

Introduction

The parent device is Cisco Catalyst 9136I Access Point (Model: 9136I, FCC ID: LDKVEHVR2777, 2461N-VEHVR2777) working in 5/6 GHz and it follows FCC Part 15.407 rule. The variant device to be certified is Cisco Catalyst 9136I Access Point (Model: 9136I, FCC ID: LDKMU6CR2417, IC: 2461N-MU6CR2417) working in 5/6 GHz and it follows FCC Part 15.407 rule. Both the parent and variant devices comply with the DFS requirements in the 5 GHz band, as specified in FCC Part 15.407(h)(2) and FCC KDB 905462 D02. The new firmware will enable Ultra-Reliable Wireless Backhaul (URWB) technology, which introduces two additional DFS modes: Point-to-Multipoint (P2MP) and Client with Radar Detection. The applicant takes full responsibility and that the test data as referenced represents valid data for demonstrating compliance for the variants listed in the application.

Version	FCC ID	IC ID	Original Approval Date
Original Version (Variant)	LDKMU6CR2417	2461N-MU6CR2417	01/26/2022 (FCC) 11/18/2021 (IC)
Updated Version (Parent)	LDKVEHVR2777	2461N-VEHVR2777	07/19/2023 (FCC) 07/12/2023 (IC)

Justification

The variant device qualifies for Data Referencing as the 5GHz radio is identical to parent device, with only differences (addition and removal of non RF-related components) stated in the illustration below. The differences will not impact 5GHz DFS functionalities, thus only radar detection spot-check is necessary per KDB 484596.

Parent and Variant models are similar except for the differences between the two versions below:

- C9136I Updated Version: Integration scanning radio card into the motherboard
- C9136I Updated Version: Removal of USB3.0 circuitry/components
- C9136I Updated Version: Replace the discrete Ethernet transformer with ordinary transformer
- C9136I Updated Version: Logic level shifter cost down by discrete MOSFET implementation
- C9136I Updated Version: Remove the PCIe connector and integrate the scanning radio directly onto the motherboard.
- C9136I Original Version: Scanning radio is on daughter board, connected to the mother board with a PCIE connector.

Due to the enabling of new firmware, DFS testing will be performed on the updated version EUT with FCC ID: LDKVEHVR2777 and IC: 2461N-VEHVR2777. For the original version EUT, per KDB 484596, spot checking will be verified, and partial DFS test data will be referenced from the updated version EUT.

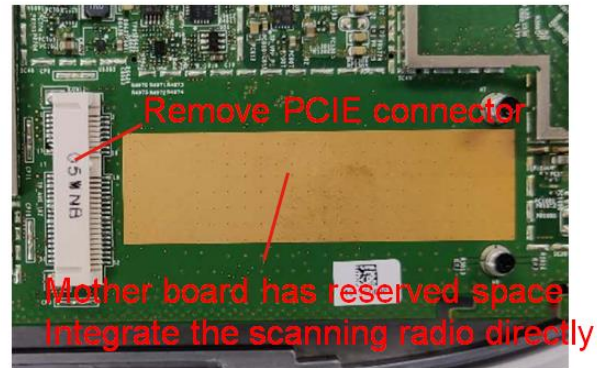
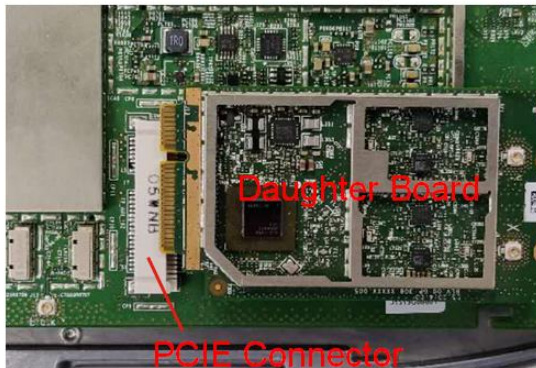
Except for DFS, the other original test results remain valid, applicable, and compliant.

Similarity Illustration

Please refer to the illustrations below to show the differences between C9136I non-VE/Maui (Variant) and C136I VE/Maui VE (Parent).

Integration scanning radio card into mother board

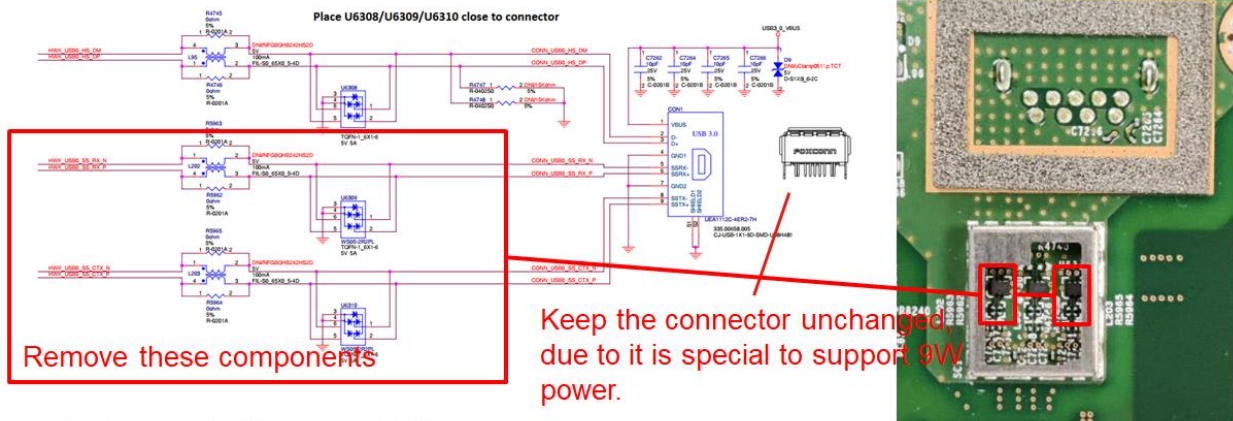
- Maui: Scanning radio is on daughter board, connect to mother board with PCIE connector.
- Maui VE: Remove PCIE connector, integrate the scanning radio on mother board directly.



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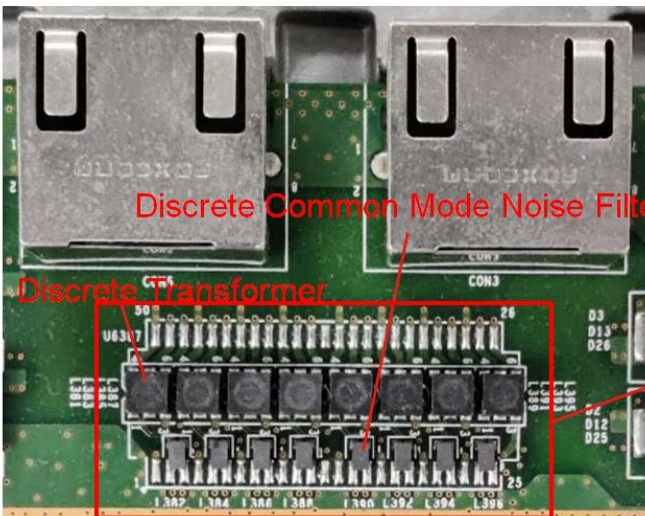
Removal of USB3.0 circuitry/components

- USB3.0 is not supported as customer spec, replace with USB2.0



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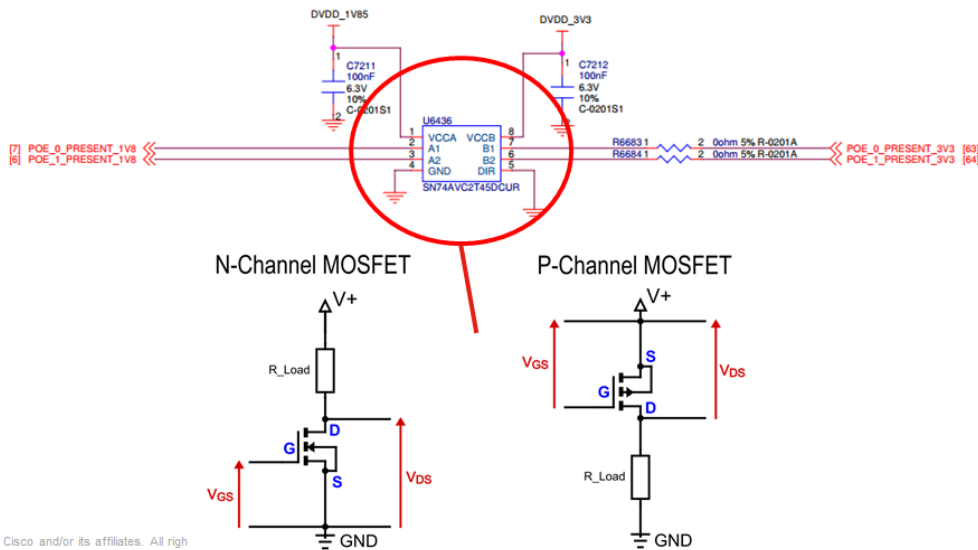
Replace discrete Ethernet transformer with ordinary transformer



Replace with ordinary transformer

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Logic level shifter cost down by discrete MOSFET implementation



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Spot Check Test Plan

Rule Part	Test Item	Data referencing	Spot Check	Acceptance Criteria	Notes
15.205,15.209, 15.407b	radiated spurious emissions (cabinet emissions)	No	No	N/A	Firmware update does not affect RF performance, refer data to original filing report.
15.205,15.209, 15.407b	radiated spurious emissions (conducted + add appropriate calculations/conversions)	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.247a, 15.407e	Occupied Bandwidth	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.247b, 15.407a	Output Power	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.247d	100kHz spurious emissions	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.247e,15.407a	Power Spectral Density	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.407h	DFS	Yes	Yes	Statistical Performance Check: Radar Type 1, 2, 3, 4 $\geq 60\%$ Aggregate (1 to 4) $\geq 80\%$ Radar Type 5 $\geq 80\%$ Radar Type 6 $\geq 70\%$	Per FCC KDB 484596: DFS spot check test report may include ten trials for widest bandwidth and each radar waveform to demonstrate compliance. For all other test items, the full data will be referenced from parent device test report. Please refer to Section 3 of the variant's device test report, or in the table below for detailed information about specific sections being referenced to from the parent device test report.

15.247i, 15.407f	RF Exposure	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.
15.203	Antenna Requirements	No	N/A	N/A	N/A
15.207	AC Line Conducted Emissions	No	No	N/A	Firmware update does not affect RF performance; please refer data to original filing report.

Test Item	Description of Test	Referenced Section in the Parent Device's Test Report	Results
Performance Requirements Check	Initial Channel Availability Check (CAC) Time	Section 6.2, Page 22 (Data) Annex C, Page 81 (Plots)	Compliant ¹
	Radar Burst at the Beginning of the CAC	Section 6.2, Page 22 (Data) Annex C, Page 81 (Plots)	Compliant ¹
	Radar Burst at the End of the CAC	Section 6.2, Page 22 (Data) Annex C, Page 81 (Plots)	Compliant ¹
In-Service Monitoring	Channel Move Time	Section 7.2, Page 24 (Data) Annex D, Page 87 (Plots)	Compliant ¹
	Channel Closing Transmission Time	Section 7.3, Page 25 (Data) Annex D, Page 87 (Plots)	Compliant ¹
	Non-Occupancy Period (NOP)	Section 7.4, Page 26 (Data) Annex E, Page 96 (Plots)	Compliant ¹
Radar Detection	Statistical Performance Check	Section 8.2, Page 28 (Data) Annex F, Page 102 (Detailed Result)	Compliant ^{1 2}
	U-NII Detection Bandwidth	Section 8.3, Page 36 (Data) Annex G, Page 799 (Detailed Result) Annex H, Page 813 (OBW Plots)	Compliant ¹

Note 1: Please refer to parent device's BACL Report R2507151-DFS for detailed test results.

Note 2: Only spot-checks were performed, with 10 trials conducted at the widest bandwidth for each applicable radar type.