

GOVERNMENT OF HARYANA / हरियाणा सरकार

TRANSPORT COMMISSIONER, HARYANA, CHANDIGARH

परिवहन आयुक्त, हरियाणा, चंडीगढ़

To

M/S Avery Dennison (India) Pvt Ltd, Narsinghpur Industrial Area, Six Kilometer Stone, Delhi-Jaipur Highway, Gurugram- 122001

Memo No. 19398 /T-3/ST-II Dated: 3//5/19

Subject:-

Fitment of reflective tapes/rear marking plates/reflectors on transport vehicles.

This is with reference to your application dated 04.02.2019 on the above subject in response to this office letter no. 59501-523/T-3/ST-II dated 18.12.2018 addressed to all the Additional Deputy Commissioners-cum- Secretaries of Regional Transport Authorities in the State and expression of interest invited by the department as published in the newspapers i.e. Dainik Bhaskar, The Hindustan Times, Dainik Savera, The Times of India, Hari Bhoomi, The Business Standard, Dainik Jagran, Punjab Kesari, Navbharat Times, The Tribune, Amar Ujala & Indian Express on dated 20.12.2018, 22.12.2018, 23.12.2018, 25.12.2018, 27.12.2018 and 29.12.2018 respectively.

It is stated that the details submitted by you to this office for the fitment of reflective tapes/rear marking plates/reflectors on transport vehicles are

Sr. No.	Details	
1.	Name of the company.	M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM- 122001 a subsidiary of AVERY DENNISON CORP, USA
2.	Name of the manufacturer.	 AVERY DENNISON GRAPHICS AND REFLECTIVE PRODUCTS DIVISION, 902, FEEHANVILLE DRIVE, MOUNT PROSPECT-IL-60056 (REFLECTIVE-TAPE-RED/WHITE/YELLOW). AVERY DENNISON REFLECTIVE, 6585, W HOWARD, ST. NILES, IL-60714, USA (REFLECTIVE-TAPE-RED/WHITE/YELLOW). M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM (REAR MARKING PLATE)
3.	Name of the authorized testing agency	The Automotive Research Association of India(ARAI), Pune
4.	Type Approval Certificate with number and date along with its date	1. NO.A95224,dated-13.11.2009 issued to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM manufactured by AVERY DENNISON GRAPHICS AND REFLECTIVE PRODUCTS DIVISION, 902,

Office: 30 Bays Building, 2nd Floor, Sector 17-B, Chandigarh - 160017 (India)

Telephone: 91(0172)-2784359, 2701290, 2700541 Fax: 91(0172)2700514 e-mail: stcharyana@hry.nic.in website: haryanatransport.gov.in

कार्यालय: 30 खण्ड बिल्डिंग, दूसरा तल, सेक्टर 17 बी, चंडीगढ़-160017 (भारत)



GOVERNMENT OF HARYANA / हरियाणा सरकार

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FEEHANVILLE DRIVE, MOUNT PROSPECT- IL-60056 (REFLECTIVE-TAPE-RED/WHITE/YELLOW) 2. NO.AC0916,dated-29.06.2012 issued to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM manufactured by AVERY DENNISON REFLECTIVE, 6585, W HOWARD, ST. NILES, IL-60714, USA (REFLECTIVE-TAPE-RED/WHITE/YELLOW) 3. COP.NO.SHL/16/2018/19/3000003916/COP/3208, dated 27.11.2018- issued to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM manufactured by AVERY DENNISON REFLECTIVE, 6585, W HOWARD, ST. NILES, IL-60714, USA (V-6300 SERIES REFLECTIVE-TAPE RED/WHITE/YELLOW) VALID UPTO 30.09.2020 4. COP.NO.SHL/16/201718/3963/3059, dated 26.09.2017 issued to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM manufactured by AVERY DENNISON GRAPHICS AND REFLECTIVE PRODUCTS DIVISION, 902, FEEHANVILLE DRIVE, MOUNT PROSPECT- IL-60056 -(V-6700 SERIES REFLECTIVE-TAPE RED/WHITE/YELLOW) VALID UPTO 30.09.2019 5. EXTENSION TEST REPORT NO SHL/16/2016-17/9203/1186, dated 11.04.2017 issued to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM GURUGRAM manufactured by to M/S AVERY DENNISON (INDIA) PVT LTD, NARSINGHPUR INDUSTRIAL AREA, SIX KILOMETER STONE, DELHI-JAIPUR HIGHWAY, GURUGRAM (REAR MARKING PLATE)
1. V-6700 CT WHITE @ 80/- PER METER 2. V-6701 CT YELLOW @ 82/- PER METER 3. V-6722 CT RED @ 85/- PER METER 4. V-6300 WHITE @ 68/- PER METER 5. V-6301 YELLOW @ 69.7/- PER METER 6. V-6322 RED @ 72.25/- PER METER 7. C-3 MARKING PLATE@ 1250/- 8. C-4 MARKING PLATE@ 1650/- 9. REFLECTOR20- 20 MM DIA @ 10/- 10.REFLECTOR30- 30 MM DIA @ 15/-

The aforementioned details have been uploaded on the website of the department (www.haryantransport.gov.in) for the information of transporters/general public. You are requested to affix the retro reflective tapes,

Office: 30 Bays Building, 2nd Floor, Sector 17-B, Chandigarh - 160017 (India)

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कार्यालय: 30 खण्ड बिल्डिंग, दूसरा तल, सेक्टर 17 बी, चंडीगढ़-160017 (भारत)



GOVERNMENT OF HARYANA / हरियाणा सरकार TRANSPORT COMMISSIONER, HARYANA, CHANDIGARH परिवहन आयुक्त, हरियाणा, चंडीगढ़

rear marking plates/tapes and circular reflectors of prescribed specifications on Motor Vehicles as per the following procedure.

- 4. The details of the manufacturer having type approval from the approved testing agencies as mentioned above should be put up on the notice board of the offices of all the Secretaries of the Regional Transport Authorities in the State in a conspicuous place/manner for the information of all concerned.
- 5. Fitness certificate will be issued to the motor vehicles by the Board of Inspection after ensuring that the reflectors have been affixed in the prescribed manner and proper details have been given in the fitment certificate.
- 6. Board of Inspection will also ensure at the time of grant of fitness certificate that the reflective tapes of prescribed standards manufactured by the aforementioned firms only has been affixed on the transport vehicles.

You are requested to affix the retro reflective tapes, rear marking plates/tapes and circular reflectors of prescribed standards on the motor vehicles in the state of Haryana after following the procedure mentioned above in letter and spirit. A letter issued by **Avery Dennison Corp**, **USA** in support of your claim to be a subsidiary of the said Company should be furnished to this office within a period of 15 days from the issue of this letter.

for Transport Commissioner, Haryana, Chandigarh.

Endst. No. /9389-4/T-3/ST-II

Dated: 31-5-2019

A copy of the above is forwarded to:-

1. All ADCs-cum-Secretaries of the Regional Transport Authorities in the State with the request to ensure strict compliance of the above directions.

2. Jr. Programmer (HQ) for uploading these instructions on the website of the Department.

for Transport Commission
Haryana, Chandigarh.





Avery Dennison (India) Pvt. Ltd.

Narsinghpur Industrial Area, Six Kilometer Stone, Delhi Jalpur Highway, District Gurgaon – 122001, Haryana Tel:0-124-2215581 / 582 / 583 Fax: 91-124-2215591 / 592

Date: 2nd May, 2019

The Hon'ble Transport Commissioner, State Transport Department, Government of Haryana Chandigarh

DT-9

815/19 877

<u>Subject: Submission of Maximum Retail Price (MRP) of Avery Dennison make Conspicuity Tape, Rear Marking Plate & Reflector</u>

Dear Sir,

Please find below Maximum Retail Price (MRP) of products to be offered by Avery Dennison for road safety purpose and implementation of installation of Rear Marking Tape and Reflector in the State of Haryana.

		of Every Demisson Consulainty Tape, hear its	Hong Plate &		
S.No.	Product Code	Description	flate per finer meter(fls.)	Cost of 50 meter rolls(Rs.)	Amount is Each(Rs.)
1	RF 574000048255808	V-6700 CT WHITE 2"X55YDS BOB	80	4000	
2	RF 674010048255808	V-6701 CT YELLOW2"X55YD5 BOB	82	4100	
3	RF 674020048255806	V-6722 CT RED 2"X55YDS 608	85	4250	
4	RF 630000048255	V-6300 WHITE 2"X55YDS	68	3466	
5	AF 630010048255	V-6301 YELLOW 2"X55YDS	69.7	3485	
6	RF 63 0220048255	V-6322 RED 2"X55YDS	72.25	3612.5	
7	C8 Rear Marking Plate (1	130 mm x 140 mm)			1250
8	C4 Rear Marking Plate (1	·····			1650
9	Reflectors-20	20 mm dia			18
10	Reflectors-30	30 mm dia	<u> </u>		15
11	Reflectors-40	40 mm dia			20
12	Reflectors-60	50 mm die			35

Kindly acknowledge this and issue us the empanelment letter, so that we start working on this prestigious road safety project.

With Best Regards

<u>Xannak</u>

Raunak Kumath National Sales Manager-India Reflective Solution Avery Dennison India Private Limited Gurgaon, India Cell No. +91-9971633855





The Automotive Research Association of India

(Research institute of the Automotive Industry with Ministry of Heavy Industries & Public Enterprises, Govt. of India)

Non-Transferable

TYPE APPROVAL CERTIFICATE

(For compliance to AIS - 037)

	APPROVAL CERTIFICATE No.	AC0916 DATE: 29.06.2012		
	NO.: SHL/16/2011-2012/6935/916)			
1.0	NAME AND ADDRESS OF APPLICANT	M/S. Avery Dennison (India) Pvt. Ltd. Natsinghpur Industrial Area Six Kilometer Stone Delhi-Jaipur Highway District Gurgaon 122 001		
	Contact Person	Mr. Abhijit Talpade		
	Tel No.	+91-124-2215581 / 2 +91-9833631681 (Mobile)		
	Fax No.	+91-14-2215591 /2 /3		
	Email Address	abhijit.talpade@ap.averydennison.com		
1.1	Details of component manufacturer	Avery Dennison Reflective Products 6565 W Howard St Niles IL 60714 (USA)		
2.0	Customer letter ref. and Declaration	Letter ref.: AD-DK-AM-at/19042012, Dated: 19.04.2012 Application as per annexure – A of AIS:037, dated: 19.04.2012.		
3.0	DETAILS OF THE COMPONENT UNDER TYPE APPROVAL:			
	Name and specification of the component	AVERY DENNISON V-6300 SERIES CONSPICUITY TAPE IN COLOURS - RED, WHITE AND YELLOW - Size: 50mm width		
	Identification observed on the sample	C E13 104R-000003		
4.0	Applicable Notified Standard	AIS:090-2005		
5.0	Vehicle Manufacturers and models for which the component is intended	Vehicle type: Four Wheeler model: —— Manufacturer: ——-		





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TYPE APPROVAL CERTIFI	CATE No.		A C O O 4 C
(SHL NO.: SHL/16/2011-201	2/6935/916)	AC0916	
6.0 PREVIOUS CERTIFIC	CATIONS	-	
ISI/E/e/ marks, or I	mponents certified by nave Undergone type per this procedure, if	F1'	Approval No. 3*104R00*104R00*0003*00, dated:23.12.2011
7.0 Test report consider	ed for Type Approval		011-2012/6935/916 I as Annexure I)
8.0 Production Plan in r	numbers	Annual pr	oduction: 60000 rells of 50mm
(QMS)	management system		
10.0 Type Approval Gran	ited / Refused	GRANT	ED
Based on			
> Annexure A s	ubmitted by M/S. Avery	Dennison (India) Pvt. Ltd.
	referred in Cl. No. 5.1 a		,,
· ·			
	Referred in Cl. No. 6.0	above.	
11.0 Marking on the sam	ple:	CE	13 104R-000003
		<u>Or</u>	AC0916
First	CoP to be established	on / before	: 30.09.2014
PREPARED BY:	CHECKED B	Y: APPROVED BY:	
france	632000		A feas
P.V. PARLIKAR	Mrs. J. M. KIF		A.V. MANNIKAR
PROJECT ENGINEER	ASSISTANT DIRI	ECTOR	DEPUTY DIRECTOR, HOD-SHL
Place of Issue: PUNE			Date of Issue: 29 66 2002

Disclaimer:

This test report pertains only to the components / parts / assemblies / vehicles etc. actually tested at ARAI in the presented condition based on the documents / Information produced / submitted by the customer. The issuance of this test report alone does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of the product. No extract, abridgement or abstraction from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought. ARAI is in no way responsible for any misuse of copying of any design / type / system in connection with entire vehicle / components / parts and assemblies. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the customer and ARAI shall not be liable for any claims or damages, made by the party, whatsoever, the customer shall alone be liable for the same, and undertakes to indemnify ARAI in this regard. Further, the ARAI has the right to initiate cancellation / withdrawal of the certificate issued in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI. The appropriate local courts at Pune shall have the Jurisdiction in respect of any dispute, claim or flability arising out of this report.



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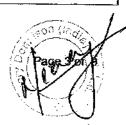
TYPE APPROVAL CERTIFICATE NO - A C 0 9 1 6 Annexure I

Non-Transferable

 -				Non-Transferable
	-1	TEST RE	PORT	
	SHL/16/2011-2012/16			DATE: 29.06.2012
1.0	NAME AND ADDRE	SS OF THE:	M/S. Avery Dennison (India) Pvt. Ltd.	
	CUSTOMER	•	Narsinghpu	ır İndustrial Area
			Six Kilomet	ter Stone
	ļ		Delhi-Jaipu	
				gaon 122 001
2.0	CUSTOMER LETTE	R REF.		AD-DK-AM-at/19042012, Dated:
			19.04.2012	
3.0	DESCRIPTION OF T	EST COMPONENTS:		
	AVERY DENNISON	V-6300 SERIES CONSPI	CUITY TAPE	IN COLOURS - RED, WHITE AND
	YELLOW			(320) 110(2) 412
	Size: 50mm width			
	Class "C" as declar	ed by the manufacturer		
	Manufactured by	Avery Dennison -Reflect	ctive	Photograph of samples
	-	Products		
	Na. (1.1)	6565 W Howard St		
		Niles IL 60714 (USA)		
	Identification	C E13 104R-000003		
	observed on the	1		
	component			
	<u>-</u>			
			F	
		1	1	
4.0	OD IEOTRIE TERT			
		PROCEDURE & TEST RE		
	To carry out all tests	as per AIS: 090 as publish	red on Decer	mber 2005.
5.0		-		
	TEST RESULTS:			
	Please refer Test Re	sults in Sr. No. 7.0 of this	report.	
6.0	CONCLUSION:			
0.0		E RESDIZING TAGE	(r. 1	
	KEIRO-REFLECTIV	E MARNING TAPE Speci	med in 3.0 at	bove, meets all the test requirements
	PREPARED BY:	ne procedure given in AIS:	90 published	
	PREPARED BY:	CHECKED	BY:	AUTHORISED BY:
	Mars M	ماد أ		4 6 4 11
	fre 1	(2002)	and the second	Judge_
		1 200		
	P.V. PARLIKAR	Mrs. J. M. K	RVF	A.V. MANNIKAR
F	ROJECT ENGINEER	ASSISTANT DIF		DEPUTY DIRECTOR, HOD-SHL
	e of Issue: PUNE	ACCIOTART DI	LUIUN	. 1
	laimer:	ļ		Date of Issue: 2012-
		components / paris / gecombiles		• • •

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Annexure I

Test Report No SHL/18/2011-2012/6935/916

7.0 TEST RESULTS:

7.1 GENERAL SPECIFICATIONS (CI. No. 7.0)

Cl. No.	Specifications	Remarks
6.1	Retro-reflective marking materials shall be that way constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	Complies.
6.2	Retro-reflective marking materials or parts thereof shall not be capable of being easily dismantled.	Complies.
6.3	The means of attachment of the marking materials shall be durable and stable.	Complies.
6.4	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	Complies.

7.2 SPECIFICATION OF MARKING DIMENSIONS (Annex 5)

Sr. No.	Specifications	Remarks
1.2.1	Dimensions	50mm. Complies.
	The width of a side and/or rear marking material shall be 50 mm +10/-0 mm.	•
1.2.2	The minimum length of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.	Complies,

7.3 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

THE AUTOMOTIVE RESEARCH

Results/Remarks:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed.

Complies.

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Annexure I

Test Report No SHL/16/2011-2012/6935/916

7.4 COLOUR TEST

7.4.1 COLOUR TEST OF Retro-reflecting device by CIE standard illuminate D_{85} (Annex 6, CI. No. 2) :

Colour	Specified Values	Measured Values		
Co-ordinates	(Colour - Red)	Sample no. 1	Sample no. 2	
X Coordinate	0.560 to 0.690	0.6601	0.6398	
Y Coordinate	0.310 to 0.350	0.3362	0.3321	
Luminance factor	≥ 0.03	0.49	0.47	

Colour	Specified Values	Measured Values		
Co-ordinates	(Colour – White)	Sample no. 1	Sample no. 2	
X Coordinate	0.260 to 0.385	0.3051	0.3045	
Y Coordinate	0.270 to 0.395	0.3261	0.3256	
Luminance factor	≥ 0.25	3.2	3.12	

Colour	Specified Values	Measured Values		
Co-ordinates	(Colour - Yellow)	Sample no. 1	Sample no. 2	
X Coordinate	0.427 to 0.545	0.4958	0,4978	
Y Coordinate	0.423 to 0.534	0.4893	0.4903	
Luminance factor	≥ 0.16	1.92	1.80	

7.4.2 Colour Test of Retro-reflecting device by CIE standard Illuminate A: (Annex 6, Cl. No. 3)

Colour	Specified Values	Measured Values		
Co-ordinates	(Colour - Red)	Sample no. 1	Sample no. 2	
X Coordinate	0.643 to 0.735	0.6641	0.6627	
Y Coordinate	0.258 to 0.335	0.3344	0.3320	

Colour	Specified Values	Measure	d Values	
Co-ordinates	(Colour - white)	Sample no. 1	Sample no. 2	
X Coordinate	0.373 to 0.548	0.4427	0.4422	
Y Coordinate	0.359 to 0.513	0.4056	0.4054	

Colour	Specified Values	Measure	red Values	
Co-ordinates	(Colour - yellow	Sample no. 1	Sample no. 2	
X Coordinate	0.505 to 0.601	0.5477	0.5485	
Y Coordinate	0.385 to 0.480	0.4458	0.4458	

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Annexure I
Test Report No SHL/16/2011-2012/6935/916

7.5 PHOTOMETRIC SPECIFICATIONS (Annex 7)

7.5.1 Red colour

Remark	is:	Complies	Complies	Complies	Complies
Results	Sample2	160.3	125.8	87.8	50.5
Destite	Sample1	145.5	113.5	78.6	44.3
Required values R (co	í.m ⁻² .lx ⁻¹)	120	60	30	10
1/3°(20')	β2	5	20	30	40
t in ite on	β1	0	0	0	0
Observation angle α)in degrees	Entrance angle (β) in degrees				

7.5.2 White colour

Entrance angle (β) in degrees				
β1	0	0	0	0
β2	5	30	40	60
l.m ⁻² .lx ⁻¹)	450	200	90	16
Sample1	545.6	315.3	184.6	33.3
Sample2	552.9	319.7	187.4	32.7
s	Complies	Complies	Complies	Complies
	β2 I.m ² .lx ⁴) Sample1	β1 0 β2 5 I.m².lx¹) 450 Sample1 545.6 Sample2 552.9	β1 0 0 β2 5 30 I.m².lx¹) 450 200 Sample1 545.6 315.3 Sample2 552.9 319.7	β1 0 0 0 β2 5 30 40 I.m².lx¹) 450 200 90 Sample1 545.6 315.3 184.6 Sample2 552.9 319.7 137.4

7.5.3 Yellow colour

Remarks		Complies	Complies	Complies	Complies
resuns	Sample2	403.3	228.2	131.1	23.5
Results	Sample1	406.267	227.8	130.2	22.9
Required values R (cd	.m ⁻² .lx ⁻¹)	300	130	75	10
1/3°(20')	β2	5	3.0	40	60
. :	β1	0	0	0	0
Observation angle (α)in degrees	Entrance angle (β) in degrees				



Annexure I

Test Report No SHL/16/2011-2012/6935/916

7.6 RESISTANCE TO EXTERNAL AGENTS (Annex 08, Cl. No. 01)

7.6.1 Resistance to weathering:

Test requirements:

a. Visual appearance:

No area of the exposed specimen shall show any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion.

Results/Remarks:

No area of the exposed specimen shows any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion after testing. There shall be no shrinkage was observed.

Complies.

b. Colour Test of Retro-reflecting device by CIE standard illuminate D₆₅ after Resistance to weathering test:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values
X Coordinate	0,560 to 0,690	0.6488
Y Coordinate	0.310 to 0.350	0.3334
Luminance factor	≥ 0.03	0,40

Colour Co-ordinates	Specified Values (Colour - white)	Measured Values
X Coordinate	0.260 to 0.385	0.3058
Y Coordinate	0.270 to 0.395	0.3264
Luminance factor	≥ 0.25	2.8

Colour Co-ordinates	Specified Values (Colour - yellow)	Measured Values
X Coordinate	0.427 to 0.545	0.4956
Y Coordinate	0.423 to 0.534	0.4892
Luminance factor	≥ 0.16	1.97

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Annexure [Test Report No SHL/16/2011-2012/6935/916

C. Colour Test of Retro-reflecting device by CIE standard illuminate A after Resistance to weathering test:

Golour Go-ordinates	Specified Values (Colour - Red)	Measured Values	· ·
X Coordinate	0.643 to 0.735	0.6655	
Y Coordinate	0.258 to 0.335	0.3311	

Colour Co-ordinates	Specified Values (Colour – white)	Measured Values
X Coordinate	0.373 to 0.548	0.4429
Y Coordinate	0.359 to 0.513	0.4054

Colour Co-ordinates	Specified Values (Colour - yellow)	Measured Values
X Coordinate	0.505 to 0.601	0.5475
Y Coordinate	0.385 to 0.480	0.4458

d. Photometric specifications after resistance to weathering test:

The coefficient of luminous intensity of the exposed specimen when dry shall be not less than 80 per cent of the initial value

The coefficient of luminous intensity after the test is more than 80 % of the initial value Results/Remarks: Complies.

7.6.2 RESISTANCE TO CORROSION (Annex 08, Cl. No. 02)

a. Visual appearance:

Test requirements:

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remarks: No sign of corrosion was observed.

Complies:

b. Photometric specifications after corrosion test:

Observation angle (α) in degrees	Entrance angle (β) in degrees			
1/3°(20')	β1	Measured values		
1/3 (20)	β2	5	Required values (cd.m ⁻² .lx ⁻¹)	(cd.m ⁻² .lx ⁻¹)
Results	Red		120	129.4
		rite	450	436.9
		low	300	329.2
R	emarks		Con	nplies

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TYPE APPROVAL CERTIFICATE NO - A C 0 9 1 6 Annexure I

Test Report No SHL/16/2011-2012/6935/916

7.6.3 RESISTANCE TO FUELS (Annex 08, Cl. No. 03)

Test requirements:

After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible change which would reduce its effective performance.

Results/Remarks: No Visible change was observed. Complies.

7.6.4 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks: After this test, no cracking or appreciable distortion of the

surfaces, particularly of the optical units was observed.

Complies.

7.6.5 CLEANING (Annex 08, Cl. No. 05)

Test requirements:

A test sample smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

Remarks: Complies.

7.6.6 RESISTANCE TO PENETRATION OF WATER (Annex 08, Cl. No. 07)

Test requirements:

After completion of the test, No water must penetrate to the reflecting surface of the sample unit. If visual inspection clearly reveals the presence of water, the retro-reflective marking shall not be considered to have passed the test.

LRISSHIS & H data/Testreports12-13/Type ApprovalLIMK\Photometry\Avery Dennision\AC0916_6935_2011_12_RR_Tape_AIS_80_Avery.com

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(Research mobilishe of the Automotive industry with Ministry of Heavy Industries & Public Enterprises, Govt. of India)

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CONFORMITY OF PRODUCTION CERTIFICATE AS PER AIS - 037 CONFORMITY OF PRODUCTION CERTIFICATE NO - 03

SHL	NO.: SHL/16/2018-2019/3000003916/COP/3	3208 DATE: 27.11.2018			
1.0	Name and Address of Applicant	M/s. Avery Dennison (India) Pvt. Ltd. Narsinghpur industrial Area, Six Kilometer Stone, Delhi Jaipur Highway, District Gurgaon 122 001, Haryana			
2.0	Customer Letter Ref.	Email dated: 23.09.2018			
3.0	Name and Address of Component Manufacturer	Avery Dennison Reflective Products 6565 W Howard St Niles IL 60714 (USA)			
4.0	Name and specification of the component	AVERY DENNISON V-6300 SERIES CONSPICUITY TAPE Colors: Red, White and Yellow Size: 20mm width & 50 mm width			
5.0	Applicable Notified Standard	AIS:090			
6.0	Base Type Approval No.	AC0916			
7.0	TAC MARK / E-Mark	AC0916 (on 20 mm width samples) E13 104R 000003 (on 50 mm width samples)			
8.0	Conformity of Production serial no.	3rd CoP			
9.0	Conformity of Production Granted / Refused	GRANTED			

Based on-

- Successful completion of Conformity of Production tests on randomly selected samples. Samples are randomly selected and submitted by M/s. Avery Dennison (India) Pvt. I td
- 2. Test results are enclosed in Annexure-I.

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Air ISO 9001, ISO 14001, CHSAS 18001 Certified and ISO/IEO17026 Accredited Organization



SHL No.: SHL/16/2018-2019/3000003916/COP/3208

9.0	Next co	ntinued compliance to be completed on and before: 30.09.2020
1		

Disclaimer:

- 1. ARAI issues 'Conformity of Production (CoP) Certificates' for vehicles/ components/ parts/ assemblies etc. based on the documents/ produced and for testing carried out on the selected sample(s) as per the provisions of specific rules.
- Sample selection procedure is in compliance to Motor Vehicle Act/ Central Motor Vehicles Rules and their provisions as arriended from time to time or any other statutory orders under which ARAI is authorized. Other Rules/ Acts are outside the purview/ scope of CoP.
- Test/s on selected sample(s) is/ are carried out only on the parameters as covered under the specific procedures/ rules. Results
 of such tests are the property of bearer of CoP Certificate. These results cannot be disclosed unless specifically so ordered by
 Government, Court, etc.
- 4. Other parameters of the vehicles/ components/ parts/ assemblies etc. are outside the purview/ scope of CoP.
- 5. The bearer of the CoP certificate is under obligation to ensure production strictly as per the provisions of the specific certificate.
- 6. ARAI is not responsible for ensuring manufacturing quality of the approved vehicles/ components/ parts/ assemblies etc.
- ARAI is in no way responsible for any misuse or copying of any design/ type/ system in connection with entire vehicle/ components/ parts and assemblies covered under the CoP certificate.
- 8. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the bearer of CoP certificate and ARAI shall not be liable for any claims or damages. The bearer shall alone be liable for the same, and shall undertake to indemnify ARAI in this regard.
- 9. ARAI has the right, but not under obligation, to initiate cancellation/ withdrawal of the certificate issued, in case of any fraud, misrapresentation, when it surfaces and comes in the knowledge of ARAI.

The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this certificate. Report.

PREPARED BY:	CHECKED BY:	APPROVED BY:		
Barret	Or -	Bracos & M		
P.V. PARLIKAR MANAGER	Mrs. J. M. KIRVE GENERAL MANAGER	LA.V. MANNIKAR SR. DEPUTY DIRECTOR, HOD-SHL		
Place of Issue: PUNE		Date of Issue: 23-11-2018		







SHL No.: SHL/16/2018-2019/3000003916/COP/3208

		Annexure - I				
1.0	Name and Address Applicant	Narsinghpur Industrial Jaipur Highway, Distric	(India) Pvt. Ltd. Area, Six Kilometer Stone, Delh I Gurgaon 122 001, Haryana			
2.0	Description of Compo	Colors: Red, White and	AVERY DENNISON V-6300 SERIES CONSPICUITY TAPE Colors: Red, White and Yellow Size: 20mm width & 50 mm width			
	Marking on the sample	The second of the same	AC0916 (on 20 mm width samples) E13 104R .000003 (on 50 mm width samples)			
	Photograph of Sample					
3.0	Objective: To conduct the COP tes	ts as defined in AIS 037 as pe	er AlS: 090.			
4.0	Test Results:					
4.1	Test Duration:	Start Date: 13.11.2018				

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 03 SHL No.: SHL/16/2018-2019/3000003916/COP/3208 Annexure - II

4.2 Resistance to heat (Annex 6 Cl. No.4.0) **TEST REQUIREMENTS OBSERVTIONS / RESULTS** After this test, no cracking or appreciable After this test, no cracking or appreciable distortion of the surfaces, particularly of distortion of the surfaces, particularly of the the optical units, shall be evident. optical units was observed. Satisfactory. Colour Test of Retro-reflecting device by CIE standard illuminate D₆₅ 4.3 (Annex 4, Cl. No. 2) Colour Specified Values Measured Values Co-ordinates (Colour - Red) Sample No. 01 Sample No. 02 X Coordinate 0.560 to 0.690 0.6400 0.6415 Y Coordinate 0.310 to 0.350 0.3210 0.3228 Luminance factor ≥ 0.03 0.07 0.07 Colour **Specified Values** Measured Values Co-ordinates (Colour - White) Sample No. 01 Sample No. 02 X Coordinate 0.260 to 0.385 0.30740.3074Y Coordinate 0.270 to 0.395 0.32900.3289 Luminance factor ≥ 0.25 0.27 0.27 Colour Specified Values Measured Values Co-ordinates (Colour - Yellow) Sample No. 01 Sample No. 02 X Coordinate 0.427 to 0.545 0.4357 0.4360 Y Coordinate 0.423 to 0.534 0.4238 0.4249 Luminance factor ≥ 0.16 0.20 0.20 Colour Test of Retro-reflecting device by CIE standard illuminate A: 4.4 (Annex 4, Cl. No. 3) Colour **Specified Values** Measured Values Co-ordinates (Colour – Red) Sample No. 01 Sample No. 02 X Coordinate 0.643 to 0.735 0.6676 0.6677 Y Coordinate 0.258 to 0.335 0.3259 0.3266 Colour **Specified Values** Measured Values Co-ordinates (Colour - White) Sample No. 01 Sample No. 02 X Coordinate 0.373 to 0.548 0.4441 0.4451 Y Coordinate 0.359 to 0.513 0.4063 0.4061 Colour Specified Values Measured Values Co-ordinates (Colour - Yellow) Sample No. 01 Sample No. 02 X Coordinate 0.505 to 0.601 0.5268 0.5267Y Coordinate 0.385 to 0.480 0.42980.4295

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 03 SHL No.: SHL/16/2018-2019/3000003916/COP/3208

	PHOTOMETRIC SPECIFICATIONS (Annex 5) Red colour (Retro reflective) Area considered = 150mmX50mm									
-										
	Sr. No.	Observation angle (α) in	Entrance Angle		Required values	Measured Values (cd. m².lx¹)				
		degrees	β1	β2	(cd. m ⁻² .lx ⁻¹)	Sample No. 01	Sample No. 02			
	1.		0	5	120	162.000	145.733			
ļ	2.	1/3°(20')	0	20	60	121.600	110.800			
l	.3.	113 (20)	.0	30	30	82,133	75.200			
	4.		0	40	10	47.333	42.400			
		aegrees	β1	β2	(cd. m ⁻² .lx ⁻¹)	Sample No. 01	The strategy with the			
	No.	angle (α) in degrees	β1	β2	values (cd. m ⁻² .lx ⁻¹)	Sample No. 04				
		178 (ARIAN E) F - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 M	1	National Control of the Control of t	Campie No. 01	Sample No. 02			
	1.		0	5	450	534.667	Sample No. 02 454.667			
	1. 2.	1/39/20")	1 1 1	5 30	450 200	· · · · · · · · · · · · · · · · · · ·				
		1/3º(20')	0		-	534.667	454.667			
	2.	1/3º(20')	0	30	200	534.667 289.333	454.667 256,400			
	2. 3. 4. Yellow	1/3º(20') calour (Retroconsidered = 1	0 0 0 0 reflectiv	30 40 60 (e)	200 90	534.667 289.333 169.200 30.400	454.667 256,400 147.067 27.200			
	2. 3. 4. Yellow	colour (Retro considered = 1 Observation angle (α) in	0 0 0 0 reffectiv 50mmX8	30 40 60 e) 50mm	200 90 16 Required values	534.667 289.333 169.200	454,667 256,400 147,067 27,200			
	2. 3. 4. Yellow Area c	colour (Retro considered = 1 Observation	0 0 0 0 reflectiv 50mmX5	30 40 60 e) 50mm	200 90 16	534.667 289.333 169.200 30.400	454,667 256,400 147,067 27,200			
	2. 3. 4. Yellow Area construction No.	colour (Retro considered = 1 Observation angle (α) in	0 0 0 0 reffectiv 50mmX8	30 40 60 re) 50mm	200 90 16 Required values	534.667 289.333 169.200 30.400 Measured (cd, m	454,667 256,400 147,067 27,200			
	2. 3. 4. Yellow Area of No. 1. 2.	colour (Retro considered = 1 Observation angle (a) in degrees	0 0 0 reffectiv 50mmX8 Entra Ang	30 40 60 60 60 60 60 60 60 60 60 60 60 60 60	200 90 16 Required values (cd. m ² .ix ¹)	534.667 289.333 169.200 30.400 Measured (cd, m	454,667 256,400 147,067 27,200 1 Values 2 .lx-1)			
	2. 3. 4. Yellow Area construction No.	colour (Retro considered = 1 Observation angle (α) in	0 0 0 0 reflectiv 50mmX5 Entre Ang β1	30 40 60 50mm ance gle β2	200 90 16 Required values (cd. m².ix¹)	534.667 289.333 169.200 30.400 Measured (cd, m Sample No. 01 348.333	454.667 256.400 147.067 27.200 d Values 2.lx-1) Sample No. 02 312.000			

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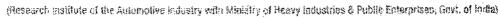
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CONFORMITY OF PRODUCTION CERTIFICATE AS PER AIS - 037 CONFORMITY OF PRODUCTION CERTIFICATE NO.04

(SHL	NO.: SHL/16/2017-2018/3963/3059)	DATE: 26.09.2017		
1.0	NAME AND ADDRESS OF APPLICANT	M/s. Avery Dennison (India) Pvt. Ltd. Narsinghpur Industrial Area, Six Kilomete Stone, Delhi-Jaipur Highway, District Gurgao 122 001		
2.0	Customer Letter Ref.	Email dated: 20:07:2017		
3.0	Name and Address of Component Manufacturer			
4.0	Name and specification of the component	AVERY DENNISON V-6700 SERIES CONSPICUITY TAPE IN COLOURS - RED, WHITE AND YELLOW Size: 20mm width & 50 mm width		
5.0	Applicable Notified Standard	AIS: 090		
6.0	Base Type Approval No.	A95224 & A95224 Addendum no.1		
7.0	Marking on the sample	A95224 (on 20mm width samples) E13 104R 000001(on 50mm width samples)		
8.0	Conformity of Production serial no.	4 th COP		
9.0	Conformity of Production Granted / Refused	GRANTED		

Based on-

- Successful completion of Conformity of Production tests on randomly selected samples.
 Samples are randomly selected and submitted by M/s. Avery Dennison (India) Pvt. Ltd.
- 2. Test results are enclosed in Annexure-I.



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SHL No.: SHL/16/2017-2018/3963/3059

10.0 Next continued compliance to be completed on and before: 30.09.2019

Disclaimen

- 1. ARAI issues 'Conformity of Production (CoP) Certificates' for vehicles/ components/ parts/ assemblies etc. based on the documents produced and /or testing carried out on the selected sample(s) as per the provisions of specific rules.
- Sample selection procedure is in compliance to Motor Vehicle Act/ Central Motor Vehicles Rules and their provisions as amended from time to time or any other statutory orders under which ARAI is authorized. Other Rules/ Acts are outside the purview/ scope of CoP.
- 3. Test/s on selected sample(s) is/ are carried out only on the parameters as covered under the specific procedures/ rules. Results of such tests are the property of bearer of CoP Certificate. These results cannot be disclosed unless specifically so ordered by Government, Court, etc.
- 4. Other parameters of the vehicles/ components/ parts/ assemblles etc. are outside the purview/ scope of CoP.
- 5. The bearer of the CoP certificate is under obligation to ensure production strictly as per the provisions of the specific certificate.
- 6. ARAI is not responsible for ensuring manufacturing quality of the approved vehicles/ components/ paris/ assemblies etc.
- ARAI is in no way responsible for any misuse or copying of any design/ type/ system in connection with entire vehicle/ components/ parts and assemblies dovered under the CoP certificate.
- 8. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the bearer of CoP confileate and ARAI shall not be liable for any claims or damages. The bearer shall alone be liable for the same, and shall undertake to indemnify ARAI in this regard.
- ARAI has the right, but not under obligation, to initiate cancellation/ withdrawal of the certificate issued, in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI.

The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this certificate / Report.

PREPARED BY:	CHECKED BY:	APPROVED BY:		
Kinney	800	\$ K23_		
P.V. PARLIKAR MANAGER	Mrs. J. M. KIRVE GENERAL MANAGER	A.V. MANNIKAR SR. DEPUTY DIRECTOR, HOD-SHL		
Place of Issue: PUNE		Date of Issue: 26 cs 120[]		

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SHL No.: SHL/16/2017-2018/3963/3059

		An	nexure -	- i				
1.0	Name and Address of Applicant		Avery Dennison (India) Pvt. Ltd. Narsinghpur Industrial Area, Six Kliometer Stone Delhi-Jaipur Highway, District Gurgaon 122 001					
2.0	Description of Compone	AND YE	CUITY TAPE	E IN COLOUR	700 SERIES S - RED, WHITE			
	Marking on the sample	.41.7	A95224 E13 104	(on 20mm wi R 000001(oi	dth samples) n 50mm width	samples)		
3.0	Objective: To conduct the COP tests	as define	d in AIS: (37 as per Al	S: 090.			
4.0	Test Results:							
4.1	Test Duration:	Sta	rt Date: 13	3.09.2017	End Da	e: 20.09.2017		
4.2	Resistance to heat (Anne	ex 6 Cl. No	0.4.0)	<u></u>				
			OBS	SERVTIONS /	RESULTS			
'	TEST REQUIREMENTS After this test, no cracking or appreciate					ng or appreciable		
	distortion of the surfaces optical units, shall be evid	rly of the						
4.3	COLOUR TEST							
4.3.1	T T T T T T T T T T T T T T T T T T T	o-reflecti	na device	by CIE stan	dard illumina	te D ₆₅ :		
4.3.1.1	COLOUR TEST OF Retro-reflecting device by CIE standard illuminate D ₆₅ : For Red colour							
4.3.1.3		fied Value	/alues Measured Values					
	Colour Co-ordinates		our - Red		mple no. 1	Sample no. 2		
	X Coordinate		0 to 0.690		0.6584	0.6494		
	Y Coordinate		0 to 0.350		0.3208	0.3216 .		
	Luminance factor		≥ 0.03		80.0	0.08		
4.3.1.2	Cultilitatice factor 2 0.00							
***	Colour	Speci	fied Valu	es	Меаѕиге	d Values		
	Co-ordinates		ur – Whit	e) Sa	mple no. 1	Sample no. 2		
	1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0 to 0.385	5	0.3115	0.3108		
			70 to 0.395		0.3024	0.3028		
	Luminance factor		≥ 0.25		0.28	0.28		
4.2.1.3	For Yellow colour							
	Colour		ified Valu			ed Values		
	Co-ordinates		ur - Yello		imple no. 1	Sample no. 2		
	X Coordinate		27 to 0.54		0,4898	0.4852		
	Y Coordinate	0.42	23 to 0.53	4	0.4407	0.4411 0.31 px		
	Luminance factor	and the Control of th	≥ 0.16		0.32	0.31 10.3		

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SHL No. : SHL/16/2017-2018/3963/3059 Annexure – I

4.3.2	COLOUR TEST OF Retro-reflecting device by CIE standard illuminate A:							
4.3.2.1	For Red colour							
	Colour Specified Values		Measured Values					
	Co-ordinates	(Colour - Red)	Sample no. 1	Sample no. 2				
	X Coordinate	0.643 to 0.735	0.6718	0.6751				
	Y Coordinate	0.258 to 0.335	0.3294	0,3298				
4.3.2.2	For White colour							
	Colour	Specified Values	Measured Values					
	Co-ordinates	(Colour – White)	Sample no. 1	Sample no. 2				
	X Coordinate	0.373 to 0.548	0.4501	0.4519				
	Y Coordinate	0.359 to 0.513	0.4101	0.4114				
4.3.2.3	For Yellow colour							
-	Colour Specified Values		Measured Values					
	Co-ordinates	(Colour - Yellow)	Sample no. 1	Sample no. 2				
	X Coordinate	0.505 to 0.601	0.5608	0.5614				
	Y Coordinate	0.385 to 0.480	0.4139	0.4118				

4.4	Photometric Specifications:
4.4.1	For Red colour (Area: 150mm × 50 mm)

Remarks		Satisfactory	Satisfactory	Satisfactory	Satisfactory	
Required values R (cd. m².1x-1) Sample No. 01 Sample No. 02		159.067	119.733	81.733	47.467	
		152.533	115,333	79.200	46.267	
		120	60	30	10	
1/3°(20')	β2	5	20	30	40	
	β1	0	٥	0	0	
Observation angle (α)in degrees		Entrance angle (β) in degrees				

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SHL No. : SHL/16/2017-2018/3963/3059 Annexure — I

4.4.2	For White colour (Area: 150mm × 50 mm)
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Observation angle (a)in degrees		Entra	nce angle (β) in	degrees	· · · · ·
	β1	0	0 -	10	0
1/3°(20')	β2	5	30	40	60
Required values R (co	I. m ² .1x ⁻¹)	450	200	90	16
Sample No. i	31	4 54.667	253.200	151.467	29.733
Sample No.)2	466.667	259.200	154.133	28.400
Remarks		Satisfactory	Satisfactory	Satisfactory	Satisfactory

4.4.3 For Yellow colour (Area: 150mm × 50 mm)

Observation angle (a)in degrees		Entra	nce angle (β) i	n degrees	
	β1	0	0	0	0
1/3°(20')	β2	5	30	40	60
Required values R (cd.	m ² .1x ⁻¹)	300	130	75	10
Sample No. 0	1	401.333	216.667	128.800	23.640
Sample No. 0	2	404.000	223.867	135.600	27.600
Remarks	MINING THE PROPERTY OF THE PRO	Satisfactory	Satisfactory	Satisfactory	Satisfactory

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(Research Institute of the Automotive Industry with Ministry of Heavy Industries & Public Enterprises, Govt. of India)

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/Carl	EXT ler test report: SHL/16/2014-2		ON TEST REPORT 171/337 Dated: 10.02.2015.8		
(Eain			252/1442 Dated: 14.07.2015)		
No. SHL/16/2016-2017/9203/1186			DATE: 11.04.2017		
1.0			M/S. Avery Dennison (India) Pvt. Ltd. Narsinghpur Industrial Area, Six Kilometer Stone Delhi-Jaipur Highway, District Gurgaon 122 001		
2.0	CUSTOMER LETTER REF.		Email Dated : 19.01.2017		
3.0	DESCRIPTION OF TEST CO	MPO	IENTS:		
	Rear Marking Plates (Class Substrate used (Grade of M Thickness: 2 mm	3 & 4) lateria	: I) – Aluminum Alloy 5052, temper H32,		
	Rear Marking Plates (Class Substrate used (Grade of M Thickness: 1.5 mm, 1.22 mm	lateria	I) - MS: Steel Grade Material (D-513),		
	Rear Marking Plates (Class Substrate used (Grade of N Thickness: 4 mm	3 & 4 lateria): II) - Steel Grade Material (ST 52.3),		
	N	iarsing	rery Dennison (India) Pvt. Ltd. Inpur Industrial Area, Six Kilometer Stone aipur Highway, District Gurgaon 122 001		
]	Unique Identification A	D_AT	300854		
	Drawing No. of the component	D_AT	300854 as enclosed at page no. 4 & 5		
	Identification observed on the component	13 10	4R 00 0001 AD_AT_300854		
4.0	CONSIDERATION FOR EXT	(ENSI	ON:		
	i) Declaration letter sub	milted	by customer regarding the change in part number.		
	ii) Customer's declaration stating that material used, manufacturing process, controls, etc. are identical and not changed expect change in material of plate & Thickness of the plate (specified in 3.0 above).				
	iii) Additional test of Rigidity of Plates & Corrosion test are conducted as per AIS: 089 on new material of Steel Grade D-513 with thickness of the plate (1.22 mm & 1.6 mm) and Steel Grade ST-52.3 with thickness of the plate (4.00 mm). Refer Sr. No. 6.0 for test results.				
	SHL/16/2014-2015/6 2017/9203/1186 Date	171/33	07.2015 for detailed test results.		
	art was the state of the state				

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An ISO 9001, ISO 14001, DHSAS 12001 Certificot and ISO/IEC17025 Accredited Organization .



TEST REPORT No SHL/16/2016-2017/9203/1186

5.0 CONCLUSION:

Rear Marking Plates specified in 3.0 above, met the requirements of all the tests related to Rear Making Plates as above in 3.0 when tested as per AlS: 089.

An installation requirement has to be verified along with vehicle.

Disclalmer

- 1. ARAI issues Test Reports / Extension Reports / Developmental Test Reports for vehicles/ components/ parts/ assemblies etc. based on the documents produced and/or prototype/ vehicle(s) or sample(s) submitted by the applicant and testing thereof.
- ARAI Issues Test Reports / Extension Reports / Developmental Test Reports in compliance to Motor Vehicle Act / Central Motor Vehicles Rules and their provisions as amended from time to time or any other statutory orders under which ARAI is authorised. Other Rules/ Acts are outside the purview/ scope of Test Reports / Extension Reports / Developmental Test Reports.
- 3. Test(s) on prototype/ vehicle(s) or sample(s) is/are carried out on the basis of standard procedures as notified under specific rules / requested by the applicant. Results of such tests are the property of bearer of Test Reports / Extension Reports / Developmental Test Reports. These results cannot be disclosed unless specifically so ordered by Government, Court, etc.
- Unless otherwise supported by a separate Certificate, this Test Reports / Extension Reports / Developmental Test Reports shall not be considered in isolation as valid Type Approval for any vehicle.
- 5. ARAI is not responsible for testing each vehicles/ components/ parts/ assemblies etc. for which Test Reports / Extension Reports / Developmental Test Reports is issued. Further, ARAI is not responsible for ensuring manufacturing quality of the vehicles/ components/ parts/ assemblies etc. for which the Test Reports / Extension Reports / Developmental Test Reports is/are issued.
- 5. ARAI is in no way responsible for any misuse or copying of any design/ type/ system in connection with entire vehicle/ components/ parts and assemblies covered under the Test Reports / Extension Reports / Developmental Test Reports is/are issued.
- 7. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the bearer of Test Reports / Extension Reports / Developmental Test Reports is/are issued and ARAI shall not be liable for any claims or damages. The bearer shall alone be liable for the same, and shall undertake to indemnify ARAI in this regard.
- ARAI has the right, but not under obligation, to initiate cancellation/ withdrawal of the Test Reports / Extension Reports /
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 ARAI.

The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this certificate / Report.

PREPARED BY:	CHECKED BY:	AUTHORISED BY:
Brown	Oce-	N. S. C.
P.V. PARLIKAR MANAGER	Mrs. J. M. KIRVE GENERAL MANAGER	A.V. MANNIKAR SR. DEPUTY DIRECTOR, HOD-SHL
Place of Issue: PUNE		Date of Issue:



Hone



TEST REPORT No SHL/16/2016-2017/9203/1186

- 6.0 Test Results
- 6.1 MS: Steel Grade Material (D-513) with thickness 1.22 mm thick. & 1.6 mm
- 6.1.1 Resistance to Corrosion (Annex 6, 2)

Test Requirements:

immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark:

No sign of corrosion was observed. Complies

6.1.2 Rigidity of the Plates (Annex 8)

Test Requirements:

The maximum deflection of the plate under the test load shall not exceed one twentieth of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

Results/Remarks:

The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. Complies

- 6.2 Steel Grade Material (ST 52.3) with thickness 4 mm
- 6.2.1 Resistance to Corrosion (Annex 6, 2)

Test Requirements:

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark:

No sign of corrosion was observed. Complies

6.2.2 Rigidity of the Plates (Annex 8)

Test Requirements:

The maximum deflection of the plate under the test load shall not exceed one twentieth of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

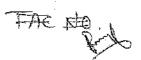
Results/Remarks:

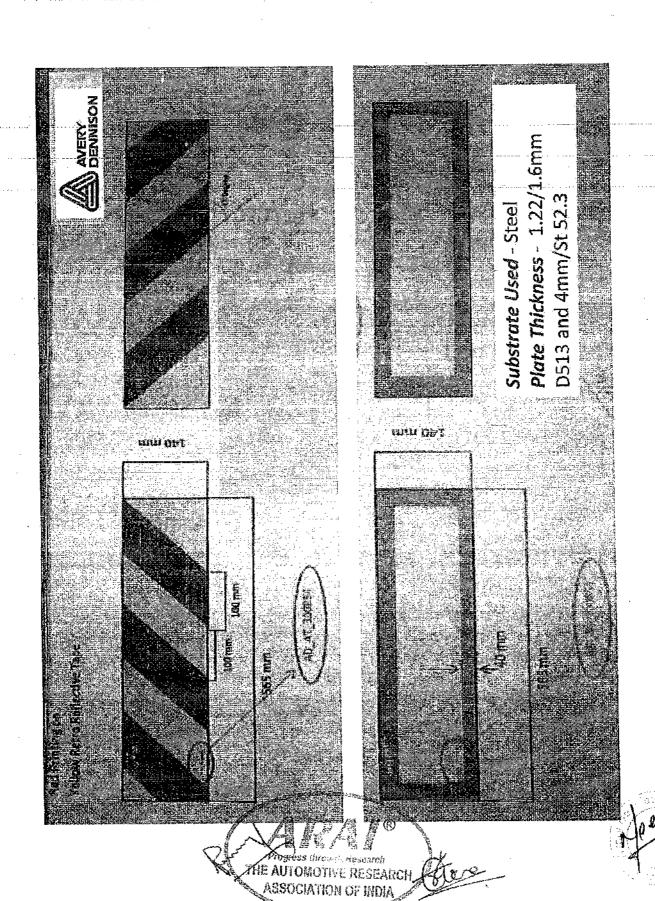
The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. Complies

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Page 3 of 5



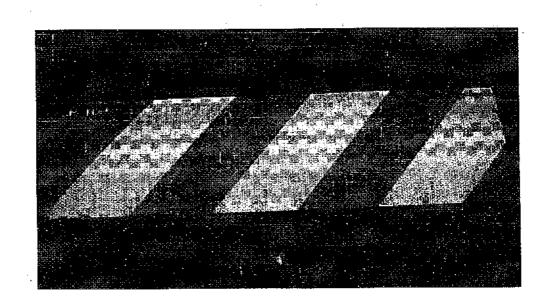


page 4 of 5

TEST ECHOPY NO.: SHL/16/2016-2017/9203/1186.



Rear Marking Plate – Actual Photo









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, the secret manager of the Automotive industry with the frinderly of Heavy Industries & Public Enterprises, Cove. of India)

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. राजका कार्याक्षक स्थापकी स्थलन । इस्त्राप्तां से पार्वका स्थलित है।

DATE: 12.09.2008

1.0 NAME AND ADDRESS OF THE

No. 3841148/2006-2008/2772/840

CUSTOMER

Avery Dennison (India) Pvt. Ltd. Narsinghpur Industrial Area

Six Kilometer Stone Delhi-Jaipur Highway District Gurgaon 122 001

2.0 CUSTOMER LETTER REF.

Letter Ref.: AD-DK-at/030908, dated:

03.09.2008

3.0 DESCRIPTION OF TEST COMPONENTS:

AVERY DENNISON V-6700 SERIES CONSPICUITY TAPE IN COLOURS - RED, WHITE AND YELLOW

Manufactured by M/s. Avery Dennison, Reflective Products, 6565 W Howard St. Niles, IL 60714, and USA.

4.0 OBJECTIVE:

The above said customer has approached ARAI vide their above-cited letter for extension of validity of following Test Report for AIS: 090 in conjunction with change in dimension from 50 mm to 20 mm in width.

Earlier Test Report No. SHL/16/2007-2008/1717/563, dated:07.08.2007

6.0 CONSIDERATION FOR EXTENSION:

The following parameters are considered for extending the validity of the earlier test report:

 Customer's declaration stating that design, material used, manufacturing process, controls, etc. are identical and not changed, except change in dimension from 50 mm width to 20 mm width.

ii) Earlier Test Report No. SHL/16/2007-2008/1717/583, dated:07.08.2007



Page 1 of 2





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			Non-Transferable	
/Farlier	test report	EXTENSION 1 SHL/16/2014	PEST REPORT	
			DATE: 14,07.2015	
No. SHL/16/2015-201 1.0 NAME AND CUSTOMER	ADDRESS	OF THE	M/S. Avery Dennison (India) Pvt. Ltd. Narsinghpur Industrial Area, Six Kilometer Stone Delhi-Jaipur Highway, District Gurgaon 122 001	
2.0 CUSTOMER LE	TTER REF.		Email Dated : 10.11.2014	
3.0 DESCRIPTION				
Rear Marking F Substrate used	Plates (Class - MS: Steel	PLSGE Mareria	marking plates for heavy motor vehicles. I (D-513), 1.5 mm thick.	
Manufactured	by	Marainabaur I	ennison (India) Pvt. Ltd. ndustrial Area, Six Kilometer Stone Highway, District Gurgaon 122 001	
Unique Identif	ication	AD_AT300854		
Drawing No component	of the	Rear Marking Plate, Dated: 05.02.2015 enclosed at page no. 4		
Identification observed on the component E13 104R 00 0001 AD_AT_300854				
		VTENCION		

4.0 CONSIDERATION FOR EXTENSION:

- i) Declaration letter submitted by customer regarding the change in part number.
- ii) Customer's declaration stating that material used, manufacturing process, controls, etc. are identical and not changed expect change in material of plate & Thickness of the plate (specified in 3.0 above).
- iii) Additional test of Rigidity of Plates & Corrosion test are conducted as per AIS: 089 on new material of MS: Steel Grade Material (D-513) with thickness of the plate (1.5 mm). Refer Sr. No. 6.0 for test results.
- iv) This Extension Test report is to be read along with earlier test report: SHL/16/2014-2015/6171/337 Dated: 10.02.2015 for detailed test results.



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Page 1 of 4





TEST REPORT No SHL/16/2015-2016/252/1442

5.0 CONCLUSION:

Rear Marking Plates specified in 3.0 above, met the requirements of all the tests related to Rear Making Plates as above in 3.0 when tested as per AIS: 089.

An installation requirement has to be verified along with vehicle.

Disclaimer

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- Test(s) on prototype/ vehicle(s) or sample(s) is/are carried out on the basis of standard procedures as notified under specific rules / requested by the applicant. Results of such tests are the property of bearer of Test Reports / Extension Reports / Developmental Test Reports. These results cannot be disclosed unless specifically so ordered by Government, Court, etc.
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PREPARED BY:	CHECKED BY:	AUTHORISED BY:
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P.V. PARLIKAR MANAGER	Mrs. J. M. KIRVE DEPUTY GENERAL MANAGER	
Place of Issue: PUNE		Date of Issue:\\\\^\\\^\\



Page 2 of 4



TEST REPORT No SHL/16/2015-2016/252/1442

- 6.0 Test Results
- 6.1 Resistance to Corrosion (Annex 6, 2)
- 6.1.1 Test Requirements:
- 6.1.2 Visual Appearance (Annex 6, 2.2)

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark: No sign of corrosion was observed. Complies

- 6.2 Rigidity of the Plates (Annex 8)
- 6.2.1 Test Requirements:

The maximum deflection of the plate under the test load shall not exceed one **twentieth** of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

Results/Remarks: The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. **Complies.**

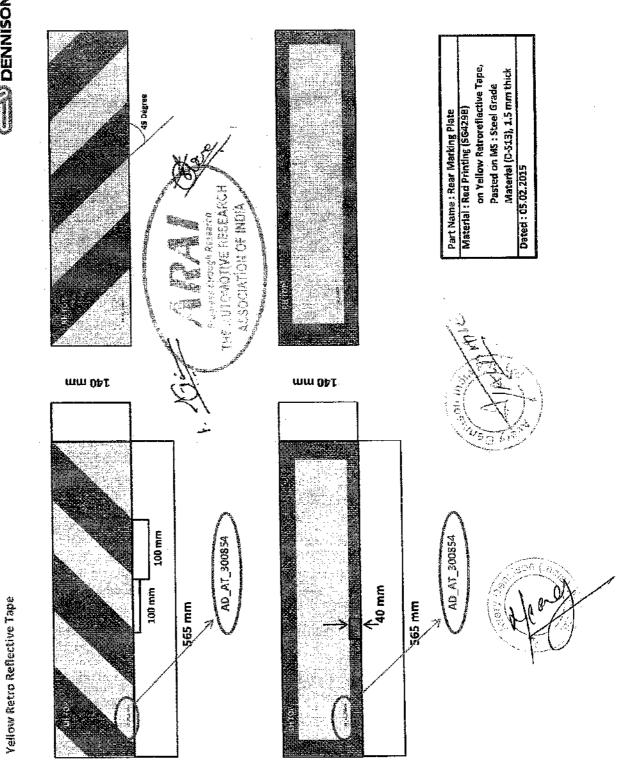
G:DeptData/SHL-DATA/Testreports/5-16/Main-OCA16-One Time Customer/JMN/Avery Dennison/252_2015-16_Rear Marking Plates_Avery Dennison_Ext. doc



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		TES	T REPORT	· -		
No. S	SHL/16/2014-2015/6171/3	37		,	DATE: 10.02.2015	
1.0	NAME AND ADDRES CUSTOMER		Narsinghou	r Industrial Arc	idia) Pvt. Ltd. ea, Six Kilometer Stone strict Gurgaon 122 001	
2.0	CUSTOMER LETTER RE	F.	F. Ref. Letter: AD-AS-AM-at/28112014 Dated ;28.11.2014			
3.0	DESCRIPTION OF TEST	COMPONENT	3:			
	Rear Marking Plates (CI Substrate used – Alumini	ass 3 & 4): Rea im Alloy 5052, I	emper H32,	2 mm thick		
	Class 3 : Red retro-re retro-reflectiv	flective and ye e alternative stri		4 : Red retro retro-reflec	reflective Border and yellow live center	
· ·	Manufactured by	G-5, MIDC, Ra	M/S. Avery Dennison (India) Pvt Ltd. G-5, MIDC, Ranjangaon Industrial Area, Taluka - Shirur, District - Pune,			
	Unique Identification	C	lass 3		Class 4 AD AT 300854	
	No. Drawing No. of the component			11.2014)	AD_A1_3000094	
	Identification	. C	lass 3		Class 4	
	observed on the component as per drawing	AD_A	AT_300854		AD_AT_300854	
4.0	ABREALIAE, 1591 LIK	OBJECTIVE, TEST PROCEDURE & TEST REQUIREMENTS: To carry out all tests as per AIS: 089				
-5:0	TEST RESULTS: Please refer test Results	s in Sr. No . 7.0 a	and Sr. No. 8	•		
5,1	TEST DURATION: St	art Date: 09.12.	2014	End Date: 16	5.01.2015	





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TEST REPORT No SHL/16/2014-2015/6171/337

6.0 CONCLUSION:

Rear Marking Plates specified in 3.0 above, met the requirements of all the tests related to Rear Making Plates as above in 3.0 when tested as per AIS: 089.

An installation requirement has to be verified along with vehicle.

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- ARAt issues Test Reports / Extension Reports / Developmental Test Reports for vehicles/ components/ parts/ assemblies etc. based on the documents produced and/or prototype/ vehicle(s) or sample(s) submitted by the applicant and testing thereof.
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 ARAI.

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PREPARED BY:	CHECKED BY:	AUTHORISED BY:
Bound	do	XX28_
P.V. PARLIKAR MANAGER	Mrs. J. M. KIRVE DEPUTY GENERAL MANAGER	A.V. MANNIKAR SR. DEPUTY DIRECTOR, HOD-SHL
Place of Issue: PUNE		Date of Issue: 12 02 2015



No and



TEST REPORT No SHL/16/2014-2015/6171/337

7.0 TEST RESULTS:

7.1 SPECIFICATION OF MARKING (CI. No. 5)

Cl. No.	Specifications	Remarks
5.1.1	The trade name of the applicant and unique mark of type	"AD" is to be marked as shown in attached drawing
5.2	The marking shall be applied on either the retro reflective or the fluorescent area of the plate, or on the edge, and must be visible from the outside when the marking plate is fitted on the vehicle	As shown in attached drawing. Complies
5.3	The markings shall be clearly legible and shall be indelible.	As shown in attached drawing. Compiles

7.2 GENERAL SPECIFICATIONS (CI. No. 7.0)

Cl. No.	Specifications	Remarks
7.1	Retro-reflective/fluorescent or retro-reflective only marking plates shall be so constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	Complies
7.4	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	Complies

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7.3 SPECIFICATION OF SHAPE AND DIMENSIONS OF RETRO REFLECTIVE / FLUORESCENT REAR MARKING PLATES (Annex-3)

CI. No.	Specifications	Remarks
1	Shape: The plate shall be rectangular in shape for mounting at the rear of vehicles.	Complies
3	Dimensions The minimum total summarized length of a set of rear marking plates consisting only of one, two or four marking plates with retro reflective and fluorescent materials shall be 1,130 mm, and the maximum total length shall be 2,300 mm.	Class 3 & 4 Length of 2 plate = 1130 mm
3,1	The width of a rear marking plate shall be: For trucks and tractors: 140 ± 10 mm. For trailers and semi-trailers: 200 ± 30 mm.	Class 3 Width = 140 mm Class 4 Width = 200 mm
3.3	The width of the red fluorescent border of the rear marking plates for trailers and semi-trailers shall be 40 mm ± 1 mm.	Class 4 Width = 40 mm
3.4	The slope of the oblique stripes of the chevron band shall be 45° ± 5°. The width of the stripes shall be 100 mm ± 2.5 mm.	Class 3 Slope = 45° & strip-width = 100 mm
3.5	Rear marking plates supplied in sets shall form matching pairs	Complies



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7.4 RESISTANCE TO HEAT TEST (Annex 7)

Cl. No.	TEST REQUIREMENTS	OBSERVTIONS / RESULTS
2	The sample shall be examined after a recovery time of 4 hours under normal laboratory conditions. After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.	appreciable distortion of the surfaces, particularly of the optical units was

7.5 COLOURIMETRIC SPECIFICATIONS (Annex 4)

7.5.1 Colour Test of Retro-reflecting device by CIE standard illuminate D_{66} (Annex 4, Cl. No. 2.1):

Colour Co-ordinates	Specified Values (Colour – Yellow retro- reflective)	Measured Values
X Coordinate	0.427 to 0.545	0.4861
Y Coordinate	0.423 to 0.534	0.4925
Luminance factor	≥ 0.16	0.21

Colour Co-ordinates	Specified Values (Colour – Red retro- reflective)	Measured Values
X Coordinate	0.569 to 0.690	0.6280
Y Coordinate	0.310 to 0.345	0.3176
Luminance factor	≥ 0.03	0.07

7.5.2 Colour Test of Retro-reflecting device by CIE standard illuminate A: (Annex 4, Cl. No. 2.2):

Colour Co-ordinates	Specified Values (Colour – Yellow retro- reflective)	Measured Values	
X Coordinate	0.505 to 0.610	0.5420	
Y Coordinate	0.385 to 0.480	0.4495	

Colour Co-ordinates	Specified Values (Colour – Red retro- reflective)	Measured Values
X Coordinate	0.643 to 0.690	0.6676
Y Coordinate	0.258 to 0.335	0.3221

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7.6 PHOTOMETRIC SPECIFICATIONS (Annex 5)

7.6.1 Yellow colour (Retro reflective area)

Observation angle (α)in degrees		Entranc	e angle (β) in	degrees	
4/29/2015	β1	. ′ 0	0	0	0
1/3°(20')	β2	5	30.	40	60
Required values R (cd.	m ⁻² .lx ⁻¹)	300	180	75	10
Sample No. 1		371.429	190,714	110.143	17.357
Sample No. 2		379.286	205.000	121.143	20.786
Remarks		Complies	Complies	Complies	Complies

7.7 PHOTOMETRIC SPECIFICATIONS (Annex 5)

7.7.1 Red colour (Retro reflective area)

Observation angle (a)in degrees		Entrance ans	gle (β) in degrees			
1/3°(20')	β1	0	0	.0		
113 (20)	β2.	5	30	40		
Required values R (cd	. m ⁻² .lx ⁻¹)	10	7	4		
Sample No. 1	Sample No. 1		Sample No. 1 29.643		15.571	8.986
Sample No. 2		34.286	16.929	9.500		
Remarks		Complies	Complies	Complies		





- 8.0 Resistance to External Agents (Annex 6)
- 8.1 Resistance to weathering (Annex 6, 1)
- 8.1.1 Test Requirements:
- 8.1.1.1 Visual Appearance (Annex 6, 1.2)

No area of the exposed specimen shall show any evidence of cracking, scaling, pitting, blistering, delamination, distortion, chalking, staining or corresion.

There shall be no shrinkage in excess of 0.6 per cent in any linear direction and no evidence of adhesion failure such as edge lifting from the substrate.

Result/Remarks: Complies

8.1.1.2 Colour fastness (Annex 6, 1.3)

The colours of the exposed specimens shall still meet the requirements.

By CIE standard illuminate Des:

Colour			Measured Values		
Co-ordinates	(Colour - Yellow retro-reflective)	Before	After	Remark	
X Coordinate	0.427 to 0.545	0.4826	0.4869		
Y Coordinate	0.423 to 0.534	0.4957	0.4931	Complies	
Luminance factor	≥ 0.16	0.22	0.21		

Colour	our Specified Values		Measured Values		
Co-ordinates	(Colour – Red retro-reflective)	Before	After	Remark	
X Coordinate	0.569 to 0.690	0.6130	0.6088		
Y Coordinate	0.310 to 0.345	0.3210	0.3288	Complies	
Luminance factor	≥ 0.03	0.07	0.07		

By CIE standard illuminate A:

Colour			Measured Values		
Co-ordinates	(Colour - Yellow retro-reflective)	Before	After	Remark	
X Coordinate	0.505 to 0.610	0.5390	0.5426		
Y Coordinate	0.385 to 0.480	0.4507	0.4489	Complies	

Colour	Colour Specified Values		Measured Values		
Co-ordinates	(Colour - Red retro-reflective)	Before	After	Remark	
X Coordinate	0.643 to 0.690	0,6609	0.6573	Complies	
Y Coordinate	0.258 to 0.335	0.3257	0.3293	Complies	

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8.4.1.3 Photometric specifications (Annex 6, 1.4)

Measurement shall be made only at an observation angle of 20' and an entrance angle of 5°. The coefficient of retro reflection of the exposed specimen when dry shall be not less than 80 per cent of the value.

Observati on angle	Entrance angle	Color	Required Values (Minimum)	Before test	After test	Required value not less than 80% of previous value
		Yellow Reflective	300 cd.lx ⁻¹ .m ⁻²	313.846	326.154	-3,9% Complies
1/3°(20')	5°	Red Reflective	10 cd.lx	32.000	32,154	-0.5% Complies

The specimen shall then be subjected to simulated rainfall and its coefficient of retro reflection under this condition shall be not less than 90 per cent of the value obtained when measured in dry condition.

Results/Remarks: Complies.

8.2 Resistance to Corrosion (Annex 6, 2)

8.2.1 Test Requirements:

8.2.1.1 Visual Appearance (Annex 6, 2.2)

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark: No sign of corrosion was observed. Complies

8.2.1.2 Photometric specifications (Annex 6, 2.2.1)

The coefficient of 'Retro reflection R' of the retro reflective areas, when measured after a recovery period of 48 hours, at an entrance angle of 5° and an observation angle of 20', shall be not less than the value 300 cd.lx⁻¹.m⁻². Before measuring, the surface shall be cleaned to remove salt deposits from the saline mist.

Observati on angle	Entranc e angle	Color	Required Values (Minimum)	Before test	After test	Remark
		Yellow Reflective	300 cd.lx ⁻¹ .m ⁻²	352.857	375.714	-6.5% Complies
1/3°(20')	5°	Red Reflective	10 cd.lx ⁻¹ .m ⁻²	25.571	26.957	-5.4% Complies

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8.3 Resistance to Fuels (Annex 6, 3)

8.3.1 Test Requirements:

After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible change, which would reduce its effective performance.

Results/Remark: No Visible change was observed.

Complies

8.4 Bonding Strength (Annex 6, 4)

8.4.1 Test Requirements:

The coated material is not removable without tools or without damaging the material.

The laminated materials (adhesive films) shall need a force of at least 10 N per 25 mm width, at a speed of 300 mm per minute, to be removed from the substrate.

Result / Remark: Complies.

8.5 Resistance to Water (Annex 6, 5)

8.5.1 Test Requirements:

After completion of the test, the section shall be examined. No part inside 10 mm from the cut edge shall show evidence of deterioration, which would reduce the effectiveness of the plate.

Results/Remarks: No evidence of deterioration was observed. Complies.

8.6 Resistance to Impact (Annex 6, 6)

8.6.1 Test Requirements:

The material shall show no cracking or separation from the substrate at a distance of more than 5 mm from the impacted area.

Results/Remark: No evidence of cracking or separation was observed. Complies.

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8.7 Cleaning (Annex 6, 7)

8.7.1 Test Requirements:

A test example smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

Results/Remarks: No evidence of damage was observed. Complies.

8.8 Rigidity of the Plates (Annex 8)

8.8.1 Test Requirements:

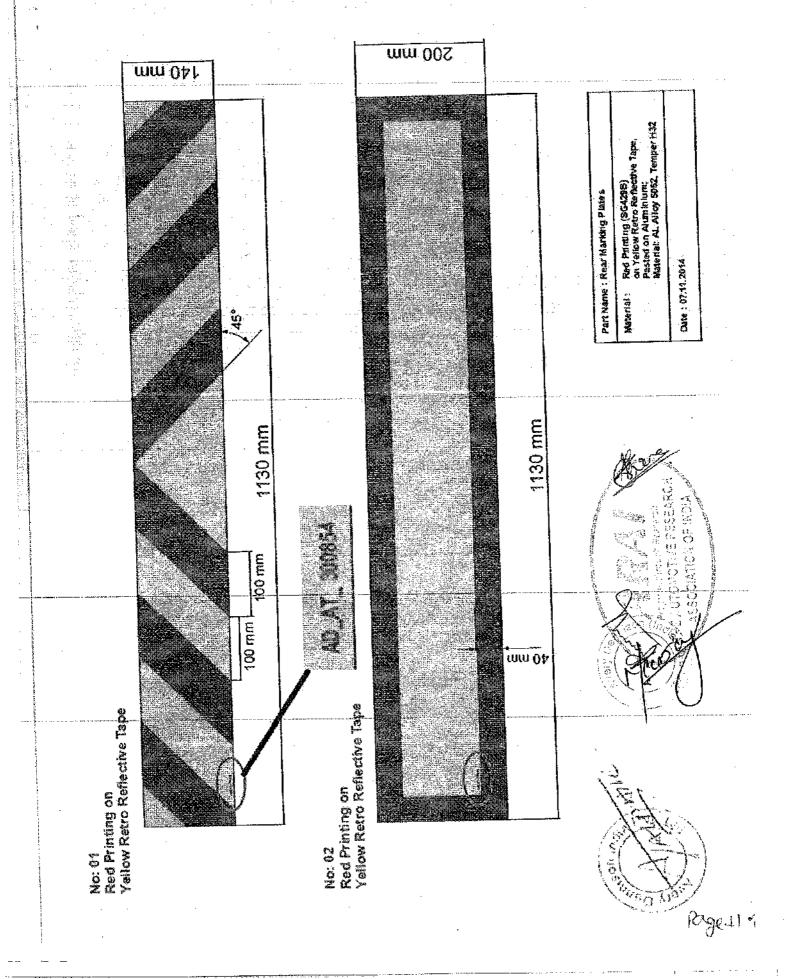
The maximum deflection of the plate under the test load shall not exceed one twentieth of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

Results/Remarks: The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. Complies.

LASAHS & H data/Testrepoins 14.15 Main-OCM-One-Time Customer/M/KPhotometry/Avery Dennision/6171_2014-2015_Reat Marking Flates_Avery Dennision.doc

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TYPE APPROVAL CERTIFICATE

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: Ab£	APPROVAL CERTIFICATE No.	Ā98224	DAIS: 13.11.2009	
SHL	NO.: SHL/16/2009-2010/2649/5224}			
1.0	NAME AND ADDRESS OF APPLICANT	Avery Dennisor Narsinghpur Indi Six Kilometer St Delhi-Jaipur Higl District Gurgaon	one hway	
	Contact Person:	Mr. Abhijit Talpa	de	
	Tel No.	+91-124-221558 +91-9833631661		
	Fax No.	+91-14-2215591	/2 /3	
	Email Address Details of component manufacturer (Dept. address)	Avery Dennisor	abhijit.talpade@ap.averydennison.com Avery Dennison	
	(Plant address)	Graphics and Re 902 Feehanville Mount Prospect,		
2.0	Customer letter ref. and Declaration	AD-DK-AM-at/0	290909, Dt: 1.07.2009	
3.0	DETAILS OF THE COMPONENT UNDER TO	PE APPROVAL:	·	
	Name and specification of the component		ISON V-6700 SERIE TAPE IN COLOURS ID YELLOW	
	Identification observed on the component	" E13 104R 000	" E13 104R 000001"	
4.0	Applicable Notified Standard	AIS:90		
5.0	Vehicle Manufacturers and models for which the component is intended	Vehicle type: For	ur Wheeler	
		Manufacturer:	· 	

Bee- Aller





Regd. Office: S. No. 102, Vetal Hill, Off Paud Road, Kothrud, Fune 411 038 (India) Postal Address: P. B. No. 832, Pune 411 004 (India) Tel.: +91-20-3023 1111, Fax: +91-20-2543 4190, Email: director@araiindia.com Website: www.aralindia.com



THE	APROVAL CERTIFICATE	\$\$&.		A95224
(SHL	MO.: 8MI/18/2009-2010/264	0/5214)		
	i previous certificatio	, 보) 로 (대 등의 분 (
er i nove a salam dan ma	Details of similar compo			Approval No.
	ISI/E/e/ marks, or have			104R90*104R90*0001*00,
	approval / COP as per this			dated:06.09.2006
7.0	Test report considered for			/16/2007-08/1717/563, dt.07.08.07
	i vast roport domaidieu (di	· Type Apploval	1	/16/2008-09/2772/840, dt:12.09.08
8.0	Production Plan in numbe	rs		duction: 60000 rolls of 50mm 8 of 20mm for India market
9.0	Type of quality manageme	ent system (QMS)		2000 valid up to 31.12.2011
10.0			<u> </u>	
	Type Approval Granted / I	Refused	GRANTED	
	Based on	₩ <u>(</u>)		
		submitted by M/S. A	very Denisso	n.
		ered in Cl. No. 6.1		
		referred in Cl. No. 7.		
11.0		egarding the change	-	ress.
11.0	Marking on the sample		E mark:	
			G-E	13- 104 R - 00 0001
			Or	
				A95224
	First CoP to	o be established or	ı / before: 12	2.11.2011
REPO	ORT PREPARED BY:	CHECKED I	3Y:	APPROVED BY:
Ŝ.	carry fil	dieta -		H-Weg.
	V. SHAMASUNDARA	M.G.R.PILL		A.V. MANNIKAR
	SSISTANT DIRECTOR	ASSISTANT DIR		DEPUTY DIRECTOR
riace	of Issue: PUNE		i Date o	f Issue: 18 11 09

Disclaimer:

This test report pertains only to the components / parts / assemblies / vehicles sto. actually tested at ARAI in the presented condition based on the documents / information produced / submitted by the customer. The issuance of this test report alone does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of the product. No extract, abridgement or abstraction from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought. ARAI is in no way responsible for any misuse of copying of any design / type / system in connection with entire vehicle / components / parts and assemblies. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the customer and ARAI shall not be liable for any claims or damages, made by the party, whatsoever, the customer shall alone be liable for the same; and undertakes to indemnify ARAI in this regard. Further, the ARAI has the right to initiate cancellation / withdrawal of the certificate issued, in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI. The appropriate local courts at Puries shall have the jurisdiction in respect of any dispute, claim or liability arising out of this report.

LAS&HAS & H data/Testreports09-10/Type Approval/Photometry/Avery Dennison/A95224 2649-0910 Avery-Dennison/doc

Page 2 of 2 + Test Reports





THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA

(Receased) inclination of the Automotive Industry with the Ministry of Fegyyl Industries & Public Enterprises, Scial of Fulia)

Mon. Themselse

EXTENSION TEST REPORT

No. SHL/16/2007-2008/1717/563

NAME AND ADDRESS OF THE CUSTOMER

DATE: 07.08.2007

Avery Dennison (India) Pvt. Ltd.

Narsinghpur Industrial Area Six Kilometer Stone

Delhi-Jaipur Highway

District Gurgaon 122 001

Dated: 13.07.2007

02 CUSTOMER LETTER REF

03 DESCRIPTION OF TEST COMPONENTS:

AVERY DENNISON V-6700 SERIES CONSPICUITY TAPE IN COLOURS - RED, WHITE AND

Manufactured by M/s. Avery Dennison, Reflective Products, 6565 W Howard St. Niles, IL

60714, and USA.

Identification observed on the Retro Reflective marking surface;

White: £13 104R 000001

Red and Yellow: E1 104R 000001

OBJECTIVE, TEST PROCEDURE & TEST REQUIREMENTS:

To carry out the all the tests as per AtS:090.

Since there is no change in the requirements in ECE R 104 and AIS:090 for the said component, all the test results are considered from the earlier test report No. SHL/016/4181/1363, dated: 12.03.2007 tested for ECE R 104 for the validation of this report.

5.2 Please Ref. Test results at Sr. No. 7.0 of this report in page no. 2 to 7 (06 pages)

CONCLUSION:

AVERY DENNISON V-6700 SERIES CONSPICUITY TAPE IN COLOURS - RED, WHITE AND YELLOW specified in 3.0 above, meets the all the test requirements when tested as per the

procedure given in AIS:090 REPORT PREPARED BY

DEPARTMENT HEAD:

P. V. PARLÍKAR TEST ENGINEER

Place of Issue: PUNE

S. M. HARAGAPURKAR DEPUTY DIRECTOR

bate of Issue:

ally tested at ARAI in the presented condition This test raport pertains only to the components? parts? sesquities? I vehicles etc. actually tested at ARAI in the presented condition based on the documents? Information produced? I submitted to the protoner. The issuance of this test report atoms does not indicate any massure of approved. Continuation, successfully, control of grant given library and of the product. No extract, shridgement of measure of approved. Control of grant given library the written consent of the Oriental, ARAI, who reserves the absolute light to agree or reject all or any of the unitary ally items of publicity for which consent may be sought. ARAI is in necessary the absolute light to agree or reject all or any of the unitary ally items of publicity for which consent may be sought. ARAI is in no way responsible for any misuse of copying of any design, type / system in connection with entire vehicle? components? parts and assemblies. Breach of any statutory provision of indian laws or laws of other countries, will be the sole responsibility of the customer shall alone be liable for the earns, and ARAI shall not be liable for any claims or damages, made by the party, whatsoever, the customer shall alone be liable for the earns, and undertakes to Indemnify ARAI in this regard. Purther, the ARAI has the fight to initiate cancellation / withdrawal of the certificate issued, undertakes to Indemnify ARAI in this regard. Purther, the ARAI has the fight to initiate cancellation? withdrawal of the certificate issued, and have the jurisdiction in respect of any dispute, claim or liability affaing out of this report.

Progress through Research

Regd. Office: S. No. 102, Vetal Hill, Off Paud Road, Kothrud, Pune - 411 038. (India) Postal Address : P. B. No. 832, Plane - 411 004 (India) Tel. : +91-20-3023 1111 Fax : + 91-20-2543 4190

Email: director@areandia.com Website: http://www.araiindia.com

TEST REPORTING SHL ### 2007-2008/1717/563

7.0 TEST RESULTS:

7.1 GENERAL SPECIF CATIONS

Cl. No.	Specifications	Remarks
6.1	Retro-reflective marking materials shall be that way constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	Satisfactory.
6.2	Retro-reflective marking materials or parts thereof shall not be capable of being easily dismantled.	Satisfactory.
6.3	The means of attachment of the marking materials shall be durable and stable.	Satisfactory.
6.4	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	Satisfactory.

7.2

SPECIFICATION OF MARKING DIMENSIONS

Sr. No.	Specifications	Remarks
1.2.1	Dimensions	Out to the state
	The width of a side and/or rear marking material shall be 50 mm +10/-i) mm.	Satisfactory.
1.2.2	The minimum langth of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.	Satisfactory.

7.3 RESISTANCE TO HEAT

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks: After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed.

Satisfactory.

THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA

TEST REPORTATIONS 2007 2008 4747/663

7.4 COLOUR TEST

7.4.1 COLDUR TEST OF Reported visiting device by CIE standard liberalistic $\Omega_{\rm co}$:

The state of the s		· · · · · · · · · · · · · · · · · · ·
Colour	Specified Values	Messervi Valdes
Co-ordinates	(Colour - Red)	(The mean values of five semples)
X Coordinate	0.560 to 0.690	0.595
Y Coordinate	0.310 to 0.350	0.316
Luminance factor	≥ 0.03	0.084

Colour Co-ordinates	Specified Values (Colour - White)	Measured Values (The mean values of five samples)
X Coordinate	0.260 to 0.385	0.308
Y Coordinate	0.270 to 0.395	0.302
Luminance factor	≥ 0.25	0.490

Colour Co-ordinates	Specified Values (Colour - Yellow)	Measured Values (The mean values of five samples)
X Coordinate	0.427 to 0.545	0.494
Y Coordinate	0.423 to 0.534	0.449
Luminance factor	≥ 0.16	0.311

7.4.2 Colour Test of Retro-reflecting device by CIE standard illuminate A:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values (The mean values of five samples)
X Coordinate	0.643 to 0.735	0.658
Y Coordinate	0.258 to 0.335	0.334

Colour	Specified Values	Measured Values
Co-ordinates	(Colour - white)	(The mean values of five samples)
X Coordinate	0.373 to 0.548	0.471
Y Coordinate	0.359 to 0.513	0.418

Colour	Specified Values	Measured Values
Co-ordinates	(Colour - yellow	(The mean values of five samples)
X Coordinate	0.505 to 0.601	0.527
Y Coordinate	0.385 to 0.480	0.461



Page 3.6F7

TEST REPORT A THE Procedure 17/865

7.6 PHOTOMETRIC SPECIFICATIONS

7.4.1 Faitsta

Remarks		Satisfactory	Satisfactory	Satisfactory	Satisfactory
Results (The mean values of the mean value of the mean v	ive samples)	205	169	79.4	38.6
Required values R (cd. m ² .1x ¹)		120	80	30	10
1/3"(20")	82	5	30	40	50
5 200/2003	şi 7	0	0	0	Ū
Observation sergie (d)in degrees		Engante	អស្មាទ(គឺ)កា		

7.5.2 White colour

Observation angle (a)in degrees		Entrance angle (β) in degrees			
1/3°(20')	β1	0	0	0	0
	β2	5	30	40	60
Required values R (cd. m ² .1x ¹)	450	200	90	16
Results (The mean values of		527	287	157	27
Remarks		Satisfactory	Satisfactory	Satisfactory	Satisfactory

7.5.3 Yellow colour

Observation angle (a)in degrees	Entrance angle (β) in degrees			····	
1/3°(20')	β1	O	0	0	0
	β2	5	30	40	60
Required values R (cd. m².1x¹)		300	130	75	10
Results (The mean values of	_	491	195	112	13
Remark		Salisfactory	Saltsfactory	Satisfactory	Satisfactory



Page 4 of 7

7.6 RESIGNANCE TO EXTERNAL AUDITO

7.8.1 Registrates to meast setting:

Look Ledithen Manya:

s. Visual spyramore:

No area of the exposed specimen shall show any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion.

Results/Remarks:

No area of the exposed specimen shows any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion after testing. There shall be no shrinkage was observed.

Satisfactory.

b. Colour Test of Retro-reflecting device by CIE standard illuminate Des after Resistance to weathering test:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values
X Coordinate	0.560 to 0.690	0.596
Y Coordinate	0.310 to 0.350	0.312
Luminance factor	≥ 0.03	0.066

Colour Co-ordinates	Specified Values (Colour - white)	Measured Values
X Coordinate	0.260 to 0.385	0.321
Y Coordinate	0.270 to 0.395	0.311
Luminance factor	≥ 0.25	0.443

Colour Co-ordinates	Specified Values (Colour - yellow)	Measured Values
X Coordinate	0.427 to 0.545	0.496
Y Coordinate	0.423 to 0.534	0.451
Luminance factor	≥ 0.16	0.252

HE AUTOMOTIVE RESEARCH ASSESSATION OF INDIA

Page 5 of 7

c. Colour Test of Retro-reflecting device by by CIE standard illuminate A after Resistance to weathering test:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values
X Coordinate	0.643 to 0.735	0.651
Y Coordinate	0.258 to 0.335	0.331

Andrew Comments of the Comment		AND THE RESIDENCE OF THE PROPERTY OF THE PROPE
Colour	Specified Values	Measured Values
Co-ordinates	(Colour - white)	35555554 FELLIS
X Coordinate	0.373 to 0.548	0.472
Y Coordinate	0.359 to 0.513	0.411

	тория од типератури постор и учество и постор и учество и постор и постор и постор и постор и постор и постор	2008	gan analasanan amin'ny taonanananananananananananananananananan
O Chillian	Colour	Specified Values	Measured Values
i	Co-ordinates	(Colour - yellow)	MORACCOC FAINTS
	X Coordinate	0.505 to 0.601	0,523
	Y Coordinate	0.385 to 0.480	0.459

d. Photometric specifications after resistance to weathering test:

The coefficient of luminous intensity of the exposed specimen when dry shall be not less than 80 per cent of the initial value

The coefficient of luminous intensity after the test is more than 80 % of the initial value

Results/Remarks: Satisfactory.

7.6.2 RESISTANCE TO CORROSION (Annex 08, Ci. No. 02)

a. Visual appearance:

Test requirements:

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remarks: No sign of corrosion was observed.

Satisfactory.

 b. Photometric sp 	. Photometric specifications after corrosion tost:				
Observation angle (a) in degrees		Entrance a	angle (β) in degree	S	
1/3*(20)	β1	0	Required value	Measured values	
113 (20)	β2	5	(cd. m² .1x')	(cd, m ² .1x ¹)	
Results	Re	d	120	201	
	White		450	505	
) 	Yellow		300	466	
	n vanna va vitar en		Catlet	faatani	

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April 1



7.6.3 RESISTANCE TO FUELS

Test requirements:

After removal, the surface shall be impeditry with a soft dots and shall not show any visible change which would reduce its effective performance.

Results/Remarks: No Visible change was observed. Satisfactory.

7.6.4 RESISTANCE TO HEAT

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed. Satisfactory.

7.6.5 CLEANING

Test requirements:

A test sample smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

Remarks: Satisfactory.

7.6.6 RESISTANCE TO PENETRATION OF WATER

Test requirements:

After completion of the test, No water must penetrate to the reflecting surface of the sample unit. If visual inspection clearly reveals the presence of water, the retro-reflective marking shall not be considered to have passed the test.

Results/Remarks: No evidence of deterioration was observed. Satisfactory.

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L-19&B-19&H_DATA/TESTREPORTS97-USMADN-OCS/016-ONE TIME CRISTOMER/PHOTOMETRY1/717-07/28-RETAPS-AIS90-AVERY DOC



2 7 of 7



GOVERNMENT OF HARYANA / हरियाणा सरकार

TRANSPORT COMMISSIONER, HARYANA, CHANDIGARH

परिवहन आयुक्त, हरियाणा, चंडीगढ़

To

M/s 3M India Ltd, Plot No. 48-51, Electronics City, Hosur Road, Banglore-560100.

Memo No. /94/7

/T-3/ST-II

Dated: 31-5-2019

Subject:-

Fitment of reflective tapes/rear marking plates/reflectors on

transport vehicles.

This is with reference to your application dated 14.03.2019 on the above subject in response to this office letter no. 59501-523/T-3/ST-II dated 18.12.2018 addressed to all the Additional Deputy Commissioners-cum- Secretaries of Regional Transport Authorities in the State and expression of interest invited by the department as published in the newspapers i.e. Dainik Bhaskar, The Hindustan Times, Dainik Savera, The Times of India, Hari Bhoomi, The Business Standard, Dainik Jagran, Punjab Kesari, Navbharat Times, The Tribune, Amar Ujala & Indian Express on dated 20.12.2018, 22.12.2018, 23.12.2018, 25.12.2018, 27.12.2018 and 29.12.2018 respectively.

It is stated that the details submitted by you to this office for the fitment of reflective tapes/rear marking plates/reflectors on transport vehicles are as under:-

Sr. No.	Particulars	Details
1.	Name of the manufacturer	 3M COMPANY, 3M ELECTRICITY PLANT, PLOT NO. 48-51, ELECTRONIC CITY, BANGLORE (rear marking plate). 3M COMPANY, 3M BROWNWOOD PLANT-4501, HIGHWAY 377, SOUTH BROWNWOOD, TEXAS, USA. (REFLECTIVE-TAPE-RED/WHITE/YELLOW) 3M INNOVATION SINGAPORE PTE LTD, Z TUAS LINK,4, SINGAPORE. (REFLECTIVE-TAPE-RED/WHITE/YELLOW)
2.	Name of the company	M/S 3M INDIA LTD, PLOT NO. 48-51, ELECTRONICS CITY, HOSUR ROAD, BANGLORE-560100 a subsidiary of 3M LOCATED AT CORPORATE HEAD QUATERS, 3M CENTRE, ST.PAUL MINNESOTA-55144 and in UNITED STATES.
3.	Name of the authorized testing agency,	
4.	Type Approval Certificate with number and date along with its date of validity.	 NO.SHL/16/20132014/9149/2783, dated 17.12.2014-(REAR MARKING PLATE)- issued to M/S 3M INDIA LTD, PLOT NO. 48-51, ELECTRONICS CITY, HOSUR ROAD, BANGLORE manufactured by 3M ELECTRICITY PLANT, PLOT NO. 48-51, ELECTRONIC CITY, BANGLORE. EXTENSION NO. SHL/16/2014-2015/5897/2817, dated 30.12.2014-(REAR MARKING PLATE) issued to M/S 3M

Office: 30 Bays Building, 2nd Floor, Sector 17-B, Chandigarh - 160017 (India)

Telephone: 91(0172)-2784359, 2701290, 2700541 Fax: 91(0172)2700514 e-mail: stcharyana@hry.nic.in website:haryanatransport.gov.in

कार्यालयः ३० खण्ड बिल्डिंग, दूसरा तल, सेक्टर १७ बी, चंडीगढ-१६००१७ (भारत)

GOVERNMENT OF HARYANA / हरियाणा सरकार

TRANSPORT COMMISSIONER, HARYANA, CHANDIGARH

परिवहन आय्क्त, हरियाणा, चंडीगढ

		INDIA LTD, PLOT NO. 48-51, ELECTRONICS CITY, HOSUR ROAD, BANGLORE manufactured by 3M ELECTRICITY PLANT, PLOT NO. 48-51, ELECTRONIC CITY, BANGLORE. 3. COP.NO.SHL/16/201819/3000002951/COP/2711, dated 20.09.2018-(REFLECTIVE-TAPE-RED/WHITE/YELLOW) VALID UPTO 30.09.2020- issued to M/S 3M INDIA LTD, PLOT NO. 48-51, ELECTRONICS CITY, HOSUR ROAD, BANGLORE manufactured by 3M COMPANY, 3M BROWNWOOD PLANT-4501, HIGHWAY 377, SOUTH BROWNWOOD, TEXAS, USA & 3M INNOVATION SINGAPORE PTE LTD, 2 TUAS LINK,4, SINGAPORE. 4. NO.A94495, dated 27.03.2013 (REFLECTIVE-TAPE-RED/WHITE/YELLOW) issued to M/S 3M INDIA LTD, PLOT NO. 48-51, ELECTRONICS CITY, HOSUR ROAD, BANGLORE manufactured by 3M INNOVATION SINGAPORE PTE LTD, 2 TUAS LINK,4, SINGAPORE
5.	Maximum rates per meter including fitment charges	 983-71 YELLOW CONSP 50.8MMX50M 50 meter @ 7334/-(Rs.146.68 PER METER). 983-10 WHT CONSP 50.8MMX50M 50 meter @ 7334/-(Rs 146.68 PER METER). 983-72 RED CONSP 50.8MMX50M 50 meter @ 7334/-(Rs 146.68 PER METER). 983-72 WHT CONSP 20MMX50M 50 meter @ 3892/-(Rs 77.84 PER METER). 983-10 WHT CONSP 20MMX50M 50 meter @ 3892/-(Rs 77.84 PER METER). 983-10 WHT CONSP 20MMX50M 50 meter @ 3892/-(Rs 77.84 PER METER). 983-10 RMT C3-130X565MM-LH @ 600 EACH 983-10 RMT C3-150X565MM-RH @ 600 EACH 983-10 RMT C3-150X565MM-LH @ 700 EACH 983-10 RMT C3-150X565MM-RH @ 700 EACH 983-10 RMT C3-150X565MM-RH @ 700 EACH

The aforementioned details have been uploaded on the website of the department (www.haryantransport.gov.in) for the information of transporters/general public. You are requested to affix the retro reflective tapes, rear marking plates/tapes and circular reflectors of prescribed specifications on Motor Vehicles as per the following procedure.

- 1. The details of the manufacturer having type approval from the approved testing agencies as mentioned above should be put up on the notice board of the offices of all the Secretaries of the Regional Transport Authorities in the State in a conspicuous place/manner for the information of all concerned.
- 2. Fitness certificate will be issued to the motor vehicles by the Board of Inspection after ensuring that the reflectors have been affixed in the prescribed manner and proper details have been given in the fitment certificate.

Office: 30 Bays Building, 2nd Floor. Sector 17-B, Chandigarh - 160017 (India)

Telephone: 91(0172)-2784359, 2701290, 2700541 Fax: 91(0172)2700514 e-mail: stcharyana@hry.nic.in website:haryanatransport.gov in

कार्यालय: 30 खण्ड बिल्डिंग, दूसरा तल, सेक्टर 17 बी, चंडीगढ़-160017 (भारत)



GOVERNMENT OF HARYANA / हरियाणा सरकार

TRANSPORT COMMISSIONER, HARYANA, CHANDIGARH

परिवहन आयुक्त, हरियाणा, चंडीगढ

3. Board of Inspection will also ensure at the time of grant of fitness certificate that the reflective tapes of prescribed standards manufactured by the aforementioned firms only has been affixed on the transport vehicles.

You are requested to affix the retro reflective tapes, rear marking plates/tapes and circular reflectors of prescribed standards on the motor vehicles in the state of Haryana after following the procedure mentioned above in letter and spirit. A letter issued by 3M Company, USA in support of your claim to be a subsidiary of the said Company should be furnished to this office within a period of 15 days from the issue of this letter.

> _ Jd _ for Transport Commissioner, Haryana, Chandigarh.

Endst. No. 19418 - 440 |T-3/ST-II

Dated: 31-5- 7019

A copy of the above is forwarded to:-

All ADCs-cum-Secretaries of the Regional Transport Authorities in the State with the request to ensure strict compliance of the above directions.

2. Jr. Programmer (HQ) for uploading these instructions on the website of the Department.

> for Transport Commissioner, Haryana, Chandigarh.

कार्यालय: 30 खण्ड बिल्डिंग, दूसरा तल, सेक्टर 17 बी, चंडीगढ़-160017 (भारत)



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6102/40/10

~\\PL\CSP\001

3M India Limited Concorde Block, UB City, 24, Vittal Mallya Road, Bengaluru - 560 001

Leiephone: + L31300KP1987PLC013543

3M Transportation Safety Division Conspicuity Tape Price List (w.e.f April 1st, 2019)

MRP (INR)	MOU	2KN DE2	2KU #	Commodity
7334	ATMO2	983-71 Ylw Consp 50.8MMX50M	726001012AI	0889
7334	ATMOZ	983-10 Wht Consp 50.8MMX50M	288001012AI	0889
7334	8TM02	983-72 Red Consp 50.8MMX50M	616001015AI	0889
3892	ATMOZ	983-72 Red Consp 20mmX50mtr	810410010AX	088
3892	ATMOS	983-10Wht consp 20MMX50MTR	87e£10010AX	088
009	SONT	983 RMT C3-130x565mm-LH	IA1001012AI	330
009	SONI	983 RMT C3-130x565mm-RH	821001012AI	330
004	SONT	983 RMT C3-150x565mm-LH	991001012AI	330
002	SONT	983 RMT C3-150x565mm-RH	471001012AI	330
008	SONI	983 RMT C4-195x565mm	IA510100232	330

Terms & Conditions:

Tax: Inclusive of applicable GST

Freight: Shall be charged extra

Delivery: Ex-stock

Payment terms: 200% advance
Warranty: Standard warranty terms & conditions

For 3M India Ltd.

(Authorized Signatory)



Annexure

Product	DES	2KU
Retro-reflective tape	MO2XMM8.02 gano WY 17-E86	726001012A
Retro-reflective tape	MOSXMM8.02 gons JAW 01-E89	288001012A
Retro-reflective tape	M02XMM8.02 qsno2 be9 27-889	616001012AI
Rear-marking plates	983 ВМТ СЗ-150х565mm-вн	471001012AI
Rear-marking plates	983 RMT C3-130x565mm-RH	821001012AI
Rear-marking plates	983 RMT C3-150x565mm-LH	991001012AI
Rear-marking plates	983 RMT C4-195x565mm	SESOOTOTEAL
Rear-marking plates	983 RMT C3-130x565mm-LH	141001015A1
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0.	TEST RESULTS: Please refer test Results	ns 0.7 .oM .18 mi	.8 .0M .12 b		
	To carry out all tests as p	980 :SIA 190			
0.	OBJECTIVE, TEST PRO	SEDURE & TES	T REQUIREMEN	:6	
	observed on the component as per drawing	3W 383 C4	3M 983 CS	3W 883 C3	3M 983 C4
	Identification	f aactO	Class 2	Class 3	Class 4
	component	euclosed at pag	11 on e		
	Orawing No. of the	RMP/3M/1			
	'ON	CI	CS	c3	C4
	noitsoifitrabl aupinU	r sasiO	Class 2	C assiO	4 ssalO
		Bangalore (Karı	ıalaka) – 560100		
		3M Electronic (Hold Just Plot I	. 48-51, Electronic	c City, Phase 1
	Manufactured by	M/s. 3M Compa	AUI		4
	Class 3 : Red retro-re	affective and vel	Total Manual Man	The tro-reflective B	the said veltor
	reflective alter		## Birth 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 -	DHOO SARSONISLON	
		aqriye strips		tro-reflective centre	count with the course
	Class 1 : Red Fluoresce	ent and yellow re	점요	ed Fluorescent Bo	uder and vellow
	Substrate used - Alumini Class 1 : Red Fluoresce	um, Industrial gre ant and yellow re	qe (e0850)' 3 wi	hick ad Fluorescent Bo	
	Rear Marking Plates (C) Substrate used - Alumini Class 1 : Red Fluoresce	tass 1, 2, 3 & 4): um, Industrial gre ant and yellow re	дея: шакіілд рі: de (60820), 3 mi	hick ad Fluorescent Bo	
0.	Substrate used - Alumini Class 1 : Red Fluoresce	tass 1, 2, 3 & 4): um, Industrial gre ant and yellow re	дея: шакіілд рі: de (60820), 3 mi	hick ad Fluorescent Bo	
1	DESCRIPTION OF TEST Substrate used - Alumina Class 1 : Red Fluoresce	T COMPONENTS lass 1, 2, 3 & 4): um, Industrial gre ant and yellow re	дея: шакіілд рі: de (60820), 3 mi	es for heavy motor hick ed Fluorescent Bo	
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0.	CUSTOMER LETTER RI CUSTOMER LETTER RI Rear Marking Plates (C) Substrate used - Alumini Class 1 : Red Fluoresce	SS OF THE TECMPONEUTS S. 4): Nun, Industrial great and yellow references of the second	Plot Nos. 48-1 Bangalore – 560 : Rear marking pli Rear marking pli :	ited Electronics City 00, India 3.2014 stor heavy motor hick hick	vehicles.







Date of Issue: 18/12/70/1		ce of lesue: PUNE	धाव
8В, DEPUTY DIRECTOR, HOD-SHL	Mrs. J. W. KIRVE DEPUTY GENERAL MANAGER	P.V. PARLIKAR PANAGER	
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	rement has to be verifled along w		



7.0 TEST RESULTS:

7.1 SPECIFICATION OF MARKING (CI. No. 5)

Kemarks	Specifications	CI. No.
"3M" is to be marked as shown in gaiverd bed staning	The trade name of the applicant and unique mark of type	1.1.8
As shown in attached drawing. Complies	The marking shall be applied on either the retro reflective or the fluorescent area of the plate, or on the edge, and must be visible from the outside when the marking plate is fifted on the vehicle	5.2
As shown in attached drawing. Complies	The markings shall be clearly legible and shall be indelible.	5.3

7.2 GENERAL SPECIFICATIONS (Cl. No. 7.0)

Remarks	Specifications	ON JO
Complies	Retro-reflective/fluorescent or retro-reflective only marking plates shall be so constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	1.7
Complies	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	Þ .7

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7.3 SPECIFICATION OF SHAPE AND DIMENSIONS OF RETRO REFLECTIVE / FLUORESCENT REAR MARKING PLATES (Annex-3)

Remarks	Specifications	ON IC
səilqmoƏ	Shape: The plate shall be rectangular in shape for mounting at the rear of vehicles.	
Class 1 & 3 Length of 2 plate = 1132 mm Class 2 & 4 Length of 2 plate =	Dimensions The minimum total summarized length of a set of rear marking plates consisting only of one, two or four marking plates with retro reflective and fluorescent materials shall be 1,130 mm, and the maximum total length shall be 2,300 mm.	£
Class 1 & 3 Width=130 mm Class 2 & 4 Width=195 mm	The width of a rear marking plate shall be: For trucks and tractors: 140 ± 10 mm, For trailers and semi-trailers: 200 ± 30 mm.	1.8
Class 2 & 4 mm 65 = 39 mm	The width of the red fluorescent border of the rear marking plates for trailers and semi-trailers shall be 40 mm ± 1 mm.	£.E
Class 1 & 3 Slope = 45° & mm 001 = 100 mm	The slope of the oblique stripes of the chevron band shall be $45^{\circ}\pm5^{\circ}$. The width of the stripes shall be $100~\text{mm}\pm2.5~\text{mm}$.	4. £
SeilqmoD	Rear marking plates supplied in sets shall form matching pairs	3.5

1000

K.A



7.4 RESISTANCE TO HEAT TEST (Annex 7)

OBSERVTIONS / RESULTS OBSERVTIONS / RESULTS	TEST REQUIREMENTS	Cl. No.
appreciable distortion of the surfaces, particularly of the optical units was observed. Complies.	1	7.

7.5 COLOURIMETRIC SPECIFICATIONS (Annex 4)

7.5.1 Colour Test of Retro-reflecting device by CIE standard Illuminate Des (Annex 4, CI. No. 2.1):

Þ€.0	91.0 ≤	numinance factor
7144.0	488.0 of 824.0	Y Coordinate
5164.0	842.0 of 724.0	A Coordinate
Measured Values	Specified Values - Orlow retro- reflective)	Colour Co-ordinates

seulsV berusseM	Specified Values (Colour – Red retro- reflective)	Colour Co-ordinates
1629.0	069.0 of 698.0	X Coordinate
0.3412	345.0 ol 015.0	Y Coordinate
60.0	€0.0 ≤	uminance factor

7.5.2 Colour Test of Retro-reflecting device by CIE standard illuminate A: (Annex 4, CI. No. 2.2):

Measured Values	Specified Values (Colour – Yellow retro- reflective)	TuoloO Co-ordinates
8499.0	018.0 of 808.0	X Coordinate
0.4264	084.0 of 886.0	Y Coordinate

0.3284	388.0 of 885.0	9 Coordinate
9859.0	069.0 of £49.0	X Coordinate
Reasured Values	Specified Values (Colour – Red retro- reflective)	Colour Co-ordinates

Page 5 of 11

27 A P 1 7 8 8



7.5.3 Colour Test of Red fluorescent material by CIE standard Illuminate Des (Annex 4, CI, No. 3.1):

74.0	0€.0 ≤	Luminance factor
6046.0	345.0 of 015.0	Y Coordinate
0.6212	069.0 이 693.0	X Coordinate
Measured Values	Specified Values (Colour – Red fluorescent)	Colour Co-ordinates

7.6 PHOTOMETRIC SPECIFICATIONS (Annex 5)

7.6.1 Yellow colour (Retro reflective area)

Complies	Complies	Complies	Complies		Kemarke
55'164	204,615	320.769	rcs.e3a		Sample No. 2
269'ZZ	204.615	318.462	Z69.743	1.00	f .oV əlqme2
10	97	180	300	Required values R (cd. m. ² .lx ⁻¹)	
09	0 1	30	g	zg	4/3°(20')
0	0	0	0	េខ	4/30/30/)
	degrees	ni(a) elgas noitsvieadC seergeb			

7.7 PHOTOMETRIC SPECIFICATIONS (Annex 5)

7.7.1 Red colour (Retro reflective area)

Complies	Complies	Complies	Complies		Remarks
••	73.231	983.9rr	203,846		Sample No. 2
	54.000	90.385	697.091		Sample No. 1
**	Þ	7	01	Required values R (cd. m. ² .lx. ¹)	
09	OÞ	30	g	टर्घ	1/3°(20')
0	0	0	0	۲a	(100/06/1)
	Observation angle (a)in degrees				

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8.1 Resistance to weathering (Annex 6, 1)

stnemerlupeA test N.1.8

(2.1.,8 Visual Appearance (Annex 6, 1.2)

No area of the exposed specimen shall show any evidence of cracking, scaling, pitting,

blistering, delamination, distortion, chalking, staining or corrosion.

There shall be no shrinkage in excess of 0.5 per cent in any linear direction and no

Result Remarks: Complies

8.1.1.2 Colour fastness (Annex 6, 1.3)

The colours of the exposed specimens shall still meet the requirements.

evidence of adhesion failure such as edge lifting from the substrate.

By CIE standard illuminate Des:

Кетагк	Measured Values		Specified Values	Colont	
	19JJA	Before	(Colour - Red Fluorescent)	Co-ordinates	
Complies	2673.0	0.5812	069.0 01 695.0	A Coordinate	
	9866.0	6046.0	345.0 61 015.0	Y Coordinate	
	92.0	0.25	€0.0 ≤	Luminance factor	

Remark	Measured Values		Specified Values	Colour	
VEHIOLI	1911A	eroteB	(Colour - Yellow retro-reflective)	Co-ordinates	
Complies	1103.0	6.4933	0.427 to 0.545	X Coordinate	
	9144.0	8044.0	0.423 to 0.534	Y Coordinate	
	15.0	28.0	91.0 ≤	Luminance factor	

Кета	Measured Values		Specified Values	Colour	
	After	erore	(Colour - Red retro-reflective)	Co-ordinates	
səildmo	0.6279	0.6284	069.0 of 998.0	X Coordinate	
	7046.0	0.3402	346.0 of 016.0	Y Coordinate	
	60.0	80.0	≥0.03	uminance factor	

By CIE standard Illuminate A:

Кетак	Reasured Values		Specified Values	Colour	
	After	Before	(Colour - Yellow retro-reflective)	Co-ordinates	
Complies	6933.0	1955.0	019.0 of 808.0	A Coordinate	
	0,4250	0.4256	084.0 of 385.0	Y Coordinate	

Кетагк	Measured Values		Specified Values	Colour	
	After	erorea	(Colour - Red retro-reflective)	Co-ordinates	
Complies	0.6582	Þ699°0	069.0 of £p8.0	X Coordinate	
	4726.0	6726.0	355.0 of 835.0	Y Coordinate	

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Photometric specifications (Annex 6, 1.4)

£.1.1.8

Measurement shall be made only at an observation angle of 20' and an entrance angle of 5°. The coefficient of retro reflection of the exposed specimen when dry shall be not less than 80 per cent of the value.

8.2% Complies	121.501	112,329	10 cd.lx 2·m.²	Red Reflective	9	1/3。(50,)
2.7% Complies	494,168	402.311	300 cd.lx	Yellow Reflective	03	1/06/06/14
Required value not less than 80% of previous walue	TeitA Jeet	eroled teet	Required Values (Minimim)	Color	entrance angle	itsvreadC elgns no

The specimen shall then be subjected to simulated rainfall and its coefficient of retro reflection under this condition shall be not less than 90 per cent of the value obtained when measured in dry condition.

Results/Remarks: Complies.

Resistance to Corrosion (Annex 6, 2)

1.2.8

2.8

Test Requirements:

(4515/00/072)

Visual Appearance (Annex 6, 2.2)

1.1.2.8

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark: No sign of corrosion was observed. Complies

2.1.2.8

Photometric specifications (Annex 6, 2.2.1)

The coefficient of 'Retro reflection R' of the retro reflective areas, when measured after a recovery period of 48 hours, at an entrance angle of 5° and an observation angle of 20', shall be not less than the value 300 cd.lx⁻¹.m⁻². Before measuring, the surface shall be cleaned to remove sait deposits from the saline mist.

4,9% Complies	S63.16	078.38	s·m.1·xl.bo 01	Reflective		1/3。(50,)	
2,0% Complies	927.585	391.464	300 cd.lx ¹ .m ²	Yellow	.g	1.00/06/1	
Remark	Jeer test	tset eroteB	Required Values (Minimum)	Color	Entranc e angle	itsvrjeedC eligns no	

Page 8 of 11



8.3 Resistance to Fuels (Annex 6, 3)

8.3.1 Test Requirements:

After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible change, which would reduce its effective performance.

Results/Remark: No Visible change was observed. Complies

(4, 6 xennA) fitength (Annex 6, 4)

3.4.1 Test Requirements:

The coated material is not removable without tools or without damaging the material.

The laminated materials (adhesive films) shall need a force of at least 10 N per 25 mm width, at a speed of 300 mm per minute, to be removed from the substrate.

Result / Remark: Complies.

8.5 Resistance to Water (Annex 6, 5)

8.5.1 Test Requirements:

After completion of the test, the section shall be examined. No part inside 10 mm from the cut edge shall show evidence of deterioration, which would reduce the effectiveness of the plate.

Results/Remarks: No evidence of deterioration was observed. Complies.

8.6 (Annex 6, 6)

:etnemeriupeA teeT 1.8.8

The material shall show no cracking or separation from the substrate at a distance of more than $5\,\mathrm{mm}$ from the impacted area.

Results/Remark: No evidence of cracking or separation was observed. Complies.

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1	'9	xennA)	Cleaning	7.8
	*		Cloning	7 5

A test example smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

Results/Remarks: No evidence of damage was observed. Complies.

(8 xennA) setsI9 ent to ytibigi9 8.8

Test Requirements:

Test Requirements:

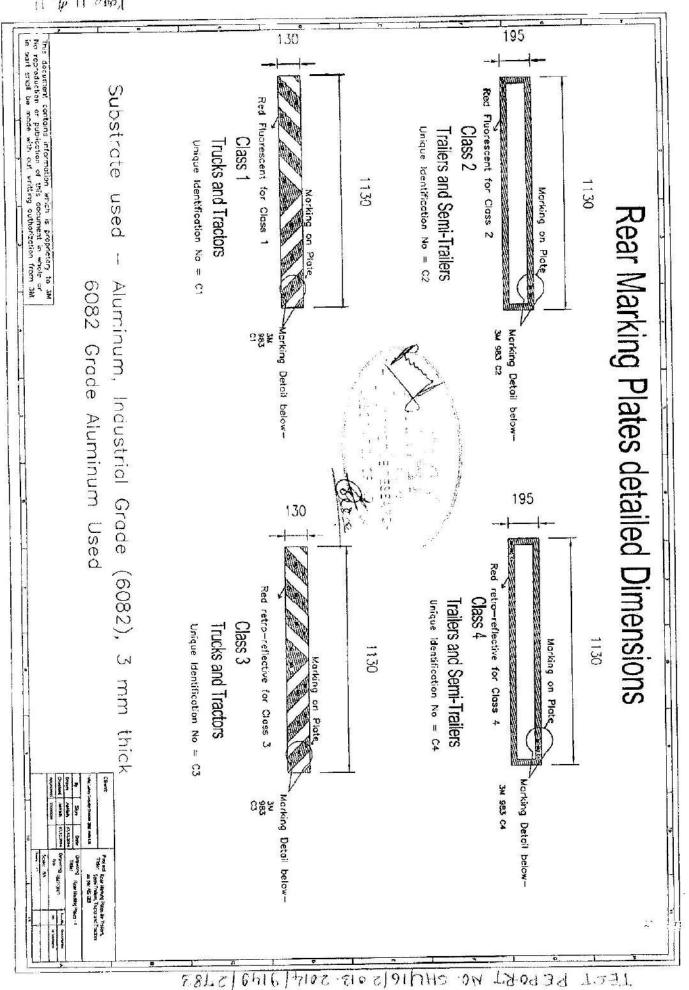
1.8.8

1.7.8

The maximum deflection of the plate under the test load shall not exceed one twentieth of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

Results/Remarks: The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. Complies.

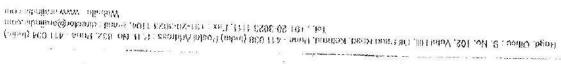
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the plate (specified in 3.0 above). etc. are identical and not changed expect change in material of plate & Thickness of ii) Customer's declaration stating that material used, manufacturing process, controls, Declaration letter submitted by customer regarding the change in part number. CONSIDERATION FOR EXTENSION: U.P 3M 983 SB C4 3W 983 SB C3 3W 883 2B C5 the component 3M 983 SB C1 uo peviesdo Class 4 Class 3 Class 2 Class 1 Identification enclosed at page no. 4 the component RMP/3M/2 (dated 29.12.2014) Drawing No. of SB C¢ SB C3 SB CS SBC1 Identification Class 4 Class 3 Class 2 Class 1 Unique Bangalore (Karnataka) - 560100. 3M Electronic City Plant, Plot No. 48-51, Electronic City, Phase 1, M/s. 3M Company Manufactured Rear Marking Plates (Class 1, 2, 3 & 4): Rear marking plates for heavy motor vehicles Substrate used – Steel Grade Material (ST 52.3), 4 mm thick Substrate used - Steel Grade Material (D-513), 1.6 mm thick. Rear Marking Plates (Class 1, 2, 3 & 4): Rear marking plates for heavy motor vehicles Substrate used - Steel Grade Material (D-513), 1.22 mm thick. Rear Marking Plates (Class 1, 2, 3 & 4): Rear marking plates for heavy motor vehicles DESCRIPTION OF TEST COMPONENTS: Email Dated: 10.11.2014 CUSTOMER LETTER REF. 2.0 Bangalore - 560 100, India Plot Nos. 48-51, Electronics City, Hosur Road, CUSTOMER M/s. 3M India Limited THE 1.0 NAME AND ADDRESS DATE: 30.12.2014 No. SHL/16/2014-2016/6897/2817 (Earlier test report: SHL/16/2013-2014/9149/2783 Dated: 17.12.2014) EXTENSION TEST REPORT Mon-Transferable

Page 1 of 4



iv) This Extension Test report is to be read along with earlier test report. SHL/16/2013-

iii) Additional test of Rigidity of Plates & Corrosion test are conducted as per AIS: 089 on new material of Steel Grade D-513 with thickness of the plate (1.22 mm) and Steel Grade ST-52,3 with thickness of the plate (4.00 mm). Refer St. No. 6.0 for test results.

* William Calling to

2014/9149/2783 Dated: 17.12.2014 for detailed test results.





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requirements of all the tests related to AIS: 089,	sas above in 3.0 when tested as per	Rear Making Plates	



- 6.0 Test Results
- 6.1 Resistance to Corrosion (Annex 6, 2)
- :stnemeriupsA test f.f.8
- 6.1.2 Visual Appearance (Annex 6, 2.2)

Immediately after completion of the teat, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remark: No sign of corrosion was observed. Complles

6.2 Rigidity of the Plates (Annex 8)

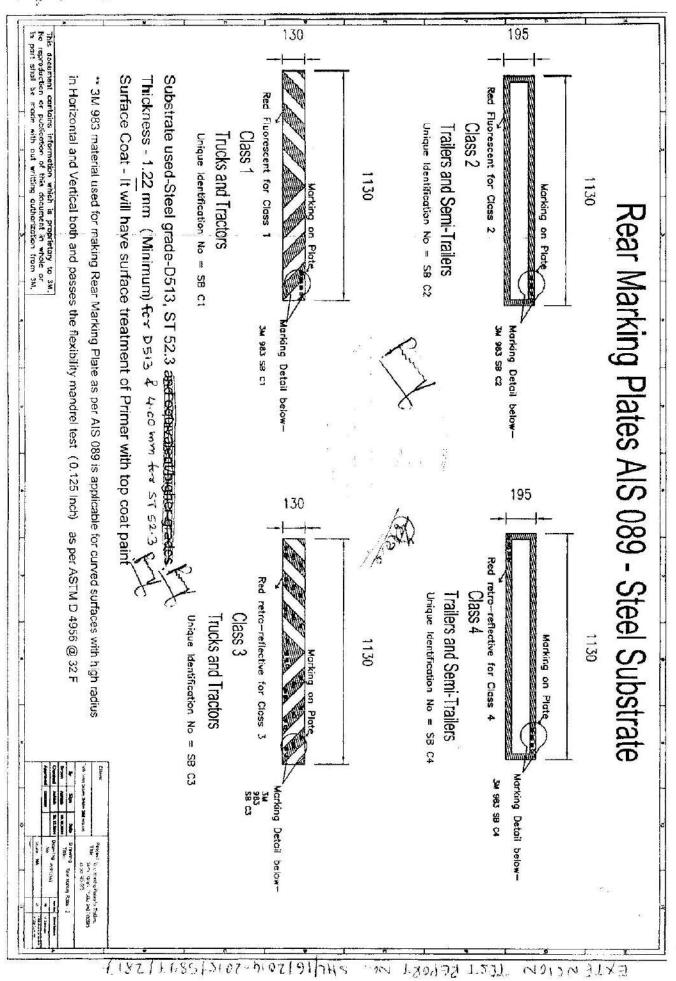
6.2.1 Test Requirements:

The maximum deflection of the plate under the test load shall not exceed one twentieth of the distance between the supports and the residual deflection after removal of the load shall not exceed one fifth of the measured deflection under load.

Results/Remarks: The maximum deflection of the plate is not exceeding one twentieth of the measured deflection under load. Complies.

L. S.R. H.S. S. H. Aust. Testingported - 15 Main-OCA16-One Time Cusionisty ANS Proposition 1201-12015, Rear Marking Flores, J.M. India, Evr. doc

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 04 CONFORMITY OF PRODUCTION CERTIFICATE AS PER AIS - 037

	Based on-	
0	Conformity of Production Granted / Refused	ОВТИАЯЭ
0	Conformity of Production serial no.	τ _ψ Cob
0.	TAC MARK / E-Mark	3M A94495 C-E1-104R-00821
0.	Base Type Approval No.	90495 Dt. 08.09.2009 A94495 Addendum no. 1. Dt. 27 03 2013 (Singspore plant – 50mm) A94495 Addendum no. 2. Dt. 12.08.2013 (Singspore plant – 20mm)
0.	Applicable Notified Standard	090.2IA
0.1	Name and specification of the component	3M Scotchlite Reflective Sheeting 983 COLOURS – RED, WHITE AND YELLOW Size: 50 mm width & 20 mm width
0.5	Customer Letter Ref.	Email dated 16.07.2018
		3M Innovation Singapore Pte Ltd. 2 Tuas Link 4 Singapore 637321
	Plant address	3M Company 3M Brownwood Plant 4501 Highway 377 South Brownwood, Texas, 76801, USA
	Details of component manufacturer (Registered Office)	3M Company, 3M Center St Paul, Minnestota 55144-1000, USA
0.1		3M India Ltd. Plot Nos., 48-51, Electronics City Hosur Road, Bangalore – 560 100

Test results are enclosed in Annexure-1

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 04 SHL No.: SHL/16/2018-2019/3000002951/COP/2711

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Page 2 of 6

CANORING SECTION SERVING SERVI



CONFORMITY OF PRODUCTION CERTIFICATE NO - 04 SHL No.: SHL/16/2018-2019/3000002961/COP/2711

Test Duration. Start	Date: 10.09.2018	Br02,80,71;eta Date:
Test Results:		
Objective: To conduct the COP tests as o	lefined in AIS 037 as per A	.090 :SIA
Photograph of Sample		
Marking on the sample	3M A94495	
ssauppe jueld	3M Innovation Singapor 2 Tusa Link 4 Singapore 637321	ore Pto Ltd.
Description of Component	3M Scotchlite Reflective WHITE AND YELLOW	e Sheeting 983 COLOURS - REE
Name and Address of Applicant	3M India Ltd. Plot Nos., 48-51, Electron Hosur Road, Bangalore	
	Applicant Description of Component Plant address Objective: Objective: Test Results:	Applicant Description of Component Description of Component Merking on the sample Photograph of Sample Objective: Objective: Test Results:

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 04 SHL No.: SHL/16/2018-2019/3000002951/COP/2711

II – əinxənnA

1	SEMINAC I	0.385 to 0.480	0.4220	0 4516		
1	Y Coordinate	109 0 01 909 0	6699 0	0.5600		
	X Coordinate	(Colour - Yellow)	Sample No. 01	Sample No. 02		
	noloO aoinnates	Specified Values	Measure			
	Y Coordinate	£12.0 of 62£.0	99010	0.4042		
	X Coordinate	842.0 01 575.0	8944.0	07440		
	Co-ordinates	(Colour - White)	Sample No. 01	Sample No. 02		
	TuoloO	Specified Values	Measure			
	Y Coordinate	0.258 to 0.335	0.3263	0.232		
	X Coordinate	287.0 of 848 0	8819.0	67990		
	Co-ordinates	(Colour - Red)	Sample No. 01	Sample No. 02		
	Colour	Specified Values	Measure			
לי.	Colour Test of Retro-re (Annex 4, Cl. No. 3)	flecting device by CIE stai	A ətsnimulli brebr			
	Luninance factor	91.0 ≤	030	0.30		
	Y Coordinate	\$69.0 of \$24.0	1964.0	6364.0		
	X Coordinate	0.427 to 0.545	67640	9/67/0		
	Co-ordinates (Colour - Yellow)		Sample No. 01	Sample No. 02		
	noloD.	Specified Values	Measure	saulsV b		
	Totaet eactor	\$ 0.25	670	84.0		
	Y Coordinate	968.0 01 072.0	0.3284	0.3271		
	A Coordinate	0.260 to 0.385	₽80£.0	6800 0		
	Co-ordinates	(Colour - White)	Sample No. 01	Sample No. 02		
	Colour	Specified Values	enueseM.	sənleV b		
	Luminance factor	> 0.03	11.0	61.0		
	Y Coordinate	036.0 01 016.0	03210	6612.0		
	X Coordinate	069 0 0 099 0	V969.0	7:19.0		
	Co-ordinates	(beA - nolos)	Sample No. 01	Sample No. 02		
	Colour	Specified Values	Measure	saulsV bo		
£.4	Colour Test of Retro-reflecting device by CIE standard illuminate Des (Annex 4, Cl. No. 2)					
	ine optical units, shall b	es, particularly of distortion e evident. optical u	n of the surfaces,	particularly of the Satisfactory.		
	After this test, no crack distortion of the surfaci	ng or appreciable. After th	iis test no crackir	CONTRACTOR OF		
	TEST REQUIR After this test, no crack distortion of the surfact	il nejlA eldsibergge no gn	OBSERVTIONS / R	TEST VIVE SE		

Page 4 of 5



CONFORMITY OF PRODUCTION CERTIFICATE NO - 04 Annexure - II

ל		0	09	Ot .	Z99 9Z	7 4 8.5 4 7
.£	113.(50.)	0	00	94	788,712	208.267
2.	(IDE)acit	0	30	130	Y88.08£	799.866
1.		0	9	300	788.888	799.299
.01	degrees	६व १६		(cq. m ² ,lx ³)	Sample No. 01	Sample No. 03
AS JON	Observation angle (a) in		aje suce	Required values		seulsV b
	r colour (Retro i onsidered = 15					
.4	i I	0	09	91	299°75	39.267
3,		0	940	06	266.333	269.200
2	1/3。(50,)	0	98	500	499 plb	000,864
·}		0	g	420	000.448	877.333
	qedises	វេស	८६	(cq. m ⁻² ,lx ⁻¹)	Sample No. 01	Sample No. 02
.18 .0N	noitsvreedO ni (b) elgns	n}n∃ nA	dje suce	Required saulev	səulsV bərussəM ('·xl.²·m .bɔ)	
	eolour (Retro re St = berebianos			In a second	gypter consultative at 10	
٠.	1		0v			course
<u>'</u>	:	0		00	54 133	££1.09
۲.	1/3。(50.)	0	30	30	008 1/6	794,101
	į į	0	SO	120	126.533	193,861
		18	८६		Sample No. 01	Sample No. 02
.sz .oM	Observation ni (a) elgns degrees	stra∃ enA 	i. Ole	Required values ('xl. ^x 'n', loo)	Measure (cd. m	
	St = barabianog	Xmm0	աաղջ		300 ¥	
	iter orteA) ruolo					

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 03 CONFORMITY OF PRODUCTION CERTIFICATE AS PER AIS - 037

	Based on- Successful completion of Conformity of Pro Samples are randomly selected and submi Test results are enclosed in Annexure-L.	oduction tests on randomly selected samples. Ited by M/s. 3M India Ltd.		
0.	Conformity of Production Granted / Refused	GRANTED		
0	Conformity of Production serial no.	34 Cop		
0':	TAC MARK / E-Mark	3M A94495 C-E1-104R-00821		
01	Ваѕе Туре Арргоvаl No.	A94495 Dt. 08.09.2009 A94495 Addendum no. 1, Dt. 27.03.2013 (Singapore plant – 50mm) A94495 Addendum no. 2, Dt. 12.08.2013 (Singapore plant – 20 mm)		
0.	Applicable Notified Standard	060:SIA		
01	Name and specification of the component	25.07.2016 & Email dated: 23.05.2016. 3M Scotchlite Reflective Sheeting 983 Size: 50 mm width & 20 mm width		
. 0'7	Plant address Customer Letter Ref.	3M Brownwood Plant Singapore Pte Ltd. South Brownwood, Singapore 637321 Texas, 76801, USA Singapore 637321 Texas, 76801, USA Singapore 637321 Texas, 76801, USA Singapore 637321 Singapore 637321 Singapore 637321		
	Detaits of component manufacturer (Registered Office)	3M Company, 3M Center, St. Paul, Minnestota 55144-1000, USA		
0.	Name and Address of Applicant	3M India Ltd. Plot Mos., 48-51, Electronics City Hosur Road, Bangalore – 560 100		
	ON .: SHL/16/2016-2017/1780/2189)	DATE: 24.08.2016		





CONFORMITY OF PRODUCTION CERTIFICATE NO - 03

SHL No.: SHL/16/2016-2017/1780/2189

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Claimpt'

Next continued compliance to be completed on and before: 30.09.2018

Discinimer:

- ARA issues 'Conformity of Production (CoP) Certificates' for vehicles/ components/ parts/ produced and for testing certied out on the selected sample(s) as per the provisions of specific rules
- Sample selection procedure is in compliance to Motor Vehicle Act Central Motor Vehicles Rules and their provisions as amended from time to time or any other statutory orders under which ARAI is authorized. Other Rules/ Acts are outside the outview scope of CoP.
- 3. Test's on selected sample(s) isk are carried out only on the perenters as covered under the specifically so ordered by Government, Court, etc.
- 4. Other parameters of the vehicles/ components/ parts/ assemblies etc. are outside the purview/ scope of CoP.
- 5. The bearer of the CoP certificate is under obligation to ensure production strictly as per the provisions of the specific certificate
- ARAI is not responsible for ensuring manufacturing quality of the approved vehicles/ components/ parts/ assemblies etc.
- ARAI is in no way responsible for any misuse or copying of any designit typet system in connection with entire vehicler componential parts and assemblies covered under the CoP certificate
- Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the bester of CoP certificate and ARAI shall not be liable for any claims or demages. The bester shall alone be liable for the same, and shall undertake to indemnify ARAI in this regard.
- 9. ARAI has the right, but not under obligation, to initiate cancellation/ withdrawal of the centificate issued, in case of any traud, misrepresentation, when it surfaces and comes in the knowledge of ARAI.

 The appropriate local courts at Pune shall have the indediction in respect of any disquire clients and traud.

The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this certificate (Report.

РВЕРАВЕD ВУ: CHECKED BY: Date of lasue:

PACE Of lasue: PUNE

PREPARED BY:

Date of lasue:

PREPARED BY:

Date of lasue:

Place of lasue:

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 03

SHL No.: SHL/16/2016-2017/1780/2189

			and Make a		
	Luminance factor	.0 ≤ ≥ 0.		12.0	0.22
	Y Coordinate	0.423 to	1 /8	0.4384	0.4329
	X Coordinate	0.427 to 0.545		7824.0	6834.0
2	Co-ordinates	(Colour - Yellow)		Sample no. 1	Sample no.
	Colour	Specified Values		Measure	eaulaV b
C.1.3	For Yellow colour				
	Luminance factor	.0 ≤		14.0	0.40
	Y Coordinate	ot 072.0	96	7488.0	6988.0
	X Coordinate	0 260 10	98	p315.0	9915.0
	Co-ordinates	(Colour	(etil	Sample no. 1	Sample no.
	Colour	Specified		Measure	sənisy b
2.1.2	For White colour			•	
	Luminance factor	0 <		80.0	80.0
	Y Coordinate	0.310 to	09	9176.0	1688.0
	X Coordinate	0.560 to		0.6439	0.6420
	Co-ordinates	(Colour	received the man	Sample no. 1	Sample no.
	Colour	Specifie		Measure	senleV be
1.1.2.	For Red colour	10 10 de m			1175
S 02	COLOUR IEST OF REITO	o-remecting de	DA CIE	standard illuminal	: S9 [] 87
2.4 1.2.4	COLOUR TEST OF Retro	o-reflecting de		474	: ss)
1.2.1	After this test, no crackin distortion of the surfaces, optical units, shall be evided of the surface of the su	ing or apprecis , particularly of fent.	distorti optical	his test, no crackin on of the surfaces, units was observed actory.	ng or appreciate particularly of t
1.2.1	distortion of the surfaces, optical units, shall be evide	ing or apprecis , particularly of fent.	distorti optical	on of the surfaces, units was observed actory.	ng or appreciate particularly of t
1.2.1	After this test, no crackin distortion of the surfaces, optical units, shall be evided of the surface of the su	EMENTS ing or apprecis particularly of tent.	distorti optical	his test, no crackin on of the surfaces, units was observed actory.	ng or appreciate particularly of t
f.p 2.p 7.2.p	TEST REQUIRE After this test, no crackin distortion of the surfaces, optical units, shall be evide	EMENTS ing or apprecis particularly of tent.	distorti optical	his test, no crackin on of the surfaces, units was observed actory.	ng or appreciate particularly of t
S.P.	Resistance to heat (Anne TEST REQUIRE distortion of the surfaces, optical units, shall be evided to the surfaces.	lex 6 Cl. No.4.0, particularly of lent.	1 heft A distortic lastical steltas	OBSERVTIONS / units was observed units was observed units was observed actory.	ng or appreciate particularly of t
f.p 2.p 7.2.p	Test Results: Resistance to heat (Anne TEST REQUIRE distortion of the surfaces, optical units, shall be evided to the surfaces.	s as defined in A particularly of a particularly of spore is a particularly of its of a particularly of a particular	Para Para Para Para Para Para Para Para	er A1S: 090. OBSERVTIONS / units was observed units was observed actory.	ng or appreciate particularly of t
0.4 1.4 2.4 7.2.4	Objective: Test Results: Resistance to heat (Annedistortion of the surfaces, optical units, shall be evided optical units.	s as defined in A particularly of apprecial of apprecially of apprecial of apprecial of a particularly of a particular approximately apprecial approximately approxima	PAR-008 or as 750 After 1 Aitetotical backgrowth or size or	er A1S: 090. OBSERVTIONS / units was observed units was observed actory.	ng or appreciate particularly of t
0.4 1.4 2.4 7.2.4	To conduct the COP tests Test Results: Resistance to heat (Annedistortion of the surfaces, optical units, shall be evided to the surfaces.	as defined in A particularly of Sent. EMENTS Ing or apprecise of a particularly of apprecise o	495-008 04R-008 After t distorti distortical stists	er A19: 090. OBSERVTIONS / his test, no crackinon of the surfaces, units was observed	ng or appreciate particularly of t
0.4 1.4 2.4 7.2.4	Objective: Test Results: Resistance to heat (Annedistortion of the surfaces, optical units, shall be evided optical units.	Single Si	995 995 997 997 998 998 998 998 998 998 998 998	er A19: 090. OBSERVTIONS / his test, no crackinon of the surfaces, units was observed	ng or appreciate particularly of t
0.4 1.4 2.4 7.2.4	Marking on the sample To conduct the COP tests Test Results: Resistance to heat (Annet Test REQUIRE distortion of the surfaces, optical units, shall be evided.	Single Si	Link 4 906 6373 94R-008 937 as podical distortical optical	er A15: 090. OBSERVTIONS / nis test, no crackinon of the surfaces, units was observed	RESULTS particularly of t
0.4 1.4 2.4 7.2.4	Objective: Test Results: Resistance to heat (Annedistortion of the surfaces, optical units, shall be evided optical units.	3M Single Single	ovation Link 4 ore 6373 o485 04R-008 After t distorti optical Satisfa	Singspore Pte Ltd S21 er AIS: 090. OBSERVTIONS / his test, no cracking on of the surfaces, on or cracking on of the surfaces.	RESULTS particularly of t
3.0 0.4 1.4 2.4	Plant address Objective: To conduct the COP teste Test Results: Test Results: Test Results: After this test, no crackin distortion of the surfaces, optical units, shall be evided.	Sizericularly of Sent. Same as defined in Action of apprecise CL. No.4.0 EMENTS The sent of apprecise of action of apprecise contacts and action apprecise contacts and action of actio	MHITE A WING WING WASTION CONSTINK 4 M995 M995 M995 M995 M995 M995 M995 M9	Singspore Pte Ltd S21 er AIS: 090. OBSERVTIONS / his test, no cracking on of the surfaces, on or cracking on of the surfaces.	RESULTS particularly of t
0.4 1.4 2.4 7.2.4	Marking on the sample To conduct the COP tests Test Results: Resistance to heat (Annet Test REQUIRE distortion of the surfaces, optical units, shall be evided.	Hont 3M Pent 3M Pent 3M Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0	Aoad, B bichille F WHITE A O mm wi ovation Link 4 Die 6373 1495 04R-008 After I distorii distorii	Sargalore – 560 100 Reliective Sheeting And YELLOW Singspore Pte Ltd Singspore Pte Ltd S21 S21 er A15: 090. his test, no crackii on of the surfaces, units was observed units was observed	983 COLOURS PRESULTS PRINCULARY OF THE PRINCULARY PRINCULARY OF THE PRINCULARY
3.0 0.4 1.4 2.4	Plant address Objective: To conduct the COP teste Test Results: Test Results: Test Results: After this test, no crackin distortion of the surfaces, optical units, shall be evided.	Pent 3M Pent 3M Pent 3M Pent 3M Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0 Pex 6 Cl. No.4.0	Aoad, B bichille F WHITE A O mm wi ovation Link 4 Die 6373 1495 04R-008 After I distorii distorii	Reflective Sheeting Actions YELLOW Singspore Pte Ltd Singspore Pte Ltd S21 er A15: 090. OBSERVTIONS / nis test, no crackii on of the surfaces, units was observed units was observed	983 COLOURS PRESULTS PRINCULARY OF THE PRINCULARY PRINCULARY OF THE PRINCULARY

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 03 SHL No. : SHL/16/2016-2017/1780/2189

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	Y Coordinate	0.385 to 0.480	0.4281	0.4280	
	X Coordinate	109.0 of 808.0	ZÞÞ9 0	8683.0	
	Co-ordinates	(Colour - Yellow)	f .on sigms2	Sample no. 2	
	Colour	Specified Values	Measure	sənjey b	
£.2.2.	For Yellow colour				
	Y Coordinate	£18.0 of 88£.0	270Þ.0	7704.0	
	A Coordinate	848.0 01 575.0	0.4527	0.4530	
	Co-ordinates	(Colour - White)	Sample no. 1	Sample no. 2	
	Colour	Specified Values	Measured Values		
2.2.2.	For White colour	Tomas - Light			
	Y Coordinate	0.268 to 0.335	8756.0	0.3266	
	etenibroo X	367.0 o) 643.0	7658.0	↓099°0	
	Co-ordinates	(Colour - Red)			
	Colour	Specified Values			
1.2.2.1	For Red colour	1. And 100.000 and			
2.2.1	COLOUR IEST OF Kell	o-reflecting device by CIE	ergingin innimitate	:W A	

For Red colour (Area: 150mm × 50 mm)	1.5.4
 Photometric Specifications:	٤.4

Satisfactory	Satisfactory	Satisfactory	Satisfactory	S	Remark
199-99	794.86	116.800	738.Cht	70 0	Sample No
008.23	557.19	112.400	140.000	10.0	Sample No
01	30	09	150	(cd. m².1x ⁻¹)	Required values R
40	30	20	9	bs	/ a = \
0	0	0	0	١٤	113.(20.)
	sealsep ı	nce angle (ß) ir	Entra:		Observation angle (a)in degrees







CONFORMITY OF PRODUCTION CERTIFICATE NO - 03

SHL No.: SHL/16/2016-2017/1780/2189

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Satisfactory	Satisfactory	Satisfactory	Satisfactory		Remarks
26.800	229.600	400.000	000.817	z	Sample No. 0
26.800	790.6£\$	409.333	£££.108	Į	Sample No. 0
91	06	500	420	('xt, 'm.)	Reduired values R (co
09	0\$	30	9	bs	
. 0 j	0	0	0 j	18	1/30(20)
1 (1) (1) (1) (1) (1) (1) (1) (1)	degrees	nce angle (🎖) ir	entn∃		Observation angle (a)in degrees

	1.4.4	continued to the continued of the contin	
(mm 03	x mm091	For Yellow colour (Area:	£.5.4

Satisfactor	Satisfactory	Satisfactory	Satisfactory		Remarks	
24.440 786.657	663.871 790.991	000.3es 733.228	686.874 000.823	Sample No. 07 Sample No. 07		
						10
09	04	30	g			Sa
0	0	0	0	ra		
nan-	n degrees	nce sudje (b) i	Entra		Observation angle	

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 02 CONFORMITY OF PRODUCTION CERTIFICATE AS PER AIS - 037

001.000 - 9	Hosur Road, Bangalore	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
stotaenn	3M Company, 3M Center, St. Paul, Mi 55144-1000, USA	(Registered Office)		
Minnsvarior ME Pter Pter Pter Pter Pter Pter Pter Pter	M Company 3M Brownwood Plant 4501 Highway 377 South Brownwood, Texas, ASU, USA	Plant address		
't	NAMES OF STREET, SECURITION OF STREET, NAMES OF STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET,	Customer Letter Ref.	0.5	
TE AND YELLO	COFONES - BED' MHI	Name and specification of the component	0.8	
	060:SIA		0	
5' DE 15:08:5013 u)	(Singapore plant – 50mr A94495 Addendum no.	base iype Approval No.	0.8	
	3M A94495 C	TAC MARK / E-Mark	0.	
	Sua Cob	Conformity of Production serial no.	0.	
	ОВТИАЯ	Conformity of Production Granted / Refused	0.	
	nnestota Singapore Pte Singapore Pte S Tuas Link 4 Gingapore 637 A, Dt. 27.03.2013 nm width 2, Dt. 12.08.2013 n)	3M Company, 3M Center, St. Paul, Minnestota 3M Center, St. Paul, Minnestota 3M Company 3M Brownwood Plant South South Brownwood, Texas, Brownwood, Texas, COLOURS – RED, WHITE AND YELLO Size: 50 mm width & 20mm width A94495 Dt. 08.09.2009 A94495 Dt. 08.09.2009 COLOURS – RED, WHITE AND YELLO Size: 50 mm width & 20mm width A94495 Dt. 08.09.2009 A94495 Dt. 08.09.2009 CSingapore plant – 50mm) A94495 Addendum no. 1, Dt. 12.08.2013 A94495 Addendum no. 2, Dt. 12.08.2013 A94495 Addendum no. 2, Dt. 12.08.2013 A94495 CCOLOURS – 20mm)	Plant address Plant	

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Contact to the St. properties ADD with a field



2HL No.: SHL/16/2014-2015/2158/2006 CONFORMITY OF PRODUCTION CERTIFICATE NO - 02

Date of Issue: 02/09/2014, place of Issue: PUNE ав. периту ріяестоя, нор-зні DEPUTY GENERAL MANAGER MANAGER A.V. MANNIKAR Mrs. J. M. KIRVE P.V. PARLIKAR 86% **УРРЯОУЕ**В ВУ: CHECKED BA: УВЕРАЯЕР ВУ: The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this ARAI has the right, but not under obligation, to initials cancellation/ withdrawal of the certificate issued, in case of any fraud, misrepresentation, when it surfaces and contes in the knowledge of ARAI. Breach of any stalutory provision of Indian laws or laws of other countries, will be the sole responsibility of the bearer of CoP certificate and ARAI shall alone be liable for the same, and shall undertake to indemnify ARAI in this regard 8 ARAL is in no way responsible for any misuse or copying of any designt type! system in connection with entire vehicler components/parts and assemblies covered under the CoP certificate. ARAI is not responsible for ensuring manufacturing quality of the approved vehicles/ components/ parts/ assemblies etc. The bearer of the CoP certificate is under obligation to ensure production strictly as per the provisions of the specific certificate. Other parameters of the vehicles/ components/ parts/ assemblies etc. are outside the purview/ scope of CoP Tests on selected sample(s) ist are carried out only on the parameters as covered under the specific procedures/ rules. Results of such tests are the property of bearer of CoP Certificate, these results cannot be disclosed unless specifically so ordered by Congressian Countries. Y. Sample selection procedure is in compliance to Motor Vehicle AcV Central Motor Vehicles Rules and their provisions as amended from lime to time or any other stalutory orders under which ARAI is sulhorized. Other Rules/ Acts are outside the purifical scope of Cop. AitAl issues 'Conformity of Production (CoP) Cettificates' for vehicles' components' parts' assemblies etc. based on the documents produced and for testing carried out on the selected sample(s) as per the provisions of specific rules Next continued compliance to be completed on and before: 30.09.2016

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Page 2 of 5



CONFORMITY OF PRODUCTION CERTIFICATE NO - 02 SHL No.: SHL/16/2014-2015/2158/2006

!	Luminance factor	91.0 ≤		05.0	05.0
	Y Coordinate	0 423 to 0.53		99870	8964.0
i	X Coordinate	6.0 of 7S4.0	,	8794.0	7764.0
	Colour Co-ordinates	Specified Vali		Measure F.on elqma3	d Values Sample no. 2
8.1.S	For Yellow colour				
6 + 0	Luminance factor	20.26		670	84.0
	Y Coordinate	0.270 to 0.39	1	0 3 2 9 0	0.3293
	X Coordinate	0.260 to 0.38	Section 11 and 12	6608.0	9608.0
	Colour Co-ordinates	Specified Val AW – TuoloD)	(ə.	Sample no. 1 Sample no	
2.1.2	For White colour		100		
	Luminance factor			890.0	290.0
	Y Coordinate	0.310 to 0.3		0.3249	6826.0
	X Coordinate	0.0 of 008.0		⊅ 6Z9.0	6883
	Colour Co-ordinates	Specified Val (Colour - Re		Sample no. 1	d Values Sample no. 2
1,1,5					
	COLOUR TEST OF Retro	ลวเผลก ถึนกวลและ	is ain k	IDIUUDU BIBBURA	
1.2.1	Commence of the company of the compa		1- 110	tenimulli bashnsta	
7.2.1	TEST REQUIRE After this test, no crackin distortion of the surfaces, optical units, shall be evide	EMENTS particularly of the ent.	After thi oritotali oritosi orisitse		gor appreciably of the thing of the thickness of the thic
2.4	After this test, no cracking optical units, shall be evidently the surfaces, optical units, shall be evidently the surfaces.	EMENTS particularly of the ent.	After thi oritotali oritosi orisitse	his test, no cracking on of the surfaces, units was observed refory.	gor appreciably of the thing of the thickness of the thic
4.1	Resistance to heat (Anne optical units, shall be evide optical units, shall be evide optical units, shall be evidently and the surfaces, and the surfaces optical units, shall be evidently and the surfaces of the surfaces of the surfaces of the surfaces optical units, shall be evidently as a surface of the surfaces of	EMENTS particularly of the ent.	After thi oritotali oritosi orisitse	his test, no cracking on of the surfaces, units was observed refory.	gor appreciably of the thing of the thickness of the thic
2.4	TEST REQUIRE After this test, no crackin distortion of the surfaces, optical units, shall be evide	s as defined in AIS (ex 6 Cl. No.4.0) ng or appreciable particularly of the ent.	og se 7.) (A) (A) (A) (A) (A) (A) (A)	OBSERVTIONS / units was observed	gor appreciably of the thing of the thickness of the thic
0.4 7.4 7.4	To conduct the COP tests Test Results: Resistance to heat (Anned After this test, no crackin distortion of the surfaces, optical units, shall be evided.	3M A94 as defined in AIS Cex 6 Cl. No.4.0) EMENTS ng or appreciable particularly of the ent.	ob C C as per After thin total After thouseld use a facilitated to a facil	er AIS: 090. OBSERVTIONS / units was observed units was observed	gor appreciably of the thing of the thickness of the thic
0.4 7.4 7.4	Objective: Test Results: Resistance to heat (Anned Instruction of the surfaces, optical units, shall be evided optical units, shall be evided on the surfaces.	3M Inna Singapa Singapa 3M A94 Sas defined in AIS C AX 6 Cl. No.4.0) Particularly of the particularly of the particularly of the	vation 5 ink 4 e 63732 95 C Tter thi After thiololololololololololololololololololol	Singspore Pte Ltd Str OBSERVTIONS / his test, no crackin on of the surfaces, units was observed	RESULTS Residents Re
3.0 1.p	Plant address Marking on the sample To conduct the COP tests Test Results: Resistance to heat (Anned This test, no cracking the surface of the surfaces, and selection of the surfaces, and the surfaces, and the surfaces, and the surfaces, and the surfaces.	ent RED, V Size: 50 3M Inne 2 Tuas Singapo 3M A94 5 as defined in AIS C ex 6 CL No.4.0)	childe Revenue watton 5 octool 6 octool	Adlective Sheeting MD YELLOW Singspore Pte Ltd Pis test, no cracking the surfaces, no cracking on of the surfaces, no cracking of the surfaces, no cracking the surfaces.	983 COLOURS I, Particularly of th
0.4 7.4 7.4	Marking on the sample Objective: To conduct the COP tests Resistance to heat (Annet Test Recults: TEST REQUIRE After this test, no crackin distortion of the surfaces, optical units, shall be evided.	ent 3M Soc RED, v Size: 50 3M Inne Singapo A Tuas Singapo Sas defined in AIS C A CI. No.4.0) ex 6 CI. No.4.0) ex 6 CI. No.4.0)	A8-51, 53d, 88, 5hile Rehite Rum widthon 5 ink 4 95 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C 5	ND YELLOW Singspore Pte Ltd Singspore Pte Ltd on of the surfaces, on of the surfaces, units was observed units was observed	983 COLOURS I, Particularly of th

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CONFORMITY OF PRODUCTION CERTIFICATE NO - 02 SHL No.: SHL/16/2014-2015/2158/2006

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		o-reflecting device by CIE	For Ked colour	1.2.2.1
Measured Values		Specified Values	Co-ordinates	
Sample no. 2	Sample no. 1	(Colonr - Red)		ļ.
6799.0	1199.0	0 643 to 0,735	X Coordinate	
9155.0	£188.0	0.258 to 0.335	Y Coordinate	000
01.00.0			For White colour	2.2.2.
	Measure	Specified Values (Colour – White)	Colour Co-ordinates	
Sample no, 2	Sample no. 1	842.0 of 878.0	X Coordinate	
29440	9944.0 5301.0	£15.0 ol 92£.0	Y Coordinate	İ
89070	7804.0	CLC:0.01.coo:a	For Yellow colour	2.2.3
zeulsV i	Measure	Specified Values	Colour	
Sample no. 2	Sample no. 1	(Colour - Yellow)	Co-ordinates	-
9699.0	9699:0	109.0 of 303.0	X Coordinate	1
0.4226	6224.0	0.385 to 0.480	Y Coordinate	1

74,000	126.533	162.000	230.000		Sample No. 02
790,17	126.800	184,181	008.822		10 ,oN elqms2
01	30	09	150	(,,x, ,u	**********
40	30	SO	9	85	
0	0,	0	0	rg	1/30(20.)
÷ 3m	degrees	માં (ધે) əlgns əɔn	Entrai		Observation angle (a)in degrees

Satisfactory

Remarks

Photometric Specifications:

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Satisfactory



SHL No.: SHL/16/2014-2015/2158/2006 CONFORMITY OF PRODUCTION CERTIFICATE NO - 02

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Satisfactory	Satisfactory	Satisfactory	Satisfactory		Кетағка	
28.400	246.133	433.333	828,000		Sample No. (
24.687	728.267	402,667	EEE.EET	L	Sample No. (
91	06	500	09₽	(<u>'xr.</u> 'm²,)	Required values R (co	
09	0₽	30	S	ଅଧ	1/3 ₀ (50.)	
0	0	0	0	ાઇ		
	qedices	ni (🌡) əlgna əər	ieritra		Observation angle (a)in degrees	

13.293	145.200	264,000	641.333		Sample No. 02
181.41	190.321	799.ÞTS	653.333		Sample No. 01
<u> 01</u>	97	130	300	w _s (x,)	Required values R (cd.
09	04	30	S	58	1/3。(50,)
0	0	0	0	ra	10000011
95054X.6	у дедгеез	મું (g) əjbuz əɔu	istin3		Observation angle (a)in degrees

Satisfactory

4.3.2 For White colour (Area: 150mm x 50 mm)

Remarks

Page 5 of 5

Satisfactory Satisfactory Satisfactory



TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

Date of Issue: 27 mg 120 of Sales	mbhee / vehicles etc. actu		e of lesue; PUNE simer:	bisc
РЕРИТУ DIRECTOR, НОР-SHL	P.V. PARLIKAR Mrs. J. M. KIRVE PUTY MANAGER I		a	
-80×1-11	1000		Brook	
РЯЕРАЙЕD ВУ: CHECKED ВУ: AUTHORISED ВУ:				
sets all the test requirements when	orn ,evods 0.6 ni be	ding Tape- specifi	CONCENSION:	0.8
	- w 4 V		TEST RESULTS: Please refer Test Resu	0.2
s: per 2005.	ST REQUIREMENT ublished on Decem	ОСЕПИКЕ & TES 1 Per AIS: 090 as p	OBJECTIVE, TEST PR To carry out all tests as	0.p
The second secon	: trei		Identification observe	
Photograph of sample			Retro Reflective Mark	
#		ат сомроиеит	DESCRIPTION OF TE	0.5
	Letter dated 08	CUSTOMER LETTER REF.		2.0
3M India Ltd. Plot Nos. 48-51, Electronics City Hosur Road, Bangalore – 560 100		S OF THE:	NAME AND ADDRES	10
DATE: 27.03.2013	INO IDN 10	097/5	2HL/16/2012-2013/809	
eldsreferanT-noM	тяочэя та	ㅋ		

This test report pertains only to the components / pake / assembles etc. actually tested at ARAi in the presented condition based on the documents / information produced / submitted by the customer. The lesuance of this test report alone does not indicate an insertic ordination, supervision, control of quality surveillance by ARAI of the product. No extract, abridgement or abstraction from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or leject all or any of the details of any items of publicity for which consent may be sought, ARAI, who reserves the absolute right to agree or leject all or any of the details of your connection with entire vehicle / components / pake and assemblies. Breech of any misuses of copying of any design / type / system in connection with entire vehicle / components / pake and assemblies. Breech of any signed or any design is the party, whisteover, the customer shall shone be liable for the customer assemblies. Breech of any signed of amages, made by the party, whisteover, the customer shall alone be liable for the same, and whether the liable for any claims or damages, made by the party, whisteover, the customer shall alone be liable for the same, and not be liable for any claims or damages, made by the party, whisteover, the customer shall alone be liable for the same, and not be liable for any claims or damages, made by the party, whisteover, the customer shall alone be liable for the same, and not be liable for any claims or damages, made by the party, whisteover, the customer shall alone be liable for the same, and not be liable for any claims or damages, made by the party, whisteover, the customer shall alone be liable for the customer and the customer shall alone be liable for the same, and not be liable for the customer is any described. The customer and the customer and the customer and the customer and the customer and the customer and the customer and the custome

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5 ADDENDUM No - 01 Annexure III

Test Report No. SHL/16/2012-2013/8095/750

7.0 TEST RESULTS:

7.1 GENERAL SPECIFICATIONS (CL. No. 7.0)

	Specifications	ON I
Remarks Complies	Retro-reflective marking materials shall be that way constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	1.9
Complies.	Retro-reflective marking materials or parts thereof shall not be capable of being easily dismanlled.	2.8
Complies.	The means of attachment of the marking materials shall be durable and stable.	6.3
Complies	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	1

7.2 SPECIFICATION OF MARKING DIMENSIONS (Annex 5)

Complies	The minimum length of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.	2.2.1
50 mm. Complies.	The width of a side and/or rear marking material shall be 50 mm +10/-0 mm.	s:
Remarks	Dimensions	1.2.1
		ON 10

7.3 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical

: After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed.

Results/Remarks:

Complies.

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

Annexure III Test Report No. SHL/16/2012-2013/8095/750

7.4 COLOUR TEST

7.4.1 COLOUR TEST OF Retro-reflecting device by CIE standard illuminate Des (Annex 6, CI. No. 2):

səulaV bərussəM		Specified Values (Colour - Yellow)	Co-ordinates
Sample no. 2	Sample no. 1	(MOUD) mount	020 272 0270 0070 0070 0070 0070 0070 0
1764.0		242.0 of 724.0	X Coordinate
0.4372	0854.0	0.423 to 0.534	Y Coordinate
0.30	0.30	81.0 ≤	Luminance factor

7.4.2 Colour Test of Retro-reflecting device by CIE standard illuminate A: (Annex 6, CI. No. 3)

Measured Values Sample no. 1 Sample no. 2		Specified Values (Wollay – Yellow)	Colour Co-ordinates	
		(MONO) mores		
1655.0	6899.0	109.0 of 803.0	X Coordinate	
0.4229	0.4233	0.385 to 0.480	Y Coordinate	

7.5 PHOTOMETRIC SPECIFICATIONS (Annex 7)

7.5.1 Yellow colour

Complies	SeilqmoO	Complies	Complies		Remarks
892.61	155.833	£88.933	513.333	Samples	
£66.81	790.131	284.350	799.029	Sample1	Results
01	94	130	300	(₁ .x ₁ , _z .	Required values R (cd.m.
09	0⊅	30	g	zg	(07) 04
0	0	0	0	18	1/3-(50/)
	qediees	ni (🎗) algna ec	Entrance	700/ 1/2	Observation angle (a)

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TYPE APPROVAL CERTIFICATE No – A 9 4 4 9 5

Annexure III Test Report No. 5HL/16/2012-2013/8095/750

7.6 RESISTANCE TO EXTERNAL AGENTS (Annex 08, Ct. No. 01)

7.6.1 Resistance to weathering:

-,----IIIIIII ,BOT

Test requirements: Visual appearance:

No area of the exposed specimen shall show any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion.

Results/Remarks:

No area of the exposed specimen shows any evidence of cracking, sealing, pitting, be no shrinkage was observed.

Complies.

b. Colour Test of Retro-reflecting device by CIE standard illuminate Des after Resistance to weathering test:

Measured Values	Specified Values (Colour - Yellow)	Colour Co-ordinates
£764.0	0.427 to 0.545	X Coordinate
4784.0	0.423 to 0.534	Y Coordinate
0.30	9L0≤	Luminance factor

Colour Test of Retro-reflecting device by CIE standard illuminate A after Resistance to weathering test:

Neasured Values	Specified Values (Colour - Yellow)	Colour Co-ordinates
0699'0	100.0 of 202.0	X Coordinate
0.4230	084.0 of 386.0	Y Coordinate

f. Photometric specifications after resistance to weathering test:

The coefficient of luminous intensity of the exposed specimen when dry shall be not less than 80 per cent of the initial value

The coefficient of luminous intensity after the test is more than 80 % of the initial value Results/Remarks: Complies.

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

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Test Report No. SHL/16/2012-2013/8095/750

7.6.2 RESISTANCE TO CORROSION (Annex 08, Cl. No. 02)

Visual appearance: Test requirements: .d

a.

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remarks: No sign of corrosion was observed. Complies.

Photometric apecifications after corrosion test:

SeilgmoO		Kemarks		
211.513	300	MC) eX	Kesuits
(cq m. _{s.} x. ₁)	(cq.m.².lx.¹)	9	82	/
Measured values	Required values	0	18	1/3 ₀ (20;)
O CONTROL OF THE RESIDENCE	seangeb ni (8) elgne es	Entranc		Observation angle (a) in degrees

7.6.3 RESISTANCE TO FUELS (Annex 08, Cl. No. 03)

Test requirements:

After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible change which would reduce its effective performance.

Complies.

Results/Remarks: No Visible change was observed.

7.6.4 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks: After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed. Complies.

7.6.5 CLEANING (Annex 08, Cl. No. 05)

Test requirements:

A test sample smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

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Remarks: Complies.

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5 ADDENDUM No - 01 Annexure III

Test Report No. SHL/16/2012-2013/8095/760

7.6.6 RESISTANCE TO PENETRATION OF WATER (Annex 08, CL. No. 07)

Test requirements:

After completion of the test, No water must penetrate to the reflecting surface of the sample unit. If visual inspection clearly reveals the presence of water, the retro-reflective marking shall not be considered to have passed the test.

Results/Remarks: No evidence of deterioration was observed. Complies.

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Page 20 of 20

The Automotive Besearch Association of India



Non-Transferable

TYPE APPROVAL CERTIFICATE (For compliance to AIS ~ 037)

0.8	Vehicle Manufacturers and models for which the component is intended	74-
0.4	Applicable Notified Standard and CMV Rule	060 :SIA
	Identification observed on the component	3M, C - E1- 104 R - 00821
1.8	insule and specification of the component	3M Diamond Grade TM Conspicuity Markings Series 983 Reflective Sheeting in colours – White, Red & Yellow (50 mm width)
3.0	DETAILS OF THE COMPONENT UNDER TY	E APPROVAL:
2.0	Customer letter ref. and Declaration	Letter dated 08.02.2013
	Ranufacturing Plant Address	3M Innovation Singapore Pte Ltd. 2 Tuas Link 4 Singapore 637321
		moo.mmm@lewergeste
	Email Address	+91-80-2862 0167
	Fax No.	+61-80-2852 0203 / 6659 5999
	Confact Person Tel No.	Mr. Ashish Agrawal
	INMOIS LAW TO CONTINUE	3M India Ltd. Plot Nos. 48-51, Electronics City Hosur Road, Bangalore – 560 100
1HS)	TENSION OF TYPE APPROVAL AS PER R AND AND AND AND AND AND AND AND AND AND	EFERENCE STANDARD AIS – 037)
(EX	TENSION OF TYPE APPROVE	Dated: 08.09.2009
	Dated 27.03.2013	96 t t 6 A
	ADDENDUM No - 01	YPE APPROVAL CERTIFICATE NO.









TYPE APPROVAL CERTIFICATE

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10 - ON MUGNEGA

Dated: 08.09.2009

Dated 27.03.2013

(SHL/16/2012-2013/8095/748) (EXTENSION OF TYPE APPROVAL AS PER REFERENCE STANDARD AIS - 037)

Granted / Refused

Based on Extension to Earlier Type Approval

1. Type Approval Certificate A94495 dated 08.09.2009

2. Declaration letter submitted by customer regarding the addition of

enogegni? ni finalg gninutashurem

b. SHL/16/2012-2013/8095/749 for Reflective Sheeting Red (enclosed as Annexure-II) a SHL/16/2012-2013/8095/748 for Reflective Sheeting White (enclosed as Annexure-f) 3. Test reports of samples from new manufacturing plant in Singapore.

4. Letter from KBA dated 22.03.2013 regarding use of "E" mark E1 00821 issued to c. SHL/16/2012-2013/8095/750 for Reflective Sheeting Yellow (enclosed as Annexure-III)

Ms. 3M for USA plant to Ms. 3M for Singapore plant also.

A94495 dated 08.09.2009. This addendum No. 01 dated 27.03.2013 is to be read along with Type Approval Certificate No.

Marking on the sample:

0.7

C - E1-104 R - 00821

Date of Issue: 25 ce 2018

96776Y 10

Place of Issue: PUNE **DEPUTY DIRECTOR, HOD-SHL ДЕРИТҮ БЕМЕКА** МАМАБЕЯ **BEPUTY MANAGER ЯАХІИИАМ .V.А** Mrs. J. M. KIRVE P.V. PARLIKAR 87X7-X AUTHORISED BY: CHECKED BJ: PREPARED BY: First CoP to be established on / before:30.09.2014

This test report perfains only to the components / pads / assemblies / vehicles etc. actually tested at ARAI in the presented condition based on the documents / information produced / submitted by the customer. The issuance of this test report alone does not indicate any settled on the product. We existed abridgement of approval, certification, supervision, control of quality surveillance by ARAI of the product. No existed abridgement or applicable for any insulation reject all or sny of the details of any items of publicity for which consent may be sought ARAI who no way responsible for any statutory provision of today for sny details of any items of publicity for which consent may be sought as in assemblies. Breach of any statutory provision of today details of the publicity for which consent may be sought assemblies. Breach of any statutory provision of today details of the publicity for which consent with entire or damages, made by the putty, whatsoever, the customer shall slone be liable for the customer and undertakes to indemnify ARAI in this regard. Further, the ARAI has the right to initiate carcellation / withdrawal of the certificate issued in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI. The appropriate local courts at Pune similar have the jurisdiction in respect of any dispute, claim or liability arising out of this report. This test report pertains only to the components / parts / assemblies / vehicles etc. actually tested at ARAI in the presented condition Disclaimer:

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Annexure 1 ADDENDUM No - 01 TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

DEPUTY DIRECTOR, HOD-SHL DEPUTY GENERAL MANAGER DEPUTY MANAGER A.V. MANUIKAR Mrs. J. M. KIRVE P.V. PARLIKAR -80× 1 AUTHORISED BY: CHECKED BA: PREPARED BY: Retro Reflective Marking Tape- specified in 3.0 above, meets all the test requirements when tested as per the procedure given in AIS: 90 published on December 2005. CONCENSION: 0.8 Please refer Test Results in Sr. No. 7.0 of this report. TEST RESULTS: 0.8 To carry out all tests as per AIS: 090 as published on December 2005. OBJECTIVE, TEST PROCEDURE & TEST REQUIREMENTS: 0.4 3M ' C - E1- 104 R - 00821 Identification observed on the komponents Retro Reflective Marking Tape Photograph of sample DESCRIPTION OF TEST COMPONENTS 3.0 Letter dated 08.02.2013 CUSTOMER LETTER REF. 2.0 Hosur Road, Bangalore - 560 100 Plot Nos. 48-51, Electronics City CUSTOMER 3M India Ltd. 1.0 | NAME AND ADDRESS OF THE: DATE: 27.03.2013 No. SHL/16/2012-2013/6261/96 TEST REPORT Aldereterable

This test report pertains only to the components / pads / assemblies / vehicles etc. actually tested at ARAI in the presented condition broduced / submitted by the customer. The issuance of this fest report alone does not indicate any measure of approval, certification, supervision, confid of quality surveillance by ARAI of the product. No extract, abritdegment of approval, certification from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who assemblies absolute right to agree or reject all or any of the defails of any items of publicity for which consent of the Director, ARAI, who no way responsible for any misuse of copying of any design / type / system of publicity for which consent may be sought. ARAI, who assemblies, Breach of any statutory provision of Indian laws or laws of other countertion with entire vehicle / components / parts and assemblies. Breach of any statutory provision of Indian laws or laws of other countering with entire vehicle / components / parts and undertakes to indemnity ARAI in this regard. Further, the ARAI has the right to cince the product withdrawal of the certificate as and undertakes to indemnity ARAI in this regard. Further, the ARAI has the right to cincellation / withdrawal of the certificate issued, in case of any fraud, misrepresentation, when it suffices all or in the knowledge of ARAI. The appropriate local courte at Pune in case of any fraud, misrepresentation, when it suffices all or in the knowledge of ARAI. The appropriate local courte at Pune in case of any fraud, misrepresentation, when it authors are connected. Date of Issue: 2-7 months

Disclaimer:

Place of Issue: PUNE

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Annexure I Test Report No. SHL/16/2012-2013/8095/748

7.0 TEST RESULTS:

CA GENERAL SPECIFICATIONS (CI. No. 7.0)

Remarks	Specifications	CI' NO
Complies	Retro-reflective marking materials shall be that way constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any detect in design or manufacture that is defineental to their efficient operation or to their maintenance in good condition.	١.3
Complies	Retro-reflective marking materials or parts thereof shall not be capable of being easily dismantled.	5.8
Complies	The means of attachment of the marking materials shall be durable and stable.	6.3
Complies.	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.	p.8

7.2 SPECIFICATION OF MARKING DIMENSIONS (Annex 5)

Remarks	Specifications	CI No.
50 mm/ Complies	Dimensions The width of a side and/or rear marking material shall be 50 mm +10/-0 mm.	1.2.1
Complies.	The minimum length of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.	1.2.2

7.3 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed.

Results/Remarks:

Complies,

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

Annexure I Annexure I Test Report No. SHL/16/2012-2013/8095/748

7.4 COLOUR TEST

7.4.1 COLOUR TEST OF Retro-reflecting device by CIE standard illuminate Des (Annex 6, Cl. No. 2) :

y Values	Measurec	Specified Values	Colour
Sample no. 2	Sample no. 1	(Colour - White)	Co-ordinates
6706.0	380£.0	286.0 of 035.0	X Coordinate
0.3280	0.3286	0.270 to 0.395	Y Coordinate
64.0	64.0	≥ 0.25	Luminance factor

7.4.2 Colour Test of Retro-reflecting device by CIE standard illuminate A: (Annex 6, Cl. No. 3)

sənjeA	Measured	Specified Values	Colour
Sample no. 2	Sample no. 1	(Cotour – White)	Co-ordinates
6344.0	8744,0	843.0 of ETE.0	X Coordinate
0.4054	0.4056	£13.0 of 985.0	Y Coordinate

7.6 PHOTOMETRIC SPECIFICATIONS (Annex 7)

White colour

1.6.7

Kemarks		Complies	Complies	Compiles	Complies
Results	Sample2	000.288	EEE.OTE	£85.00Z	26.125
əllisəQ	Sample1	682,000	368.500	£80.7er	26.583
Required values R (cd.)	(, x ₁ _z , w	094	200	06	91
1/3 _a (SO ₁)	SS	g	30	04	09
110070071	ાઇ	0	0	0	0
Observation angle (a) n degrees		entan3	ni (8) əlgns ə:	qeðices	

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TYPE APPROVAL CERTIFICATE No – A 9 4 4 9 5 ADDENDUM No – 01 Annexure I

Test Report No. 5HL/16/2012-2013/8095/748

7.6 RESISTANCE TO EXTERNAL AGENTS (Annex 08, Cl. No. 01)

7.6.1 Resistance to weathering:

Test requirements: a. Visual appearance:

No srea of the exposed specimen shall show any evidence of cracking, sealing, pitting, bilstering, delamination, distortion, chalking, staining or corrosion.

Results/Remarks:

No area of the exposed specimen shows any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion after testing. There shall be no shrinkage was observed.

Complies.

b. Colour Test of Retro-reflecting device by CIE standard illuminate Des after Resistance to weathering test:

Measured Values	Specified Values (Colour - White)	Colour Co-ordinates
Z805.0	0.260 to 0.385	X Coordinate
8728 0	0.270 to 0.395	Y Coordinate
84.0	50.0 s	Luminance factor

c. Colour Test of Retro-reflecting device by CIE standard illuminate A after Resistance to weathering test:

	£18.0 of 885.0	Y Coordinate
99440	848.0 of 676.0	X Coordinate
Measured Values	Specified Values (Colour - White)	Colour Co-ordinates

d. Photometric specifications after resistance to weathering test:

The coefficient of luminous intensity of the exposed specimen when dry shall be not less than 80 per cent of the initial value

The coefficient of luminous intensity after the test is more than 80 % of the initial value Resutts/Remarks: Compiles.

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Annexure I ADDENDUM No - 01 TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5

Test Report No. SHL/16/2012-2013/8095/748

RESISTANCE TO CORROSION (Annex 08, Cl. No. 02) 2.8.7

Visual appearance: 3'

.d

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device. Test requirements:

Complies. Results/Remarks: No sign of corrosion was observed.

Photometric specifications after corrosion test:

Complies Remarks 609 292 095 VVhite Results (cd.m.².lx.¹) (cd.m.² lx") 9 28 Measured values Rednired values 1/3%(20%) 19 seergee ni (a) Entrance angle ($oldsymbol{eta}$) in degrees Observation angle

RESISTANCE TO FUELS (Annex 08, Cl. No. 03) £.6.7

Test requirements:

change which would reduce its effective performance. After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible

Compiles.

Results/Remarks: No Visible change was observed.

RESISTANCE TO HEAT (Annex 08, Cl. No. 04) 4.9.7

Test Requirements:

units, shall be evident. After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical

particularly of the optical units was observed. Complies. Results/Remarks: After this test, no cracking or appreciable distortion of the surfaces,

CLEANING (Annex 08, CL No. 05)

Test requirements:

with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped A test sample smeared with a mixture of detergent lubricating oil and graphite shall be

Ballaty all.

Remarks: Complies.

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5 ADDENDUM No - 01 Annexure I

Annexure | Annexure | Test Report No. SHL/16/2012-2013/8095/748

7.6.6 RESISTANCE TO PENETRATION OF WATER (Annex 08, Cl. No. 07)

Test requirements:

After completion of the test, No water must penetrate to the reflecting surface of the sample unit. If visual inspection clearly reveals the presence of water, the retro-reflective marking shall not be considered to have passed the test.

Results/Remarks: No evidence of deterioration was observed. Complies.

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5 ADDENDUM No - 01 Annexure II

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TYPE APPROVAL CERTIFICATE No - A 9 4 4 9 5 ADDENDUM No - 01 Annexure II Test Report No. SHL/16/2012-2013/8095/749

7.0 TEST RESULTS:

7.1 GENERAL SPECIFICATIONS (CL. No. 7.0)

Remarks	Specifications	.oN .IC		
Complies	Retro-reflective marking materials shall be that way constructed that they function satisfactorily and will continue to do so in normal use. In addition, they shall not have any defect in design or manufacture that is detrimental to their efficient operation or to their maintenance in good condition.	l:9		
.complies.	Retro-reflective marking materials or parts thereof shall not be capable of being easily dismantled.	2.8		
SeilqmoO	The means of attachment of the marking materials shall be durable and stable.	£.3		
Complies,	The outer surface of the retro-reflective marking materials shall be easy to be cleaned. The surface shall therefore not be rough and any protuberances they may exhibit shall not prevent easy cleaning.			

7.2 SPECIFICATION OF MARKING DIMENSIONS (Annex 5)

Complies.	The minimum length of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.	1,2.2
Complies Sommilies		
Кетагка	Dimensions	1,2,1
	Specifications	CI. No.

7.3 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks: After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed.

Complies.

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Annexure II Test Report No. SHL/16/2012-2013/8095/749

7.4 COLOUR TEST

7.4.1 COLOUR TEST OF Retro-reflecting device by CIE standard illuminate D_{65} (Annex 6, Cl. No. 2) :

Colour Co-ordinates	Specified Values (Colour - Red)	Measure	d Values
	(Goldar - Rea)	Sample no. 1	Sample no. 2
X Coordinate	0.560 to 0.690	0.6416	0.6483
Y Coordinate	0.310 to 0.350	0.3250	0.0463
Luminance factor	≥ 0.03	0.076	0.3285

7.4.2 Colour Test of Retro-reflecting device by CIE standard illuminate A: (Annex 6, Cl. No. 3)

Colour Co-ordinates	Specified Values (Colour – Red)	Measured Values		
	(colour - Reu)	Sample no. 1	Sample no. 2	
X Coordinate	0.643 to 0.735	0.6661	0.6671	
Y Coordinate	0.258 to 0.335	0.3281	0.3293	

7.5 PHOTOMETRIC SPECIFICATIONS (Annex 7)

7.5.1 Red colour

Observation angle (α) in degrees	Entrance angle (β) in degrees				
1/20/2015	β1	0	0	0	0
1/3°(20')	β2	5	20	30	40
Required values R (cd.n	1 ⁻² .lx ⁻¹)	120	60	30	10
Results	Sample1	195.800	137.500	100.650	56.650
roduito	Sample2	195.617	136.950	102,483	58.300
Remarks	<i>h</i>	Complies	Complies	Complies	Complies

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Annexure II Test Report No. SHL/16/2012-2013/8095/749

7.6 RESISTANCE TO EXTERNAL AGENTS (Annex 08, Cl. No. 01)

7.6.1 Resistance to weathering:

Test requirements:

b. Visual appearance:

No area of the exposed specimen shall show any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corresion.

Results/Remarks:

No area of the exposed specimen shows any evidence of cracking, sealing, pitting, blistering, delamination, distortion, chalking, staining or corrosion after testing. There shall be no shrinkage was observed.

Complies.

b. Colour Test of Retro-reflecting device by CIE standard illuminate D₆₅ after Resistance to weathering test:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values
X Coordinate	0.560 to 0.690	0.6459
Y Coordinate	0.310 to 0.350	0.3311
Luminance factor	≥ 0.03	0.044

c. Colour Test of Retro-reflecting device by CIE standard illuminate A after Resistance to weathering test:

Colour Co-ordinates	Specified Values (Colour - Red)	Measured Values
X Coordinate	0.643 to 0.735	0.6652
Y Coordinate	0.258 to 0.335	0.3311

e. Photometric specifications after resistance to weathering test:

The coefficient of luminous intensity of the exposed specimen when dry shall be not less than 80 per cent of the initial value

The coefficient of luminous intensity after the test is more than 80 % of the initial value Results/Remarks: Complies.

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Annexure II Test Report No. SHL/16/2012-2013/8095/749

7.6.2 RESISTANCE TO CORROSION (Annex 08, Cl. No. 02)

Visual appearance:

Test requirements:

Immediately after completion of the test, the sample shall show no sign of corrosion liable to impair the efficiency of the device.

Results/Remarks: No sign of corrosion was observed.

Complies.

b. Photometric specifications after corrosion test:

Observation angle (α) in degrees	Entrance angle (β) in degrees			
1/3°(20')	β1	0	Required values	Measured values
1/3 (20)	β2	5	(cd.m ⁻² .lx ⁻¹)	(cd.m ⁻² .lx ⁻¹)
Results	Red		120	185.511
Re	emarks		Com	plies

7.6.3 RESISTANCE TO FUELS (Annex 08, Cl. No. 03)

Test requirements:

After removal, the surface shall be wiped dry with a soft cloth and shall not show any visible change which would reduce its effective performance.

Results/Remarks: No Visible change was observed.

Complies.

7.6.4 RESISTANCE TO HEAT (Annex 08, Cl. No. 04)

Test Requirements:

After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units, shall be evident.

Results/Remarks: After this test, no cracking or appreciable distortion of the surfaces, particularly of the optical units was observed. Complies.

7.6.5 CLEANING (Annex 08, Cl. No. 05)

Test requirements:

A test sample smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro reflective or fluorescent surfaces when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

Remarks: Complies.

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Annexure II Test Report No. SHL/16/2012-2013/8095/749

7.6.6 RESISTANCE TO PENETRATION OF WATER (Annex 08, Cl. No. 07)

Test requirements:

After completion of the test, No water must penetrate to the reflecting surface of the sample unit. If visual inspection clearly reveals the presence of water, the retro-reflective marking shall not be considered to have passed the test.

Results/Remarks: No evidence of deterioration was observed. Complies.

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