						File No.	MA20003/18/0007	
	CKL 1 - Flat 12						a	
Date:	6-Ma	nr-21	Next Due Date:	6-N	1ay-21	Operator:	SK	
Equipment No.:	A-01	1-18	Model No.:	TE	5170	Serial No.	0723	
			Ambient	Condition				
Temperatu	re, Ta (K)	293.7	Pressure, Pa			762.9		
		0	· C T C C C	1 1 T C				
Carial	1 No	3864	Slana ma	0.05846		t ha	0.00212	
Serial			Slope, mc		Intercept $c = [\Delta H \times (Pa/76)]$		-0.00313	
Last Calibra Next Calibra		11-Jan-21				$98/\text{Ta}$)] ^{1/2} -bc} / mc		
Next Callor	ation Date:	11-Jan-22		Qstu – \[\frac{1}{2}\]	1 (1 a//00) x (296)	/1a) _] -bc ₃	/ IIIC	
	_		Calibration of	TSP Sampler				
Calibration		Or	fice			HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/7	(60) x (298/Ta)] ^{1/2} Y-axis	
1	13.6	,	3.72	63.72	10.2		3.22	
2	11.3	,	3.39	58.09	7.7		2.80	
3	8.5		2.94	50.38	6.0		2.47	
4	5.3		2.32	39.80	3.4		1.86	
5	3.1		1.78	30.45	1.8		1.35	
-	ression of Y on X	ζ		Internal learn	0.224	15		
•	0.0550 coefficient* =	-	9983	intercept, bw -	-0.324	15		
	Coefficient < 0.99			-				
			Set Point (Calculation				
From the TSP Fi	ield Calibration C	Curve, take Qstd	= 43 CFM					
From the Regres	ssion Equation, th	e "Y" value acco	ording to					
		_	D 4 I + I - IAW	(D. 15(0) (2	100 /m \11/2			
		mw x C	$Qstd + bw = [\Delta W]$	x (Pa//60) x (2	298/1a)]			
Therefore, Se	et Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x (Ta / 298) =	4.09			
Remarks:								
	CV W					D .	CM 2021	
Conducted by:	SK Wong	Signature:	. 100/	<u>. </u>		Date:	6 March 2021	
Checked by:	Henry Leung	Signature:	-lemy O	/v		Date:	6 March 2021	

						File No.	MA20003/55/000	
Project No.	CKL 2 - Flat 103	3 Cha Kwo Ling	Village			•		
Date:	6-Ma	ar-21	Next Due Date:	6-May-21		Operator:	SK	
Equipment No.:	A-0	1-55	Model No.:	TE	E 5170	Serial No.	1956	
			Ambient C	ondition				
Temperatu	re, Ta (K)	293.7	Pressure, Pa			762.9		
			ifice Transfer Stai					
Serial		3864	Slope, mc	0.05846	Intercept		-0.00313	
Last Calibra		11-Jan-21		mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$				
Next Calibr	ration Date:	11-Jan-22		$Qstd = \{ [\Delta H \ x]$	Γa)] ^{1/2} -bc} /	mc		
		•	Calibration of	ΓSP Sampler				
Calibration		Or	fice			HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	(0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa	/760) x (298/Ta)] ^{1/2} Y-axis	
1	13.8		3.75	64.18	9.6		3.13	
2	11.3		3.39	58.09	7.3		2.73	
3	8.4		2.92		5.8		2.43	
4	5.2		2.30		3.5		1.89	
5	2.8		1.69		2.0		1.43	
By Linear Regr Slope , mw = Correlation		_	9980	ntercept, bw	0.039	8		
*If Correlation C	Coefficient < 0.99	0, check and rec	alibrate.					
			Set Point Ca	lculation				
From the TSP Fi	ield Calibration C	Curve, take Qstd	= 43 CFM					
From the Regres	ssion Equation, th	e "Y" value acco	ording to					
			$\mathbf{gstd} + \mathbf{bw} = \mathbf{\Delta W} \mathbf{x}$	(Do/760) v (20	19/Ta)1 ^{1/2}			
		mw x Q	ystu + Dw – μΔνν x	(Fa/700) X (2)	70/1a)j			
Therefore, Se	et Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x (7	Ta / 298) =	4.23			
Remarks:								
Conducted by:	SK Wong	Signature:	杨人			Date:	6 March 2021	
·		-	1.0	/	•		CM. 1 2021	
Checked by:	Henry Leung	Signature:	1-1	109 J		Date:	6 March 2021	

						File No.	MA20003/04/0005
Project No.	KER 1 - Future	Residential Dev	elopment at Kerry (Godown			
Date:	1-Ap	or-21	Next Due Date:	1-J	1-Jun-21		SK
Equipment No.:	A-0	1-04	Model No.:	TE	E 5170	Serial No.	10595
			A 1: 40	1141			
Temperatu	To (V)	294.9	Ambient C Pressure, Pa			762	
Temperatu	re, 1a (K)	294.9	Pressure, Pa	(mmHg)		/62	
		Or	ifice Transfer Star	ndard Informa	ation		
Serial	l No.	3864	Slope, mc	0.05846	Intercept	t, bc	-0.00313
Last Calibra	ation Date:	11-Jan-21	r	nc x Qstd + bo	$c = [\Delta H \times (Pa/760]]$) x (298/Ta)	1/2
Next Calibr	ation Date:	11-Jan-22]	Qstd = {[ΔH x	(Pa/760) x (298/7	Γa)] ^{1/2} -bc} /	mc
			Calibration of	TSP Sampler		TIV 10	
Calibration	AH (arifica)	Orfice		O-td (CEM)	AW (HVC):	HVS	(200 /T)3 ^{1/2}
Point	ΔH (orifice), in. of water	[ΔH x (Pa/70	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/	760) x (298/Ta)] ^{1/2} Y-axis
1	13.2		3.66	62.61	8.0		2.85
2	10.8	3.31		56.64	6.3		2.53
3	8.2	2.88		49.36	4.8		2.21
4	4.8	2.21		37.78	2.9		1.71
5	2.8	1.68		28.86	1.9		1.39
	•	•				•	
By Linear Regr	ession of Y on X	- -					
Slope, $mw =$	0.0430	_	I	intercept, bw	0.114	1	
Correlation	coefficient* =	0	.9983	,			
*If Correlation C	Coefficient < 0.99	0, check and re	calibrate.				
			Set Point Ca	lculation			
	ield Calibration C						
From the Regres	ssion Equation, th	e "Y" value acc	ording to				
		mw x ($Qstd + bw = [\Delta W x]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
			2004 · O	(1 111 / 00) 11 (2)			
Therefore, Se	et Point; W = (m	w x Qstd + bw)	$x^{2} \times (760 / Pa) \times (760 / Pa)$	$\Gamma a / 298) =$	3.80		
Remarks:							
Conducted by:	SK Wong	Signature:	[<u></u>		Date:	1 April 2021
·		-	1.0		•	•	•
Checked by:	Henry Leung	Signature:	-long X	, ~~~7		Date:	1 April 2021

						File No.	MA20003/44/0006
Project No.	KTD1 - Centre o	of Excellence in	Paediatrics (Childr	en's Hospital)			
Date:	1-Ap	r-21	Next Due Date:	1-J	Jun-21	Operator:	SK
Equipment No.:	A-01	1-44	Model No.:	TE	E-5170	Serial No.	1316
			Ambient C	ondition			
Temperatur	re, Ta (K)	294.9	Pressure, Pa			762	
•	, , , <u>, , , , , , , , , , , , , , , , </u>						
			fice Transfer Star				
Serial		3864	Slope, mc	0.05846	Intercept		-0.00313
Last Calibra		11-Jan-21			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	11-Jan-22		$Qstd = \{ [\Delta H \ x]$	(Pa/760) x (298/7	Γa)] ^{1/2} -bc} /	mc
			Calibration of	ΓSP Sampler			
Calibration		Or	fice			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa	/760) x (298/Ta)] ^{1/2} Y-axis
1	13.1		3.64	62.37	9.0		3.02
2	10.5		3.26		6.8		2.62
3	7.9	2.83		48.45	5.3		2.32
4	5.9	2.44		41.88	3.4		1.86
5	3.0		1.74	29.88	1.8		1.35
-	ession of Y on X	•					
Slope, mw =		_		Intercept, bw	-0.228	3	
	coefficient* =	-	9968	•			
*If Correlation C	Coefficient < 0.99	0, check and rec	alibrate.				
			Set Point Ca	alculation			
From the TSP Fi	eld Calibration C	urve_take Ostd		ilculation			
	sion Equation, th	-					
		mw v C	$\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) v (29	08/Ta)1 ^{1/2}		
		IIIW X Q	stu · bw – _{[Δw Δ}	(1 a/ 700) X (2)	76/1 <i>a)</i>]		
Therefore, Se	et Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x (7	Γa / 298) =	3.92		
D amarka:							
Remarks:							
Conducted by:	SK Wong	Signature:	61.			Date:	1 April 2021
Checked by:	Henry Leung	Signature:	-lem X	, ~~		Date:	1 April 2021

						File No.	MA20003/41/0005
Project No.	KTD 2c - G/IC	Zone next to Kw	un Tong Bypass (N	lext to the Kow	vloon Bay Sewage	Interception	Station)
Date:	1-A ₁	pr-21	Next Due Date:	1-J	Jun-21	Operator:	SK
Equipment No.:					E 5170	_	5280
7			1.10.001 1.001				
			Ambient C	ondition			
Temperatu	re, Ta (K)	294.9	Pressure, Pa	(mmHg)		762	
		Owi	ifice Transfer Sta	ndard Inform	ation		
Serial	l No	3864	Slope, mc	0.05846	Intercept	t he	-0.00313
Last Calibra		11-Jan-21	_		$c = [\Delta H \times (Pa/760]]$		
Next Calibr		11-Jan-22			(Pa/760) x (298/		
			!	- 1		,, ,	
			Calibration of	TSP Sampler			
Calibration		Or	fice	1		HVS	4 1/4
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		760) x (298/Ta)] ^{1/2} Y-axis
1	13.2		3.66		7.5		2.76
2	10.8		3.31	56.64	6.0		2.46
3	7.8	<u>'</u>	2.81		4.6		2.17
4	5.4		2.34		3.5		1.89
5	2.6		1.62	27.82	2.0		1.42
By Linear Regr	ossion of V on V	v					
Slope, mw =		1	1	Intercent, bw :	0.372	8	
-	coefficient* =		.9984	enter cept, w ···			
		90, check and rec		•			
		,					
			Set Point Ca	alculation			
From the TSP Fi	eld Calibration (Curve, take Qstd	= 43 CFM				
From the Regres	sion Equation, th	ne "Y" value acco	ording to				
		mw v C	$\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) v (29	98/Ta)l ^{1/2}		
		mw x Q	gota i bw i Δ w Δ	(1 a/ 100) X (2)	70/ 1 a) _j		
Therefore, Se	et Point; W = (m	nw x Qstd + bw)	2 x (760 / Pa) x (7	Γa / 298) =	3.89		
Remarks:							
			ا ما				
Conducted by:	SK Wong	Signature:			-	Date:	1 April 2021
Chaoland by	Haney Launa	Signature:	, o ~	/ s. -		Date	1 April 2021

						File No.	MA20003/18/0008
Project No.	CKL 1 - Flat 12	1 Cha Kwo Ling	Village				
Date:			Next Due Date:	6	Jul-21	Operator:	SK
Equipment No.:					E 5170		
Equipment No	A-0	1-10	Wiodel No		2 31 70	- Schai No.	0723
			Ambient (Condition			
Temperatu	re, Ta (K)	298.2	Pressure, Pa	(mmHg)		761.4	
~			rifice Transfer Sta				
Serial		3864	Slope, mc	0.05846	Intercept		-0.00313
Last Calibra		11-Jan-21			$c = [\Delta H \times (Pa/76)]$		
Next Calibr	ation Date:	11-Jan-22		$Qsta = \{ \Delta H \}$	x (Pa/760) x (298	/1a)] -bc}	/ mc
		•	Calibration of	TSP Sampler			
Calibration		Or	fice			HVS	
Calibration Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/7	60) x (298/Ta)] ^{1/2} Y-axis
1	13.4	,	3.66	62.71	10.3		3.21
2	11.3		3.36		7.8	2.79	
3	8.4	,	2.90	49.66	6.1		2.47
4	5.4	2.33 39.83 3.3			1.82		
5	3.1		1.76	30.19	1.8		1.34
By Linear Regr		X			0.00		
Slope, mw =		_		Intercept, bw	-0.395	51	
	coefficient* =		9970	-			
*If Correlation C	oefficient < 0.99	90, check and rec	calibrate.				
			Set Point C	Calculation			
From the TSP Fi	ield Calibration (Curve, take Qstd	= 43 CFM				
From the Regres	ssion Equation, tl	ne "Y" value acco	ording to				
			DATE TANK	(D. 15(A) (C	1/2		
		mw x C	$Qstd + bw = [\Delta W]$	x (Pa//60) x (2	298/1a)]		
Therefore, Se	et Point; W = (m	w x Qstd + bw)	2 x (760 / Pa) x (7	Γa / 298) =	4.17	,	
Remarks:							
Conducted by:	SK Wong	Signature:	ED/			Date:	6 May 2021
- smaacica oy.		2.5		<u>~</u>	•	··· .	<u> </u>
Checked by:	Henry Leung	Signature:	\-lema	Maz		Date:	6 May 2021

						File No.	MA20003/55/0008	
•	CKL 2 - Flat 103	_	-					
Date:	6-Ma	y-21	Next Due Date:	6	Jul-21	Operator:	SK	
Equipment No.:	A-01	1-55	Model No.:	TE	E 5170	Serial No.	1956	
			Ambient C	ondition				
Temperatu	re, Ta (K)	298.2	Pressure, Pa	(mmHg)		761.4		
0 11			ifice Transfer Star				0.00212	
Serial		3864	Slope, mc	0.05846	Intercept, bc $a = [AH \times (Po/760) \times (209/To)]^{1/2}$		-0.00313	
Last Calibra		11-Jan-21		mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$				
Next Calibr	ation Date:	11-Jan-22		$Qstd = \{ \Delta H x \}$	(Pa/760) x (298/	[a)] -bc} /	mc	
		•	Calibration of T	ΓSP Sampler				
Calibration		Or	fice			HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	(50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		760) x (298/Ta)] ^{1/2} Y-axis	
1	13.6		3.69	63.17	9.6		3.10	
2	11.4		3.38		7.5		2.74	
3	8.4		2.90		5.9		2.43	
4	5.2	2.28		39.08	3.5		1.87	
5	2.8	1.67		28.69	1.9		1.38	
Slope , mw = Correlation		0	.9984	Intercept, bw	-0.032	20		
TI Correlation C	Joernelent < 0.99	o, check and rec	canorate.					
			Set Point Ca	lculation				
	eld Calibration C sion Equation, th	_						
Therefore, Se	et Point; W = (m		Period $x = [\Delta W x]^2 \times (760 / Pa) \times (760 / Pa)$		98/Ta)] ^{1/2}			
Remarks:								
Conducted by:	SK Wong	Signature:	E)	<i>.</i> '		Date:	6 May 2021	
Checked by:	Henry Leung	Signature:	· O	N. 92 27		Date:	6 May 2021	

						File No.	MA20003/41/0006
•	KTD 2D - Next	to the SOR Offic	ce of Trunk Road T	2 in Kai Tak A	area		
Date:	26-Ma	ay-21	Next Due Date:	26-Jul-21		Operator:	SK
Equipment No.:	A-01	1-41	Model No.:	TE	E 5170	Serial No.	5280
			Ambient C	ondition			
Temperatur	re, Ta (K)	299.3	Pressure, Pa	(mmHg)		755	
•	•		e a	1 17 6			
G : 1	N		fice Transfer Star			. 1	0.00212
Serial		3864	Slope, mc	0.05846	Intercept		-0.00313
Last Calibra		11-Jan-21			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	11-Jan-22		Qsta = { ∆H x	(Pa/760) x (298/7	ra)] - bc} /	mc
			Calibration of T	ΓSP Sampler			
G 13 - 41		Or	fice	•		HVS	
Calibration Point	ΔH (orifice), in. of water		0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		/760) x (298/Ta)] ^{1/2} Y-axis
1	13.9	3	3.71		8.7		2.93
2	11.3	3	3.34		6.9		2.61
3	8.1	2	2.83		5.4		2.31
4	5.7	2.37		40.67	4.1		2.01
5	2.7		1.63	28.01	2.3		1.51
Slope , mw = Correlation		0.	9987	ntercept, bw	0.405	7	
			Set Point Ca	lculation			
From the TSP Fi	eld Calibration C	urve, take Qstd					
	sion Equation, the						
S	1						
		mw x Q	$\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (m	w x Qstd + bw) ²	² x (760 / Pa) x (7	Ta / 298) =	4.44		
Remarks:							
Conducted by:	SK Wong	Signature:	例	,·		Date:	1 June 2021
Checked by:	Henry Leung	Signature:	V-leng X	m		Date:	1 June 2021



RECALIBRATION
DUE DATE:

January 11, 2022

Certificate of Calibration

Calibration Certification Information

Cal. Date: January 11, 2021

Rootsmeter S/N: 438320

°K

Operator: Jim Tisch

Ta: 297
Pa: 750.1

mm Hg

Calibration Model #: TE-5025A

Calibrator S/N: 3864

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4470	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9140	8.0	5.00
4	, 7	8	1	0.8670	8.8	5.50
5	9	10	1	0.7140	12.9	8.00

	Data Tabulation							
Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$		Qa	$\sqrt{\Delta H (Ta/Pa)}$			
(m3)	(x-axis)	(y-axis)	Va	(x-axis)	(y-axis)			
0.9860	0.6814	1.4073	0.9957	0.6881	0.8899			
0.9818	0.9616	1.9902	0.9915	0.9711	1.2585			
0.9797	1.0719	2.2251	0.9893	1.0824	1.4071			
0.9786	1.1288	2.3337	0.9883	1.1399	1.4757			
0.9732	1.3630	2.8146	0.9828	1.3765	1.7798			
	m=	2.06566		m=	1.29348			
QSTD	b=	0.00315	QA	b=	0.00199			
	r=	0.99996		r=	0.99996			

Calculations							
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	Va=	ΔVol((Pa-ΔP)/Pa)				
Qstd=	Vstd/ΔTime	Qa=	Va/∆Time				
For subsequent flow rate calculations:							
Qstd=	$1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$	Qa=	$1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$				

	Standard Conditions					
Tstd:	298.15 °K					
Pstd:	760 mm Hg					
Key						
ΔH: calibrator manometer reading (in H2O)						
ΔP: rootsme	ter manometer reading (mm Hg)					
Ta: actual ab	osolute temperature (°K)					
Pa: actual barometric pressure (mm Hg)						
b: intercept						
m: slope						

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

FAX: (513)467-9009

www.tisch-env.com



Certificate of Calibration - Wind Monitoring Station

Description: Yau Lai Estate, Bik Lai House

Manufacturer: <u>Davis Instruments</u>

Model No.: <u>Davis7440</u>

Serial No.: <u>MC01010A44</u>

Equipment No.: <u>SA-03-04</u>

Date of Calibration <u>20-Feb-2021</u>

Next Due Date <u>20-Aug-2021</u>

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)	
Wind Speed Reading (V1)	Anemometer Value (V2)	D = V1 - V2	
0.0	0.0	0.0	
1.5	1.6	-0.1	
2.5	2.5	0.0	
3.5	3.4	0.1	

2. Performance check of Wind Direction

Wind Direction (°)		Difference D (°)	
Wind Direction Reading (W1)	Marine Compass Value (W2)	D = W1 - W2	
0	0	0.0	
90	90	0.0	
180	180	0.0	
270	270	0.0	

Test Specification:

- 1. Performance Wind Speed Test The wind meter was on-site calibrated against the anemometer
- 2. Performance Wind Direction Test The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by:		Approved by:	Leany Chang
Wong Shing Kwai		_	Henry Leung