

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

October to December 2024

**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, 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 quarterly 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 October to December, the fourth quarter of 2024. It is the forty-fourth report published in the form of a quarterly report and the forty-first 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 Former Guangdong Provincial Environmental Monitoring Centre¹ (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 GDEMC¹ 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

¹ In 2003, when the network was established, the unit was named Guangdong Provincial Environmental Protection Monitoring Centre, which was renamed as Guangdong Provincial Environmental Monitoring Centre in 2008, and was renamed again as Guangdong Ecological and Environmental Monitoring Centre in December 2020.

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 Meteorological and Geophysical Bureau of Macau 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 Guangdong-Hong Kong-Macao PRD region. Among these, eighteen stations are in the PRD, four stations in Hong Kong and one station in Macau.

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.

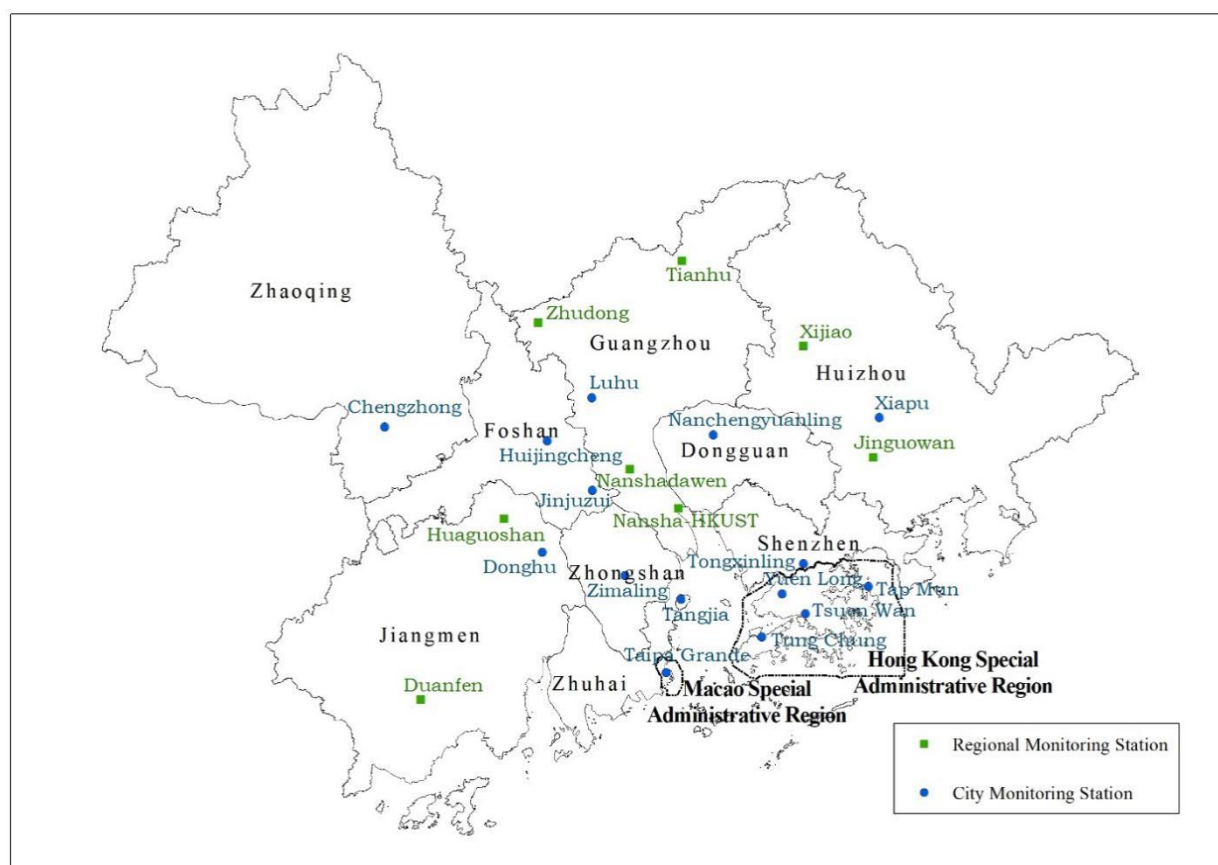


Figure 2.1: Spatial Distribution of Monitoring Stations in the Network²

² The map was drawn with reference to the China National Standard Map "Map of the Pearl River Delta Region" (approval number: 粵S (2021) No. 169), and was re-submitted and approved for release. The approval number is GS 粵 (2022) No. 378.

3. Operation of the Network

The overall operation of the Network was smooth in the fourth quarter of 2024. The average data capture rate of hourly air pollutant monitoring data measured at all monitoring stations was 98.5% in the fourth quarter.

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 October to December 2024. 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 SO₂³

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	12	3	11	3	16
Nanshadawen (Guangzhou)	2	10	3	18	3	24
Nansha-HKUST (Guangzhou)	3	13	3	11	4	20
Tianhu (Guangzhou)	6	14	3	17	1	12
Zhudong (Guangzhou)	1	23	1	23	1	21
Tongxinling (Shenzhen)	1	17	1	11	3	11
Jinjuzui (Foshan)	4	12	4	13	4	16
Huijingcheng (Foshan)	6	17	6	20	7	30
Tangjia (Zhuhai)	4	12	3	8	3	10
Donghu (Jiangmen)	5	14	1	15	6	28
Duanfen (Jiangmen)	6	20	8	20	7	23
Huaguoshan (Jiangmen)	3	17	2	23	2	33
Chengzhong (Zhaoqing)	5	21	4	20	4	18
Xiapu (Huizhou)	3	18	4	12	5	15
Shixia (Huizhou)	4	13	4	16	3	25
Jinguowan (Huizhou)	6	11	6	10	6	20
Zimaling (Zhongshan)	4	12	4	12	3	12
Nanchengyuanling (Dongguan)	6	23	6	27	6	13
Tap Mun (Hong Kong)	1	5	1	6	1	8
Tsuen Wan (Hong Kong)	0	9	0	16	1	10
Yuen Long (Hong Kong)	1	6	1	8	1	7
Tung Chung (Hong Kong)	0	7	0	6	1	12
Taipa Grande (Macao)	0	10	4	9	4	11

³ All pollutants, except for carbon monoxide, are measured in micrograms per cubic meter (µg/m³). The unit for carbon monoxide concentration is milligrams per cubic meter (mg/m³).

The above also applies to all the pollutant monitoring mentioned below.

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	3	8	3	8	5	10
Nanshadawen (Guangzhou)	3	6	3	9	4	9
Nansha-HKUST (Guangzhou)	4	7	4	8	5	11
Tianhu (Guangzhou)	6	10	3	12	1	7
Zhudong (Guangzhou)	2	13	2	11	4	11
Tongxinling (Shenzhen)	1	10	3	7	4	10
Jinjuzui (Foshan)	4	8	4	8	5	9
Huijingcheng (Foshan)	6	13	6	13	9	15
Tangjia (Zhuhai)	4	10	3	6	4	8
Donghu (Jiangmen)	6	10	6	10	7	10
Duanfen (Jiangmen)	7	13	8	13	10	15
Huaguoshan (Jiangmen)	5	11	4	13	6	10
Chengzhong (Zhaoqing)	7	12	6	13	6	13
Xiapu (Huizhou)	4	14	4	9	7	10
Shixia (Huizhou)	5	11	4	9	4	8
Jinguowan (Huizhou)	6	8	6	8	6	10
Zimaling (Zhongshan)	4	7	4	8	5	9
Nanchengyuanling (Dongguan)	7	10	6	11	7	11
Tap Mun (Hong Kong)	2	5	1	5	2	6
Tsuen Wan (Hong Kong)	1	3	1	4	1	4
Yuen Long (Hong Kong)	1	4	1	4	1	4
Tung Chung (Hong Kong)	0	5	0	3	2	5
Taipa Grande (Macao)	1	8	4	7	5	9

Table 4.1c : The monthly averages of SO₂

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	6	5	7
Nanshadawen (Guangzhou)	4	5	6
Nansha-HKUST (Guangzhou)	5	6	8
Tianhu (Guangzhou)	8	8	5
Zhudong (Guangzhou)	5	6	7
Tongxinling (Shenzhen)	4	5	7
Jinjuzui (Foshan)	6	6	7
Huijingcheng (Foshan)	8	9	12
Tangjia (Zhuhai)	8	5	6
Donghu (Jiangmen)	7	8	9
Duanfen (Jiangmen)	10	11	12
Huaguoshan (Jiangmen)	7	8	8
Chengzhong (Zhaoqing)	9	9	9
Xiapu (Huizhou)	6	7	8
Shixia (Huizhou)	7	7	6
Jinguowan (Huizhou)	7	7	8
Zimaling (Zhongshan)	6	6	7
Nanchengyuanling (Dongguan)	8	9	9
Tap Mun (Hong Kong)	3	3	4
Tsuen Wan (Hong Kong)	2	2	3
Yuen Long (Hong Kong)	2	2	3
Tung Chung (Hong Kong)	2	2	3
Taipa Grande (Macao)	3	6	7

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	8	96	6	82	11	147
Nanshadawen (Guangzhou)	8	87	8	121	13	149
Nansha-HKUST (Guangzhou)	7	65	3	93	9	141
Tianhu (Guangzhou)	4	18	6	15	8	45
Zhudong (Guangzhou)	5	63	6	57	10	84
Tongxinling (Shenzhen)	3	55	5	79	6	135
Jinjuzui (Foshan)	2	86	9	100	12	148
Huijingcheng (Foshan)	10	88	9	118	14	224
Tangjia (Zhuhai)	6	47	9	68	12	122
Donghu (Jiangmen)	7	56	13	104	14	131
Duanfen (Jiangmen)	4	35	11	50	9	74
Huaguoshan (Jiangmen)	5	60	9	90	12	116
Chengzhong (Zhaoqing)	6	112	6	97	8	152
Xiapu (Huizhou)	4	32	5	65	8	102
Shixia (Huizhou)	3	26	3	48	6	58
Jinguowan (Huizhou)	1	21	1	26	3	36
Zimaling (Zhongshan)	6	58	7	105	12	141
Nanchengyuanling (Dongguan)	3	80	2	88	5	128
Tap Mun (Hong Kong)	0	21	2	38	2	47
Tsuen Wan (Hong Kong)	6	129	5	119	13	194
Yuen Long (Hong Kong)	7	91	8	108	9	188
Tung Chung (Hong Kong)	5	97	6	137	6	144
Taipa Grande (Macao)	5	61	6	74	10	106

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	15	43	18	52	19	84
Nanshadawen (Guangzhou)	15	43	16	59	22	84
Nansha-HKUST (Guangzhou)	12	33	12	43	16	69
Tianhu (Guangzhou)	5	12	7	12	9	25
Zhudong (Guangzhou)	10	31	12	28	15	54
Tongxinling (Shenzhen)	6	21	13	38	16	60
Jinjuzui (Foshan)	8	44	14	59	19	84
Huijingcheng (Foshan)	16	47	16	73	20	147
Tangjia (Zhuhai)	12	25	18	40	21	59
Donghu (Jiangmen)	11	32	17	63	21	81
Duanfen (Jiangmen)	8	23	18	35	15	40
Huaguoshan (Jiangmen)	8	37	16	50	23	73
Chengzhong (Zhaoqing)	9	60	11	56	14	86
Xiapu (Huizhou)	7	15	8	27	11	46
Shixia (Huizhou)	5	14	6	24	9	32
Jinguowan (Huizhou)	3	7	6	15	7	21
Zimaling (Zhongshan)	12	28	17	51	22	67
Nanchengyuanling (Dongguan)	7	27	7	39	11	62
Tap Mun (Hong Kong)	2	10	4	16	6	24
Tsuen Wan (Hong Kong)	17	54	19	55	31	92
Yuen Long (Hong Kong)	15	46	21	67	27	97
Tung Chung (Hong Kong)	11	63	17	59	23	74
Taipa Grande (Macao)	10	35	20	44	26	69

Table 4.2c: The monthly averages of NO₂

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	26	28	44
Nanshadawen (Guangzhou)	25	32	47
Nansha-HKUST (Guangzhou)	19	25	40
Tianhu (Guangzhou)	8	9	15
Zhudong (Guangzhou)	19	18	29
Tongxinling (Shenzhen)	13	22	30
Jinjuzui (Foshan)	19	29	46
Huijingcheng (Foshan)	27	31	56
Tangjia (Zhuhai)	18	26	35
Donghu (Jiangmen)	21	31	45
Duanfen (Jiangmen)	16	24	28
Huaguoshan (Jiangmen)	23	31	46
Chengzhong (Zhaoqing)	24	24	39
Xiapu (Huizhou)	11	13	23
Shixia (Huizhou)	8	11	16
Jinguowan (Huizhou)	5	11	13
Zimaling (Zhongshan)	20	30	41
Nanchengyuanling (Dongguan)	14	16	32
Tap Mun (Hong Kong)	6	10	14
Tsuen Wan (Hong Kong)	31	36	51
Yuen Long (Hong Kong)	30	40	51
Tung Chung (Hong Kong)	32	42	50
Taipa Grande (Macao)	22	30	40

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	203	2	163	2	227
Nanshadawen (Guangzhou)	3	233	2	208	1	265
Nansha-HKUST (Guangzhou)	1	257	1	179	2	254
Tianhu (Guangzhou)	28	129	24	125	20	157
Zhudong (Guangzhou)	3	275	2	173	3	224
Tongxinling (Shenzhen)	12	206	1	176	2	201
Jinjuzui (Foshan)	2	199	2	160	2	200
Huijingcheng (Foshan)	8	242	2	187	2	201
Tangjia (Zhuhai)	9	259	1	216	2	239
Donghu (Jiangmen)	3	240	1	208	2	255
Duanfen (Jiangmen)	3	239	1	236	3	221
Huaguoshan (Jiangmen)	1	198	1	184	1	221
Chengzhong (Zhaoqing)	6	252	4	165	3	250
Xiapu (Huizhou)	12	155	6	140	4	161
Shixia (Huizhou)	11	154	1	125	1	170
Jinguowan (Huizhou)	9	145	1	132	1	140
Zimaling (Zhongshan)	4	227	1	231	2	242
Nanchengyuanling (Dongguan)	9	182	2	157	2	204
Tap Mun (Hong Kong)	31	216	21	212	34	204
Tsuen Wan (Hong Kong)	13	156	3	171	4	134
Yuen Long (Hong Kong)	4	189	0	181	0	172
Tung Chung (Hong Kong)	22	345	20	221	10	215
Taipa Grande (Macao)	11	333	0	220	1	191

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

Monitoring Station	October 2024			November 2024			December 2024		
	Min	Max	90 th per	Min	Max	90 th per	Min	Max	90 th per
Luhu (Guangzhou)	78	164	157	26	151	130	50	188	128
Nanshadawen (Guangzhou)	80	217	183	14	163	126	58	225	178
Nansha-HKUST (Guangzhou)	85	222	173	25	157	143	54	213	172
Tianhu (Guangzhou)	70	126	117	39	121	110	52	143	132
Zhudong (Guangzhou)	94	231	180	29	158	143	42	174	152
Tongxinling (Shenzhen)	65	181	143	26	165	137	77	163	147
Jinjuzui (Foshan)	60	177	155	19	136	125	47	166	154
Huijingcheng (Foshan)	65	210	176	26	159	140	51	140	133
Tangjia (Zhuhai)	79	235	195	31	190	160	81	189	149
Donghu (Jiangmen)	74	217	197	26	183	162	50	208	155
Duanfen (Jiangmen)	68	214	182	35	192	162	60	189	166
Huaguoshan (Jiangmen)	53	179	158	19	157	145	42	182	161
Chengzhong (Zhaoqing)	46	223	187	40	152	141	59	179	142
Xiapu (Huizhou)	75	151	133	31	135	114	80	134	124
Shixia (Huizhou)	59	135	128	16	121	106	73	135	119
Jinguowan (Huizhou)	61	137	108	20	124	106	65	113	107
Zimaling (Zhongshan)	76	199	195	11	187	162	55	197	139
Nanchengyuanling (Dongguan)	79	167	145	26	130	121	78	160	147
Tap Mun (Hong Kong)	78	186	152	34	188	157	88	182	163
Tsuen Wan (Hong Kong)	46	140	121	18	123	113	36	103	92
Yuen Long (Hong Kong)	49	160	138	15	152	130	42	126	115
Tung Chung (Hong Kong)	62	194	184	31	163	140	60	134	115
Taipa Grande (Macao)	73	239	175	20	207	159	50	155	138

Table 4.3c: The monthly averages of O₃

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	76	55	60
Nanshadawen (Guangzhou)	86	48	63
Nansha-HKUST (Guangzhou)	88	55	67
Tianhu (Guangzhou)	86	74	92
Zhudong (Guangzhou)	87	68	74
Tongxinling (Shenzhen)	89	62	78
Jinjuzui (Foshan)	78	51	63
Huijingcheng (Foshan)	86	60	62
Tangjia (Zhuhai)	94	67	75
Donghu (Jiangmen)	95	60	66
Duanfen (Jiangmen)	89	65	77
Huaguoshan (Jiangmen)	72	52	57
Chengzhong (Zhaoqing)	93	67	74
Xiapu (Huizhou)	90	64	77
Shixia (Huizhou)	78	58	75
Jinguowan (Huizhou)	70	52	63
Zimaling (Zhongshan)	93	55	63
Nanchengyuanling (Dongguan)	84	57	75
Tap Mun (Hong Kong)	101	81	98
Tsuen Wan (Hong Kong)	72	52	58
Yuen Long (Hong Kong)	78	50	62
Tung Chung (Hong Kong)	97	65	76
Taipa Grande (Macao)	93	61	78

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.2	1.6	0.3	1.0	0.4	1.1
Nanshadawen (Guangzhou)	0.3	1.1	0.3	1.1	0.4	1.6
Nansha-HKUST (Guangzhou)	0.1	0.9	0.1	0.9	0.3	1.3
Tianhu (Guangzhou)	0.3	1.1	0.3	1.1	0.3	1.1
Zhudong (Guangzhou)	0.1	1.1	0.1	1.0	0.1	1.5
Tongxinling (Shenzhen)	0.4	0.8	0.5	1.1	0.5	1.5
Jinjuzui (Foshan)	0.4	1.1	0.3	0.9	0.3	1.3
Huijingcheng (Foshan)	0.5	1.2	0.5	1.6	0.5	2.2
Tangjia (Zhuhai)	0.2	0.7	0.1	0.7	0.2	1.1
Donghu (Jiangmen)	0.3	0.9	0.3	1.4	0.4	2.4
Duanfen (Jiangmen)	0.3	1.1	0.3	0.9	0.3	1.2
Huaguoshan (Jiangmen)	0.3	1.0	0.4	1.0	0.3	1.5
Chengzhong (Zhaoqing)	0.3	1.0	0.3	1.0	0.4	1.2
Xiapu (Huizhou)	0.5	0.9	0.3	1.1	0.4	1.4
Shixia (Huizhou)	0.3	0.9	0.2	0.7	0.1	0.7
Jinguowan (Huizhou)	0.5	0.9	0.4	1.0	0.3	1.2
Zimaling (Zhongshan)	0.3	0.9	0.3	0.8	0.3	1.0
Nanchengyuanling (Dongguan)	0.4	1.0	0.4	1.2	0.4	1.8
Tap Mun (Hong Kong)	0.1	0.8	0.3	1.0	0.3	0.8
Tsuen Wan (Hong Kong)	0.3	0.9	0.3	0.9	0.4	1.2
Yuen Long (Hong Kong)	0.4	0.9	0.3	1.0	0.5	1.9
Tung Chung (Hong Kong)	0.4	0.7	0.3	0.8	0.4	1.1
Taipa Grande (Macao)	0.4	1.0	0.4	0.9	0.5	1.0

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

Monitoring Station	October 2024			November 2024			December 2024		
	Min	Max	95 th per	Min	Max	95 th per	Min	Max	95 th per
Luhu (Guangzhou)	0.4	0.9	0.7	0.4	0.7	0.7	0.5	0.9	0.8
Nanshadawen (Guangzhou)	0.4	0.8	0.8	0.4	0.8	0.8	0.6	1.1	1.0
Nansha-HKUST (Guangzhou)	0.3	0.8	0.7	0.3	0.8	0.8	0.4	1.0	1.0
Tianhu (Guangzhou)	0.4	0.7	0.7	0.5	0.8	0.8	0.3	0.9	0.9
Zhudong (Guangzhou)	0.3	0.9	0.9	0.3	0.9	0.9	0.3	1.1	0.8
Tongxinling (Shenzhen)	0.5	0.8	0.7	0.5	0.8	0.8	0.5	1.0	0.9
Jinjuzui (Foshan)	0.5	0.8	0.7	0.4	0.8	0.7	0.4	1.0	0.9
Huijingcheng (Foshan)	0.6	1.1	1.0	0.6	1.0	1.0	0.7	1.4	1.3
Tangjia (Zhuhai)	0.2	0.7	0.6	0.2	0.6	0.6	0.4	0.7	0.7
Donghu (Jiangmen)	0.3	0.6	0.6	0.4	0.7	0.7	0.5	1.1	1.0
Duanfen (Jiangmen)	0.5	0.8	0.8	0.4	0.7	0.7	0.4	0.9	0.9
Huaguoshan (Jiangmen)	0.4	0.7	0.7	0.5	0.8	0.8	0.5	1.0	1.0
Chengzhong (Zhaoqing)	0.4	0.8	0.8	0.4	0.7	0.7	0.5	0.9	0.8
Xiapu (Huizhou)	0.5	0.8	0.8	0.3	0.9	0.8	0.4	0.9	0.8
Shixia (Huizhou)	0.3	0.7	0.7	0.2	0.6	0.5	0.2	0.5	0.5
Jinguowan (Huizhou)	0.6	0.9	0.9	0.4	0.9	0.8	0.4	1.0	1.0
Zimaling (Zhongshan)	0.4	0.7	0.6	0.4	0.6	0.6	0.4	0.8	0.8
Nanchengyuanling (Dongguan)	0.5	0.9	0.8	0.5	0.9	0.9	0.4	1.1	1.0
Tap Mun (Hong Kong)	0.1	0.7	0.7	0.3	0.8	0.8	0.4	0.7	0.7
Tsuen Wan (Hong Kong)	0.4	0.8	0.7	0.4	0.7	0.7	0.5	0.9	0.8
Yuen Long (Hong Kong)	0.5	0.7	0.7	0.5	0.8	0.8	0.6	1.3	1.2
Tung Chung (Hong Kong)	0.4	0.7	0.7	0.4	0.7	0.6	0.5	0.9	0.9
Taipa Grande (Macao)	0.5	0.7	0.7	0.5	0.8	0.8	0.5	0.9	0.9

Table 4.4c: The monthly averages of CO

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	0.6	0.6	0.7
Nanshadawen (Guangzhou)	0.6	0.6	0.8
Nansha-HKUST (Guangzhou)	0.4	0.6	0.7
Tianhu (Guangzhou)	0.5	0.7	0.7
Zhudong (Guangzhou)	0.6	0.6	0.6
Tongxinling (Shenzhen)	0.6	0.7	0.7
Jinjuzui (Foshan)	0.6	0.6	0.7
Huijingcheng (Foshan)	0.9	0.8	1.0
Tangjia (Zhuhai)	0.5	0.4	0.5
Donghu (Jiangmen)	0.5	0.6	0.7
Duanfen (Jiangmen)	0.6	0.6	0.6
Huaguoshan (Jiangmen)	0.6	0.7	0.7
Chengzhong (Zhaoqing)	0.6	0.6	0.7
Xiapu (Huizhou)	0.7	0.6	0.6
Shixia (Huizhou)	0.6	0.4	0.4
Jinguowan (Huizhou)	0.7	0.6	0.7
Zimaling (Zhongshan)	0.5	0.5	0.6
Nanchengyuanling (Dongguan)	0.7	0.7	0.8
Tap Mun (Hong Kong)	0.5	0.6	0.5
Tsuen Wan (Hong Kong)	0.6	0.6	0.7
Yuen Long (Hong Kong)	0.6	0.6	0.9
Tung Chung (Hong Kong)	0.6	0.5	0.7
Taipa Grande (Macao)	0.6	0.6	0.7

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	18	74	11	55	31	93
Nanshadawen (Guangzhou)	22	65	14	66	32	117
Nansha-HKUST (Guangzhou)	27	64	13	58	30	111
Tianhu (Guangzhou)	9	50	4	41	15	51
Zhudong (Guangzhou)	16	63	16	47	25	90
Tongxinling (Shenzhen)	19	47	10	55	26	77
Jinjuzui (Foshan)	21	73	14	59	37	127
Huijingcheng (Foshan)	20	78	18	68	35	162
Tangjia (Zhuhai)	22	53	10	56	37	97
Donghu (Jiangmen)	23	75	17	72	34	127
Duanfen (Jiangmen)	23	60	12	53	33	79
Huaguoshan (Jiangmen)	30	76	21	68	38	121
Chengzhong (Zhaoqing)	14	73	13	47	20	91
Xiapu (Huizhou)	13	51	11	52	21	92
Shixia (Huizhou)	11	46	11	51	25	76
Jinguowan (Huizhou)	12	44	7	48	20	69
Zimaling (Zhongshan)	23	60	13	61	36	94
Nanchengyuanling (Dongguan)	16	65	9	57	26	108
Tap Mun (Hong Kong)	12	36	3	42	21	65
Tsuen Wan (Hong Kong)	14	36	3	39	23	61
Yuen Long (Hong Kong)	18	38	6	48	28	73
Tung Chung (Hong Kong)	16	43	4	46	23	82
Taipa Grande (Macao)	21	52	4	58	37	98

Table 4.5b: The monthly averages of PM₁₀

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	40	33	60
Nanshadawen (Guangzhou)	40	39	67
Nansha-HKUST (Guangzhou)	44	36	68
Tianhu (Guangzhou)	25	22	37
Zhudong (Guangzhou)	38	33	55
Tongxinling (Shenzhen)	34	33	54
Jinjuzui (Foshan)	43	38	73
Huijingcheng (Foshan)	43	39	84
Tangjia (Zhuhai)	35	35	60
Donghu (Jiangmen)	42	42	74
Duanfen (Jiangmen)	35	37	56
Huaguoshan (Jiangmen)	49	48	81
Chengzhong (Zhaoqing)	36	32	60
Xiapu (Huizhou)	34	31	58
Shixia (Huizhou)	30	28	46
Jinguowan (Huizhou)	29	25	47
Zimaling (Zhongshan)	37	39	60
Nanchengyuanling (Dongguan)	37	32	61
Tap Mun (Hong Kong)	23	22	38
Tsuen Wan (Hong Kong)	23	22	39
Yuen Long (Hong Kong)	28	28	48
Tung Chung (Hong Kong)	27	25	47
Taipa Grande (Macao)	37	36	64

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

Monitoring Station	October 2024		November 2024		December 2024	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	8	52	6	39	17	64
Nanshadawen (Guangzhou)	9	49	6	44	19	83
Nansha-HKUST (Guangzhou)	9	37	14	36	17	54
Tianhu (Guangzhou)	5	36	5	27	8	41
Zhudong (Guangzhou)	10	50	9	35	17	60
Tongxinling (Shenzhen)	8	29	3	36	15	50
Jinjuzui (Foshan)	9	42	8	33	18	72
Huijingcheng (Foshan)	6	49	8	33	18	98
Tangjia (Zhuhai)	3	39	5	38	20	65
Donghu (Jiangmen)	12	47	6	42	12	83
Duanfen (Jiangmen)	12	47	8	34	18	51
Huaguoshan (Jiangmen)	13	54	12	42	21	76
Chengzhong (Zhaoqing)	7	49	5	31	11	57
Xiapu (Huizhou)	8	32	6	36	13	58
Shixia (Huizhou)	5	33	6	35	15	51
Jinguowan (Huizhou)	7	33	6	37	18	49
Zimaling (Zhongshan)	10	43	8	43	18	65
Nanchengyuanling (Dongguan)	7	36	6	35	14	63
Tap Mun (Hong Kong)	7	21	2	29	14	48
Tsuen Wan (Hong Kong)	10	24	3	30	14	48
Yuen Long (Hong Kong)	12	27	6	35	17	56
Tung Chung (Hong Kong)	10	27	4	37	13	67
Taipa Grande (Macao)	9	29	4	35	18	61

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

Monitoring Station	October 2024	November 2024	December 2024
Luhu (Guangzhou)	23	20	40
Nanshadawen (Guangzhou)	25	24	45
Nansha-HKUST (Guangzhou)	21	24	36
Tianhu (Guangzhou)	12	11	24
Zhudong (Guangzhou)	25	22	38
Tongxinling (Shenzhen)	18	19	33
Jinjuzui (Foshan)	20	19	39
Huijingcheng (Foshan)	21	20	49
Tangjia (Zhuhai)	20	22	38
Donghu (Jiangmen)	22	22	39
Duanfen (Jiangmen)	22	22	36
Huaguoshan (Jiangmen)	29	28	49
Chengzhong (Zhaoqing)	23	19	38
Xiapu (Huizhou)	21	20	37
Shixia (Huizhou)	20	18	32
Jinguowan (Huizhou)	21	18	32
Zimaling (Zhongshan)	22	23	38
Nanchengyuanling (Dongguan)	20	19	36
Tap Mun (Hong Kong)	15	14	27
Tsuen Wan (Hong Kong)	16	15	29
Yuen Long (Hong Kong)	19	20	34
Tung Chung (Hong Kong)	18	18	34
Taipa Grande (Macao)	18	18	37

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, Yuexiu District (Big yard, No. 11 Luhu Park)	City	30m	9m	Jan 1993
Nanshadawen ⁴ (Guangzhou)	Shinan Road, Dongchong Town, Nansha District	City	23m	10m	Jan 2021
Nansha-HKUST ⁵ (Guangzhou)	HKUST Fok Ying Tung Research Institute, Nansha District	Mixed educational/ commercial and residential/industrial	54m	28m	Oct 2004
Tianhu (Guangzhou)	Tianhu Park, Conghua District	Background : rural	251m	13m	Oct 2004
Zhudong (Guangzhou)	Zhudong Village Committee, Chini Town, Huadu District	Rural	19m	10m	Dec 2011
Tongxinling ⁶ (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, Xiangzhou District	Tourist/ eco-protected	13m	13m	Jan 2010
Donghu (Jiangmen)	Donghu Park, Pengjiang District	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	Urban: commercial	49m	20m	Dec 1999

⁴ Modiesha (Guangzhou) station closed permanently owing to insufficient space after the extensive renovation work at station, whereas Nanshadawen (Guangzhou) station joined the network in the 1st quarter of 2021.

⁵ Wanqingsha (Guangzhou) station was renamed as Nansha-HKUST (Guangzhou) station in the 1st quarter of 2019.

⁶ Liyuan (Shenzhen) station was renamed as Tongxinling (Shenzhen) station in the 1st quarter of 2019.

Shixia ⁷ (Huizhou)	Community Service Center, Shixiatun Village, Changning Town, Boluo County	Rural	44m	10m	Dec 2011
Jinguowan (Huizhou)	Jinguowan Ecological Farm, Yonghu Town, Huiyang District	Residential	77m	8m	Oct 2004
Zimaling (Zhongshan)	Zimaling Park, Bo'ai Road No.6, East District	Mixed residential/commercial	45 m	7m	Aug 2002
Nancheng-yuanling ⁸ (Dongguan)	Dongguan Administration Center, Nancheng Street, Urban District	Mixed residential/commercial/industrial	40 m	19m	May 2021
Tap Mun (Hong Kong)	Tap Mun Police Station, Tai Po District, New Territories	Background: rural	26m	11m	Apr 1998
Tsuen Wan (Hong Kong)	60 Tai Ho Road, Tsuen Wan, Tsuen Wan District, New Territories	Urban: mixed residential/commercial/industrial	21m	17m	Aug 1988
Yuen Long (Hong Kong)	Yuen Long District Office, 269 Castle Peak Road, Yuen Long District, New Territories	New Town: residential	31m	25m	Jul 1995
Tung Chung (Hong Kong)	6 Fu Tung Street, Tung Chung, Islands District, New Territories	New Town: residential	34.5m	27.5m	Apr 1999
Taipa Grande (Macao)	Rampa do Observatorio, Taipa Grande, Taipa Island	Rural	113.1m	3m (gaseous pollutants) ⁹ / 5m (particulate matter)	Mar 1999

⁷ Xijiao (Huizhou) station was relocated to a monitoring station located in Shixiatun Village, Changning Town, Boluo County, Huizhou City in the 2nd quarter of 2023, and changed its name to " Shixia (Huizhou)"

⁸ Nancheng-yuanling (Dongguan) station was relocated to Dongguan administration center in May 2021. The distance between the old and new sites is about 600 metres.

⁹ Gaseous pollutants include Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂), Ozone (O₃) and Carbon monoxide (CO).

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 /
Carbon monoxide (CO)	Gas filter correlation infrared absorption method / Non-dispersive infrared absorption method