

BRADY L-2588-35A UHF RFID LED LABEL

TDS No. L-2588-35A

Effective Date: 07/02/2023

Description:

UHF RFID LED Label for general application is designed with the intention to locate a tagged item or a group of items from the field by means of LED light. The label is suitable for use outdoor and indoor, good read ranges, and UV exposed environment.

Details:

Material Specifications:

Face Material	B-430 - Polyester
Adhesive	Permanent modified acrylic adhesive
Finishing	Glossy White
Antenna	Aluminium
IC to antenna construction	Chip bonded to antenna using Anisotropic Conductive Film adhesive
Tag base material	PET

General Specifications:

Applications	UHF RFID LED Label for general applications such as retail, industry, 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 R6000 Halogen Free
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.bradycanada.ca/weee-rohs All other regions: www.bradycanada.ca/weee-rohs

Electronic Specifications:

IC / Chip	Kiloway KX2005XBL
Operating Frequency	Global 860 - 960 MHz (ETSI band)
Supported Standard	ISO/IEC 18000-6C, EPC Class 1 Gen 2v2
EPC Memory	160 bits
User Memory	1312 bits
LED Color	Green

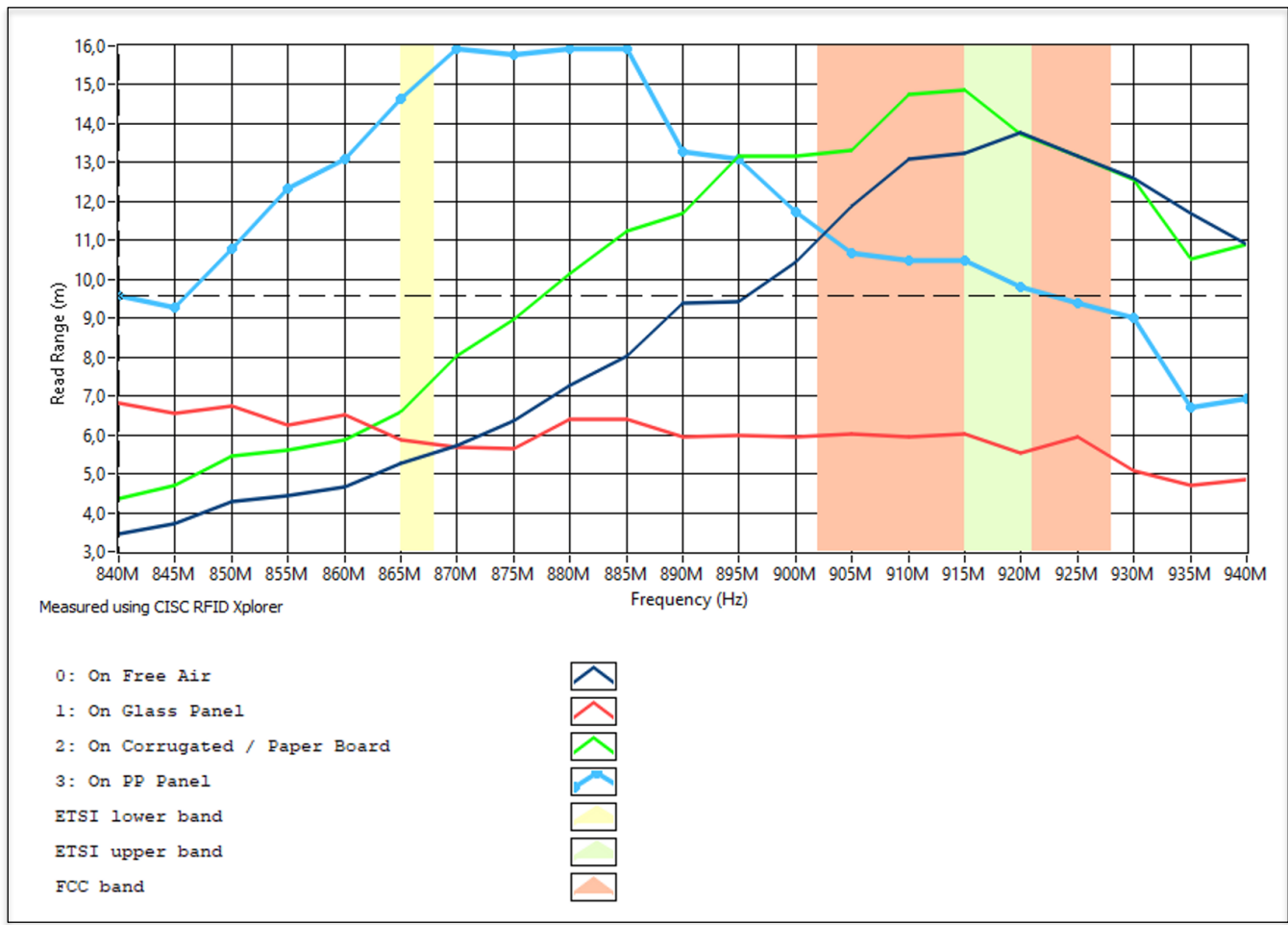
Notes: The chip uses XLPM (Super Permanent Memory with Low power consumption) as the memory, which is physically non-erasable and tamper-proof. The EPC memory is non-rewritable and locked after certain attempts to change the EPC code, which is used mainly for security purposes.

Read Range:

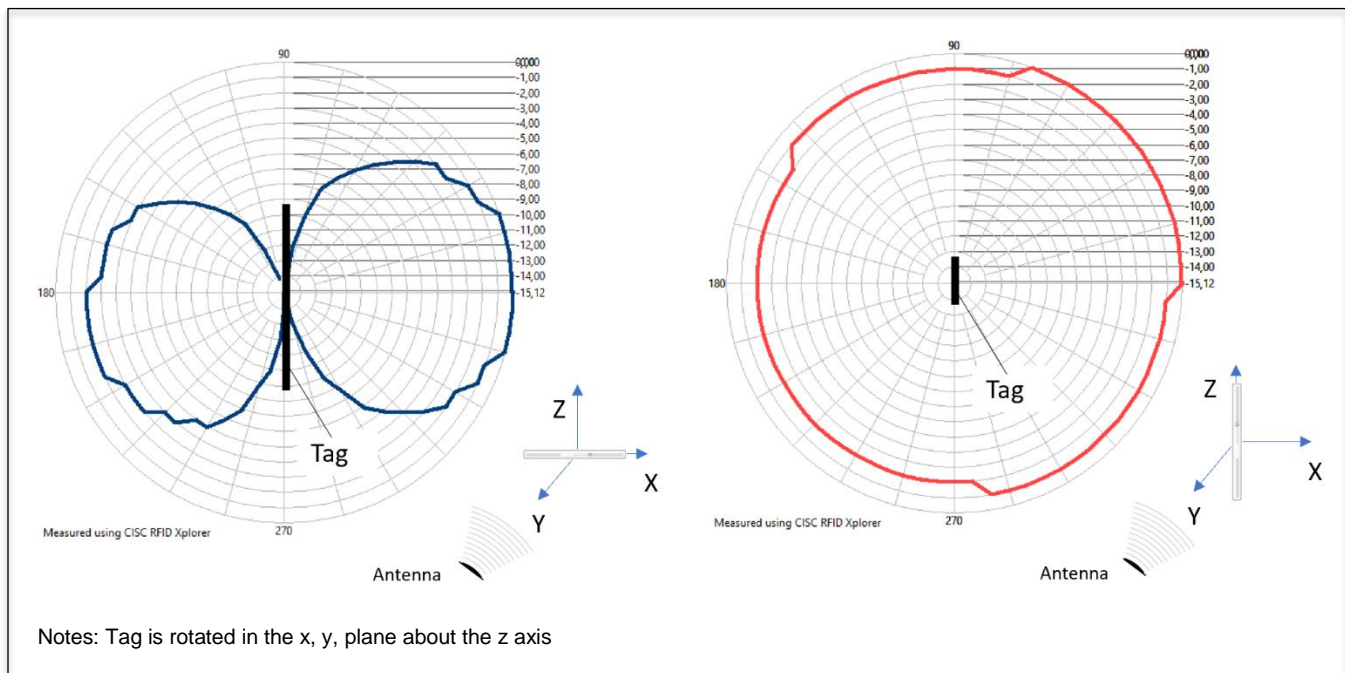
Details RFID performance in ETSI lower bandwidth:

PERFORMANCE PROPERTIES	REGULATION	TYPICAL RESULTS
RFID Read range on free air	ETSI	up to 5.5m
RFID Read range on glass panel	ETSI	up to 6.0m
RFID Read range on corrugated/ paper board	ETSI	up to 7.5m
RFID Read range on PP panel	ETSI	up to 15.5m

When using a handheld reader with a power of 2W, the lighting distance of the LED lamp is 2.5 m and the reading distance of the tag is 5 m, tested on free air.



Radiation Patterns:



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

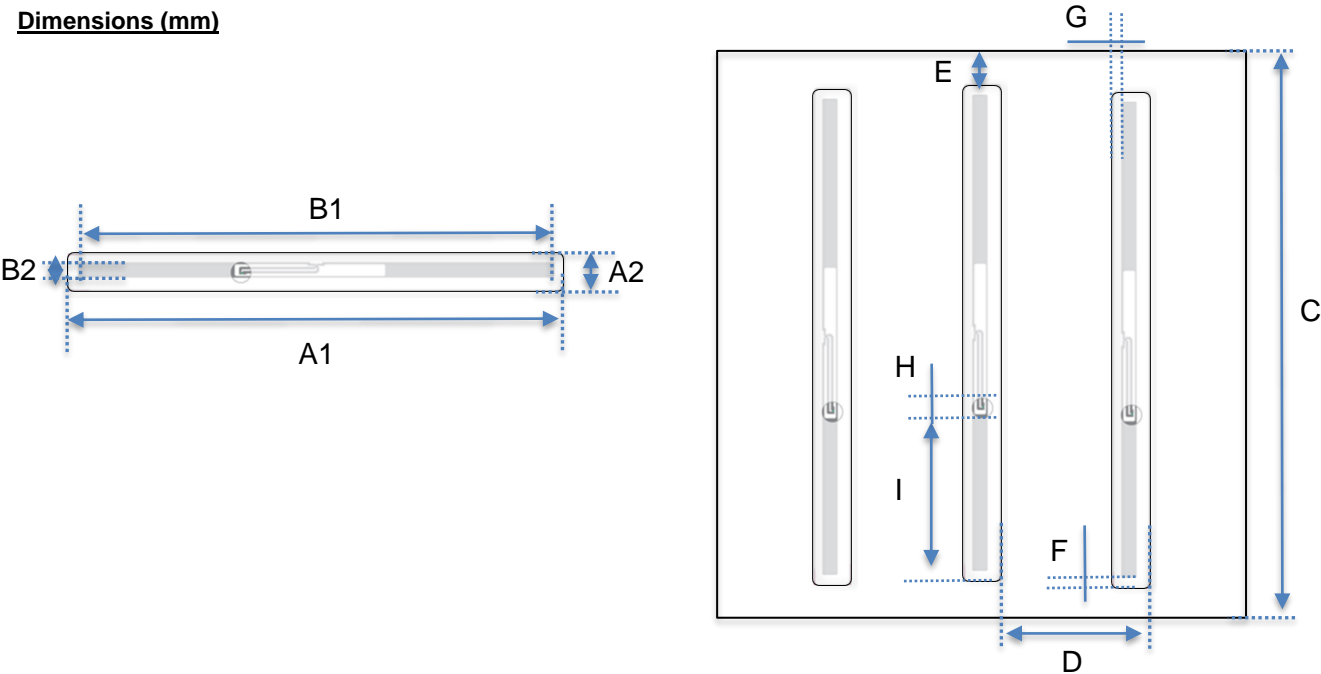
Label Dimensions:

Metric (mm)		
Width	Length	Thickness Total (with chip)
99.00	7.00	0.36

Label Mass (including antenna and chip)

Label Mass (g)
0.25

Dimensions (mm)



		Length (mm)	Tolerance (mm)
A1	Tag Width	99.00	+/- 0.2
A2	Tag Length	7.00	+/- 0.2
B1	Antenna Width	95.00	+/- 0.5
B2	Antenna Length	3.00	+/- 0.5
C	Web Width	104.00	+/- 0.5
D	Tag to Tag Pitch	20.52	+/- 1.5
E	Web edge to label	2.50	+/- 1.5
F	Antenna to side label	2.00	+/- 1.5
G	Antenna to top label	2.00	+/- 1.5
H	LED Hole Cut-Out Diameter	4.00	+/- 0.2
I	LED Hole Cut-Out to side label	32.50	+/- 0.2

Delivery and Packaging Specifications

RFID labels per roll	100
Rolls in package	1
Winding	RFID labels out
Inspection and delivered tags	100% inspected, 100 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)	0.0142 inch (0.36 mm)
Adhesion to: -Glass	ASTM D 1000 20 minute dwell 24 hour dwell	68 N/100mm (62 oz/inch) 90 N/100mm (82 oz/inch)
-Polypropylene	20 minute dwell 24 hour dwell	92 N/100mm (84 oz/inch) 88 N/100mm (81 oz/inch)

Performance properties tested on samples printed with the Brady Series R6000 Halogen Free 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 85°C, 100°C, and 120°C	No visible effect	No visible effect at 85°C and 100°C, moderate yellowing at 120°C	Readable
Low Service Temperature	30 days at temperatures -40°C and -80°C	No visible effect	No visible effect	Readable
Short Term High Service Temperature	5 minutes at 180°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	Slight yellowing	Readable
Abrasion Resistance	Taber Abraser, CS10 grinding wheels, 250 g/arm (Fed. Std. 191A, Method 5306), 150 cycles	No visible effect	Print still legible after 150 cycles	No effect to chip. Chip still readable after 150 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	1	1	1	Readable
Toluene	1	5	1	Readable
Isopropyl Alcohol	1	1	1	Readable
DOT 4 Brake Fluid	1	3	1	Readable
Skydrol® 500B-4	1	2	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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