

June 6, 2013

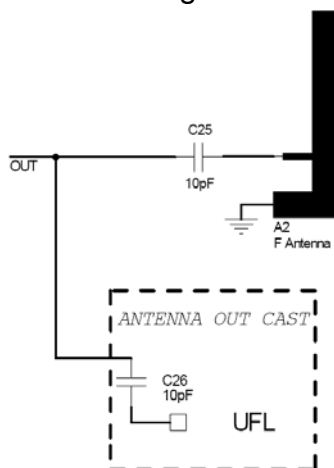
To: American Certification Body, Inc.
6731 Whittier Avenue Suite C110
McLean, VA 22101

Permissive Change Request

CEL is seeking a Class II Permissive change to their ZICM357SP2-1 module (FCC ID: W7Z-ZICM357SP2, IC ID: 8254A-ZICM357SP2) to allow the use of a Nearson Half-Wave dipole Whip antenna (Model S181AH-2405S) or equivalent. The antenna would have a unique coupling to the module. The unique coupling consists of the antenna being connected to the module through a minimum of a four inch RF cable with a non-standard RF U.FL connector on the end of the cable. A U.FL receptacle must be placed on a host printed circuit board and use a micro-strip trace to connect to the module's RF energy.

To accommodate the implementation at the module level, only the placement of a capacitor and the removal of another capacitor are required. This would be implemented during factory assembly of the module. Therefore, the transmitter is identical and the frequency of operation is exactly the same as the existing certified module. RF testing at a certified lab has been completed and has verified that the RF performance has not degraded.

A portion of the schematic and photo of the module is shown below which details the implementation. The only change between the existing design and the permissive change request would be the placement of capacitor C26 instead of capacitor C25 during manufacturing.



Capacitor C25 is placed vertically to use PCB trace antenna.

C26 is placed Horizontally to route signal to Castellation Pin 32

FCC/IC Compliance testing of the existing design configured for use with the Nearson Whip antenna has been completed by DLS Electronic Systems, Inc. and been found to be specification compliant and consistent with the certified module using the trace antenna provided channels 25 & 26 had their power reduced in order to be compliant with band-edge requirements. This was primarily due to recent changes in FCC rules with respect to applying duty cycle correction factors on band-edge measurements. (These were the only measurements that used Duty Cycle Correction in the original filings).

The power setting restrictions will be implemented in the firmware for the specific part number of the module that corresponds to the one using the external antenna. This will be done at the factory by loading the correct firmware image based on the module Part Number. Therefore, the maximum allowed power is factory set so the end user has no means to increase the output power beyond the acceptable limits. The power setting is governed by commands sent through the serial port by the end user. The internal firmware will compare the Power setting received through the UART to the acceptable level and if greater will overwrite the user specified level with a lower value that is acceptable. For any values below the limits, the firmware will allow that user setting to be implemented. Through this method, it is not possible for the end user set power settings greater than the certified power settings.

CEL believes the change qualifies for certification because there were no changes made to any of the RF circuitry or PCB. The only change is the use of an external Whip antenna. Since the Whip antenna has RF characteristics different than the PCB trace antenna, testing was done to determine the power shaping required to maintain spec. compliance as stated above.

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