

# Engineering Solutions & Electromagnetic Compatibility Services

# Certification Application Report FCC Part 15.245 & ISED RSS-210

Test Lab:		Applicant:	
Rhein Tech Laboratories, Inc. Tel: 703-689-0368 360 Herndon Parkway www.rheintech.com Suite 1400 Herndon, VA 20170 E-Mail: atcbinfo@rheintech.com		FlightScope (Pty) Ltd Tel: +27 21 880 2160 P.O. Box 747 Stellenbosch 7599 (South Africa)	
FCC ID IC ID	QXP-LJ361 4612A-LJ361	Test Report Date	November 12, 2019
Platform	N/A	RTL Work Order #	2019137
Model	MEVO+	RTL Quote #	QRTL19-137A
American National Standard Institute	ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
FCC Classification	FDS: Field Disturbance Sensor		
FCC Rule Part(s)	FCC Rules Part 15.245: Operation within the bands 902–928 MHz, 2435–2465 MHz, 5785–5815 MHz, 10500–10550 MHz, and 24075–24175 MHz (10-01-18)		
ISED Standard(s)	RSS-210 Issue 9: Licence-Exempt Radio Apparatus: Category I Equipment RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus		
Frequency Range (MHz)	Output Power (W) Frequency Tolerance Emission Designation		
24080 - 24160	N/A	N/A	956KN0N

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, ANSI C63.10, and ISED RSS-210 and RSS-Gen.

Signature: \_\_\_\_\_ Date: November 12, 2019

Typed/Printed Name: Desmond A. Fraser Position: President

This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories, Inc. and FlightScope (Pty) Ltd. The test results relate only to the item(s) tested.

This replaces DRAFT R0.5.

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANAB.

Refer to certificate and scope of accreditation AT-1445.

Client: FlightScope (Pty) Ltd Model: MEVO+ Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361 Report #: 2019137DXT

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Client: FlightScope (Pty) Ltd Model: MEVO+ Standards: FCC 15.245/RSS-210; RSS-Gen

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### 1 General Information

# 1.1 Scope

This is an original FCC and ISED certification application report for the FlightScope MEVO+ Sensor Unit.

Applicable Standards:

- FCC Part 15.245: Operation within the bands 902–928 MHz, 2435–2465 MHz, 5785–5815 MHz, 10500–10550 MHz, and 24075–24175 MHz
- ISED RSS-210: Licence-Exempt Radio Apparatus: Category I Equipment
- ISED RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus

### 1.2 Description of EUT

Equipment Under Test	K Band Golf Radar
Model	MEVO+
Power	3.6V; 3.5Ah capacity
Modulation Type	CW
Frequency Range	24.08 – 24.16 GHz
Antenna Connector Type	N/A
Antenna Type	Microstrip patch antenna

### 1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc., 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report submitted to and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing.

### 1.4 Related Submittal(s)/Grant(s)

This is an original application for certification for FlightScope (Pty) Ltd., Model: MEVO+, FCC ID: QXP-LJ361, IC: 4612A-LJ361.

### 1.5 Modifications

No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

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### 2 Test Information

### 2.1 Test Result Summary

Table 2-1: Test Result Summary

Test	FCC Reference	ISED Reference	Result
AC Power Conducted Emissions	15.207	RSS-Gen 8.8	Pass
Radiated Emissions	15.209	RSS-210 F.1; RSS-Gen 8.9, 8.10	Pass
Field Strength of Fundamentals and Harmonics	15.245 (b)	RSS-210 F.1	Pass
99% Bandwidth	N/A	RSS-Gen 6.7/ TRC-43	N/A

# 2.2 Test System Details

The test samples were received on September 23, 2019. The FCC identifiers for all applicable equipment, plus descriptions of all cables used in the tested system, are identified in the following table.

Table 2-2: Equipment Under Test (EUT)

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Part	Manufacturer	Model #	Serial Number	FCC ID	Cable Description	RTL Bar Code
MEVO+ (Conducted)	FlightScope (Pty) Ltd.	E51-LJ361- ISS1	N/A	QXP-LJ361	Unshielded Power, Unshielded I/O	23432
MEVO+ (Radiated)	FlightScope (Pty) Ltd.	E51-LJ361- ISS1	N/A	QXP-LJ361	Unshielded Power, Unshielded I/O	23433

#### 2.3 EUT Exercise Description

The EUT was configured for testing in a manner simulating a typical end-user configuration. All circuitry, clocks, and oscillators were powered and active. All I/O ports were cabled and loaded.

The EUT was powered by its Li-lon battery. The battery was charged with +5.0 VDC from a DC power supply via the charging cable. The power button was then pressed and a series of beeping sounds could be heard. Once the beeping sounds subsided, the EUT was ready for testing. For radiated emissions, the DIP switches on the EUT was set to transmit at 24.08 GHz, 24.12 GHz and 24.16 GHz for low, middle and high channels respectively.

For all tests, the EUT was operated in its most EMC-sensitive configuration.

### 2.4 Configuration of Tested System

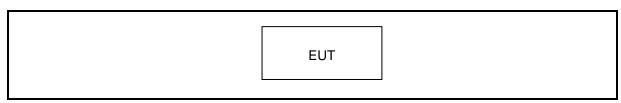


Figure 2-1: Configuration of System Under Test

Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

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# 3 Conducted Emissions - FCC 15.207, ISED RSS-Gen 8.8

### 3.1 Conducted Emissions Measurements

The power line conducted emission measurements were performed in a type shielded enclosure. The EUT was placed on a wooden table. Power was fed to the EUT through a 50-ohm/50 microhenry Line Impedance Stabilization Network (LISN). The EUT LISN was fed power through an AC filter box mounted on the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT's auxiliary equipment. This peripheral LISN was also fed AC power.

The spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 100 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 100 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. Video filter less than 10 times the resolution bandwidth is not used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz.

#### 3.2 Test Limits

Table 3-1: Conducted Emission Limits per 15.207

Frequency (MHz)	Quasi-Peak (dBµV)	Average (dBµV)
0.15 - 0.50	66 to 56	56 to 46
0.5 - 5.0	66	46
5 – 30	60	50

### 3.3 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainties expressed at 95% confidence level using a coverage factor k = 2.

Conducted Emissions: ±3.6 dB

Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

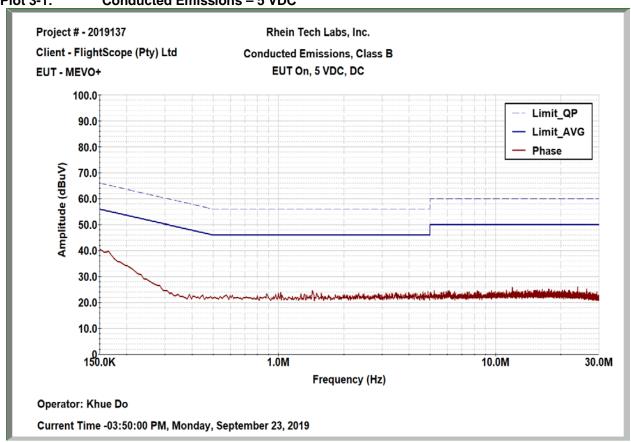
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# 3.4 Conducted Emissions Test Data

Table 3-2: Conducted Emissions Environmental Factors

Date	Temperature (°F)	Humidity (%)	Atmospheric Pressure (kPa)
09/23/2019	72.0	35	100.8



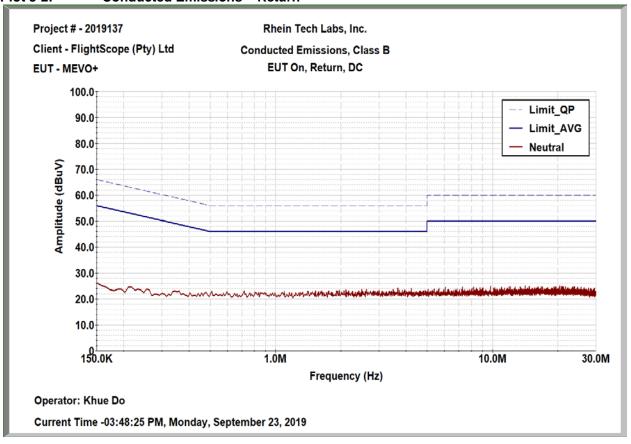


Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

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# Result: Pass

### **Test Personnel**

Khue Do	Khuff	September 23, 2019		
EMC Test Engineer	Signature	Date of Test		

Table 3-3: Conducted Emissions Test Equipment

	Conducted Enfocione 1 oct Equipment				
RTL Asset #	Part Type	Manufacturer	Model	Serial Number	Calibration Due Date
900339	Quasi-Peak Adapter	Hewlett Packard	85650A	2521A00743	04/24/2020
900728	Filter	Solar	Type 8130-7.0	N/A	04/24/2020
900930	Spectrum Analyzer Display	Hewlett Packard	85662A	3144A20839	N/A
900931	Spectrum Analyzer (100 Hz – 22 GHz)	Hewlett Packard	8566B	3138A07771	04/24/2020
901083	16A LISN	AFJ International	LS16/110VAC	16010020080	02/13/2021
N/A	Tile! Test software	ETS-Lindgren	7.1.3.20	N/A	N/A

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# 4 Radiated Emissions – FCC 15.209, FCC 15.245(b), ISED RSS-210 F.1, RSS-Gen 8.9 and 8.10

### 4.1 Radiated Emissions Measurements

Before final radiated emissions measurements were made on the OATS, the EUT was scanned indoors at both one and three meter distances. This was done in order to determine its emission spectrum signal. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emission measurements on the OATS, at each frequency, in order to ensure that maximum emission amplitudes were measured. Final radiated emissions measurements were made on the OATS at a distance of 3 meters. The EUT was placed on a non-conductive turntable. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emissions' maximum levels. Measurements were taken using both horizontal and vertical antenna polarization. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz for frequencies below 1 GHz and 1 MHz for frequencies above 1 GHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

#### 4.2 Test Limits

Table 4-1: Radiated Emission Limits per 15.209

Frequency (MHz)	Field Strength (μV/m)	Measure Distance (m)
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

Table 4-2: Radiated Emission Limits per 15.245

Fundamental Frequency	Field Strength of Fundamental	Field Strength of Harmonics
(MHz)	(mV/m)	(mV/m)
24075 – 24175	2500.0	25.0

Notes:  $100 \,\mu\text{V/m} \approx 40.0 \,\text{dB}\mu\text{V/m}$   $150 \,\mu\text{V/m} \approx 43.5 \,\text{dB}\mu\text{V/m}$ 

200 μV/m  $\approx$  46.0 dBμV/m 500 μV/m  $\approx$  54.0 dBμV/m

2500 mV/m  $\approx$  128.0 dB $\mu$ V/m 25.0 mV/m  $\approx$  88.0 dB $\mu$ V/m

Emissions radiated outside the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

#### 4.3 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainties expressed at 95% confidence level using a coverage factor k = 2.

Radiated Emissions: 4.6 dB

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# 4.4 Field Strength Calculations

The field strength is calculated by adding the antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FI(dBµV/m) = SAR(dBµV) + SCF(dB/m) FI = Field Intensity SAR = Spectrum Analyzer Reading SCF = Site Correction Factor

The Site Correction Factor (SCF) used in the above equation is determined empirically, and is expressed in the following equation:

$$SCF(dB/m) = -PG(dB) + AF(dB/m) + CL(dB)$$

SCF = Site Correction Factor
PG = Pre-amplifier Gain
AF = Antenna Factor
CL = Cable Loss

The field intensity in microvolts per meter can then be determined according to the following equation:

$$FI(\mu V/m) = 10^{FI(dB\mu V/m)/20}$$

For example, assume a signal at a frequency of 125 MHz has a received level measured as 49.3 dB $\mu$ V. The total Site Correction Factor (antenna factor plus cable loss minus preamplifier gain) for 125 MHz is -11.5 dB/m. The actual radiated field strength is calculated as follows:

$$49.3 \text{ dB}\mu\text{V} - 11.5 \text{ dB} = 37.8 \text{ dB}\mu\text{V/m}$$

$$10^{37.8/20} = 10^{1.89} = 77.6 \,\mu\text{V/m}$$

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# 4.5 Radiated Emissions Test Data

Table 4-3: Radiated Emissions Environmental Factors

Date	Temperature (°F)	Humidity (%)	Atmospheric Pressure (kPa)
09/24/2019	77.0	45	99.8
09/26/2019	72.0	51	99.7
09/27/2019	77.0	40	101.2
10/02/2019	76.5	43	99.7
10/11/2019	73.4	32	100.8

Table 4-4: Radiated Emissions – Fundamental – Average

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
24.08	V	45	1.5	84.8	39.3	124.1	128.0	-3.9	PASS
24.12	V	45	1.5	84.9	39.3	124.2	128.0	-3.8	PASS
24.16	V	45	1.5	85.6	39.3	124.9	128.0	-3.1	PASS

Table 4-5: Radiated Emissions – Fundamental – Peak

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
24.08	V	0	1.5	84.9	39.3	124.2	148.0	-23.8	PASS
24.12	V	0	1.5	85.0	39.3	124.3	148.0	-23.7	PASS
24.16	V	45	1.5	85.6	39.3	124.9	148.0	-23.1	PASS

Table 4-6: Radiated Emissions – 24.08 GHz – Harmonics and Spurious – Average

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.160	V	45	1.5	45.3	35.2	80.5	88.0	-7.5	PASS
72.240	V	45	1.5	33.3	40.0	73.3	88.0	-14.7	PASS
75.252	V	135	1.5	25.1	14.1	39.2	74.1	-34.9	PASS
96.320	V	45	1.5	35.9	31.6	67.5	88.0	-20.5	PASS
97.477	V	0	1.5	21.6	19.1	40.7	74.1	-33.4	PASS

Table 4-7: Radiated Emissions – 24.08 GHz – Harmonics and Spurious – Peak

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.160	V	45	1.5	47.9	35.2	83.1	108.0	-24.9	PASS
72.240	V	225	1.5	43.4	40.0	83.4	108.0	-24.6	PASS
75.252	V	225	1.5	27.8	14.1	41.9	94.1	-52.2	PASS
96.320	V	0	1.5	53.2	31.6	84.8	108.0	-23.2	PASS
97.477	V	0	1.5	24.0	19.1	43.1	94.1	-51.0	PASS

Client: FlightScope (Pty) Ltd Model: MEVO+ Standards: FCC 15.245/RSS-210; RSS-Gen

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Table 4-8: Radiated Emissions – 24.12 GHz – Harmonics and Spurious – Average

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.240	V	45	1.5	48.6	35.2	83.8	88.0	-4.2	PASS
72.360	V	0	1.5	32.5	40.0	72.5	88.0	-15.5	PASS
75.374	V	225	1.5	25.0	14.1	39.1	74.2	-35.1	PASS
96.480	V	0	1.5	36.6	31.6	68.2	88.0	-19.8	PASS
97.478	V	0	1.5	22.6	19.1	41.7	74.2	-32.5	PASS

Table 4-9: Radiated Emissions – 24.12 GHz – Harmonics and Spurious – Peak

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.240	V	45	1.5	50.1	35.2	85.3	108.0	-22.7	PASS
72.360	V	45	1.5	43.8	40.0	83.8	108.0	-24.2	PASS
75.374	V	45	1.5	28.5	14.1	42.6	94.2	-51.6	PASS
96.480	V	0	1.5	52.6	31.6	84.2	108.0	-23.8	PASS
97.478	V	0	1.5	26.1	19.1	45.2	94.2	-49.0	PASS

Table 4-10: Radiated Emissions – 24.16 GHz – Fundamental and Harmonics – Average

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.320	V	0	1.5	44.5	35.2	79.7	88.0	-8.3	PASS
72.480	V	0	1.5	36.3	40.0	76.3	88.0	-11.7	PASS
75.542	V	0	1.5	24.7	14.1	38.8	74.9	-36.1	PASS
96.640	V	0	1.5	35.1	31.6	66.7	88.0	-21.3	PASS
97.478	V	0	1.5	21.5	19.1	40.6	74.9	-34.3	PASS

Table 4-11: Radiated Emissions – 24.16 GHz – Fundamental and Harmonics – Peak

Emission Frequency (GHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
48.320	V	180	1.5	46.0	35.2	81.2	108.0	-26.8	PASS
72.480	V	225	1.5	42.3	40.0	82.3	108.0	-25.7	PASS
75.542	V	225	1.5	28.2	14.1	42.3	94.9	-52.6	PASS
96.640	V	0	1.5	54.4	31.6	86.0	108.0	-22.0	PASS
97.478	V	0	1.5	24.3	19.1	43.4	94.9	-51.5	PASS

Client: FlightScope (Pty) Ltd Model: MEVO+ Standards: FCC 15.245/RSS-210; RSS-Gen

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Table 4-12: Radiated Emissions – Unintentional

Emission Frequency (MHz)	Antenna Polarity (H/V)	Table Azimuth (°)	Antenna Height (m)	Analyzer Reading (dBµV)	Site Correction Factor (dB/m)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
240.000	Η	225	1.0	42.4	-14.1	28.3	46.0	-17.7	PASS
264.000	Ι	180	1.0	34.5	-12.1	22.4	46.0	-23.6	PASS
286.525	V	180	2.0	42.5	-12.0	30.5	46.0	-15.5	PASS
320.000	Η	0	1.0	36.1	-11.6	24.5	46.0	-21.5	PASS
360.000	V	90	1.5	42.3	-9.8	32.5	46.0	-13.5	PASS
504.000	V	225	1.0	36.3	-6.0	30.3	46.0	-15.7	PASS
672.000	Η	0	1.5	38.9	-3.2	35.7	46.0	-10.3	PASS
720.000	Η	135	1.0	43.0	-1.6	41.4	46.0	-4.6	PASS
960.000	Н	225	1.0	35.8	1.6	37.4	46.0	-8.6	PASS

# Result: Pass

# **Test Personnel**

Khue Do	Khufe	September 24 to 27, 2019 October 2 and 11, 2019
EMC Test Engineer	Signature	Dates of Test

Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361 Report #: 2019137DXT

Table 4-13: Radiated Emissions Test Equipment

RTL Asset #	Part Type	Manufacturer	Model	Serial Number	Calibration Due Date
900321	Horn Antennas (4.0 – 8.2 GHz)	EMCO	3161-03	9508-1020	05/17/2021
900323	Horn Antennas (8.2 – 12.4 GHz)	EMCO	3160-7	9605-1054	05/17/2021
900356	Horn Antenna (12.4 – 18.0 GHz)	EMCO	3160-08	9607-1044	05/17/2021
900711	Horn Antenna (75 – 110 GHz)	ATM	10-443-6R	8051905-1	04/07/2022
900712	Horn Antenna (50 – 75 GHz)	ATM	15-443-6R	8051805-1	04/07/2022
900772	Horn Antenna (2 – 4 GHz)	EMCO	3161-02	9804-1044	05/17/2021
900791	Bilog Antenna (30 – 2000 MHz)	Chase	CBL6111B	N/A	10/04/2020
900905	Preamplifier (10 – 2000 MHz)	Rhein Tech Laboratories	PR-1040	1006	08/29/2020
900913	RF Filter Section (100 kHz – 6.5 GHz)	Hewlett Packard	85462A	3325A00159	05/14/2021
900914	EMI Receiver Section (9 kHz – 6.5 GHz)	Hewlett Packard	85460A	3330A00107	05/14/2021
900932	Preamplifier (1 – 26.5 GHz)	Hewlett Packard	8449B OPT H02	3008A00505	10/01/2020
901218	Horn Antenna (18.0 – 26.5 GHz)	EMCO	3160-09	960281-003	05/05/2021
901256	Horn Antenna (40 – 60 GHz)	ATM	19-443-6R	8041704-01	04/04/2020
901303	Horn Antenna (26.5 – 40.0 GHz)	EMCO	3160-10	960452-007	05/15/2021
901581	Spectrum Analyzer (20 Hz – 50 GHz)	Rhode & Schwarz	1166.1660.50	200106	06/26/2021
901583	Signal Analyzer (10 Hz – 26.5 GHz)	Agilent Technologies	EXA N9010A	MY51250846	02/06/2020
N/A	RTL Emissions Test Software	Rhein Tech Laboratories	1.1.4	N/A	N/A

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Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

Report #: 2019137DXT

# 5 Occupied Bandwidth – ISED RSS-Gen 6.7

### 5.1 99% Bandwidth Test Procedure

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

### 5.2 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainty expressed at 95% confidence level using a coverage factor k=2.

99% Bandwidth: ±1.0 \* 10<sup>-6</sup> Hz

### 5.3 99% dB Bandwidth Test Results

Table 5-1: 99% Bandwidth Environmental Factors

Date	Temperature (°F)	Humidity (%)	Atmospheric Pressure (kPa)
10/14/2019	73.6	36	100.8

Table 5-2: 99% Bandwidth Test Data

Frequency (GHz)	99% Bandwidth (MHz)		
24.08	0.955		
24.12	0.956		
24.16	0.947		

Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

Report #: 2019137DXT

### 5.4 99% Bandwidth Plots

# Plot 5-1: 99% Bandwidth, 24.08 GHz



Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

Report #: 2019137DXT





Client: FlightScope (Pty) Ltd Model: MEVO+

Standards: FCC 15.245/RSS-210; RSS-Gen ID's: QXP-LJ361/4612A-LJ361

Report #: 2019137DXT

Plot 5-3: 99% Bandwidth, 24.16 GHz



### **Test Personnel**

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Khue Do	Khuf	October 14, 2019
EMC Test Engineer	Signature	Date of Test

Table 5-3: 99% Bandwidth Test Equipment

RTL Asset #	Part Type	Manufacturer	Model	Serial Number	Calibration Due Date
901583	Signal Analyzer (9 kHz – 26.5 GHz)	Agilent Technologies	EXA N9010A	MY51250846	02/06/2020

### 6 Conclusion

The data in this measurement report shows that the EUT as tested, FlightScope (Pty) Ltd., Model: MEVO+, FCC ID: QXP-LJ361, IC ID: 4612A-LJ361, does comply with the applicable requirements of Parts 2 and 15 of the FCC rules and regulations and ISED RSS-210 and RSS-Gen.