

Ecosystem Radio Test Report

Version 2..24



Report Date

24 May 2023

General Information

Casambi project number	COEM-AB037
Casambi Ecosystem project manager	Rod Attenburrow
Tested by	Pekka Tallgren
Test date	23/05/2023

Sample Identification

Company	AGCled	
Country of origin	China	
Product number/name	UP-CZ01	Revision <u> </u> A
Radio design (CBM, other module, chip-down)	CBM003B	

Radio Design Verification

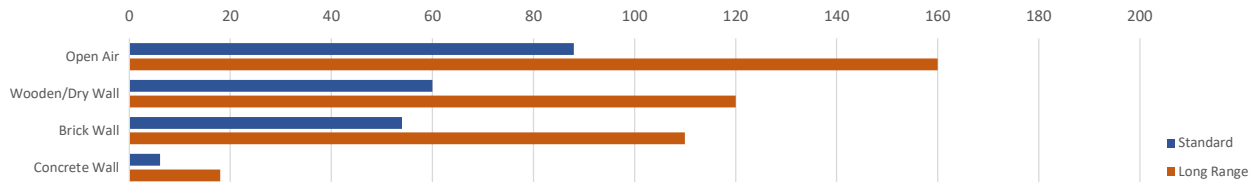
Test Result

Total Radiated Power (TRP)	-0.1	dBm
Long range compatible? (Only CBM003 or nRF52840)	Y	
Design Quality Rating (1-10)	5	

Item	Details	Unit
Test transmit power	4.7	dBm
Antenna height (standard height for test measurement)	1.3	m
Antenna efficiency	-4.8	dBm
RX sensitivity	+4dBm standard network	-95
RX sensitivity	+8dBm long range network	-102
Link margin	15	dBm

Range Estimate (Estimated useful range)

Item	Standard	Long Range	Unit
Nominal Transmit power	4	8	dBm
Link budget	75.1	85.0	dB
Range in open air (LOS)	88	160	m
Range with single wooden/dry wall (5 cm)	-5 dBm	60	120
Range with single brick wall (10 cm)	-6 dBm	54	110
Range with single concrete wall (10 cm)	-25 dBm	6.1	18.0



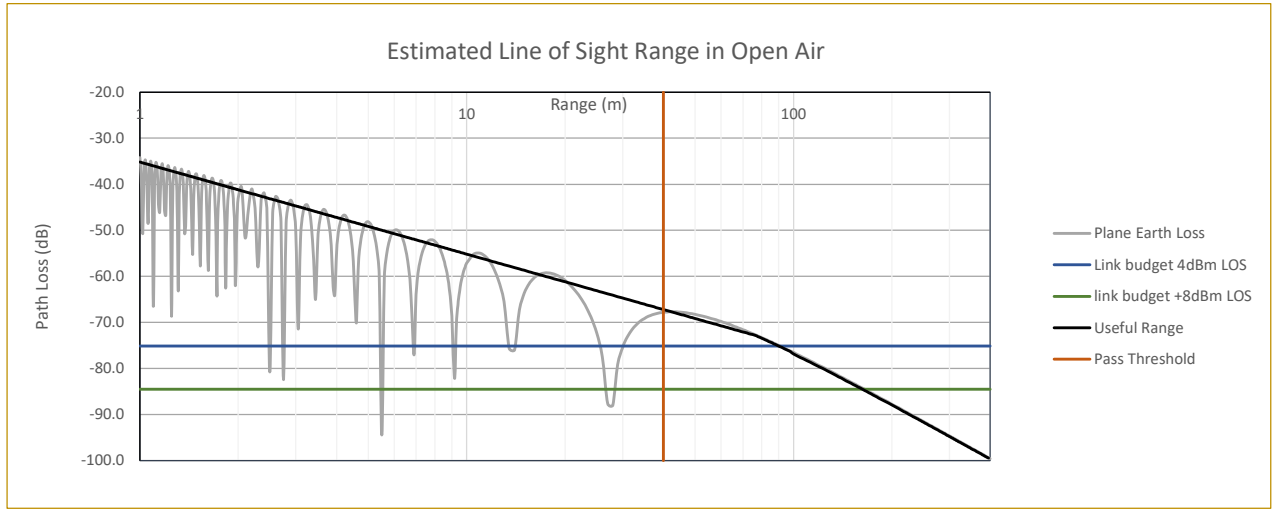
Rating

Item	Rating	Maximum
Design quality	5	10
Range	88.0	
Total rating	93.0	

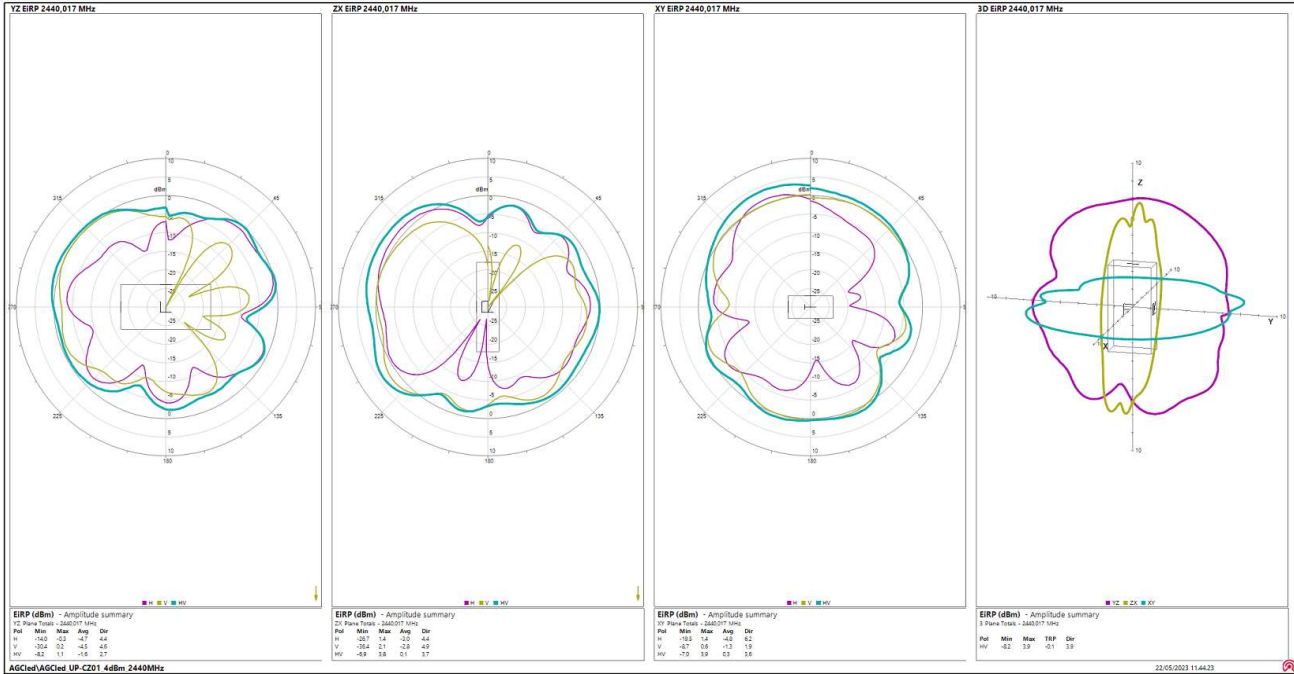
RATING:
PASS

:(fail
* Poor
*** Average
***** Excellent

Technical Report



Radio Test Result

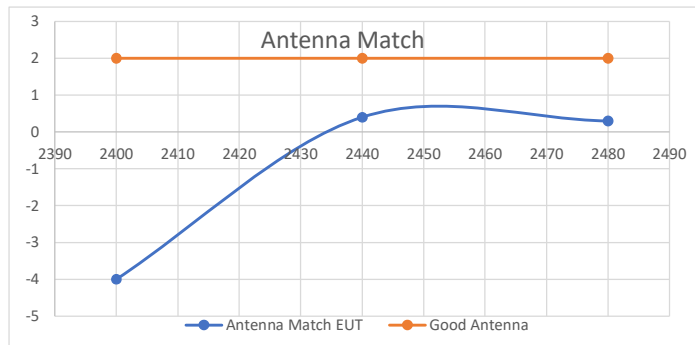


Orientation



Antenna Match (@ +4dBm)

Frequency	TRP	TRP - Good antenna
GHz	dBm	dBm
2400	-4	2
2440	0.4	2
2480	0.3	2



Comment and suggestions for Improvement

This small unit has achieved a PASS in the radio test.

The antenna match is not ideal and performance is better at the high end of the Bluetooth frequency band.

This is most probably caused by the small GND plane on the carrier board.

There is some evidence that the sticker may be causing reduced range in some directions?

Is this sticker made of a metalised material or paint?

I suggest you check this out, and replace with plastic.



Check no metal in
sticker or paint.

Congratulations!