

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

**October to December 2015**

**Statistical Summary of the Fourth 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 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<sub>2.5</sub> or FSP) has been added in addition to the results of respirable suspended particulates (PM<sub>10</sub> or RSP), Sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and ozone (O<sub>3</sub>).

This report, “Statistical Summary of the 2015 Fourth Quarter Monitoring Results of PRD Regional Air Quality Monitoring Network”, is the eighth one published in the form of a quarterly report and is the fifth one reporting the statistical summaries of the six pollutants (i.e. PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, CO and PM<sub>2.5</sub>) 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<sub>2.5</sub>, to enrich the air quality monitoring information. The network was then renamed “Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network”. The GDEMC, HKEPD, Environmental Protection Bureau of Macao 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<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub> 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**

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

The operation of the Network was generally smooth in the fourth quarter of 2015. The average hourly monitoring data capture rate of all monitoring stations in the Network was 96.0%.

### **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<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub>) during the reporting period from October to December 2015.

**Table 4.1a : The monthly maxima and minima of hourly averages of SO<sub>2</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	1	32	3	38	1	30
Modiesha (Guangzhou)	4	65	5	55	4	49
Wanqingsha (Guangzhou)	6	98	8	91	10	68
Tianhu (Guangzhou)	1	34	2	29	2	35
Zhudong (Guangzhou)	5	83	7	106	7	70
Liyuan (Shenzhen)	1	23	1	22	1	23
Jinjuzui (Foshan)	6	72	8	101	5	148
Huijingcheng (Foshan)	2	90	0	106	3	102
Tangjia (Zhuhai)	1	36	1	41	1	45
Donghu (Jiangmen)	0	111	8	68	10	64
Duanfen (Jiangmen)	0	37	1	45	1	42
Huaguoshan (Jiangmen)	2	95	6	125	5	70
Chengzhong (Zhaoqing)	6	249	3	168	2	159
Xiapu (Huizhou)	6	74	8	36	1	31
Xijiao (Huizhou)	5	72	7	94	6	54
Jinguowan (Huizhou)	2	66	6	27	6	32
Zimaling (Zhongshan)	1	68	0	46	5	93
Nanchengyuanling (Dongguan)	2	61	2	74	5	60
Tap Mun (Hong Kong)	5	24	6	25	-	-
Tsuen Wan (Hong Kong)	6	53	6	52	7	50
Yuen Long (Hong Kong)	4	40	5	35	5	31
Tung Chung (Hong Kong)	2	34	3	21	3	31
Taipa Grande (Macao)	0	31	0	73	0	54

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

**Table 4.1b : The monthly maxima and minima of daily averages of SO<sub>2</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	3	16	5	25	2	17
Modiesha (Guangzhou)	6	27	7	26	5	22
Wanqingsha (Guangzhou)	9	44	11	38	13	43
Tianhu (Guangzhou)	2	18	3	18	3	20
Zhudong (Guangzhou)	7	36	15	61	10	45
Liyuan (Shenzhen)	2	12	2	9	2	15
Jinjuzui (Foshan)	7	29	11	74	9	82
Huijingcheng (Foshan)	6	40	12	62	6	45
Tangjia (Zhuhai)	2	15	4	23	6	19
Donghu (Jiangmen)	10	36	12	40	12	37
Duanfen (Jiangmen)	0	17	3	26	3	25
Huaguoshan (Jiangmen)	5	41	16	50	12	54
Chengzhong (Zhaoqing)	9	63	7	55	3	46
Xiapu (Huizhou)	6	21	11	23	3	19
Xijiao (Huizhou)	7	23	12	27	10	25
Jinguowan (Huizhou)	5	17	7	14	7	19
Zimaling (Zhongshan)	3	25	5	25	8	32
Nanchengyuanling (Dongguan)	4	28	6	28	6	33
Tap Mun (Hong Kong)	5	16	7	12	-	-
Tsuen Wan (Hong Kong)	7	19	7	18	8	19
Yuen Long (Hong Kong)	4	17	5	17	7	19
Tung Chung (Hong Kong)	3	11	3	12	5	14
Taipa Grande (Macao)	2	16	0	17	1	15

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

**Table 4.1c : The monthly averages of SO<sub>2</sub>**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	8	11	8
Modiesha (Guangzhou)	15	16	12
Wanqingsha (Guangzhou)	23	22	25
Tianhu (Guangzhou)	10	7	9
Zhudong (Guangzhou)	24	29	21
Liyuan (Shenzhen)	7	5	5
Jinjuzui (Foshan)	18	24	24
Huijingcheng (Foshan)	20*	27	21
Tangjia (Zhuhai)	7	8	11
Donghu (Jiangmen)	17	23	19
Duanfen (Jiangmen)	6	13	13
Huaguoshan (Jiangmen)	25	29	25
Chengzhong (Zhaoqing)	24	25	16
Xiapu (Huizhou)	14	15	10
Xijiao (Huizhou)	17	18	16
Jinguowan (Huizhou)	9	9	9
Zimaling (Zhongshan)	14	14*	16
Nanchengyuanling (Dongguan)	17	17	15
Tap Mun (Hong Kong)	9	9	-
Tsuen Wan (Hong Kong)	12	10	11
Yuen Long (Hong Kong)	10	9	11
Tung Chung (Hong Kong)	7	6	9
Taipa Grande (Macao)	7	7	7

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

\* 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<sub>2</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	6	171	6	148	15	187
Modiesha (Guangzhou)	14	240	22	208	20	171
Wanqingsha (Guangzhou)	5	167	5	165	18	154
Tianhu (Guangzhou)	0	65	0	37	2	84
Zhudong (Guangzhou)	0	90	4	84	4	130
Liyuan (Shenzhen)	6	141	6	129	8	191
Jinjuzui (Foshan)	9	193	1	148	2	167
Huijingcheng (Foshan)	9	204	11	239	0	214
Tangjia (Zhuhai)	1	104	3	97	7	122
Donghu (Jiangmen)	0	131	11	155	16	141
Duanfen (Jiangmen)	5	49	9	120	12	127
Huaguoshan (Jiangmen)	5	115	8	139	10	189
Chengzhong (Zhaoqing)	4	126	1	121	3	138
Xiapu (Huizhou)	1	117	6	89	4	116
Xijiao (Huizhou)	2	32	5	40	4	42
Jinguowan (Huizhou)	0	42	0	37	0	51
Zimaling (Zhongshan)	2	116	4	121	9	151
Nanchengyuanling (Dongguan)	2	158	7	120	1	127
Tap Mun (Hong Kong)	1	52	1	41	-	-
Tsuen Wan (Hong Kong)	9	152	14	181	12	163
Yuen Long (Hong Kong)	1	146	9	178	12	174
Tung Chung (Hong Kong)	2	174	1	162	7	147
Taipa Grande (Macao)	3	105	8	82	11	67

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



**Table 4.2b : The monthly maxima and minima of daily averages of NO<sub>2</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	21	92	31	68	28	105
Modiesha (Guangzhou)	26	107	36	91	33	108
Wanqingsha (Guangzhou)	19	88	23	74	26	92
Tianhu (Guangzhou)	1	29	2	14	3	33
Zhudong (Guangzhou)	6	43	17	53	11	72
Liyuan (Shenzhen)	17	71	19	86	22	88
Jinjuzui (Foshan)	16	91	18	86	13	94
Huijingcheng (Foshan)	25	149	41	110	34	125
Tangjia (Zhuhai)	10	38	13	61	14	77
Donghu (Jiangmen)	15	79	21	96	18	105
Duanfen (Jiangmen)	6	37	14	71	23	70
Huaguoshan (Jiangmen)	15	56	29	91	28	95
Chengzhong (Zhaoqing)	18	65	12	77	15	100
Xiapu (Huizhou)	7	42	12	35	9	50
Xijiao (Huizhou)	6	16	8	19	7	21
Jinguowan (Huizhou)	0	16	6	22	3	21
Zimaling (Zhongshan)	6	62	22	80	21	81
Nanchengyuanling (Dongguan)	9	60	12	51	10	70
Tap Mun (Hong Kong)	2	19	4	18	-	-
Tsuen Wan (Hong Kong)	26	89	38	106	40	84
Yuen Long (Hong Kong)	14	92	33	99	34	90
Tung Chung (Hong Kong)	10	101	17	95	26	75
Taipa Grande (Macao)	8	66	13	56	20	47

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

**Table 4.2c : The monthly averages of NO<sub>2</sub>**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	50	50	55
Modiesha (Guangzhou)	59	59	58
Wanqingsha (Guangzhou)	47	49	52
Tianhu (Guangzhou)	5	5	10
Zhudong (Guangzhou)	28	32	28
Liyuan (Shenzhen)	37	35	44
Jinjuzui (Foshan)	53	53	48
Huijingcheng (Foshan)	72	71	66
Tangjia (Zhuhai)	18	27	37
Donghu (Jiangmen)	40	49	47
Duanfen (Jiangmen)	18	35	40
Huaguoshan (Jiangmen)	37	52	48
Chengzhong (Zhaoqing)	38	37	40
Xiapu (Huizhou)	21	21	24
Xijiao (Huizhou)	11	13	14
Jinguowan (Huizhou)	8	13	10
Zimaling (Zhongshan)	30	43*	45
Nanchengyuanling (Dongguan)	33	34	32
Tap Mun (Hong Kong)	8	8	-
Tsuen Wan (Hong Kong)	63	56	60
Yuen Long (Hong Kong)	53	50	54
Tung Chung (Hong Kong)	51	44	49
Taipa Grande (Macao)	31	33	33

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

\* 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<sub>3</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	1	296	1	149	1	118
Modiesha (Guangzhou)	4	321	3	214	3	180
Wanqingsha (Guangzhou)	2	364	0	273	0	187
Tianhu (Guangzhou)	7	194	5	161	0	132
Zhudong (Guangzhou)	2	224	2	174	3	101
Liyuan (Shenzhen)	6	255	5	210	2	122
Jinjuzui (Foshan)	4	339	3	288	3	122
Huijingcheng (Foshan)	4	373	3	208	1	112
Tangjia (Zhuhai)	1	170	3	169	3	140
Donghu (Jiangmen)	0	314	1	205	1	133
Duanfen (Jiangmen)	2	316	2	208	2	131
Huaguoshan (Jiangmen)	4	353	1	238	0	97
Chengzhong (Zhaoqing)	3	266	3	297	1	143
Xiapu (Huizhou)	1	177	1	158	1	148
Xijiao (Huizhou)	0	158	0	133	0	140
Jinguowan (Huizhou)	1	187	1	194	0	142
Zimaling (Zhongshan)	2	325	2	234	3	145
Nanchengyuanling (Dongguan)	2	264	2	217	2	191
Tap Mun (Hong Kong)	3	233	9	233	-	-
Tsuen Wan (Hong Kong)	2	246	3	169	2	97
Yuen Long (Hong Kong)	1	260	1	220	1	93
Tung Chung (Hong Kong)	2	336	2	202	2	104
Taipa Grande (Macao)	0	325	0	219	0	119

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

**Table 4.3b : The monthly maxima and minima of daily maximum 8-hour averages of O<sub>3</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	13	220	4	118	2	83
Modiesha (Guangzhou)	23	257	8	179	6	120
Wanqingsha (Guangzhou)	36	337	22	215	5	129
Tianhu (Guangzhou)	51	180	24	141	34	111
Zhudong (Guangzhou)	31	183	9	133	5	85
Liyuan (Shenzhen)	24	206	51	167	15	104
Jinjuzui (Foshan)	11	274	5	219	5	93
Huijingcheng (Foshan)	58	239	5	152	6	79
Tangjia (Zhuhai)	10	143	20	142	20	110
Donghu (Jiangmen)	7	236	3	148	3	85
Duanfen (Jiangmen)	7	263	37	162	18	110
Huaguoshan (Jiangmen)	16	289	5	210	5	77
Chengzhong (Zhaoqing)	25	222	13	239	6	87
Xiapu (Huizhou)	29	163	37	119	14	120
Xijiao (Huizhou)	43	148	37	103	25	96
Jinguowan (Huizhou)	44	167	47	150	22	121
Zimaling (Zhongshan)	23	272	12	177	5	96
Nanchengyuanling (Dongguan)	33	218	24	162	4	148
Tap Mun (Hong Kong)	66	221	68	176	-	-
Tsuen Wan (Hong Kong)	19	165	17	120	11	80
Yuen Long (Hong Kong)	9	206	31	139	2	78
Tung Chung (Hong Kong)	24	231	19	126	9	95
Taipa Grande (Macao)	19	271	11	161	0	94

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

**Table 4.3c : The monthly averages of O<sub>3</sub>**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	51	24	19
Modiesha (Guangzhou)	65	36	29
Wanqingsha (Guangzhou)	88	53	33
Tianhu (Guangzhou)	107	53	50
Zhudong (Guangzhou)	60	33	27
Liyuan (Shenzhen)	79	65	41
Jinjuzui (Foshan)	69	39	23
Huijingcheng (Foshan)	69*	32	19
Tangjia (Zhuhai)	43	40	34
Donghu (Jiangmen)	55	28	20
Duanfen (Jiangmen)	56	55	35
Huaguoshan (Jiangmen)	56	33	20
Chengzhong (Zhaoqing)	69	43	26
Xiapu (Huizhou)	74	51	41
Xijiao (Huizhou)	55	39	38
Jinguowan (Huizhou)	77	55	45
Zimaling (Zhongshan)	77	43*	25
Nanchengyuanling (Dongguan)	74	50	34
Tap Mun (Hong Kong)	108	93	-
Tsuen Wan (Hong Kong)	58	47	31
Yuen Long (Hong Kong)	58	42	23
Tung Chung (Hong Kong)	67	55	29
Taipa Grande (Macao)	87	54	26

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

\* 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**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.4	4.6	0.0	3.2	0.3	3.1
Modiesha (Guangzhou)	0.0	2.0	0.2	2.1	0.2	3.3
Wanqingsha (Guangzhou)	0.3	1.7	0.1	1.6	0.2	1.8
Tianhu (Guangzhou)	0.2	1.1	0.2	1.1	0.2	1.6
Zhudong (Guangzhou)	0.0	1.3	0.4	1.4	0.6	2.1
Liyuan (Shenzhen)	0.4	1.7	0.5	1.4	0.3	1.5
Jinjuzui (Foshan)	0.6	2.4	0.7	2.5	0.5	3.5
Huijingcheng (Foshan)	0.2	2.0	0.2	2.4	0.1	2.3
Tangjia (Zhuhai)	0.3	1.1	0.1	1.3	0.4	1.9
Donghu (Jiangmen)	0.5	2.9	0.3	3.8	0.5	3.5
Duanfen (Jiangmen)	0.2	1.4	0.2	1.4	0.3	1.8
Huaguoshan (Jiangmen)	0.2	1.5	0.3	1.8	0.2	2.6
Chengzhong (Zhaoqing)	0.1	2.2	0.1	2.1	0.2	4.0
Xiapu (Huizhou)	0.5	1.9	0.7	1.9	0.3	2.3
Xijiao (Huizhou)	0.2	1.4	0.4	1.8	0.5	1.8
Jinguowan (Huizhou)	0.3	1.3	0.4	1.3	0.3	1.4
Zimaling (Zhongshan)	0.4	1.8	0.4	2.8	0.2	2.6
Nanchengyuanling (Dongguan)	0.0	1.4	0.4	1.8	0.4	2.9
Tap Mun (Hong Kong)	0.5	1.2	0.6	1.4	-	-
Tsuen Wan (Hong Kong)	0.7	1.5	0.5	1.5	0.6	1.7
Yuen Long (Hong Kong)	0.2	1.3	0.2	1.3	0.1	1.7
Tung Chung (Hong Kong)	0.3	1.0	0.3	1.6	0.4	1.9
Taipa Grande (Macao)	0.4	1.2	0.4	1.5	0.3	2.0

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

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

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

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

**Table 4.4c : The monthly averages of CO**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	0.9	1.2	1.2
Modiesha (Guangzhou)	0.8	1.2	0.9
Wanqingsha (Guangzhou)	0.8	0.8	0.7
Tianhu (Guangzhou)	0.5	0.6	0.6
Zhudong (Guangzhou)	0.6	0.9	1.1
Liyuan (Shenzhen)	0.8	0.8	0.7
Jinjuzui (Foshan)	1.2	1.3	1.3
Huijingcheng (Foshan)	0.9	0.9	0.9
Tangjia (Zhuhai)	0.6	0.7	0.8
Donghu (Jiangmen)	1.0	1.0	1.2
Duanfen (Jiangmen)	0.7	0.7	0.9
Huaguoshan (Jiangmen)	0.9	0.9*	1.1
Chengzhong (Zhaoqing)	0.9	1.0	1.2
Xiapu (Huizhou)	0.9	1.2	0.9
Xijiao (Huizhou)	0.6	0.7	0.8
Jinguowan (Huizhou)	0.8	0.8	0.8
Zimaling (Zhongshan)	0.9	1.4*	1.3
Nanchengyuanling (Dongguan)	0.7	0.9	1.0
Tap Mun (Hong Kong)	0.7	0.8	-
Tsuen Wan (Hong Kong)	1.0	0.9	1.0
Yuen Long (Hong Kong)	0.6	0.5	0.7
Tung Chung (Hong Kong)	0.6	0.7	0.9
Taipa Grande (Macao)	0.7	0.7	0.8

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

\* 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<sub>10</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	16	126	14	99	13	171
Modiesha (Guangzhou)	22	137	19	111	16	143
Wanqingsha (Guangzhou)	18	113	27	101	16	96
Tianhu (Guangzhou)	12	74	5	64	6	73
Zhudong (Guangzhou)	13	103	11	85	13	147
Liyuan (Shenzhen)	19	97	18	116	20	104
Jinjuzui (Foshan)	11	125	19	123	16	152
Huijingcheng (Foshan)	28	149	29	125	20	184
Tangjia (Zhuhai)	22	104	18	114	14	111
Donghu (Jiangmen)	14	143	27	132	15	135
Duanfen (Jiangmen)	10	118	30	128	15	120
Huaguoshan (Jiangmen)	7	165	20	131	17	154
Chengzhong (Zhaoqing)	15	118	13	125	14	181
Xiapu (Huizhou)	15	98	21	96	12	102
Xijiao (Huizhou)	16	66	11	58	7	63
Jinguowan (Huizhou)	12	89	18	73	10	74
Zimaling (Zhongshan)	14	107	23	114	17	154
Nanchengyuanling (Dongguan)	15	119	17	95	14	120
Tap Mun (Hong Kong)	25	86	13	67	-	-
Tsuen Wan (Hong Kong)	14	87	23	106	21	75
Yuen Long (Hong Kong)	15	106	29	86	30	101
Tung Chung (Hong Kong)	13	93	13	109	29	87
Taipa Grande (Macao)	22	134	33	127	29	108

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

**Table 4.5b : The monthly averages of PM<sub>10</sub>**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	60	53	56
Modiesha (Guangzhou)	67	64	61
Wanqingsha (Guangzhou)	64	56	49
Tianhu (Guangzhou)	45	34	36
Zhudong (Guangzhou)	57	48	48
Liyuan (Shenzhen)	54	44	48
Jinjuzui (Foshan)	62	59	58
Huijingcheng (Foshan)	78	67	70
Tangjia (Zhuhai)	63	49	48
Donghu (Jiangmen)	68	62	62
Duanfen (Jiangmen)	65	70	55
Huaguoshan (Jiangmen)	78	76	66
Chengzhong (Zhaoqing)	59	62	48
Xiapu (Huizhou)	58	53	46
Xijiao (Huizhou)	43	39	36
Jinguowan (Huizhou)	54	42	35
Zimaling (Zhongshan)	60	58*	55
Nanchengyuanling (Dongguan)	67	60	52
Tap Mun (Hong Kong)	47	37	-
Tsuen Wan (Hong Kong)	46	41	42
Yuen Long (Hong Kong)	59	49	53
Tung Chung (Hong Kong)	43	39	49
Taipa Grande (Macao)	67	60	64

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

\* 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<sub>2.5</sub>**

Monitoring Station	October 2015		November 2015		December 2015	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	12	81	11	72	7	130
Modiesha (Guangzhou)	10	73	6	56	5	87
Wanqingsha (Guangzhou)	10	81	12	71	9	76
Tianhu (Guangzhou)	8	53	4	47	3	60
Zhudong (Guangzhou)	9	73	8	60	9	108
Liyuan (Shenzhen)	8	64	13	81	13	64
Jinjuzui (Foshan)	8	94	9	80	10	119
Huijingcheng (Foshan)	15	101	16	75	12	124
Tangjia (Zhuhai)	10	74	8	76	9	70
Donghu (Jiangmen)	11	99	12	62	12	87
Duanfen (Jiangmen)	1	79	8	73	10	77
Huaguoshan (Jiangmen)	4	110	12	87	8	96
Chengzhong (Zhaoqing)	9	81	10	81	9	82
Xiapu (Huizhou)	11	59	8	58	9	68
Xijiao (Huizhou)	13	57	8	49	6	53
Jinguowan (Huizhou)	6	52	11	58	7	50
Zimaling (Zhongshan)	8	89	14	88	16	114
Nanchengyuanling (Dongguan)	13	89	11	70	10	95
Tap Mun (Hong Kong)	11	55	4	42	-	-
Tsuen Wan (Hong Kong)	6	66	11	81	12	54
Yuen Long (Hong Kong)	11	80	18	65	14	53
Tung Chung (Hong Kong)	5	71	5	84	16	56
Taipa Grande (Macao)	4	84	16	79	13	70

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

**Table 4.6b : The monthly averages of PM<sub>2.5</sub>**

Monitoring Station	October 2015	November 2015	December 2015
Luhu (Guangzhou)	39	34	40
Modiesha (Guangzhou)	37	30	34
Wanqingsha (Guangzhou)	44	39	37
Tianhu (Guangzhou)	31	23	26
Zhudong (Guangzhou)	42	34	35
Liyuan (Shenzhen)	35	30	32
Jinjuzui (Foshan)	41	36	38
Huijingcheng (Foshan)	48	38	41
Tangjia (Zhuhai)	40	35	34
Donghu (Jiangmen)	39	29	36
Duanfen (Jiangmen)	41	38	32
Huaguoshan (Jiangmen)	47	44	39
Chengzhong (Zhaoqing)	40	40	32
Xiapu (Huizhou)	34	31	30
Xijiao (Huizhou)	34	31	29
Jinguowan (Huizhou)	32	29	24
Zimaling (Zhongshan)	46	41*	40
Nanchengyuanling (Dongguan)	47	42	39
Tap Mun (Hong Kong)	31	20	-
Tsuen Wan (Hong Kong)	31	26	28
Yuen Long (Hong Kong)	41	34	29
Tung Chung (Hong Kong)	28	24	32
Taipa Grande (Macao)	39	34	36

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

\* 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
Nanchengyuanling (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 <sub>2</sub>	UV fluorescence / Differential Optical Absorption Spectroscopy
NO <sub>2</sub>	Chemiluminescence / Differential Optical Absorption Spectroscopy
O <sub>3</sub>	UV absorption / Differential Optical Absorption Spectroscopy
PM <sub>10</sub>	Oscillating microbalance (TEOM) Beta particulate monitor
PM <sub>2.5</sub>	Oscillating microbalance (TEOM) Beta particulate monitor Hybrid nephelometric/radiometric particulate mass monitor
CO	Gas filter correlation infrared absorption method Non-dispersive infrared absorption method