

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

July to September 2020

**Statistical Summary of the Third 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_{2.5} or FSP) were added to the report in addition to those of respirable suspended particulates (PM₁₀ or RSP), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and ozone (O₃).

This report is the statistical summary of the monitoring results of the PRD Regional Air Quality Monitoring Network in the third quarter of 2020. It is the twenty-seventh report published in the form of a quarterly report and the twenty-fourth report with the statistical summaries of the six pollutants (i.e. PM₁₀, PM_{2.5}, SO₂, NO₂, O₃ 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 (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 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_{2.5}), 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 GDEMC, HKEPD, Environmental Protection Bureau of Macau SARG and the 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 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 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 monitoring equipment to measure the ambient concentrations of PM₁₀, PM_{2.5}, SO₂, NO₂, O₃ 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 116th Executive Meeting of the State Council on 16 December 2015.

3. Operation of the Network

Owing to the relocation of the Modiesha monitoring station in Guangzhou, the station has been temporarily suspended from 31 March 2020 onwards. In addition, owing to the in-site relocation of the Zhudong monitoring station in Guangzhou and Duanfen monitoring station in Jiangmen, the operations were suspended from 2 July to 3 August 2020 and in early September 2020 discontinuously, respectively.

The overall operation of the Network was smooth in the third quarter of 2020. The average data capture rate of hourly air pollutant monitoring data measured at all monitoring stations

was 96.8% in the third quarter (Modiesha monitoring station and Zhudong monitoring station in July were excluded).

4. Statistical Results of Pollutant Concentrations

Tables 4.1a to 4.6b list the detailed statistical results of the six air pollutants (SO₂, NO₂, O₃, CO, PM₁₀ and PM_{2.5}) from July to September 2020. 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 PM₁₀ and PM_{2.5} are measured at real-time temperature and atmospheric pressure during monitoring.

Table 4.1a : The monthly maxima and minima of hourly averages of SO₂

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	1	15	5	17	6	16
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	5	17	5	18	5	22
Tianhu (Guangzhou)	3	14	4	16	3	15
Zhudong (Guangzhou)	-	-	5	22	5	28
Tongxinling (Shenzhen)	5	8	5	8	6	10
Jinjuzui (Foshan)	2	13	2	22	2	16
Huijingcheng (Foshan)	7	21	4	44	2	46
Tangjia (Zhuhai)	1	12	1	19	1	20
Donghu (Jiangmen)	4	14	5	20	5	34
Duanfen (Jiangmen)	4	12	3	19	1	14
Huaguoshan (Jiangmen)	2	69	1	94	2	58
Chengzhong (Zhaoqing)	7	120	3	93	2	138
Xiapu (Huizhou)	5	24	5	22	6	33
Xijiao (Huizhou)	1	33	1	8	1	25
Jinguowan (Huizhou)	7	14	7	26	2	15
Zimaling (Zhongshan)	1	8	3	10	1	18
Nanchengyuanling (Dongguan)	4	12	2	24	4	25
Tap Mun (Hong Kong)	0	8	1	8	1	8
Tsuen Wan (Hong Kong)	4	12	4	15	4	20
Yuen Long (Hong Kong)	2	14	2	10	3	10
Tung Chung (Hong Kong)	0	6	1	12	1	15
Taipa Grande (Macao)	0	11	0	6	0	6

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.1b : The monthly maxima and minima of daily averages of SO₂

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	8	6	9	7	10
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	5	8	5	9	6	11
Tianhu (Guangzhou)	4	10	5	10	4	9
Zhudong (Guangzhou)	-	-	6	10	6	13
Tongxinling (Shenzhen)	5	6	6	7	7	8
Jinjuzui (Foshan)	2	7	2	8	2	7
Huijingcheng (Foshan)	9	15	6	17	5	18
Tangjia (Zhuhai)	4	6	2	10	3	7
Donghu (Jiangmen)	5	8	5	10	6	11
Duanfen (Jiangmen)	4	7	4	8	3	8
Huaguoshan (Jiangmen)	2	15	2	15	3	17
Chengzhong (Zhaoqing)	9	25	6	19	4	21
Xiapu (Huizhou)	6	11	6	13	8	14
Xijiao (Huizhou)	2	5	1	3	1	9
Jinguowan (Huizhou)	8	9	8	11	2	13
Zimaling (Zhongshan)	2	6	4	6	1	8
Nanchengyuanling (Dongguan)	6	10	3	11	5	12
Tap Mun (Hong Kong)	1	5	2	4	2	5
Tsuen Wan (Hong Kong)	4	7	4	7	4	8
Yuen Long (Hong Kong)	3	6	3	4	3	6
Tung Chung (Hong Kong)	1	3	1	5	2	7
Taipa Grande (Macao)	1	1	0	2	1	3

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.1c : The monthly averages of SO₂

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	5	7	8
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	6	7	8
Tianhu (Guangzhou)	6	7	7
Zhudong (Guangzhou)	-	8	8
Tongxinling (Shenzhen)	6	7	7
Jinjuzui (Foshan)	4	4	4
Huijingcheng (Foshan)	10	11	9
Tangjia (Zhuhai)	5	4	4
Donghu (Jiangmen)	6	6	8
Duanfen (Jiangmen)	5	5	5*
Huaguoshan (Jiangmen)	5	6	9
Chengzhong (Zhaoqing)	12	11	11
Xiapu (Huizhou)	7	9	10
Xijiao (Huizhou)	3	2	2
Jinguowan (Huizhou)	8	9	7
Zimaling (Zhongshan)	4	5	3
Nanchengyuanling (Dongguan)	7	6	7
Tap Mun (Hong Kong)	3	3	4
Tsuen Wan (Hong Kong)	6	5	6
Yuen Long (Hong Kong)	4	3	4
Tung Chung (Hong Kong)	1	2	3
Taipa Grande (Macao)	1	1	2*

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

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.2a : The monthly maxima and minima of hourly averages of NO₂

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	6	64	8	100	8	105
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	5	66	4	66	4	90
Tianhu (Guangzhou)	3	38	4	36	1	28
Zhudong (Guangzhou)	-	-	5	64	6	69
Tongxinling (Shenzhen)	3	39	2	69	4	57
Jinjuzui (Foshan)	4	64	1	59	1	86
Huijingcheng (Foshan)	3	55	6	72	8	102
Tangjia (Zhuhai)	6	46	2	64	5	82
Donghu (Jiangmen)	4	33	5	60	5	84
Duanfen (Jiangmen)	1	19	1	32	2	45
Huaguoshan (Jiangmen)	1	35	1	56	3	80
Chengzhong (Zhaoqing)	6	68	7	87	9	100
Xiapu (Huizhou)	6	41	5	47	5	52
Xijiao (Huizhou)	1	24	1	22	1	20
Jinguowan (Huizhou)	1	41	1	26	1	41
Zimaling (Zhongshan)	4	35	3	59	1	67
Nanchengyuanling (Dongguan)	6	50	9	68	6	85
Tap Mun (Hong Kong)	2	37	0	34	0	38
Tsuen Wan (Hong Kong)	5	62	1	102	1	141
Yuen Long (Hong Kong)	6	44	2	62	7	74
Tung Chung (Hong Kong)	0	42	0	76	4	99
Taipa Grande (Macao)	2	25	2	46	3	46

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.2b : The monthly maxima and minima of daily averages of NO₂

12	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	12	32	17	55	24	53
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	8	31	12	35	20	42
Tianhu (Guangzhou)	6	20	5	19	2	15
Zhudong (Guangzhou)	-	-	15	33	14	35
Tongxinling (Shenzhen)	5	18	5	28	7	35
Jinjuzui (Foshan)	9	29	7	29	18	45
Huijingcheng (Foshan)	8	32	13	42	25	58
Tangjia (Zhuhai)	9	23	6	27	13	39
Donghu (Jiangmen)	6	22	8	29	10	47
Duanfen (Jiangmen)	2	10	3	13	6	25
Huaguoshan (Jiangmen)	3	19	6	23	13	40
Chengzhong (Zhaoqing)	11	32	14	44	15	46
Xiapu (Huizhou)	12	24	9	26	10	26
Xijiao (Huizhou)	3	13	2	10	3	9
Jinguowan (Huizhou)	5	20	3	12	4	16
Zimaling (Zhongshan)	6	22	6	23	5	44
Nanchengyuanling (Dongguan)	8	32	17	46	13	44
Tap Mun (Hong Kong)	5	19	3	15	2	16
Tsuen Wan (Hong Kong)	13	36	15	47	14	60
Yuen Long (Hong Kong)	12	27	13	36	15	48
Tung Chung (Hong Kong)	3	18	4	42	11	58
Taipa Grande (Macao)	3	15	5	26	8	25

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.2c : The monthly averages of NO₂

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	18	28	38
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	16	23	30
Tianhu (Guangzhou)	14	10	7
Zhudong (Guangzhou)	-	21	25
Tongxinling (Shenzhen)	10	14	17
Jinjuzui (Foshan)	16	17	29
Huijingcheng (Foshan)	15	26	37
Tangjia (Zhuhai)	13	15	22
Donghu (Jiangmen)	10	15	24
Duanfen (Jiangmen)	4	6	11*
Huaguoshan (Jiangmen)	9	14	24
Chengzhong (Zhaoqing)	18	26	30
Xiapu (Huizhou)	17	16	16
Xijiao (Huizhou)	9	5	6
Jinguowan (Huizhou)	10	8	10
Zimaling (Zhongshan)	9	14	17
Nanchengyuanling (Dongguan)	19	27	26
Tap Mun (Hong Kong)	9	6	6
Tsuen Wan (Hong Kong)	26	28	33
Yuen Long (Hong Kong)	18	22	29
Tung Chung (Hong Kong)	10	20	29
Taipa Grande (Macao)	6	11	14

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

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.3a : The monthly maxima and minima of hourly averages of O₃

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	3	232	2	255	2	240
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	8	197	7	313	7	335
Tianhu (Guangzhou)	8	257	11	228	17	190
Zhudong (Guangzhou)	-	-	3	245	3	303
Tongxinling (Shenzhen)	6	153	5	245	5	312
Jinjuzui (Foshan)	2	204	2	299	2	269
Huijingcheng (Foshan)	5	248	3	315	6	272
Tangjia (Zhuhai)	14	128	9	282	4	265
Donghu (Jiangmen)	1	160	1	242	1	304
Duanfen (Jiangmen)	2	145	2	204	3	231
Huaguoshan (Jiangmen)	3	177	3	202	3	201
Chengzhong (Zhaoqing)	7	171	7	227	8	211
Xiapu (Huizhou)	3	211	3	224	3	170
Xijiao (Huizhou)	2	235	2	193	2	188
Jinguowan (Huizhou)	1	262	1	225	1	170
Zimaling (Zhongshan)	5	156	3	249	2	324
Nanchengyuanling (Dongguan)	2	296	1	293	1	247
Tap Mun (Hong Kong)	4	150	8	255	5	297
Tsuen Wan (Hong Kong)	1	66	1	176	1	213
Yuen Long (Hong Kong)	1	129	1	185	1	324
Tung Chung (Hong Kong)	1	116	1	234	1	353
Taipa Grande (Macao)	2	87	1	194	4	192

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.3b : Daily maximum 8-hour averages of O₃ (the monthly maxima, minima and the 90th percentile)

Monitoring Station	July 2020			August 2020			September 2020		
	Min	Max	90 th per	Min	Max	90 th per	Min	Max	90 th per
Luhu (Guangzhou)	30	214	164	21	204	171	20	207	147
Modiesha (Guangzhou)	-	-	-	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	49	149	107	38	268	210	38	261	232
Tianhu (Guangzhou)	59	236	179	47	204	156	52	164	134
Zhudong (Guangzhou)	-	-	-	32	208	187	29	250	155
Tongxinling (Shenzhen)	33	111	72	30	210	147	32	205	141
Jinjuzui (Foshan)	38	169	133	24	241	202	34	238	182
Huijingcheng (Foshan)	45	211	156	26	259	211	28	232	195
Tangjia (Zhuhai)	42	99	73	46	224	146	30	213	165
Donghu (Jiangmen)	36	138	110	26	215	178	37	267	221
Duanfen (Jiangmen)	34	99	71	41	183	126	38	191	169
Huaguoshan (Jiangmen)	37	129	107	27	149	128	25	165	132
Chengzhong (Zhaoqing)	48	150	104	42	192	135	37	169	152
Xiapu (Huizhou)	33	190	150	37	191	156	45	153	140
Xijiao (Huizhou)	42	184	136	40	169	139	41	141	121
Jinguowan (Huizhou)	38	223	135	30	182	149	29	152	126
Zimaling (Zhongshan)	35	120	98	28	209	163	21	255	197
Nanchengyuanling (Dongguan)	50	226	149	24	232	184	50	205	158
Tap Mun (Hong Kong)	38	119	75	42	205	130	39	212	163
Tsuen Wan (Hong Kong)	18	52	41	13	137	91	20	171	95
Yuen Long (Hong Kong)	26	94	50	18	165	116	15	230	101
Tung Chung (Hong Kong)	30	75	56	24	198	131	21	246	149
Taipa Grande (Macao)	27	65	51	27	163	115	20	159	129

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.3c : The monthly averages of O₃

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	51	54	44
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	48	63	74
Tianhu (Guangzhou)	77	69	68
Zhudong (Guangzhou)	-	69	53
Tongxinling (Shenzhen)	37	48	65
Jinjuzui (Foshan)	46	59	57
Huijingcheng (Foshan)	58	68	61
Tangjia (Zhuhai)	45	58	61
Donghu (Jiangmen)	42	56	60
Duanfen (Jiangmen)	40	55	52*
Huaguoshan (Jiangmen)	41	46	42
Chengzhong (Zhaoqing)	46	51	54
Xiapu (Huizhou)	49	53	64
Xijiao (Huizhou)	48	45	46
Jinguowan (Huizhou)	43	45	50
Zimaling (Zhongshan)	43	49	56
Nanchengyuanling (Dongguan)	52	63	65
Tap Mun (Hong Kong)	37	52	83
Tsuen Wan (Hong Kong)	19	29	43
Yuen Long (Hong Kong)	22	29	43
Tung Chung (Hong Kong)	33	41	57
Taipa Grande (Macao)	36	44	58

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

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

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

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.4	1.0	0.4	1.2	0.6	1.5
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	0.3	0.8	0.4	1.1	0.5	1.3
Tianhu (Guangzhou)	0.3	0.7	0.2	0.8	0.3	0.8
Zhudong (Guangzhou)	-	-	0.1	0.8	0.2	0.9
Tongxinling (Shenzhen)	0.3	0.9	0.3	1.1	0.2	1.2
Jinjuzui (Foshan)	0.4	0.9	0.4	1.1	0.5	1.4
Huijingcheng (Foshan)	0.2	0.7	0.2	0.9	0.3	1.2
Tangjia (Zhuhai)	0.3	0.8	0.2	0.7	0.1	1.1
Donghu (Jiangmen)	0.4	1.1	0.4	1.5	0.5	1.7
Duanfen (Jiangmen)	0.1	0.9	0.2	1.0	0.2	0.8
Huaguoshan (Jiangmen)	0.2	1.0	0.1	1.0	0.5	1.7
Chengzhong (Zhaoqing)	0.3	1.1	0.4	1.0	0.4	1.1
Xiapu (Huizhou)	0.3	0.7	0.3	0.8	0.4	1.0
Xijiao (Huizhou)	0.2	0.6	0.1	0.8	0.5	1.2
Jinguowan (Huizhou)	0.0	0.9	0.1	1.3	0.3	1.0
Zimaling (Zhongshan)	0.2	0.8	0.2	0.9	0.3	1.2
Nanchengyuanling (Dongguan)	0.2	0.7	0.2	0.9	0.3	1.2
Tap Mun (Hong Kong)	0.0	0.3	0.0	0.6	0.2	1.0
Tsuen Wan (Hong Kong)	0.2	0.6	0.3	1.0	0.3	1.4
Yuen Long (Hong Kong)	0.2	0.5	0.2	0.7	0.3	1.0
Tung Chung (Hong Kong)	0.0	0.5	0.0	0.6	0.1	0.9
Taipa Grande (Macao)	0.0	0.8	0.4	1.1	0.5	1.3

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.4b : Daily averages of CO (the monthly maxima, minima and the 95th percentile)

Monitoring Station	July 2020			August 2020			September 2020		
	Min	Max	95 th per	Min	Max	95 th per	Min	Max	95 th per
Luhu (Guangzhou)	0.5	0.8	0.7	0.4	0.9	0.9	0.7	1.0	1.0
Modiesha (Guangzhou)	-	-	-	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	0.4	0.6	0.6	0.4	0.8	0.8	0.6	1.0	0.9
Tianhu (Guangzhou)	0.4	0.6	0.6	0.3	0.7	0.7	0.4	0.8	0.7
Zhudong (Guangzhou)	-	-	-	0.2	0.6	0.5	0.3	0.7	0.7
Tongxinling (Shenzhen)	0.4	0.7	0.6	0.4	0.8	0.8	0.3	1.1	1.0
Jinjuzui (Foshan)	0.5	0.7	0.6	0.5	0.9	0.8	0.6	1.1	1.1
Huijingcheng (Foshan)	0.3	0.5	0.5	0.3	0.7	0.7	0.4	0.8	0.8
Tangjia (Zhuhai)	0.3	0.6	0.6	0.3	0.6	0.6	0.4	0.9	0.8
Donghu (Jiangmen)	0.5	0.7	0.7	0.5	0.9	0.8	0.6	1.1	1.1
Duanfen (Jiangmen)	0.2	0.5	0.5	0.4	0.7	0.7	0.2	0.7	0.6
Huaguoshan (Jiangmen)	0.3	0.7	0.7	0.3	0.9	0.8	0.7	1.3	1.2
Chengzhong (Zhaoqing)	0.4	0.9	0.8	0.5	0.8	0.8	0.5	0.9	0.8
Xiapu (Huizhou)	0.3	0.6	0.5	0.4	0.7	0.7	0.5	0.8	0.8
Xijiao (Huizhou)	0.3	0.5	0.5	0.4	0.8	0.8	0.6	0.9	0.9
Jinguowan (Huizhou)	0.1	0.8	0.8	0.1	0.9	0.9	0.6	0.9	0.9
Zimaling (Zhongshan)	0.4	0.7	0.7	0.3	0.6	0.6	0.4	0.9	0.9
Nanchengyuanling (Dongguan)	0.3	0.6	0.5	0.3	0.7	0.7	0.4	0.8	0.7
Tap Mun (Hong Kong)	0.1	0.2	0.2	0.1	0.5	0.5	0.3	0.8	0.7
Tsuen Wan (Hong Kong)	0.4	0.5	0.5	0.4	0.8	0.8	0.4	1.1	1.0
Yuen Long (Hong Kong)	0.3	0.4	0.4	0.3	0.6	0.6	0.3	0.9	0.8
Tung Chung (Hong Kong)	0.1	0.3	0.3	0.1	0.5	0.4	0.2	0.7	0.6
Taipa Grande (Macao)	0.1	0.7	0.6	0.4	1.0	0.9	0.6	1.1	1.1

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.4c : The monthly averages of CO

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	0.6	0.6	0.8
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	0.5	0.6	0.7
Tianhu (Guangzhou)	0.5	0.5	0.6
Zhudong (Guangzhou)	-	0.3	0.5
Tongxinling (Shenzhen)	0.5	0.6	0.6
Jinjuzui (Foshan)	0.6	0.7	0.9
Huijingcheng (Foshan)	0.4	0.5	0.6
Tangjia (Zhuhai)	0.4	0.4	0.6
Donghu (Jiangmen)	0.6	0.6	0.8
Duanfen (Jiangmen)	0.3	0.5	0.4*
Huaguoshan (Jiangmen)	0.5	0.5	0.9
Chengzhong (Zhaoqing)	0.5	0.6	0.7
Xiapu (Huizhou)	0.4	0.5	0.6
Xijiao (Huizhou)	0.4	0.6	0.8
Jinguowan (Huizhou)	0.5	0.6	0.7
Zimaling (Zhongshan)	0.5	0.5	0.6
Nanchengyuanling (Dongguan)	0.4	0.5	0.5
Tap Mun (Hong Kong)	0.1	0.3	0.4
Tsuen Wan (Hong Kong)	0.4	0.5	0.6
Yuen Long (Hong Kong)	0.4	0.4	0.5
Tung Chung (Hong Kong)	0.2	0.2	0.3
Taipa Grande (Macao)	0.4	0.8	0.8

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.5a : The monthly maxima and minima of daily averages of PM₁₀

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	14	39	11	68	17	79
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	8	29	11	51	12	76
Tianhu (Guangzhou)	10	46	7	49	7	51
Zhudong (Guangzhou)	-	-	18	76	18	71
Tongxinling (Shenzhen)	9	26	8	48	10	72
Jinjuzui (Foshan)	14	28	11	59	17	78
Huijingcheng (Foshan)	19	41	14	75	22	97
Tangjia (Zhuhai)	4	26	4	39	10	64
Donghu (Jiangmen)	17	33	15	72	23	81
Duanfen (Jiangmen)	9	29	9	42	8	52
Huaguoshan (Jiangmen)	16	39	14	77	19	87
Chengzhong (Zhaoqing)	18	35	11	86	8	75
Xiapu (Huizhou)	15	48	9	65	16	78
Xijiao (Huizhou)	11	42	7	51	16	61
Jinguowan (Huizhou)	13	35	7	46	11	59
Zimaling (Zhongshan)	11	24	8	50	11	81
Nanchengyuanling (Dongguan)	13	34	12	62	19	75
Tap Mun (Hong Kong)	3	15	5	33	6	60
Tsuen Wan (Hong Kong)	5	16	6	37	8	56
Yuen Long (Hong Kong)	7	20	6	43	9	55
Tung Chung (Hong Kong)	5	15	5	36	8	56
Taipa Grande (Macao)	3	17	2	39	6	50

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

Table 4.5b : The monthly averages of PM₁₀

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	23	30	36
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	17	24	32
Tianhu (Guangzhou)	27	24	24
Zhudong (Guangzhou)	-	42	41
Tongxinling (Shenzhen)	14	22	26
Jinjuzui (Foshan)	21	27	33
Huijingcheng (Foshan)	26	34	41
Tangjia (Zhuhai)	12	17	22
Donghu (Jiangmen)	22	31	44
Duanfen (Jiangmen)	17	20	26*
Huaguoshan (Jiangmen)	27	34	43
Chengzhong (Zhaoqing)	25	31	37
Xiapu (Huizhou)	27	30	35
Xijiao (Huizhou)	24	26	30*
Jinguowan (Huizhou)	18	23	28
Zimaling (Zhongshan)	17	23	30
Nanchengyuanling (Dongguan)	20	29	35
Tap Mun (Hong Kong)	7	14	21
Tsuen Wan (Hong Kong)	10	16	19
Yuen Long (Hong Kong)	13	18	21
Tung Chung (Hong Kong)	9	15	21
Taipa Grande (Macao)	9	16	17

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

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

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

Monitoring Station	July 2020		August 2020		September 2020	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	6	19	3	45	8	53
Modiesha (Guangzhou)	-	-	-	-	-	-
Nansha-HKUST (Guangzhou)	6	21	7	37	9	41
Tianhu (Guangzhou)	4	22	3	36	3	34
Zhudong (Guangzhou)	-	-	6	53	10	51
Tongxinling (Shenzhen)	4	17	4	34	4	53
Jinjuzui (Foshan)	6	12	5	36	8	46
Huijingcheng (Foshan)	7	22	8	57	14	61
Tangjia (Zhuhai)	3	12	3	35	4	52
Donghu (Jiangmen)	5	15	5	43	8	46
Duanfen (Jiangmen)	4	14	2	29	3	29
Huaguoshan (Jiangmen)	4	17	7	57	12	58
Chengzhong (Zhaoqing)	6	19	5	54	5	47
Xiapu (Huizhou)	6	20	5	33	5	42
Xijiao (Huizhou)	6	29	4	34	7	40
Jinguowan (Huizhou)	4	22	4	36	6	42
Zimaling (Zhongshan)	5	10	2	32	3	51
Nanchengyuanling (Dongguan)	4	15	7	40	4	48
Tap Mun (Hong Kong)	2	7	1	25	2	50
Tsuen Wan (Hong Kong)	4	7	4	28	4	43
Yuen Long (Hong Kong)	6	10	3	31	3	41
Tung Chung (Hong Kong)	2	5	2	24	3	42
Taipa Grande (Macao)	2	6	2	28	2	32

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

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

Monitoring Station	July 2020	August 2020	September 2020
Luhu (Guangzhou)	10	17	21
Modiesha (Guangzhou)	-	-	-
Nansha-HKUST (Guangzhou)	10	16	21
Tianhu (Guangzhou)	14	12	13
Zhudong (Guangzhou)	-	22	27
Tongxinling (Shenzhen)	9	13	16
Jinjuzui (Foshan)	9	14	18
Huijingcheng (Foshan)	13	22	27
Tangjia (Zhuhai)	7	12	15
Donghu (Jiangmen)	9	15	20
Duanfen (Jiangmen)	11	9	14*
Huaguoshan (Jiangmen)	11	19	28
Chengzhong (Zhaoqing)	12	17	21
Xiapu (Huizhou)	10	14	17
Xijiao (Huizhou)	13	14	17*
Jinguowan (Huizhou)	10	15	17
Zimaling (Zhongshan)	7	9	16
Nanchengyuanling (Dongguan)	9	15	19
Tap Mun (Hong Kong)	4	8	12
Tsuen Wan (Hong Kong)	5	10	12
Yuen Long (Hong Kong)	8	12	13
Tung Chung (Hong Kong)	4	9	13
Taipa Grande (Macao)	3	9	10

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

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

“ - ” The operations of the Modiesha monitoring station or Zhudong monitoring station were suspended owing to the relocation of the stations, hence no data is available.

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
Nansha-HKUST ⁽¹⁾ (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 ⁽²⁾ (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 ⁽³⁾ (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) Wanqingsha station was renamed as Nansha-HKUST station in the 1st quarter of 2019.
- (2) Liyuan station was renamed as Tongxinling station in the 1st quarter of 2019.
- (3) Xijiao station was relocated to Zhangbei Yaowei She Nationality Primary School, Henghe Town, Boluo County, in the 4th 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 ₂)	UV fluorescence / Differential Optical Absorption Spectroscopy
Nitrogen dioxide (NO ₂)	Chemiluminescence / Differential Optical Absorption Spectroscopy
Ozone (O ₃)	UV absorption / Differential Optical Absorption Spectroscopy
Respirable suspended particulates (PM ₁₀)	Oscillating microbalance (TEOM) / Beta particulate monitor
Fine suspended particulates (PM _{2.5})	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