AMA Advanced Flight System Committee
Remote ID Module Status Report
Summer 2023

$139.26

$299.00

$215.00

$99.00

$125.75

26 mm

14 mm

17 mm

Blue Mark $107

WLAN/BLE ant conn

GPS ant conn

configuration button and LED

status LED

aux power connector

power connector

Dronetag Basic Solution (BS) $89.00

6/03/23 STATUS OF FAA COMPLIANT REMOTE-ID MODULES

AMA Advanced Flight System Committee
Andy Argenio - brandshobby@gmail.com
amaflightsystems@gmail.com

AMA's Advanced Flight Systems Committee members Tyler Dobbs, Tony Stillman, and I have been participating in meetings since 2020 with developers of Remote-ID modules to evaluate specifications and test results. This past year we flew model airplanes with modules to view and determine the range and accuracy of the broadcast position data of longitude, latitude, and altitude including serial number, velocity, and the flight tracking displayed on cell phones/iPads. The modules we tested proved to be accurate, easy to set up and use with the recommended apps, and there wasn't any RF interference with RC systems.

On September 16, 2023, recreational RC flyers will have to affix an FAA-approved RID module on/in their model aircraft to fly at other than their club FRIA sites. To aid flyers who may want to purchase a module the online PDF version of this AMA RID Module Status Report is updated when a module gets an FAA Declaration of Compliance. The online report allows pilots to view a chart on page 2 that lists each of the RID modules with their prices and specifications for easy comparisons with active links to seller's websites and datasheets on the GPS receiver and Bluetooth (BT) broadcast module's chips for those who want to explore more technical data.

All of the modules listed have met or exceeded the FAA's § 89.320 minimum performance requirements including ASTM F3411-22a standards. Today's GNSS/GPS receiver module chips can achieve horizontal position accuracies of between 5ft. to 10 ft. and vertical accuracy of 16 ft. or less 95% of the time. This exceeds FAA's horizontal accuracy requirements of 100 ft., and vertical accuracy of 150 ft. 95% of the time.

This report was submitted in June when 13 modules were on the chart with 9 being standalone plug & play RID broadcast modules and 4 being for drones already equipped with GPS. Only one RID module from uAvionix was available for preorder in the USA however Horizon Hobby, Futaba, and others will be introducing modules later in the summer. Popular listed FAA Modules from Dronetag in the Czech Republic and Blue Mark in the Netherlands, Eur. have been selling in the USA since 2022.

Prices vary because modules may be with or without batteries and cases, or have different versions of GPS receiver and BT module chips. The ultra-micro size and lightweight module chips and those with better position accuracy, and range cost more. The BT 5.1 version chips cost more because they draw much less current providing more hours of runtime and at 2Mb/sec doubling the data transmit rate of the older BT 5.0/4.0 versions. When and where manufacturing is done and shipped from can add to selling prices.

We recommend that members who want to fly at non-FRIA sites be patient as we are working towards getting better RID module prices and possible discounts for AMA members as we head toward the September deadline. Keep checking the RID status reports and other documents at www.amadistict-i.org/rids

Check the following chart to determine RID-module selling prices, availability, and specifications including the Bluetooth module and GPS Receiver module chip's datasheets and their **estimated cost to the manufactures** when the info was available. **Chip data/cost shown may vary from the original data resources**. **NOTE** – The blue text content will link to websites with updated data on some of the modules and chips used.

#	1 RID-Module & Web	2 Availability	3 Price	4 Weight	5 Size inch	6 Battery	7 Bluetooth IC Chip	8 GPS IC Chip	9 Misc.
1.	uAvionix - pingRID Montana, USA	Backordered	$299	21 gr.	1.0 x 0.7 x 1.7	2 hours	ESP32-C3-MINI-1 Mfg. Cost $2.15	SAM-M8Q Mfg. $17.04	CASE BT 5.0
3.	Blue Mark – Db121 Netherlands, Eur.	In stock	$118	11 gr.	1.4 x 1.5 x 1.0	Require 5-14 v	ESP32-C3-WROOM-02 Mfg. Cost $2.10	ATGM336H 5N31 $2.57	CASE BT 5.0
4.	Blue Mark – Db120 Netherlands, Eur.	In stock	$139	25 gr.	1.9 x 1.5 x 1.0	3 hours	ESP32-C3-WROOM-02 Mfg. Cost $2.10	ATGM336H 5N31 $2.57	CASE BT 5.0
5.	Blue Mark-Db122fpv Netherlands, Eur.	In stock	$76	4.5 gr.	1.0 x 1.0 x 0.16	Require 4.5-15 v	ESP32-C3-WROOM-02 Mfg. Cost $2.10	For Drones with GPS	For FPV BT 5.0
6.	Drone D. AeroPing United Kingdom	Inquire on website	$160	Inquire	Inquire	Battery Inquire	ESP32-C3-MINI-1U Mfg. Cost $2.15	No details yet on GPS used	CASE BT 5.0
7.	Dronetag - Beacon Czech Republic	In stock	$215	16 gr.	1.5 x 1.0 x 0.6	8 – 16 hours	LAIRD BL653 Mfg. Cost $8.59	M8 migrating to MIA-M10Q	CASE BT 5.1
8.	Dronetag - Mini Czech Republic	In stock	$299	32 gr.	2.1 x 1.3 x 0.6	8 - 16 hours	LAIRD BL653 Mfg. Cost $8.59	M8 migrating to MIA-M10Q	CASE BT 5.1
9.	Zephyr Systems Db120 USA (Not counted)	Reseller of Blue Mark	$305	25 gr.	1.9 x 1.5 x 1.0	3 hours	ESP32-C3-WROOM-02 Mfg. Cost $2.10	ATGM336H 5N31 $2.57	Not OEM
10.	Dronetag-Basic Solution Czech Republic	Stock Jul/Aug	$89.00	3 gr. with antennas	0.66 x 0.55 x 0.19	Require 3.3-17 v	ANNA-B412 Mfg. Cost $8.80	MIA-M10Q **Mfg. Cost $14.70**	PCB BT 5.1
11.	Dronetag-DRI For Mfg. Czech Republic	Check availability	$49.00	1.5 gr. No case	0.89 x 0.62 x 0.19	Require 3.3-17v	ANNA-B412 Mfg. Cost $8.80	For Drones with GPS	PCB BT 5.1
12.	Aerobits idME Poland	Not Yet FAA Compliant	$106.00	4 gr.	1.24 x 0.61 x 0.29	5.0v	ESP32 SERIES Mfg. Cost $2.10	ZOE-M8B **Mfg. Cost $14.70**	CASE BT 5.0
13.	Futaba FRID-1 Japan	FAA COMPLIANT Waiting for Publication	$125	9 gr.	0.79 x 1.0 x 0.31	Require3 .5-8.4v	Not available yet Japanese manual page	Not available yet	SHRINK WRAP

CHART IS UPDATED AS NEW RID MODULES BECOME AVAILABLE
(BLUETOOTH AND GPS CHIP MODULE DATA CAME FROM DIGIKEY.COM AND OTHER ELECTRONIC SUPPLIERS)

(1)

Website

FAA Compliance Report

Remote-ID User & Install Guide

Bluetooth Manual ESP32-C3-MINI-1

Digi-Key Bluetooth Chip Datasheet

pingRID

$299.00

uAvionix Corporation
300 Pine Needle Lane
Bigfork, MT 59911
(844) 827-2372

Meeting the FAA's Remote ID mandate has never been easier.

The pingRID module is small, lightweight, and easy to attach to any drone, pingRID will keep you flying with trusted aviation-grade avionics from uAvionix. Whether you're flying for recreation or commercial part 107, pingRID has you covered.

uAvionix announces pingRID for FAA Mandated Remote ID Broadcast for Drones

02/28/23|Press Release
Remote ID Broadcast module for drones, pingRID. The aviation-grade, small, lightweight, and easily attached transmitter is the fastest and simplest way for drone operators to be compliant with the FAA Remote ID rule. uAvionix is pleased to apply its avionics experience by delivering a product that meets the FAA's requirements without sacrificing the drone operators' time or aircraft performance," notes Paul Beard, uAvionix CEO and Academy of Model Aeronautics Hall of Famer. "A license plate for your drone needn't be complex or require an application to run and with pingRID, you simply charge, attach and fly – it's that easy."

 The uAvionix pingRID comes pre-configured and ready for use out of the box. After assigning the pingRID unique identification number to the aircraft's registration with the FAA, operators are free to attach the battery-powered device to their drone and prepare for flight. A simple set of LED indicators provides status on the battery charge, device readiness for flight, and inflight operations. The ultra-compact, lightweight design fits most aircraft without impacting performance, and is quickly rechargeable via USB-C.

Tech Specs

Specification	Value
Compliance	FAA 14 CFR Part 89, DoC RID000000132, ASTM F3411-22a
Protocols	Bluetooth 4 Legacy, Bluetooth 5 Long Range
Frequency	2402 MHz to 2480 MHz
Size	25.40 x 16.63 x 43.42 mm
Weight	21 grams
Charging Connector	USB-C
Battery	Internal Li-ion (740 mWh)
Indicators	Charge LED, Status LED 2 hours on a single charge

**Blue Mark
Drone Website**

**Bluetooth Manual
ESP32 C3 WROOM**

**Bruggenmorsweg 10, 7521ZV
Enschede, The Netherlands**
+31 53 711 2104
info@bluemark.io

**Drone Beacon
Transponder**

**FAA Compliance
Report**

**Digi-Key Bluetooth
Chip Datasheet**

(2)

DroneBeacon Db121pcb RemoteID
Broadcast Module

€ 99,00 ex. **$106.84**

(3)

DroneBeacon Db121 RemoteID
Broadcast Module

€ 109,00 ex. **$117.66**

(4)

DroneBeacon Db120 RemoteID
Broadcast Module

€ 129,00 ex **$139.26**

FAA approval PRODUCT PAGE RID000000089 **MANUAL**	**FAA approval** PRODUCT PAGE RID000000088 **MANUAL**	**FAA approval** PRODUCT PAGE RID000000058 **MANUAL**

FAA approval   PRODUCT PAGE
RID000000089
MANUAL
Short-range radio
Bluetooth and WiFi 2.4GHz, output
power (ERP): + 20 dBm (100 mW)
Positioning
GPS, GLONASS, 2.5m positioning
precision < 35 seconds for first fix
Antennas
3 dBi WLAN/BLE antenna (IPEX
connector)
0 dBi GPS antenna (IPEX connector)
Power
**2-pin JST-GH 1.25mm connector 5 –
14 V**
auxiliary unpopulated 2.54mm 2-pin
header 5 – 14 V
LED lights
status, configuration mode
Fastening mechanism
4x M2 screws
Operating temperature -5°C to +40°C
Dimensions - 33 x 35 x 5 mm
Weight - 5 grams (including antennas)

(5) **Db122fpv FOR FPV OPERATIONS**
Bluetooth broadcast module only and
will require a GPS receiver.   **$76.00**
Size - 01x01x0.16
Weight - 4.5 grams

Short-range radio
Bluetooth and WiFi 2.4GHz, output
power (ERP): + 20 dBm (100 mW)
Positioning
GPS, GLONASS, 2.5m positioning
precision < 35 seconds for first fix
Antennas
0 dBi WLAN/BLE antenna (internal
omni-directional high-performance
PCB antenna)
0 dBi GLS antenna
Power
**2-pin JST-GH 1.25mm connector 5
– 14 V**
LED lights
status, configuration mode
Enclosure
plastic (nylon)
Fastening mechanism
3M dual-lock or M5 screws using
the screw noses
IP rating
IP43
Operating temperature
-5°C to +40°C
Dimensions
36 x 38 x 28 mm.
Weight - 11 grams

Short-range radio
Bluetooth and WiFi 2.4GHz, output
power (ERP): + 20 dBm (100 mW)
Positioning
GPS, GLONASS, 2.5m positioning
precision < 35 seconds for first fix
Antennas
0 dBi antenna (internal omni-
directional high-performance PCB
antenna)
Battery
**LiPo 3.7V 600 mAh, battery life > 3
hours** charging, 5V USB-C, 1 hour
from a discharged state
LED lights
charging, battery level (4x),
configuration mode
Enclosure
plastic (nylon)
Fastening mechanism
3M dual-lock or M5 screws using the
screw noses
IP rating IP43
Operating temperature
-5°C to +40°C
Dimensions
 48 x 38 x 28 mm.
Weight - 25 grams

(6) Drone Defence AeroPing

AeroPing Website

FAA Compliance Report

ESP32-C3-MINI-1U DATASHEET

Bluetooth Manual ESP32-C3-MINI-1U

Digi-Key Bluetooth Chip

Drone Innovation Centre, Retford, UK
+44 (0) 843 289 2805
info@dronedefence.co.uk

AeroPing operates in a highly independent fashion. It has its own power source and sensors for position, altitude, temperature, pressure, speed and direction.

Simply attach it easily to a drone, and it is ready to be used.

Data can then be accessed in real-time by drone fliers and any relevant authorities **with the necessary permissions** through our **AeroTracker platform. (NOTE MAY NEED RECONFIGUATION TO WORK IN USA)**

AeroPing RRP is £150 or **$ 161.65 per module**, to get additional info go to the AeroPing website and complete a form.

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(7)

Dronetag Beacon Website

FAA Compliance Report

Bluetooth Manual Laird BL653

Dronetag s.r.o. Veltruská 602/16
190 00 Praha 9, **Czech Republic**
+420 602 870 462
info@dronetag.cz

Digi-Key Bluetooth Chip

BL653 Chip Datasheet

25 mm
23.25 mm
36.8 mm

BUY INFO CLICK $ 214.89

Short-range radio - Bluetooth 2.4GHz
Sensors - GNSS, barometer, accelerometer
Positioning - GPS L1, GLONASS L1, Galileo E1, SBAS
Built-in Antennas Bluetooth and GNSS
Optional Antennas Bluetooth via MMCX plugs
External ports 3.3V extension connector and 5V Micro USB
Battery LiPo 3.7V 200 mAh
Battery life 8-16 hours (depending on the configuration)
Charging 5V Micro USB

Charging time - 2 hours from a discharged state
Average current consumption - 15mA
Maximum current consumption - 100mA
Enclosure - plastic
Fastening mechanism - 3M Dual-lock SJ4570
IP rating - IP43
Operating temp. -20 °C to +60 °C (-4 °F to 140 °F)
Dimensions - 37 × 26 × 16 mm (1.5 × 1.0 × 0.6 in)
Weight - 16 grams (0.56 oz.)

Slap-on device so your drone can legally fly. Effortless way to let your drone fly safe & compliant in EU and US regions. Direct/Broadcast Remote Identification device compatible with any drone.
What is the difference between this product and ESP32-based ones?

Some Remote ID manufacturers tend to select ESP32 microcontrollers as the base of their OEM solutions without further research. However, *ESP32 systems are well known for questionable production quality, common overheating, electromagnetic noise, and interference issues. Since Remote ID is a crucial aircraft component*, its malfunction can easily force the drone to land in a dangerous situation. **Even though ESP32 MCUs can be more price-competitive, we will never allow our customers to take such unnecessary risks. Therefore, Dronetag DRI is built on industrial components of non-Chinese origin**, and each unit goes through production testing.

Why is it not a good idea to use Bluetooth and Wi-Fi RID simultaneously?

Most Remote ID implementations transmitting Bluetooth and Wi-Fi simultaneously don't implement radio coexistence protocols. This means the radio chip is overwhelmed with transmitting requests despite insufficient radio capacity to send out those data. The result is that the device sends out corrupted data at unreliable frequencies (not fulfilling the requirements in standards) while **creating unnecessary electromagnetic noise and interference.**

Where is the device manufactured?

All of the devices are manufactured in Prague, Czech Republic, Europe. But the manufacturing site can be changed depending on the customer's needs.

Dronetag Beacon is the bare minimum solution for Direct / Broadcast Remote via Bluetooth 4 and 5. It ensures that your drone is detectable to all air traffic participants and allows you to track the drone in real-time. It may be attached to any drone regardless of its manufacturer and makes you compliant with new EU and US regulations.

(8)

Dronetag Mini

[Dronetag Mini Website]

[FAA Compliance Report]

[BUY INFO CLICK] $299

[Bluetooth Manual Laird BL653]

[Digi-Key Bluetooth Chip]

[BL653 Chip Datasheet]

Professional Remote ID
Designed for professional pilots. Combination of both Network & Direct / Broadcast Remote ID to make your drone flight safe & compliant.

Network Remote Identification
Dronetag Mini transfers your drone's position and identification to our cloud. By displaying the real-time data in our app Dronetag enables advanced drone operations and coordination of manned and unmanned traffic in the same airspace.

Direct (Broadcast) Remote Identification
Your drone's info is transmitted via Bluetooth to up to 1.5 km (0.9 miles). With our Direct Remote ID, you fulfil all the new regulation necessities, and you are free to fly & touch the sky!

Cellular - LTE-M and Narrowband IoT (NB-IoT)
Cellular bands: 3, 8, 20 for the EU and 2, 4, 12 for the US
Bluetooth 2.4GHz
Sensors - GNSS, barometer, accelerometer
Positioning - GPS L1, GLONASS L1, Galileo E1, SBAS
SIM card - Chip SIM soldered on the mainboard
Built-in Antennas Internal LTE, Bluetooth and GNSS
Optional Ant. External LTE and Bluetooth via plugs
External ports 3.3V extension connector and 5V
Micro USB Battery LiPo 3.7V 500 mAh
Battery life 8-14 hours (depending on the configuration)

Charging 5V Micro USB
Charging time 2 hours from a discharged state
Average current consumption 50mA
Maximum current consumption 1A
Enclosure plastic
Fastening mechanism 3M Dual-lock SJ4570
IP rating IP43
Operating temperature -20 °C to +60 °C
-5°C to +40°C
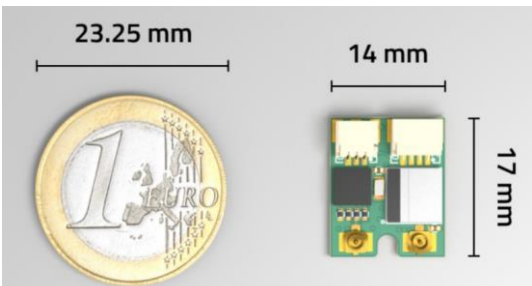**Size** 54x35x15 mm (2.1x1.3x0.6 in)
Weight 32 grams (1.1 oz)

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(9) Zephyr Systems
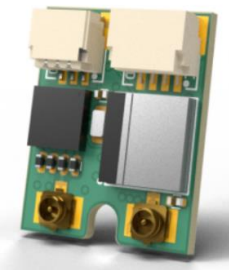**A US reseller of the OEM's Blue Mark Db120 Remote-ID module. All specifications are the same as module (2).**

Home / Remote ID / Remote ID Module

Remote ID

Remote ID Module

$315.00 $305.00

Version

Choose an option
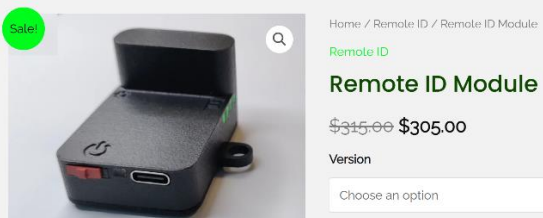
Zephyr Systems Website

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(10)

23.25 mm

14 mm

17 mm

Dronetag BS Website

FAA Compliance Report

Bluetooth Manual Anna-B412

DigiKey Anna-B412

DigiKey MIA-M10Q

DRONETAG BASIC SOLUTION (BS) – THE RETAIL PRICE IS $89.00

Dronetag BS is the best Remote ID solution for FPV pilots, aeromodelers, and recreational pilots. BS offers affordable Broadcast / Direct Remote capability as defined by FAA and EASA. It is the smallest and lightest Remote ID solution making it easier than ever for aeromodelers and FPV pilots to comply with regulations while enjoying their favorite hobby.

External Bluetooth and **Positioning antennas** are not included, you may use your own antennas, or **you can buy one of these**:

- o Combined Bluetooth + GNSS Positioning Antenna (U.FL) $9.90
- o GNSS Positioning Antenna - Compact Size (U.FL) $4.90
- o Bluetooth Antenna - Ultra Small (U.FL) $4.90
- o Bluetooth Antenna - High Performance (U.FL) $4.90

Dronetag s.r.o. Veltruská 602/16
190 00 Praha 9, Czech Republic
+420 602 870 462

The BS can be powered from up to 17V power input, or you can consider optionally using the small 3.7V Li-Po batteries (e.g., 50 mAh can run up to two hours). Batteries must have a JST SH 3-pin connector.

Data sheet

Remote ID types Broadcast (US)
Short-range radio Bluetooth 2.4GHz
Average current consumption 15 mA
Maximum current consumption 50 mA
Mounting - Adhesive or Velcro
Operating temperature -40°C to +85°C
Dimensions- 0.66 x 0.55 x 0.19 in
Weight - 1 gram (0.035 oz.) No Case or Battery
Standard ones - configurable in Dronetag app
Input voltage 3.3 – 17V
Input voltage regulator
Low-noise buck converter
Remote ID Standards
ASD-STAN EN 4709-002 & ASTM F3411-22
Certifications Uses FCC/CE approved module
Remote ID technology
Bluetooth 4.0 Legacy + 5.0 Long Range

Product Details

- Easy installation and compatibility with various aircraft hardware setups
- Real-time tracking and Remote ID compliant with the FAA rule
- Powered from the existing aircraft or a small LiPo battery (up to 17V input) **No LED Status Notification Yet**
- Configuration and firmware updates via Dronetag App
- Can be used as GNSS input to Betaflight controller*
- Can be used as a telemetry module for popular RC radios*
- Flight information logging to flash memory for easy visualization in Dronetag App, Google Earth, or similar*

* Functions that will be introduced later via firmware update

(11)
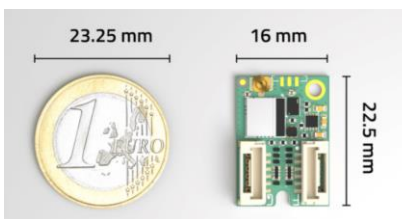
$ 49.00

Dronetag DRI Website

FAA Compliance Report

Bluetooth Manual Anna-B4

Bluetooth Manual Anna-B4

For manufacturers to equip their new drone models with technology for Direct / Broadcast remote identification (RID). Connect our factory-ready modules to your drone's flight controller. Dronetag DRI is compatible with all standard Pixhawk controllers running PX4 or Ardupilot. Plug it into your TELEM port, configure the appropriate baud rate, and you are ready to fly. DRI may come with a U.FL connector for an external antenna (for carbon fuselage) or with an internal antenna already on board.

(12) ![Aerobits logo]®

ul. Przestrzenna 11 70-800 Szczecin, Poland

Aerobits is a Polish technology company that has been operating on a global market since 2017. We deal with miniaturization of avionic systems, such as aviation transponders. All solutions are based on a patented technology that allows to process radio signals on very small surfaces.

NOTE: These modules from Aerobits iDME are not FAA compliant YET, but the specs are provided since they have intentions of seeking FAA compliance as other European mfg. have recently done.

$106.00   **$106.00**   **$106.00**

PRODUCT INFO	PRODUCT INFO	PRODUCT INFO

idME

Designed to meet requirements of remote drone identification and localization inASTM/ASD-STAN standard. Using the BLE broadcast technology the deviceprovides surveillance and drone operator identification capability based on anymodern mobile devices such as smartphone or tablet.

idME+

idME+ is designed to meet requirements of remote drone identification and localization in ASTM/ASD-STAN standard. Using the BLE broadcast technology, the device provides surveillance and drone operator identification capability based on any modern mobile devices such as smartphone or tablet.

idME PRO

idME PRO is the most advanced Remote ID with WI-FI and BLE technology. It can broadcast in dual technologies: Wi-Fi (NAN and Beacon frames) BT(BLE, and legacy frames). Using the BLE and WI-FI broadcast technology, the device provides surveillance and drone operator identification capability based on any modern mobile device such as a smartphone or tablet.

CLICK FOR USER MANUAL AND IDME DATA SHEETS	CLICK FOR USER MANUAL AND IDME+ DATA SHEETS	CLICK FOR USER MANUAL AND IDME PRO DATA SHEETS

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(13)

WEBSITE

$125.75   **USERS MANUAL PAGE (Japanese)**

D063550

FCC ID

Equipment:

3550

FCC.report › / FCC ID › / › / D063550

Application		Frequency Range	Final Action Date

Application Details Not Loaded Yet...Exhibits Not Loaded Yet...

FAA Accepted but Exhibits not posted yet!
Check at: https://fcc.report/FCC-ID/D063550

Their unit is small in size, 20x30x8 mm very thin. It won't have the extra weight and cost of a battery and case… and may use a Y extension to the receiver's battery for power. It operates on 3.5 - 8.4 v. and draws only 18 ma. It appears to use internal antennas and a simple shrink-wrap casing like an ESC or some satellite receivers. We are waiting for Futaba & FAA to post additional information.