# AX'Tag Explorer

AX'Tag Explorer XL
Former reference : AXTAG Fast Track UHF

This UHF performant tag can be read up to 12 meters on metal. Moreover, it is able to withstand very strong constraints in the long term. It is resistant to strong pressures, temperatures up to 200°C for more than 2 hours and mechanical stress. Thanks to its two holes it can be easily fixed to any surface.

T=4.1mm

101.6
Φ5.5   Φ4.8
18,5
148.3
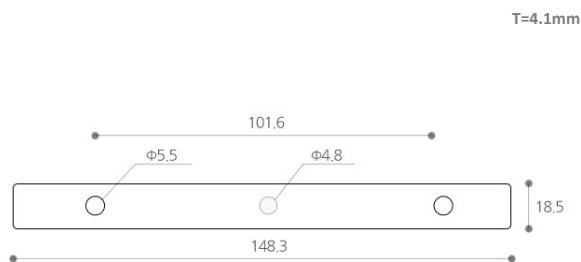
Key features
- Identification on and off metal assets
- Harsh environments
- Long reading distance

Applications
- Bulk container tracking
- Vehicle and tool tracking
- Medical equipment tracking
- Post-paint oven baking
- WIP conveying equipment
- IT/telecom management

Functional specifications

Air interface protocol	ISO18000-6-C EPC C1G2
IC Type	Alien Higgs3
Memory	EPC 96bits (extensible to 480bits), User 512bits, TID 64 bits, Access& Kill password each 32bits and Lock password 64bits
Read sensitivity	-20dBm
Read range	12.0 (on metal) 11.0 (off metal)

Physical specifications

Dimensions	148*18*4.1mm
Tag Material	Antenna: FR4 Packaging: PCB (TOYO black PSR)
Applicable surface	On/off metal
Color	Black

User environment

Storage Temperature	-45°C to 150°C
Operating Temperature	-40°C to 85°C
Resistance	High pressure and temperature of 200°C for > 2 hours.
Protection grade	IP68 (1.5 meter deep immersion, 1hr)

V3.0
Non-contractual datasheet

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Performance

• **Performance table** (www.satcomresources.com/ERP-EIRP-Converter)

Up to meters*	On metal	Off metal
2W ERP**	12.0	11.0
2W EIRP***	5.0	5.0

* Measured at anechoic chamber, national lab. (www.iot.nipa.kr) ,South Korea
** Measured by Alien Reader 9900+ (www.alientechnology.com)
*** Measured by ATID Handheld AT880 (www.atid1.com)

• **Comparison with neighboring tags**

*dBm

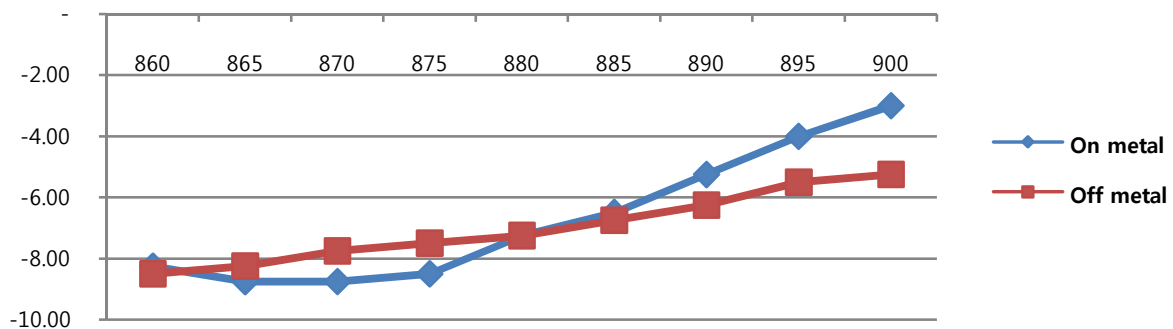| MHz	860	865	870	875	880	885	890	895	900
Fastener TK	8.25	8.75	8.75	8.50	7.25	6.50	5.25	4.00	3.00
Fastener	2.75	3.00	3.00	2.75	2.25	1.00	0.25	0.75	1.50
Fastener MAG	3.00	2.50	2.00	1.75	1.00	0.25	0.50	1.25	2.00
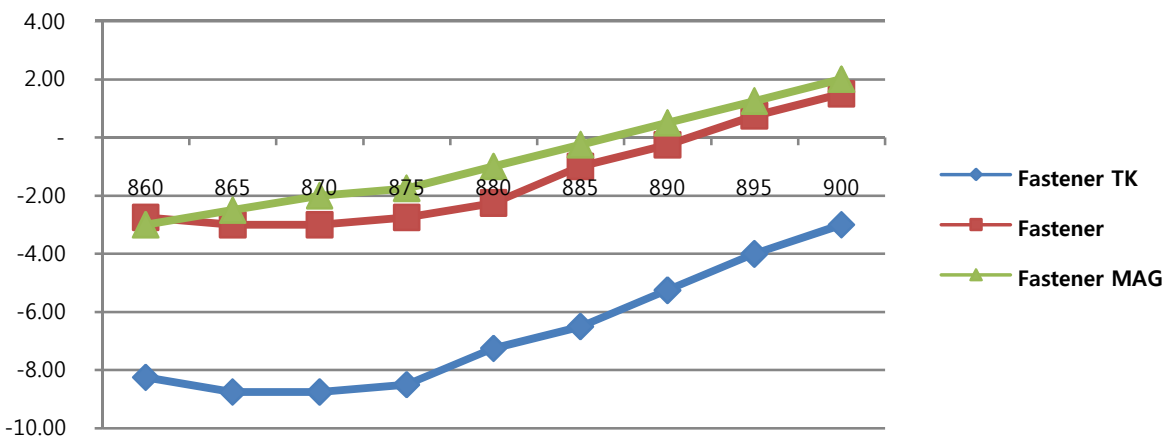
• AXTAG Fast Track reads up to 12.0 meters on metal, double of AXTAG Fast and Fast Magnet. It is one of best performing among 4mm thick metal tags with most stable and consistent read, as its slow and gentle slope of sensitivity curve shows.

•Its read performance varies upon tag location, orientation, direction, RF environments, etc.. Unlike other AXTAG, its read performance is still same, even when space or backing adhesive between tag and metal surface gets thicker.

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Comparison

• Comparison: on vs. off metal

dBm

MHz		860		865		870		875		880		885		890		895		900
On metal	-	8.25	-	8.75	-	8.75	-	8.50	-	7.25	-	6.50	-	5.25	-	4.00	-	3.00
Off metal		8.50	-	8.25	-	7.75	-	7.50	-	7.25	-	6.75	-	6.25	-	5.50	-	5.25

•**FASTENER TK** reads same or less 100% off metal (or on non metal surface). It can be applied for BOTH metal and off metal application.

• Comparison: with metal bolt in vs. without it in

dBm

MHz		860		865		870		875		880		885		890		895		900
w/o bolt	-	8.25	-	8.75	-	8.75	-	8.50	-	7.25	-	6.50	-	5.25	-	4.00	-	3.00
w/t bolt		8.25	-	8.75	-	8.75	-	8.00	-	7.25	-	6.25	-	5.00	-	4.00	-	2.75
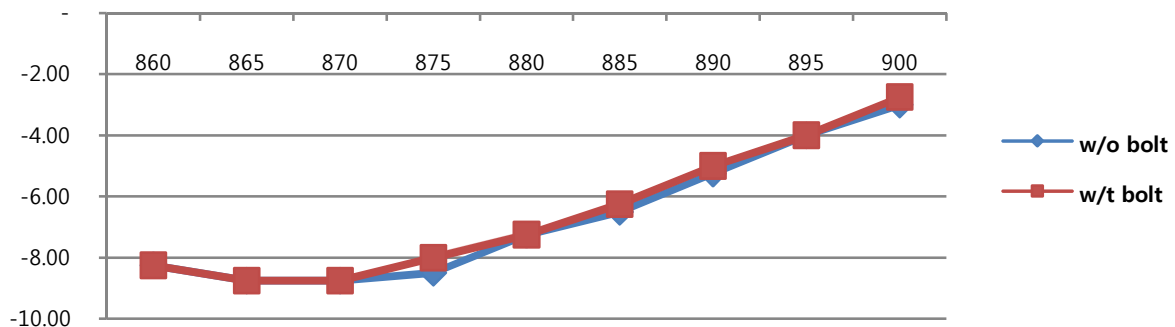
• AXTAG Fast Track reads same, regardless of whether it is fastened with metal bolt in two holes (located on center of both ends) or not. Stainless steel M4 bolt with round head is best fit for AXTAG Fast Track.

*dBm : Minimum power tag needs in order to respond to RFID reader.

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Durability

• Temperature stress

Test methods	Descriptions	Pass/Fail
150℃, 6hrs	Stored in convection oven at 150C, 6hrs	Pass
-45<>85℃, 50 cycles	Stored in temperature shock chamber for 50 cycles – One cycle includes 30 min. at-45C, 30 min, transition, 30min. at 85C and 30min. transition.	Pass
85℃/85%, 24hrs	Stored in humidity chamber at 85C/85%RH for 24 hours	Pass
Boling water, 6 hrs	Immersed in boiling water for 6 hours	Pass

• Ingression www.dsmt.com/resources/ip-rating-chart

IP Class	IP68	1.5 meter deep immersion, 1hr

• Mechanical stress

Test methods	Descriptions	Pass/Fail
Iron ball fall test	Free fall of 1kg iron ball from 1.5meters height on any side of tag - 50 times	Pass
Vibration	IEC60068-2-6/64	Pass
Drop& topple	IEC60068-2-31	Pass
Shock (acceleration)	IEC60068-2-22	Pass
Pressure	50 Bar on any side of tag, 50 times	Pass

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• Chemical stress

Chemicals	Descriptions	Pass/Fail
Alkali	NaOH (10%, pH13) | Immersed 24 hrs.	Pass
Acid	Sulfuric acid (10%, pH2) | Immersed 24 hrs.	Pass
Petroleum	Gasoline, Diesel, Kerosene, lubricating oil | Immersed 24 hrs.	Pass
Alcohol	Methanol, Ethanol | Immersed 24 hrs.	Pass
Surfactant	Solvent for metal tool oils | Immersed 24 hrs.	Pass
Salt water	IEC60068-2-11	Pass

• Electrical stress

ESD	IEC61000-4-2 (LEVEL4 – 8KV)	PASS

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