



# FCC EMC TEST REPORT

of

Equipment under Test: Pivothead Video Recording Eyewear

Trade Name: Pivothead

Brand Name: Pivothead

Model Name: Recon;Moab

Applicant: Cape Evolution (Shanghai) Co., Ltd

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): 2012.4.20-2012.4.27

Test Result: PASS

Report No.: SH12070007E01

FCC ID: PB9PV52891720

prepared by

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**Bluetooth**

**CTIA Authorized Test Lab**  
LAB CODE 20081223-00

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## 1. GENERAL INFORMATION

### 1.1 EUT Description

EUT Type ..... : Pivothead Video Recording Eyewear  
FCC ID ..... : PB9PV52891720  
Hardware Version..... : v1.2  
Software Version ..... : v0.29  
Power supply ..... : Battery

Model No.: 391835  
Brand Name: YOKU  
Capacitance: 440mAh  
Rated Voltage: 3.7V  
Charge Limit: 4.2V  
Manufacturer: YOKU ENERGY (ZHANGZHOU) CO., LTD

**NOTE:**

For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

## 1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS
3	ANSI C63.4-2003	Radiated Emission	PASS

## 1.3 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 – 25
Relative Humidity (%):	40 – 60
Atmospheric Pressure (kPa):	106

## 1.4 Test Equipments Used

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2011.09	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2011.09	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2011.09	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2011.09	1year
LISN	Rohde&Schwarz	ENV216	812744	2011.09	1year

### NOTE:

- Equipments listed above have been calibrated and are in the period of validation.

## 2. TEST CONDITIONS SETTING

### 2.1 Test Mode

The test modes of the EUT are showed as below:

Mode 1. EUT+PC Mode

The EUT configuration of the emission test is EUT + Battery+PC.

In this test mode, a connection was established between the EUT and a PC; data was transmitted between EUT and the PC, and maintained during the measurement.

Mode 2. EUT Mode

The EUT configuration of the emission test is EUT + Battery.

In this test mode, the EUT is operating and maintained during the measurement.

*NOTE: All configurations and test modes are performed, only the worst cases are recorded in this report.*

### 3.1 Description Of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	Trade Name
1	PC	SL400	L3-BBB0A	LENOVO

Note:

During the test, the support unit PC was powered by AC 120V, 60Hz.

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 3. CONDUCTED EMISSION

#### 3.1 Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE:

The limit subjects to the Class B digital device.

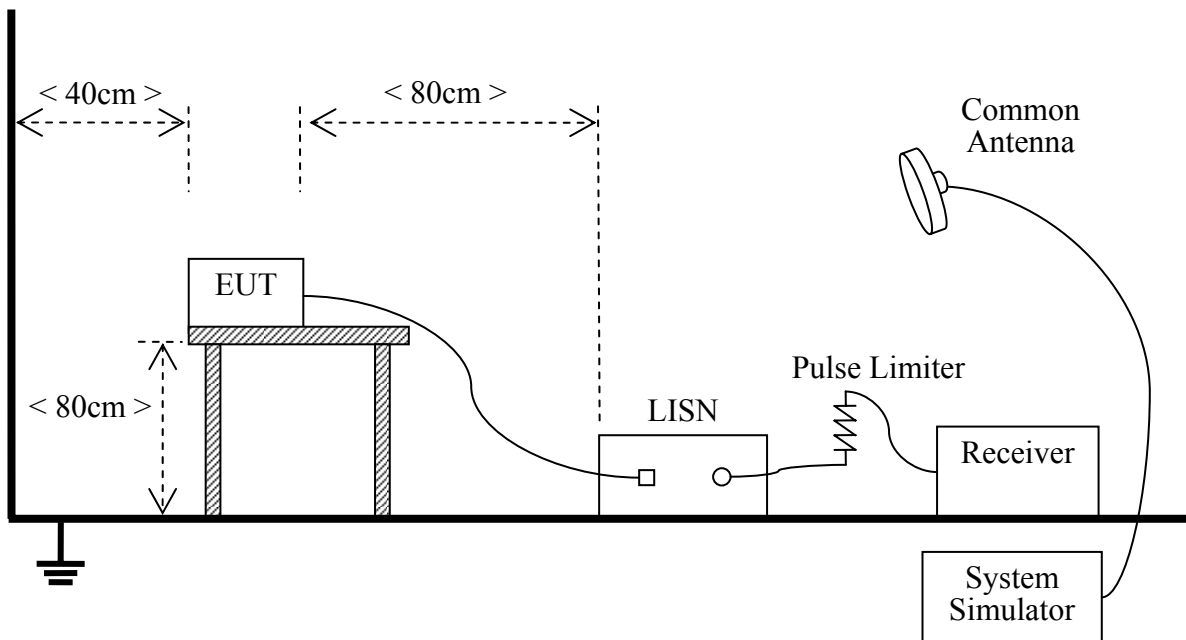
The lower limit shall apply at the band edges.

The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

#### 3.2 Test Procedure

1. The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50 $\Omega$ /50 $\mu$ H of coupling impedance for the measuring instrument.
2. The test frequency range is from 150kHz to 30MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors.
3. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

### 3.3 Test Setup



### 3.4 Test Result

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

**Test Verdict Recorded for Suspicious Points:**

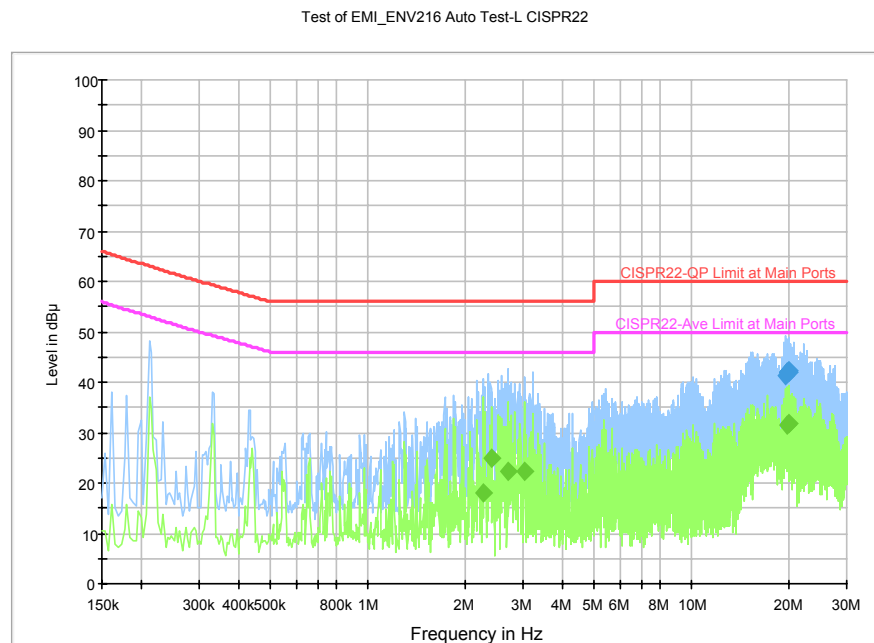
Mode 1. EUT+PC Mode

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.217162	45.6	150.000	9.000	N	9.6	17.2	62.8	PASS
2.064131	37.3	150.000	9.000	N	9.7	18.7	56.0	PASS
2.612625	38.3	150.000	9.000	N	9.8	17.7	56.0	PASS
9.959456	36.1	150.000	9.000	N	10.1	23.9	60.0	PASS
14.500388	37.6	150.000	9.000	N	10.2	22.4	60.0	PASS
19.615931	41.7	150.000	9.000	N	10.4	18.3	60.0	PASS
19.429369	41.4	150.000	9.000	L	10.3	18.6	60.0	PASS
19.709212	42.1	150.000	9.000	L	10.3	17.9	60.0	PASS
19.739062	41.9	150.000	9.000	L	10.3	18.1	60.0	PASS
19.750256	42.0	150.000	9.000	L	10.3	18.0	60.0	PASS
19.824881	42.1	150.000	9.000	L	10.3	17.9	60.0	PASS
19.906969	41.8	150.000	9.000	L	10.3	18.2	60.0	PASS

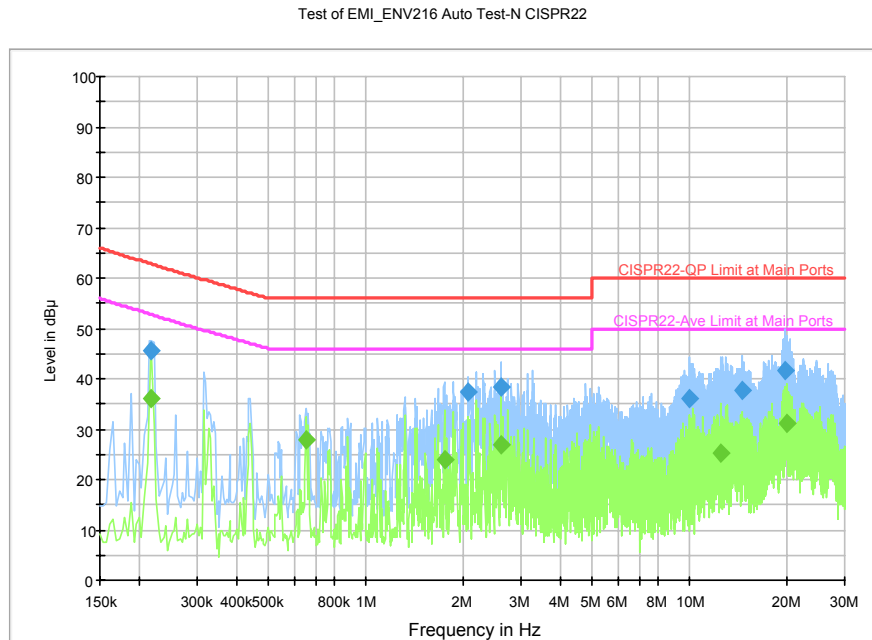
Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.217162	35.9	150.000	9.000	N	9.6	16.8	52.7	PASS
0.653719	27.9	150.000	9.000	N	9.7	18.1	46.0	PASS
1.739512	24.1	150.000	9.000	N	9.7	21.9	46.0	PASS
2.612625	26.7	150.000	9.000	N	9.8	19.3	46.0	PASS
12.433275	25.2	150.000	9.000	N	10.1	24.8	50.0	PASS
19.772644	31.1	150.000	9.000	N	10.4	18.9	50.0	PASS
2.269350	18.0	150.000	9.000	L	9.8	28.0	46.0	PASS
2.396212	25.0	150.000	9.000	L	9.8	21.0	46.0	PASS
2.705906	22.4	150.000	9.000	L	9.8	23.6	46.0	PASS
3.034256	22.2	150.000	9.000	L	9.8	23.8	46.0	PASS
19.750256	31.6	150.000	9.000	L	10.3	18.4	50.0	PASS
19.966669	31.7	150.000	9.000	L	10.3	18.3	50.0	PASS



## Test Plot:



(Plot: L Phase)



(Plot: N Phase)

## 4. RADIATED EMISSION

### 4.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a certain distance shall not exceed the following values:

Frequency range (MHz)	Field Strength CLASS B (at 3m)	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Frequency range (MHz)	Field Strength CLASS A (at 10m)	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	90	39.0
88 - 216	150	43.5
216 - 960	210	46.4
Above 960	300	49.5

NOTE:

$$\text{Field Strength (dB}\mu\text{V/m)} = 20 \cdot \log[\text{Field Strength (}\mu\text{V/m)}].$$

In the emission tables above, the tighter limit applies at the band edges.

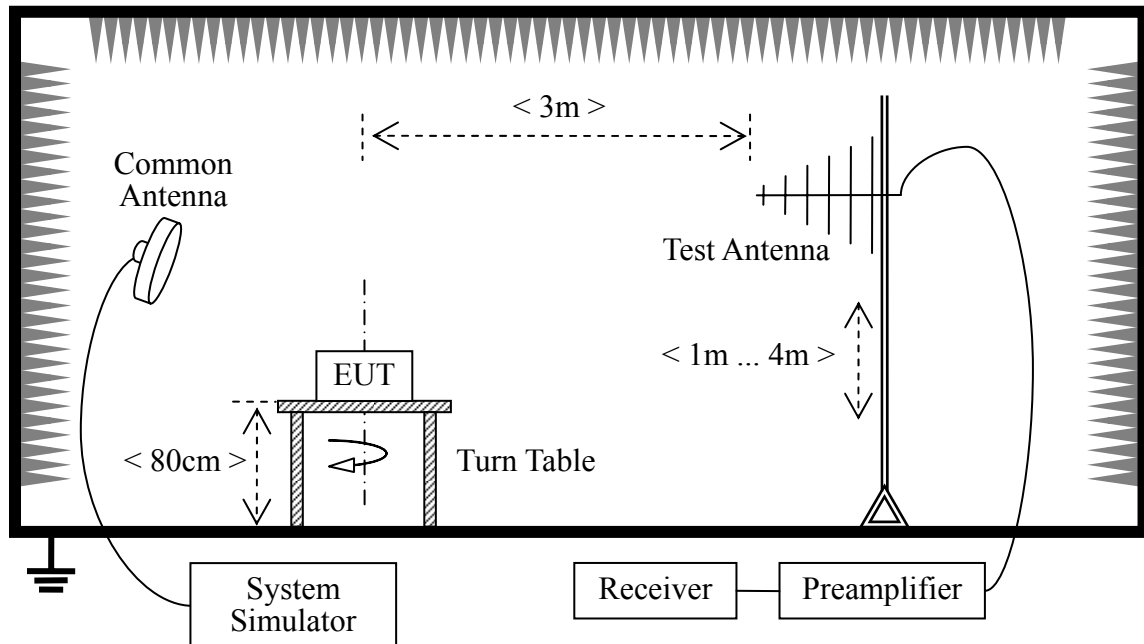
### 4.2 Test Procedure

1. The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.
2. For each suspected emission, the EUT is arranged to its worst case and then the Test Antenna is tuned to the heights from 1 to 4m and the Turn Table is tuned from 0 to 360 degrees to find the maximum reading.
3. The Test Antenna is a bi-log one, and its height is varied from 1 to 4m above the ground to determine the maximum value of the field strength. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests.
4. The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV

and QP detectors.

### 4.3 Test Setup

Please refer to Annex B for the photographs of the Test Configuration.



### 4.4 Test Result

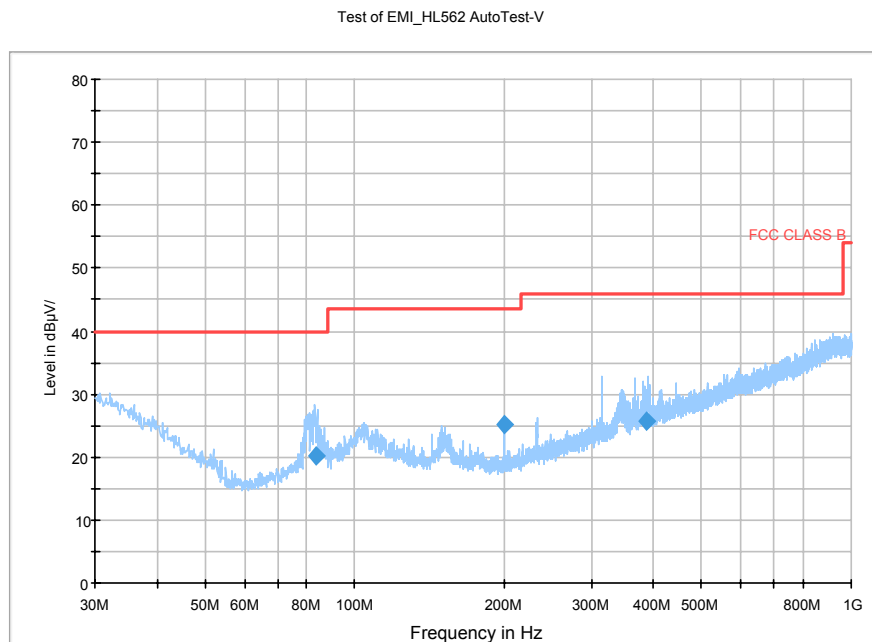
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

**Test Verdict Recorded:**

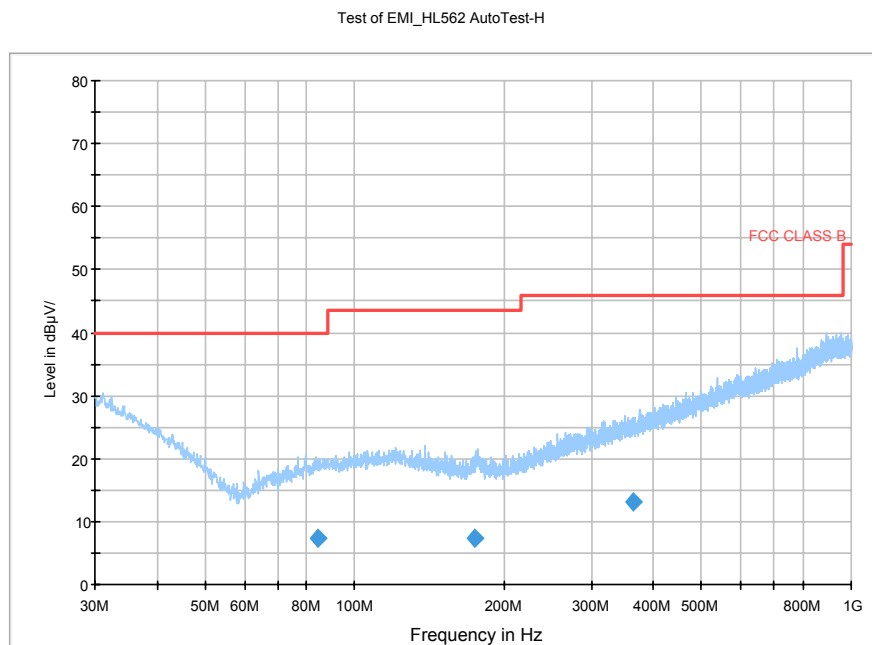
Mode 1. EUT+PC Mode

No.	@Frequency (MHz)	Emission Level (dB $\mu$ V/m)		Quasi-Peak Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)	Result
		QP (dB $\mu$ V/m)	Antenna Polarization			
1	83.715625	20.1	V	40.0	19.9	PASS
2	200.487500	25.1	V	43.5	18.4	PASS
3	388.191875	25.7	V	46.0	20.3	PASS
4	84.374375	7.3	H	40.0	32.7	PASS
5	173.892500	7.3	H	43.5	36.2	PASS
6	363.659375	13.1	H	46.0	32.9	PASS

**Test Plot:**



(Plot: Test Antenna Vertical)



(Plot: Test Antenna Horizontal)

**\*\* END OF REPORT \*\***