Technical Data Sheet

BRADY L-2588-53B UHF RFID LABEL

TDS No. L-2588-53B
Effective Date: 25/02/2025

Description:
UHF RFID Label for general application is suitable for use outdoor and indoor, UV exposed environment, and good read range. The small form factor label is designed with a high strength acrylic adhesive that provides a very high bond strength to most surfaces, and is printable almost anywhere with a Brady portable label printer.

Details:

Material Specifications:

Face Material	B-8423 - White Polyester
Adhesive	Permanent acrylic adhesive
Finishing	Satin
Antenna	Aluminium
IC to antenna construction	Chip bonded to antenna using Anisotropic Conductive Film adhesive
Tag base material	PET

General Specifications:

Applications	UHF RFID Label is ideal for inventory management and for general applications such as retail, industry, logistics, supply chain and others. The antenna is designed for application on non-metal surfaces.
Print Technology	Thermal transfer print, including RFID encoding.
Recommended Ribbon	Brady Series R6200
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

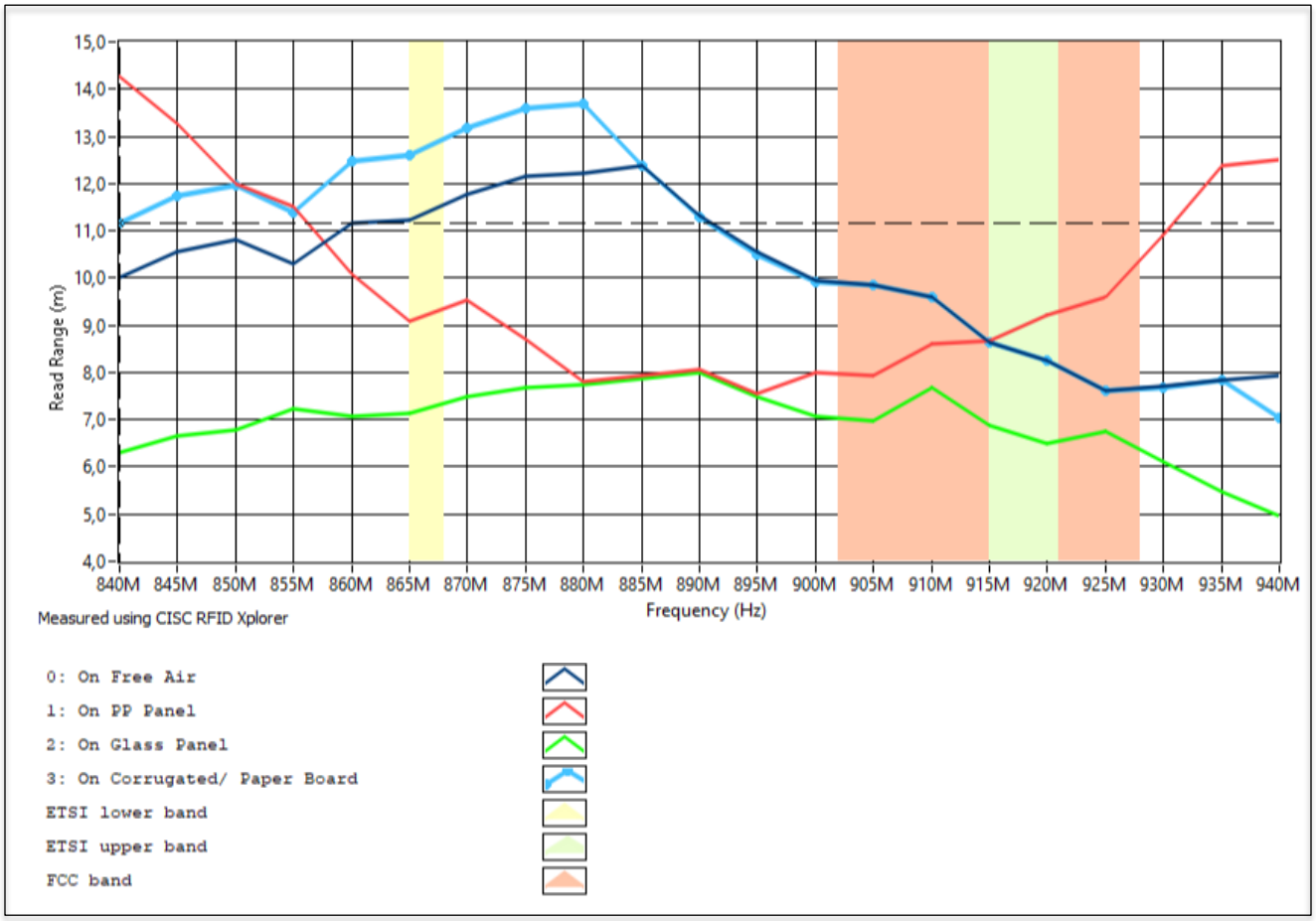
Electronic Specifications:

IC / Chip	Impinj M730
Operating Frequency	860 - 960 MHz
Supported Standard	EPC Class 1 Gen 2 ISO 18000-6C
EPC Memory	128 bits

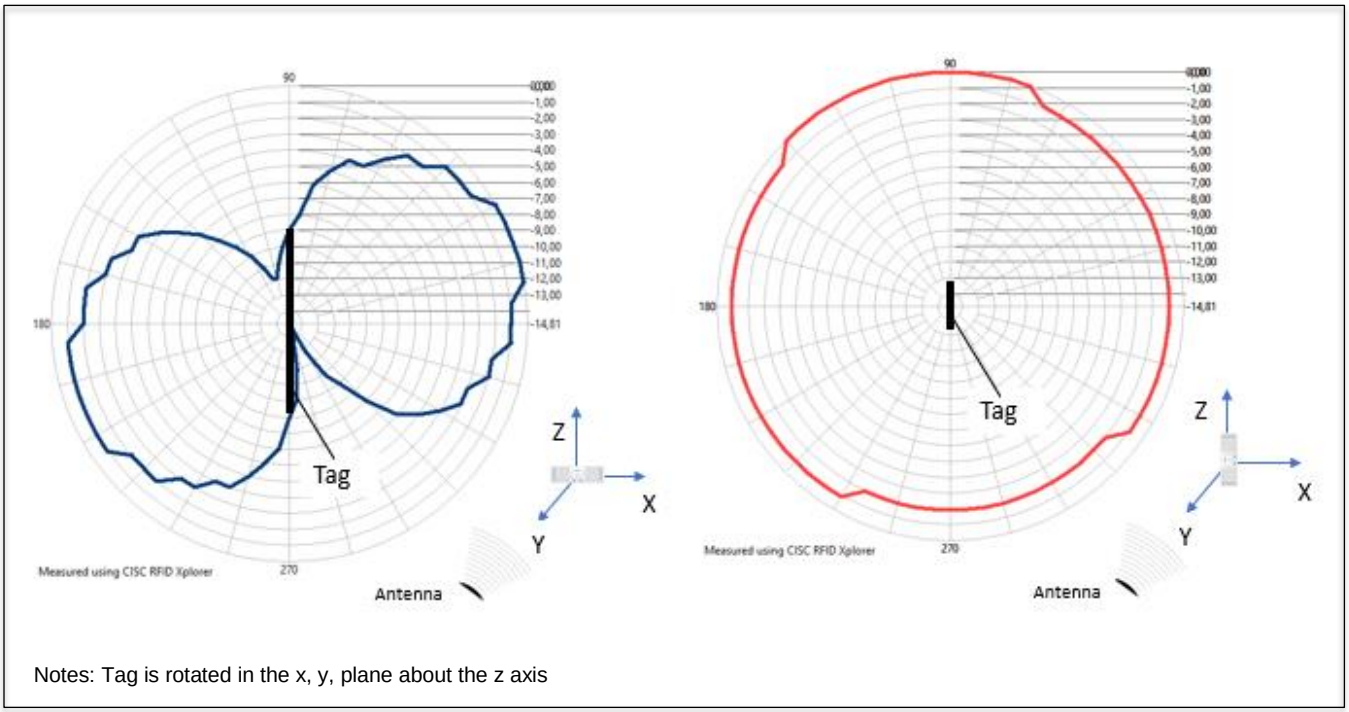
Read Range:

Details RFID performance in ETSI lower bandwidth:

PERFORMANCE PROPERTIES	REGULATION	TYPICAL RESULTS
RFID Read range on free air	ETSI	up to 11.0m
RFID Read range on PP panel	ETSI	up to 9.0m
RFID Read range on glass panel	ETSI	up to 7.0m
RFID Read range on corrugated/ paper board	ETSI	up to 12.5m



Radiation Patterns:



Notes: Tag is rotated in the x, y, plane about the z axis

All graphs are indicative: performance in real life applications may vary.

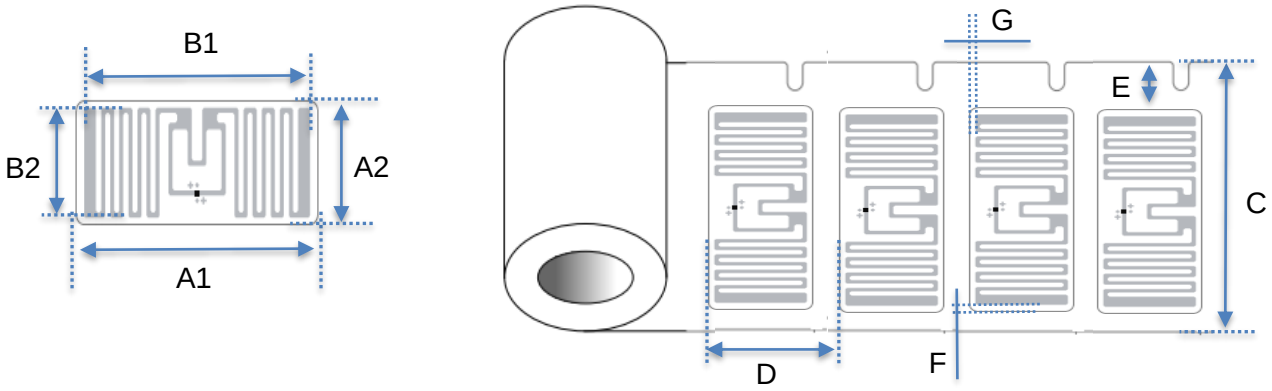
Label Dimensions:

Metric (mm)		
Width	**Length**	**Thickness** Total (with chip)
45.00	18.00	0.25

Label Mass (including antenna and chip)

Label Mass (g)
0.236

Dimensions (mm)



		Length (mm)	Tolerance (mm)
A1	Tag Width	45.00	+/- 0.2
A2	Tag Length	18.00	+/- 0.2
B1	Antenna Width	42.00	+/- 0.5
B2	Antenna Length	16.00	+/- 0.5
C	Web Width	57.15	+/- 0.5
D	Tag to Tag Pitch	22.23	+/- 1.5
E	Web edge to label	6.00	+/- 1.5
F	Antenna to side label	1.50	+/- 1.5
G	Antenna to top label	1.00	+/- 1.5

Delivery and Packaging Specifications

RFID labels per roll	100
Core size	25 mm
Rolls in package	1
Winding	RFID labels out
Inspection and delivered tags	100% inspected, 100 good RFID labels per roll

Label Performance

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Total (excluding liner)	 0.0098 inch (0.25 mm)
Adhesion to: -Glass -Polypropylene	ASTM D 1000 20 minute dwell 24 hour dwell 20 minute dwell 24 hour dwell	 122 N/100mm (112 oz/inch) 139 N/100mm (127 oz/inch) 141 N/100mm (129 oz/inch) 155 N/100mm (142 oz/inch)

Performance properties tested on samples printed with the Brady Series R6200 ribbons. Printed samples were laminated to glass plate and allowed to dwell 24 hours before exposure to the indicated environments.

PERFORMANCE PROPERTIES		ENVIRONMENTAL RESISTANCE		
PERFORMANCE PROPERTIES	**TEST METHODS**	**EFFECT TO LABEL ADHESION**	**EFFECT TO PRINT IMAGE**	**EFFECT TO CHIP**
High Service Temperature	30 days at temperatures 120°C	No visible effect	No visible effect	Readable
Low Service Temperature	30 days at temperatures -40°C and -80°C	No visible effect	No visible effect	Readable
Humidity Resistance	30 days at 37°C, 95% relative humidity	No visible effect	No visible effect	Readable
UV Light Resistance	30 days in Xenon Test Chamber	No visible effect	No visible effect	Readable
Weatherability	ASTM G155, Cycle 1 30 days in QUV accelerated weathering tester	No visible effect	No visible effect	Readable
Abrasion Resistance	Taber Abraser, CS10 grinding wheels, 250 g/arm (Fed. Std. 191A, Method 5306),	No visible effect	Print still legible after 100 cycles	No effect to chip. Chip still readable after 50 cycles

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE			
Samples were printed with the Brady Series R6000 Halogen Free. Samples were laminated to glass panels and allowed to dwell 24 hours prior to testing. Testing was conducted at room temperature and consisted of 30 minutes immersions in the specified test fluid. After immersion, the samples were removed from the test fluid and the printed image rubbed 10 times with a cotton swab saturated with the test fluid. The rating scale below shows the effect to the quality of the print for each sample.				
CHEMICAL REAGENT	**EFFECT TO PRINT/TOPCOAT WITHOUT RUB**	**EFFECT TO PRINT/TOPCOAT WITH RUB**	**EFFECT TO ADHESIVE**	**EFFECT TO CHIP**
Ethanol 96%	1	1	1	Readable
Toluene	1	5	1	Readable
Isopropyl Alcohol	1	1	1	Readable
DOT 4 Brake Fluid	1	5	1	Readable
Skydrol® 500B-4	1	5	1	Readable
Hydrochloric Acid 37%	1	1	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.

References:
Skydrol® is a registered trademark of the Monsanto Company
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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