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Coronis Systems

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TO : TIMCO

Subject : Permissive change.

Product : Wavecard module

FCC ID : S28-WCAMODHEL

Dear Sir/Madam,

INTRODUCTION

Coronis Systems, would like to change the functionality of the *Wavecard module* (Previously know under FCC ID: S28-WCAMODHEL).

Moreover Coronis want to comment on the conducted power measurement of the product.

PART 1: CHANGES

The equipment changes concern:

- The antenna of the product
- Bill Of Material
- Layout minor changes (the schematics remains identical).

The antenna

We are willing to use 4 different type of antennas:

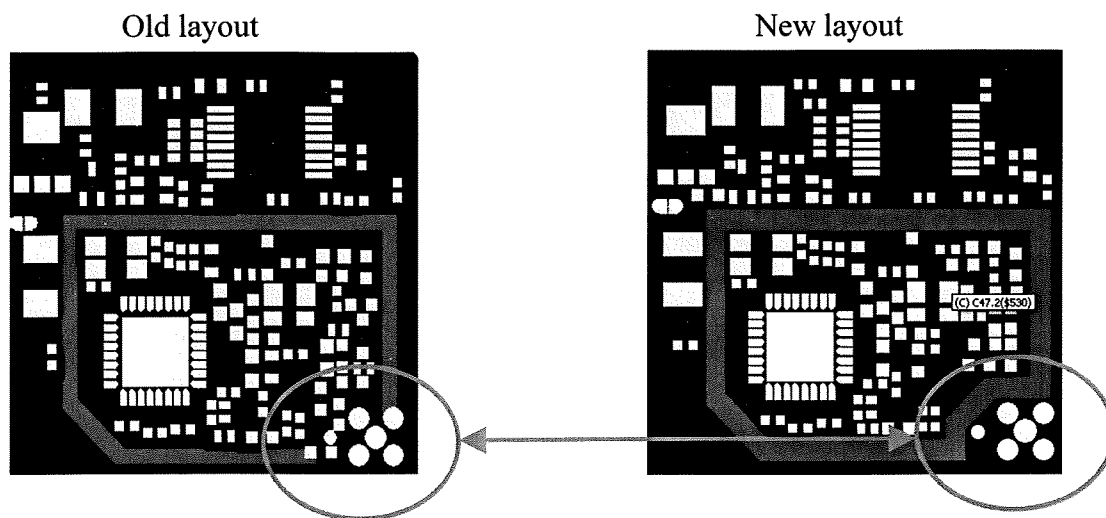
- ANT-916-WRT
- FLEXTRON (tm) Portable Communication Antennas AXQ/AXH
- Yagi Base Station Antennas
- FG9023 (902-928MHz)

Bill Of Material:

- C28 : 2,7pF+- 0,25pF COG 0603 => 2pF+-0,25pF COG 0603
- C58 : 3,3pF+-0,25pF COG 0603 => 2,7pF+-0,25pF COG 0603
- L5 : 8,2nH 5% LQG 0603 => 12nH 5% LQG 0603

Layout:

Concerning the layout the minor change concerns a ground track next to the antenna for metal shielding mechanical purposes. The schematic remains identical.



PART 2: CONDUCTED POWER MEASUREMENT

The product has been estimated at 1mW conducted output power using a budget link method with an isotropic antenna (Gain = 2.17 dBi) as the gain of the antenna product was not known by Emitech at the time.

Nevertheless, our product has a conducted power measured at 25mW, therefore the gain of the antenna was less than -10 dB +/- 2dB, according to Coronis measurement.

If we consider the Budget Link:

Pc = Product conducted power

Gc = Product antenna Gain

Pr = Power received

IL = Loss in free space (3m for this measurement type).

Therefore the link is as follow:

$$P_c + G_c - IL = P_r \quad \rightarrow \quad P_c = P_r - G_c - IL$$

As we see from the above equation, P_c value decreases while the antenna Gain (G_c) product increases. It appears clearly that Emitech considered an antenna gain at 2.17 dBi while the value is close to -10 dB+2dB.

SO:

The difference on the antenna gain is : $2.17 - (-10) = 12.17$ dB difference.

The conducted power deducted by Emitech is given at 1mW (0 dB) instead of $(0\text{dB} + 12.17\text{dB}) = 12.17$ dB so close to 25 mW as it is really.

If you have any queries, please do not hesitate to contact us.

Best Regards.

Nom manuscrit, fonction et signature



Fabien BONJOUR
RF manager