in the Network was 96.1% (Excluding the data recorded at Tap Mun monitoring station from January to February).

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 2016.

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	1	32	1	37	1	65
Modiesha (Guangzhou)	3	40	3	73	3	81
Wanqingsha (Guangzhou)	10	54	6	47	11	80
Tianhu (Guangzhou)	1	21	2	28	0	41
Zhudong (Guangzhou)	4	56	4	42	5	55
Liyuan (Shenzhen)	1	14	3	16	3	34
Jinjuzui (Foshan)	9	48	6	48	6	59
Huijingcheng (Foshan)	6	56	5	75	6	65
Tangjia (Zhuhai)	1	34	1	28	1	45
Donghu (Jiangmen)	10	30	9	48	9	70
Duanfen (Jiangmen)	1	35	0	25	1	33
Huaguoshan (Jiangmen)	0	94	0	82	13	95
Chengzhong (Zhaoqing)	3	153	3	144	7	398
Xiapu (Huizhou)	1	21	2	76	2	31
Xijiao (Huizhou)	3	39	5	34	5	23
Jinguowan (Huizhou)	5	25	6	40	6	31
Zimaling (Zhongshan)	8	43	8	165	10	49
Nanchengyuanling (Dongguan)	3	45	2	28	3	38
Tap Mun (Hong Kong)	--	--	--	--	6	37
Tsuen Wan (Hong Kong)	6	54	6	70	6	94
Yuen Long (Hong Kong)	9	32	8	24	6	26
Tung Chung (Hong Kong)	6	54	6	32	7	46
Taipa Grande (Macao)	0	29	0	23	0	99

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	14	2	25	3	24
Modiesha (Guangzhou)	4	25	3	19	4	40
Wanqingsha (Guangzhou)	14	36	11	26	15	42
Tianhu (Guangzhou)	2	14	3	16	0	24
Zhudong (Guangzhou)	5	22	5	19	6	28
Liyuan (Shenzhen)	2	9	4	12	5	14
Jinjuzui (Foshan)	10	31	7	23	7	34
Huijingcheng (Foshan)	9	42	8	34	8	38
Tangjia (Zhuhai)	5	20	3	13	3	16
Donghu (Jiangmen)	10	19	11	22	11	37
Duanfen (Jiangmen)	3	19	1	11	2	15
Huaguoshan (Jiangmen)	1	50	0	39	19	48
Chengzhong (Zhaoqing)	5	44	4	27	9	106
Xiapu (Huizhou)	2	9	2	22	2	14
Xijiao (Huizhou)	6	19	5	13	7	12
Jinguowan (Huizhou)	6	14	6	15	7	13
Zimaling (Zhongshan)	9	26	9	30	11	28
Nanchengyuanling (Dongguan)	5	23	3	13	4	17
Tap Mun (Hong Kong)	--	--	--	--	7	13
Tsuen Wan (Hong Kong)	7	23	7	17	6	34
Yuen Long (Hong Kong)	10	18	9	17	6	15
Tung Chung (Hong Kong)	8	21	7	16	8	22
Taipa Grande (Macao)	1	17	0	13	0	17

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

Table 4.1c：The monthly averages of SO_2

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	7	12	14
Modiesha (Guangzhou)	10	8	15
Wanqingsha (Guangzhou)	20	17	23
Tianhu (Guangzhou)	6	7*	11
Zhudong (Guangzhou)	13	10	14
Liyuan (Shenzhen)	5	7	8
Jinjuzui (Foshan)	17	12	17
Huijingcheng (Foshan)	17*	14	20
Tangjia (Zhuhai)	10	8	7
Donghu (Jiangmen)	14	15	18
Duanfen (Jiangmen)	9	5	7
Huaguoshan (Jiangmen)	16	15	28
Chengzhong (Zhaoqing)	13	11	35
Xiapu (Huizhou)	5	6	6
Xijiao (Huizhou)	12	8	9
Jinguowan (Huizhou)	8	8	9
Zimaling (Zhongshan)	16	14	16
Nanchengyuanling (Dongguan)	12	7	10
Tap Mun (Hong Kong)	--	--	9
Tsuen Wan (Hong Kong)	10	10	12
Yuen Long (Hong Kong)	12	13	10
Tung Chung (Hong Kong)	11	11	11
Taipa Grande (Macao)	5	5	6

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

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	11	145	8	121	3	219
Modiesha (Guangzhou)	10	187	8	160	2	179
Wanqingsha (Guangzhou)	9	123	7	135	15	165
Tianhu (Guangzhou)	2	43	2	21	0	55
Zhudong (Guangzhou)	3	155	4	103	8	122
Liyuan (Shenzhen)	6	120	6	146	5	208
Jinjuzui (Foshan)	0	125	8	122	0	147
Huijingcheng (Foshan)	9	169	0	155	8	200
Tangjia (Zhuhai)	7	105	1	103	1	133
Donghu (Jiangmen)	8	137	8	77	11	110
Duanfen (Jiangmen)	12	94	1	70	9	80
Huaguoshan (Jiangmen)	8	101	1	77	7	194
Chengzhong (Zhaoqing)	8	124	3	116	5	150
Xiapu (Huizhou)	1	95	1	100	6	154
Xijiao (Huizhou)	1	44	3	30	0	54
Jinguowan (Huizhou)	1	45	1	34	4	60
Zimaling (Zhongshan)	4	101	1	126	7	114
Nanchengyuanling (Dongguan)	3	130	2	114	6	139
Tap Mun (Hong Kong)	--	--	--	--	2	90
Tsuen Wan (Hong Kong)	12	157	11	157	12	183
Yuen Long (Hong Kong)	5	137	7	149	10	176
Tung Chung (Hong Kong)	7	172	1	122	6	189
Taipa Grande (Macao)	9	107	9	128	12	146

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	19	105	15	68	23	154
Modiesha (Guangzhou)	22	103	16	81	22	138
Wanqingsha (Guangzhou)	16	75	13	65	32	111
Tianhu (Guangzhou)	5	14	3	12	0	28
Zhudong (Guangzhou)	11	82	11	61	22	81
Liyuan (Shenzhen)	28	75	14	63	20	101
Jinjuzui (Foshan)	25	79	20	71	20	107
Huijingcheng (Foshan)	27	109	7	101	29	131
Tangjia (Zhuhai)	14	59	6	43	10	69
Donghu (Jiangmen)	11	78	11	46	20	58
Duanfen (Jiangmen)	21	71	10	46	14	67
Huaguoshan (Jiangmen)	23	69	6	52	15	109
Chengzhong (Zhaoqing)	21	90	7	61	13	102
Xiapu (Huizhou)	6	46	5	31	11	61
Xijiao (Huizhou)	8	19	6	16	7	25
Jinguowan (Huizhou)	4	20	2	17	11	35
Zimaling (Zhongshan)	15	67	2	66	17	77
Nanchengyuanling (Dongguan)	10	63	10	56	15	83
Tap Mun (Hong Kong)	--	--	--	--	7	31
Tsuen Wan (Hong Kong)	36	115	40	93	37	141
Yuen Long (Hong Kong)	25	91	25	76	31	98
Tung Chung (Hong Kong)	19	96	7	62	23	118
Taipa Grande (Macao)	19	67	14	74	30	80

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

Table 4.2c：The monthly averages of NO_2

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	53	43	67
Modiesha (Guangzhou)	56	41	68
Wanqingsha (Guangzhou)	48	32	63
Tianhu (Guangzhou)	9	6	13
Zhudong (Guangzhou)	30	21	46
Liyuan (Shenzhen)	44	36	43
Jinjuzui (Foshan)	48	42	52
Huijingcheng (Foshan)	66*	46	70
Tangjia (Zhuhai)	38	25	36
Donghu (Jiangmen)	40	22	33
Duanfen (Jiangmen)	43	23	28
Huaguoshan (Jiangmen)	44	25	47
Chengzhong (Zhaoqing)	43	27	50
Xiapu (Huizhou)	25	17	33
Xijiao (Huizhou)	13	9	14
Jinguowan (Huizhou)	12	10	19
Zimaling (Zhongshan)	44	28	40
Nanchengyuanling (Dongguan)	33	24	47
Tap Mun (Hong Kong)	--	--	12
Tsuen Wan (Hong Kong)	63	62	70
Yuen Long (Hong Kong)	53	49	60
Tung Chung (Hong Kong)	47	41	48
Taipa Grande (Macao)	39	37	52

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	1	103	1	131	1	220
Modiesha (Guangzhou)	4	108	4	138	0	227
Wanqingsha (Guangzhou)	4	161	6	167	7	263
Tianhu (Guangzhou)	5	142	24	137	2	205
Zhudong (Guangzhou)	3	128	3	141	2	231
Liyuan (Shenzhen)	7	164	7	139	3	200
Jinjuzui (Foshan)	3	101	4	149	4	268
Huijingcheng (Foshan)	2	132	3	140	3	202
Tangjia (Zhuhai)	4	147	9	136	27	159
Donghu (Jiangmen)	1	129	1	158	1	244
Duanfen (Jiangmen)	1	162	2	173	2	228
Huaguoshan (Jiangmen)	0	119	3	167	0	260
Chengzhong (Zhaoqing)	1	99	0	158	1	212
Xiapu (Huizhou)	1	173	1	383	1	202
Xijiao (Huizhou)	1	95	5	124	8	166
Jinguowan (Huizhou)	6	124	18	138	3	222
Zimaling (Zhongshan)	1	151	2	157	2	271
Nanchengyuanling (Dongguan)	2	139	2	110	2	171
Tap Mun (Hong Kong)	--	--	--	--	1	188
Tsuen Wan (Hong Kong)	2	104	1	110	0	152
Yuen Long (Hong Kong)	1	133	1	109	1	149
Tung Chung (Hong Kong)	0	134	1	128	14	195
Taipa Grande (Macao)	0	183	0	140	0	182

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

Table 4.3b：The monthly maxima and minima of daily maximum 8-hour averages of O_3

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	5	80	23	122	2	155
Modiesha (Guangzhou)	7	87	11	134	0	193
Wanqingsha (Guangzhou)	10	112	18	152	10	207
Tianhu (Guangzhou)	25	108	54	126	22	192
Zhudong (Guangzhou)	8	103	30	130	4	177
Liyuan (Shenzhen)	20	122	28	129	23	155
Jinjuzui (Foshan)	6	83	10	129	5	204
Huijingcheng (Foshan)	3	92	10	112	3	164
Tangjia (Zhuhai)	23	108	26	113	50	150
Donghu (Jiangmen)	2	85	16	137	5	192
Duanfen (Jiangmen)	9	119	32	150	8	185
Huaguoshan (Jiangmen)	5	101	23	133	6	221
Chengzhong (Zhaoqing)	2	89	25	139	4	180
Xiapu (Huizhou)	17	125	12	289	4	154
Xijiao (Huizhou)	24	84	43	119	36	137
Jinguowan (Huizhou)	28	102	46	133	20	197
Zimaling (Zhongshan)	2	113	13	118	3	231
Nanchengyuanling (Dongguan)	10	105	15	91	5	130
Tap Mun (Hong Kong)	--	--	--	--	43	182
Tsuen Wan (Hong Kong)	8	84	9	93	2	137
Yuen Long (Hong Kong)	3	87	11	100	10	133
Tung Chung (Hong Kong)	5	93	10	102	22	152
Taipa Grande (Macao)	1	133	7	116	6	149

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

Table 4.3c：The monthly averages of O_3

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	22	47	27
Modiesha (Guangzhou)	27	48	39
Wanqingsha (Guangzhou)	33	51	42
Tianhu (Guangzhou)	54	73	77
Zhudong (Guangzhou)	31	49	40
Liyuan (Shenzhen)	46	55	60
Jinjuzui (Foshan)	21	41	40
Huijingcheng (Foshan)	18*	34	29
Tangjia (Zhuhai)	35	52	69
Donghu (Jiangmen)	19	35	38
Duanfen (Jiangmen)	35	57	60
Huaguoshan (Jiangmen)	23	46	41
Chengzhong (Zhaoqing)	27	44	37
Xiapu (Huizhou)	40	47	52
Xijiao (Huizhou)	38	49	63
Jinguowan (Huizhou)	46	64	68
Zimaling (Zhongshan)	25	38	44
Nanchengyuanling (Dongguan)	30	34	29
Tap Mun (Hong Kong)	--	--	79
Tsuen Wan (Hong Kong)	34	32	39
Yuen Long (Hong Kong)	26	30	32
Tung Chung (Hong Kong)	29	34	47
Taipa Grande (Macao)	28	39	41

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.1	2.9	0.3	2.8	0.3	3.5
Modiesha (Guangzhou)	0.6	2.7	0.0	2.4	0.0	2.0
Wanqingsha (Guangzhou)	0.6	1.5	0.3	1.7	0.5	2.2
Tianhu (Guangzhou)	0.0	1.5	0.0	1.4	0.0	1.2
Zhudong (Guangzhou)	0.2	2.3	0.4	1.5	0.4	1.7
Liyuan (Shenzhen)	0.5	1.9	0.4	2.0	0.0	1.8
Jinjuzui (Foshan)	0.4	3.0	0.5	2.1	0.8	3.7
Huijingcheng (Foshan)	0.2	2.6	0.3	2.5	0.3	3.1
Tangjia (Zhuhai)	0.4	2.0	0.3	1.7	0.4	1.6
Donghu (Jiangmen)	0.4	3.7	0.6	2.8	0.4	3.3
Duanfen (Jiangmen)	0.4	1.6	0.3	1.6	0.4	2.5
Huaguoshan (Jiangmen)	0.3	2.2	0.4	1.8	0.3	3.7
Chengzhong (Zhaoqing)	0.2	3.4	0.6	2.7	0.5	3.3
Xiapu (Huizhou)	0.5	3.2	0.5	2.2	0.5	2.8
Xijiao (Huizhou)	0.4	1.6	0.0	1.4	0.0	1.3
Jinguowan (Huizhou)	0.2	1.4	0.1	1.2	0.4	1.8
Zimaling (Zhongshan)	0.3	2.3	0.3	1.9	0.2	2.3
Nanchengyuanling (Dongguan)	0.5	1.9	0.3	2.0	0.2	3.1
Tap Mun (Hong Kong)	--	--	--	--	0.1	1.2
Tsuen Wan (Hong Kong)	0.4	1.7	0.6	1.6	0.6	3.0
Yuen Long (Hong Kong)	0.3	1.7	0.4	2.1	0.6	1.7
Tung Chung (Hong Kong)	0.4	1.7	0.5	2.4	0.5	2.0
Taipa Grande (Macao)	0.4	1.7	0.0	1.4	0.4	1.3

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.3	2.0	0.4	1.4	0.6	1.8
Modiesha (Guangzhou)	0.7	1.6	0.2	1.3	0.0	1.3
Wanqingsha (Guangzhou)	0.7	1.3	0.3	1.3	0.6	1.6
Tianhu (Guangzhou)	0.2	1.3	0.2	1.3	0.3	1.0
Zhudong (Guangzhou)	0.4	1.9	0.7	1.3	0.6	1.5
Liyuan (Shenzhen)	0.6	1.5	0.6	1.2	0.4	1.4
Jinjuzui (Foshan)	0.6	1.9	0.7	1.3	0.9	2.1
Huijingcheng (Foshan)	0.4	1.5	0.5	1.5	0.5	2.2
Tangjia (Zhuhai)	0.5	1.5	0.3	1.0	0.5	1.3
Donghu (Jiangmen)	0.8	1.8	0.7	1.3	0.5	2.0
Duanfen (Jiangmen)	0.4	1.3	0.4	0.9	0.5	1.2
Huaguoshan (Jiangmen)	0.5	1.6	0.8	1.6	0.7	2.8
Chengzhong (Zhaoqing)	0.8	2.5	0.8	1.4	0.7	2.3
Xiapu (Huizhou)	0.7	1.4	0.6	1.1	0.7	1.6
Xijiao (Huizhou)	0.6	1.1	0.4	1.1	0.3	0.8
Jinguowan (Huizhou)	0.2	1.1	0.2	0.9	0.5	0.9
Zimaling (Zhongshan)	0.6	1.8	0.6	1.3	0.4	1.9
Nanchengyuanling (Dongguan)	0.6	1.4	0.5	1.2	0.4	1.6
Tap Mun (Hong Kong)	--	--	--	--	0.3	0.8
Tsuen Wan (Hong Kong)	0.6	1.5	0.7	1.2	0.9	1.7
Yuen Long (Hong Kong)	0.5	1.2	0.6	1.2	0.7	1.2
Tung Chung (Hong Kong)	0.5	1.4	0.7	1.4	0.6	1.2
Taipa Grande (Macao)	0.4	1.2	0.4	1.0	0.5	0.9

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

Table 4.4c：The monthly averages of CO

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	1.1	0.8	1.1
Modiesha (Guangzhou)	1.2	0.8	0.5
Wanqingsha (Guangzhou)	1.0	0.7	0.9
Tianhu (Guangzhou)	0.7	0.7	0.7
Zhudong (Guangzhou)	1.0	0.9	0.9
Liyuan (Shenzhen)	1.1	0.9	0.9
Jinjuzui (Foshan)	1.2	0.9	1.3
Huijingcheng (Foshan)	1.1*	0.8	1.0
Tangjia (Zhuhai)	0.9	0.7	0.7
Donghu (Jiangmen)	1.2	1.0	1.0
Duanfen (Jiangmen)	0.9	0.7	0.7
Huaguoshan (Jiangmen)	1.2	1.2	1.2
Chengzhong (Zhaoqing)	1.3	1.1	1.2
Xiapu (Huizhou)	1.1	0.9	1.0
Xijiao (Huizhou)	0.9	0.7	0.6
Jinguowan (Huizhou)	0.8	0.6	0.7
Zimaling (Zhongshan)	1.1	0.9	0.9
Nanchengyuanling (Dongguan)	1.1	0.8	0.7
Tap Mun (Hong Kong)	--	--	0.5
Tsuen Wan (Hong Kong)	1.1	1.0	1.1
Yuen Long (Hong Kong)	0.9	0.9	0.9
Tung Chung (Hong Kong)	0.9	1.0	0.8
Taipa Grande (Macao)	0.8	0.7	0.7

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	15	128	7	96	27	172
Modiesha (Guangzhou)	16	141	6	107	9	219
Wanqingsha (Guangzhou)	17	105	4	98	7	165
Tianhu (Guangzhou)	8	75	5	108	4	134
Zhudong (Guangzhou)	13	152	6	91	9	129
Liyuan (Shenzhen)	15	92	14	110	15	107
Jinjuzui (Foshan)	15	110	8	96	9	198
Huijingcheng (Foshan)	21	136	21	103	23	175
Tangjia (Zhuhai)	15	92	7	98	13	102
Donghu (Jiangmen)	15	161	7	97	12	124
Duanfen (Jiangmen)	18	87	21	95	18	96
Huaguoshan (Jiangmen)	15	117	4	93	13	160
Chengzhong (Zhaoqing)	15	167	6	99	6	146
Xiapu (Huizhou)	4	78	25	109	8	153
Xijiao (Huizhou)	9	61	3	84	1	93
Jinguowan (Huizhou)	7	65	3	79	4	159
Zimaling (Zhongshan)	20	97	7	89	9	138
Nanchengyuanling (Dongguan)	18	97	5	94	5	178
Tap Mun (Hong Kong)	--	--	--	--	9	112
Tsuen Wan (Hong Kong)	10	103	9	117	7	104
Yuen Long (Hong Kong)	9	90	12	140	12	112
Tung Chung (Hong Kong)	14	120	14	97	14	94
Taipa Grande (Macao)	10	112	11	116	12	109

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

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

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	46	48	69
Modiesha (Guangzhou)	49	49	72
Wanqingsha (Guangzhou)	49	46	61
Tianhu (Guangzhou)	30	38	47
Zhudong (Guangzhou)	39	43	63
Liyuan (Shenzhen)	41	46	44
Jinjuzui (Foshan)	46	48	65
Huijingcheng (Foshan)	56*	53	72
Tangjia (Zhuhai)	42	44	47
Donghu (Jiangmen)	58	40	53
Duanfen (Jiangmen)	47	48	47
Huaguoshan (Jiangmen)	49	46	61
Chengzhong (Zhaoqing)	51	43	72
Xiapu (Huizhou)	36	51	54
Xijiao (Huizhou)	28	35	44
Jinguowan (Huizhou)	31	34	43
Zimaling (Zhongshan)	48	47	53
Nanchengyuanling (Dongguan)	47	45	67
Tap Mun (Hong Kong)	--	--	37
Tsuen Wan (Hong Kong)	38	44	42
Yuen Long (Hong Kong)	41	51	50
Tung Chung (Hong Kong)	43	45	39
Taipa Grande (Macao)	50	51	52

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

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

Monitoring Station	January 2016		February 2016		March 2016	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	12	114	5	68	9	132
Modiesha (Guangzhou)	6	88	2	75	13	119
Wanqingsha (Guangzhou)	11	80	4	55	5	99
Tianhu (Guangzhou)	4	60	4	64	3	87
Zhudong (Guangzhou)	10	108	6	74	6	84
Liyuan (Shenzhen)	9	69	12	64	3	82
Jinjuzui (Foshan)	10	77	6	75	5	136
Huijingcheng (Foshan)	14	54	14	63	10	118
Tangjia (Zhuhai)	14	69	4	55	8	67
Donghu (Jiangmen)	10	124	6	54	4	92
Duanfen (Jiangmen)	8	54	4	50	9	49
Huaguoshan (Jiangmen)	11	83	3	56	9	112
Chengzhong (Zhaoqing)	17	86	7	51	4	87
Xiapu (Huizhou)	10	71	6	98	6	116
Xijiao (Huizhou)	7	54	2	70	1	70
Jinguowan (Huizhou)	5	51	4	60	3	76
Zimaling (Zhongshan)	18	68	9	60	9	106
Nanchengyuanling (Dongguan)	14	87	5	68	5	134
Tap Mun (Hong Kong)	--	--	--	--	5	68
Tsuen Wan (Hong Kong)	7	79	6	58	4	63
Yuen Long (Hong Kong)	9	76	10	70	17	74
Tung Chung (Hong Kong)	8	84	8	44	8	70
Taipa Grande (Macao)	7	74	5	51	5	76

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

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

Monitoring Station	January 2016	February 2016	March 2016
Luhu (Guangzhou)	35	35	48
Modiesha (Guangzhou)	28	31	41
Wanqingsha (Guangzhou)	31	30	37
Tianhu (Guangzhou)	21	26	31
Zhudong (Guangzhou)	29	32	43
Liyuan (Shenzhen)	29	33	32
Jinjuzui (Foshan)	32	34	46
Huijingcheng (Foshan)	32*	36	46
Tangjia (Zhuhai)	32	29	31
Donghu (Jiangmen)	35	22	31
Duanfen (Jiangmen)	28	27	27
Huaguoshan (Jiangmen)	36	32	44
Chengzhong (Zhaoqing)	37	24	50
Xiapu (Huizhou)	25	30	34
Xijiao (Huizhou)	23	29	34
Jinguowan (Huizhou)	22	23	24
Zimaling (Zhongshan)	37	28	36
Nanchengyuanling (Dongguan)	36	34	47
Tap Mun (Hong Kong)	--	--	27
Tsuen Wan (Hong Kong)	26	28	29
Yuen Long (Hong Kong)	31	38	35
Tung Chung (Hong Kong)	27	26	26
Taipa Grande (Macao)	30	31	32

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