



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-65/0761

MTC No. EEL. BP. 25/0965

CALIBRATION CERTIFICATE

Submitted by : Delta Electronics (Thailand) PCL.

Address : 111 Moo 9, Wellgrow Industrial Estate, Bangna-Tead Rd., T.Bangwua, A.Bangpakong,
Chachoengsao 24180.

Calibrated at : Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre.
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Rd., Muang, Samutprakan 10280.

Instrument Calibrated :

Ambient Environment

Description	: Portable Pulse	Temperature	: $(23 \pm 3) ^\circ\text{C}$
Manufacturer	: Brüel&Kjær (DT610-212)	Relative Humidity	: $(50 \pm 15) \%$
Model	: 3560C with 6/1-ch.Input/Output Module type 3032A	Ambient Pressure	: $(101.325 \pm 1.5) \text{ kPa}$
Serial No.	: 2353329		
Microphone	: Gras 46AE S/N 442772		

Standards used :

Multifunction Acoustic Calibrator Brüel&Kjær 4226 S/N 2810358 with Coupler UA0915 S/N 2810358.

Calibration Procedure :

This instrument was calibrated by using calibration procedure no CP-102-01, which was based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2006). This calibration procedure was related to the acoustical signal test of frequency weightings using a multifunction acoustic calibrator.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

The reported expanded uncertainty is based upon a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

Date of Receipt : 14 Sep. 2022

Date of Calibration : 14 Sep. 2022

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The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

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Acoustic signal test of frequency weightings

Frequency (Hz)	Deviation from various frequency curve	Uncertainty (±dB)	Tolerance limits class 1 (±dB)
	A-weighting (dB)		
125	0.0	0.25	1.5
1 000	0.0	0.25	1.1
4 000	-1.1	0.25	1.6
8 000	-2.4	0.25	2.1 , -3.1

Note : 1) There was no adjustment.

2) Unit under test tested at SPL 94 dB. @ 100 Hz with calibrator Larson Davis Model CAL 200 S/N 4710.

The gain adjust shows 1.000(0.00 dB.) for Input 2 before it was calibrated,

3) The deviation was produced from the absolute difference between the measured values and the responding sound pressure levels in IEC 61672-1 (2002).

Calibrated by :

(Mr. Sanaey Grajang)

Approved by :

(Mr. Prawate Kluaypa)

Director

Electrical and Electronic Standards Laboratory

Industrial Metrology and Testing Service Centre

Date of Calibration : 14 Sep. 2022

Date of Issue : 15 Sep. 2022

Ref : 2011265091404043001

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End of Certificate

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