

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

**January to March 2021**

**Statistical Summary of the First quarter  
Monitoring Results**

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## 1. Foreword

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

To cope with the enhancement of the network, the update of the national ambient air quality standards as well as the need for improving the reporting frequency of monitoring results, starting from 2014, the real-time hourly monitoring data was reported on a new internet platform to replace the daily RAQI, the half-yearly report was also replaced by a quarterly report while the annual air quality monitoring report was maintained. The quarterly report is a brief statistical summary of the regional air quality monitoring results in a quarter. The annual report, in addition to the reporting of the monitoring data, provides a more detailed analysis and comparison of the air quality in the year. From the fourth quarter of 2014, the statistical results of carbon monoxide (CO) and fine suspended particulates (PM<sub>2.5</sub> or FSP) were added to the report in addition to those of respirable suspended particulates (PM<sub>10</sub> or RSP), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and ozone (O<sub>3</sub>).

This report is the statistical summary of the monitoring results of the PRD Regional Air Quality Monitoring Network in the first quarter of 2021. It is the twenty-ninth report published in the form of a quarterly report and the twenty-sixth report with the statistical summaries of the six pollutants (i.e. PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub> and CO).

## 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<sup>1</sup> (GDEMC) and the Environmental Protection Department of the Hong Kong Special Administrative Region (HKEPD) from 2003 to 2005, and commenced its operation to report the Regional Air Quality Index (RAQI) on 30 November 2005.

With the growing concerns of air pollution control and economic development of the region, the GDEMC<sup>1</sup> and HKEPD had worked in collaboration with the environmental protection cum meteorological authorities of Macao to enhance the network by extending the coverage of monitoring area to Guangdong, Hong Kong and Macao in September 2014. The enhancements included the addition of monitoring stations from 16 to 23 to further improve the spatial distribution and the inclusion of two new monitoring parameters, i.e. carbon monoxide (CO) and fine suspended particulates (PM<sub>2.5</sub>), to enrich the air quality monitoring information. At the same time, the network was renamed to “Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network” (the “Network”) while the "Quality Management Committee of Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network", which was jointly established by the Ecological and Environmental Monitoring Centre of Guangdong (GDEEMC), HKEPD, Environmental Protection Bureau of Macau SARG and the

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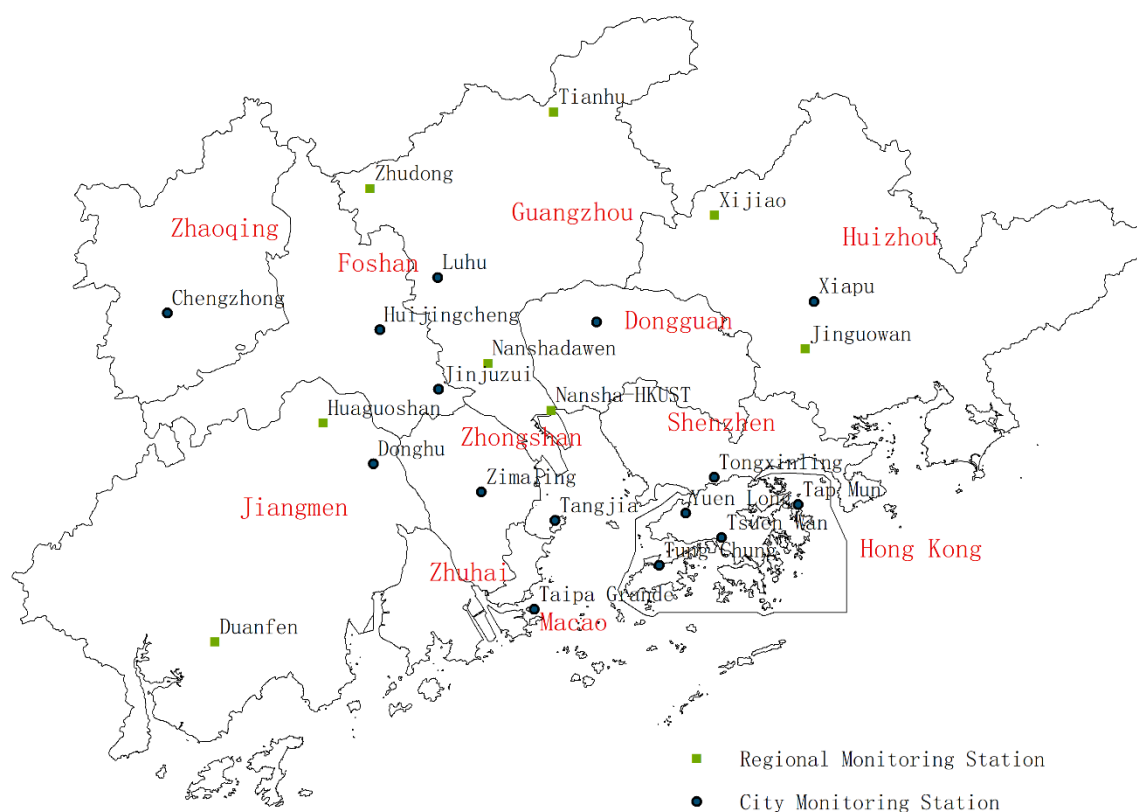
<sup>1</sup> Guangdong Provincial Environmental Monitoring Centre was renamed as Ecological and Environmental Monitoring Centre of Guangdong in December 2020.

Meteorological and Geophysical Bureau of Macao SARG, was responsible for quality management of the Network and dissemination of information.

The Network comprises 23 automatic air quality monitoring stations (see Figure 2.1) across the PRD region. Ten city stations are operated either by the Ecological and Environmental Monitoring Centres of the individual cities in Guangdong or the operation-cum-maintenance agencies commissioned by the State. Eight regional stations are operated by the GDEEMC, 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 monitoring 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 show the site information of the monitoring stations in the Network and the methods used for measuring air pollutant concentrations respectively.



**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 to 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 116<sup>th</sup> Executive Meeting of the State Council on 16 December 2015.

### 3. Operation of the Network

Owing to insufficient space after the extensive renovation work at Modiesha monitoring station in Guangzhou, this station closed permanently in 2021, whereas a new Nanshadawen monitoring station in Guangzhou joined the network. The overall operation of the Network was smooth in the first quarter of 2021. The average data capture rate of hourly air pollutant monitoring data measured at all monitoring stations was 97.8% in the first quarter.

## 4. Statistical Results of Pollutant Concentrations

Tables 4.1a to 4.6b list the detailed statistical results 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>) from January to March 2021. Per the amended *GB 3095-2012: Ambient Air Quality Standards*, starting from 2019, the concentrations of gaseous pollutants are calculated at a reference temperature of 298.15K and a pressure of 101.325 kPa, while the concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> are measured at real-time temperature and atmospheric pressure during monitoring.

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

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	5	23	5	16	4	14
Nanshadawen (Guangzhou)	3	27	5	29	8	26
Nansha-HKUST (Guangzhou)	6	31	5	19	5	21
Tianhu (Guangzhou)	3	25	3	10	2	12
Zhudong (Guangzhou)	5	30	5	15	5	15
Tongxinling (Shenzhen)	3	14	3	8	3	6
Jinjuzui (Foshan)	2	20	2	21	2	14
Huijingcheng (Foshan)	5	49	5	26	3	26
Tangjia (Zhuhai)	1	24	2	14	4	20
Donghu (Jiangmen)	4	33	3	18	5	28
Duanfen (Jiangmen)	4	27	3	16	3	22
Huaguoshan (Jiangmen)	3	88	2	36	2	53
Chengzhong (Zhaoqing)	2	59	4	18	6	53
Xiapu (Huizhou)	6	31	6	24	6	20
Xijiao (Huizhou)	1	15	1	9	1	13
Jinguowan (Huizhou)	4	18	4	23	4	9
Zimaling (Zhongshan)	1	17	1	12	1	10
Nanchengyuanling (Dongguan)	6	25	5	20	7	23
Tap Mun (Hong Kong)	2	15	2	12	3	10
Tsuen Wan (Hong Kong)	1	16	1	15	1	14
Yuen Long (Hong Kong)	5	18	5	12	6	12
Tung Chung (Hong Kong)	1	14	2	13	2	12
Taipa Grande (Macao)	2	18	2	11	3	14

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

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

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	6	13	5	9	4	9
Nanshadawen (Guangzhou)	6	18	6	11	9	18
Nansha-HKUST (Guangzhou)	8	21	6	10	6	14
Tianhu (Guangzhou)	4	15	3	7	3	8
Zhudong (Guangzhou)	6	20	5	7	6	12
Tongxinling (Shenzhen)	4	11	3	8	3	5
Jinjuzui (Foshan)	3	13	2	7	3	8
Huijingcheng (Foshan)	9	26	9	15	7	15
Tangjia (Zhuhai)	3	14	3	7	5	11
Donghu (Jiangmen)	5	16	4	7	5	14
Duanfen (Jiangmen)	5	18	3	8	3	12
Huaguoshan (Jiangmen)	4	27	2	8	3	12
Chengzhong (Zhaoqing)	3	19	4	11	7	19
Xiapu (Huizhou)	7	18	6	10	8	13
Xijiao (Huizhou)	2	8	1	2	1	7
Jinguowan (Huizhou)	5	12	4	6	4	6
Zimaling (Zhongshan)	2	8	2	6	2	6
Nanchengyuanling (Dongguan)	8	15	5	12	7	15
Tap Mun (Hong Kong)	3	11	4	6	4	7
Tsuen Wan (Hong Kong)	1	8	1	5	2	7
Yuen Long (Hong Kong)	6	13	6	8	6	9
Tung Chung (Hong Kong)	2	7	2	5	3	6
Taipa Grande (Macao)	3	10	2	5	3	8

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	9	7	7
Nanshadawen (Guangzhou)	11*	9	11
Nansha-HKUST (Guangzhou)	12	8	8
Tianhu (Guangzhou)	9	5	5
Zhudong (Guangzhou)	11	6	7
Tongxinling (Shenzhen)	8	5	4
Jinjuzui (Foshan)	7	4	5
Huijingcheng (Foshan)	15	11	10
Tangjia (Zhuhai)	8	5	6
Donghu (Jiangmen)	10	5	8
Duanfen (Jiangmen)	10	5	6
Huaguoshan (Jiangmen)	13	4	7
Chengzhong (Zhaoqing)	10	7	13
Xiapu (Huizhou)	12	8	10
Xijiao (Huizhou)	4	2	3
Jinguowan (Huizhou)	7	5	5
Zimaling (Zhongshan)	5	4	3
Nanchengyuanling (Dongguan)	11	8	11
Tap Mun (Hong Kong)	6	5	5
Tsuen Wan (Hong Kong)	4	3	3
Yuen Long (Hong Kong)	9	7	7
Tung Chung (Hong Kong)	5	3	4
Taipa Grande (Macao)	6	4	4

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

\* The capture rate of validated daily data per month is below 85%

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

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	17	259	7	171	15	124
Nanshadawen (Guangzhou)	17	208	6	100	9	142
Nansha-HKUST (Guangzhou)	10	191	1	86	5	138
Tianhu (Guangzhou)	2	60	2	37	7	50
Zhudong (Guangzhou)	12	133	5	82	12	71
Tongxinling (Shenzhen)	6	153	4	63	3	107
Jinjuzui (Foshan)	17	219	5	98	7	122
Huijingcheng (Foshan)	13	261	5	100	4	137
Tangjia (Zhuhai)	9	180	1	77	1	123
Donghu (Jiangmen)	12	210	3	80	6	134
Duanfen (Jiangmen)	1	91	1	40	1	79
Huaguoshan (Jiangmen)	14	185	6	73	6	121
Chengzhong (Zhaoqing)	16	196	10	139	10	102
Xiapu (Huizhou)	10	184	5	82	10	79
Xijiao (Huizhou)	4	44	2	28	6	45
Jinguowan (Huizhou)	8	113	5	38	8	56
Zimaling (Zhongshan)	9	148	4	80	3	106
Nanchengyuanling (Dongguan)	12	189	5	77	8	122
Tap Mun (Hong Kong)	5	82	1	62	1	47
Tsuen Wan (Hong Kong)	12	198	8	137	9	145
Yuen Long (Hong Kong)	11	172	4	105	9	120
Tung Chung (Hong Kong)	6	160	4	102	0	99
Taipa Grande (Macao)	15	141	7	83	4	104

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	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	26	188	13	76	24	70
Nanshadawen (Guangzhou)	37	124	13	52	23	78
Nansha-HKUST (Guangzhou)	20	105	6	50	17	73
Tianhu (Guangzhou)	5	49	4	20	8	32
Zhudong (Guangzhou)	24	84	9	47	17	48
Tongxinling (Shenzhen)	14	70	8	35	7	46
Jinjuzui (Foshan)	24	144	9	55	13	71
Huijingcheng (Foshan)	25	206	10	58	14	79
Tangjia (Zhuhai)	21	88	9	38	6	51
Donghu (Jiangmen)	26	102	9	40	11	59
Duanfen (Jiangmen)	7	35	6	24	2	42
Huaguoshan (Jiangmen)	31	135	11	47	8	71
Chengzhong (Zhaoqing)	20	108	14	61	18	66
Xiapu (Huizhou)	17	83	9	30	15	38
Xijiao (Huizhou)	7	25	5	13	8	21
Jinguowan (Huizhou)	12	53	7	21	13	26
Zimaling (Zhongshan)	24	99	8	40	6	56
Nanchengyuanling (Dongguan)	18	132	9	47	13	58
Tap Mun (Hong Kong)	9	42	4	19	4	24
Tsuen Wan (Hong Kong)	34	124	28	75	29	72
Yuen Long (Hong Kong)	31	109	24	59	25	72
Tung Chung (Hong Kong)	15	92	12	54	4	55
Taipa Grande (Macao)	23	83	14	42	7	62

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	72	39	46
Nanshadawen (Guangzhou)	63*	32	47
Nansha-HKUST (Guangzhou)	51	22	40
Tianhu (Guangzhou)	15	11	17
Zhudong (Guangzhou)	39	24	32
Tongxinling (Shenzhen)	36	19	19
Jinjuzui (Foshan)	63	24	38
Huijingcheng (Foshan)	71	27	39
Tangjia (Zhuhai)	45	19	26
Donghu (Jiangmen)	53	18	32
Duanfen (Jiangmen)	18	10	14
Huaguoshan (Jiangmen)	55	21	32
Chengzhong (Zhaoqing)	54	28	37
Xiapu (Huizhou)	36	17	24
Xijiao (Huizhou)	14	9	14
Jinguowan (Huizhou)	25	13	19
Zimaling (Zhongshan)	52	17	27
Nanchengyuanling (Dongguan)	53	25	34
Tap Mun (Hong Kong)	16	9	9
Tsuen Wan (Hong Kong)	59	48	43
Yuen Long (Hong Kong)	57	41	39
Tung Chung (Hong Kong)	44	29	26
Taipa Grande (Macao)	46	22	26

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

\* The capture rate of validated daily data per month is below 85%

**Table 4.3a: The monthly maxima and minima of hourly averages of O<sub>3</sub>**

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	204	2	215	2	203
Nanshadawen (Guangzhou)	1	209	2	255	1	341
Nansha-HKUST (Guangzhou)	2	238	3	298	3	256
Tianhu (Guangzhou)	33	282	14	217	5	232
Zhudong (Guangzhou)	3	290	3	176	3	179
Tongxinling (Shenzhen)	1	218	1	187	1	226
Jinjuzui (Foshan)	2	196	2	197	2	216
Huijingcheng (Foshan)	2	232	4	264	3	287
Tangjia (Zhuhai)	1	210	1	297	1	246
Donghu (Jiangmen)	1	278	1	265	1	296
Duanfen (Jiangmen)	7	205	3	168	2	145
Huaguoshan (Jiangmen)	2	192	4	209	3	207
Chengzhong (Zhaoqing)	5	211	6	182	5	181
Xiapu (Huizhou)	3	209	4	154	3	179
Xijiao (Huizhou)	5	224	3	205	2	225
Jinguowan (Huizhou)	1	270	5	177	1	197
Zimaling (Zhongshan)	4	246	4	233	4	269
Nanchengyuanling (Dongguan)	1	333	1	252	1	290
Tap Mun (Hong Kong)	11	193	10	178	3	204
Tsuen Wan (Hong Kong)	0	126	1	111	1	115
Yuen Long (Hong Kong)	1	183	1	152	1	170
Tung Chung (Hong Kong)	1	203	2	249	2	186
Taipa Grande (Macao)	2	232	1	264	1	152

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

**Table 4.3b: Daily maximum 8-hour averages of O<sub>3</sub> (the monthly maxima, minima and the 90<sup>th</sup> percentile)**

Monitoring Station	January 2021			February 2021			March 2021		
	Min	Max	90 <sup>th</sup> per	Min	Max	90 <sup>th</sup> per	Min	Max	90 <sup>th</sup> per
Luhu (Guangzhou)	42	153	127	22	184	161	5	179	138
Nanshadawen (Guangzhou)	35	174	141	6	198	179	4	267	135
Nansha-HKUST (Guangzhou)	37	166	153	30	197	167	13	187	135
Tianhu (Guangzhou)	65	252	167	45	190	177	28	200	138
Zhudong (Guangzhou)	44	221	161	20	158	129	7	149	118
Tongxinling (Shenzhen)	42	152	120	19	135	124	33	150	120
Jinjuzui (Foshan)	27	138	131	20	170	143	4	173	131
Huijingcheng (Foshan)	41	185	145	13	223	182	6	213	155
Tangjia (Zhuhai)	50	166	146	25	229	145	31	165	142
Donghu (Jiangmen)	37	208	164	16	210	171	6	240	133
Duanfen (Jiangmen)	45	169	144	19	147	139	8	135	124
Huaguoshan (Jiangmen)	29	166	135	17	184	150	7	165	106
Chengzhong (Zhaoqing)	39	167	138	21	170	145	10	161	112
Xiapu (Huizhou)	41	160	133	40	139	127	44	147	124
Xijiao (Huizhou)	56	194	136	42	169	153	31	179	150
Jinguowan (Huizhou)	37	213	141	29	149	136	37	163	132
Zimaling (Zhongshan)	40	184	133	15	194	149	5	210	121
Nanchengyuanling (Dongguan)	46	209	168	33	203	183	22	210	175
Tap Mun (Hong Kong)	59	154	141	28	154	140	42	157	148
Tsuen Wan (Hong Kong)	33	103	88	19	93	85	17	105	89
Yuen Long (Hong Kong)	33	133	115	15	120	113	33	142	99
Tung Chung (Hong Kong)	30	118	108	7	151	107	29	125	103
Taipa Grande (Macao)	42	179	124	17	188	120	25	140	124

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	44	60	42
Nanshadawen (Guangzhou)	49*	70	44
Nansha-HKUST (Guangzhou)	62	81	52
Tianhu (Guangzhou)	98	99	70
Zhudong (Guangzhou)	60	55	46
Tongxinling (Shenzhen)	63	67	60
Jinjuzui (Foshan)	46	66	45
Huijingcheng (Foshan)	51	79	49
Tangjia (Zhuhai)	67	77	60
Donghu (Jiangmen)	58	81	52
Duanfen (Jiangmen)	67	71	56
Huaguoshan (Jiangmen)	51	67	42
Chengzhong (Zhaoqing)	51	67	46
Xiapu (Huizhou)	66	71	61
Xijiao (Huizhou)	68	58	58
Jinguowan (Huizhou)	74	71	59
Zimaling (Zhongshan)	54	75	54
Nanchengyuanling (Dongguan)	66	79	63
Tap Mun (Hong Kong)	88	84	76
Tsuen Wan (Hong Kong)	49	49	45
Yuen Long (Hong Kong)	48	53	49
Tung Chung (Hong Kong)	50	51	48
Taipa Grande (Macao)	67	75	61

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

\* The capture rate of validated daily data per month is below 85%

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

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.3	2.1	0.4	1.6	0.5	1.6
Nanshadawen (Guangzhou)	0.3	1.8	0.5	1.4	0.3	1.5
Nansha-HKUST (Guangzhou)	0.4	1.5	0.3	1.1	0.2	1.1
Tianhu (Guangzhou)	0.2	1.2	0.3	1.0	0.5	1.1
Zhudong (Guangzhou)	0.2	1.4	0.4	1.2	0.3	1.2
Tongxinling (Shenzhen)	0.0	1.6	0.4	1.0	0.3	1.1
Jinjuzui (Foshan)	0.4	2.9	0.4	1.7	0.2	2.0
Huijingcheng (Foshan)	0.2	3.3	0.3	1.3	0.1	2.4
Tangjia (Zhuhai)	0.3	1.2	0.3	0.8	0.0	1.1
Donghu (Jiangmen)	0.3	2.8	0.3	1.4	0.4	1.5
Duanfen (Jiangmen)	0.4	1.4	0.4	1.3	0.3	1.5
Huaguoshan (Jiangmen)	0.5	1.6	0.4	1.1	0.5	1.5
Chengzhong (Zhaoqing)	0.2	2.3	0.3	1.4	0.2	1.8
Xiapu (Huizhou)	0.3	2.2	0.3	1.0	0.4	1.2
Xijiao (Huizhou)	0.3	1.3	0.3	1.0	0.2	1.6
Jinguowan (Huizhou)	0.5	1.3	0.4	0.9	0.5	1.1
Zimaling (Zhongshan)	0.1	1.5	0.2	0.9	0.1	1.2
Nanchengyuanling (Dongguan)	0.2	2.2	0.2	0.9	0.1	1.4
Tap Mun (Hong Kong)	0.3	1.2	0.3	0.7	0.2	0.9
Tsuen Wan (Hong Kong)	0.3	1.2	0.2	1.1	0.3	0.9
Yuen Long (Hong Kong)	0.4	1.5	0.2	1.1	0.2	1.2
Tung Chung (Hong Kong)	0.2	1.2	0.2	0.8	0.1	0.9
Taipa Grande (Macao)	0.3	1.2	0.4	1.1	0.3	1.1

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

**Table 4.4b: Daily averages of CO (the monthly maxima, minima and the 95<sup>th</sup> percentile)**

Monitoring Station	January 2021			February 2021			March 2021		
	Min	Max	95 <sup>th</sup> per	Min	Max	95 <sup>th</sup> per	Min	Max	95 <sup>th</sup> per
Luhu (Guangzhou)	0.4	1.7	1.3	0.5	0.9	0.9	0.6	1.1	1.1
Nanshadawen (Guangzhou)	0.6	1.2	1.0	0.6	1.0	0.9	0.4	1.1	1.1
Nansha-HKUST (Guangzhou)	0.5	1.0	0.9	0.3	0.7	0.6	0.2	0.9	0.9
Tianhu (Guangzhou)	0.3	1.1	0.9	0.4	0.8	0.8	0.6	1.1	0.9
Zhudong (Guangzhou)	0.6	1.2	1.0	0.6	0.9	0.9	0.4	1.0	1.0
Tongxinling (Shenzhen)	0.5	1.1	1.0	0.4	0.8	0.7	0.3	0.8	0.8
Jinjuzui (Foshan)	0.5	1.3	1.3	0.5	0.9	0.9	0.3	1.2	1.1
Huijingcheng (Foshan)	0.4	2.0	1.4	0.5	1.0	0.9	0.4	1.4	1.1
Tangjia (Zhuhai)	0.5	0.8	0.8	0.3	0.7	0.6	0.1	0.8	0.7
Donghu (Jiangmen)	0.5	1.4	1.4	0.4	1.0	0.9	0.5	1.1	1.0
Duanfen (Jiangmen)	0.5	1.1	1.0	0.5	0.9	0.9	0.3	1.1	1.1
Huaguoshan (Jiangmen)	0.6	1.3	1.2	0.6	1.0	0.9	0.6	1.1	1.1
Chengzhong (Zhaoqing)	0.3	1.1	1.0	0.4	1.0	0.9	0.3	1.3	1.2
Xiapu (Huizhou)	0.4	1.0	1.0	0.4	0.7	0.7	0.5	0.8	0.8
Xijiao (Huizhou)	0.4	1.2	1.0	0.4	1.0	0.8	0.3	1.0	0.9
Jinguowan (Huizhou)	0.5	1.1	1.0	0.4	0.8	0.8	0.6	0.9	0.9
Zimaling (Zhongshan)	0.2	0.9	0.9	0.3	0.8	0.7	0.3	1.0	0.8
Nanchengyuanling (Dongguan)	0.4	1.2	1.2	0.2	0.6	0.6	0.2	1.0	0.9
Tap Mun (Hong Kong)	0.4	1.1	0.8	0.3	0.7	0.6	0.2	0.7	0.7
Tsuen Wan (Hong Kong)	0.4	1.1	1.0	0.3	0.8	0.8	0.4	0.7	0.7
Yuen Long (Hong Kong)	0.5	1.2	1.1	0.4	0.8	0.8	0.4	1.1	0.9
Tung Chung (Hong Kong)	0.3	0.8	0.8	0.3	0.6	0.5	0.2	0.7	0.6
Taipa Grande (Macao)	0.4	0.9	0.8	0.5	0.9	0.7	0.4	1.0	0.8

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	0.8	0.7	0.8
Nanshadawen (Guangzhou)	0.9*	0.8	0.8
Nansha-HKUST (Guangzhou)	0.7	0.5	0.6
Tianhu (Guangzhou)	0.6	0.6	0.8
Zhudong (Guangzhou)	0.8	0.7	0.7
Tongxinling (Shenzhen)	0.8	0.6	0.6
Jinjuzui (Foshan)	0.9	0.7	0.8
Huijingcheng (Foshan)	0.9	0.7	0.7
Tangjia (Zhuhai)	0.6	0.5	0.4
Donghu (Jiangmen)	0.9	0.6	0.8
Duanfen (Jiangmen)	0.8	0.7	0.6
Huaguoshan (Jiangmen)	0.9	0.7	0.8
Chengzhong (Zhaoqing)	0.7	0.7	0.7
Xiapu (Huizhou)	0.7	0.5	0.6
Xijiao (Huizhou)	0.7	0.6	0.7
Jinguowan (Huizhou)	0.8	0.7	0.7
Zimaling (Zhongshan)	0.6	0.5	0.5
Nanchengyuanling (Dongguan)	0.8	0.5	0.6
Tap Mun (Hong Kong)	0.6	0.5	0.5
Tsuen Wan (Hong Kong)	0.7	0.6	0.5
Yuen Long (Hong Kong)	0.8	0.6	0.7
Tung Chung (Hong Kong)	0.6	0.4	0.4
Taipa Grande (Macao)	0.6	0.6	0.6

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

\* The capture rate of validated daily data per month is below 85%



**Table 4.5a: The monthly maxima and minima of daily averages of PM<sub>10</sub>**

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	33	248	6	67	18	136
Nanshadawen (Guangzhou)	45	156	10	70	19	154
Nansha-HKUST (Guangzhou)	36	116	13	56	16	122
Tianhu (Guangzhou)	19	103	3	60	9	122
Zhudong (Guangzhou)	37	184	15	87	25	140
Tongxinling (Shenzhen)	38	124	12	57	15	110
Jinjuzui (Foshan)	42	163	10	57	28	144
Huijingcheng (Foshan)	34	269	13	80	25	148
Tangjia (Zhuhai)	42	145	13	54	14	120
Donghu (Jiangmen)	39	166	9	62	18	150
Duanfen (Jiangmen)	28	116	9	52	18	124
Huaguoshan (Jiangmen)	41	227	8	76	19	157
Chengzhong (Zhaoqing)	17	137	4	67	10	136
Xiapu (Huizhou)	35	122	11	59	19	106
Xijiao (Huizhou)	25	93	9	54	13	100
Jinguowan (Huizhou)	35	137	12	53	17	107
Zimaling (Zhongshan)	39	115	13	53	22	115
Nanchengyuanling (Dongguan)	35	182	10	63	12	118
Tap Mun (Hong Kong)	29	118	14	51	11	68
Tsuen Wan (Hong Kong)	21	96	5	37	14	82
Yuen Long (Hong Kong)	30	109	14	43	14	92
Tung Chung (Hong Kong)	24	92	10	37	9	61
Taipa Grande (Macao)	28	121	10	51	15	113

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	87	45	60
Nanshadawen (Guangzhou)	86*	45	60
Nansha-HKUST (Guangzhou)	67	34	45
Tianhu (Guangzhou)	47	34	45
Zhudong (Guangzhou)	80	54	77
Tongxinling (Shenzhen)	71	33	36
Jinjuzui (Foshan)	85	40	55
Huijingcheng (Foshan)	91	52	73
Tangjia (Zhuhai)	73	36	41
Donghu (Jiangmen)	88	43	59
Duanfen (Jiangmen)	68	32	40
Huaguoshan (Jiangmen)	95	53	59
Chengzhong (Zhaoqing)	69	40	55
Xiapu (Huizhou)	70	38	49
Xijiao (Huizhou)	47	34	44
Jinguowan (Huizhou)	63	36	41
Zimaling (Zhongshan)	69	34	44
Nanchengyuanling (Dongguan)	80	39	48
Tap Mun (Hong Kong)	44	26	27
Tsuen Wan (Hong Kong)	43	24	28
Yuen Long (Hong Kong)	55	33	33
Tung Chung (Hong Kong)	48	26	24
Taipa Grande (Macao)	60	33	38

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

\* The capture rate of validated daily data per month is below 85%

**Table 4.6a: The monthly maxima and minima of daily averages of PM<sub>2.5</sub>**

Monitoring Station	January 2021		February 2021		March 2021	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	14	148	4	42	8	49
Nanshadawen (Guangzhou)	14	60	5	33	7	49
Nansha-HKUST (Guangzhou)	15	85	14	34	7	50
Tianhu (Guangzhou)	14	70	4	41	5	48
Zhudong (Guangzhou)	24	105	12	60	19	81
Tongxinling (Shenzhen)	16	68	4	31	7	52
Jinjuzui (Foshan)	20	87	7	33	11	45
Huijingcheng (Foshan)	16	187	10	47	10	75
Tangjia (Zhuhai)	17	101	6	39	9	62
Donghu (Jiangmen)	13	96	5	49	6	68
Duanfen (Jiangmen)	23	78	10	29	8	58
Huaguoshan (Jiangmen)	18	150	7	42	11	73
Chengzhong (Zhaoqing)	13	88	3	47	5	63
Xiapu (Huizhou)	13	64	7	33	11	40
Xijiao (Huizhou)	12	58	8	37	13	42
Jinguowan (Huizhou)	15	57	6	29	6	40
Zimaling (Zhongshan)	13	80	8	39	4	61
Nanchengyuanling (Dongguan)	12	110	5	37	3	47
Tap Mun (Hong Kong)	15	59	7	27	7	33
Tsuen Wan (Hong Kong)	11	51	7	25	9	46
Yuen Long (Hong Kong)	13	45	7	25	7	41
Tung Chung (Hong Kong)	13	47	9	24	7	40
Taipa Grande (Macao)	10	48	3	23	7	47

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	January 2021	February 2021	March 2021
Luhu (Guangzhou)	47	27	29
Nanshadawen (Guangzhou)	35*	21	24
Nansha-HKUST (Guangzhou)	38	24	25
Tianhu (Guangzhou)	30	24	25
Zhudong (Guangzhou)	48	36	42
Tongxinling (Shenzhen)	40	20	19
Jinjuzui (Foshan)	42	23	25
Huijingcheng (Foshan)	55	30	38
Tangjia (Zhuhai)	43	24	27
Donghu (Jiangmen)	45	24	26
Duanfen (Jiangmen)	43	23	24
Huaguoshan (Jiangmen)	56	30	35
Chengzhong (Zhaoqing)	43	26	29
Xiapu (Huizhou)	38	24	26
Xijiao (Huizhou)	30	25	26
Jinguowan (Huizhou)	35	18	21
Zimaling (Zhongshan)	38	21	21
Nanchengyuanling (Dongguan)	42	24	24
Tap Mun (Hong Kong)	25	17	16
Tsuen Wan (Hong Kong)	26	17	18
Yuen Long (Hong Kong)	27	18	16
Tung Chung (Hong Kong)	29	17	15
Taipa Grande (Macao)	27	16	17

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

\* The capture rate of validated daily data per month 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
Nanshadawen <sup>(1)</sup> (Guangzhou)	Shinan Road, Dongchong Town, Nansha	City	23m	10m	Jan 2021
Nansha-HKUST <sup>(2)</sup> (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
Tongxinling <sup>(3)</sup> (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. 63, Zhengdong Road, Duanzhou District	Urban: mixed residential/commercial	38m	16m	Jun 2001
Xiapu (Huizhou)	No. 4 Xiabuhengjiang Road No. 3, Huicheng District	Urban: commercial	49m	20m	Dec 1999
Xijiao <sup>(4)</sup> (Huizhou)	Zhangbei Yaowei She Nationality Primary School, Henghe Town	Rural	44m	10m	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

Remarks:

- (1) Modiesha station closed permanently owing to insufficient space after the extensive renovation work at station, whereas Nanshadawen station joined the network in the 1<sup>st</sup> quarter of 2021.
- (2) Wanqingsha station was renamed as Nansha-HKUST station in the 1<sup>st</sup> quarter of 2019.
- (3) Liyuan station was renamed as Tongxinling station in the 1<sup>st</sup> quarter of 2019.
- (4) Xijiao station was relocated to Zhangbei Yaowei She Nationality Primary School, Henghe Town, Boluo County, in the 4<sup>th</sup> quarter of 2019. The distance between the old and new sites is about 200 metres.

## Annex B: Measurement Methods of Air Pollutant Concentration

Pollutants	Measuring Principles
Sulphur dioxide (SO <sub>2</sub> )	UV fluorescence / Differential Optical Absorption Spectroscopy
Nitrogen dioxide (NO <sub>2</sub> )	Chemiluminescence / Differential Optical Absorption Spectroscopy
Ozone (O <sub>3</sub> )	UV absorption / Differential Optical Absorption Spectroscopy
Respirable suspended particulates (PM <sub>10</sub> )	Oscillating microbalance (TEOM) / Beta particulate monitor
Fine suspended particulates (PM <sub>2.5</sub> )	Oscillating microbalance (TEOM) / Beta particulate monitor / Hybrid nephelometric / radiometric particulate mass monitor
Carbon monoxide (CO)	Gas filter correlation infrared absorption method / Non-dispersive infrared absorption method