



11/15/2019

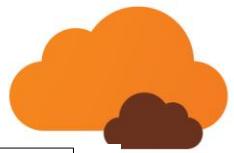
Telecommunication Certification Body  
UL VS Ltd  
Unit 3, Horizon  
Wade Road  
Kingsland Business Park  
Basingstoke  
Hampshire  
RG24 8AH  
United Kingdom

Subject: Class 2 Permissive Change (C2PC) Request  
FCC ID: 2ATKUAPW42

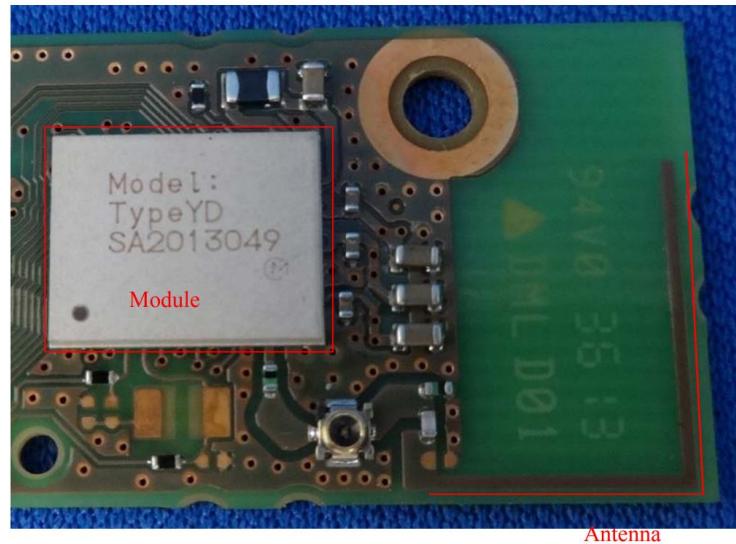
To whom it may concern

In accordance with KDB 178919 D01 and FCC rule part §2.1043: Changes in Certified Equipment,  
AirPatrol OÜ hereby requests a class 2 permissive change to FCC ID: 2ATKUAPW42 as detailed below:

The change consists of addition of new PCB trace antenna to replace the previous design. During the initial certification the reference design used an alternative PCB trace antenna, described in figure 1. The new antenna design is described in figure 2.



## External Photo



### Dimensions

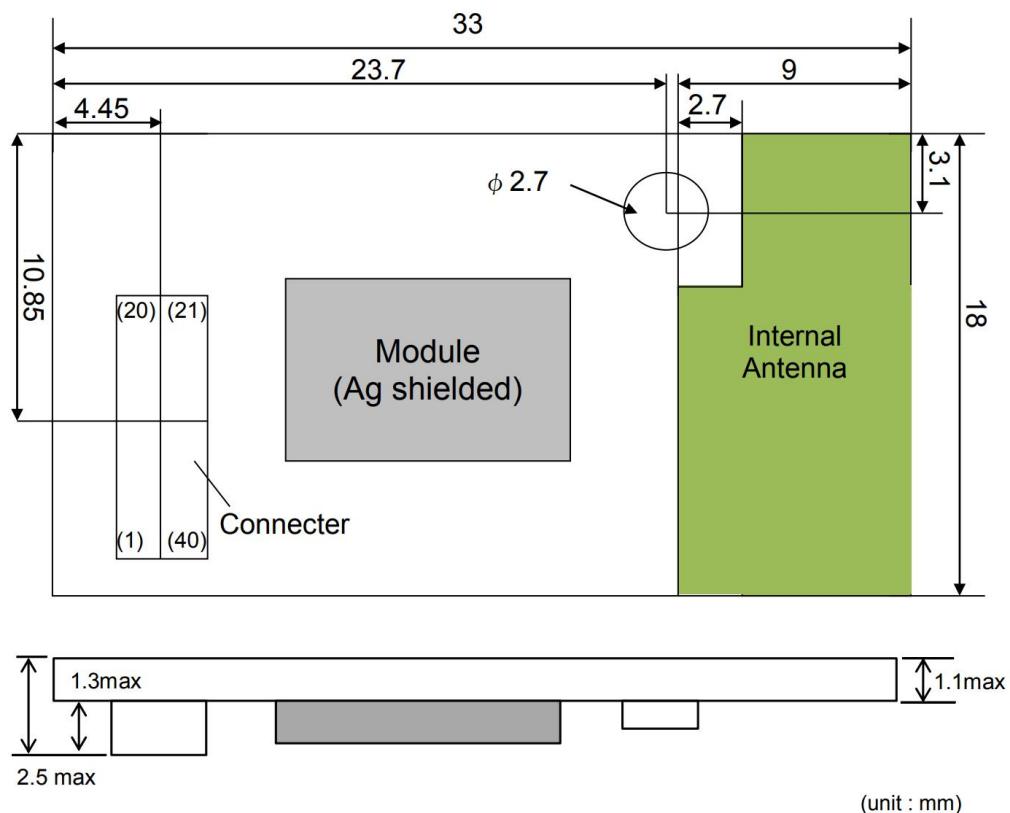


Figure 1 - Antenna design from initial certification

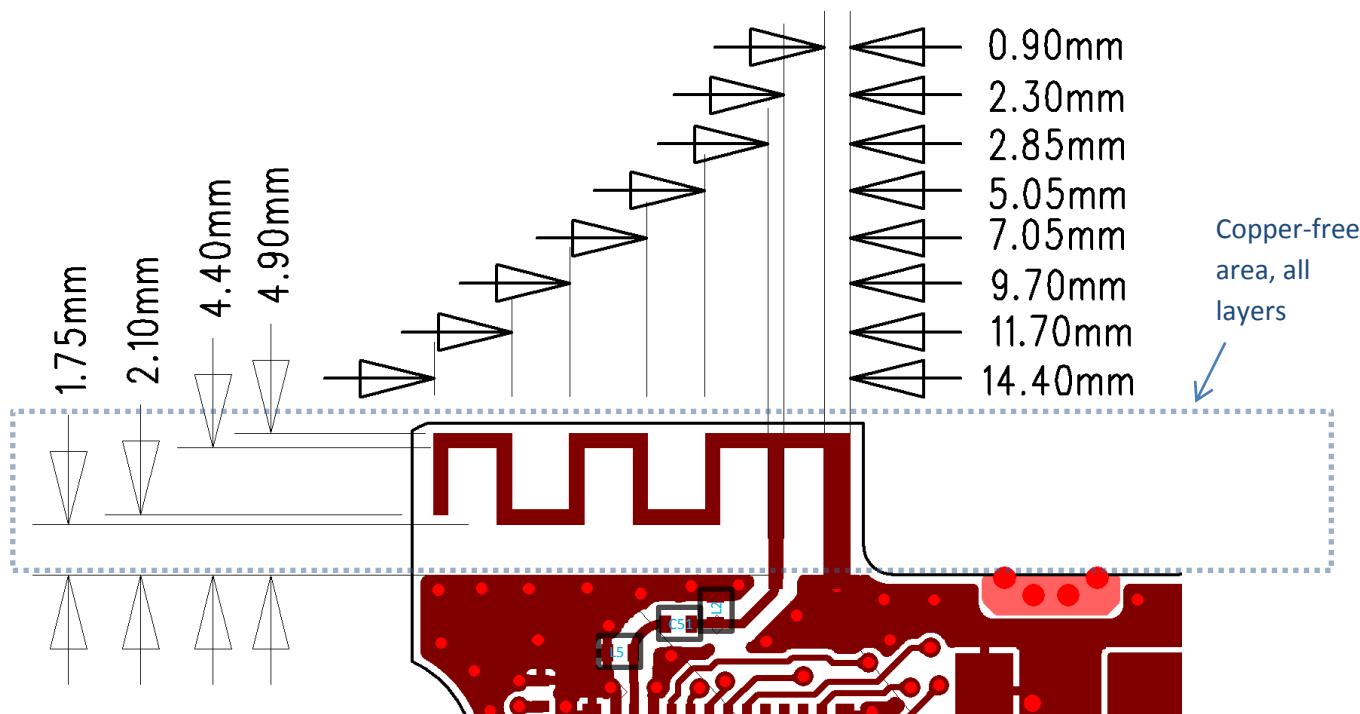
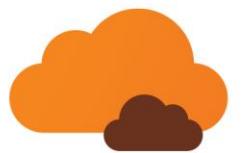


Figure 2 - Antenna design for C2PC

Connection path between the antenna and module shall target 50 Ohm impedance.

The absolute maximum gain for the new antenna design is -2.0 dBi. For reference, gain for the originally certified antenna design was -1.6dBi.

All other components in the transceiver signal chain remain unchanged when compared to the reference design.

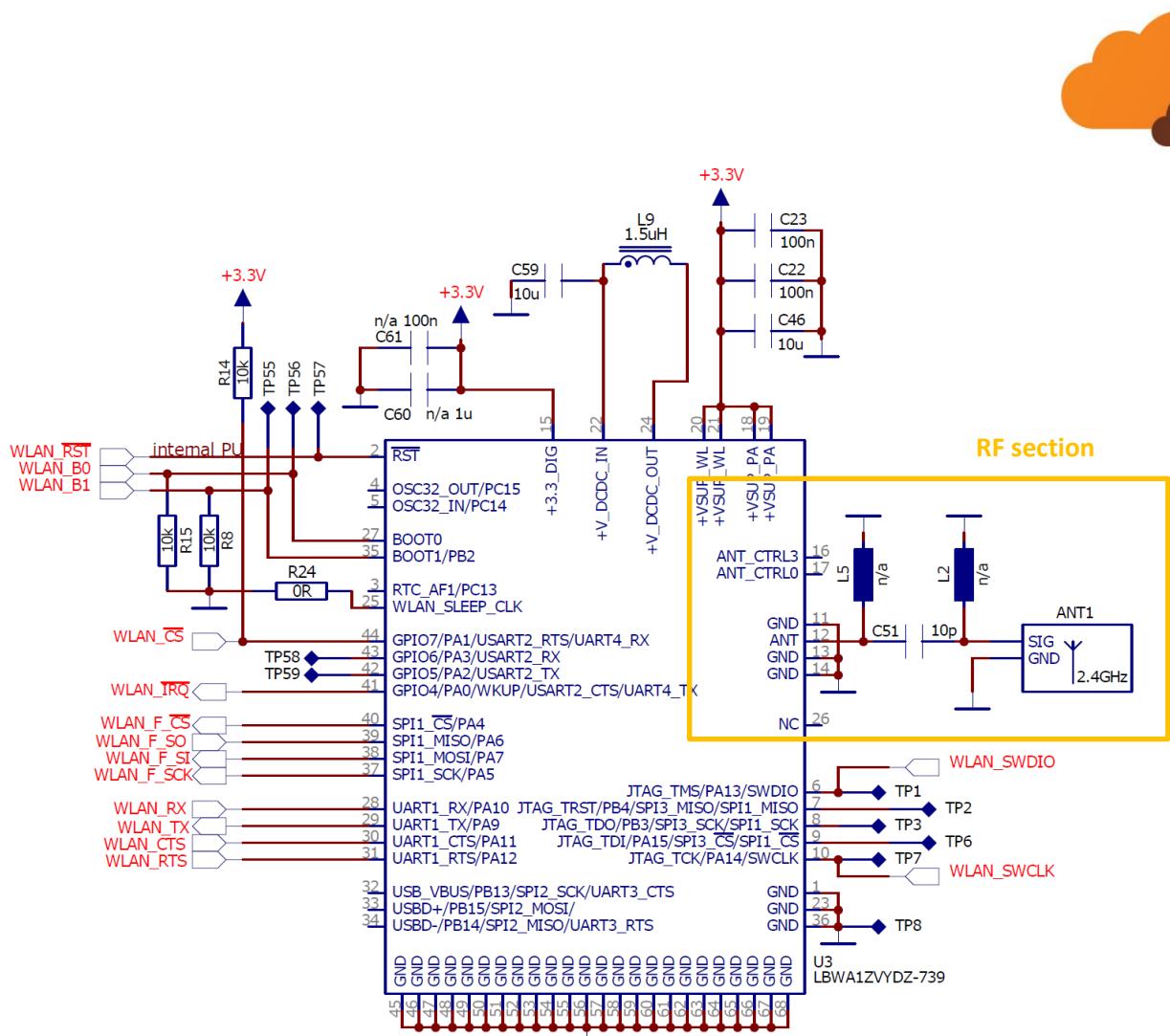
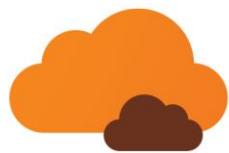


Figure 3 - Module application schematic

Component	Description
U3	TypeYD module
C51	10pF, 0402, 16V, NPO
L2	Must not be assembled
L5	Must not be assembled
ANT1	PCB trace antenna, described in Figure 2

Table 1 - RF key components



The layout is further described as Gerber snapshots, given for 4-layer board with the following stack-up:

Copper layers:	4															
Finished Board thickness:	1,6mm	(all thicknesses are nominal; tolerances apply)														
Stack-up:	<table><tr><td>COPPER TOP</td><td>35-60um</td></tr><tr><td>INSULATION</td><td>0,18mm</td></tr><tr><td>COPPER L2</td><td>18um</td></tr><tr><td>INSULATION</td><td>1,08mm</td></tr><tr><td>COPPER L3</td><td>18um</td></tr><tr><td>INSULATION</td><td>0,18mm</td></tr><tr><td>COPPER BOTTOM</td><td>35-60um</td></tr></table>		COPPER TOP	35-60um	INSULATION	0,18mm	COPPER L2	18um	INSULATION	1,08mm	COPPER L3	18um	INSULATION	0,18mm	COPPER BOTTOM	35-60um
COPPER TOP	35-60um															
INSULATION	0,18mm															
COPPER L2	18um															
INSULATION	1,08mm															
COPPER L3	18um															
INSULATION	0,18mm															
COPPER BOTTOM	35-60um															
Insulation Material:	<p>Tg<math>\geq</math>170 degrees centigrade Solderable with 260 degrees centigrade UL94 rating V-0 RoHS compliant</p>															

Table 2 - PCB stack-up

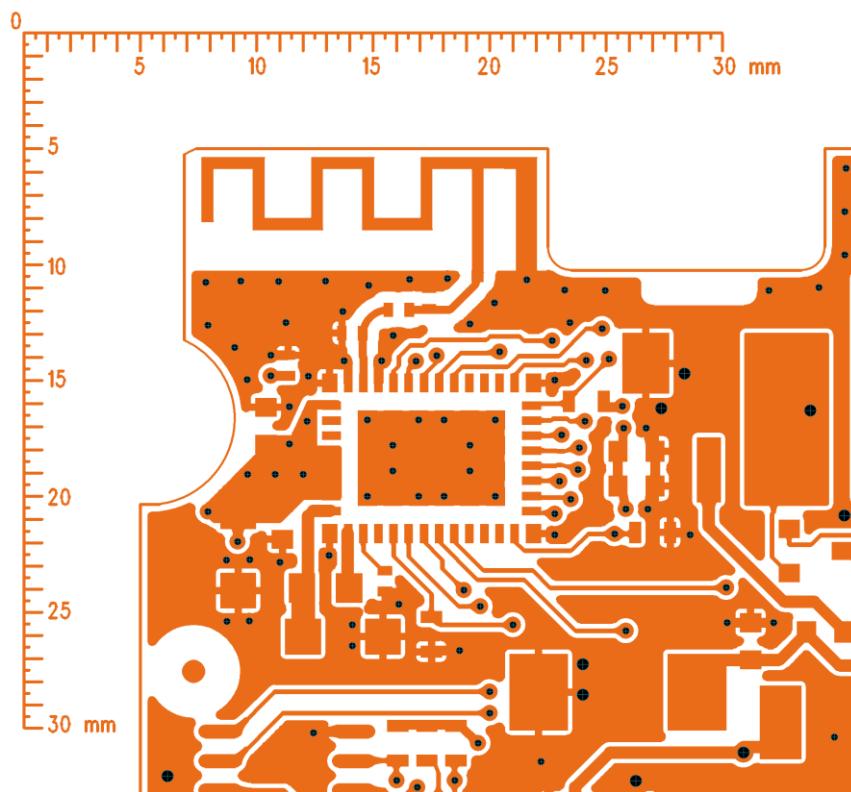


Figure 4 - PCB copper, layer 1, signals

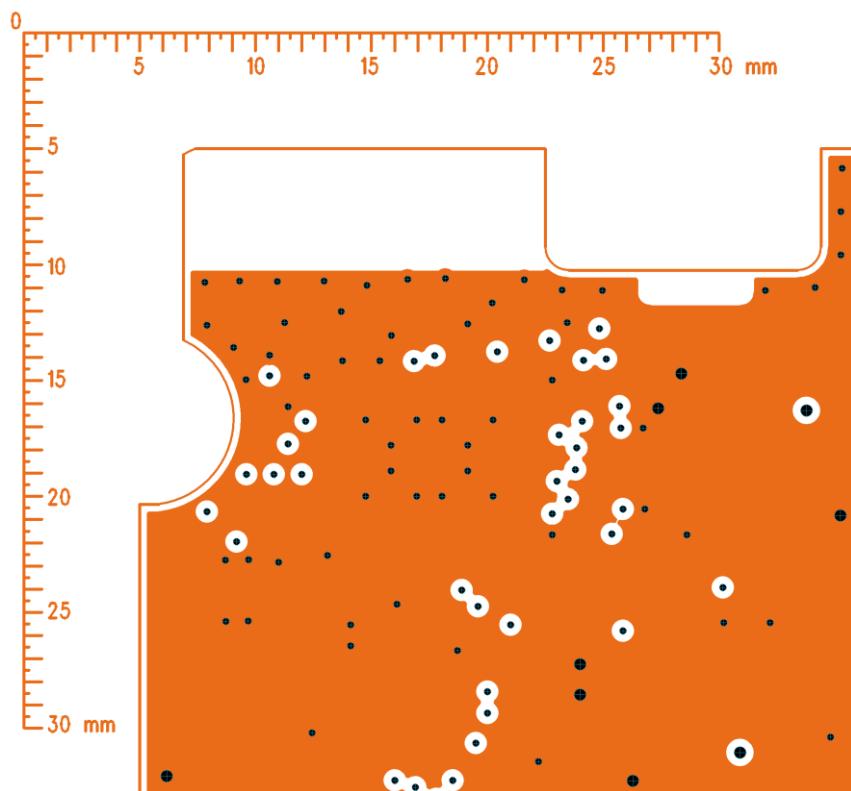
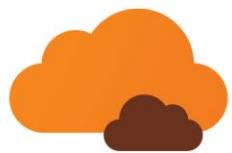


Figure 5 - PCB copper, layer 2, ground plane

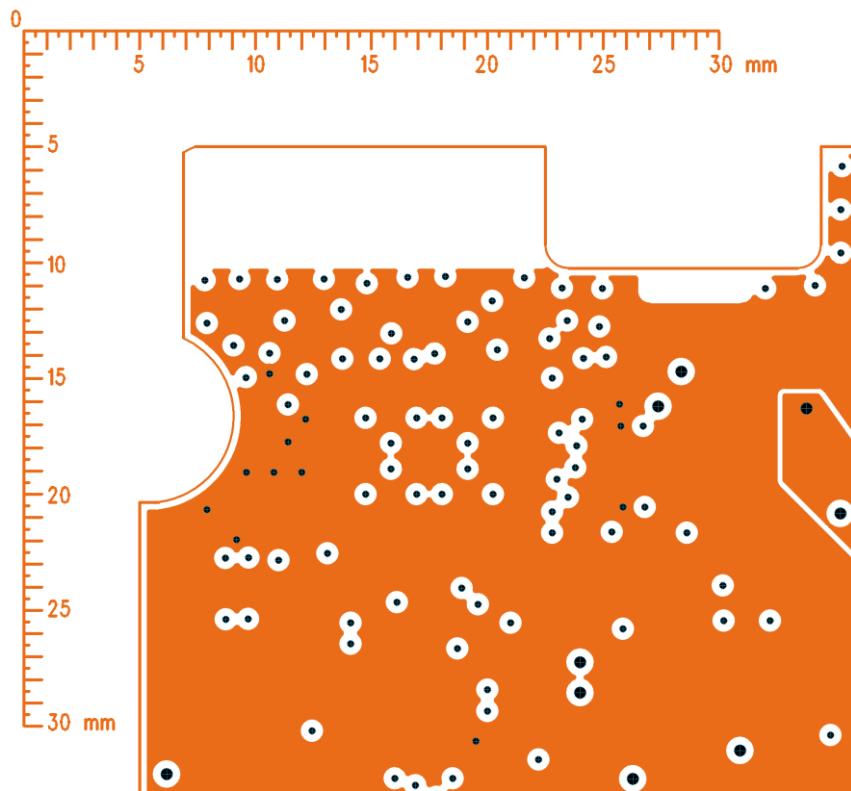


Figure 6 - PCB copper, layer 3, power plane

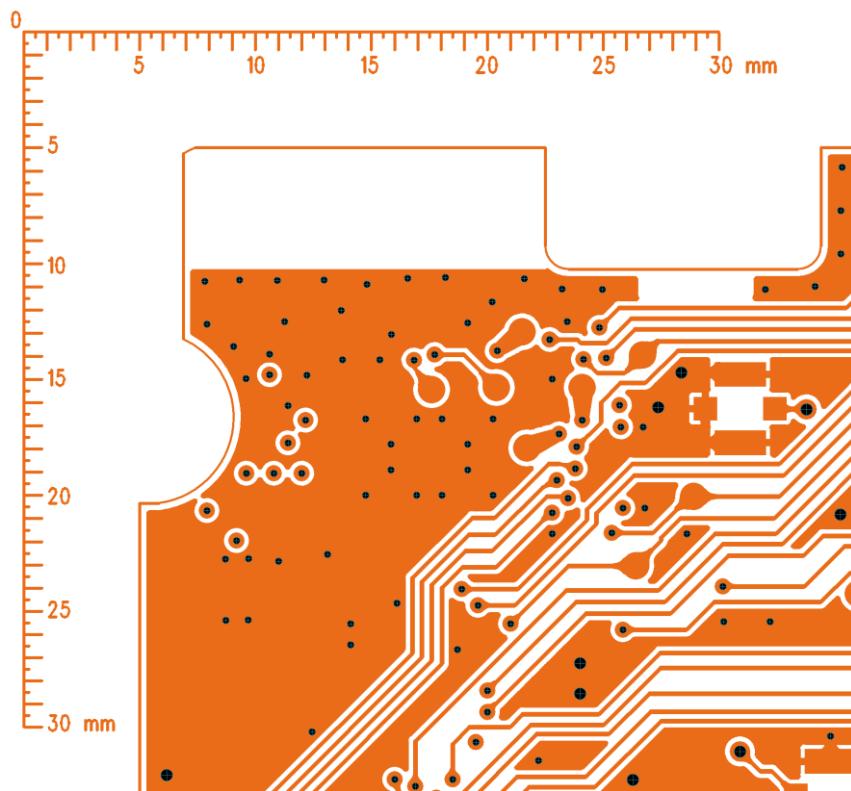
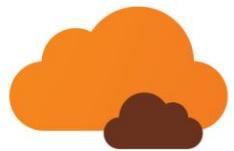


Figure 7 - PCB copper, layer 4, signals

As a result of the changes detailed above, the following test cases have been tested to verify compliance of the modified 2ATKUAPW42:

The verification testing was based on FCC Parts 15.207, 15.209(a) & 15.247.

Yours faithfully,

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Daniel Dordett  
CEO