FCC Measurement/Technical Report on

Industrial WLAN Access Point / Client
SCALANCE W700 / MSAX
MSAX65-W1-M12-E2

FCC ID: LYHMSAX65V1
IC: 267AA-MSAX65V1

Test Report Reference: MDE_SIEM_2410_FCC_02_rev01

Test Laboratory:
7layers GmbH
Borsigstrasse 11
40880 Ratingen
Germany

Deutsche Akkreditierungsstelle
D-PL-12140-01-00

Note:
The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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1 APPLIED STANDARDS AND TEST SUMMARY

1.1 APPLIED STANDARDS

Type of Authorization
Certification for an Intentional Radiator (Digital Device / Spread Spectrum).

Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 15 (10-1-23 Edition). The following subparts are applicable to the results in this test report.

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 15, Subpart C – Intentional Radiators

§ 15.201 Equipment authorization requirement

§ 15.207 Conducted limits

§ 15.209 Radiated emission limits; general requirements

Part 15, Subpart E – Unlicensed National Information Infrastructure Devices

§ 15.403 Definitions

§ 15.407 General technical requirements

Note:
The tests were selected and performed with reference to the FCC KDB "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E, 789033 D02 General U-NII Test Procedures New Rules v02r01, 2017-12-14". and

ANSI C63.10-2013 is applied.

1.2 FCC-IC CORRELATION TABLE

Correlation of measurement requirements for UNII / LE-LAN (e.g. WLAN 5 GHz) equipment from FCC and IC

UNII equipment

Measurement	FCC reference	IC reference
Conducted emissions on AC Mains	§ 15.207	RSS-Gen Issue 5 & AMD 1 & AMD 2: 8.8
Occupied bandwidth	§ 15.403 (26 dB) / § 15.407 (e) (6 dB)	RSS-247 Issue 3: 6.2.1.1, 6.2.2.1, 6.2.3.1 (99%) RSS-247 Issue 3: 6.2.4.2 (6 dB) RSS-248 Issue 2: 4.4
Maximum conducted output power	§ 15.407 (a) (1) to (8), (11)	RSS-247 Issue 3: 6.2.1.1, 6.2.2.1, 6.2.3.1, 6.2.4.2 RSS-248 Issue 2: 4.5
Maximum power spectral density	§ 15.407 (a) (1) to (8), (12)	RSS-247 Issue 3: 6.2.1.1, 6.2.2.1, 6.2.3.1, 6.2.4.1 RSS-248 Issue 2: 4.5
Transmitter undesirable emissions; General Field Strength Limits, Restricted Bands, In-Band Emissions	§ 15.407 (b) § 15.209 (a)	RSS-Gen Issue 5: 6.13/8.9/8.10; RSS-247 Issue 3: 3.3/6.2 6.2.1.2, 6.2.2.2, 6.2.3.2, 6.2.4.2 RSS-248 Issue 2: 4.6
Frequency stability	§ 15.407 (g)	RSS-Gen Issue 5: 6.11/8.11
Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS)	§ 15.407 (h)	RSS-247 Issue 3: 6.2.2.1, 6.2.3.1, 6.3
Antenna requirement	§ 15.203 / 15.204 § 15.407 (a) (9)	RSS-Gen Issue 5 & AMD 1 & AMD 2: 8.3
Contention Based Protocol	§ 15.407 (d) (6)	RSS-248 Issue 2: 4.7
Receiver spurious emissions	–	-

1.3 MEASUREMENT SUMMARY

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407	**FCC §15.31, §15.407 (a)(1)**			
Maximum Conducted Output Power The measurement was performed according to ANSI C63.10, chapter 12.3.3.2			**Final Result**	
OP-Mode Radio Technology, Operating Frequency, Subband	**Setup**	**Date**	**FCC**	**IC**
WLAN ac 40 MHz MIMO, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ac 40 MHz MIMO, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ac 40 MHz MIMO, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ac 40 MHz, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ac 40 MHz, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ac 40 MHz, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz MIMO, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz MIMO, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz MIMO, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN ax 40 MHz, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz MIMO, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz MIMO, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz MIMO, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz, high, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz, low, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed
WLAN n 40 MHz, mid, U-NII-2C	S01_AJ04	2025-02-03	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407	**FCC §15.407 (b), (1),(2),(3),(4); FCC §15.205, §15.209, §15.407 (b) (5),(6)**			
Undesirable Emissions; General Field Strength Limits The measurement was performed according to ANSI C63.10, chapter 6.4, 6.5, 6.6.5			**Final Result**	
OP-Mode Radio Technology, Operating Frequency, Measurement range, Subband	**Setup**	**Date**	**FCC**	**IC**
WLAN a Diversity, high, 1GHz - 26GHz, U-NII-1	S06_AJ04	2024-11-22	Passed	Passed
WLAN a Diversity, high, 1GHz - 26GHz, U-NII-2A	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, high, 1GHz - 26GHz, U-NII-2C	S06_AJ04	2024-12-08	Passed	Passed
WLAN a Diversity, high, 1GHz - 26GHz, U-NII-3	S06_AJ04	2024-12-09	Passed	Passed
WLAN a Diversity, high, 9kHz - 30MHz, U-NII-2C	S06_AJ04	2024-11-07	Passed	Passed
WLAN a Diversity, low, 1GHz - 26GHz, U-NII-1	S06_AJ04	2024-11-14	Passed	Passed
WLAN a Diversity, low, 1GHz - 26GHz, U-NII-2A	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, low, 1GHz - 26GHz, U-NII-2C	S06_AJ04	2024-11-28	Passed	Passed
WLAN a Diversity, low, 1GHz - 26GHz, U-NII-3	S06_AJ04	2024-12-08	Passed	Passed
WLAN a Diversity, low, 9kHz - 30MHz, U-NII-1	S06_AJ04	2024-11-07	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407	FCC §15.407 (b), (1),(2),(3),(4); FCC §15.205, §15.209, §15.407 (b) (5),(6)

Undesirable Emissions; General Field Strength Limits
The measurement was performed according to ANSI C63.10, chapter 6.4, 6.5, 6.6.5

Final Result

OP-Mode Radio Technology, Operating Frequency, Measurement range, Subband	Setup	Date	FCC	IC
WLAN a Diversity, mid, 1GHz - 26GHz, U-NII-1 Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, mid, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, mid, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, mid, 1GHz - 26GHz, U-NII-3 Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, mid, 30MHz - 1GHz, U-NII-1	S06_AJ04	2024-12-11	Passed	Passed
WLAN a Diversity, mid, 30MHz - 1GHz, U-NII-3	S06_AJ04	2024-12-11	Passed	Passed
WLAN ax 20 MHz, high, 1GHz - 26GHz, U-NII-3 Remark: Tested in range 1 to 18 GHz only	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 20 MHz, low, 1GHz - 26GHz, U-NII-1 Remark: Tested in range 1 to 18 GHz only	S06_AJ04	2024-12-08	Passed	Passed
WLAN ax 40 MHz MIMO, low, 1GHz - 26GHz, U-NII-1	S06_AJ04	2025-01-16	Passed	Passed
WLAN ax 40 MHz, high, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN ax 40 MHz, high, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2025-01-16	Passed	Passed
WLAN ax 40 MHz, high, 1GHz - 26GHz, U-NII-3 Remark: Tested in range 1 to 18 GHz only	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 40 MHz, low, 1GHz - 26GHz, U-NII-1 Remark: Tested in range 1 to 18 GHz only	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 40 MHz, low, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN ax 40 MHz, low, 1GHz - 26GHz, U-NII-3 Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 20 MHz MIMO, high, 1GHz - 26GHz, U-NII-1 Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN n 20 MHz MIMO, high, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, high, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, high, 1GHz - 26GHz, U-NII-3 Remark: Range 1 to 18 GHz tested only	S06_AJ04	2024-12-07	Passed	Passed
WLAN n 20 MHz MIMO, low, 1GHz - 26GHz, U-NII-1 Remark: Range 1 to 18 GHz tested only	S06_AJ04	2024-11-14	Passed	Passed
WLAN n 20 MHz MIMO, low, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, low, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, low, 1GHz - 26GHz, U-NII-3 Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407	FCC §15.407 (b), (1),(2),(3),(4); FCC §15.205, §15.209, §15.407 (b) (5),(6)

Undesirable Emissions; General Field Strength Limits
The measurement was performed according to ANSI C63.10, chapter 6.4, 6.5, 6.6.5

Final Result

OP-Mode Radio Technology, Operating Frequency, Measurement range, Subband	**Setup**	**Date**	**FCC**	**IC**
WLAN n 20 MHz MIMO, mid, 1GHz - 26GHz, U-NII-1 Remark: Harmonics tested only	S06_AJ04	2024-11-23	Passed	Passed
WLAN n 20 MHz MIMO, mid, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, mid, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, mid, 1GHz - 26GHz, U-NII-3	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 40 MHz MIMO, high, 1GHz - 26GHz, U-NII-1 Remark: Harmonics tested only	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 40 MHz MIMO, high, 1GHz - 26GHz, U-NII-2A	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 40 MHz MIMO, high, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, high, 1GHz - 26GHz, U-NII-3	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, high, 30MHz - 1GHz, U-NII-3	S06_AJ04	2024-12-12	Passed	Passed
WLAN n 40 MHz MIMO, high, 9kHz - 30MHz, U-NII-2C	S06_AJ04	2024-11-07	Passed	Passed
WLAN n 40 MHz MIMO, low, 1GHz - 26GHz, U-NII-1	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 40 MHz MIMO, low, 1GHz - 26GHz, U-NII-2A Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, low, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, low, 1GHz - 26GHz, U-NII-3 Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, low, 30MHz - 1GHz, U-NII-1	S06_AJ04	2024-12-12	Passed	Passed
WLAN n 40 MHz MIMO, low, 9kHz - 30MHz, U-NII-1	S06_AJ04	2024-11-07	Passed	Passed
WLAN n 40 MHz MIMO, mid, 1GHz - 26GHz, U-NII-2C Remark: Harmonics tested only	S06_AJ04	2024-12-14	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407 **FCC §15.407 (b), (1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10, chapter 6.6.5 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Subband	**Setup**	**Date**	**FCC**	**IC**
WLAN a Diversity, high, U-NII-2A	S06_AJ04	2024-11-23	Passed	Passed
WLAN a Diversity, high, U-NII-2C	S06_AJ04	2024-12-08	Passed	Passed
WLAN a Diversity, high, U-NII-3	S06_AJ04	2024-12-09	Passed	Passed
WLAN a Diversity, low, U-NII-1	S06_AJ04	2024-11-14	Passed	Passed
WLAN a Diversity, low, U-NII-2C	S06_AJ04	2024-11-28	Passed	Passed
WLAN a Diversity, low, U-NII-3	S06_AJ04	2024-12-08	Passed	Passed
WLAN ac 20 MHz, high, U-NII-2A	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 20 MHz, high, U-NII-2C	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 20 MHz, high, U-NII-3	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 20 MHz, low, U-NII-1	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 20 MHz, low, U-NII-2C	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 20 MHz, low, U-NII-3	S06_AJ04	2024-12-07	Passed	Passed
WLAN ac 40 MHz MIMO, high, U-NII-2C	S06_AJ04	2025-01-16	Passed	Passed
WLAN ac 40 MHz, high, U-NII-2A	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 40 MHz, high, U-NII-2C	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 40 MHz, high, U-NII-3	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 40 MHz, low, U-NII-1	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 40 MHz, low, U-NII-2C	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 40 MHz, low, U-NII-3	S06_AJ04	2024-11-23	Passed	Passed
WLAN ac 80 MHz MIMO, mid, U-NII-1	S06_AJ04	2024-12-13	Passed	Passed
WLAN ac 80 MHz MIMO, mid, U-NII-3	S06_AJ04	2024-12-13	Passed	Passed
WLAN ax 20 MHz, high, U-NII-2A	S06_AJ04	2024-12-13	Passed	Passed
WLAN ax 20 MHz, high, U-NII-2C	S06_AJ04	2024-12-13	Passed	Passed
WLAN ax 20 MHz, high, U-NII-3	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 20 MHz, low, U-NII-1	S06_AJ04	2024-12-08	Passed	Passed
WLAN ax 20 MHz, low, U-NII-2C	S06_AJ04	2024-12-13	Passed	Passed
WLAN ax 20 MHz, low, U-NII-3	S06_AJ04	2024-12-13	Passed	Passed
WLAN ax 40 MHz, high, U-NII-2A	S06_AJ04	2024-12-14	Passed	Passed
WLAN ax 40 MHz, high, U-NII-2C	S06_AJ04	2025-01-16	Passed	Passed
WLAN ax 40 MHz, high, U-NII-3	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 40 MHz, low, U-NII-1	S06_AJ04	2024-12-15	Passed	Passed
WLAN ax 40 MHz, low, U-NII-2C	S06_AJ04	2024-12-14	Passed	Passed
WLAN ax 40 MHz, low, U-NII-3	S06_AJ04	2024-12-14	Passed	Passed
WLAN ax 80 MHz, mid, U-NII-1	S06_AJ04	2025-02-26	Passed	Passed
WLAN ax 80 MHz, mid, U-NII-3	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 20 MHz MIMO, high, U-NII-2A	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, high, U-NII-2C	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 20 MHz MIMO, high, U-NII-3	S06_AJ04	2024-12-07	Passed	Passed
WLAN n 20 MHz MIMO, low, U-NII-1	S06_AJ04	2024-11-14	Passed	Passed
WLAN n 20 MHz MIMO, low, U-NII-2C	S06_AJ04	2024-11-24	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart E §15.407 **FCC §15.407 (b), (1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10, chapter 6.6.5

Final Result

OP-Mode Radio Technology, Operating Frequency, Subband	**Setup**	**Date**	**FCC**	**IC**
WLAN n 20 MHz MIMO, low, U-NII-3	S06_AJ04	2024-11-24	Passed	Passed
WLAN n 40 MHz MIMO, high, U-NII-2A	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 40 MHz MIMO, high, U-NII-2C	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, high, U-NII-3	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, low, U-NII-1	S06_AJ04	2024-12-13	Passed	Passed
WLAN n 40 MHz MIMO, low, U-NII-2C	S06_AJ04	2024-12-14	Passed	Passed
WLAN n 40 MHz MIMO, low, U-NII-3	S06_AJ04	2024-12-14	Passed	Passed

N/A: Not applicable
N/P: Not performed

2 REVISION HISTORY / SIGNATURES

Report version control			
Version	**Release date**	**Change Description**	**Version validity**
initial	2025-03-10	--	valid
rev01	2025-05-13	Removed 6 GHz KDB from applied standards, changed antenna gain description to 5 GHz, added note of tested output power modes to output power test case.	valid

COMMENT: Not all tests were performed. This report is a spot check report for an additional antenna type. The test results for the other applicable test cases can be found in the test report MDE_SIEM_1911_FCC_02 (Bands 1 and 3) and MDE_SIEM_1911_FCC_05 (Bands 2A and 2C).

(responsible for accreditation scope)
Dipl.-Ing. Marco Kullik

(responsible for testing and report)
Dipl.-Ing. Daniel Gall

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3 ADMINISTRATIVE DATA

3.1 TESTING LABORATORY

Company Name:	7layers GmbH
Address:	Borsigstr. 11 40880 Ratingen Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no:	DAkkS D-PL-12140-01-00
FCC Designation Number:	DE0015
FCC Test Firm Registration:	929146
ISED CAB Identifier	DE0007; ISED#: 3699A
Responsible for accreditation scope:	Dipl.-Ing. Marco Kullik
Report Template Version:	2025-02-25

3.2 PROJECT DATA

Responsible for testing and report:	Dipl.-Ing. Daniel Gall
Employees who performed the tests:	documented internally at 7Layers
Date of Report:	2025-05-13
Testing Period:	2024-11-07 to 2025-02-26

3.3 APPLICANT DATA

Company Name:	SIEMENS AG
Address:	Östliche Rheinbrückenstr. 50 76187 Karlsruhe Germany
Contact Person:	Malgorzata Janson

3.4 MANUFACTURER DATA

Company Name:	Siemens AG
Address:	76181 Karlsruhe Germany
Contact Person:	Tianshu Pu

4 TEST OBJECT DATA

4.1 GENERAL EUT DESCRIPTION

Kind of Device product description	Industrial Access Point / Client
Product name	SCALANCE W700 / MSAX
Type	MSAX65-W1-M12-E2
Declared EUT data by the supplier	
Specific product description for the EUT	The MSAX65-W1-M12-E2 device is a wireless LAN access point / client for industrial applications supporting following WLAN modes and frequency bands: • 802.11 ax/ac/a/h/n Mode: 5.15 - 5.35 GHz and 5.47 - 5.85 GHz • 802.11 ax/b/g/n Mode: 2400 - 2483.5 MHz 2 N connectors are available for usage with external antennas. 2x2 MIMO operation is possible in both bands. Simultaneous operation of the device in both frequency bands is supported. Module may be used either as Master or as Client WLAN device. The device supports 10/100/1000 Mbit/s Ethernet. Additionally, the device features one digital input and one digital output signalling line, a configuration/licensing plug and a sleep timer. Supply power is 24Vdc, also PoE on the ethernet interface is available.
Voltage Type	DC
Voltage Level	24.0 V
Antenna / Gain	EUT has two permanent 50 Ohm antenna connectors. For the radiated tests of this test report the EUT was tested with the following antenna: ANT897-5PN, gain = 7.1 dBi (in the 5 GHz U-NII Bands) Assumed antenna gain for compliance of conducted values is 8 dBi.
Tested Modulation Type	WLAN a (6 Mbit): OFDM WLAN n (MCS0): OFDM WLAN ac (MCS0): OFDM WLAN ax (MCS0): OFDM
OFDMA (WLAN AX)	Not supported
Number of Transmit Chains	2
Number of Receive Chains	2
Type of TX / RX Chains	symmetrical
Nominal Bandwidth	20 MHz, 40 MHz, 80 MHz (only sub-bands 1 & 3)

EUT ports (connected cables during testing):	• Enclosure • DC port: cable length appr. 1.0m • Digital I/O port: cable length 2.0m (terminated with DIDO box), only for radiated tests • LAN port: cable length (shielded), appr. 3.0m, only for radiated tests • USB C service port: cable length, appr. 2.0m, only for conducted tests 2 Antenna ports, N-connector, appr. 1.0 / 10 m (depending on the antenna, please see chapter 4.4 & 4.5) & antenna
Tested data rates	WLAN a: 6 Mbit/s WLAN n: MCS0 WLAN ac: MCS0 WLAN ax: MCS0
Special software used for testing	Test commands in command line interface of EUT with connection by USB C or LAN Port of EUT

4.2 EUT MAIN COMPONENTS

Sample Name	**Sample Code**	**Description**
EUT aj04	DE1039028aj04	
Sample Parameter	**Value**	
Serial No.	VPN4200421	
HW Version	02	
SW Version	V02.04.00	
Comment		

NOTE:The short description is used to simplify the identification of the EUT in this test report.

4.3 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

-	-	-

4.4 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it.
But nevertheless Auxiliary Equipment can influence the test results.

Device	**Details (Manufacturer, Type Model, HW, SW, S/N)**	**Description**
AUX107	Siemens, ANT897-5PN, -, -, -	Monopole Antenna, 4 port, 3.4/7.1 dBi (2.4/5GHz)
AUX14	-, -, -, -, -	RF-Cable (1m, n-connector)
AUX15	-, -, -, -, -	RF-Cable (1m, n-connector)
AUX2	Siemens, -, -, -, -	DI/DO Test box with cable

4.5 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

Setup	**Combination of EUTs**	**Description and Rationale**
S01_AJ04	EUT aj04	Setup for Conducted Tests
S06_AJ04	EUT aj04, AUX2, AUX107, AUX15, AUX14	Setup for Radiated Tests

4.6 OPERATING MODES / TEST CHANNELS

This chapter describes the operating modes of the EUTs used for testing.

U-NII-Subband 1 5150 - 5250 MHz			U-NII-Subband 2A 5250 - 5350 MHz			U-NII-Subband 2C 5470 - 5725 MHz			U-NII-Subband 3 5725 - 5850 MHz			Nom. BW
low	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**20 MHz**
36	44	48	52	60	64	100	116	140/144[1)]	149	157	165	**Ch.-No.**
5180	5220	5240	5260	5300	5320-	5500	5580	5700/5720	5745	5785	5825	**MHz**
20 US	20 US	20 US	20	20	20	20	20	20	20	20	20	Power SISO per chain
13 CA	13 CA	13 CA										
18 US	18 US	18 US	18	18	18	18	18	18	20	20	20	Power MIMO per chain
10 CA	10 CA	10 CA										

low	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**40 MHz**
38	-	46	54	-	62	102	110	134/142[1)]	151	-	159	**Ch.-No.**
5190	-	5230	5270	-	5310	5510	5550	5670/5710	5755	-	5795	**MHz**
20 US		20 US	20	-	20	18	18	18	20		20	Power SISO per chain
13 CA		13 CA										
19 US	-	19 US	18	-	18	18	18	18	20	-	20	Power MIMO per chain
10 CA		10 CA										

low	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**low**	**mid**	**high**	**80 MHz**
-	42	-	-	-	-	-	-	-	-	155	-	**Ch.-No.**
-	5210	-	-	-	-	-	-	-	-	5775	-	**MHz**
-	18 US		-	-	-	-	-	-	-	20	-	**Power SISO per chain**
	13 CA											
-	18 US		-	-	-	-	-	-	-	20	-	**Power MIMO per chain**
	10 CA											

1) Channels 144, 142 and 138 are straddle channels. Relevant high channels for upper Band Edge of band 2C are CH.140, CH. 134 and Ch 122.

Power Settings were taken from report MDE_SIEM_1911_FCC_02 and 05.
For band 2C 40 MHz SISO mode, power was reduced to 18 dB. However, most of the spurious radiated emissions were tested with the higher original power of 20 dB and not repeated since higher power is worst case.

Duty Cycle			
Mode	BW		
	20 [MHz]	40 [MHz]	80 [MHz]
a	0.931	-	-
n	0.872	0.859	-
ac	0.872	0.859	0.860
ax	0.872	0.872	0.867

Duty Cycle was taken from report MDE_SIEM_1911_FCC_02.
See respective report for duty cycle plots.

4.7 PRODUCT LABELLING

4.7.1 FCC ID LABEL

Please refer to the documentation of the applicant.

4.7.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

5 TEST RESULTS

5.1 MAXIMUM CONDUCTED OUTPUT POWER

Standard **FCC Part 15 Subpart E**

The test was performed according to:
ANSI C63.10, chapter 12.3.3.2

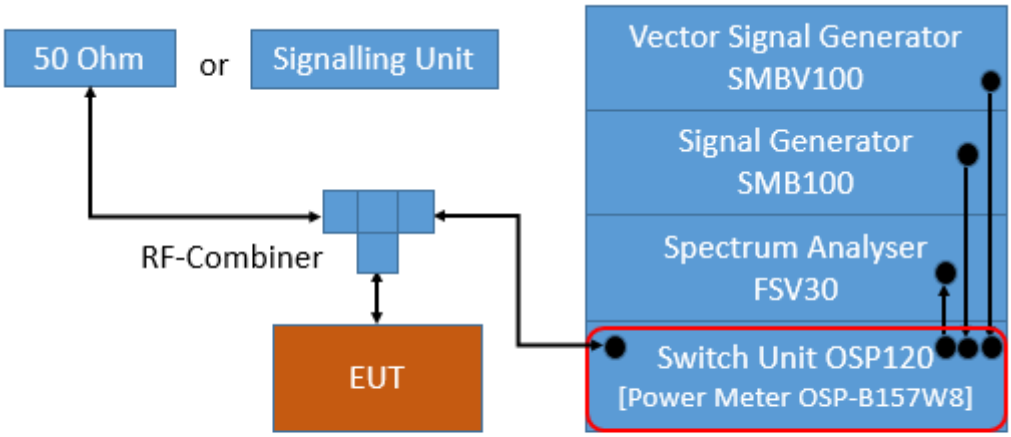
5.1.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the output power measurements. The results recorded were measured with the modulation which produces the worst-case (highest) output power

For U-NII bands 1, 2A, 2C, 3:
The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.

The OSP-B157W is a gated RF average power meter with a signal bandwidth > 300 MHz.

Note:
The measurement was performed according FCC Public Note "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E, 789033 D02", method **PM-G**.



TS8997; Maximum Conducted Output Power

Attenuation of measurement path

5.1.2 TEST REQUIREMENTS / LIMITS

A) FCC

FCC Part 15, Subpart E, §15.407 (a) (1) (i): Outdoor access point:
For systems using digital modulation techniques in the 5.15 – 5.25 GHz bands:
Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 6 dBi.
The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
§15.407 (a) (1) (ii): Indoor access point:
Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 6 dBi.
§15.407 (a) (1) (iii): Fixed point-to-point access points:
Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 23 dBi.
§15.407 (a) (1) (iv): Client devices:
Limit: 250 mW (24 dBm) provided the maximum antenna gain does not exceed 6 dBi.

FCC Part 15, Subpart E, §15.407 (a) (2)
For systems using digital modulation techniques in the 5.25 – 5.35 GHz and 5.47 – 5.725 GHz bands:
Limit: 250 mW (24 dBm) or 11 dBm + 10 log (26 dB bandwidth/MHz) whatever is the lesser.

FCC Part 15, Subpart E, §15.407 (a) (3):
For systems using digital modulation techniques in the 5.725 – 5.850 GHz bands:
Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 6 dBi. The antenna gain limitation is not applicable for fixed point-to-point devices.

FCC Part 15, Subpart E, §15.407 (a) (4):
For a standard power access point and fixed client devices in the 5.925 – 6.425 GHz and 6.525 – 6.875 GHz bands:
Limit: 4 W (36 dBm) e.i.r.p.
For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

FCC Part 15, Subpart E, §15.407 (a) (5):
For an indoor access point in the 5.925 – 7.125 GHz bands:
Limit: 1 W (30 dBm)e.i.r.p.

FCC Part 15, Subpart E, §15.407 (a) (6):
For a subordinate device operating under an indoor access point in the 5.925 – 7.125 GHz bands:
Limit: 1 W (30 dBm)e.i.r.p.

FCC Part 15, Subpart E, §15.407 (a) (7):
For a client device, except for fixed client devices, operating under standard power access point in the 5.925-6.425 GHz and 6.525-6.875 GHz bands:
Limit: 1 W (30 dBm)e.i.r.p.
The client device must limit it's power to no more than 6 dB below its associated standard power access point's authorized transmit power.

FCC Part 15, Subpart E, §15.407 (a) (8):
For client devices operating under the control of an indoor access point in the 5.925 – 7.125 GHz bands:
Limit: 250 mW (24 dBm)e.i.r.p.

FCC Part 15, Subpart E, §15.407 (a) (11):
The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

B) IC

Different frequency bands and limits apply, as compared to the FCC requirements.

All frequency bands: B is the 99% emission bandwidth in MHz.

RSS-247, 6.2.1.1, Band 5150-5250 MHz, indoor operation only, except for OEM devices installed by vehicle manufacturers:

Limits:
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW. (e.i.r.p.)

Other devices: 200 mW (23 dBm) or 10 + 10 $\log_{10}$B [dBm], whichever power is less.

RSS-247, 6.2.2.1, Band 5250-5350 MHz:
Limits:
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.
Devices, other devices than installed in vehicles:
Maximum conducted Power: 250 mW (24 dBm) or 11 + 10 log10 B [dBm], whichever power is less.
e.i.r.p.: 1.0 W (30 dBm) or 17 + 10 log10 B [dBm], whichever power is less.

Outdoor fixed devices with a maximum e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below:

i.-13 dBW/MHzfor 0°≤ θ< 8°
ii.-13 −0.716 (θ-8) dBW/MHzfor 8° ≤ θ< 40°

iii.-35.9 −1.22 (θ-40) dBW/MHzfor 40° ≤ θ ≤45°
iv.-42 dBW/MHzfor θ > 45°

RSS-247, 6.2.3.1, Bands 5470-5600 MHz and 5650-5725 MHz:
Limits:
Maximum conducted Power: 250 mW (24 dBm) or 11 + 10 log10 B [dBm], whichever power is less.
e.i.r.p.: 1.0 W (30 dBm) or 17 + 10 log10 B [dBm], whichever power is less.

Note: Devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

RSS-247, 6.2.4.1, Band 5725-5850 MHz:
Limits:
Maximum conducted Power: 1 W (30 dBm)
e.i.r.p.: 4 W (36 dBm)

5.1.3 TEST PROTOCOL

WLAN n-Mode; 40 MHz; MCS 0; SISO

U-NII-band	Ch. No.	TX Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	17.5	25.5	22.0	4.5	30.0	4.5	24.0	6.5	30.0	4.5	
	110	5550	17.1	25.1	22.0	4.9	30.0	4.9	24.0	6.9	30.0	4.9	
	134	5670	18.4	26.4	22.0	3.6	30.0	3.6	24.0	5.6	30.0	3.6	

WLAN ac-Mode; 40 MHz; MCS 0; SISO

U-NII-band	Ch. No.	TX Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	17.3	25.3	22.0	4.7	30.0	4.7	24.0	6.7	30.0	4.7	
	110	5550	16.8	24.8	22.0	5.2	30.0	5.2	24.0	7.2	30.0	5.2	
	134	5670	18.5	26.5	22.0	3.5	30.0	3.5	24.0	5.5	30.0	3.5	

WLAN ax-Mode; 40 MHz; MCS 0; SISO

U-NII-band	Ch. No.	TX Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	16.8	24.8	22.0	5.2	30.0	5.2	24.0	7.2	30.0	5.2	
	110	5550	16.3	24.3	22.0	5.7	30.0	5.7	24.0	7.7	30.0	5.7	
	134	5670	17.9	25.9	22.0	4.1	30.0	4.1	24.0	6.1	30.0	4.1	

WLAN n-Mode; 40 MHz; MCS 8; MIMO

U-NII-band	Ch. No.	Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	20.5	28.5	22.0	1.5	30.0	1.5	24.0	3.5	30.0	1.5	
	110	5550	20.0	28.0	22.0	2.0	30.0	2.0	24.0	4.0	30.0	2.0	
	134	5670	21.3	29.3	22.0	0.7	30.0	0.7	24.0	2.7	30.0	0.7	

WLAN ac-Mode; 40 MHz; MCS 0; MIMO

U-NII-band	Ch. No.	Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	20.5	28.5	22.0	1.5	30.0	1.5	24.0	3.5	30.0	1.5	
	110	5550	20.1	28.1	22.0	1.9	30.0	1.9	24.0	3.9	30.0	1.9	
	134	5670	21.3	29.3	22.0	0.7	30.0	0.7	24.0	2.7	30.0	0.7	

WLAN ax-Mode; 40 MHz; MCS 0; MIMO

U-NII-band	Ch. No.	Freq. [MHz]	Cond. Power [dBm]	EIRP [dBm]	FCC Cond. Limit [dBm]	Margin [dB]	FCC EIRP Limit [dBm]	Margin [dB]	ISED Cond. Limit [dBm]	Margin [dB]	ISED EIRP Limit [dBm]	Margin [dB]	
2C	102	5510	20.2	28.2	22.0	1.8	30.0	1.8	24.0	3.8	30.0	1.8	
	110	5550	19.7	27.7	22.0	2.3	30.0	2.3	24.0	4.3	30.0	2.3	
	134	5670	21.1	29.1	22.0	0.9	30.0	0.9	24.0	2.9	30.0	0.9	

Remark: Only the modes and channels with changed power compared to original certification were retested.

5.1.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Power meter measurement, no plots provided.

5.1.5 TEST EQUIPMENT USED

- R&S TS8997

5.2 UNDESIRABLE EMISSIONS; GENERAL FIELD STRENGTH LIMITS

Standard **FCC Part 15 Subpart E**

The test was performed according to:
ANSI C63.10, chapter 6.4, 6.5, 6.6.5

5.2.1 TEST DESCRIPTION

The test set-up was made in accordance to the general provisions of ANSI C63.10 in a typical installation configuration. The measurements were performed according the following sub-chapters of ANSI C63.10:

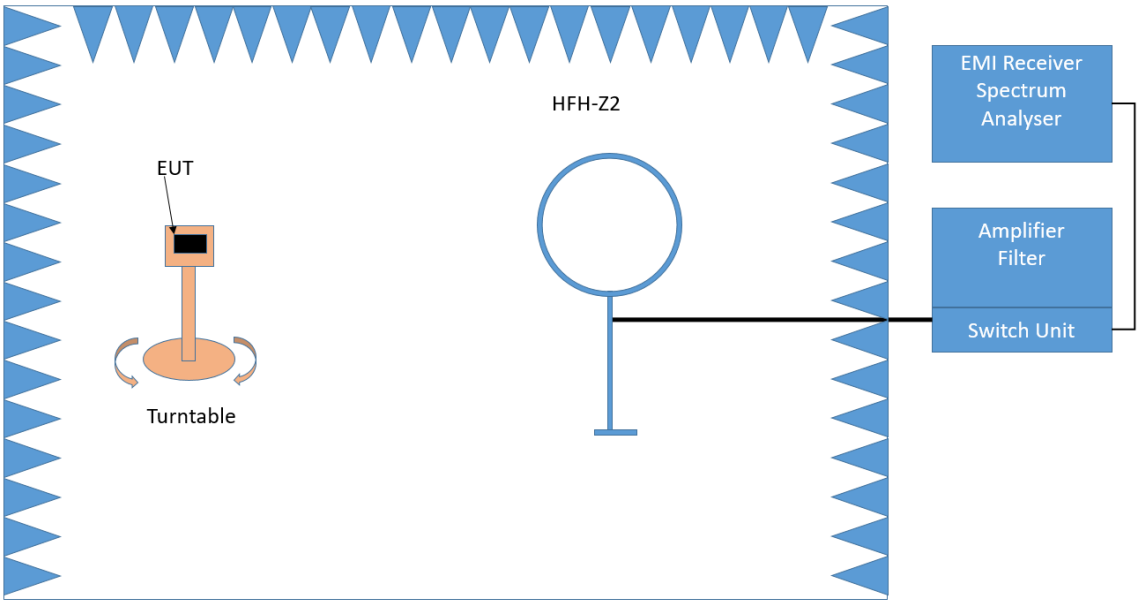
- < 30 MHz: Chapter 6.4
- 30 MHz – 1 GHz: Chapter 6.5
- > 1 GHZ: Chapter 6.6 (procedure according 6.6.5 used)

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered.

Below 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

1. Measurement up to 30 MHz



Test Setup; Spurious Emission Radiated (SAC), 9 kHz – 30 MHz

The Loop antenna HFH2-Z2 is used.

Step 1: pre measurement

- Anechoic chamber

- Antenna distance: 3 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 – 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF–Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

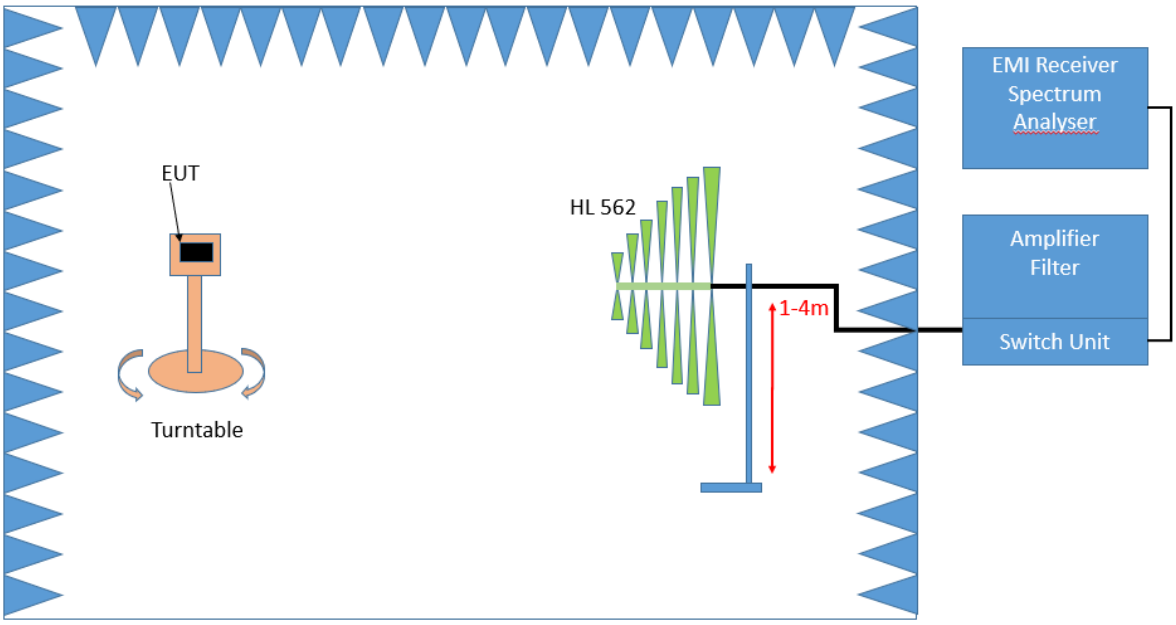
Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Open area test side
- Antenna distance: according to the Standard
- Detector: Quasi-Peak
- Frequency range: 0.009 – 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF–Bandwidth: 0.2 - 10 kHz
- Measuring time / Frequency step: 1 s

2. Measurement above 30 MHz and up to 1 GHz



Test Setup; Spurious Emission Radiated (SAC), 30 MHz- 1GHz

Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 – 1000 MHz
- Frequency steps: 30 kHz
- IF–Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms
- Turntable angle range: –180° to 90°
- Turntable step size: 90°

-- Height variation range: 1 – 4 m
- Height variation step size: 1.5 m
- Polarisation: Horizontal + Vertical
Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: Adjustment measurement
In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.
For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by 360°. During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary by 1 – 4 meter. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.
- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: 360 °
- Height variation range:1 – 4 m
- Antenna Polarisation: max. value determined in step 1

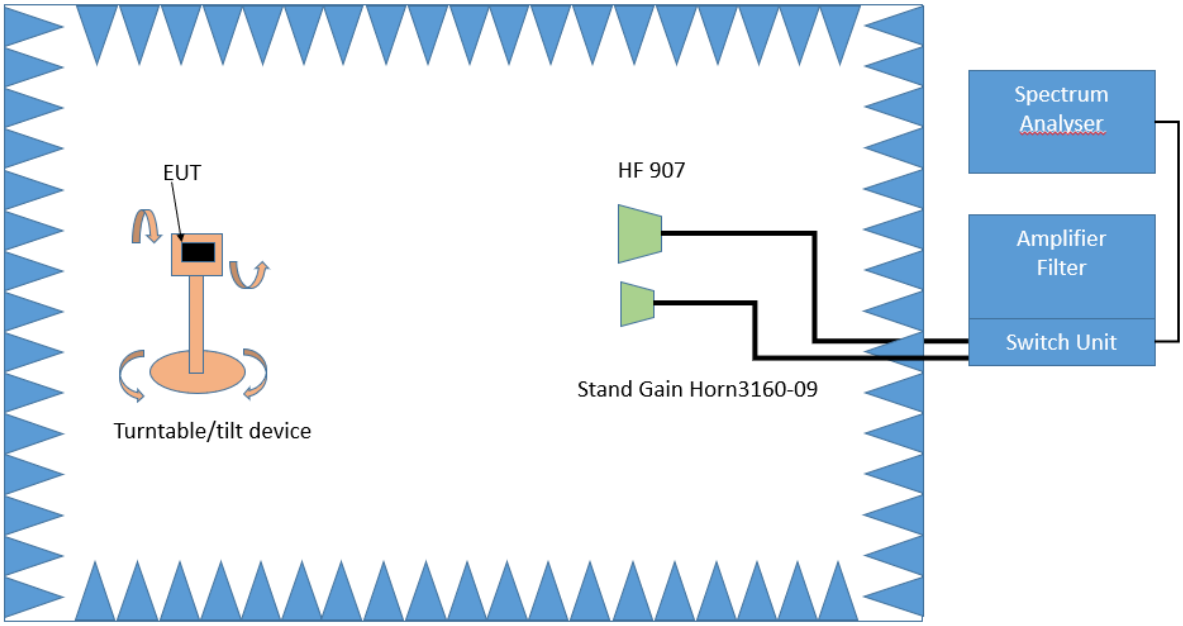
Step 3: Final measurement with QP detector
With the settings determined in step 2, the final measurement will be performed:
EMI receiver settings for step 3:
- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

Above 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.
All steps were performed with one height (1.5 m) of the receiving antenna only.

3. Measurement 1 GHz up to 26.5 GHz



Test Setup; Spurious Emission Radiated (FAC), 1 GHz-26.5 GHz

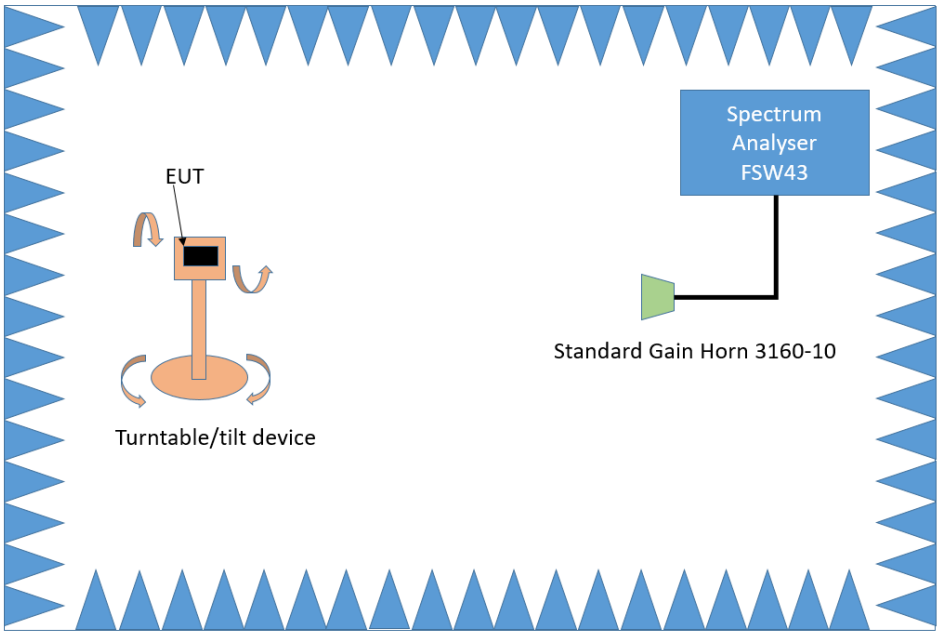
Step 1:
The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.
All steps were performed with one height (1.5 m) of the receiving antenna only.
The EUT is turned during the preliminary measurement across the elevation axis, with a step size of 90 °.
The turn table step size (azimuth angle) for the preliminary measurement is 45 °.

Step 2:
Due to the fact, that in this frequency range the test is performed in a fully anechoic room, the height scan of the receiving antenna instep 2 is omitted. Instead of this, a maximum search with a step size ± 45° for the elevation axis is performed.
The turn table azimuth will slowly vary by ± 22.5°.
The elevation angle will slowly vary by ± 45°
EMI receiver settings (for all steps):
- Detector: Peak, Average
- IF Bandwidth = 1 MHz

Step 3:
Spectrum analyser settings for step 3:
- Detector: Peak / Average
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 1 MHz
- Measuring time: 1 s

4. Measurement above 26.5 GHz up to 40 GHz
The following modifications, compared to the frequency range 1 GHz – 26.5 GHz, apply to the measurement procedure for the frequency range above 26.5 GHz:

- Measurement distance: 1m



Test Setup; Spurious Emission Radiated (FAC), 26.5 – 40 GHz

5.2.2 TEST REQUIREMENTS / LIMITS

A) FCC

FCC Part 15 Subpart E, §15.407 (b)(1)
For transmitters operating in the 5150–5250 MHz band:
Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(2)
For transmitters operating in the 5250–5350 MHz band:
Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(3)
For transmitters operating in the 5470–5725 MHz band:
Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

FCC Part 15 Subpart E, §15.407 (b)(4)
For transmitters operating in the 5725–5850 MHz band:
Limit: –27 dBm/MHz at 75 MHz or more above or below the band edge
increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge
increasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edge
increasing linearly to 27 dBm/MHz at the band edge.

FCC Part 15 Subpart E, §15.407 (b) (5)
For transmitters operating within the 5.925-7.125 GHz band:
Limit: –27 dBm/MHz EIRP outside of the band 5.925-7.125 GHz.

FCC Part 15 Subpart E, §15.407 (b) (6)
For transmitters operating within the 5.925-7.125 GHz bands:
Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

B) IC
Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1.2, Emissions outside the band 5150-5250 MHz, indoor operation only:
Limit: –27 dBm/MHz EIRP outside of the band 5150–5250 MHz.

RSS-247, 6.2.2.2, Emissions outside the band 5250-5350 MHz:
Limit: –27 dBm/MHz EIRP outside of the band 5250–5350 MHz.

RSS-247, 6.2.3.2, Emissions outside the bands 5470-5600 MHz and 5650-5725 MHz:
Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.
However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p.at 5850 MHz instead of 5725 MHz.
Note: No operation is permitted for the frequency range 5600–5650 MHz.

RSS-247, 6.2.4.2, Emissions outside the band 5725-5850 MHz:

a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;
b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

C) FCC & IC

FCC Part 15 Subpart E, §15.405
The provisions of §§ 15.203 and 15.205 are included.

§15.407 (b)(6)
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

§15.407 (b)(7)
The provisions of §15.205 apply to intentional radiators operating under this section

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
0.009 – 0.49	2400/F(kHz)@300m	3	(48.5 – 13.8)@300m
0.49 – 1.705	24000/F(kHz)@30m	3	(33.8 – 23.0)@30m
1.705 – 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 - 26000	500@3m	3	54.0@3m
26000 - 40000	500@3m	1	54.0@3m

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor:

- Limit (dBµV/m) = 20 log (Limit (µV/m)/1µV/m)
- Limit (dBµV/m) = EIRP [dBm] – 20 log (d [m]) + 104.8

Limit types (in result tables):
RB – Emissions falls into a "Restricted Band" according FCC §§15.205 and 15.209 *)
UE – "Undesirable Emission Limit" according FCC §15.407
BE-RB – Band Edge Limit basing on "Restricted Band Limits"
BE-UE – Band Edge Limit basing on "Undesirable Emission Limit"
*) Below 1 GHz the limits of §15.209 are applied for all frequencies.

5.2.3 TEST PROTOCOL

Ambient temperature: 20 - 25 °C
Air Pressure: 993 - 1026 hPa
Humidity: 35 – 49 %
WLAN a-Mode; 20 MHz; 6 Mbit/s; Diversity
Applied duty cycle correction (AV): 1.2 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
36	5180	5150.0	46.9	AV	1000	54.0	7.1	RB
36	5180	5150.0	59.1	PEAK	1000	74.0	14.9	RB
44	5220	473.3	15.0	QP	120	46.0	31.0	RB
44	5220	535.5	21.0	QP	120	46.0	25.0	RB
44	5220	715.9	23.4	QP	120	46.0	22.6	RB
44	5220	849.3	25.4	QP	120	46.0	20.6	RB
48	5240	-	-	-	-	-	-	-
52	5260	-	-	-	-	-	-	-
56	5280	-	-	-	-	-	-	-
64	5320	-	-	-	-	-	-	-
100	5500	-	-	-	-	-	-	-
116	5580	-	-	-	-	-	-	-
140	5700	-	-	-	-	-	-	-
149	5745	-	-	-	-	-	-	-
157	5785	480.0	12.9	QP	120	46.0	33.1	RB
157	5785	535.5	20.3	QP	120	46.0	25.7	RB
157	5785	713.8	24.4	QP	120	46.0	21.7	RB
157	5785	842.8	21.6	QP	120	46.0	24.5	RB
165	5825	-	-	-	-	-	-	-

WLAN n-Mode; 20 MHz; MCS 8; MIMO
Applied duty cycle correction (AV): 1.2 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
36	5180	-	-	-	-	-	-	-
44	5220	-	-	-	-	-	-	-
48	5240	-	-	-	-	-	-	-
52	5260	-	-	-	-	-	-	-
56	5280	-	-	-	-	-	-	-
64	5320	-	-	-	-	-	-	-
100	5500	-	-	-	-	-	-	-
116	5580	-	-	-	-	-	-	-
140	5700	-	-	-	-	-	-	-
149	5745	-	-	-	-	-	-	-
157	5785	-	-	-	-	-	-	-
165	5825	-	-	-	-	-	-	-

WLAN n-Mode; 40 MHz; MCS 8; MIMO
Applied duty cycle correction (AV): 1.3 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
38	5190	535.5	27.8	QP	120	46.0	18.3	RB
38	5190	715.9	33.1	QP	120	46.0	12.9	RB
46	5230	-	-	-	-	-	-	-
54	5270	-	-	-	-	-	-	-
62	5310	-	-	-	-	-	-	-
102	5510	-	-	-	-	-	-	-
110	5550	-	-	-	-	-	-	-
134	5670	-	-	-	-	-	-	-
151	5755	-	-	-	-	-	-	-
159	5795	535.5	29.8	QP	120	46.0	16.2	RB
159	5795	715.2	35.9	QP	120	46.0	10.1	RB

WLAN ax-Mode; 20 MHz; MCS 0; SISO
Applied duty cycle correction (AV): 1.2 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
36	5180	-	-	-	-	-	-	-
165	5825	-	-	-	-	-	-	-

WLAN ax-Mode; 40 MHz; MCS 0; SISO
Applied duty cycle correction (AV): 1.2 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
38	5190	-	-	-	-	-	-	-
62	5310	-	-	-	-	-	-	-
102	5510	-	-	-	-	-	-	-
134	5670	-	-	-	-	-	-	-
151	5755	-	-	-	-	-	-	-
159	5795	-	-	-	-	-	-	-

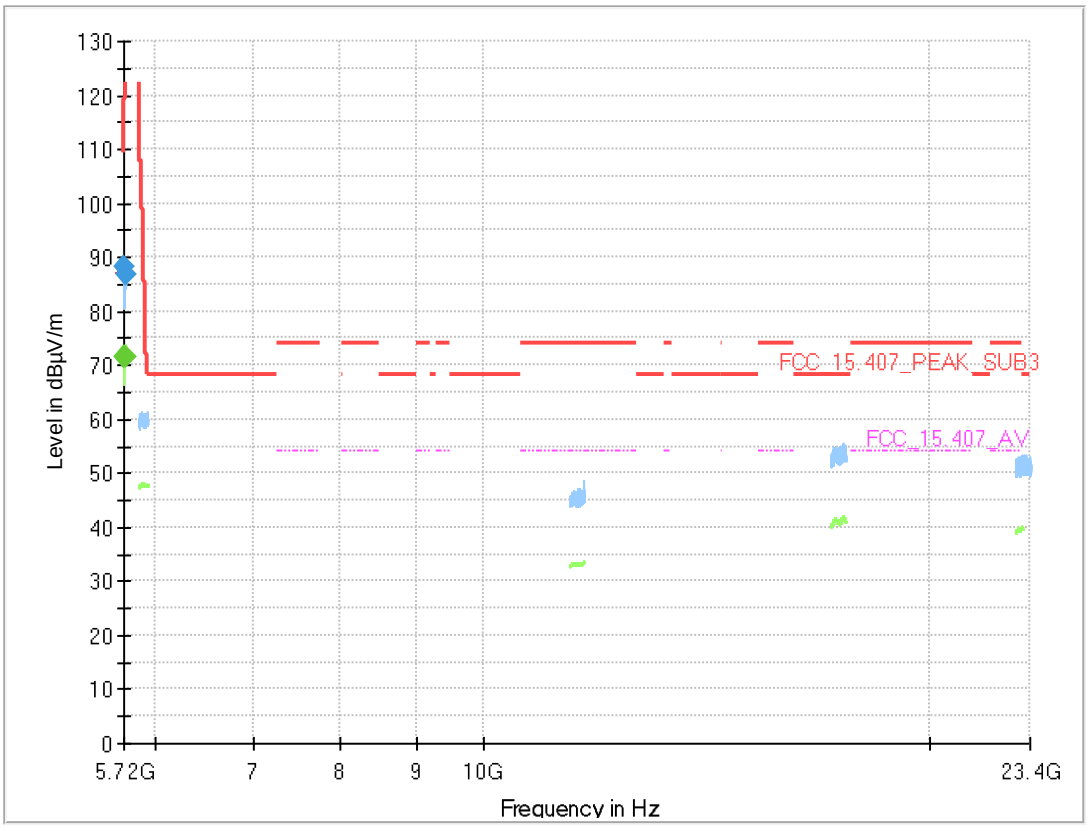
WLAN ax-Mode; 40 MHz; MCS 0; MIMO
Applied duty cycle correction (AV): 1.2 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBµV/m]	Detector	RBW [kHz]	Limit [dBµV/m]	Margin [dB]	Limit Type
38	5190	-	-	-	-	-	-	-

Remark: Lines with – instead of values show tested channels that were performed but no relevant peaks were found.
Band edge values can be found in the band edge chapter.
Please see next sub-clause for the measurement plots.

5.2.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

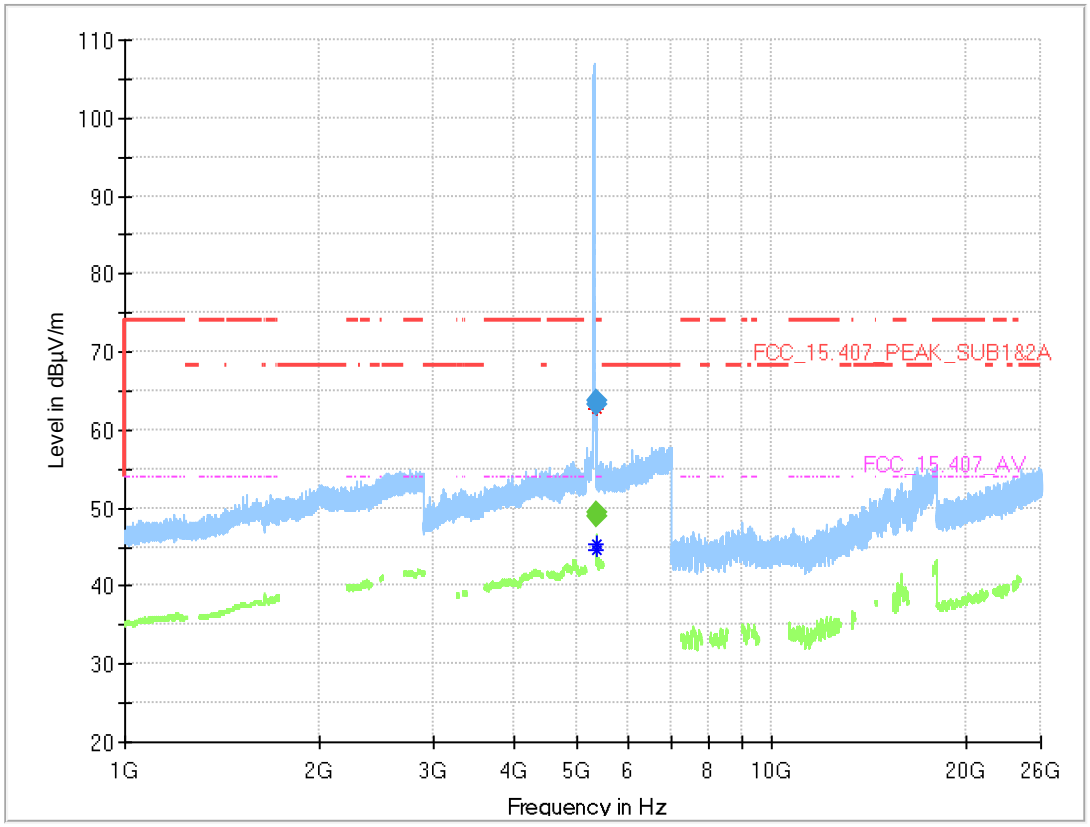
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5723.200	---	71.5	---	---	1000.0	1000.000	150.0	V	-132.0	-4.0	15.7
5723.200	88.1	---	118.1	29.99	1000.0	1000.000	150.0	V	-132.0	-4.0	15.7
5724.900	---	71.6	---	---	1000.0	1000.000	150.0	V	-128.0	-10.0	15.7
5724.900	86.9	---	121.9	35.03	1000.0	1000.000	150.0	V	-128.0	-10.0	15.7

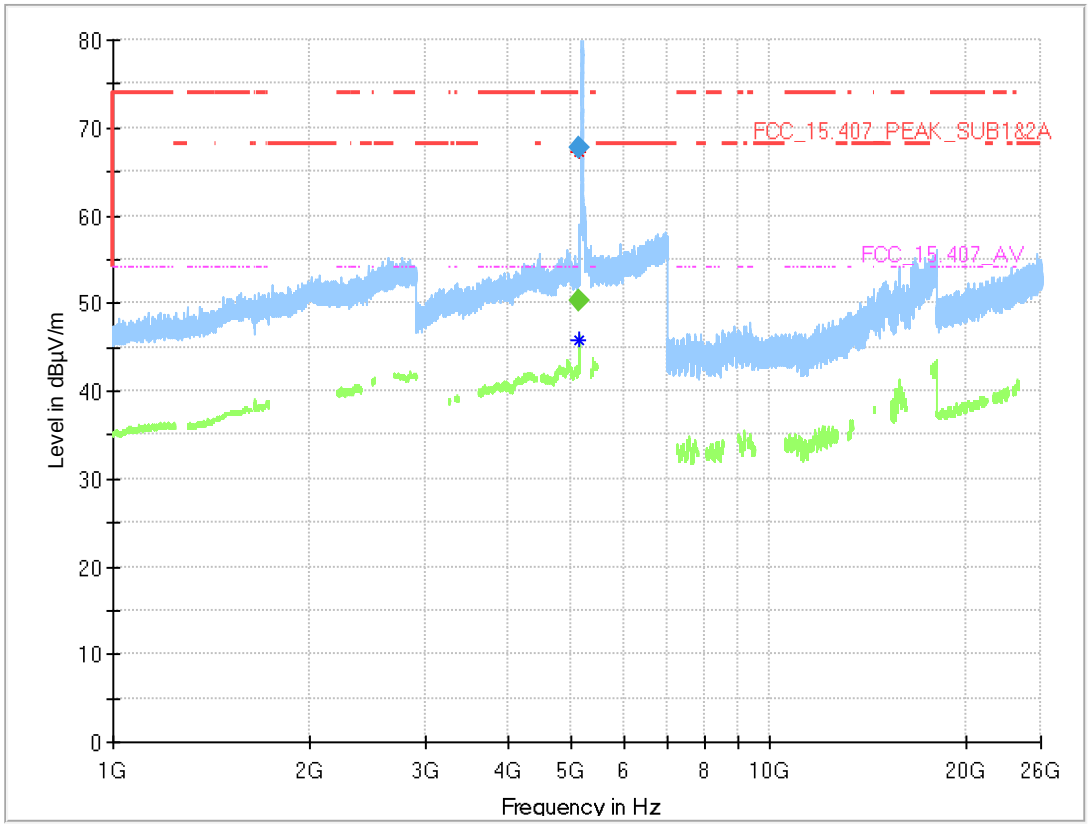
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5350.000	---	49.0	54.00	5.03	1000.0	1000.000	150.0	H	38.0	105.0	15.2
5350.000	63.2	---	74.00	10.78	1000.0	1000.000	150.0	H	38.0	105.0	15.2
5351.540	---	49.4	54.00	4.63	1000.0	1000.000	150.0	H	37.0	105.0	15.2
5351.540	63.8	---	74.00	10.24	1000.0	1000.000	150.0	H	37.0	105.0	15.2

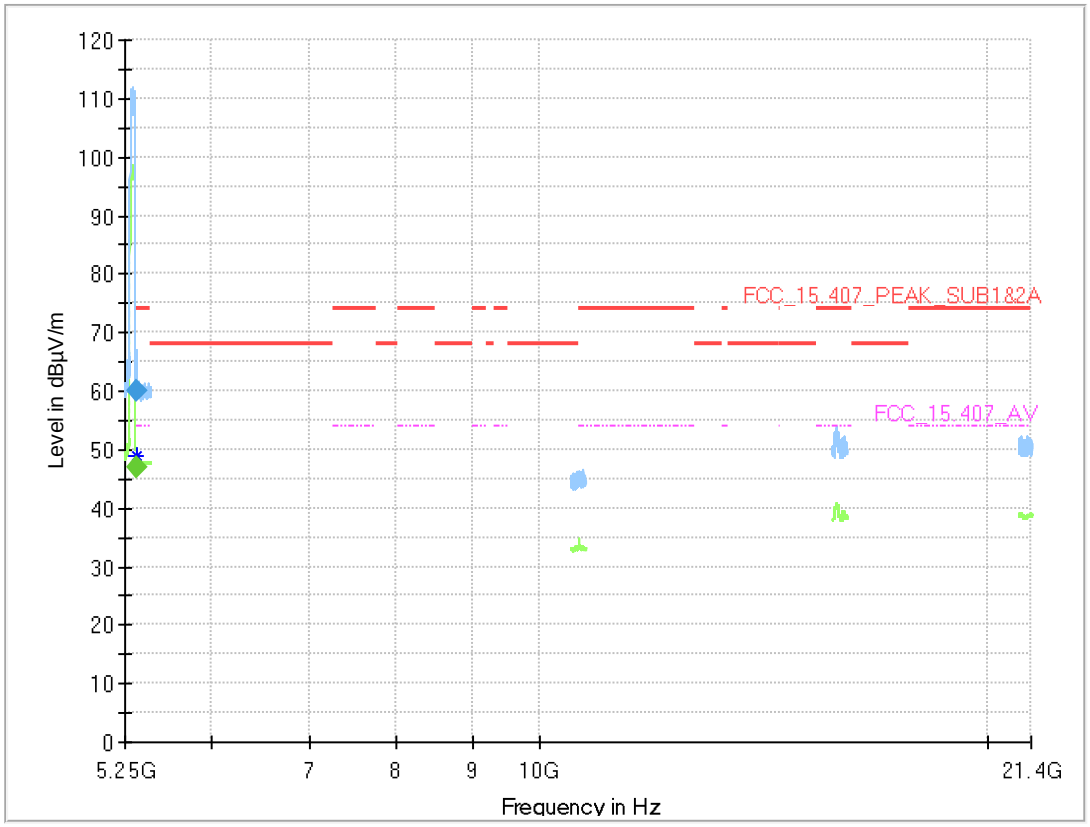
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5148.700	---	50.3	54.00	3.74	1000.0	1000.000	150.0	H	-55.0	105.0	15.0
5148.700	67.6	---	74.00	6.37	1000.0	1000.000	150.0	H	-55.0	105.0	15.0

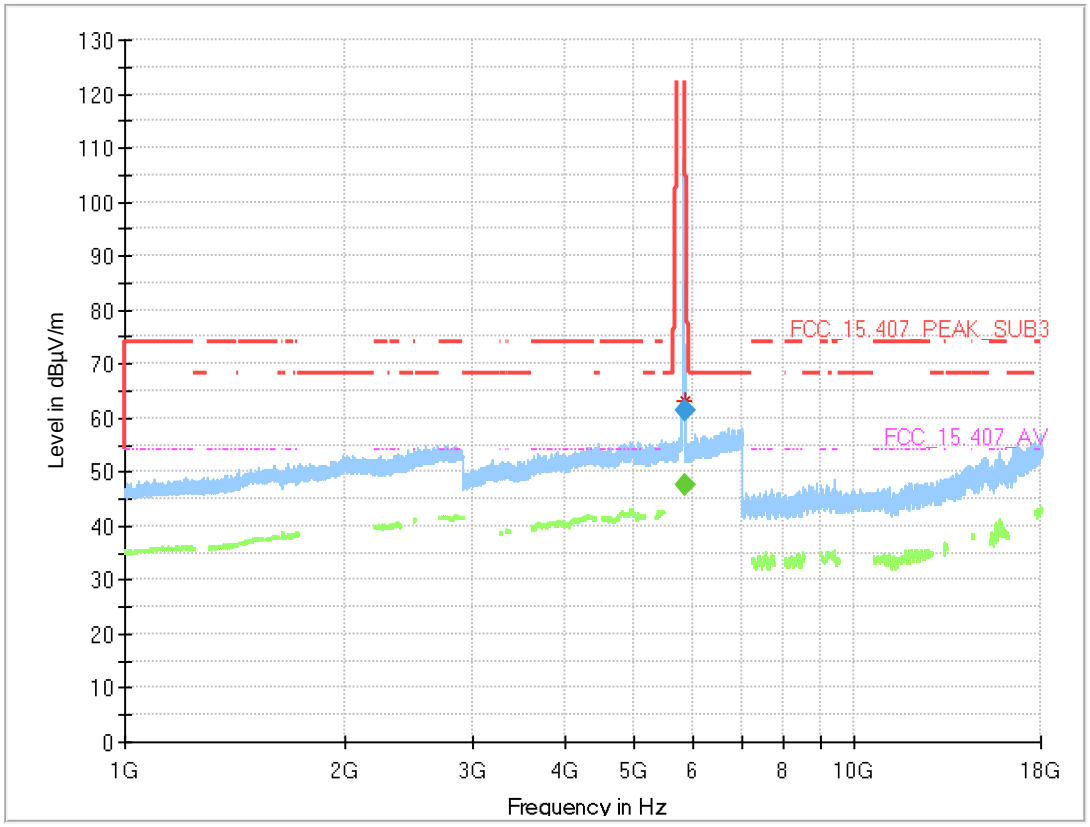
Radio Technology = WLAN ax 40 MHz, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5350.931	---	47.0	54.00	7.01	1000.0	1000.000	150.0	V	-54.0	90.0	15.2
5350.931	60.1	---	74.00	13.92	1000.0	1000.000	150.0	V	-54.0	90.0	15.2

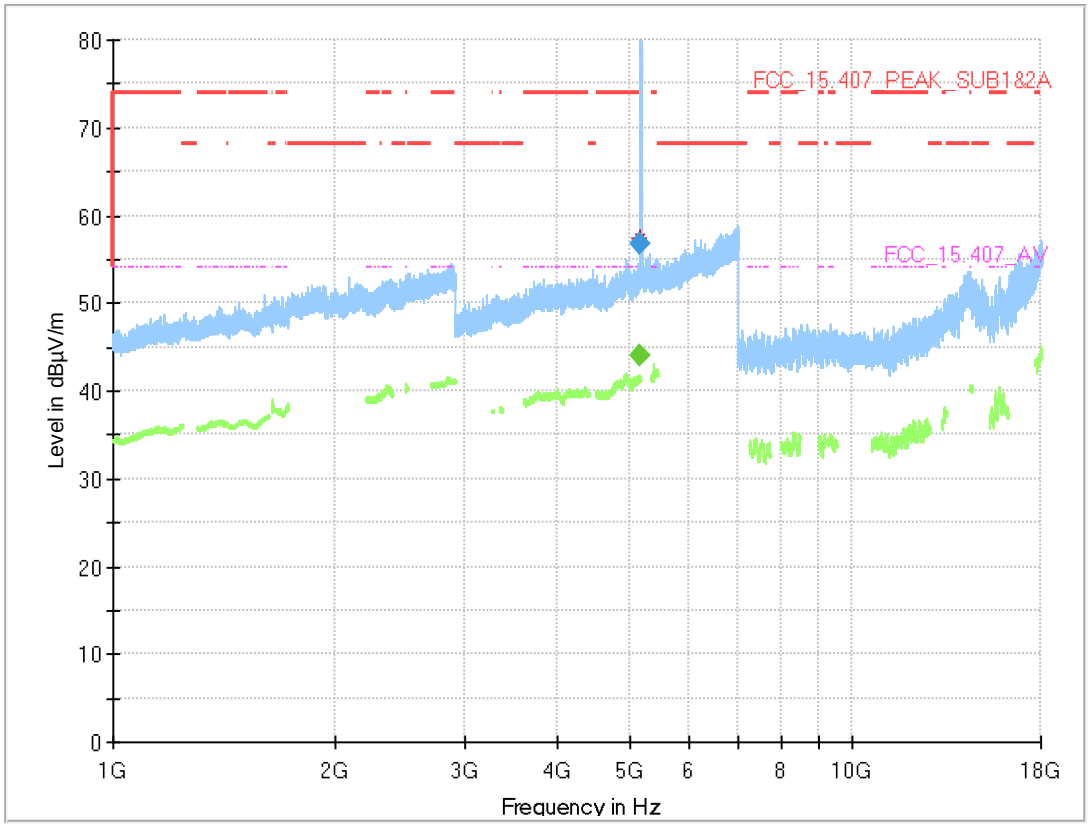
Radio Technology = WLAN ax 20 MHz, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5850.700	---	47.7	---	---	1000.0	1000.000	150.0	V	-100.0	2.0	15.8
5850.700	61.4	---	120.6	59.16	1000.0	1000.000	150.0	V	-100.0	2.0	15.8

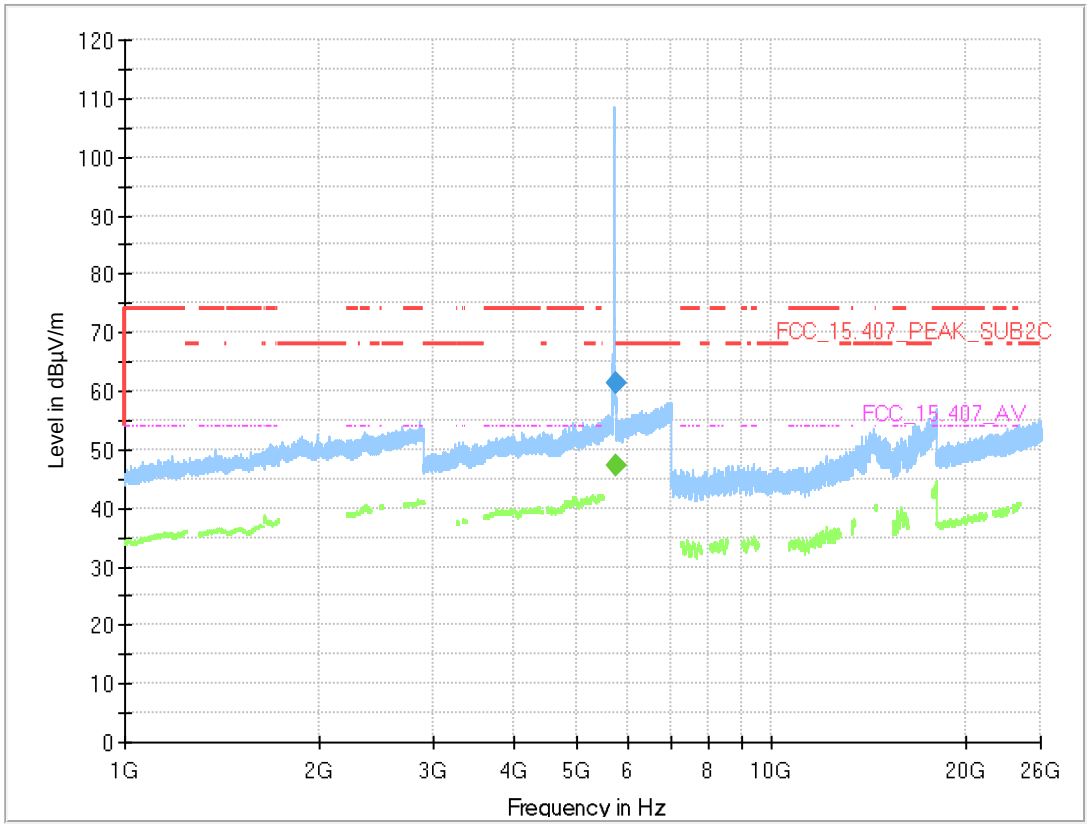
Radio Technology = WLAN ax 20 MHz, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5150.000	---	44.1	---	---	1000.0	1000.000	150.0	H	80.0	-4.0	14.5
5150.000	56.8	---	---	---	1000.0	1000.000	150.0	H	80.0	-4.0	14.5

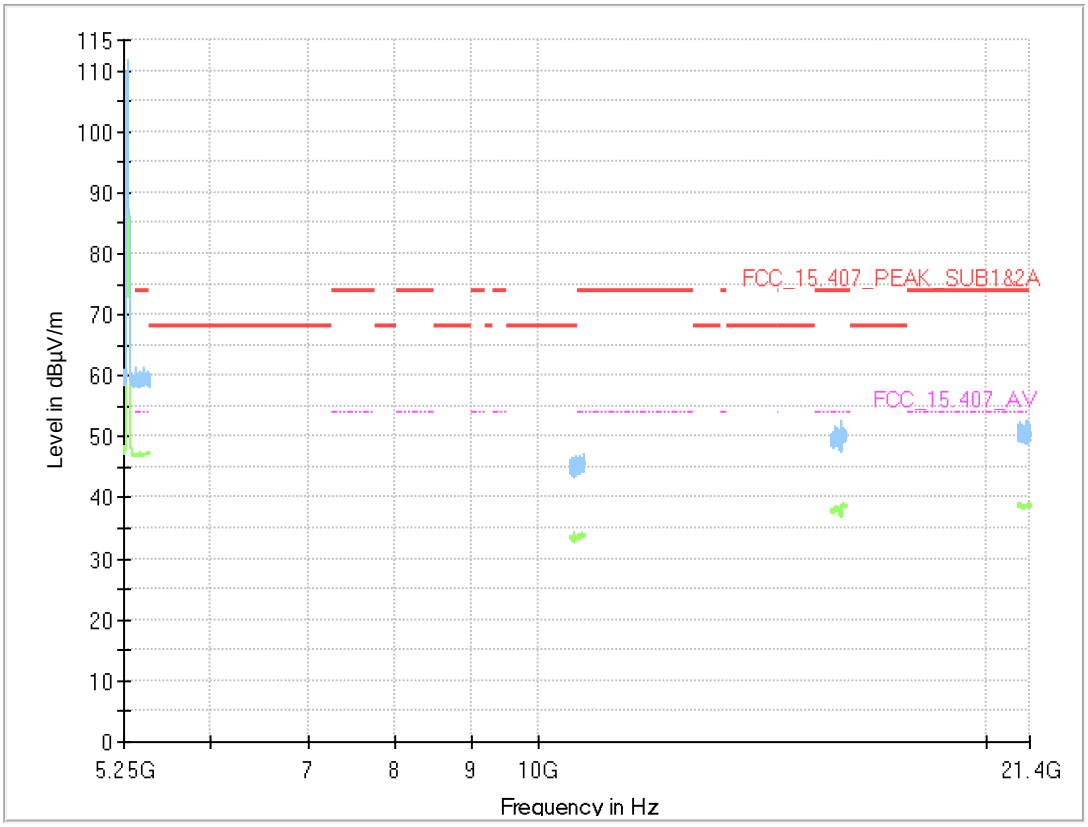
Radio Technology = WLAN a Diversity, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.893	---	47.4	---	---	1000.0	1000.000	150.0	H	34.0	96.0	15.4
5725.893	61.4	---	68.20	6.75	1000.0	1000.000	150.0	H	34.0	96.0	15.4

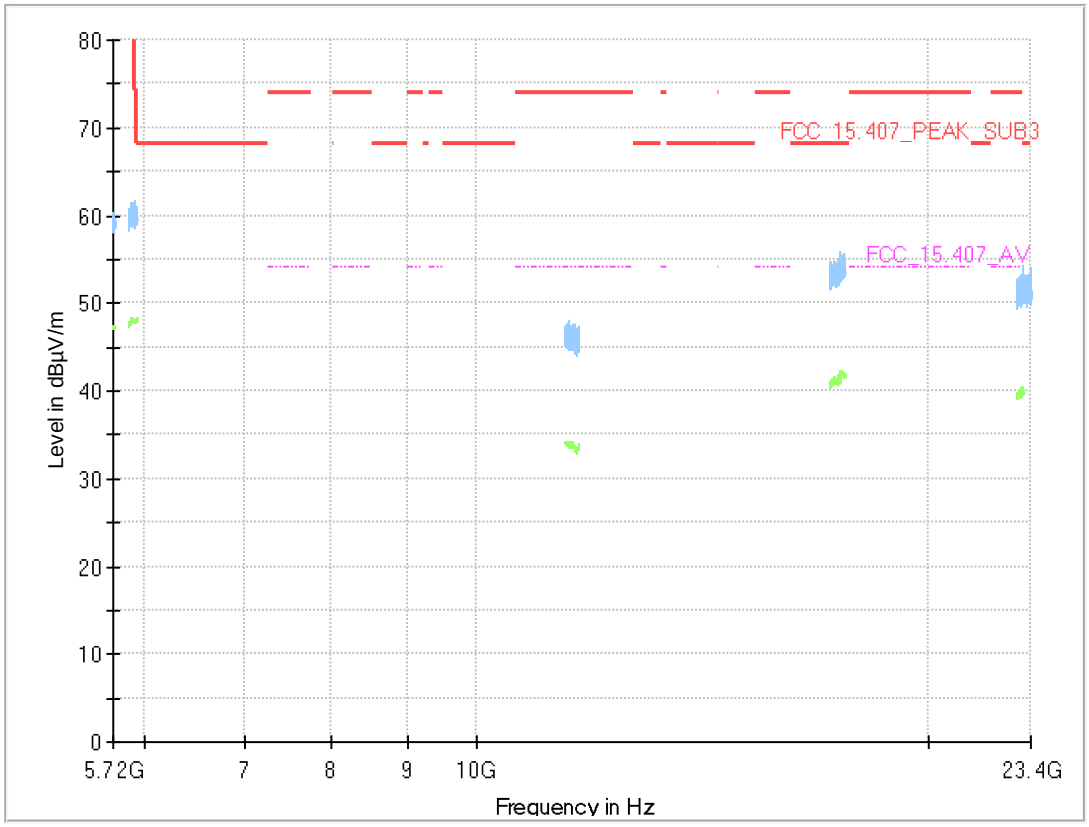
Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

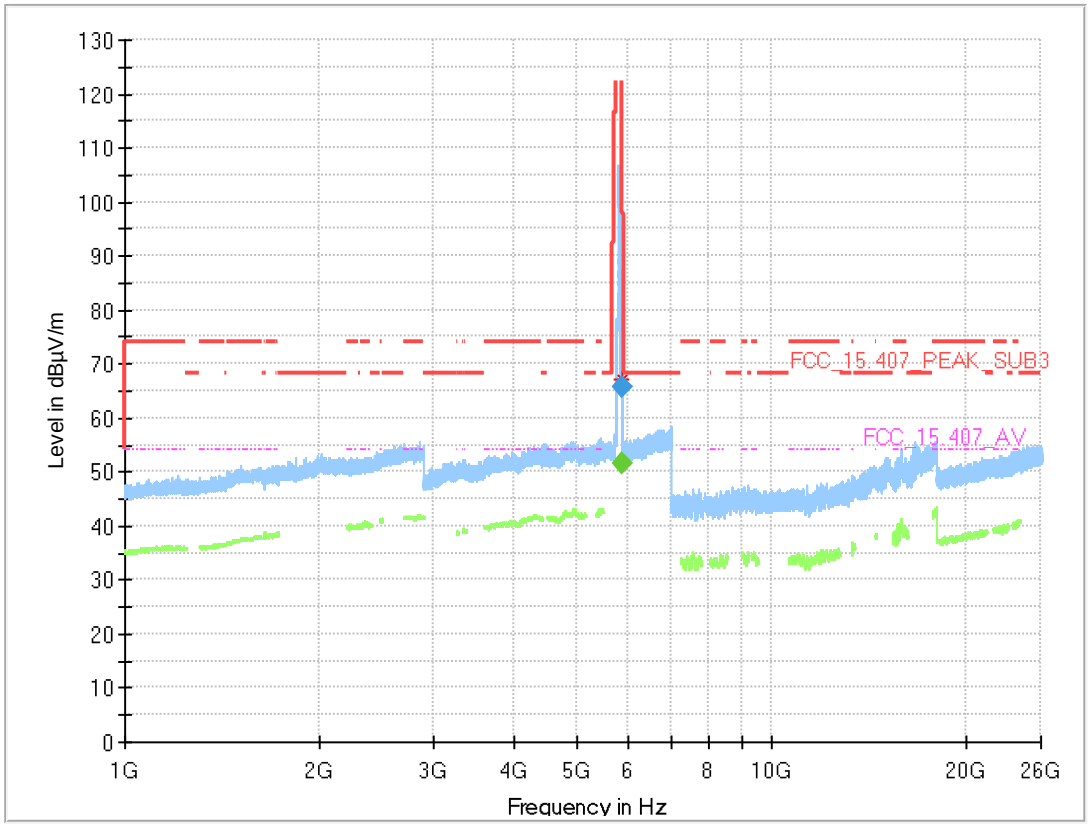
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

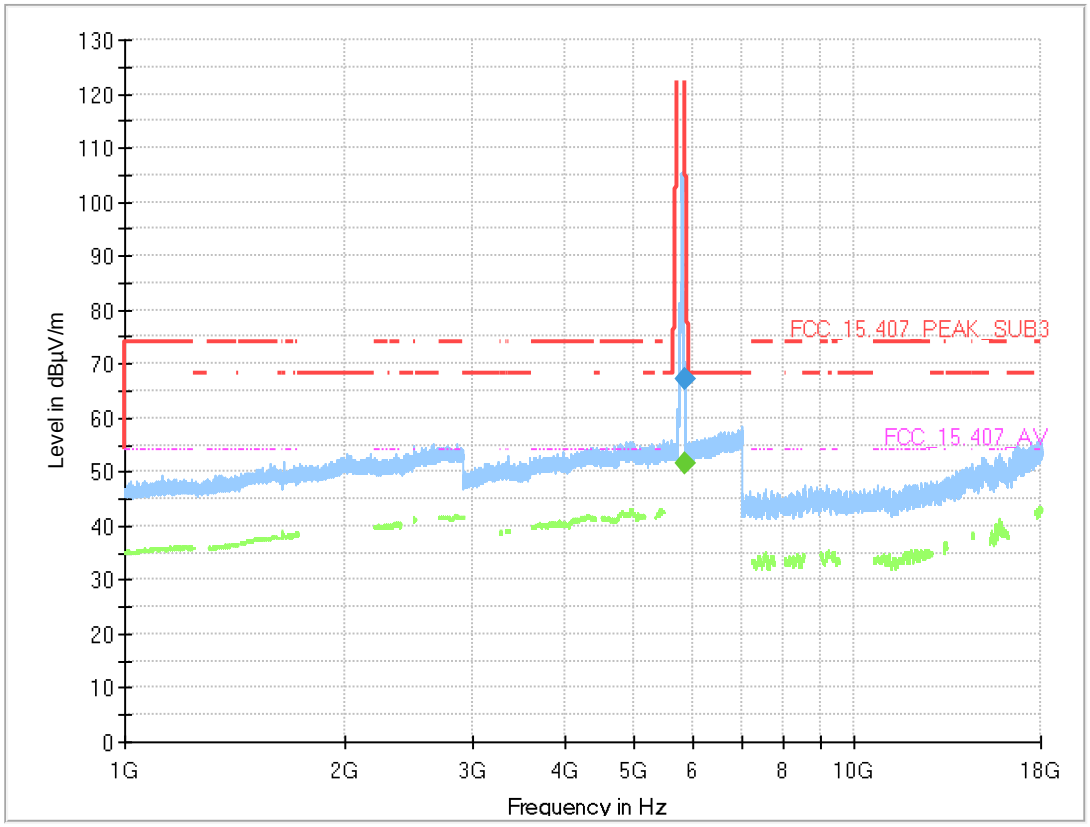
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5850.900	---	51.5	---	---	1000.0	1000.000	150.0	V	-177.0	15.0	15.8
5850.900	65.7	---	120.1	54.41	1000.0	1000.000	150.0	V	-177.0	15.0	15.8

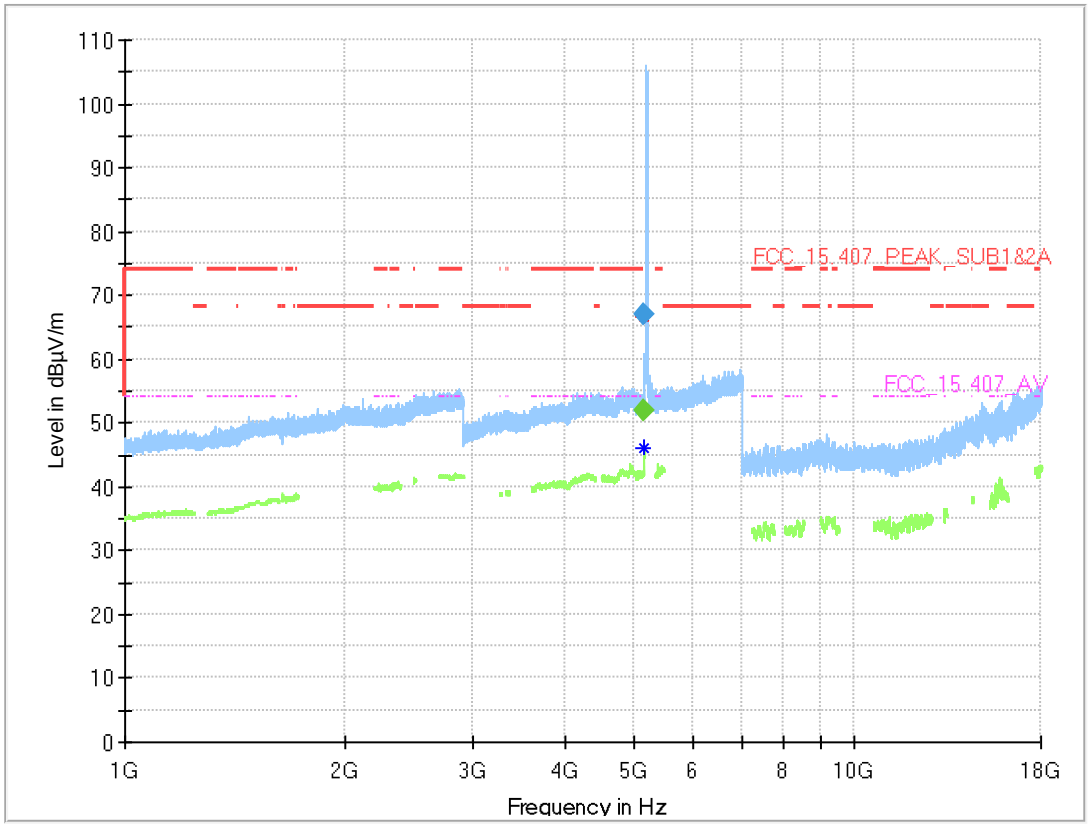
Radio Technology = WLAN ax 40 MHz, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5851.200	---	51.7	---	---	1000.0	1000.000	150.0	V	-91.0	15.0	15.8
5851.200	67.2	---	119.4	52.24	1000.0	1000.000	150.0	V	-91.0	15.0	15.8

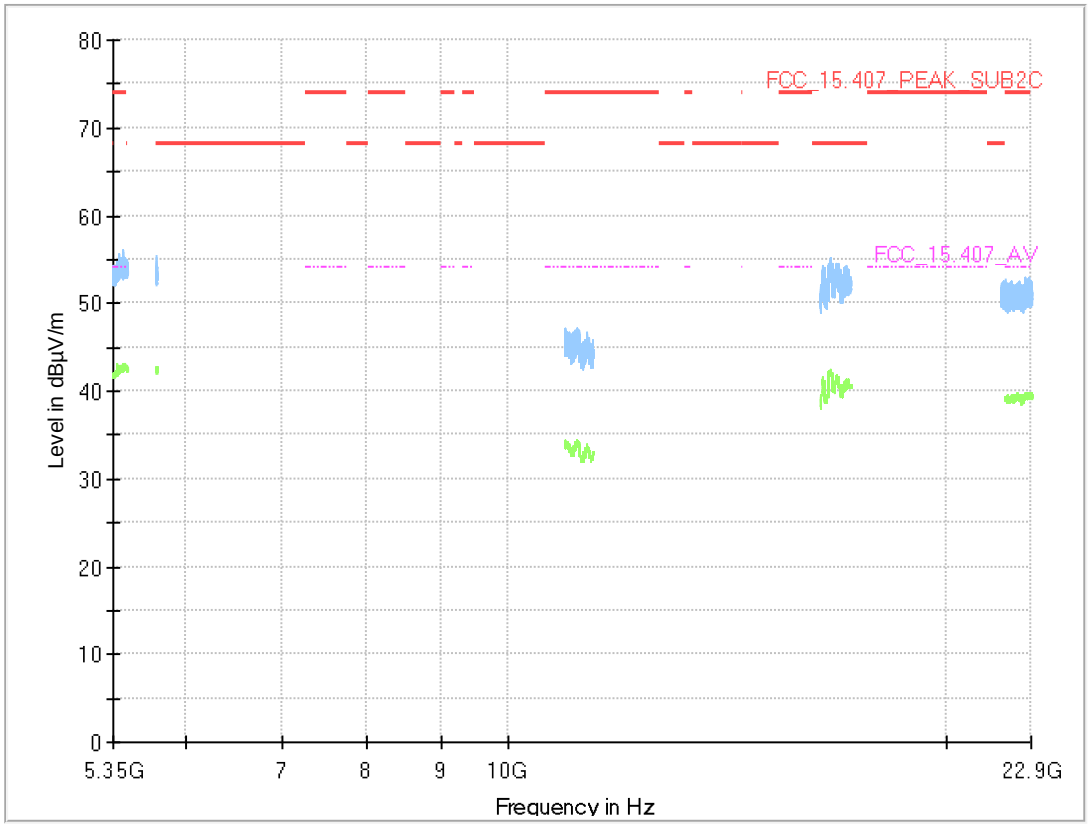
Radio Technology = WLAN ax 40 MHz, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5150.000	---	51.8	54.00	2.18	1000.0	1000.000	150.0	V	-34.0	78.0	15.0
5150.000	67.1	---	74.00	6.93	1000.0	1000.000	150.0	V	-34.0	78.0	15.0

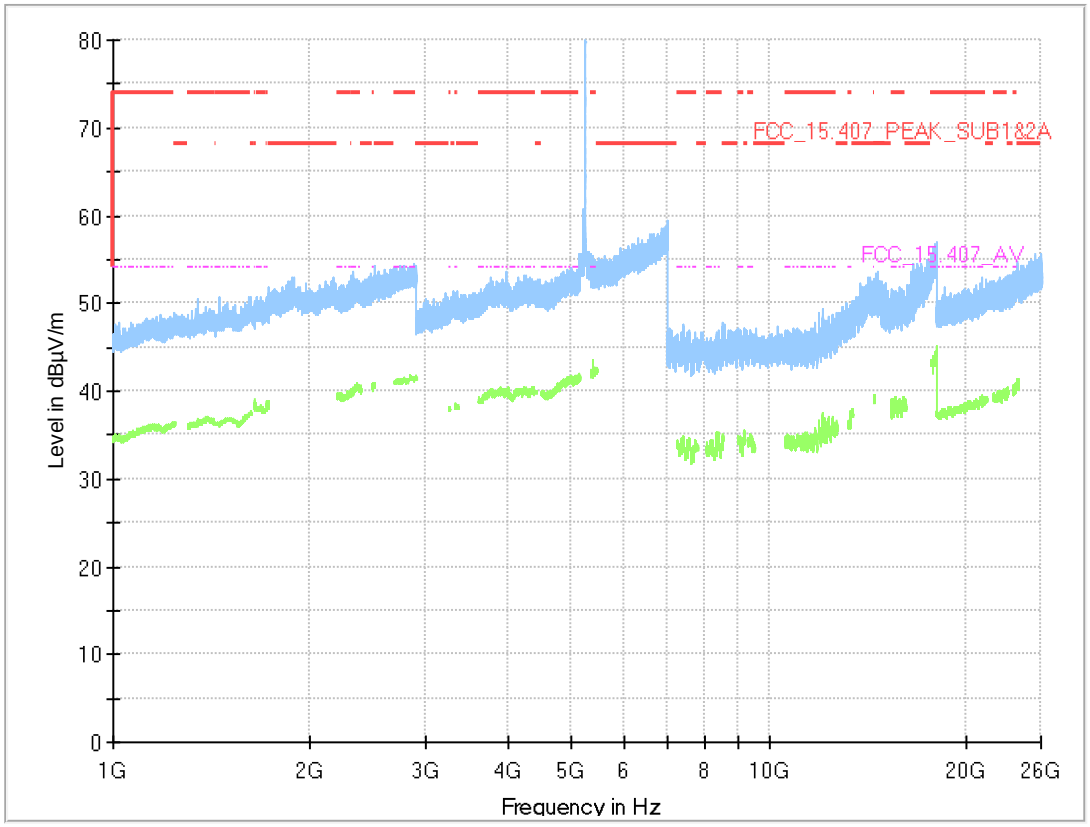
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

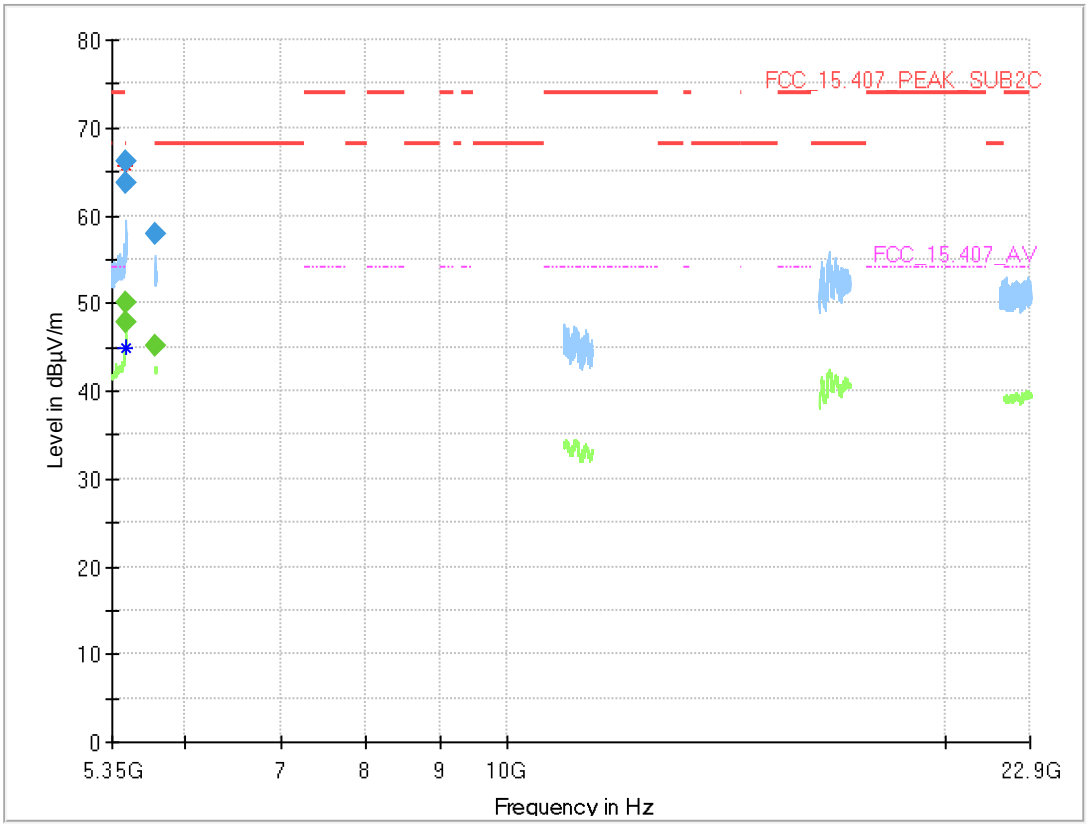
Radio Technology = WLAN a Diversity, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

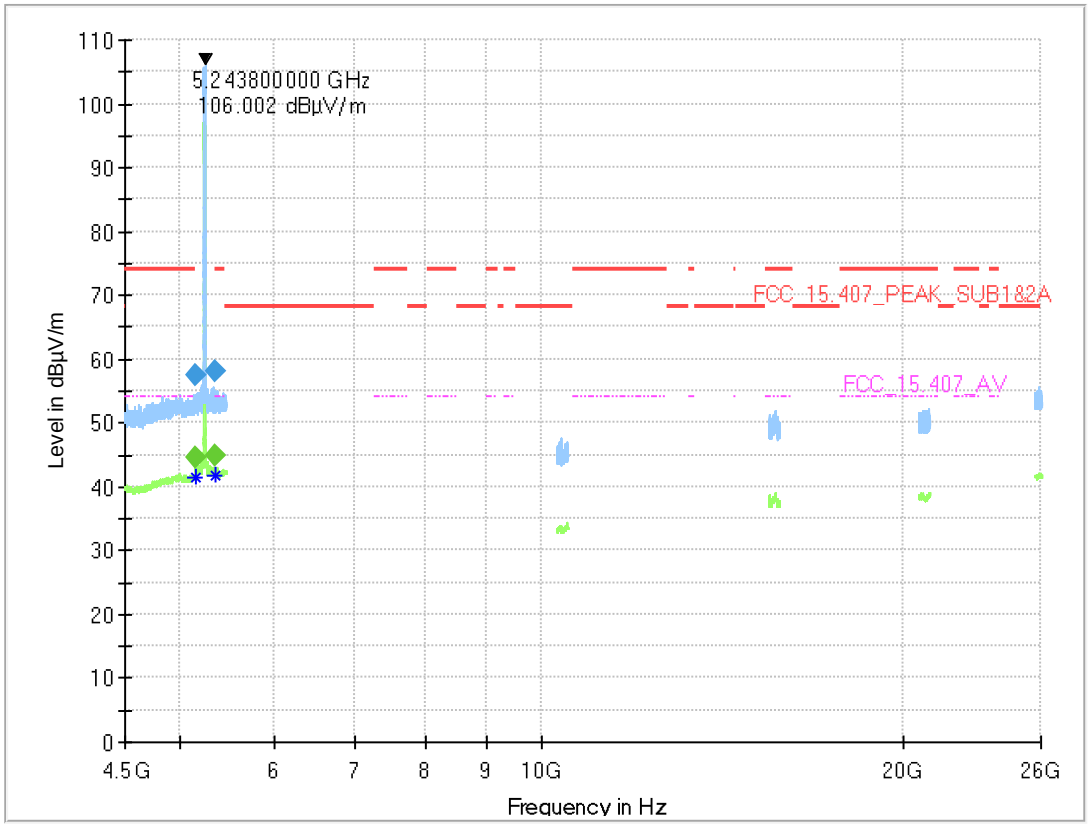
Radio Technology = WLAN ax 40 MHz, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5459.560	---	47.9	54.00	6.13	1000.0	1000.000	150.0	H	-134.0	88.0	15.9
5459.560	63.7	---	74.00	10.27	1000.0	1000.000	150.0	H	-134.0	88.0	15.9
5470.000	---	50.1	---	---	1000.0	1000.000	150.0	H	-134.0	91.0	15.7
5470.000	66.2	---	68.20	2.03	1000.0	1000.000	150.0	H	-134.0	91.0	15.7
5727.600	---	45.1	---	---	1000.0	1000.000	150.0	V	-174.0	101.0	15.7
5727.600	57.8	---	68.20	10.43	1000.0	1000.000	150.0	V	-174.0	101.0	15.7

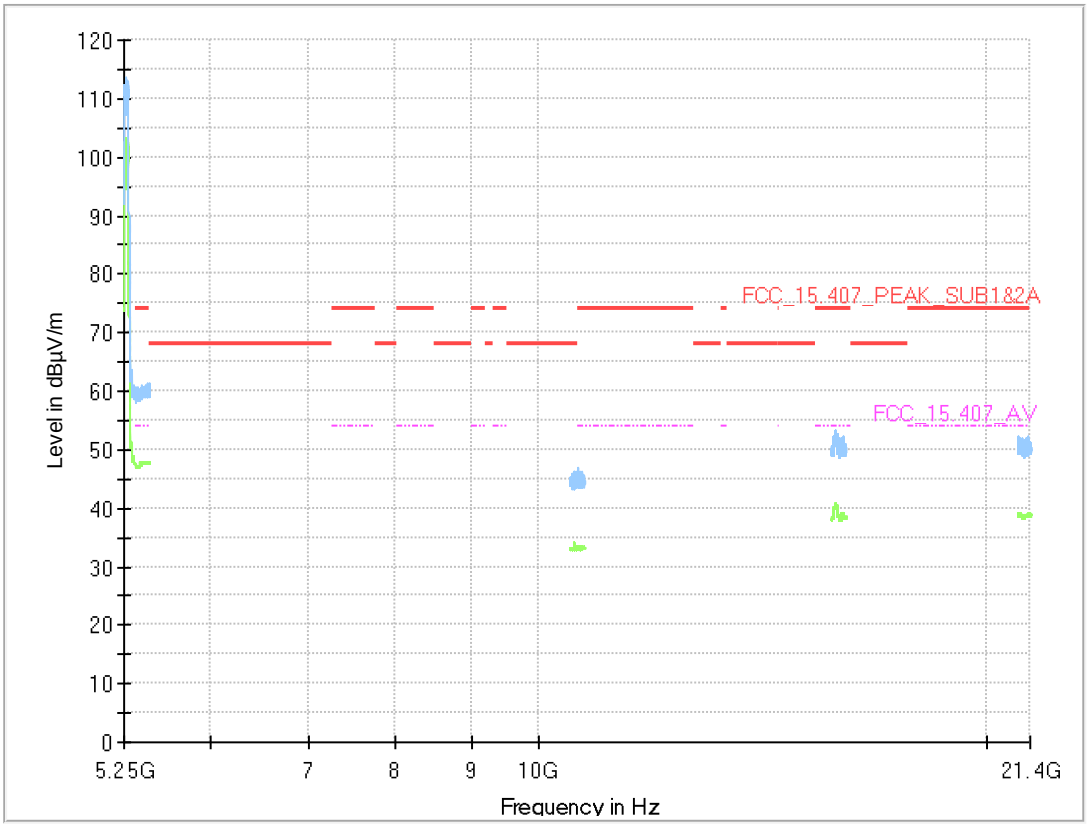
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5150.000	---	44.6	54.00	9.44	1000.0	1000.000	150.0	V	130.0	15.0	14.5
5150.000	57.5	---	74.00	16.53	1000.0	1000.000	150.0	V	130.0	15.0	14.5
5350.000	---	44.8	54.00	9.22	1000.0	1000.000	150.0	V	49.0	4.0	14.9
5350.000	58.1	---	74.00	15.90	1000.0	1000.000	150.0	V	49.0	4.0	14.9

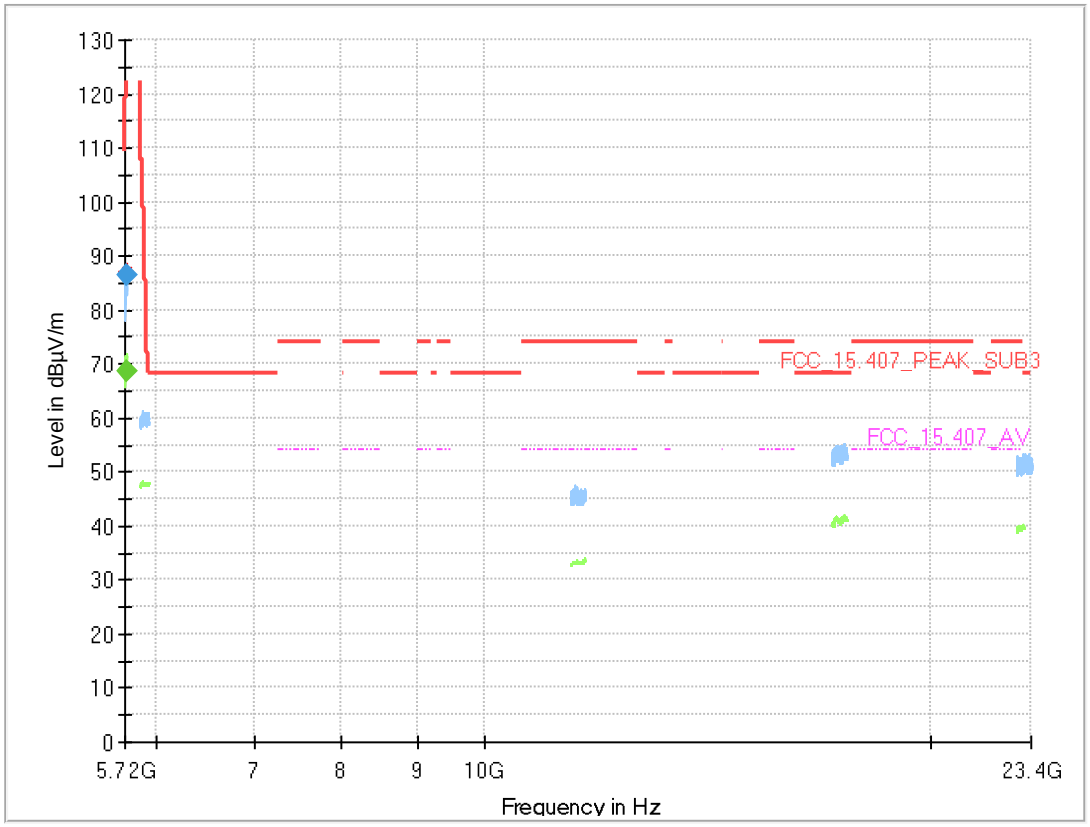
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN ax 40 MHz, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



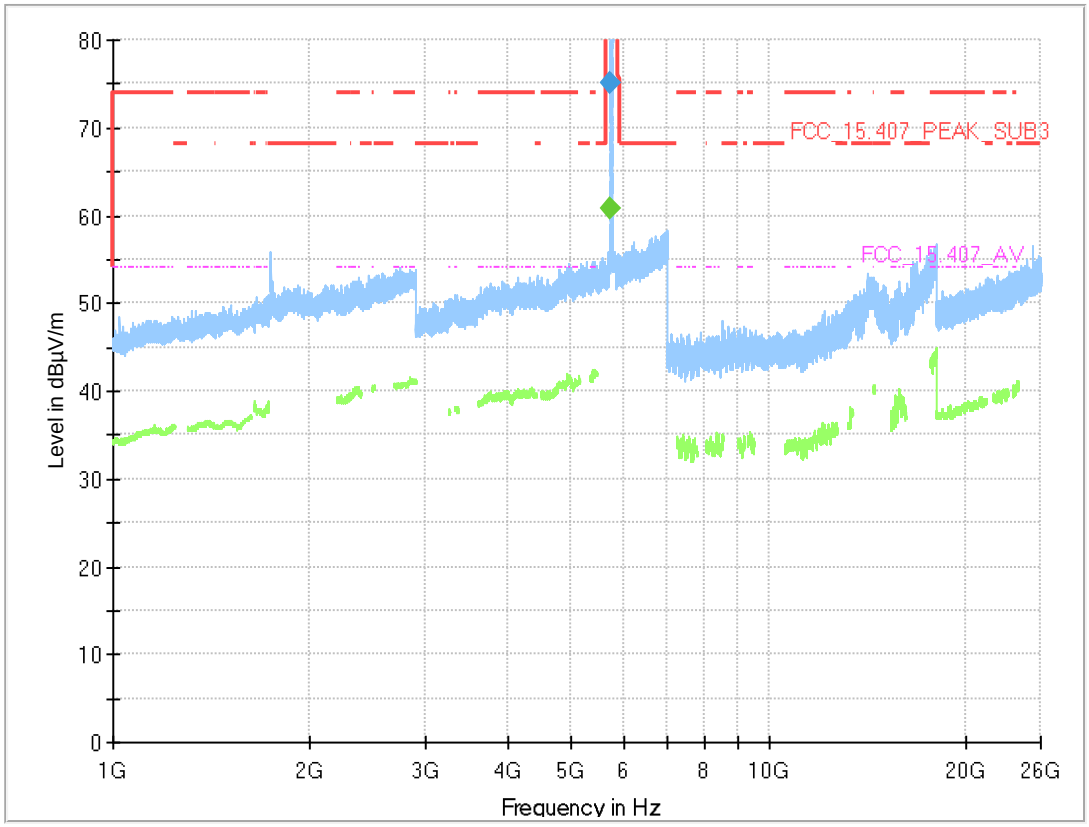
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5724.600	87.1	---	121.2	34.14	---	---	150.0	V	-133.0	2.0	15.7

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5724.600	---	68.6	---	---	1000.0	1000.000	150.0	V	-133.0	2.0	15.7
5724.600	86.5	---	121.2	34.76	1000.0	1000.000	150.0	V	-133.0	2.0	15.7

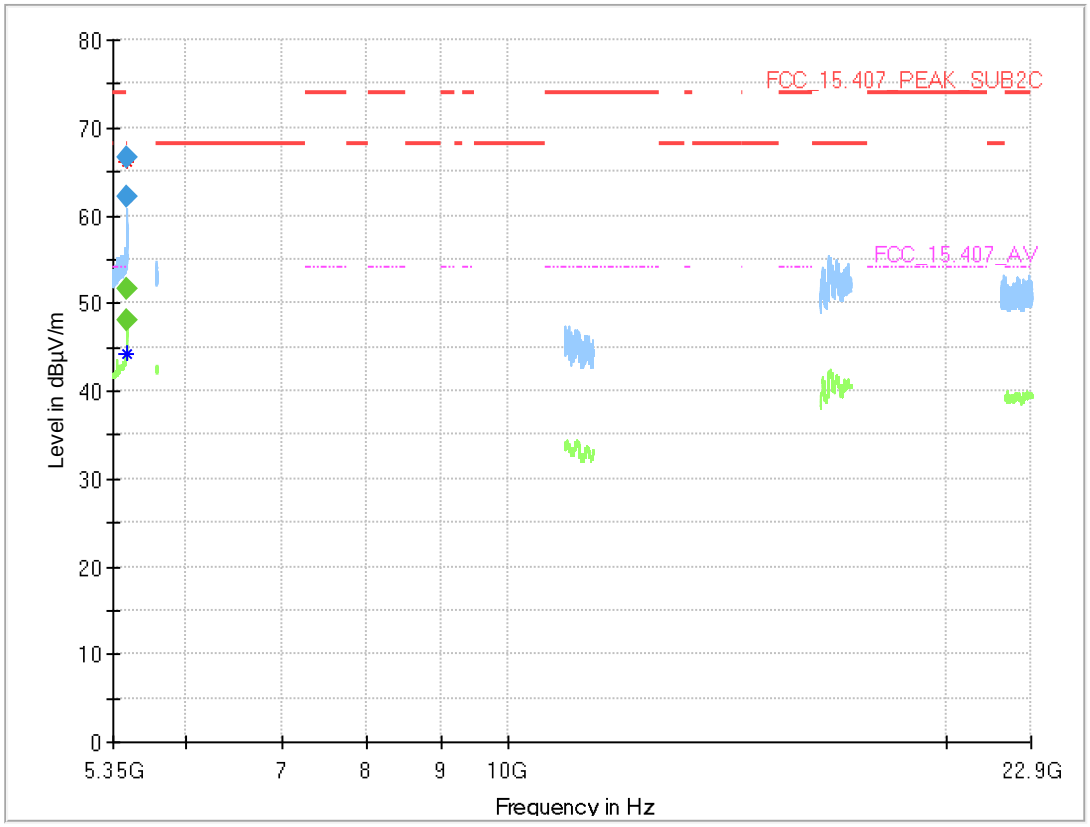
Radio Technology = WLAN a Diversity, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.000	---	60.7	---	---	1000.0	1000.000	150.0	V	-45.0	14.0	15.4
5725.000	75.1	---	122.2	47.10	1000.0	1000.000	150.0	V	-45.0	14.0	15.4

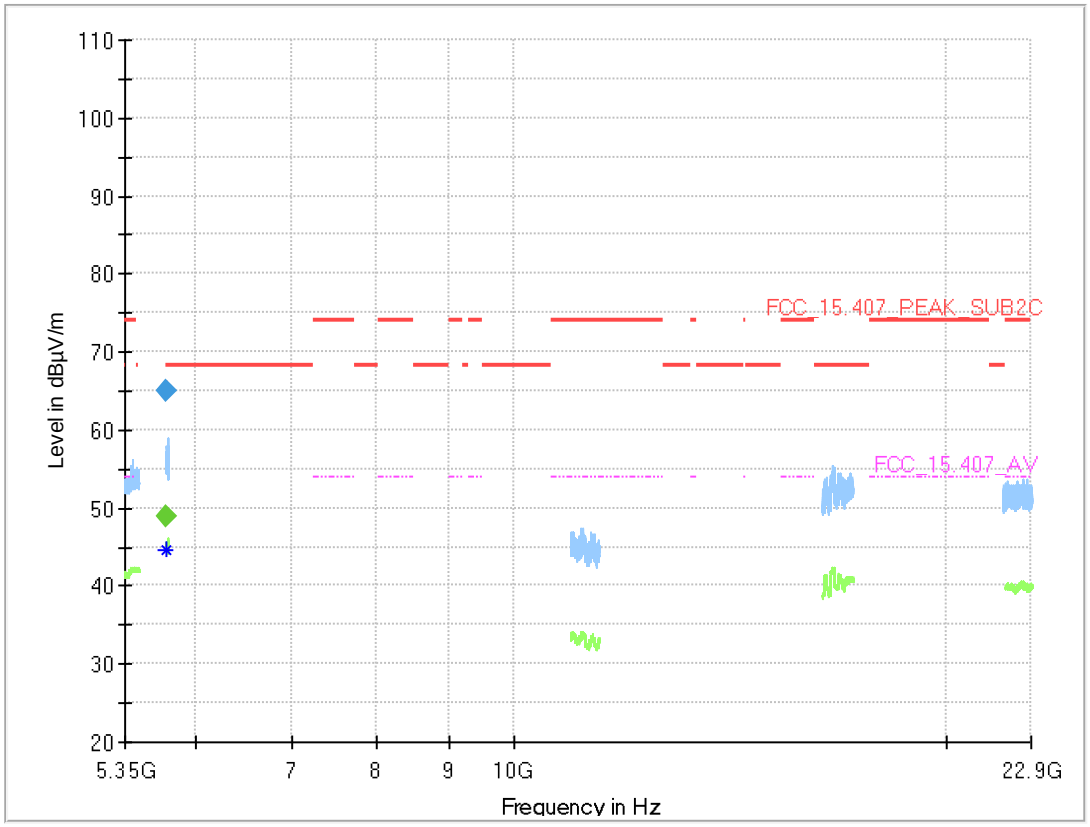
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5459.920	---	48.0	54.00	5.98	1000.0	1000.000	150.0	V	127.0	-12.0	15.9
5459.920	62.1	---	74.00	11.93	1000.0	1000.000	150.0	V	127.0	-12.0	15.9
5468.800	---	51.7	---	---	1000.0	1000.000	150.0	V	138.0	-3.0	15.7
5468.800	66.6	---	68.20	1.64	1000.0	1000.000	150.0	V	138.0	-3.0	15.7

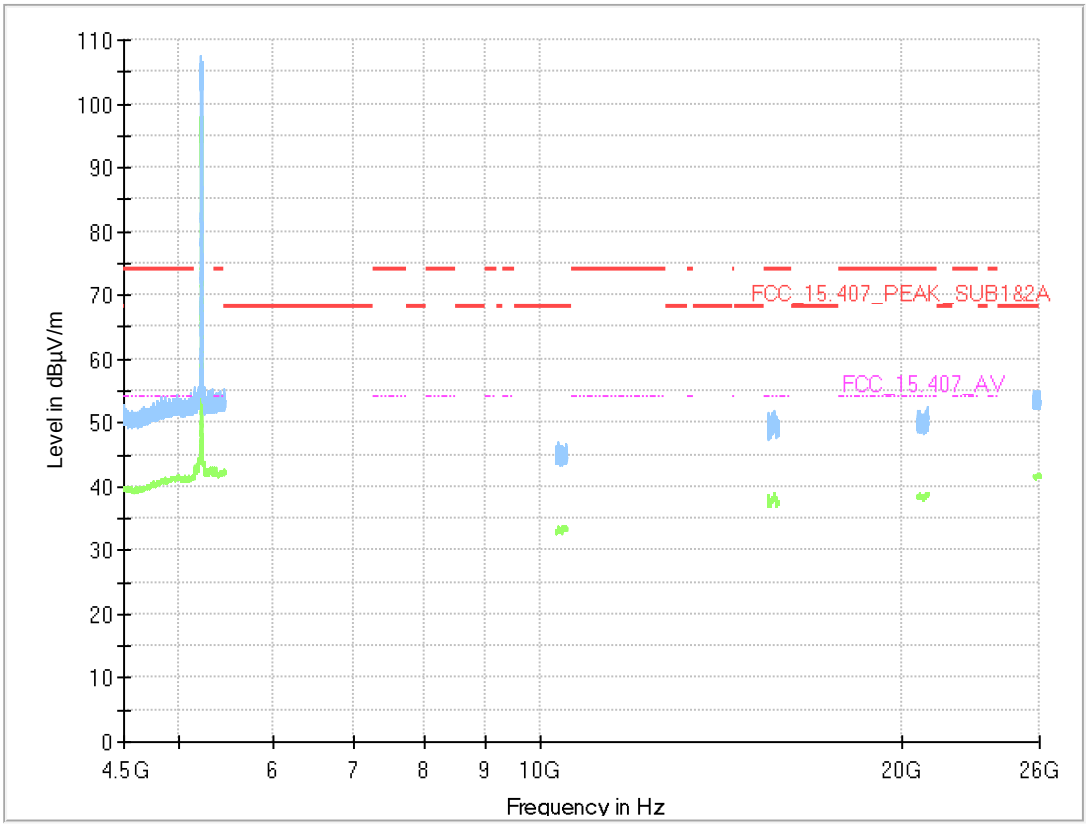
Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.350	---	48.9	---	---	1000.0	1000.000	150.0	H	-55.0	92.0	15.7
5725.350	64.9	---	68.20	3.26	1000.0	1000.000	150.0	H	-55.0	92.0	15.7

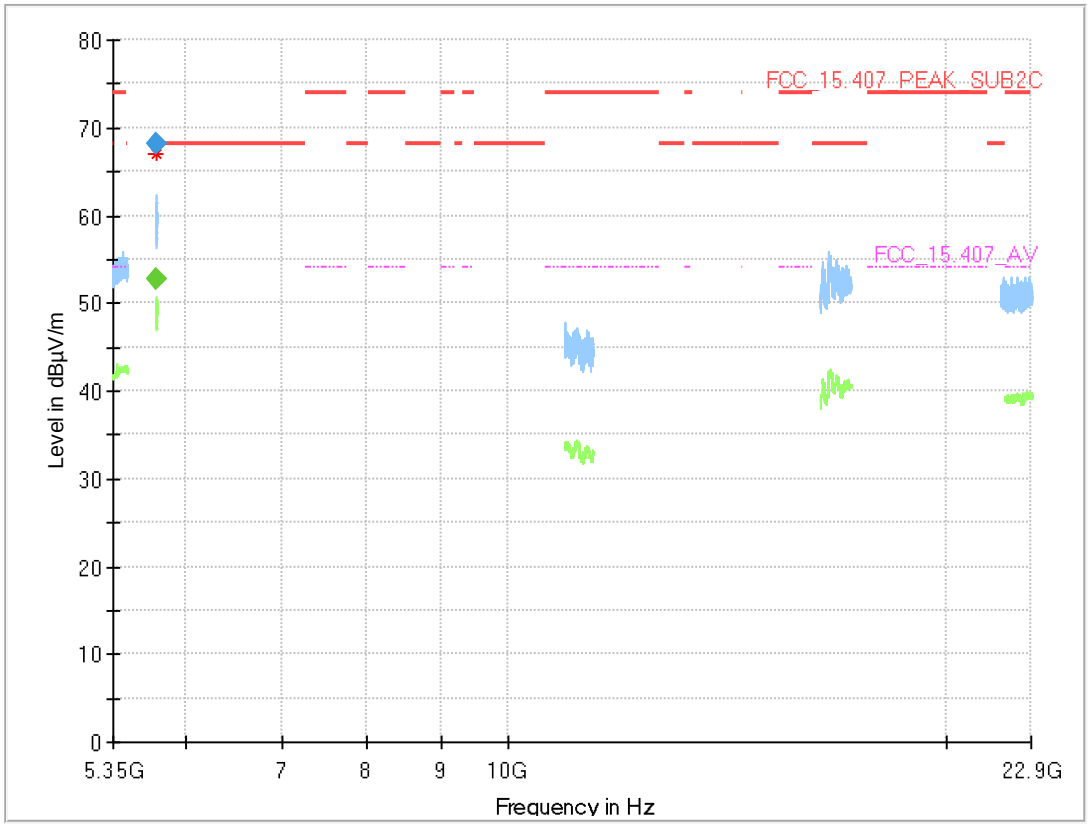
Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

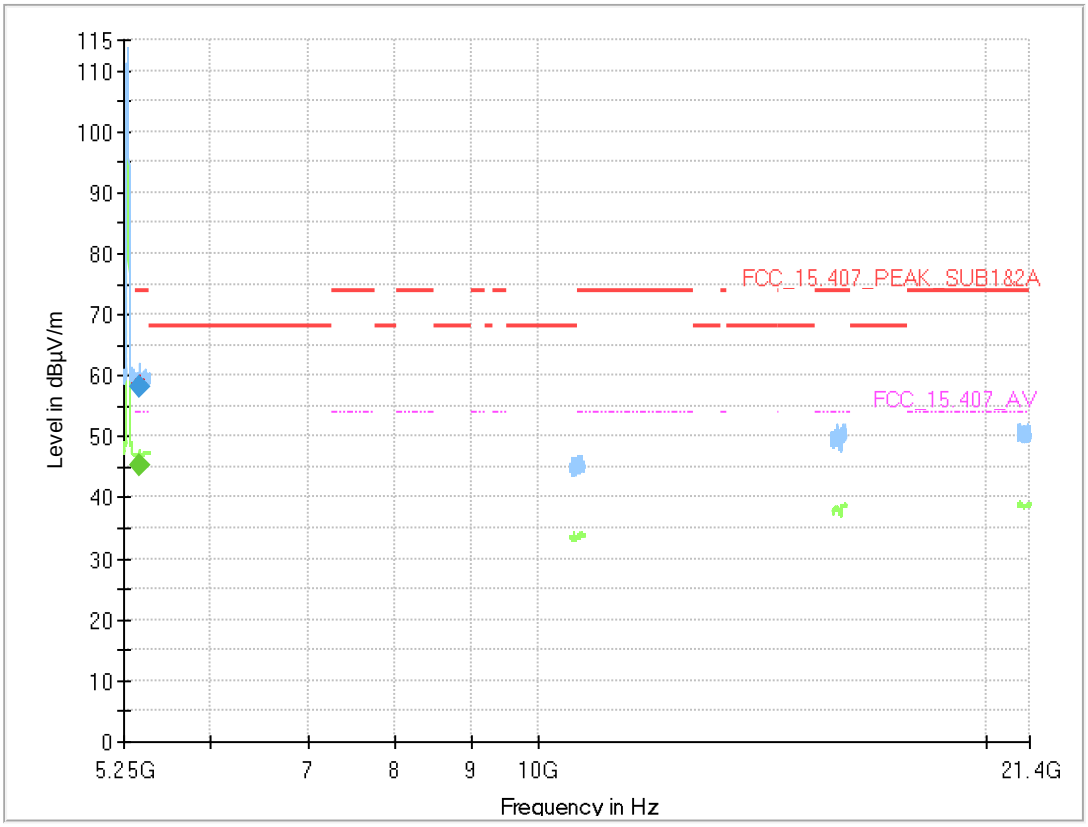
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.450	---	52.8	---	---	1000.0	1000.000	150.0	H	-51.0	84.0	15.7
5725.450	68.0	---	68.20	0.15	1000.0	1000.000	150.0	H	-51.0	84.0	15.7

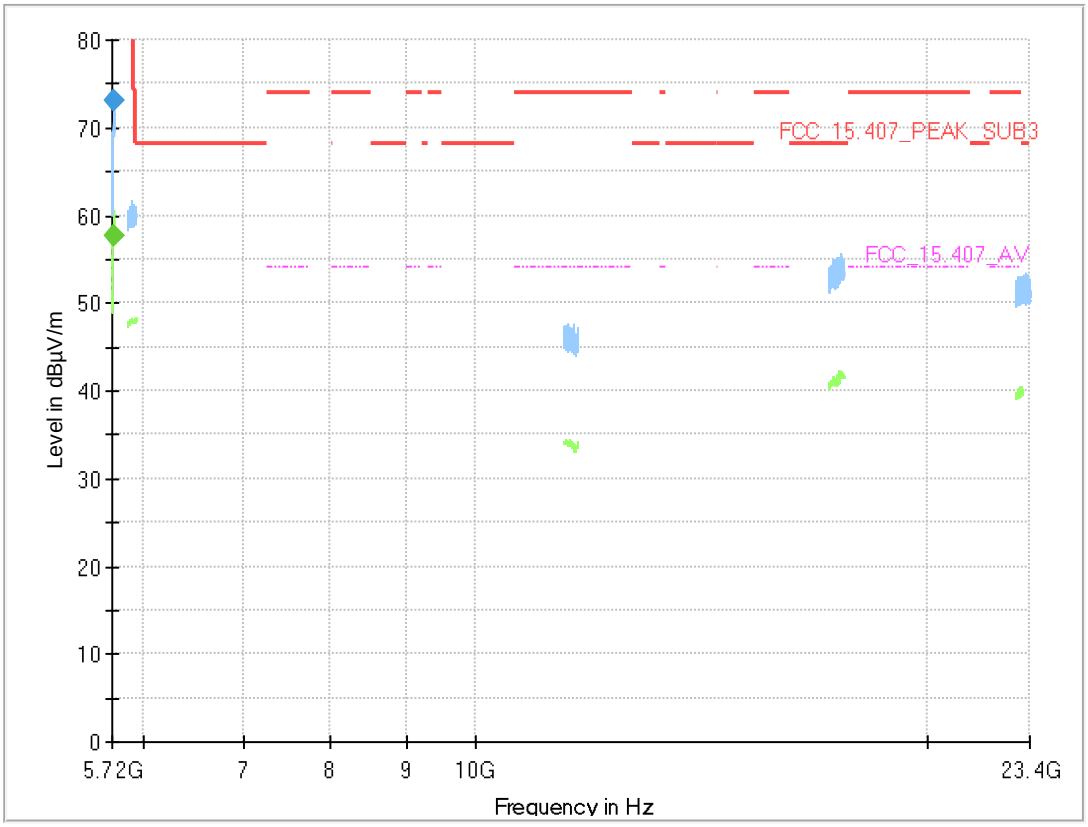
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5374.556	---	45.2	54.00	8.84	1000.0	1000.000	150.0	H	54.0	78.0	15.0
5374.556	58.2	---	74.00	15.83	1000.0	1000.000	150.0	H	54.0	78.0	15.0

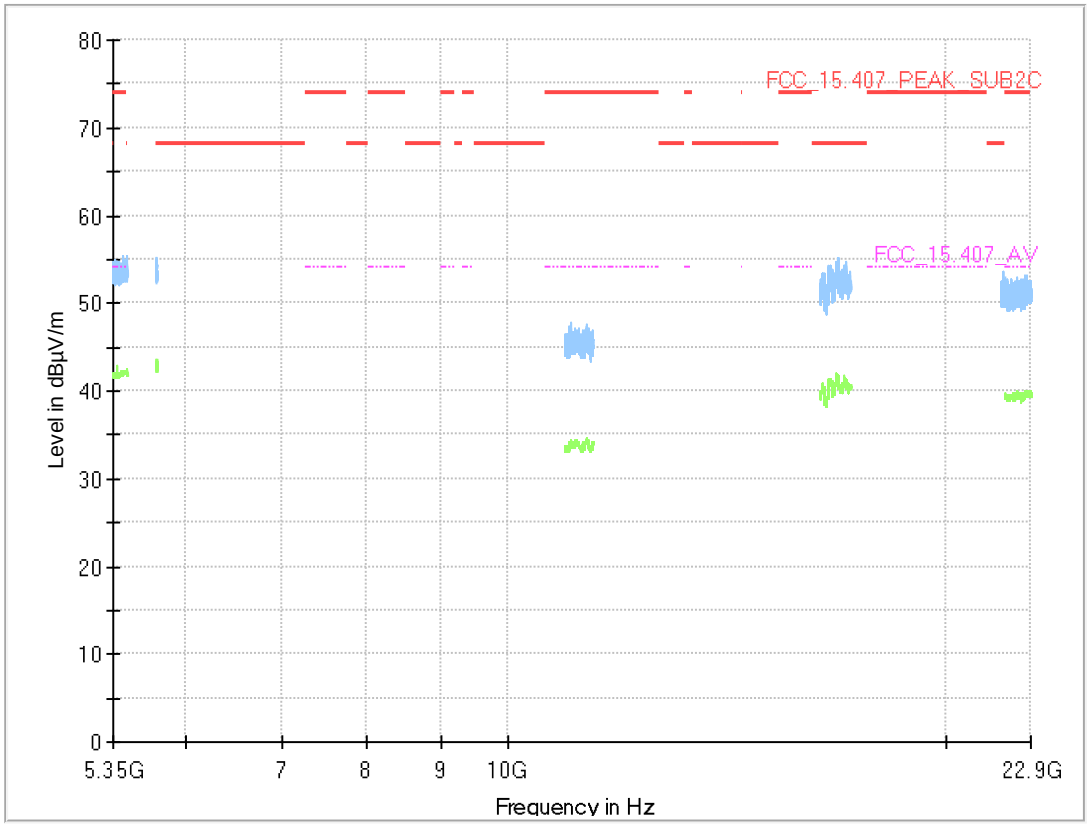
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.000	---	57.6	---	---	1000.0	1000.000	150.0	V	-4.0	4.0	15.4
5725.000	73.1	---	122.2	49.15	1000.0	1000.000	150.0	V	-4.0	4.0	15.4

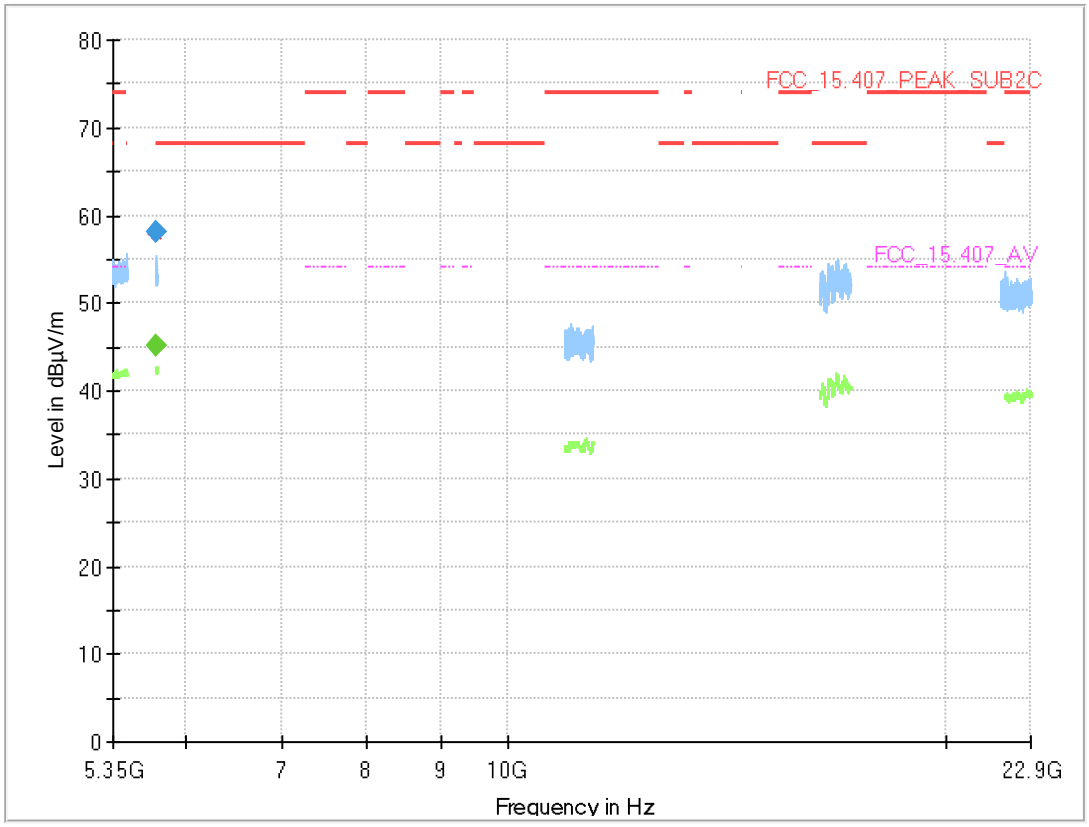
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

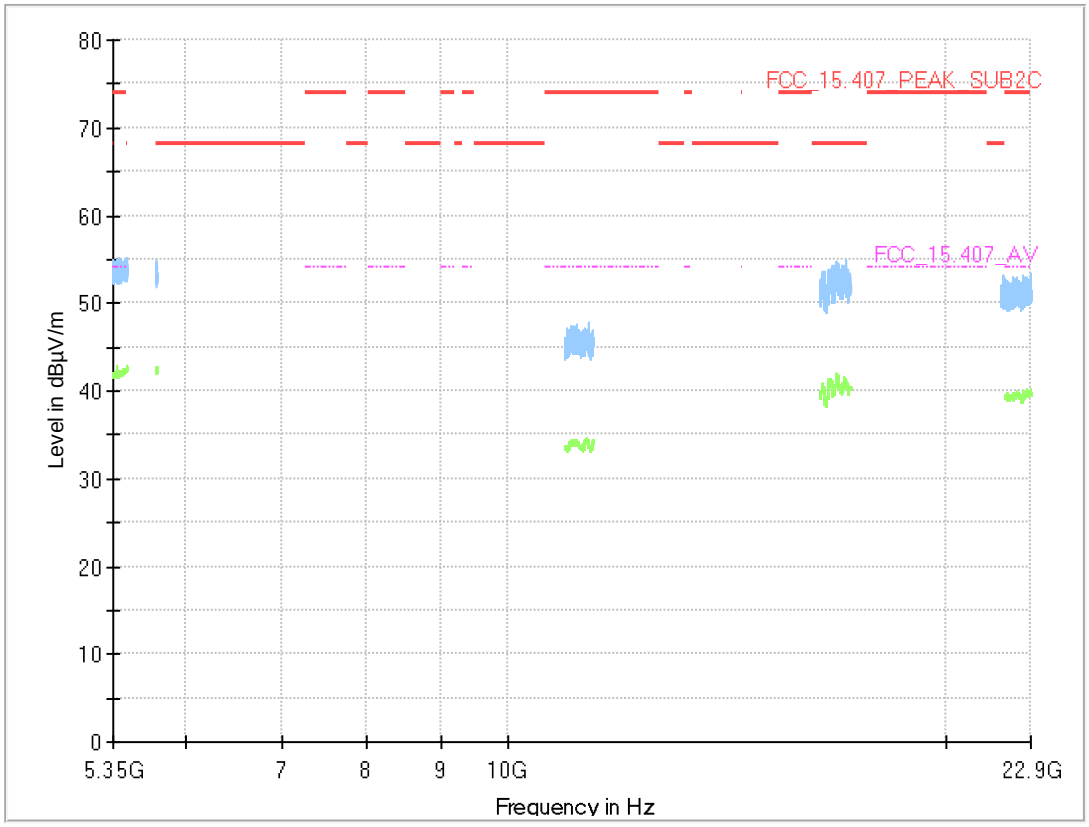
Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5726.800	---	45.1	---	---	1000.0	1000.000	150.0	H	131.0	78.0	15.4
5726.800	58.1	---	68.20	10.06	1000.0	1000.000	150.0	H	131.0	78.0	15.4

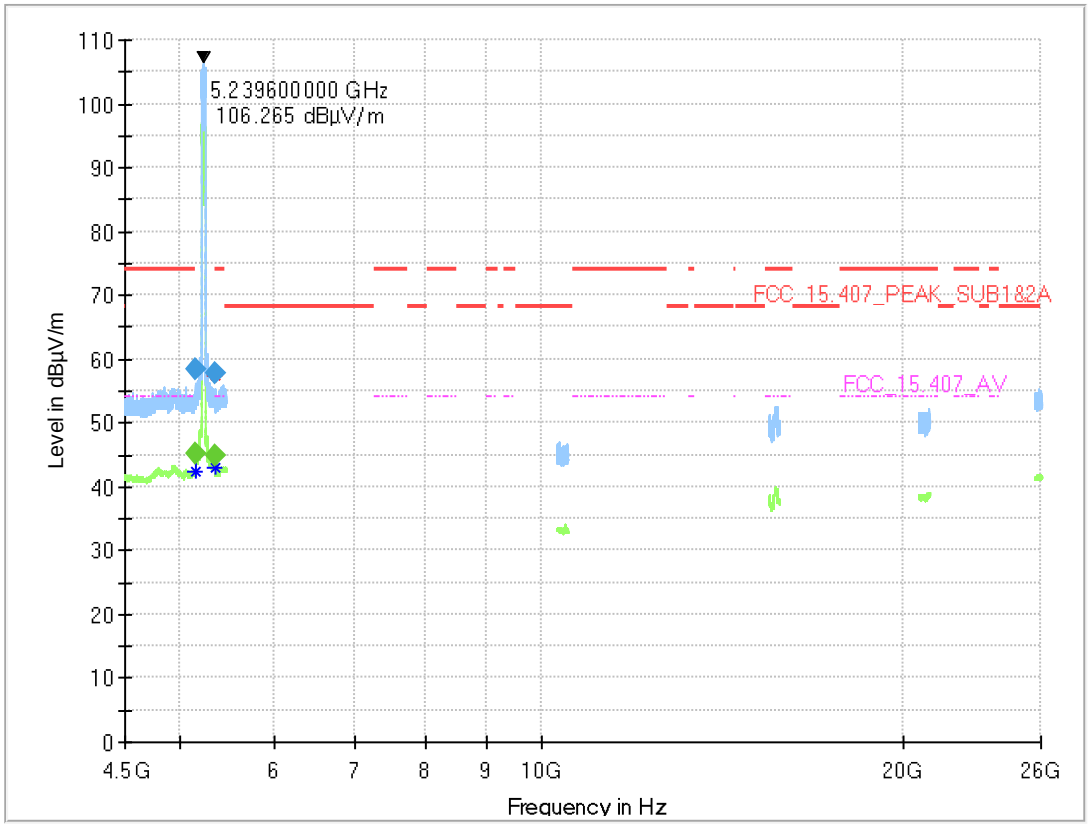
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

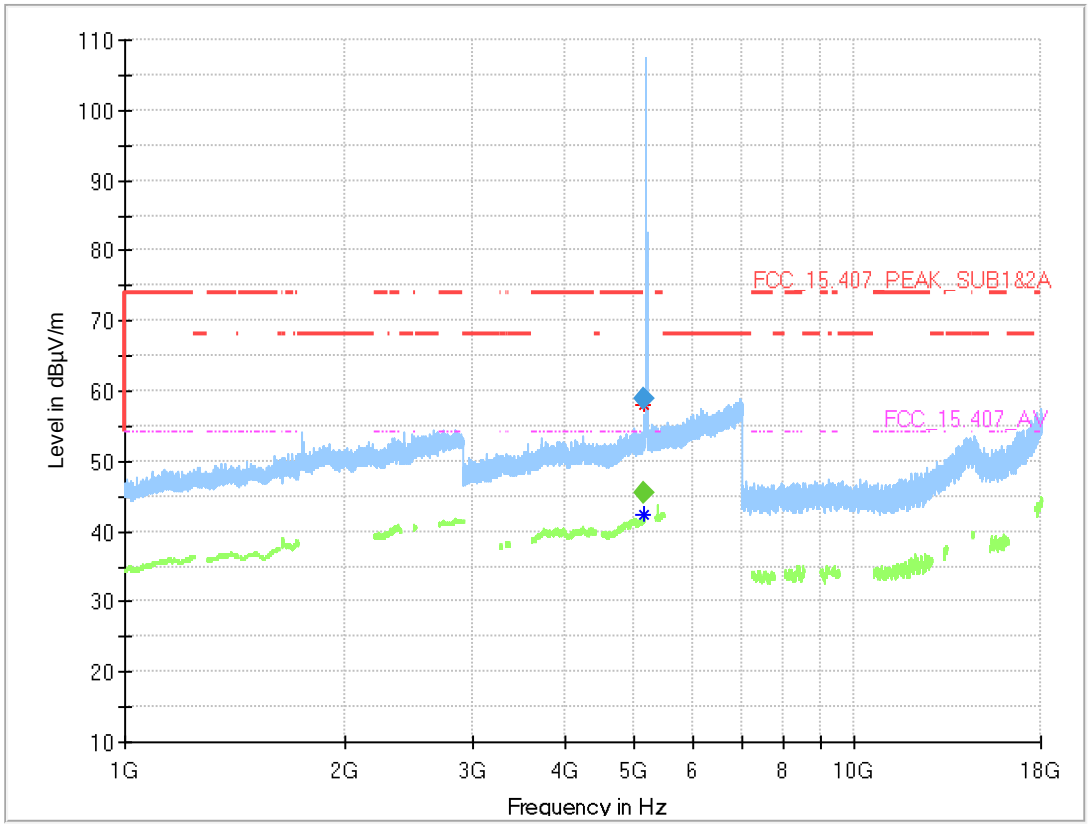
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5150.000	---	45.3	54.00	8.72	1000.0	1000.000	150.0	H	-51.0	105.0	15.0
5150.000	58.2	---	74.00	15.76	1000.0	1000.000	150.0	H	-51.0	105.0	15.0
5350.000	---	44.8	54.00	9.23	1000.0	1000.000	150.0	V	-181.0	-8.0	15.2
5350.000	57.7	---	74.00	16.34	1000.0	1000.000	150.0	V	-181.0	-8.0	15.2

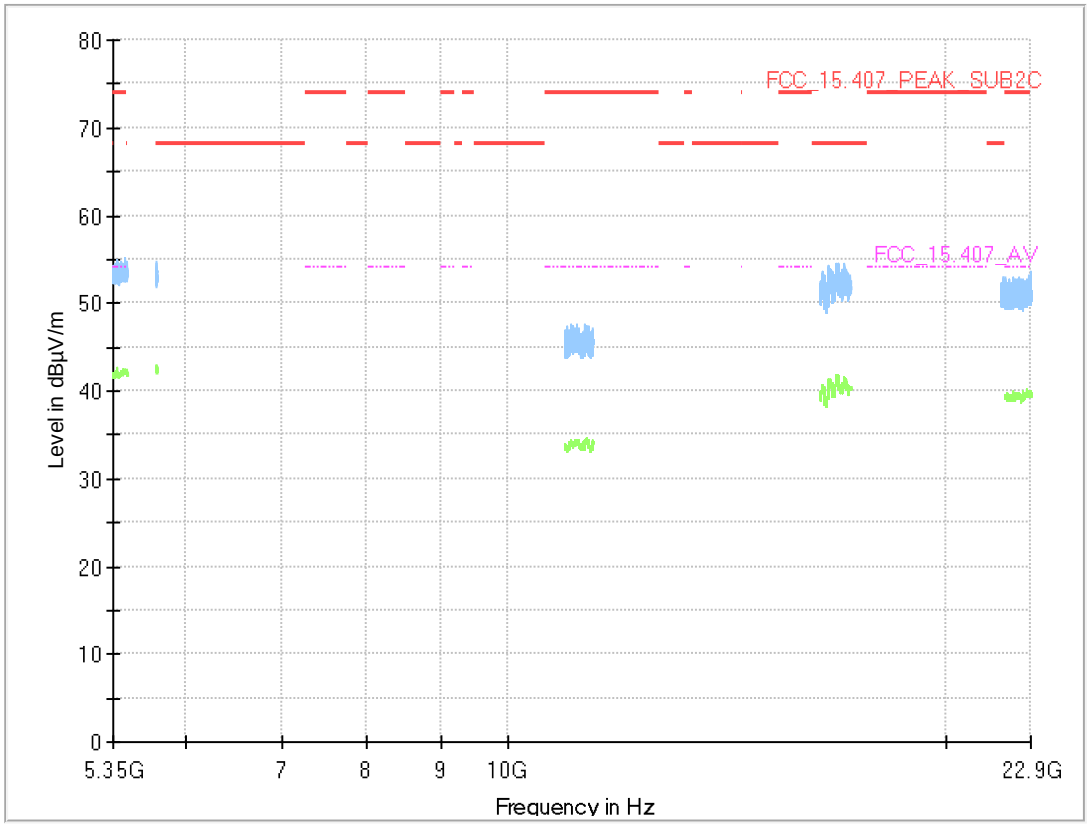
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5149.513	---	45.6	54.00	8.45	1000.0	1000.000	150.0	H	-8.0	92.0	14.5
5149.513	58.8	---	74.00	15.17	1000.0	1000.000	150.0	H	-8.0	92.0	14.5

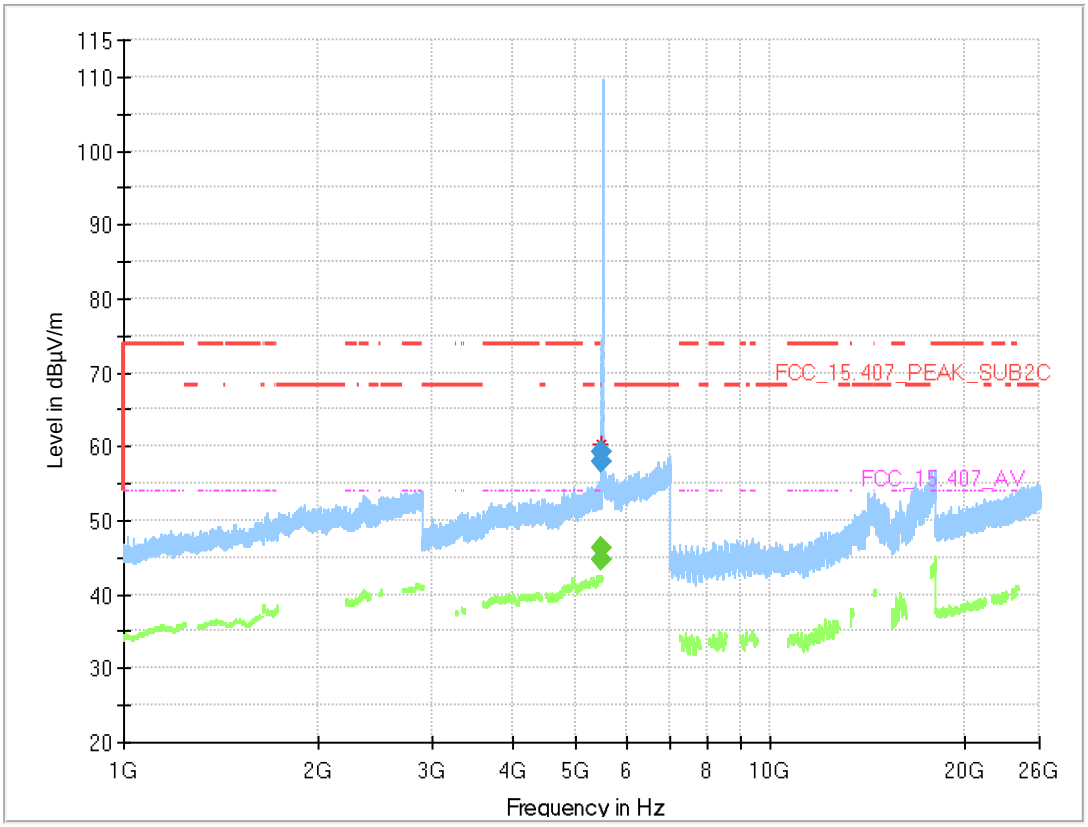
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

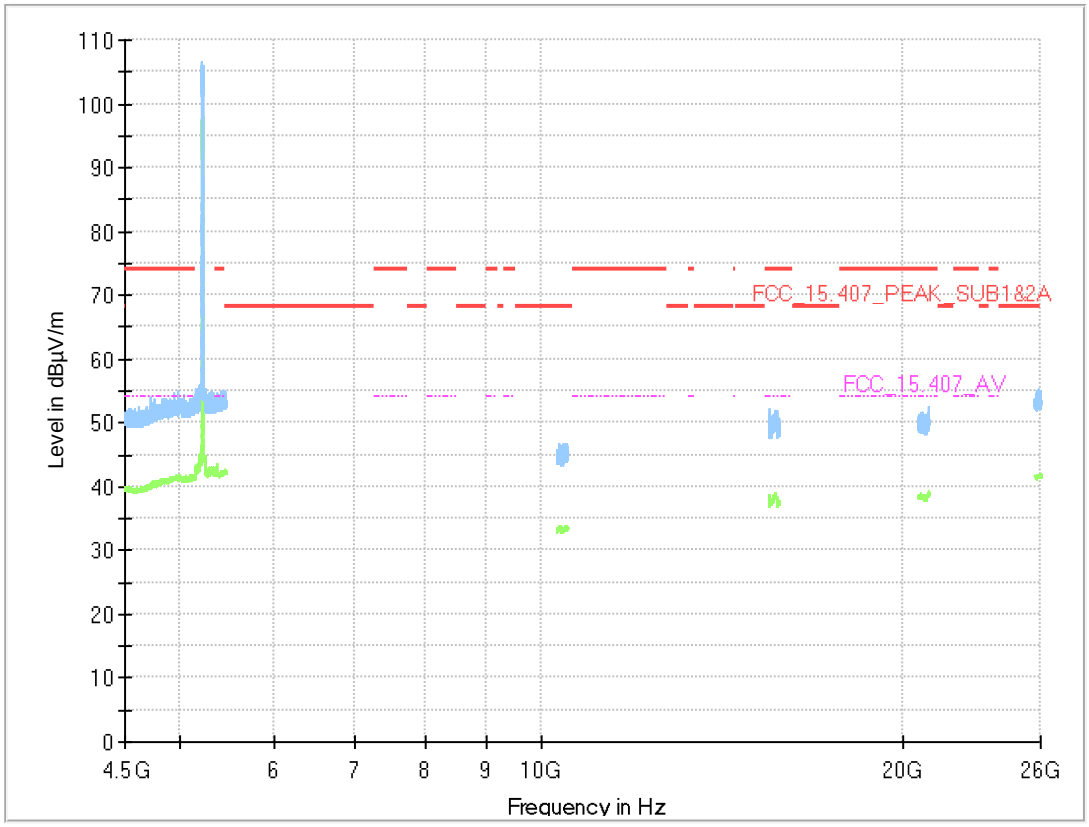
Radio Technology = WLAN a Diversity, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5460.000	---	44.8	54.00	9.25	1000.0	1000.000	150.0	H	146.0	10.0	15.4
5460.000	57.8	---	74.00	16.17	1000.0	1000.000	150.0	H	146.0	10.0	15.4
5470.000	---	46.2	---	---	1000.0	1000.000	150.0	V	79.0	15.0	15.1
5470.000	59.2	---	---	---	1000.0	1000.000	150.0	V	79.0	15.0	15.1

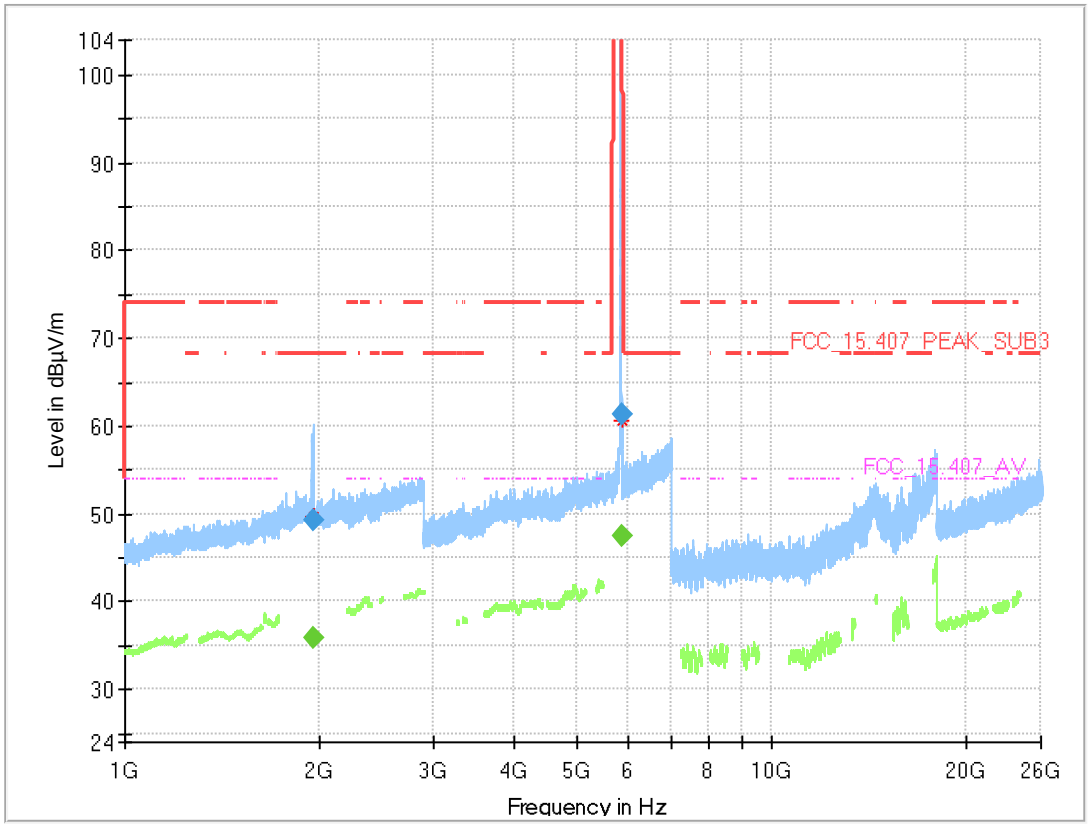
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

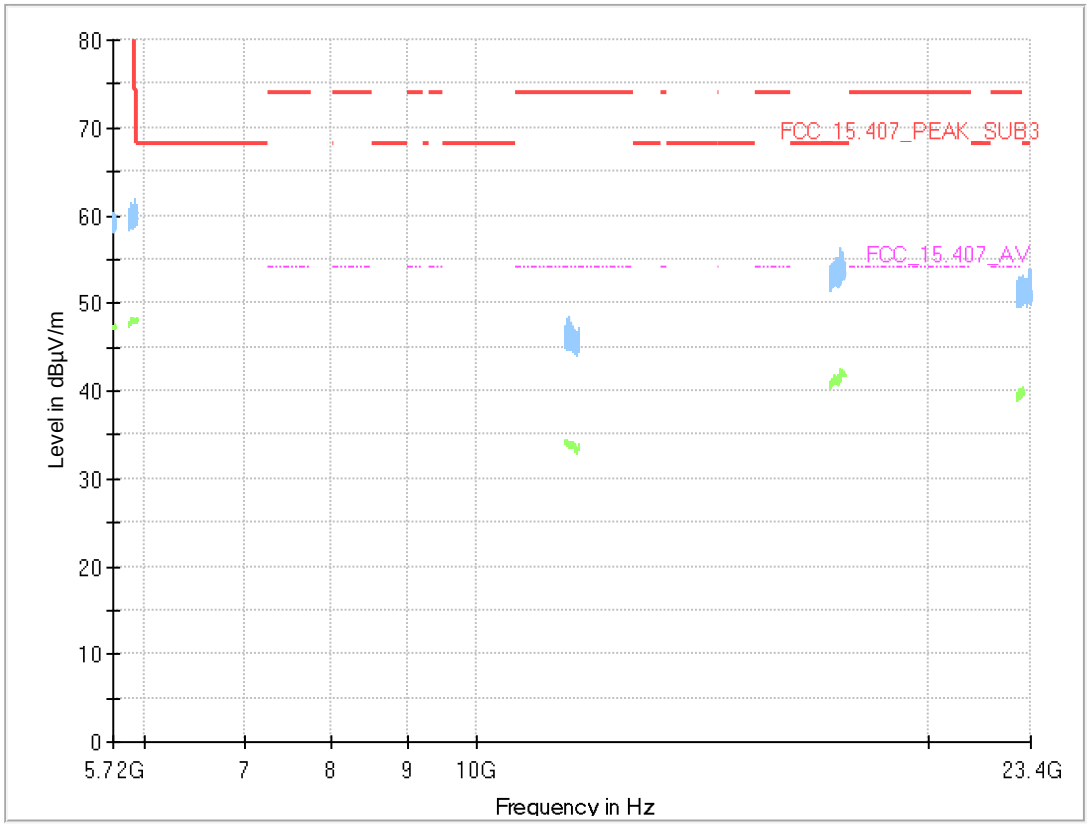
Radio Technology = WLAN a Diversity, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
1958.353	---	35.8	---	---	1000.0	1000.000	150.0	V	-124.0	105.0	5.9
1958.353	49.1	---	68.20	19.05	1000.0	1000.000	150.0	V	-124.0	105.0	5.9
5850.000	---	47.4	---	---	1000.0	1000.000	150.0	H	-39.0	86.0	15.5
5850.000	61.3	---	122.2	60.93	1000.0	1000.000	150.0	H	-39.0	86.0	15.5

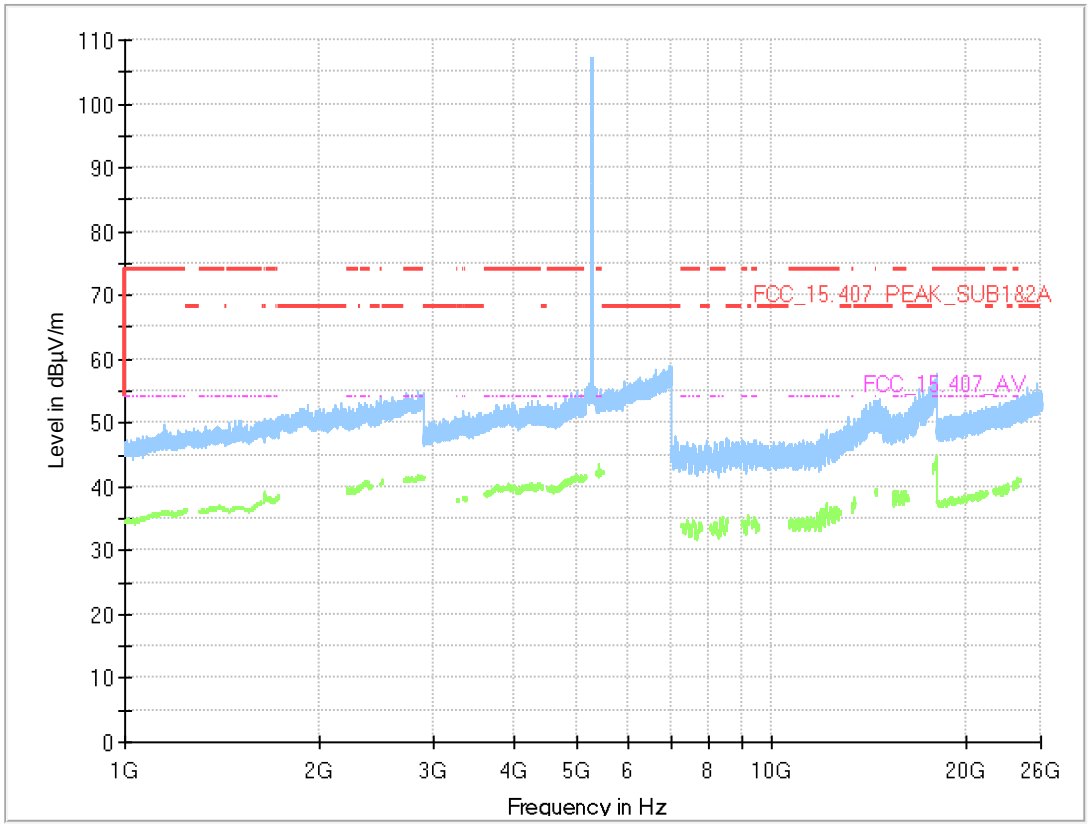
Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

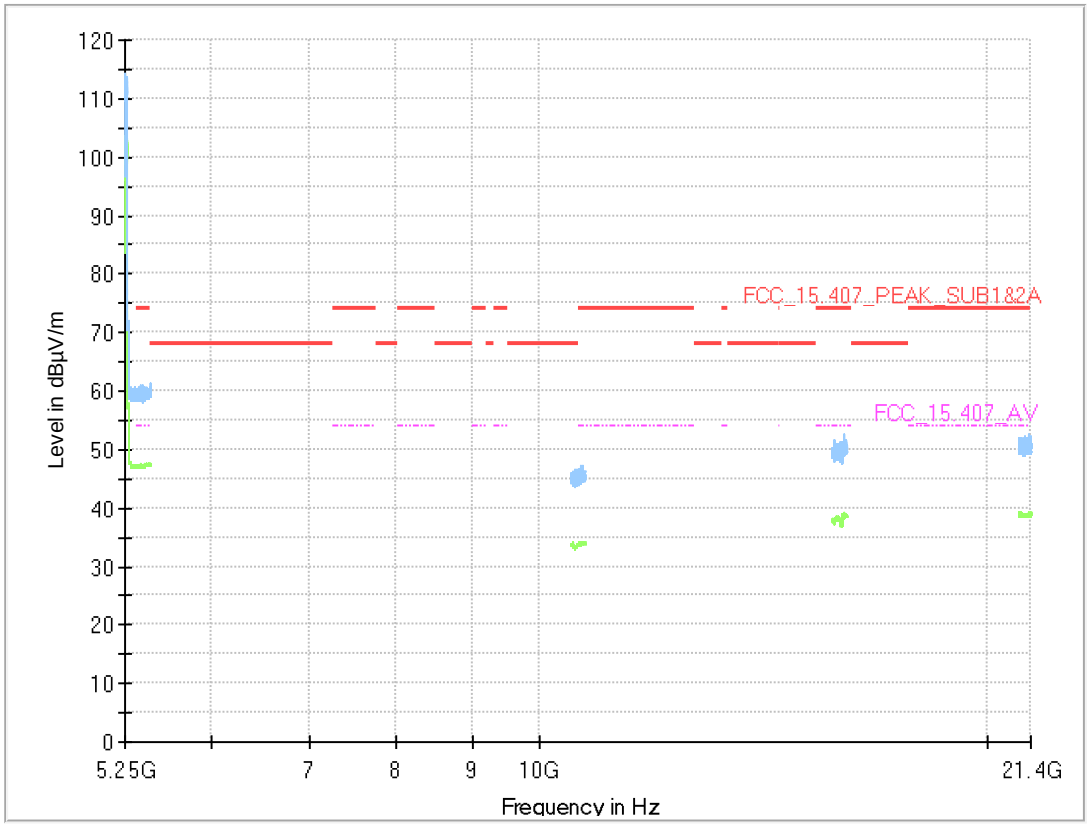
Radio Technology = WLAN a Diversity, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
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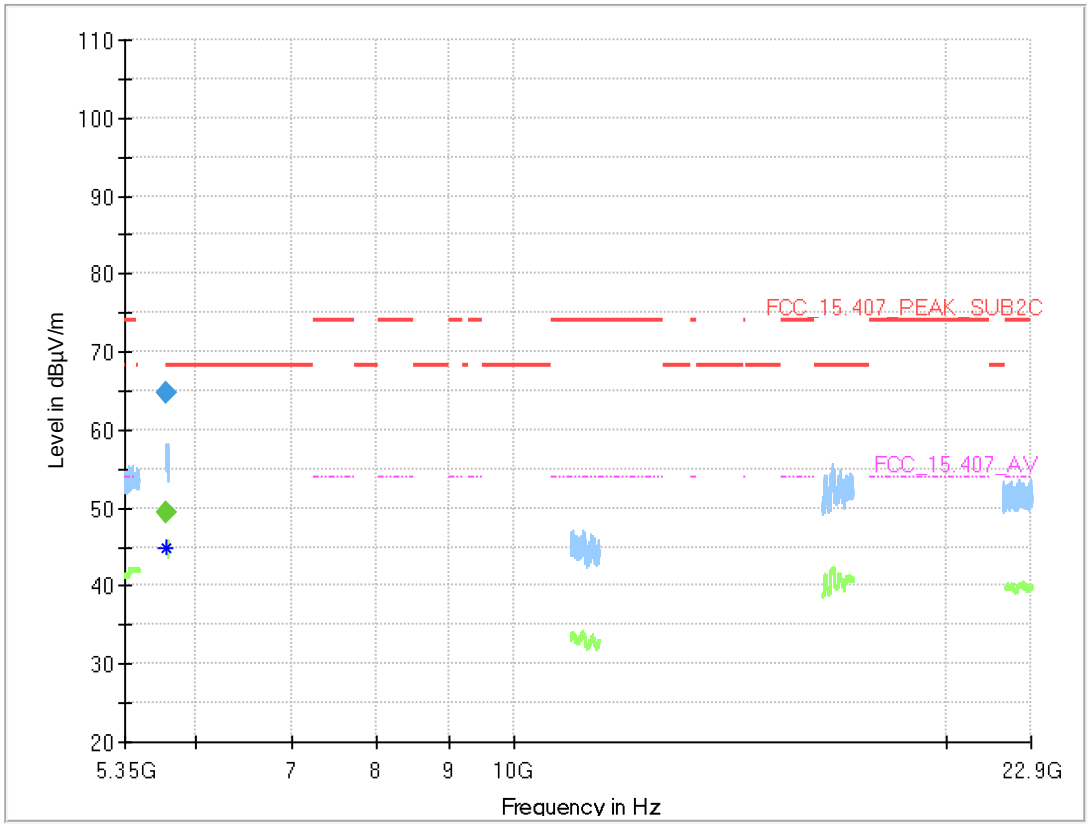
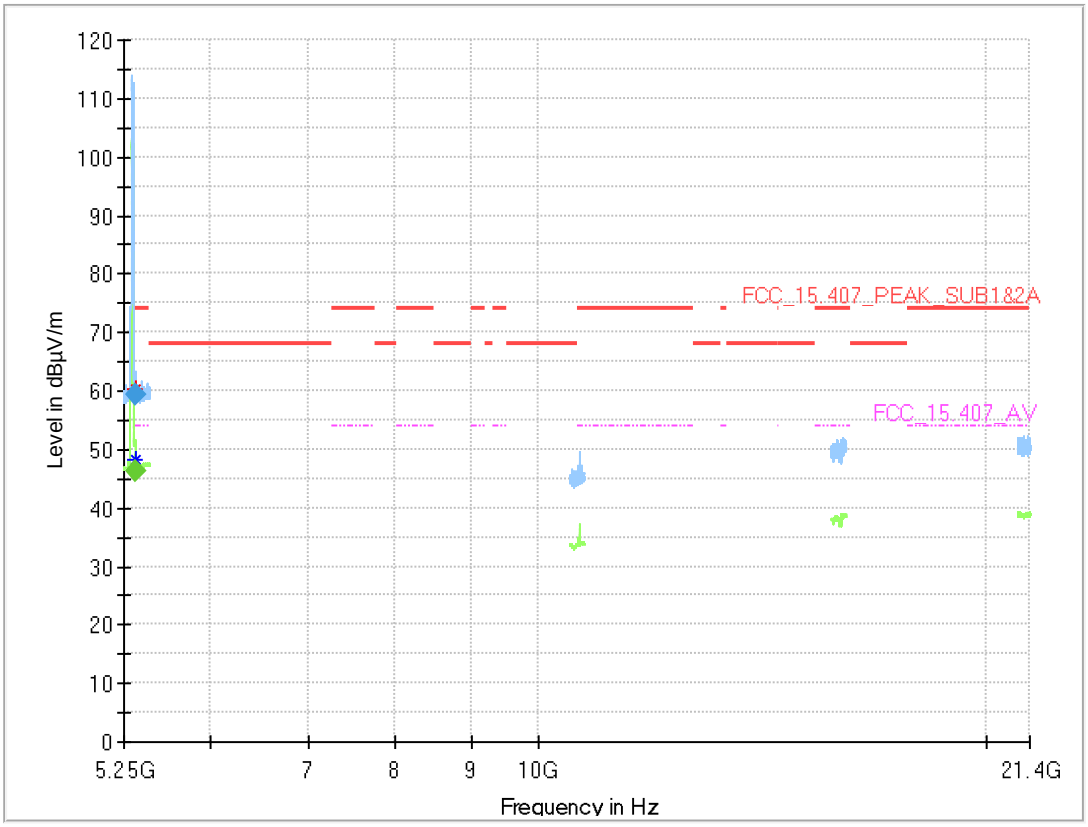
Radio Technology = WLAN ax 40 MHz, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5725.250	---	49.4	---	---	1000.0	1000.000	150.0	H	-49.0	105.0	15.7
5725.250	64.9	---	68.20	3.34	1000.0	1000.000	150.0	H	-49.0	105.0	15.7

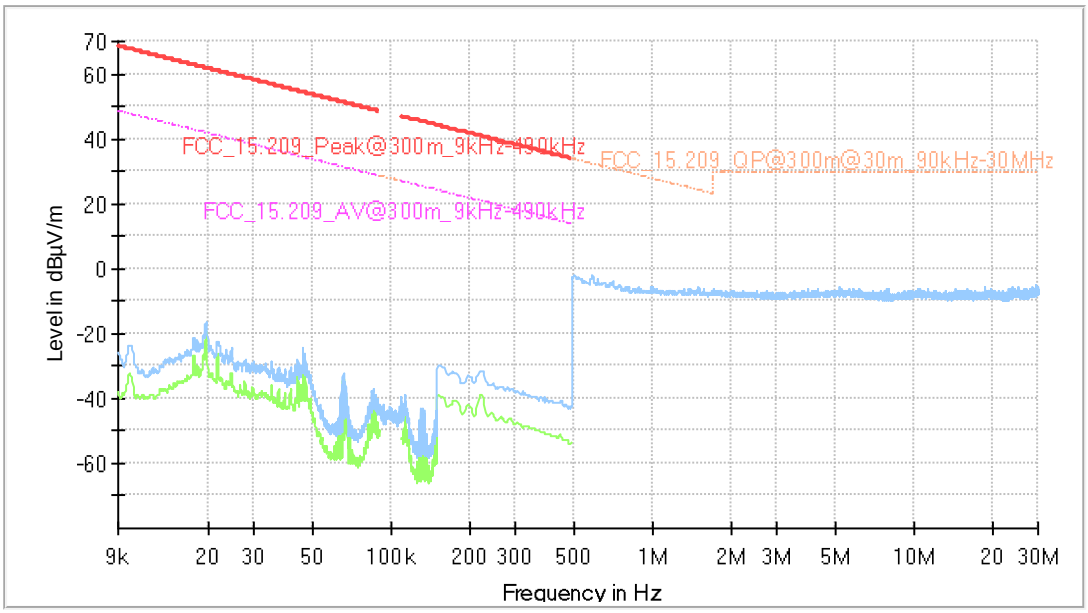
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5351.063	---	46.1	54.00	7.89	1000.0	1000.000	150.0	H	48.0	105.0	14.9
5351.063	59.5	---	74.00	14.55	1000.0	1000.000	150.0	H	48.0	105.0	14.9

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 9kHz - 30MHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
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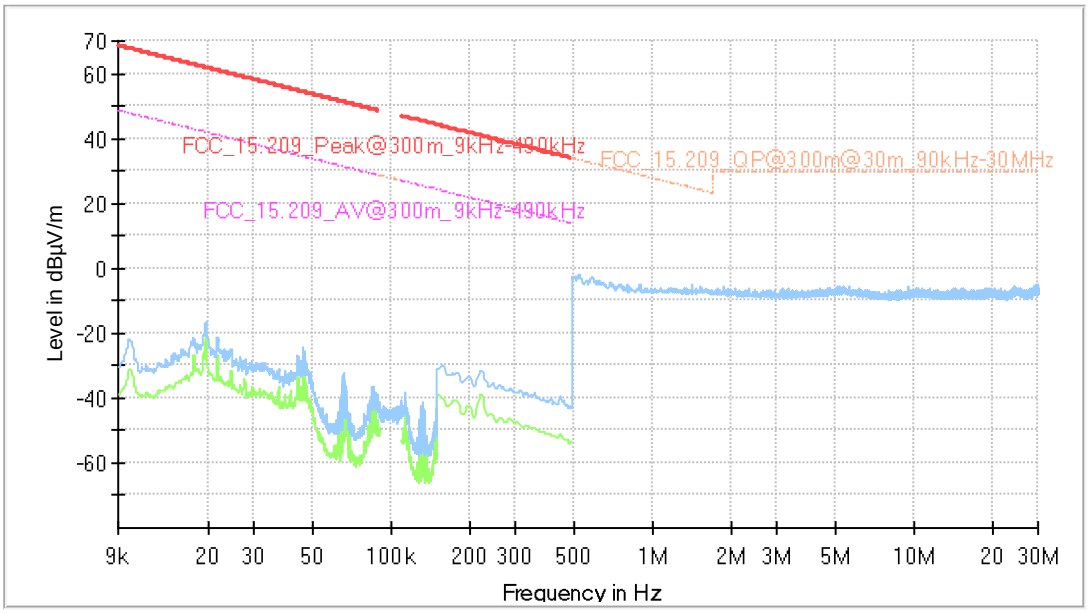
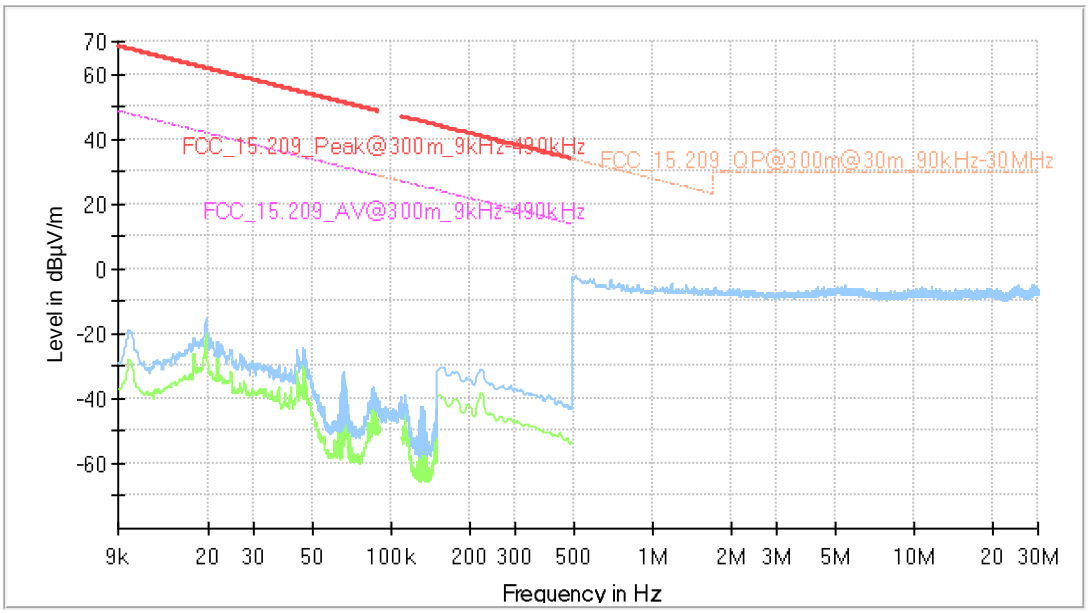
Radio Technology = WLAN a Diversity, Operating Frequency = high, Measurement range = 9kHz - 30MHz, Subband = U-NII-2C
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimut h (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

Radio Technology = WLAN a Diversity, Operating Frequency = low, Measurement range = 9kHz - 30MHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimut h (deg)	Corr. (dB/m)
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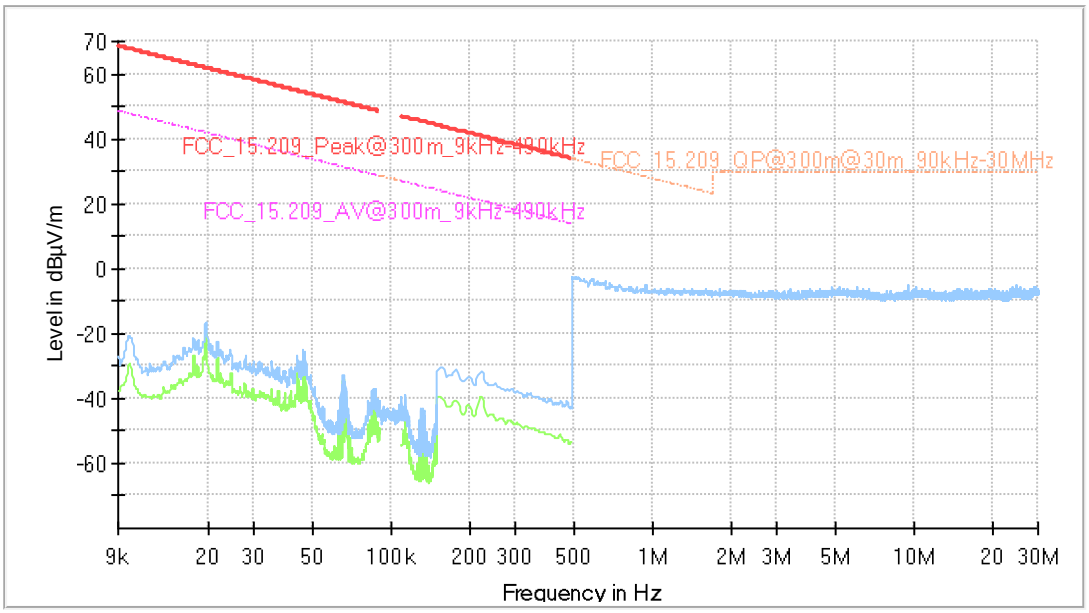
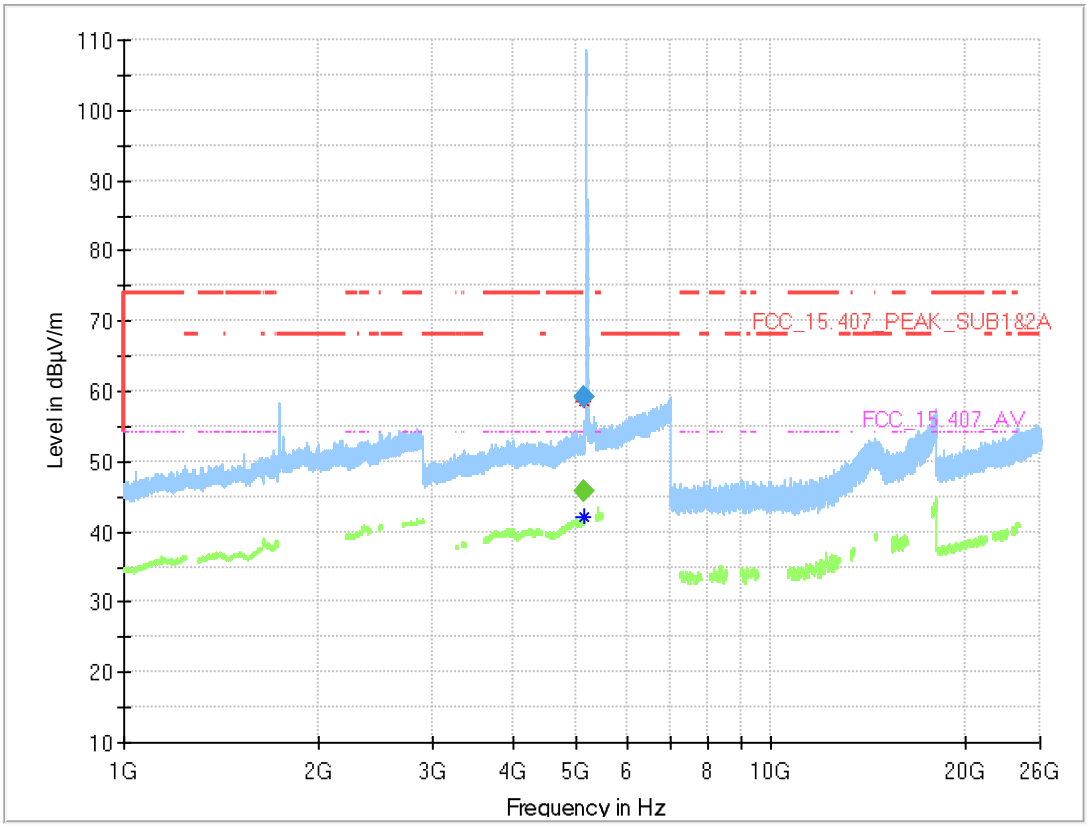
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Measurement range = 9kHz - 30MHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

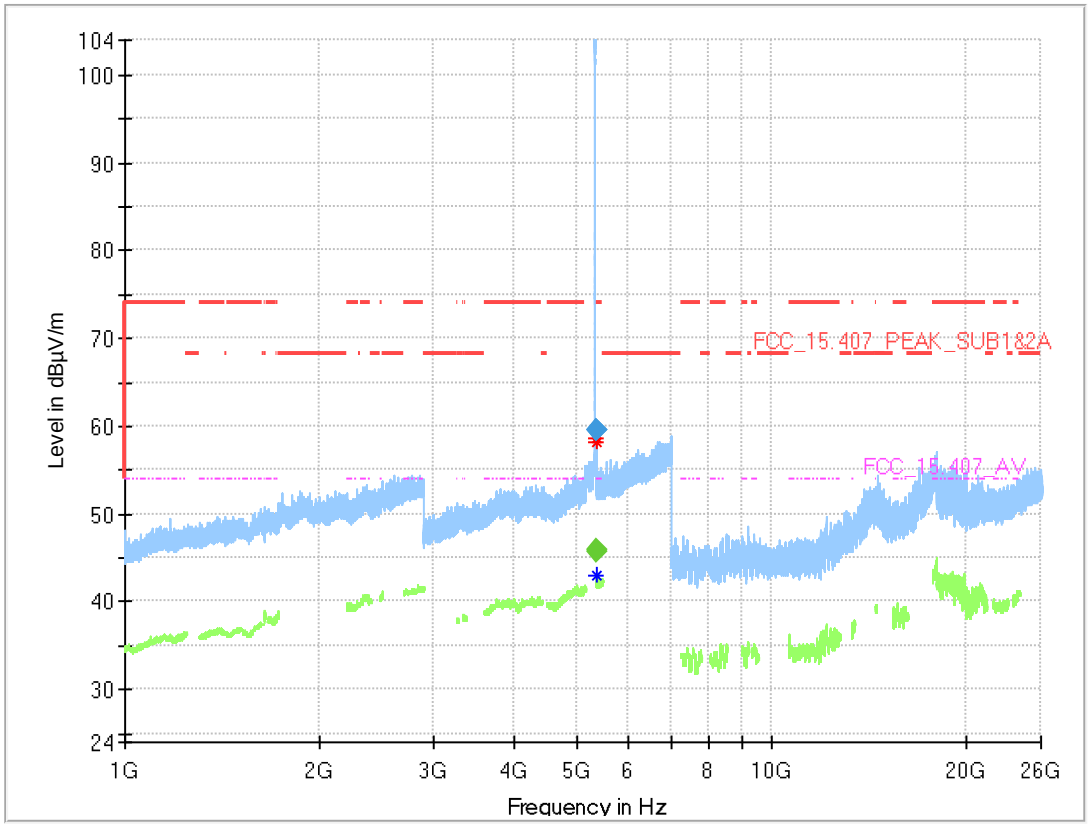
Radio Technology = WLAN a Diversity, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5150.000	---	45.7	54.00	8.34	1000.0	1000.000	150.0	V	136.0	-9.0	14.5
5150.000	59.1	---	74.00	14.91	1000.0	1000.000	150.0	V	136.0	-9.0	14.5

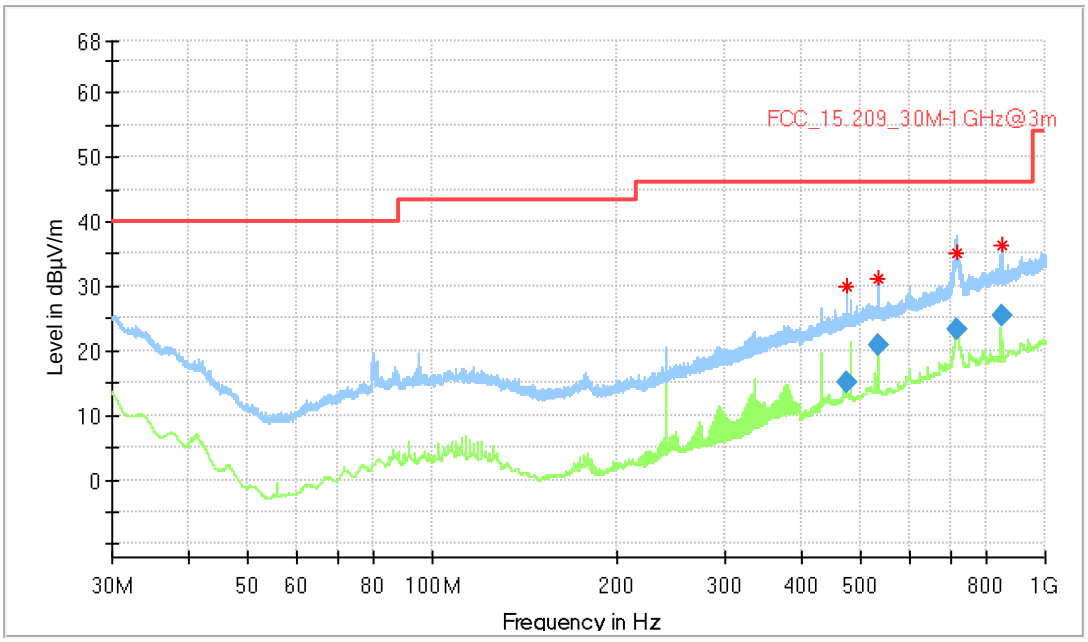
Radio Technology = WLAN a Diversity, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A
(S06_AJ04)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5350.000	---	45.8	54.00	8.23	1000.0	1000.000	150.0	H	35.0	90.0	14.9
5350.000	59.4	---	74.00	14.56	1000.0	1000.000	150.0	H	35.0	90.0	14.9
5350.000	---	45.8	54.00	8.17	1000.0	1000.000	150.0	V	-133.0	93.0	14.9
5350.000	59.6	---	74.00	14.43	1000.0	1000.000	150.0	V	-133.0	93.0	14.9

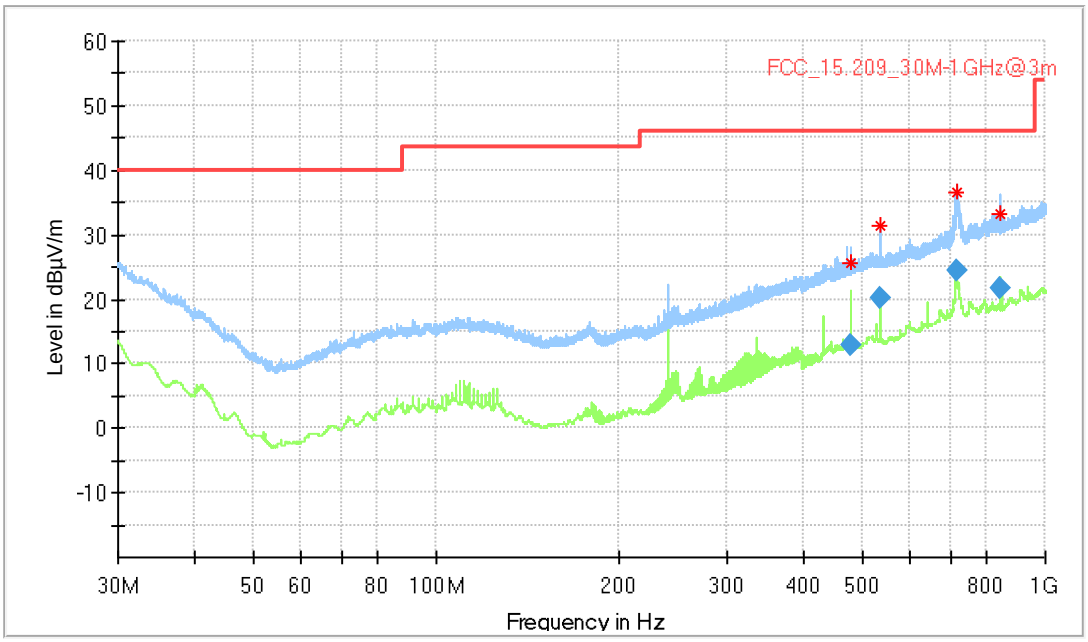
Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 30MHz - 1GHz, Subband = U-NII-1
(S06_AJ04)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
473.250000	15.04	46.00	30.96	1000.0	120.000	204.0	H	89.0	20.2
535.500000	20.98	46.00	25.02	1000.0	120.000	130.0	V	103.0	21.4
715.890000	23.36	46.00	22.64	1000.0	120.000	103.0	V	-173.0	25.0
849.300000	25.40	46.00	20.60	1000.0	120.000	197.0	H	223.0	26.9

Radio Technology = WLAN a Diversity, Operating Frequency = mid, Measurement range = 30MHz - 1GHz, Subband = U-NII-3
(S06_AJ04)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
480.000000	12.89	46.00	33.11	1000.0	120.000	194.0	H	-76.0	20.4
535.500000	20.30	46.00	25.70	1000.0	120.000	110.0	V	97.0	21.4
713.790000	24.35	46.00	21.65	1000.0	120.000	134.0	H	104.0	24.9
842.760000	21.55	46.00	24.45	1000.0	120.000	239.0	H	-166.0	26.9