

GENERAL INFORMATION

FCCID: 2AFG9-E36

1.1. Product description



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Universe	Sport
Type	Lighting
Category	PERFORMANCE headlamps
Subcategory	PERFORMANCE headlamps



NAO® +

With 750 lumens of power, NAO + sets the standard for night trails! Connected and intelligent, it is entirely devoted to performance. Thanks to the MyPetzl Light mobile app, the athlete can in real time consult his smart phone or tablet to get remaining battery life and adjust headlamp performance. He simply downloads the profiles provided or creates his own personalized ones. During activity, with REACTIVE LIGHTING technology, NAO + analyzes ambient light and instantly adjusts the brightness to the needs of the athlete. With energy optimized and manipulations reduced to a minimum, the trail runner can concentrate on the race!



Primary light source produces a multi-beam that works with a light sensor which controls REACTIVE LIGHTING.



Customize lighting with the MyPetzl Light app. Compatible with smart phone or tablet.



Great comfort and stability in action, thanks to the rear battery pack and adjustable headband. Red light signals one's location.



Charge with integrated USB port.



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1.2. Tested System Details

Power supply:

During all the tests, EUT is supplied by V_{nom} : 3.7VDC

For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference	Comments
Supply1	<input type="checkbox"/> AC <input type="checkbox"/> DC <input checked="" type="checkbox"/> Battery	3.7V, 2600mAh and 9,62Wh	E36053 A08	Li-ion

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Supply1	Internal Battery	-	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-
Access1	USB	0.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only used to recharge.

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
None			

Equipment information:

Bluetooth LE Type:	<input type="checkbox"/> v4.0		<input checked="" type="checkbox"/> v4.1	
Frequency band:	[2400 – 2483.5] MHz			
Sub-band REC7003:	Annex 3 (a)			
Spectrum Modulation:	<input checked="" type="checkbox"/> DSSS (Tested like it)			
Number of Channel:	40			
Spacing channel:	2MHz			
Channel bandwidth:	1MHz			
Antenna Type:	<input checked="" type="checkbox"/> Integral	<input type="checkbox"/> External	<input type="checkbox"/> Dedicated	
Antenna connector:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Temporary for test	
Transmit chains:	<input checked="" type="checkbox"/> 1			
	Single antenna			
	Gain 1: 1.55dBi		Gain 2: dBi	
Beam forming gain:	No			
Receiver chains	1			
Type of equipment:	<input checked="" type="checkbox"/> Stand-alone	<input type="checkbox"/> Plug-in	<input type="checkbox"/> Combined	
Ad-Hoc mode:	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Adaptivity mode:	<input checked="" type="checkbox"/> Yes (Load Based)	<input type="checkbox"/> Off mode	<input type="checkbox"/> No	
	Clear Channel Assessment Time:		µs	
	q value for Load Based Equipment:			
Duty cycle:	<input checked="" type="checkbox"/> Continuous duty	<input type="checkbox"/> Intermittent duty	<input type="checkbox"/> 100% duty	
Equipment type:	<input checked="" type="checkbox"/> Production model		<input type="checkbox"/> Pre-production model	
Operating temperature range:	Tmin:	<input checked="" type="checkbox"/> -20°C	<input type="checkbox"/> 0°C	<input type="checkbox"/> °C
	Tnom:	20°C		
	Tmax:	<input type="checkbox"/> 35°C	<input checked="" type="checkbox"/> 55°C	<input type="checkbox"/> °C
Type of power source:	<input type="checkbox"/> AC power supply	<input type="checkbox"/> DC power supply	<input checked="" type="checkbox"/> Battery (Li-ion)	
Operating voltage range:	Vmin:	<input type="checkbox"/> 207V/50Hz	<input checked="" type="checkbox"/> 3.2Vdc	
	Vnom:	<input type="checkbox"/> 230V/50Hz	<input checked="" type="checkbox"/> 3.7Vdc	
	Vmax	<input type="checkbox"/> 253V/50Hz	<input checked="" type="checkbox"/> 4.2Vdc	

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CHANNEL PLAN			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
Cmin: 0	2402	20	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
Cmid:19	2440	Cmax: 39	2480

DATA RATE		
Data Rate (Mbps)	Modulation Type	Worst Case Modulation
1	GFSK	<input checked="" type="checkbox"/>

The EUT is set in the following modes during tests with software (SDK 8.0 / DTM):

- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

For the conducted and radiated emission data, the test configurations are:

- Configuration 1: The EUT is powered by USB, the LED and Bluetooth function is off. The USB recharges the internal battery (the charge indicator is on).
- Configuration 2: The EUT is powered by battery, the LED and Bluetooth are on.

For the others test the EUT is set in different radio emission mode with the following sequences:

- TX 2402: 0x80 0x28
- TX 2440: 0x93 0x28
- TX 2480: 0xA7 0x28
- RX 2402: 0x40 0x28
- RX 2440: 0x53 0x28
- RX 2480: 0x67 0x28
- Reset: 0x00 0x00
- Test End: 0xC0 0x00

Firmware / Software Lamp version: V1.1



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1.3. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 or ANSI C63.10, FCC Part 15 Subpart C.

Radiated testing was performed at an antenna to EUT distance of 10 meters. During testing, all equipment's and cables were moved relative to each other in order to identify the worst case set-up.

1.4. Test facility

Tests have been performed **from November 11th, 2015 to March 3rd, 2016.**

This test facility has been fully described in a report and accepted by FCC as compliant with the radiated and AC line conducted test site criteria in ANSI C63.4 and ANSI C63.10 (registration number 94821).

This test facility has also been accredited by COFRAC (French accreditation authority for European Union test lab accreditation organization) according to NF EN ISO/IEC 17025, accreditation number 1-1633 as compliant with test site criteria and competence in 47 CFR Part 15/ANSI C63.4 and EN55022/CISPR22 norms for 89/336/EEC European EMC Directive application. All pertinent data for this test facility remains unchanged.