SIRIM QAS International Sdn. Bhd. (410334-X)
No. 1, Persiaran Dato' Menteri, Section 2, P.O. Box 7035,
40700 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 03-55445854/5856
Fax: 03-55445886
www.sirim-qas.com.my

TEST REPORT

REPORT NO : 2014CB1221	PAGE : 1 OF 4

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Applicant	:	MARKLON INDUSTRIES SDN BHD No. 23, Jalan Tiaj 2/1, Taman Industri Alam Jaya, 42300 Bandar Puncak Alam, Selangor Darul Ehsan.
Manufacturer	:	MARKLON INDUSTRIES SDN BHD
Product	:	Polyglass Polycarbonate Solid Sheet
Reference Standard / Method of Test	:	ISO 140-3:1995 Acoustics-Measurement of Sound Insulation in Buildings and Of Building Elements Part 3: Laboratory Measurements of Airborne Sound Insulation of Building Elements
Description of Sample	:	A piece of polyglass polycarbonate solid sheet with thickness of 6 mm was installed to the test opening. The installation covered the test opening with the dimension of 1.20 m width x 2.40 m height. Brand : MARKLON POLYGLASS Thickness : 6 mm
Date Received of Complete Application	:	2nd July 2014
Job No./Ref. No.	:	J20141433128 / SQAS / CCST / T.REC / BPL / 17
Description of Test Results	:	The test results of the submitted test samples are described in page 4 of this test report.
Issued Date	:	10 JUL 2014

Approved Signatory

SIRIM QAS INTERNATIONAL SDN. BHD. Civil & Construction Section

(FAIZ MOHD YUSUF)
Senior Testing Executive

(PUAN RAJA NOR SIHA RAJA ABD. HANAN)
Head
Civil & Construction Section
Testing Services Department

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Reference : ISO 140-3:1995
Acoustics-Measurement of Sound Insulation in Buildings and Of Building Elements
Part 3 : Laboratory Measurements of Airborne Sound Insulation of Building Elements

Reverberation Room : The test laboratory consists of two interconnected reverberant chambers. The source room (Chamber 1) has a volume of 202.2 m^3, and a total surface area of 209 m^2. Receiving room (chamber 2) has a normal volume of 268 m^3 and total surface area of 253 m^2.

Instrumentation :
1) B&K Sound Source Type 4224
2) B&K Rotating Microphone Boom Type 3923
3) DELL Latitude with Pulse Software
4) B&K Type 3560C Front-end
5) B&K Acoustic Calibrator Type 4231

Test Procedure : The test has been conducted in general conformance with the ISO 140–3:1995 Acoustics-Measurement of sound insulation in buildings and of building elements. Part 3: Laboratory measurements of airborne sound insulation of building elements. ISO 717-1:1996 Acoustics-Rating of sound insulation in buildings and of building elements. Part 1: Airborne sound insulation.

The test specimen was installed in the opening between two reverberation rooms. An approximate diffuse sound field had been produced and measured in one room designated as the source room or transmitting room.

The sound reduction index (in dB) had been calculated in accordance with ISO 140-3: 1995 Section 3.2 Equation (5) at one-third octave centre frequency from 100 Hz to 5000 Hz. The calculated sound reduction index data was compared with the standard reference contour to obtain a single number weighted sound reduction index (Rw).

$$Rw = L1 - L2 + 10 \log (S/A)$$

Where,

L1 = Average sound pressure level in source chamber
L2 = Average sound pressure level in receiving chamber
S = Area of test specimen
A = Sound absorption coefficient

10 JUL 2014

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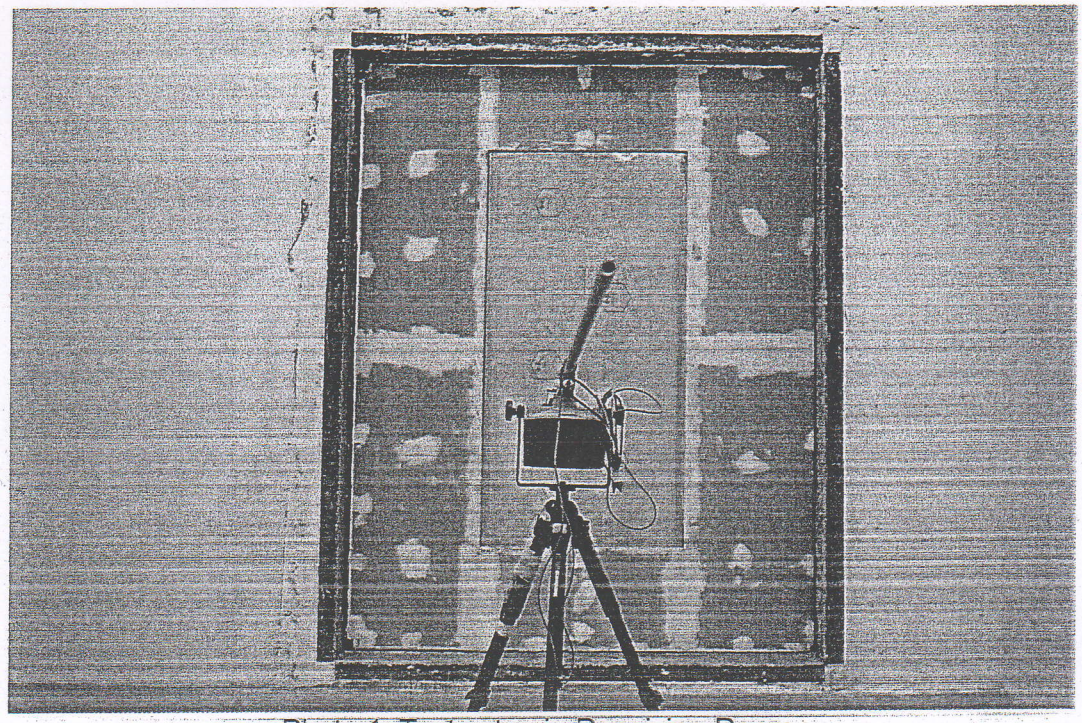

Photo 1: Test setup in Receiving Room

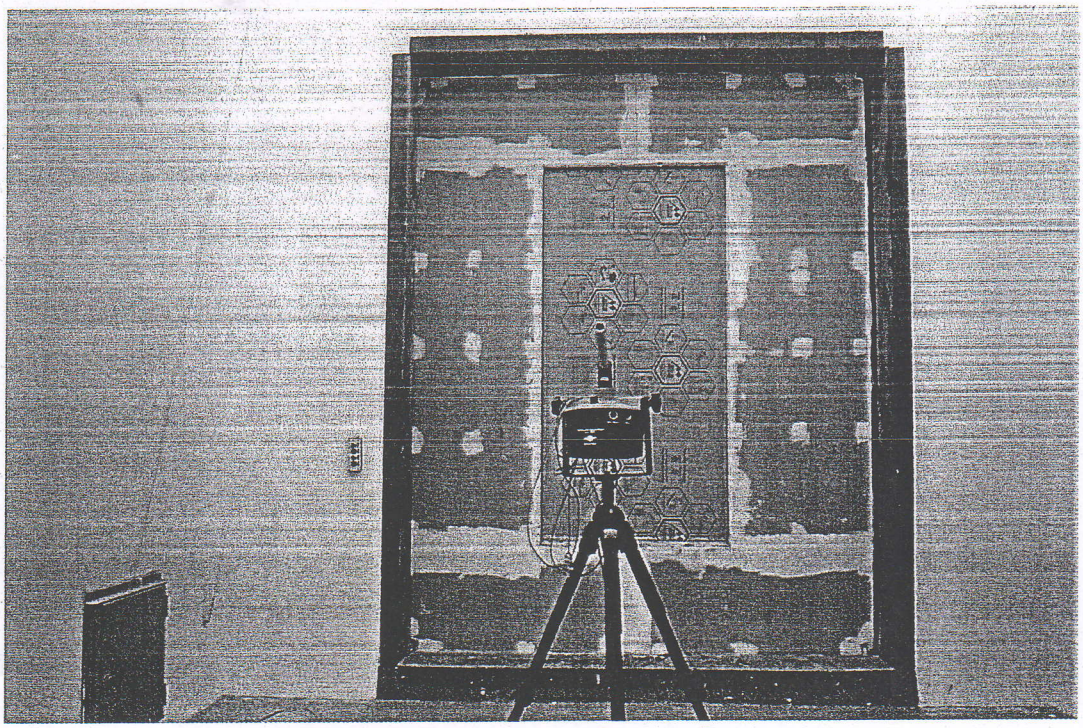

Photo 2: Test setup in Source Room

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Sample : Polyglass Polycarbonate Solid Sheet (Thickness = 6 mm)

Test Condition : Temperature = 27.5°C Humidity = 53.0 %

Table 1: Sound Reduction from frequency of 100 Hz to 5000 Hz

Frequency (Hz)	Sound Reduction Index (dB)	Reference (dB)
100	14.3	9
125	20.9	12
160	20.4	15
200	19.4	18
250	20.3	21
315	21.0	24
400	21.8	27
500	23.3	28
630	25.6	29
800	26.8	30
1000	27.5	31
1250	29.2	32
1600	30.7	32
2000	32.2	32
2500	34.2	32
3150	35.1	32
4000	36.3	32
5000	37.3	32
Rw	**28 dB**	

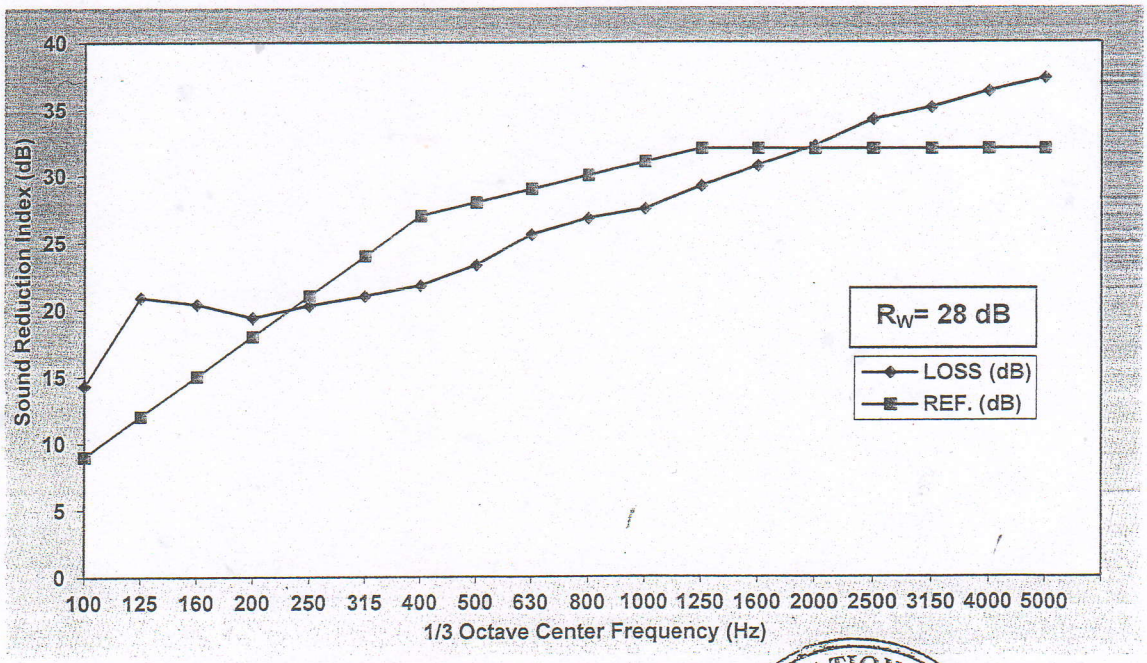

Figure 3: Tabulated data of Sound Reduction Index for frequency of 100 Hz to 5000 Hz.

SIRIM QAS INTERNATIONAL SDN. BHD. Civil & Construction Section

10 JUL 2014

SIRIM BERHAD
No. 1, Persiaran Dato' Menteri, Peti Surat 7035, Seksyen 2, 40911 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel. No : 03-5567682/5567651 Faks : 03-5567688
(No. Syarikat : 367474-V)

LAPORAN UJIAN

NO. LAPORAN : KD990041	MUKASURAT : 1 DARI 2

Laporan Ujian ini BUKAN Sijil Penentuan Kualiti dan BUKAN juga Sijil Kelulusan. Laporan ini HANYA meliputi sampel-sampel yang dikemukakan kepada SIRIM BERHAD dan diuji oleh SIRIM BERHAD. Laporan ini tidak boleh diterbitkan dengan apajua cara, kecuali sepenuhnya. Ianya tidak boleh digunakan untuk tujuan-tujuan pengiklanan dalam apajua cara atau bentuk tanpa kelulusan bertulis daripada Presiden SIRIM BERHAD.

Rujukan kami	:	STS 3050/8/2
Dikeluarkan oleh	:	Seksyen Pengujian Kimia, Jabatan Perkhidmatan Pengujian
Tarikh dikeluarkan	:	10 March 1999
Produk	:	Polycarbonate Sheet
Rujukan Standard/ Kaedah ujian	:	ASTM G 7 - 89, Standard Practice for Atmospheric Environmental Exposure Testing of Nonmetallic Materials
Pemohon	:	Seksyen Pengujian Bahan Bangunan dan Binaan SIRIM BERHAD
Untuk	:	MARKLON INDUSTRIES SDN. BHD. 1, Jalan 8/155 Bukit Jalil Industries 58200 Kuala Lumpur
Keterangan sampel	:	Diterima satu (1) sampel Polycarbonate Sheet untuk pengujian yang bertanda: **3mm, MK-92, Plane Blue**
Tarikh terima	:	30.12.1998
No. Kerja	:	98KD0188

Diluluskan oleh :

.....
(RIZ FADZLIN B. ABU NAIM)
Eksekutif Teknikal Kanan

.....
(NORLIA MUSA, *AMIC*)
Pengurus
Seksyen Pengujian Kimia
Bangunan 16
SIRIM BERHAD

TEST REPORT

REPORT NO. : KD990041 – S1	PAGE : 2 OF 2

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Test Results

Sample: **Polycarbonate Sheet**

Identification: **3mm, MK-92, Plane Blue**

No.	Type of Test	Test method	Results
1.	Atmospheric Environmental Exposure, ASTM G 7 - 89	Type of Exposure: Direct weathering – specimens are exposed to all prevailing atmospheric elements Duration of Exposure: Deterioration basis – Exposure until a specified physical change has occurred for example colour change or blistering	No physical change such as colour change or blistering occurred after 8 years and 10 months of exposure. (Start of test: 1st January 1999 End of Test: 1st November 2006)

RIZ FADZLIN ABU NAIM
Senior Technical Executive
Chemical Testing Section
SIRIM QAS International Sdn Bhd