

RECALIBRATION DUE DATE:

October 21, 2020

Certificate of Calibration

Calibration Certification Information								
Cal. Date:	October 22	l, 2019	Roots	smeter S/N: 438320			Ta: 295	
Operator:	Jim Tisch	m Tisch				Pa:	Pa: 744.2	
Calibration	ion Model #: TE-5025A Cal			brator S/N:	2456			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1		3.2	2.00	
	2	3	4	1	1.0180	6.3	4.00	1
	3	5	6	1	0.9030	7.9	5.00	1
	4	7	8	1	0.8620	8.8	5.50]
	5	9	10	1	0.7120	12.6	8.00]
			C	Data Tabula	ition]
			(/ Pa	V Tetd \				
	Vstd	Qstd	√∆H(<u>Patd</u>)(<u>Tstd</u>)		Qa	√∆H(Ta/Pa)	
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)	
	0.9849	0.6936	1.400	and the second se	0.9957	0.7012	0.8904	
	0.9808	0.9635	1.989	92	0.9915	0.9740	1.2592	1
	0.9787	1.0838	2.224	40	0.9894	1.0957	1.4078	1
	0.9775	1.1340	2.332	25	0.9882	1.1464	1.4765	1
	0.9724	1.3658	2.813	1 0.9831		1.3807	1.7808]
		m=	2.087	and the second se		m=	1.30746	
	QSTD	b=	-0.035			b=	-0.02244	
		r=	0.999	89		r= 0.99989		
		A) / 1//D A D)	1	Calculatio				
			/Pstd)(Tstd/Ta	a)	The second se	ΔVol((Pa-Δl Va/ΔTime		
	Qsta=	Vstd/∆Time						
			For subsequ	ent flow ra	te calculation	ns:		
	Qstd=	1/m ((√∆H(·	Pa <u>Tstd</u> Pstd Ta))-b)	Qa=	1/m ((√∆⊦	l(Ta/Pa))-b)	
	Standard	Conditions						
Tstd:						RECA	IBRATION	
Pstd:		mm Hg				mmonde	nual rocalibratio	n nor 1000
H. calibrat		ey er reading (ir					nual recalibrations	
	Contraction of the local division of the loc	eter reading (if					Regulations Part S Reference Meth	
		perature (°K)			2000 - 00- 0 000000000000000000000000000	a and a sub-state and a sub-		
and the second state of th		essure (mm l	Hg)		Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30			
: intercept					LITE	e Aunosphe	re, 9.2.17, page :	50
n: slope		m: slope						

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

					0/1200					
		Y/2019/01 - ⊢	long Kong-Z	Bridge				Calibration:	•	
Location : A								Next Calib	pration Date:	
Brand:		Tisch							Technician:	Ting Cha
Model: TE-5170 S/N:						1				
				COND	ITIONS					
	S	ea Level Pres	ssure (hPa).	1017.5			ected Pressu	re (mm Ha) [.]	763	
			erature (°C):	24.3				perature (K):	297	
		- 1	(- ,				- 1			
				CALIBRATI	ON OR	IFICE				
		Make:		Tisch			Qstd Slope:		2.08799	
		Model:		TE-5025A		Qs	std Intercept:		-0.03545	
		oration Date:		21-Oct-19			Expiry Date:		21-Oct-20	
		S/N:		2456						
			1100	CALIB	RATION	1	10	1		
Plate No.	H2O (L)	H2O (R)	H2O	Qstd		0	IC		LINEAR	~~
40	(in)	(in)	(in)	(m ³ /min)	(cha	,	(corrected)		REGRESSI	JN
18	4.50	-8.50	13.000	1.749		6.00	56.18	Slope =	31.9482	
13	3.10	-7.20	10.300	1.559		0.00	50.16	Intercept =	0.0870	
10 7	1.80 0.50	-5.80 -4.50	7.600 5.000	1.342 1.091		2.00 5.00	42.14 35.11	Corr. coeff.=	0.9993	
7 5	-0.20	-4.50 -2.70	5.000 2.500	0.777		5.00 5.00	25.08			
Calculation		-2.70	2.500	0.777	20	5.00	23.00			
		/Pstd)(Tstd/1	[a))-b]							
-	Pa/Pstd)(Tstd		<i>,,</i> <u>-</u>				FLO	OW RATE C	HART	
Qstd = stand	dard flow rate	e			6	50.00				
C = correcte	ed chart resp	onse							/	•
= actual ch	art response	•			5	50.00			/	
m = calibrat	tor Qstd slop	е			0					
o = calibrate	or Qstd inter	cept			esponse (IC)	0.00				
	•	during calibra			suo					
	•	ing calibratio	n (mm Hg)			80.00				
Tstd = 298 c	-			Actual Chart R			•			
Pstd = 760 mm Hg						20.00				
For subsequent calculation of sampler flow:						0.00				
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						.0.00				
m = sample	•					0.00				
	er intercept					0.00	0.000 0.50	00 1.000	1.500	2.000
= chart re	•	1				0		2.000		
-	average temp						Stand	dard Flow Rate	e (m ³ /min)	
rav = daliv a	average pres	sure			1					

Tory

Wan Ka Ho **Project Consultant**

Report Date: 2/5/2020



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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Draiaat (Ca		//2010/01 11	ang Kang 7		Drid	~~		Data of	Calibration	00 4
•		(/2019/01 - H	ong Kong-Z	ο Βιιαί	je			Calibration:	•	
Location : Al		Tianh							ration Date:	
Brand:	Tisch								Technician:	ling Cr
Model:		TE-5170		S/N:	HVS	-03				
				COND	ITION	IS				
	Se	ea Level Pres	sure (hPa):	1017.5		Corre	ected Pressu	re (mm Hg):	763	
		Tempe	erature (°C):	24.3			Tem	perature (K):	297	
				CALIBRATI		RIFICE				
		Make:		Tisch			Qstd Slope:		2.08799	
		Model:		TE-5025A		Qs	std Intercept:		-0.03545	
	Calib	oration Date:		21-Oct-19			Expiry Date:		21-Oct-20	
		S/N:		2456						
	· · · · · · · · · · · · · · · · · · ·			CALIB	RATIO	NC				
Plate No.	H2O (L)	H2O (R)	H2O	Qstd		I	IC		LINEAR	
	(in)	(in)	(in)	(m ³ /min)	(C	hart)	(corrected)		REGRESSIC	ON
18	7.00	-4.80	11.800	1.668		58.00	58.19	Slope =	33.7189	
13	6.00	-3.80	9.800	1.521		53.00	53.17	Intercept =	1.4285	
10	5.00	-2.80	7.800	1.359		46.00	46.15	Corr. coeff.=	0.9959	
7	3.40	-1.30	4.700	1.059		36.00	36.12			
5	2.60	-0.60	3.200	0.877		32.00	32.10			
Calculation			- \\							
_		/Pstd)(Tstd/T	a))-b]				FLO	OW RATE CH	HART	
	Pa/Pstd)(Tstd					70.00				
	dard flow rate									
	ed chart resp					60.00				
	art response									
	tor Qstd slop				<u>í</u>	50.00				
	or Qstd interc	•	tion (do r K)		esponse (IC)	40.00				
	•	during calibra	, e ,		bor	40.00				
ra = actual [std = 298 c		ing calibration	n (mm Hg)		Res	30.00		A A A A A A A A A A A A A A A A		
$P_{std} = 298 \text{ c}$	•			art						
	•	tion of com	nlor flow	Actual Chart Re	20.00					
For subsequent calculation of sampler flow:						10.00				
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope						10.00				
•	er slope er intercept					0.00				
 = sample = chart re 	-						.000 0.50	00 1.000	1.500	2.000
	average temp	oraturo								
-	average temp average pres						Stand	dard Flow Rate	(m ³ /min)	
av = ually a	averaye pres	SUIC								

(By

Wan Ka Ho **Project Consultant**

Report Date: 2/5/2020



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	ong Kong-Z	Bridg	Э		Date of	Calibration:	28-Apr-20	
Location : A			0 0	Ū				ration Date:		
Brand:		Tisch						-	Technician:	Ting Cha
Model:		TE-5170		S/N:	HVS-()2				C
				COND		S				
	Se	ea Level Pres	sure (hPa):	1017.5		Corre	ected Pressu	re (mm Hg):	763	
		Tempe	erature (°C):	24.3			Tem	perature (K):	297	
				CALIBRATI	ON OF	RIFICE				
		Make:		Tisch			Qstd Slope:		2.08799	
		Model:		TE-5025A		Qs	std Intercept:		-0.03545	
	Calib	ration Date:		21-Oct-19			Expiry Date:		21-Oct-20	
		S/N:		2456						
				CALIB	RATIO	N		-		
Plate No.	H2O (L)	H2O (R)	H2O	Qstd		I	IC		LINEAR	
	(in)	(in)	(in)	(m ³ /min)		art)	(corrected)		REGRESSIC	ON
18	6.80	-5.40	12.200	1.695		60.00	60.20	Slope =	29.9170	
13	5.60	-4.40	10.000	1.536		54.00	54.18	Intercept =	9.2460	
10	4.80	-2.80	7.600	1.342		50.00	50.16	Corr. coeff.=	0.9972	
7	3.30	-1.60	4.900	1.081		2.00	42.14			
5	2.40	-0.60	3.000	0.849	3	34.00	34.11			
Calculation										
-	• • •	/Pstd)(Tstd/T	a))-b]				FLO	OW RATE CH	IART	
	Pa/Pstd)(Tstd					70.00				
	dard flow rate									
	ed chart resp					60.00				
	art response									
	tor Qstd slop				<u>í</u>	50.00			/	
	or Qstd interc	cept during calibra	tion (dog K)		esponse (IC)	40.00		/		
	•	ing calibration			spor	40.00				
Tstd = 298 c	•	ing calibration	i (iiiiii Hy)		Res	30.00		• · · · · · · · · · · · · · · · · · · ·		
Pstd = 760 r	-			lart						
	•	ation of same	oler flow:	Actual Chart R	20.00					
For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						10.00				
m = sampler slope										
b = sampler intercept						0.00				
I = chart re						0	.000 0.50	00 1.000	1.500	2.000
	average temp	perature					Stan	dard Flow Rate	(m ³ /min)	
Pav = daily a	average pres	sure				oran		(

(By

Wan Ka Ho **Project Consultant**

Report Date: 2/5/2020



Report no.: 940891CA200109(2)

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.	: 761101
Specification Limit	: NA
Next Calibration Date	: 09-Oct-2020

Laboratory Information

Description	:	TSP high volume air sample	r			
Serial No.	:	4350				
Date of Calibration	;	10-Oct-2019	Ambient Temperature : 28 °C			
Calibration Location	:	Ma Wan A1 Site Boundary				
Method Used	:	By direct comparison the weight of dust particle trapped in a filter paper using high				
	volume sampler (TSP method) for a certain period, with the reading of the UUT. They					
		should be placed at 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)
0.1047	2110	35.17
0.0623	1948	32.47
0.0587	1908	31.80

Remarks:

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

- 2. The interpolation equation : Concentration (mg/m³) = K x [UUT reading (CPM)], where K = 0.002270
- 3. Correlation coefficient (r) : 0.9931

_____Date : 10-2-2020 Certified by : K J. Jeung Date : 10-2-2020 Checked by : ching Leung Kwok Tai (Assistant Manager) CA-R-297 (22/07/2009)

^{**} End of Report **



Report no.: 940891CA200109(5)

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.	: 761104
Specification Limit	: NA
Next Calibration Date	: 21-Oct-2020

Laboratory Information

Description	:	TSP high volume air sampler				
Serial No.	:	4350				
Date of Calibration	:	22-Oct-2019	Ambient Temperature : 25 °C			
Calibration Location	:	Ma Wan A1 Site Boundary				
Method Used	:	By direct comparison the we	By direct comparison the weight of dust particle trapped in a filter paper using high			
		volume sampler (TSP method) for a certain period, with the reading of the UUT. They				
		should be placed at the same	e 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)
0.1287	3564	59.40
0.0888	2877	47.95
0.1141	3267	54.45

Remarks:

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

- 2. The interpolation equation : Concentration (mg/m³) = K x [UUT reading (CPM)], where K = 0.002049
- 3. Correlation coefficient (r): 0.9971

Checked by :	cmmf	Date :_	10-2-2020	Certified by :_	Kateung	Date : /0-2-202	0
CA-R-297 (22/07/20	009)			Leung Kw	vok Tai (Assistant M	Manager)	

** End of Report **

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Report no. : 940891CA200109

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.	: 882147
Specification Limit	: NA
Next Calibration Date	: 09-Oct-2020

Laboratory Information

Description	:	TSP high volume air sample	r
Serial No.	:	4350	
Date of Calibration	:	10-Oct-2019	Ambient Temperature : 28 °C
Calibration Location	:	Ma Wan A1 Site Boundary	
Method Used	÷	By direct comparison the we	ight of dust particle trapped in a filter paper using high
		volume sampler (TSP metho	d) for a certain period, with the reading of the UUT. They
		should be placed at the same	e 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)
0.1047	2477	41.28
0.0623	2121	35.35
0.0587	2073	34.55

Remarks:

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

- 2. The interpolation equation : Concentration (mg/m³) = K x [UUT reading (CPM)], where K = 0.002030
- 3. Correlation coefficient (r): 0.9993

Checked by : ______ Date : _____ Date : ____

** End of Report **

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CALIBRATION REPORT OF WIND METER

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge				Date of Calibration:	5-Feb-2020
Location:	AMS3C			Next Calibration Date:	4-Jul-2020
Brandi	Global Water			Technician:	Sam Fong
Brand:		C/NI-	4047002400		
Model:	GL500-7-2	S/N:	1847003409		
			Anemometer		
Brand:	Benetech		Anemometer		
Model:	GM816	Equipment ID:	08		
Woder.	GMOTO	Equipment ib.	00		
			Procedures:		
1.	Wind Still Test:	The wind speed s	sensor was held by hand until	stabilized.	
1.	Wind Still Test:	The wind speed s	sensor was held by hand until	stabilized.	
1. 2.	Wind Still Test: Wind Speed Test:	•	sensor was held by hand until vas calibrated in-situ and com		ter.
2.	Wind Speed Test:	The wind meter v	vas calibrated in-situ and com	pared with the Anemome	
		The wind meter v	2	pared with the Anemome	

Wind Still Test:

Wind Speed (m/s)
0.00

Wind Speed Test:

Global Water (m/s)	Anemometer (m/s)
2.3	2.6
3.0	2.8
3.4	3.0

Wind Direction Test:

	Marine Compass (o)
252	250
72	70
0	357
340	341

- Cory

Report Date: 14/2/2020

Wan Ka Ho Project Consultant



Page 1 of 1

Report No.: 183057CA200894(3)

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Anemometer
Manufacturer	:	Benetech
Model No.	:	GM816
Serial No.	:	N/A
Equipment ID	.:	WS-08
Next Calibration Date	:	14-Jun-2021

Laboratory Information

Details of Reference Equipment –							
Description :	Reference Anemometer						
Equipment ID.:	R-101-4						
Date of Calibration :	15-Jun-2020	Ambient Temperature	:	22 °C			
Calibration Location : Calibration Laboratory of FTS							
Method Used : R-C-279							

Calibration Results :

Reference Reading	UUT Reading	Error
(m/s)	(m/s)	(m/s)
2.02	2.0	0.0
4.15	4.1	-0.1
6.27	6.0	-0.3
8.43	8.0	-0.4
10.75	10.1	-0.7

Remark :

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

2. The reported readings in this calibration are an average from 10 trials.

Checked by :	Date : <u> 20 - 6 - 2026</u>			
CA-R-297 (22/07/2009)		Leu	ng Kwok Tai (Assi	stant Manager)

** End of Report **

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Report No. : 183057CA195782(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description :	Anemometer
Manufacturer :	Benetech
Model No.	GM816
Serial No.	N/A
Equipment ID.:	WS-08
Next Calibration Date :	17-Jun-2020

Laboratory Information

Details of Reference Equipment -

Description :	Reference Anemometer			
Equipment ID.:	R-101-4			
Date of Calibration :	18-Jun-2019	Ambient Temperature	:	22 °C
Calibration Location	Calibration Laboratory o	f FTS		
Method Used : R-C-2	79			

Calibration Results :

Reference Reading	UUT Reading	Error
(m/s)	(m/s)	(m/s)
2.05	1.0	-1.1
4.08	3.1	-1.0
6.07	4.8	-1.3
8.03	6.7	-1.3
10.14	8.8	-1.3

Remark :

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

Checked by: William Date: 20-6-2019 Certified by: Kit Loung Date: 24-6-2019 Leung Kwok Tai (Assistant Manager) CA-R-297 (22/07/2009)

** End of Report **

Fugro Development Centre, 5 Lok Yi Street, Tai Lam, Tuen Mun, N.T., Hong Kong.

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Report no.: 183057CA196181

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Page 1 of 1

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description

: Sound Level Meter

Manufacturer	: Ca	asella		
		Meter	Microphone	Preamplifier
Model No.		CEL-63X	CE-251	CEL-495
Serial No.	:	1488272	02552	003942

Next Calibration Date : 01-Oct-2020

Specification Limit EN 61672: 2003 Type 1

Laboratory Information

Details of Reference Equipment -

Description		B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID.	:	R-108-1
Date of Calibration	:	02-Oct-2019 Ambient Temperature : 22 °C
Calibration Location	:	Calibration Laboratory of FTS
Method Used	:	By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specific	Specification Limit(dB)		
	4000Hz	2.0	2.6	to	-0.6	
	2000Hz	1.4	2.8	to	-0.4	
	1000Hz	0.0	1.1	to	-1.1	
A-weighting frequency response	500Hz	-3.4	-1.8	to	-4.6	
	250Hz	-8.8	-7.2	to	-10.0	
	125Hz	-16.3	-14.6	to	-17.6	
	63Hz	-26.3	-24.7	to	-27.7	
	31.5Hz	-39.3	-37.4	to	-41.4	
Differential level linearity	94dB-104dB	0.0		± 0.6	3	
	104dB-114dB	0.0		± 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 equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
- 5. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Uncertainties 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: Date: 4 - 10 -2019	Certified by : KT Kenng Date : 1-10 -2017
CA-R-297 (22/07/2009)	Leung Kwok Tai (Assistant Manager)
**	End of Report **

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Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong Page 1 of 1

Report no.: 183057CA196458

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.	0	2451048	02789	004065
Equipment ID	:	N/A		
Next Calibration Date	:	21-Nov-2020		
Specification Limit	;	EN 61672: 2003 Type 1		

Laboratory Information

Details of Reference Equipment -

Description	:	B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)					
Equipment ID.	:	R-108-1					
Date of Calibration	:	22-Nov-2019	Ambient Temperature :	22	°C		
Calibration Location	ו :	Calibration Laboratory of	of FTS				
Method Used	:	By direct comparison					

Calibration Results :

Parameters		Mean Value (dB)	Specific	ation	Limit(dB)
	4000Hz	1.9	2.6	to	-0.6
	2000Hz	1.5	2.8	to	-0.4
	1000Hz	0.0	1.1	to	-1.1
A-weigthing	500Hz	-3.4	-1.8	to	-4.6
frequency response	250Hz	-8.8	-7.2	to	-10.0
response	125Hz	-16.2	-14.6	to	-17.6
	63Hz	-26.2	-24.7	to	-27.7
	31.5Hz	-38.9	-37.4	to	-41.4
Differential level	94dB-104dB	0.0		± 0.6	3
linearity	104dB-114dB	0.0		± 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 equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : <u>Millian</u> Date : <u>37-1(-2019</u> Certified by : <u>K Jama</u> Date : <u>28-11-2019</u> CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager) ** End of Report **

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Page 1 of 1

Report no.: 183057CA196275

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

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.	:	2383852
Equipment ID	:	N/A
Next Calibration Date	:	15-Oct-2020
Specification Limit	;	EN 60942: 2003 Type 1

Laboratory Information

Details of Reference Equipment -

Description	:	Reference Sound level meter				
Equipment ID.	;	R-119-1				
Date of Calibration	:	16-Oct-2019	Ambient Temperature : 22	°C		
Calibration Location : Calibration Laboratory of FTS						
Method Used :	By	direct comparison				

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	0.0 dB	±0.4dB
114dB	0.0 dB	10.400

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 :	Date : (0-2019	Certified by :	i Throwing	Date: 10-2019
CA-R-297 (22/07/2009)		Leung	Kwok Tai (Assista	ant Manager)
	**	End of Report *	*	

End of Report

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Page 1 of 1

Report no.: 183057CA195873(2)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	1	Sound Calibrator	
Manufacturer	:	Casella (Model CEL-120/1)	
Serial No.	:	4358250	
Equipment ID	:	N-33	
Next Calibration Date	:	25-Jul-2020	
Specification Limit	:	EN 60942: 2003 Type 1	

Laboratory Information

Description	12	Reference Sound level meter			
Equipment ID.	:	: R-119-1			
Date of Calibration : 26-Jul-2019		Ambient Temperature :	22	°C	
Calibration Location : Calibration Laboratory of FTS					
Method Used	;	By direct comparison			

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)	
94dB	0.0 dB	±0.4dB	
114dB	0.0 dB	±0.40D	

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.

William Date: 26-7-2019 Certified by: F J Jerus Date: 76-7-2019 Checked by : CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

** End of Report **

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