



Zebra Enterprise Solutions

CONCEPT2
SOLUTION

Sapphire Tags



DATASHEET

Ultra-Wideband Active Tags

Sapphire UWB Active Tags, developed by Multispectral Solutions (MSSI), part of Zebra Enterprise Solutions (ZES), are transmit-only indoor devices that communicate with *Sapphire* DART Real Time Location Systems (RTLS) and *Sapphire* VISION RFID Readers. Utilizing Multispectral's patented short-pulse, Ultra-Wideband (UWB) technology, large populations of tags can be simultaneously detected. The short pulse transmissions are also fundamental to offering exceptionally long battery life.

Each tag has a unique ID that can be associated with a specific asset. Tags are powered with a 3V coin cell battery producing a battery life of up to 7 years even while transmitting updates every second. The tags transmit at a factory-set pre-programmed rate with the standard transmission rate being one transmission per second. Other factory-set pre-programmed rate options are available to enable a wide range of real time personnel and asset tracking and RFID applications.

Three standard tag form factors are currently available:

1x1 Asset Tag

The 1x1 Asset Tag affixed via screws or mounting tape provides the best performance and longest battery life for larger parts or industrial assets.

Micro Asset Tag

The Micro Asset Tag affixed via custom tag clips or mounting tape provides an extremely small footprint for smaller parts and high-value office and IT assets.

Mini-Badge Tag

The Mini-Badge Tag affixed via a badge clip or mounting tape provides a low profile format ideal for personnel.

● **SAPPHIRE TAG FEATURES:**

- FCC Part 15.250 compliant
- Exceptional performance — Performs in high multi-path environments
- Excellent real-time location accuracy — Better than 30cm (1 foot) line of sight
- Long tag battery life — Up to 7 years at 1 Hz blink rate
- Long RFID Range — Up to 200 meters (650 feet)
- Fast tag transmission rates — Up to 25 times/ second

Sapphire Tag Specifications*

	1x1 Asset Tag T651-1x1-X				Mini-Badge Tag T651-BDG-X			Micro Asset(Tag T651-MIC-X		
Pre-Programmed Blink Rate										
Blink Rate (Hz)	0.5	1	5	25	1	5	25	0.5	1	25
Part Number (X=)	4005	401	405	425	401	405	425	4005	401	425
Frequency Range (-10dB)	5.94 to 7.12 GHz									
Typical Battery Life (years)	8	7	1	0.6	7	1	0.6	6	4	0.4
Locate, Indoors										
Typical Range	45 m (148 ft)									
Max Number of Tags/ Hub	2700	1700	340	68	1700	340	68	2700	1700	68
Read (Presence), Indoors										
Typical Range	90 m (295 ft)									
Max Number of Tags/ Hub	5000	5000	1000	200	5000	1000	200	5000	5000	200
Environmental/ Physical/ Power										
Operating Temperature	10°C to 50°C (50°F to 122°F)									
Environmental Sealing	IP30				IP40			IP30		
Length	2.67 cm (1.05 in)				4.22 cm (1.66 in)			1.11 cm (0.44 in)		
Width	4.19 cm (1.65 in)				0.71 cm (0.28 in)			4.01 cm (1.58 in)		
Height	2.92 cm (1.15 in)				7.42 cm (2.92 in)			2.11 cm (0.83 in)		
Weight	12 gm (0.42 oz)				18 gm (0.63 oz)			8.4 gm (0.3 oz)		
Power (Replaceable Battery)	CR2032				CR2032			CR1632		
Regulatory Approvals										
United States	FCC Title 47, Part 15 Subpart C, 15.250 for WB Devices									
Mounting Options										
Typical Mounting	Screw holes/ Mounting tape				Badge clip			Mounting tape		

*Specifications subject to change without notice.

About Zebra Enterprise Solutions

Zebra Enterprise Solutions, a division of Zebra Technologies Corporation, extends Zebra's reach beyond passive RFID by employing state-of-the-art software and hardware solutions to locate, track, manage, and optimize high-value assets, equipment and people across the world's largest supply chains. Whether tracking containers through a port, optimizing parts for manufacturing, or managing ground support equipment at an airport, the real-time asset management solutions from the combination of Navis, WhereNet, proveo, and Multispectral Solutions provide improved visibility and velocity to gain measurable business improvements. Utilizing products that are based on ISO/IEC 24730-2, Cisco CCX Wi-Fi, precision GPS, and UWB technologies, Zebra Enterprise Solutions offers a wide range of location solutions that are "application matched," enabling its customers to put the right asset in the right place at the right time.

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For more information, please visit us at www.concept2solution.com or email us at sales@concept2solution.com.

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