Environmental Certificate of Calibration	BRATION DATE: per 11, 2021
Calibration Certification Information	
Cal. Date: September 11, 2020 Rootsmeter S/N: 438320 Ta: 297 °K	
	m Hg
	пп
Calibration Model #: TE-5025A Calibrator S/N: 2154	
Vol. Init Vol. Final ΔVol. ΔTime ΔP ΔΗ	
Run (m3) (m3) (m3) (min) (mm Hg) (in H2O)	
1 1 2 1 1.4510 3.3 2.00	
2 3 4 1 1.0340 6.4 4.00	
3 5 6 1 0.9260 8.0 5.00	
4 7 8 1 0.8780 8.9 5.50	
5 9 10 1 0.7250 13.0 8.00	
Data Tabulation	
Vstd Qstd $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$ Qa $\sqrt{\Delta H \left(Ta/Pa\right)}$	
(m3) $(x-axis)$ $(y-axis)$ Va $(x-axis)$ $(y-axis)$	
0.9929 0.6843 1.4123 0.9956 0.6862 0.8868	
0.9888 0.9563 1.9973 0.9915 0.9589 1.2541	
0.9867 1.0656 2.2330 0.9894 1.0685 1.4021	
0.9855 1.1225 2.3420 0.9882 1.1255 1.4705	
0.9801 1.3519 2.8246 0.9828 1.3556 1.7735	
m= 2.11508 m= 1.32442	
QSTD b= -0.02962 QA b= -0.01860	
r= 0.99993 r= 0.99993	
Calculations	
Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta) Va= ΔVol((Pa-ΔP)/Pa)	
Qstd= Vstd/ΔTime Qa= Va/ΔTime	
For subsequent flow rate calculations:	
$\mathbf{Qstd} = 1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right) - b\right) \qquad \mathbf{Qa} = 1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right) - b\right)$	
Standard Conditions	
Tstd: 298.15 °K RECALIBRATION	
Pstd: 760 mm Hg	oor 1009
Key US EPA recommends annual recalibration p ΔH: calibrator manometer reading (in H2O) 40 Code of Federal Regulations Part 50 t	
ΔH: calibrator manometer reading (in H2O)40 Code of Federal Regulations Part 50 tΔP: rootsmeter manometer reading (mm Hg)Appendix B to Part 50, Reference Method	
Ta: actual absolute temperature (°K) Determination of Suspended Particulate M	1
Pa: actual barometric pressure (mm Hg) the Atmosphere, 9,2,17, page 30	
b: intercept	
m: slope	

sch Environmental, Inc.

45 South Miami Avenue

illage of Cleves, OH 45002

www.tisch-env.com TOLL FREE: (877)263-7610 FAX: (513)467-9009



Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Cor	ntract No. HY	(/2019/01 - H	ong Kong-Z	huhai-Macac	Bridge			Date of	Calibration:	20-Apr-2
Location : Al	MS2					Next Calib	ration Date:	19-Jul-2		
Brand:		Tisch					-	Technician:	Ting Ch	
Model:		TE-5170		S/N:	HVS-01					
				COND	ITIONS					
	Se	ea Level Pres	sure (hPa):	1013.2	Co	prrected P	ressu	re (mm Hg):	760	
		Tempe	erature (°C):	23.4			Temp	perature (K):	297	
				CALIBRATI	ON ORIFI	CE				
		Make:		Tisch		Qstd S	Slope:		2.11508	
		Model:		TE-5025A		Qstd Inter	rcept:		-0.02962	
	Calib	oration Date:		11-Sep-20		Expiry	Date:		11-Sep-21	
		S/N:		2154						
					RATION					
Plate No.	H2O (L)	H2O (R)	H2O	Qstd	I	IC			LINEAR	
	(in)	(in)	(in)	(m ³ /min)	(chart)	``	,		REGRESSI	NC
18	7.00	-3.00	10.000	1.513	60.0		0.15	Slope =	37.6465	
13	6.40	-2.70	9.100	1.444	58.0		8.14	Intercept =	3.2541	
10	5.50	-1.50	7.000	1.268	50.0		0.12	Corr. coeff.=	0.9987	
7	4.00	-0.50	4.500	1.019	42.0		2.10			
5	3.20	0.30	2.900	0.821	34.0	0 3	4.08			
			-a)) b]							
-		/Pstd)(Tstd/T	a))-b]		FLOW RATE CHART					
	Pa/Pstd)(Tstd dard flow rate				70.0	00				
	ed chart resp									
	art response				60.0	00			1	
	tor Qstd slop									
	or Qstd interc				<u>୍</u> ର୍ ୍ର 50.0					
		during calibra	ation (deg K))	esbouse (IC)	00		/		
Pa = actual	pressure dur	ing calibratio	n (mm Hg)		bdse					
Tstd = 298 c	deg K				ພິ 30.0 ະ	00				
Pstd = 760 mm Hg					ра С 20.0					
For subsequent calculation of sampler flow:					20.0 19					
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					0.06 Sctual Chart Ro 0.02 Chart Ro 0.01 Actual Chart Ro	00				
m = sampler slope										
b = sampler intercept					0.0		0.50	1 000	1 500	2 000
I = chart response						0.000	0.50	00 1.000	1.500	2.000
Tav = daily a	average temp	perature					Stand	lard Flow Rate	(m³/min)	
Pav = daily a	average pres	sure					2.0.10		、········	

Tory

Wan Ka Ho **Project Consultant**

Report Date: 22/4/2021



Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project · Co	ntract No. HY	//2019/01 - H	long Kong-7	huhai-Macac	Bride			Date of	Calibration:	16-Jul-21
Project : Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macac Location : AMS2						ge			oration Date:	
Brand: Tisch									Technician:	-
Model:						-01			rechnician.	ring Chan
woder.				0/N.	1100	-01				
				COND	ITION	IS				
	Se	ea Level Pres	ssure (hPa):	1013.2		Corre	cted Pressu	re (mm Hg):	760	
		Tempe	erature (°C):	23.4			Temp	perature (K):	297	
	CALIBRATION ORIFICE Make: Tisch Qstd Slope: 2.11508									
		Model:		TE-5025A			Qstd Slope: td Intercept:		2.11508 -0.02962	
	Calib	ration Date:		11-Sep-20			Expiry Date:		-0.02902 11-Sep-21	
		S/N:		2154			Expiry Date.		11 000 21	
				CALIB	RATIO	ON				
	H2O (L)	H2O (R)	H2O	Qstd		I	IC		LINEAR	
Plate No.	(in)	(in)	(in)	(m ³ /min)	(C	chart)	(corrected)	I	REGRESSIC	N
18	7.40	-3.80	11.200	1.600		60.00	60.15	Slope =	27.7246	
13	6.80	-2.90	9.700	1.490		56.00	56.14	Intercept =	14.7766	
10	5.20	-2.10	7.300	1.295		49.00	49.12	Corr. coeff.:	0.9943	
7	4.30	-0.30	4.600	1.030		43.00	43.10			
5	2.80	0.20	2.600	0.778		37.00	37.09			
Calculation										
-	Sqrt(H2O(Pa		a))-b]		FLOW RATE CHART					
	Pa/Pstd)(Tstd					70.00				
	dard flow rate									
	ed chart resp art response					60.00				
	tor Qstd slop					50.00				
	or Qstd interc				<u>S</u>	50.00				
	temperature	-	ation (dea K)		esponse (IC)	40.00				
	•	•			ods					
Pa = actual pressure during calibration (mm Hg) Tstd = 298 deg K						30.00				
Pstd = 760 mm Hg					Char	20.00				
For subsequent calculation of sampler flow:					al C	20.00				
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					Actual Chart R	10.00				
m = sampler slope										
b = sampler intercept						0.00		00 1 000	1.500	
I = chart response						0.	.000 0.50	00 1.000	1.500	2.000
Tav = daily average temperature							Stand	dard Flow Rate	(m ³ /min)	
Pav = daily average pressure									······	

Tory

Wan Ka Ho Project Consultant

Report Date: 17/7/2021



Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Date of Calibration: 20-Apr-21										
Location : A	MS3C		0 0		U U			ration Date: 19-J	•	
Brand:		Tisch				-	Technician: Ting) Chan		
Model:		TE-5170		S/N:	HVS-02				,	
				COND	ITIONS					
	Se	ea Level Pres	sure (hPa):	1013.2		ected Pressu	re (mm Ha):	760		
			erature (°C):	23.4			perature (K):	297		
CALIBRATION ORIFICE										
		Make:		Tisch	_	Qstd Slope:		2.11508		
	•	Model:		TE-5025A	C	std Intercept:		-0.02962		
		ration Date:		11-Sep-20		Expiry Date:		11-Sep-21		
		S/N:		2154	RATION					
	H2O (L)	H2O (R)	H2O	Qstd		IC		LINEAR		
Plate No.	(in)	(in)	(in)	(m ³ /min)	(chart)	(corrected)				
18	7.50	-4.80	12.300	1.676	60.00	60.15	Slope =	32.6644		
13	6.40	-3.50	9.900	1.505	52.00	52.13	Intercept =	4.0267		
10	5.10	-2.40	7.500	1.312	46.00	46.11	Corr. coeff.=	0.9956		
7	3.80	-1.00	4.800	1.052	38.00	38.09				
5	2.90	-0.10	3.000	0.835	32.00	32.08				
Calculation	is:					•				
-	• • •	/Pstd)(Tstd/T	a))-b]			FI (OW RATE CH			
	Pa/Pstd)(Tstd									
	dard flow rate				70.00					
	ed chart resp				60.00			>		
	art response									
	tor Qstd slop				<u>ତ</u> 50.00				-	
	or Qstd interc	•	tions (dense IZ)							
	•	during calibra								
Pa = actual Tstd = 298 c	•	ing calibratior	n (mm ⊟g)		a 20.00				_	
	-				Jart					
Pstd = 760 mm Hg For subsequent calculation of sampler flow:					්ටි 20.00 ල				-	
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					30.00 30.00					
m = sampler slope					↓ ↓ 0.00					
	er intercept				0.00					
I = chart re	-					0.000 0.5	00 1.000	1.500 2.0	000	
	average temp	perature				Ston	dard Flow Rato	(m ³ /min)		
Pav = daily a	average pres	sure			Standard Flow Rate (m ³ /min)					

(By

Wan Ka Ho **Project Consultant**

Report Date: 22/4/2021



Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Proiect : Co	ntract No. HY	//2019/01 - H	ona Kona-Z	huhai-Macad	Brid	dae		11271	D	ate of	Calibration:	16-Jul-2
Location : AMS3C						.90					ration Date:	
Brand:									-		Technician:	
Model:		TE-5170		S/N:	HVS	S-02						0 -
			<i>"</i> –)	COND					,			
	Se	ea Level Pres		1013.2		Corre	ected F		ure (mm	•	760	
		Tempe	erature (°C):	23.4				Tem	perature	e (K):	297	
				CALIBRATI	ON	ORIFICE						
		Make:		Tisch			Qstd S	Slope	:		2.11508	
		Model:		TE-5025A		Qs	td Inte	rcept	:		-0.02962	
	Calib	ration Date:		11-Sep-20			Expiry	Date	:		11-Sep-21	
		S/N:		2154								
				CALIB	RAT	ION						
Plate No.	H2O (L)	H2O (R)	H2O	Qstd		I	IC		LINEAR			
	(in)	(in)	(in)	(m ³ /min)	((chart)	, ,		REGRESSION			
18	5.90	-11.40	17.300	1.985		59.00		59.14		pe =	30.5359	
13	4.80	-10.20	15.000	1.850		53.00	53.13 Intercept =		•	-2.3129		
10	3.70	-9.10	12.800	1.710		50.00		50.12		oeff.=	0.9971	
7	3.00	-6.40	9.400	1.467		42.00		12.10				
5	2.10	-4.30	6.400	1.213		35.00		35.08				
Calculation	i s: Sqrt(H2O(Pa	/Pstd)(Tstd/T	a))-b]									
=	Pa/Pstd)(Tstd		u)) b]					FL	OW RA	TE CH	HART	
	dard flow rate					70.00						
	ed chart resp											
	art response					60.00					1	
	tor Qstd slop				0	50.00						
b = calibrate	or Qstd interc	cept) e	00.00						
Ta = actual	temperature	during calibra	ation (deg K)		esponse (IC)	40.00				_/		
Pa = actual	pressure dur	ing calibratio	n (mm Hg)		espe					1		
Tstd = 298 deg K						30.00						
Pstd = 760 mm Hg						20.00						
For subsequent calculation of sampler flow:					Actual Chart R	20.00						
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					Acti	10.00						
m = sampler slope												
b = sampler intercept						0.00	.000	0.500) 1.000	7 14	500 2.000	2.500
I = chart response						0	.000	0.500	, 1.00	J 1	2.000	2.300
Tav = daily average temperature								Star	idard Flo	w Rate	(m³/min)	
Pav = daily average pressure											. ,	

Tory

Wan Ka Ho Project Consultant

Report Date: 17/7/2021



CALIBRATION REPORT OF WIND METER

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Date of Calibration: 30-Jun-2021 Location: AMS3C Next Calibration Date: 29-Dec-2021 Technician: Ting Chan **Global Water** Brand: GL500-7-2 Model: Anemometer Brand: Smart Sensor Serial No: H0423689 Model: AR816 Procedures: 1. Wind Still Test: The wind speed sensor was held by hand until stabilized. 2. Wind Speed Test: The wind meter was calibrated in-situ and compared with the Anemometer. 3. Wind Direction Test: The wind meter was calibrated in-situ and compared with a marine compass from four directions.

Wind Still Test:

Wind Speed (m/s)
0.00

Wind Speed Test:

Global Water (m/s)	Anemometer (m/s)
0.7	0.9
2.3	2.4
3.2	3.1

Wind Direction Test:

	Marine Compass (o)
1	360
70	71
242	242
310	312

Cory

Report Date: 1/7/2021

Wan Ka Ho Project Consultant



Report no.: 940891CA202793(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description	: Laser dust monitor
Manufacturer	: SIBATA
Model No.	: LD-5R
Serial No.	: 761106
Specification Limit	: NA
Next Calibration Date	: 26-Nov-2021

Laboratory Information

Description	: 1. Balance 2. TSP high volume air sampler	
Equipment ID. / Seri	D. : 1. C-065-9 2. 4350	
Date of Calibration	27-Nov-2020 Ambient Temperature : 25 ± 10	°C
Calibration Location	General Chemical Laboratory of FTS and Ma Wan A1 S	ite Boundary
Method Used	By direct comparison the weight of dust particle trapped	in a filter paper using high
	olume sampler (TSP method) for a certain period, with	the reading of the UUT. They
y en w	hould be placed at the same location and powered on a	and off at the same time.

Calibration Results :

Reference concentration (mg/m ³)	Total count for 1 hour	CPM (Count per minute)
0.3486	5134	85.57
0.1257	4394	73.23
0.0943	4408	73.47

Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.

- 2. The interpolation equation : Concentration $(mg/m^3) = K \times [UUT reading (CPM)]$, where K = 0.002448
- 3. Correlation coefficient (r): 0.9916

Checked by :	Conny	_Date :_	30-12-2020	_ Certified by :_	K.T. Leung	_ Date :	5-1-2021
CA-R-297 (22/07/20	09)			Leung	Kwok Tai (Assist	ant Mana	ger)

** End of Report **

The copyright of this report is owned by Fugro Technical Services Limited. This report shall not be reproduced except in full. **T** +852 2450 8233 | **F** +852 2450 6138 | **E** matlab@fugro.com | **W** fugro.com



Report no.: 940891CA202730(7)

Page 1 of 1

CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Laser dust monitor
SIBATA
LD-5R
882146
NA
22-Nov-2021
The second secon

Laboratory Information

Description		: 1. Balance		2. TSP high volume air sampler
Equipment ID. / Seria	al i	no.: 1.C-065-9		2. 4350
Date of Calibration	:	23-Nov-2020	A	mbient Temperature : 25 ± 10 °C
Calibration Location	:	General Chemical La	abc	pratory of FTS and Ma Wan A1 Site Boundary
Method Used	:	By direct comparison	n th	e weight of dust particle trapped in a filter paper using high
		volume sampler (TSI	Ρr	nethod) for a certain period, with the reading of the UUT. They
		should be placed at t	the	same location and powered on and off at the same time.

Calibration Results :

Reference concentration (mg/m ³)	Total count for 1 hour	CPM (Count per minute)
0.0915	2788	46.47
0.0469	2287	38.12
0.1172	3129	52.15

Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.

- 2. The interpolation equation : Concentration $(mg/m^3) = K \times [UUT reading (CPM)]$, where K = 0.001869
- 3. Correlation coefficient (r): 0.9990

CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)	Checked by :	_ Date :_	15-12-2020	_ Certified by :_	K.T. Tenna	Date : 15-12-2020
	CA-R-297 (22/07/2009)			Leung	Kwok Tai (Assist	ant Manager)

** End of Report **

The copyright of this report is owned by Fugro Technical Services Limited. This report shall not be reproduced except in full.



5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report no.: 203258CA202302(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Level Meter	
Manufacturer	:	Casella	
		Meter	
Model No.	:	CEL-63X	

		Meter	Microphone	Preamplifier
Model No.	:	CEL-63X	CE-251	CEL-495
Serial No.	:	1488295	02795	003538
Equipment ID	:	N-54		

Next Calibration Date		29-Oct-2021
Specification Limit	:	EN 61672-1: 2003 Class 1

Laboratory Information

Details of Reference Equipment -

Description :		B & K Acoustic Multifunction Calib	rator 4226 (Traditional fr	ee	field setting)
Equipment ID. :		R-108-1			
Date of Calibration	;	30-Oct-2020			
Calibration Location	:	Calibration Laboratory of FTS	Ambient Temperature	:	20±2 °C
Method Used		By direct comparison	Relative Humidity	:	<80% R.H.

Calibration Results :

Paramet	ters	Mean Value (dB)	Specific	ation	Limit(dB)
	4000Hz	1.0	2.6	to	-0.6
	2000Hz	-0.2	2.8	to	-0.4
	1000Hz	0.0	1.1	to	-1.1
A-weigthing frequency response Differential level linearity	500Hz	-3.3	-1.8	to	-4.6
	250Hz	-8.7	-7.2	to	-10.0
	125Hz	-16.2	-14.6	to	-17.6
	63Hz	-26.1	-24.7	to	-27.7
	31.5Hz	-38.7	-37.4	to	-41.4
	94dB-104dB	0.0		± 0.6	6
	104dB-114dB	0.1		± 0.6	6

Remarks:

- 1. The equipment used in this calibration is traceable to recognized National Standards.
- 2. The mean value is the average of four measurements.
- 3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast.
- 4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
- 5 The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by :	Lilliam	Date :	4-11-2020	_ Certified by : _	K.T. Toung	_ Date : _	4.11.2020
CA-R-297 (22/07/2009)			Leung	Kwok Tai (Assista	nt Manager)
			** E	nd of Report **			



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report no.: 203258CA202083(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Level Meter
Manufacturer	:	Casella

		Meter	Microphone	Preamplifier
Model No.	:	CEL-63X	CE-251	CEL-495
Serial No.	;	1488300	03456	002850
Equipment ID	:	N/A		
Next Calibration Date	÷	04-Oct-2021		
Specification Limit	:	EN 61672-1: 2003 Class	1	

Laboratory Information

Details of Reference Equipment -

Description :	B & K Acoustic Multifunction Calil	prator 4226 (Traditional free field setting)	
Equipment ID. :	R-108-1		
Date of Calibration :	05-Oct-2020		
Calibration Location :	Calibration Laboratory of FTS	Ambient Temperature : 20±2 °C	
Method Used :	By direct comparison	Relative Humidity : <80% R.H.	

Calibration Results :

Parame	ters	Mean Value (dB)	Specification Limit(dB)			
	4000Hz	0.8	2.6	to	-0.6	
	2000Hz	1.2	2.8	to	-0.4	
	1000Hz	0.0	1.1	to	-1.1	
A-weigthing frequency	500Hz	-3.3	-1.8	to	-4.6	
response	250Hz	-8.7	-7.2	to	-10.0	
	125Hz	-16.1	-14.6	to	-17.6	
	63Hz	-26.2	-24.7	to	-27.7	
	31.5Hz	-39.2	-37.4	to	-41.4	
Differential level	94dB-104dB	0.1	± 0.6			
linearity	104dB-114dB	0.0	± 0.6			

Remarks:

- 1. The equipment used in this calibration is traceable to recognized National Standards.
- 2. The mean value is the average of four measurements.
- 3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast.
- 4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
- 5 The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by :	Asilliam	Date :	<u>7- 10 - 2010</u> Certified by :	KLY	Coun & Date :	8.10.2020
CA-R-297 (22/07/2009	9)		Leung	g Kwok Tai (/	Assistant Manage	r)
			** End of Report *		\smile	

The copyright of this report is owned by Fugro Technical Services Limited. This report shall not be reproduced except in full. **T** +852 2450 8233 | **F** +852 2450 6138 | **E** matlab@fugro.com | **W** fugro.com



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report no.: 203258CA202146(2)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Page 1 of 1

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description		: :	Sound Calibrator
Manufacturer		: (Casella (Model CEL-120/1)
Serial No.		: :	2383707
Equipment ID		: 1	N/A
Next Calibration Date	:	14-(Oct-2021
Specification Limit	:	ΕN	60942: 2003 Class 1

Laboratory Information

Details of Calibration Equipment

Description :	Reference Sound level meter					
Equipment ID. :	-119-1					
Date of Calibration : 15-Oct-2020						
Calibration Location :	Calibration Laboratory of FTS	Ambient Temperature : 20±2 °C				
Method Used :	By direct comparison	Relative Humidity : <80% R.H.				

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)		
94dB	94dB -0.1 dB			
114dB	-0.2 dB	±0.4dB		

Remarks :

- 1. The equipment used in this calibration is traceable to recognized National Standards.
- 2. The mean value is the average of four measurements.
- 3. The unit under test complies with the specification limit.
- 4. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties quoted will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by :	Lulliam	Date :	19-10-2020	Certified by :	K.T. Teun (Date :	19-10-2020
CA-R-297 (22/07/2009))			Leung	Kwok Tai (Assist	ant Manag	ger)

** End of Report **



5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report no.: 203258CA202018(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Page 1 of 1

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator					
Manufacturer	:	Casella (Model CEL-120/1)					
Serial No.	:	2383982					
Equipment ID	:	N/A					
Next Calibration Date	:	28-Sep-2021					
Specification Limit	;	EN 60942: 2003 Class 1					

Laboratory Information

Description :	Reference Sound level meter	
Equipment ID. :	R-119-1	
Date of Calibration	: 29-Sep-2020	Ambient Temperature : 22 °C
Calibration Locatio	n : Calibration Laboratory of FTS	Relative Humidity : 80% R.H.
Method Used :	By direct comparison	

Calibration Results :

Parameters (Setting of UUT)	arameters (Setting of UUT) Mean Value (error of measurement)					
94dB	-0.1 dB					
114dB	-0.2 dB	±0.4dB				

Remarks:

- 1. The equipment used in this calibration is traceable to recognized National Standards.
- 2. The mean value is the average of four measurements.
- 3. The equipment does comply with the specification limit.
- 4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by :	Lilliam	Date :_	6-10-2020	Certi	fied by :	:_K	J. Lour	NA	Date :	6-1	0. 20	120
CA-R-297 (22/07/2009)				Leu	ing Kv	wok Tai (A	ssista	int Mana	ger)		
			-lash									

** End of Report **