Technical Data Sheet

BRADY L-2588-26B UHF LAB LABEL

TDS No. L-2588-26B
Effective Date: 26/02/2021

Description:
UHF RFID Label for use on general laboratory identification on conical, bottles, large tubes and well plate.

Details:

Material Specifications:

Face Material	B-7425 - Polypropylene
Adhesive	Permanent adhesive
Finishing	Matte
Antenna	Aluminium
IC to antenna construction	Chip bonded to antenna using Anisotropic Conductive Film adhesive
Tag base material	PET

General Specifications:

Applications	Pharmaceutical and healthcare. The RFID label is designed for used on conical, bottles, large tubes and well plate in the laboratory environment.
Print Technology	Thermal transfer print, including RFID encoding.
Recommended Ribbon	Brady Series R6400
Operating Temperature	-40 °C to 85 °C
Regulatory/Agency Approvals	For information on the Weee-RoHS compliance status for a Brady Product go to one of the following websites: In Canada: www.bradycanada.ca/weee-rohs In Europe: www.bradyeurope.com/rohs In Japan: www.brady.co.jp/products/labelsuse/rohs All other regions: www.bradyid.com/weee-rohs

Electronic Specifications:

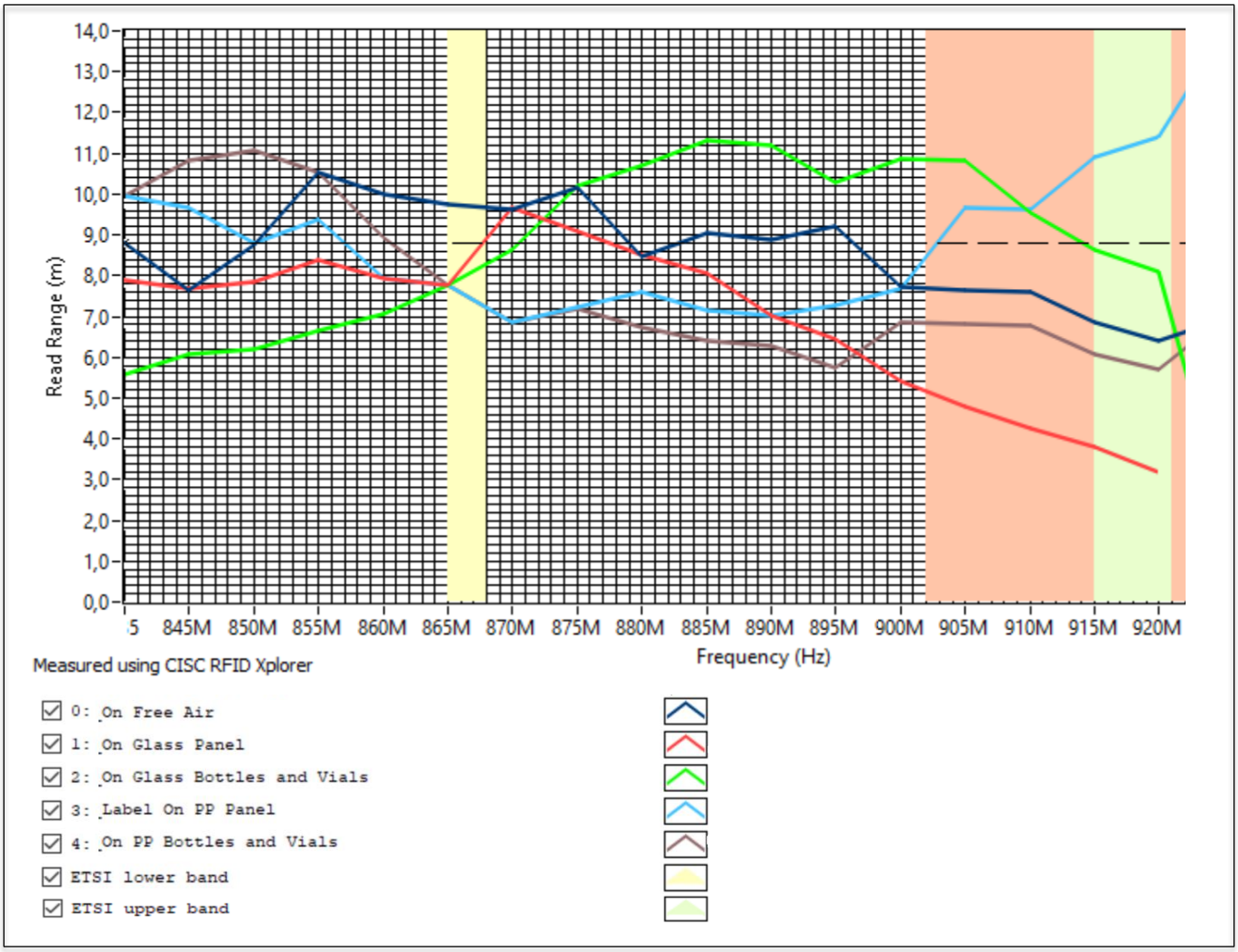
IC / Chip	NXP UCODE 8
Operating Frequency	860 - 960 MHz (ETSI band)
Supported Standard	ISO 18000-6C, EPC Class 1, Gen 2
EPC Memory	128 bits

Read Range

Details RFID performance in ETSI lower bandwidth:

PERFORMANCE PROPERTIES	TEST METHOD	TYPICAL RESULTS
RFID Read range on free air	CISC Tagformance test	up to 10m
RFID Read range on glass panel	CISC Tagformance test	up to 8m
RFID Read range on glass bottles and vials	CISC Tagformance test	up to 8m
RFID Read range on PP panel	CISC Tagformance test	up to 7m
RFID Read range on PP bottles and vials	CISC Tagformance test	up to 7m

Notes: There can be some variation in the read ranges in the presence of liquid. It is recommended to place the label on the area of a product with least interference with liquid. It remains the responsibility of the user to assess the risk of using this product. We encourage customers to develop testing protocols that will qualify a product's fitness for use in their actual application.



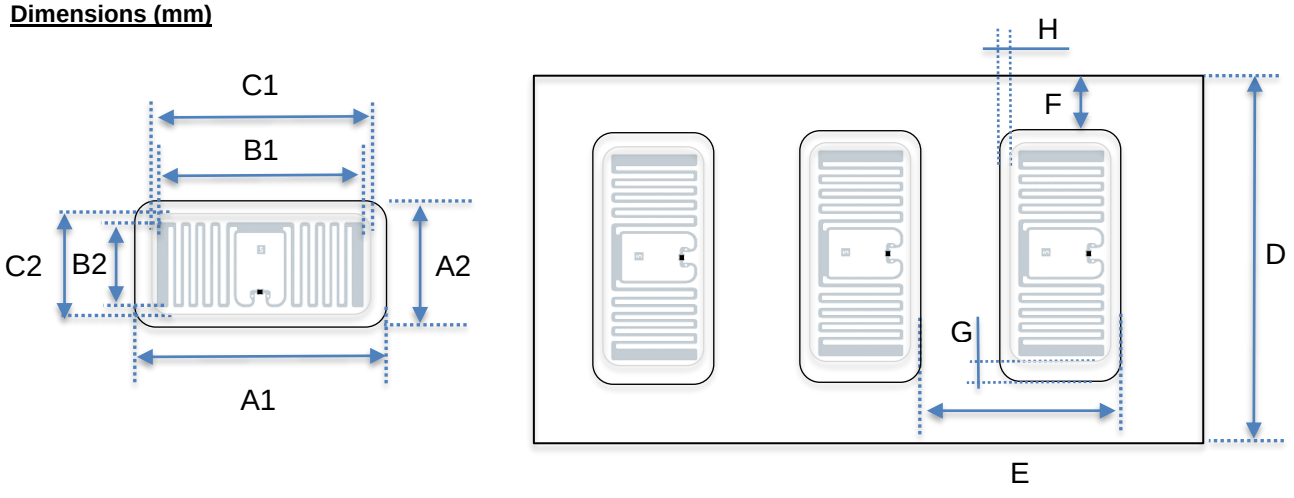
Label Dimensions:

Metric (mm)		
Width	**Length**	**Thickness** Total (with chip)
53.00	26.00	0.26

Label Mass (including antenna and chip)

Label Mass (g)
0.195

Dimensions (mm)



		Length (mm)	Tolerance (mm)
A1	Tag Width	53.00	+/- 0.2
A2	Tag Length	26.00	+/- 0.2
B1	Antenna Width	42.00	+/- 0.5
B2	Antenna Length	16.00	+/- 0.5
C1	Die-Cut Width	45.00	+/- 0.2
C2	Die-Cut Length	18.00	+/- 0.2
D	Web Width	58.00	+/- 0.3
E	Tag to Tag Pitch	28.56	+/- 1.5
F	Web edge to label	2.50	+/- 0.3
G	Die-Cut to side label	4.00	+/- 1.5
H	Die-Cut to top label	4.00	+/- 1.5

Delivery and Packaging Specifications

RFID labels per roll	500
Rolls in package	1
Winding	RFID labels out
Inspection and delivered tags	100% inspected, 500 good RFID labels per roll
Bad Tags Marked	Yes

Label Performance

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Total (excluding liner)	0.01 inch (0.26 mm)
Adhesion to: -Glass -Polypropylene	ASTM D 1000 20 minute dwell 24 hour dwell 20 minute dwell 24 hour dwell	 45 N/100mm (41 oz/inch) 46 N/100mm (42 oz/inch) 42 N/100mm (39 oz/inch) 44 N/100mm (40 oz/inch)

ENVIRONMENTAL PERFORMANCE PROPERTIES		LABEL APPLIED TO ROOM TEMPERATURE SURFACE		
Samples were printed with the Brady Series R6400 thermal transfer ribbons. Samples were adhered at room temperature to the surfaces listed below.				
ENVIRONMENT	**TEST METHODS**	**EFFECT TO LABEL ADHESION**	**EFFECT TO PRINT IMAGE**	**EFFECT TO CHIP**
High Service Temperature	5 days at 70°C (158°F)	✔Glass test tube (10 mm Ø) DURAN® ✔Glass test tube (16 mm Ø) AR® ✔4,5 ml PP cryovial ✔Glass panel ✔PP panel ✔20 ml glass vial (wheathon)	No visible effect	Readable
Low Service Temperature	5 days at -80°C (-112°F)	✔Glass test tube (10 mm Ø) DURAN® ✔Glass test tube (16 mm Ø) AR® ✔4,5 ml PP cryovial ✔Glass panel ✔PP panel ✔20 ml glass vial (wheathon)	No visible effect	Readable
Simulated Incubator	3 cycles of 1 hour at 70°C (158°F) and 3 hours at room temperature	✔Glass test tube (10 mm Ø) DURAN® ✔Glass test tube (16 mm Ø) AR® ✔4,5 ml PP cryovial ✔Glass panel ✔PP panel ✔20 ml glass vial (wheathon)	No visible effect	Readable
Autoclave	5 cycles at 120°C (248°F) for 20 minutes	◆Glass test tube (10 mm Ø) DURAN® ◆Glass test tube (16 mm Ø) AR® ◆ 4,5 ml PP cryovial ✔Glass panel	No visible effect	Readable

		✓ 20 ml glass vial (wheathon)		
Freezer	5 cycles of 16 hours of 16 hours at -80°C (-112°F) and 8 hours at room temperature	✓ Glass test tube (10 mm Ø) DURAN® ✓ Glass test tube (16 mm Ø) AR® ✓ 4,5 ml PP cryovial ✓ Glass panel ✓ Well plate ✓ PP panel ✓ 20 ml glass vial (wheathon)	No visible effect	Readable
Liquid Nitrogen	5 cycles of 4 hours at -196°C (-320°F) and 20 hours at room temperature	✗ Glass test tube (10 mm Ø) DURAN® ✗ Glass test tube (16 mm Ø) AR® ◆ 4,5 ml PP cryovial ◆ Glass panel ◆ 20 ml glass vial (wheathon)	No visible effect	Readable
Freezer to Boiling Water	1 hour at -80°C (-112°F) then placed in boiling water (100°C/212°F) for 10 minutes	✗ Glass test tube (10 mm Ø) DURAN® ◆ Glass test tube (16 mm Ø) AR® ◆ 4,5 ml PP cryovial ✓ Glass panel ✓ 50ml PP tube (Falcon)	No visible effect	Readable
Liquid Nitrogen to Boiling Water	1 hour at -196°C (-320°F) then placed in boiling water (100°C/212°F) for 10 minutes	✗ Glass test tube (10 mm Ø) DURAN® ✗ Glass test tube (16 mm Ø) AR® ✗ 4,5 ml PP cryovial ✗ Glass panel	No visible effect	Readable

Note (for liquid nitrogen application): Label is recommended to apply on flat surface or curvature surface with a minimum bending diameter of 16mm. Smaller diameters are recommended to be tested in final application.

✓ = Label suitable for application; no visible effect, label remains adhered to test surface

◆ = Label may work in application; test results were mixed

✗ = Label does not work in the application

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE			
The chemical resistance of samples printed with the Brady Series R6400 black ribbons was tested at room temperature. The samples were immersed in the test solvent for 15 minutes. The samples were removed and rubbed 10 times with a cotton swab saturated with the test fluid. The samples were rated for the amount of print removal using the rating scale below.				
CHEMICAL REAGENT	**EFFECT TO PRINT/TOPCOAT WITHOUT RUB**	**EFFECT TO PRINT/TOPCOAT WITH RUB**	**EFFECT TO ADHESIVE**	**EFFECT TO CHIPS**
Ethanol	1	1	1	Readable
Toluene	1	1	1	Readable
Isopropyl Alcohol	1	1	edges come off slightly	Readable
Acetone	1	1	1	Readable
Xylene	1	1	1	Readable
Hydrochloric Acid 37%	1	5	1	Readable
Sodium Hydroxide 10%	1	1	1	Readable

Rating Scale
1 = no visible effect
2 = slight smear or print removal, detectable but minimal smear
3 = moderate smear or print removal (print still legible)
4 = severe smear or print removal (print illegible or just barely legible)
5 = complete print and/or topcoat removal
NP= print removed prior to rub

Shelf Life:
Shelf life is two years from the date of receipt for this product as long as this product is stored in its original packaging in an environment below 80° F (27° C) and 60% RH. It remains the responsibility of the user to assess the risk of using this product. We encourage customers to develop testing protocols that will qualify a product's fitness for use in their actual application.

Trademarks:
ANSI: American National Standards Institute (U.S.A.)
ASTM: American Society for Testing and Materials (U.S.A.)
All S.I. Units (metric) are mathematically derived from the U.S. Conventional Units.

Note: All values shown are averages and should not be used for specification purposes.
Test data and test results contained in this document are for general information only and shall not be relied upon by Brady customers for designs and specifications, or be relied on as meeting specified performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact Brady for further information.

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