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TESTING LABORATORY

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TEST REPORT

ABOUT THE ELECTROMAGNETIC COMPATIBILITY TEST
on the ZipTip III

ZKUŠEBNÍ LABORATOŘ Institut pro testování a certifikaci, a.s.

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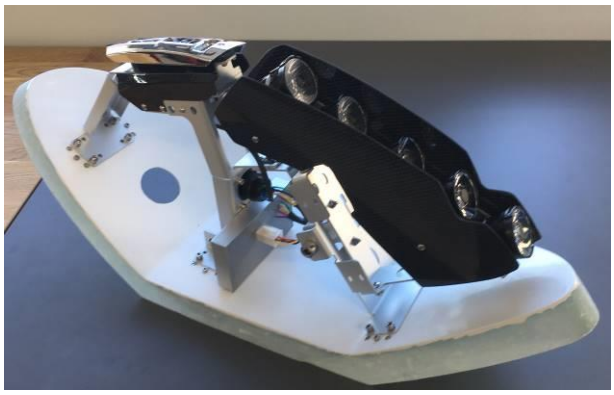
	Applicant (Copy No 2)

1 GENERAL SPECIFICATIONS

1.1 Equipment Under Test (EUT)

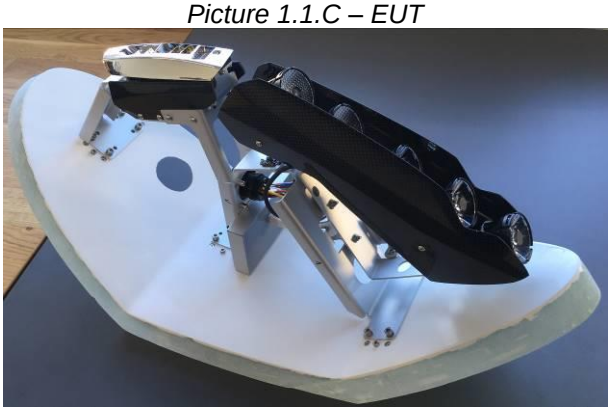
One samples of ZipTip III AVE-ZT33WALTWS2R-CRD, with serial number A00-1912-00001 and One samples of ZipTip III AVE-ZT33WALTWS2G-CRD, with serial number A00-1912-00001 were delivered 2019-12-04 for execution of the tests. The laboratory integrate the sample into the test schedule under the Job No. 414104316.

Picture 1.1.A – EUT



Picture 1.1.B – Marking label

Picture 1.1.C – EUT



Picture 1.1.D – Marking label

1.2 Applicant

Aveo Engineering Group s.r.o.
Obory 98
263 01 Dobříš
Czech Republic

Company ID: 26739721
Tax ID: CZ26739721

Order No: 1992000043
as of 2019-12-10

1.3 Manufacturer

Aveo Engineering Group s.r.o.
Obory 98
263 01 Dobříš
Czech Republic

1.4 Test Period

Started on: 2019-12-04
Finished on: 2019-12-04

1.5 Test Condition

Ambient temperature (+15 up to +25) °C, (+59 up to +77) °F
Barometric pressure (86 up to 106) kPa
Relative humidity (25 up to 75) %

1.6 Specification of Used Regulations

i	Used regulations
1	RTCA/DO-160G

1.7 List of Used Instruments and Equipment

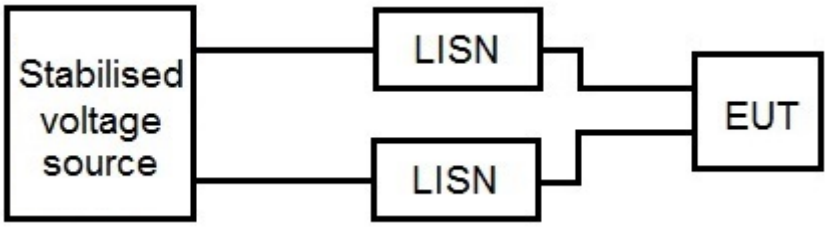
i	*Instrument / Equipment*	*Manufacturer*	*Type*	*Serial No*	*Calibration date*	*Calibration due*
1	Test Receiver	Rohde & Schwarz	ESIB 7	100318	2017-02-10	2020-02-10
2	Artificial Networks	Mesit	Z 773	FD 002	not subject to calibration	
3	Artificial Networks	Mesit	Z 773	FD 003	not subject to calibration	
4	Log-per Antenna	Frankonia	BTA-H	97061002	2011-07-26	2021-07-23
5	Horn Antenna	Rohde & Schwarz	HF906	359287/003	2013-08-28	2023-08-26
6	Current Probe	SINGER	91550	1208	not subject to calibration	
7	Current Probe	SINGER	94111-1	0176-04275	not subject to calibration	
8	RF Amplifier	Frankonia	FLH-200B1	1055/1741	not subject to calibration	
9	RF Amplifier	MILMEGA	AS0840-30-17	10140028	not subject to calibration	
10	RF Amplifier	AR	10W1000B	21532	not subject to calibration	
11	Coupling Clamp	MEB	KEMZ 801	14299	not subject to calibration	

All listed equipment subjected calibration has been duly calibrated and they passed a regular metrological inspection.

1.8 EUT installation

The EUT was supplied by stabilised DC voltage source of 14V. EUT was connected to LISNs using non-shielded conductors length of 1 m (3.3 ft.). The conductors was on the non-conductive support 50 mm above the ground plane. The cable was 10 cm (4 in.) from the front of the test bench. EUT was in the operational mode during the test.

Picture 1.8.A – Block diagram of test setup



EUT were tested independently and then as a complete assembly.

Complete assembly was assembled from this components.
ZipTip III AVE-ZT33WALTWS2R-CRD, with serial number A00-1912-00001
ZipTip III AVE-ZT33WALTWS2G-CRD, with serial number A00-1912-00001
ZipTip III Rear module AVE-ZTRSOW-D01, with serial number A00-1912-00001 – 2 pieces

2 RESULTS OF INDIVIDUAL TESTS AND EVALUATION

E: - Evaluation of test discipline
R: - Requirement

2.1 Emissions of RF Energy (RTCA/DO-160G, Section 21)

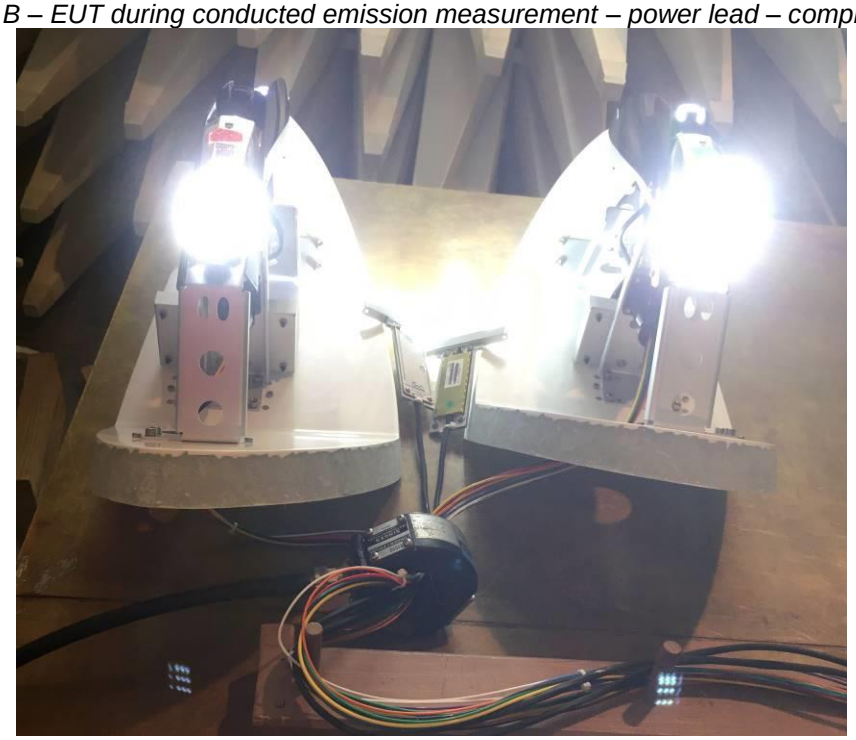
R: To comply with RTCA/DO-160G, Section 21, Item 21.4 Category H, Item 21.5 Category H for components and Section 21, Item 21.4 Category M, Item 21.5 Category M for complete assembly.

2.1.1 Conducted emissions

The EUT was setup according to RTCA/DO-160G, section 21, figure 21-6 during the test.
Levels of spurious currents on the power leads of the EUT were measured using the current probe according to the RTCA/DO-160G, Item 21.4.
The EUT was tested in the operating mode.

Picture 2.1.1.A – EUT during conducted emission measurement – power lead

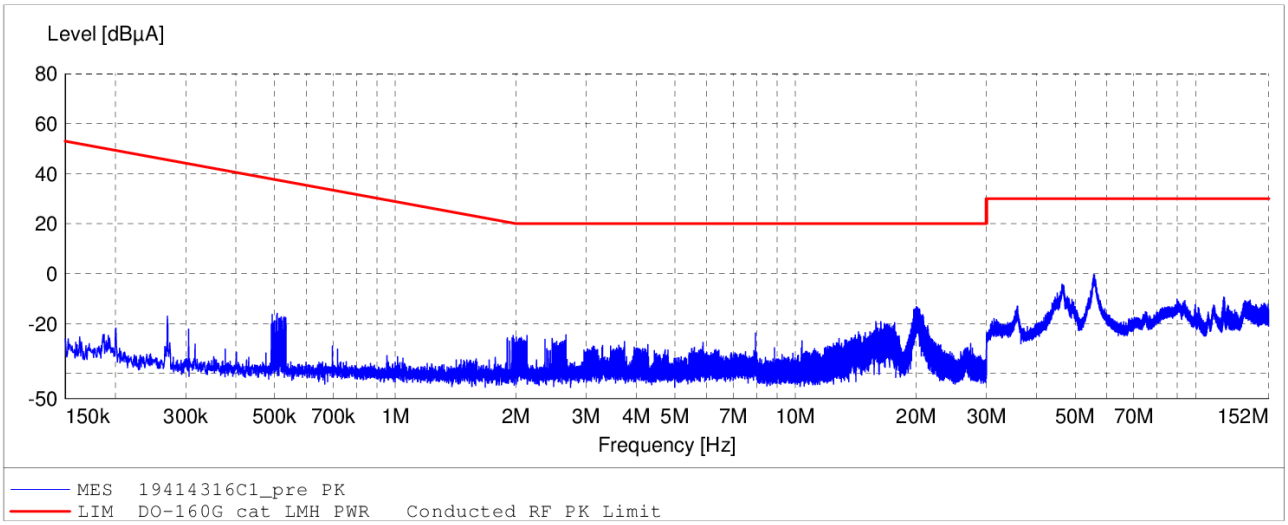
Picture 2.1.1.B – EUT during conducted emission measurement – power lead – complete assembly



Graph 2.1.1.A – power cable - green

Conducted RF Emission

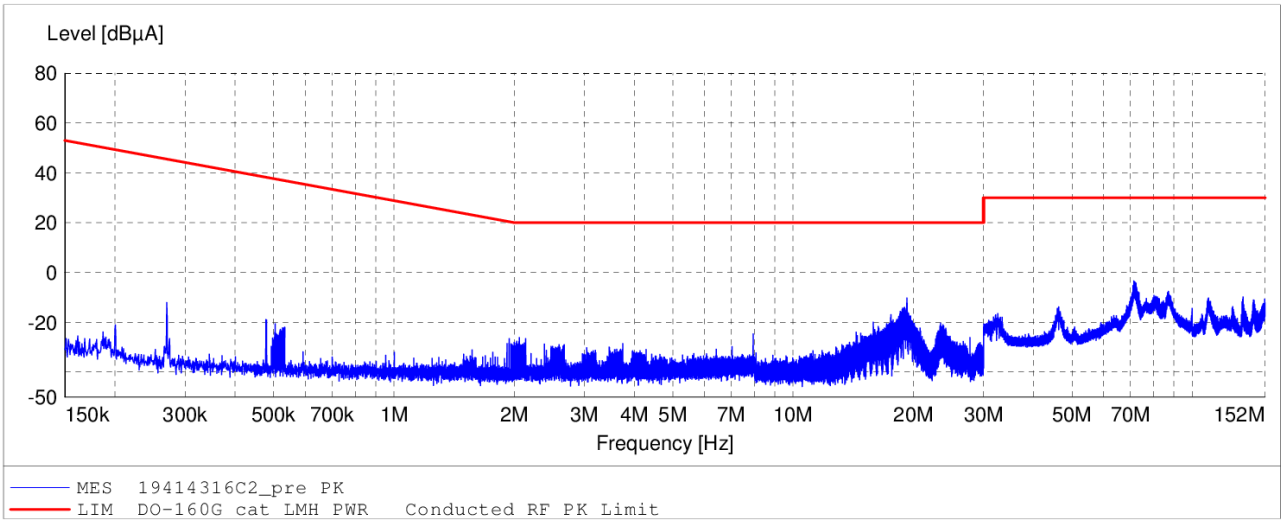
```
EUT:                  ZIPTIPIII
Manufacturer:         Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:             V.Vaculik
Test Specification:   power cable
Comment:              front light
                      landing, taxi, naw, strobe, synch
```



Graph 2.1.1.B – power cable – red

Conducted RF Emission

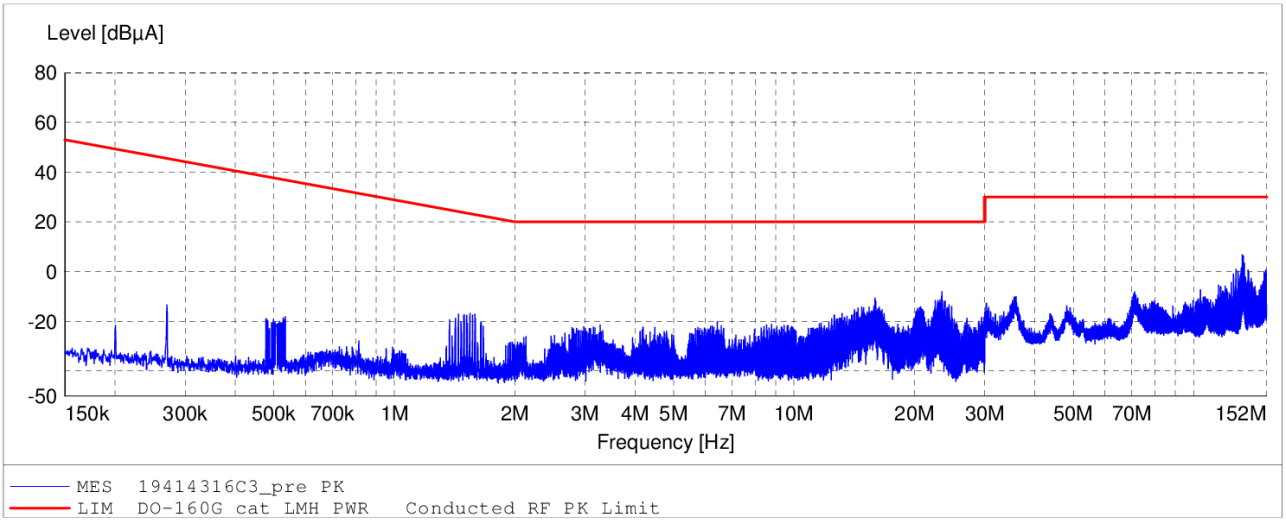
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: power cable
Comment:            front light, red
                    landing, taxi, naw, strobe, synch
```



Graph 2.1.1.C – power cable - complete assembly

Conducted RF Emission

```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: power cable
Comment:            landing, taxi, wig-wag, nav, strobe, synch
Start of Test:      4.12.2019 / 15:40:43
```



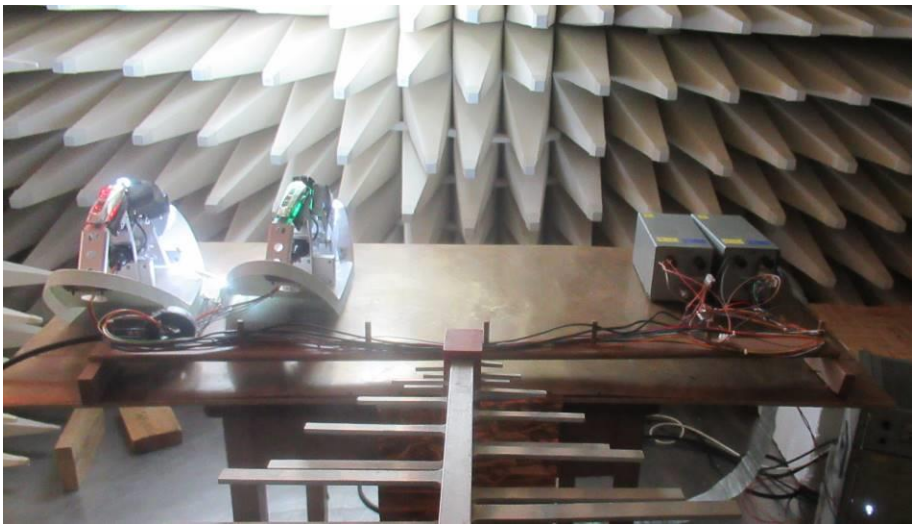
E: Pass

2.1.2 Radiated RF Interference

The EUT was setup according to RTCA/DO-160G, section 21, figure 21-11 during the test. Levels of radiated interference in the frequency band of 100 up to 1000 MHz were measured using the log-periodical antenna according to RTCA/DO-160G, Item 21.5. Levels of radiated interference in the frequency band of 1 up to 6 GHz were measured using the horn antenna according to RTCA/DO-160G, Item 21.5.
The EUT was tested in the operating mode.

Picture 2.1.2.A – EUT during radiated emission measurement - green

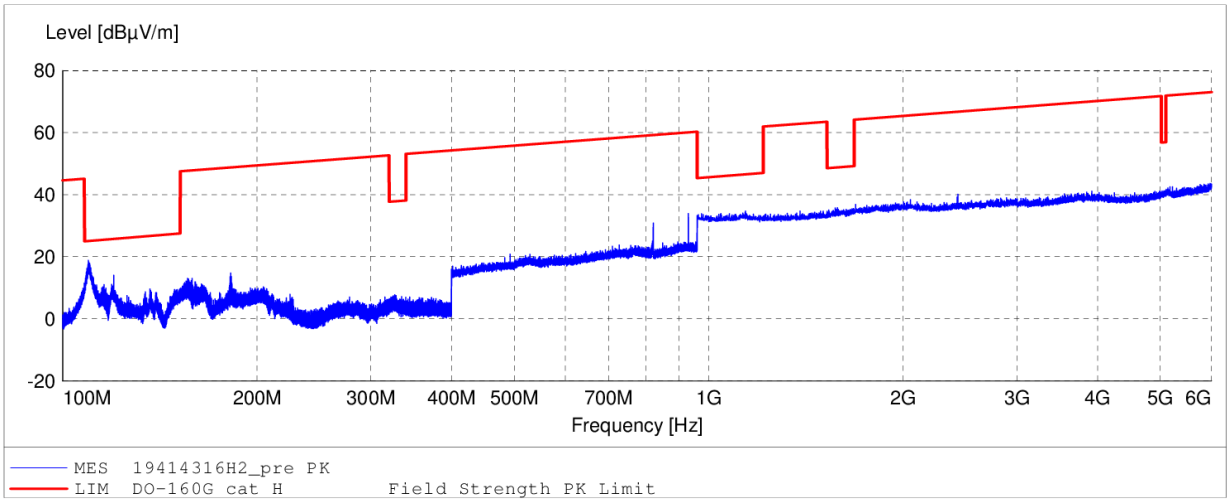
Picture 2.1.2.B – EUT during radiated emission measurement - complete assembly



Graph 2.1.2.A – horizontal - green

Emission of Radio Frequency Energy

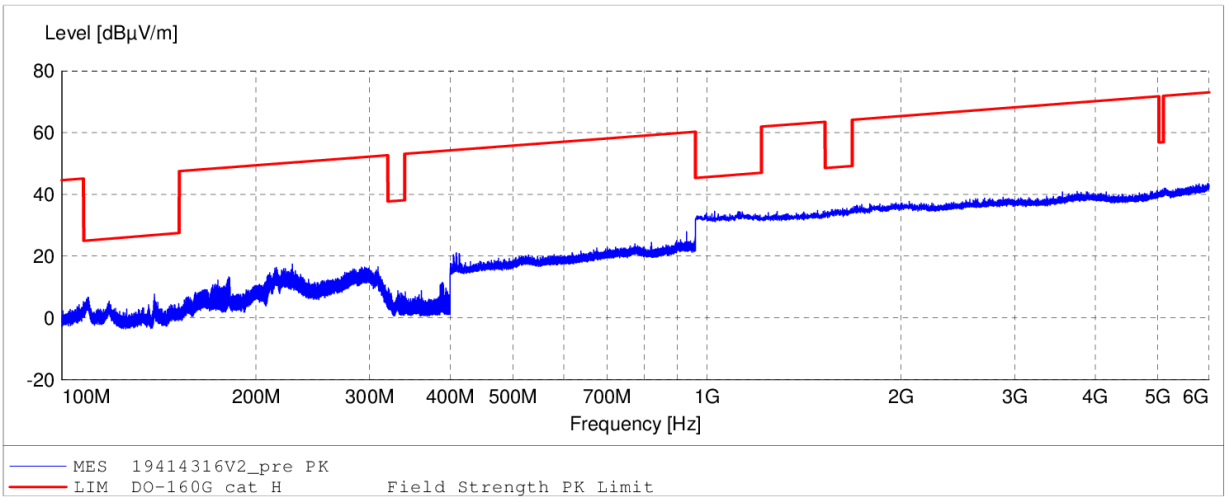
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Horizontal
Comment:            front ligth
                    landing, taxi, naw, strobe, synch
```



Graph 2.1.2.B – vertical – green

Emission of Radio Frequency Energy

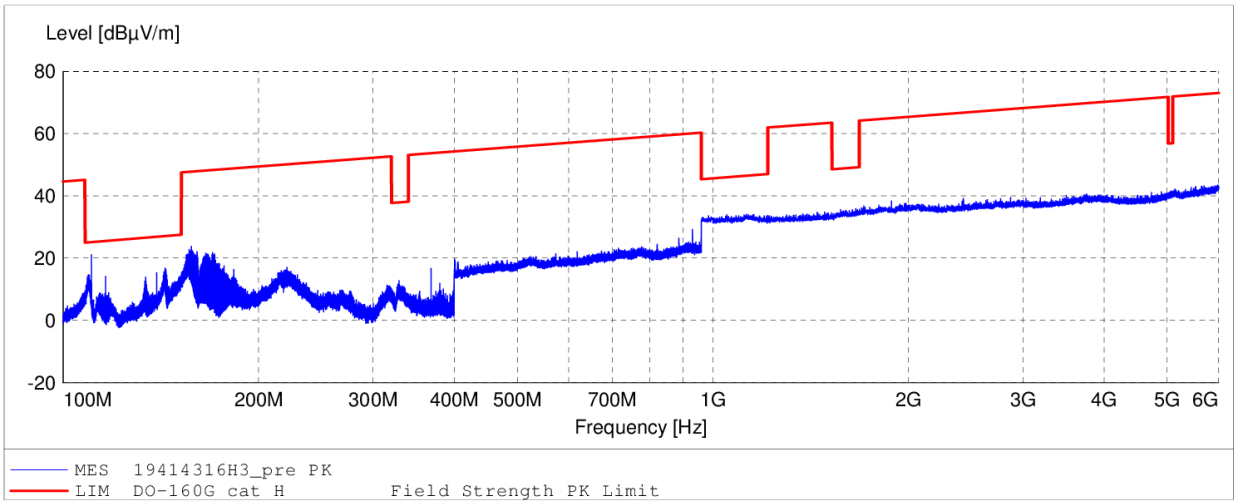
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Vertical
Comment:            front ligth
                    landing, taxi, naw, strobe, synch
```



Graph 2.1.2.C – horizontal - red

Emission of Radio Frequency Energy

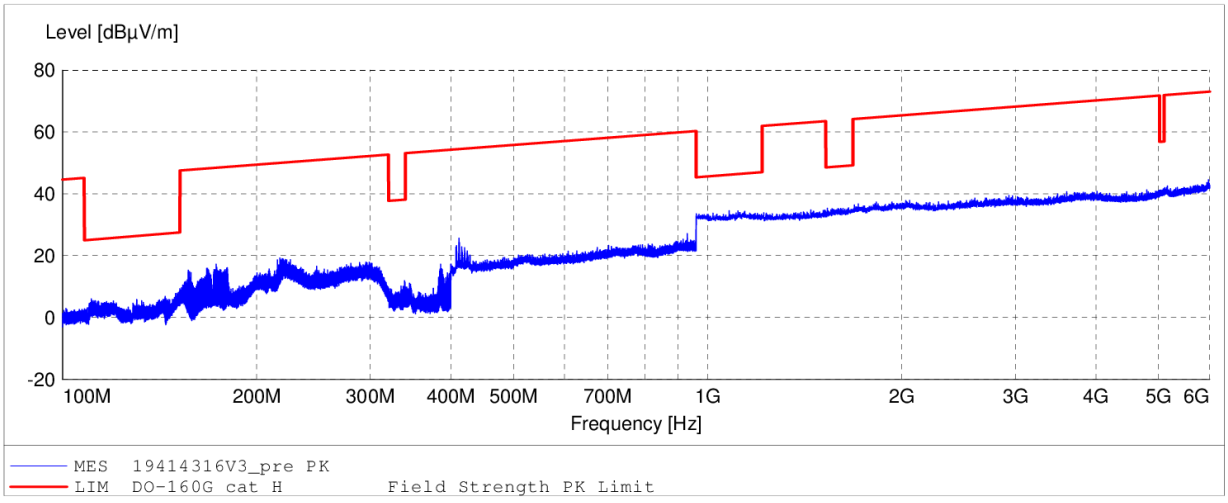
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Horizontal
Comment:            front ligth, red
                    landing, taxi, naw, strobe, synch
```



Graph 2.1.2.D – vertical – red

Emission of Radio Frequency Energy

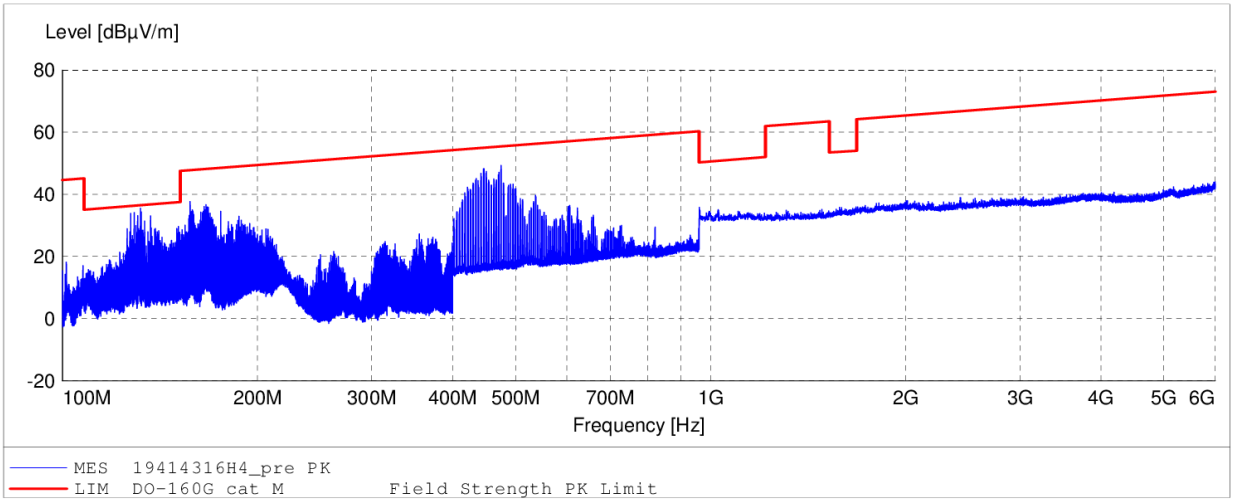
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Vertical
Comment:            front ligth, red
                    landing, taxi, naw, strobe, synch
```



Graph 2.1.2.E – horizontal - complete assembly

Emission of Radio Frequency Energy

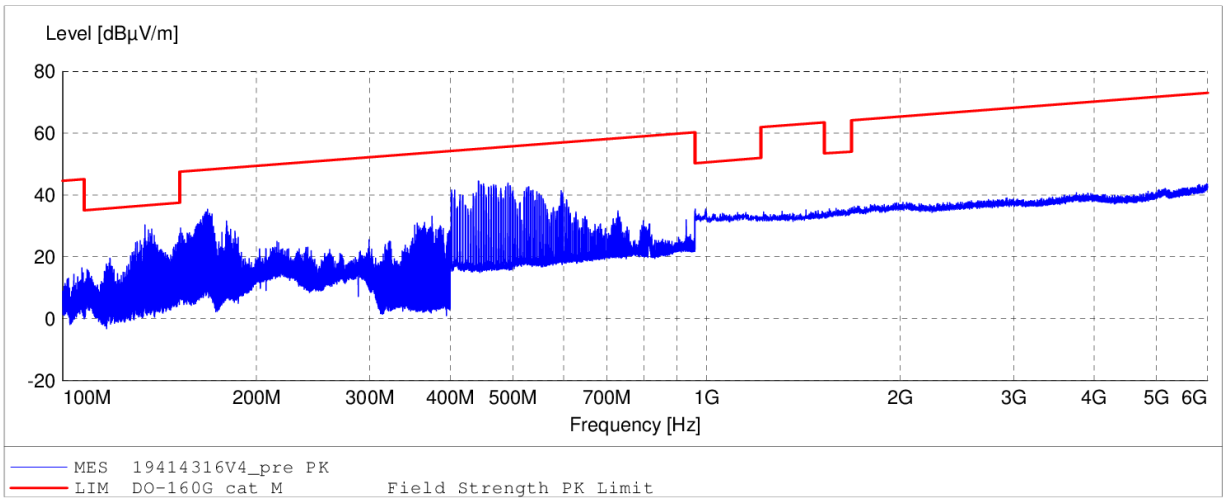
```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Horizontal
Comment:            landing, taxi,wig-wag, nav, strobe, poz, synch
Start of Test:      4.12.2019 / 16:17:26
```



Graph 2.1.2.F – vertical - complete assembly

Emission of Radio Frequency Energy

```
EUT:                ZIPTIPIII
Manufacturer:       Aveo Engineering Group s.r.o.
Operating Condition:
Test Site:
Operator:           V.Vaculik
Test Specification: Vertical
Comment:            landing, taxi,wig-wag, nav, strobe, poz, synch
Start of Test:      4.12.2019 / 16:41:25
```



E: Pass

3 CONCLUSION

ZipTip III AVE-ZT33WALTWS2R-CRD, ZipTip III AVE-ZT33WALTWS2G-CRD comply with requirements according to the RTCA/DO-160G, Section 21, paragraph 21.4, category H, paragraph 21.5, category H in the range of performed tests.

ZipTip III AVE-ZT33WALTWS2R-CRD, ZipTip III AVE-ZT33WALTWS2G-CRD as complete assembly complies with requirements according to the RTCA/DO-160G, Section 21, paragraph 21.4, category M, paragraph 21.5, category M in the range of performed tests.

END OF THE REPORT