SIXARMS
ARMS PRODUCT OVERVIEW

Our Airborne Radio Measurement Systems (ARMS) are versatile airborne RF test and measurement tools used for verifying and optimising transmission antennas. They make use of the latest UAV (Unmanned Aerial Vehicle) technology and in conjunction with an integrated RF measurement receiver, Antenna Measurement Studio (AMS) and calibrated receive antenna, allows for characterization of antenna systems in the broadcast, telecommunication, aeronautical and defense industries.

The system allows measurements of horizontal radiation patterns (HRP), vertical radiation patterns (VRP), effective radiated power (ERP), polarization discrimination and many other specific modulation parameters. Overall system uncertainties are in the order of 1-2 dB.

TYPICAL USE CASES:

// Commission new and troubleshoot existing antenna systems
// Verify correct installation of transmission infrastructure
// Verify compliancy with regulatory requirements
// Verify in-field system performance and reach

// Repeatable annual maintenance tasks
// Confirm predictions with measured field data
// Spectrum Monitoring and Interference Hunting

BROADCAST

TELCO

AERONAUTICAL

DEFENSE

ARMS UAVS

We have integrated our ARMS Rx packages into a number of custom and off-the-shelf UAVs. The integrated units offer a seamless workflow in gathering, displaying and reporting measured RF data. The integrated options are able to communicate directly to the UAV flight controller in order to monitor telemetry data and execute automated flight paths.

MODEL	ARMS-RFX	ARMS-NAVI RX	ARMS-H520
CONFIGURATION	900mm Hexacopter	700mm Coaxial Quadcopter	520mm Hexacopter
FLIGHT TIMES (WITH PAYLOAD)	35min (80%)	30min (80%)	15min (80%)
WIND TOLERANCE	Medium (<30km/h)	High (<40km/h)	High (<40km/h)
CONTROL LINKS	868/900/2.4	900/2.4	2.4/5.8
GPS	High Precision RTK (±10cm) Backup Differential GPS	High Precision RTK (±10cm) Backup Differential GPS	High Precision RTK (±10cm)
INTEGRATED ARMS RX	Yes	Yes	Yes
RF SHIELDING	Yes	Yes	No
ALL UP WEIGHT	8.2kg	7kg	2.3kg
TRAVEL CASE	Yes	Yes	No
CHARGER	Dual	Dual	Single
USE CASES	Antenna Pattern Verification, RF Coverage Validation	Antenna Pattern Verification, RF Coverage Validation	RF Coverage Validation

// CUSTOM PACKAGES AVAILABLE WITH OTHER UAV MANUFACTURERS.
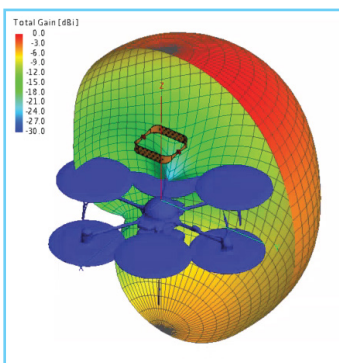
Each unit undergoes detailed electromagnetic modelling in order to assess the mounting position of the receive antenna on the UAV. This allows us to better understand the impact of the UAV on the receive measurements in order to improve overall system accuracies.

ARMS RX

The ARMS Receivers consist of a spectrum analyser and embedded PC. The units allow a direct connection to the UAV flight controller and telemetry/control system and can be configured from the Ground Control Station. We offer a number of variations based on specific use cases.

MODEL	ARMS-AR9440	ARMS-AR1124	ARMS-AR9600
FREQUENCY	9KHz – 4.4GHz	100KHz – 12.4GHz	9kHz – 6GHz
ABSOLUTE AMPLITUDE	±1.5dB	±1.5dB	±2 .0dB
RELATIVE AMPLITUDE	±0.25dB	±0.25dB	±0.25dB
REALTIME BANDWIDTH	250kHz	250kHz	27MHz
EXTENDED TEMPERATURE RANGE	- 40° to +85° C	0° to +50° C	- 40° to +65°C
EMBEDDED PC	Quad Core 1.9GHz 128GB Storage Wifi/Ethernet	Quad Core 1.9GHz 128GB Storage Wifi/Ethernet	Quad Core 1.9GHz 128GB Storage Wifi/Ethernet
WEIGHT OPTIONS	510g/400g	510g/400g	715g/600g

// CELLULAR MEASUREMENTS REQUIRE OUR COMPANION PC (ARMS-6377) WHICH INTEGRATES AND CONTROLS A NUMBER OF OFF-THE-SHELF CELLULAR SCANNERS.

ANTENNAS

Typical ARMS receive antenna options include UAV mounting and traceable calibration data
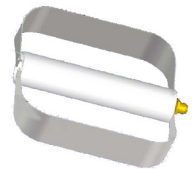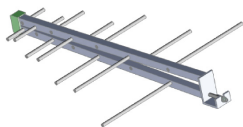
ARMS-PL9200

9KHz - 20MHz

Loop

190g

ARMS-RL0723

70MHz - 230MHz

Folded Dipole

350g

ARMS-RL4780

470MHz - 800MHz

Folded Dipole

180g

ARMS-LPY607

470MHz - 800MHz

Log Periodic

350g

ARMS-0372

170MHz – 230MHz

Log Periodic

450g

ARMS-0363
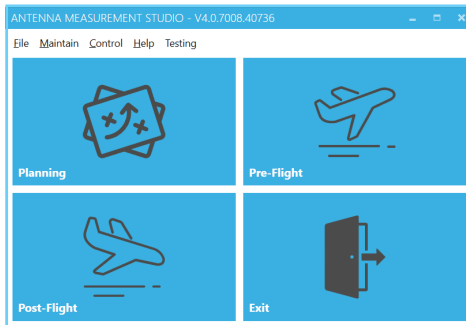
350MHz – 3 GHz

Log Periodic

650g

ARMS-30100

30MHz –1GHz

Biconical Dipole

350g

ANTENNA MEASUREMENT STUDIO

Antenna Measurement Studio (AMS) is our custom software that integrates all the components of the ARMS. It runs on a Windows-based laptop or tablet and performs four main functions:

SITE MAINTENANCE

// Entry of the transmission details such as site location, frequency, antenna height, modulation type.
// Calculates the far field and recommended flight distances per service.
// Define modulation and tolerance parameters

PLANNING

// Measurement sessions are planned (usually in the office).
// Calibration factors and service specific information is entered into the session.
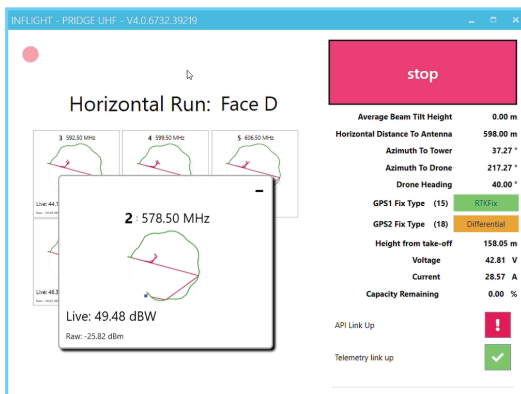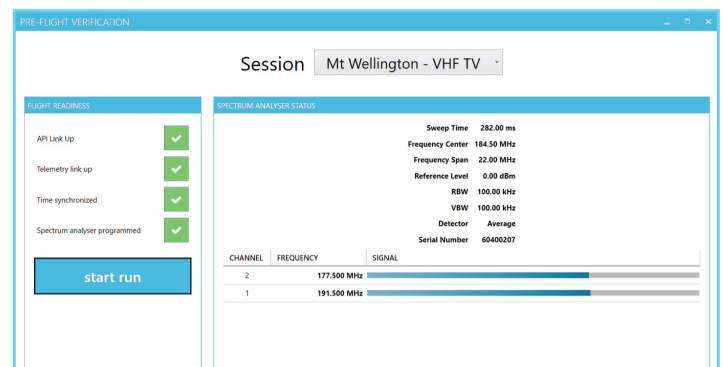
PRE-FLIGHT

// A live dashboard is available to monitor key parameters such as the RF measurement data and UAV diagnostic information whilst in flight.
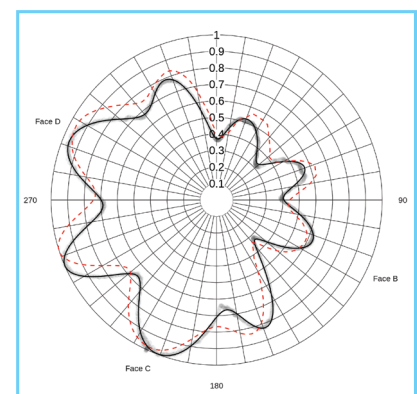// Easily switched to different sessions

POST FLIGHT REPORTING

// Sync's the data with the ARMS Rx
// Generates automated Preliminary Reports for instant review
// All data is stored on the ARMS Rx and in AMS. Data can be exported for further analysis if required.
// Data backup function to local machine or to Sixarms cloud service.

// TWO VERSION ARE AVAILABLE. AMS-PRO WITH ENHANCED MEASUREMENT CAPABILITIES AND REPORTING FEATURES AND AMS-LITE WITH A LIMITED FUNCTIONALITY SET.