American Certification Body Inc.
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Delphi Deutschland In car remote controls, Model: 3KFZV C2PC ATCB014783

ACB:
I want to check I understand your measurements correctly. I can see you have added two new antennas to the low power, 315 MHz, part 15 device. Let's go back in history and compare it to what we have now:

From the original certification in September 2012:
This testing included the main radiated field strength measurements of the transmitter with one antenna type. It complied by with the limit by 2.0 dB.

From the previous C2PC in September 2012:
This C2PC testing also included the main radiated field strength measurements with new antennas added.
The field strength testing for the C2PC complied with the margin by only 0.2 dB.
From our conversations at that time, I can see that the transmitter power is turned down to accommodate higher gain antennas.

CSA:
Every field strength measurement is done in the free field as documented in the antenna gain report. The measured field strength is related to the power setting documented in the antenna gain report. Actual in the gain report T36036-11-xxHS the power setting is at page 9, Item 3.2.3 test result.

T-Model = -5.6 dBm, EIRP
T-Model = +7.3 dBm, conducted power
C-Coupe = -5.8 dBm, EIRP
C-Coupe = -7.3 dBm, conducted power
C-Cabrio = -5.5 dBm, EIRP
C-Cabrio = -3.2 dBm, conducted power

The new reports show this:
X218 = -4.1 dBm, EIRP
X218 = -1.6 dBm, conducted power
C218 = -8.4 dBm, EIRP
C218 = -4.7 dBm, conducted power

So it looks like all of your new measurements are based on conducted power measurements and then a calculation of antenna gain; not an actual radiated field strength. Correct?

No, the measurements are based on radiated measurements, the conducted measurement is only done to calculate the antenna gain.

I notice there is quite a variation in conducted output power. Is this related to antenna choice and varied per antenna use to obtain a field strength matching the value certified?

For every antenna, a EUT power setting is determined in order to comply the rules. This setting is based on radiated measurements with the antenna in the original environment (Car) to account for every antenna specially made for the car.

ACB:
Regarding the comment above, I see that the sections of the test reports for “conducted power”, also list the antenna polarity in the test results section. This is confusing to me. Why is the antenna polarity considered as part of a conducted power measurement?

CSA:
The antenna polarity is horizontal. This is not explicit documented because every antenna for the cars is horizontally and radiate horizontally. There is no way for the carrier to be emitted in another polarity.

ACB:
Just to avoid any confusion, please clarify why there are measurements also at 433 MHz in the test report? Please confirm that the device being certified can only operate at 315 MHz.

CSA:
The same antenna structure is used with a 433 MHz device. For the USA only the 315 MHz EUT is used. This device is able to transmit only at 315 MHz. This antenna gain report is used also for other country’s using the 433 MHz emission.