Certificate #6613.01

FCC TEST REPORT

(Part 15, Subpart E)

Applicant:	Beijing InHand Networks Technology Co., Ltd.
Address:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China

Manufacturer or Supplier:	Beijing InHand Networks Technology Co., Ltd.
Address:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China
Product:	5G Fixed Wireless Access
Brand Name:	inhand
Model Name:	FWA12-NANR
FCC ID:	2AANY-FWA12
Date of tests:	Jan. 17, 2025 ~ Apr. 08, 2025
The tests have been carried out according to the requirements of the following standard:	
☒ **FCC Part 15, Subpart E, Section 15.407**	
CONCLUSION: The submitted sample was found to COMPLY with the test requirement	

Prepared by Hanwen Xu	Approved by Peibo Sun
Engineer / Mobile Department	Manager / Mobile Department
	
Date: Feb. 28, 2025	Date: Feb. 28, 2025

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2502170113RF10	Original release	Apr. 08, 2025

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E		
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**
15.407(b)(9)	AC Power Conducted Emission	Compliance
15.407(b) (1/2/3/4/5)	Radiated Emission & Band Edge Measurement	Compliance
15.407(a/1/2/3)	Maximum conducted output Power	Compliance
15.407(a/1/2/3)	Peak Power Spectral Density	Compliance
15.407(a)(2)(12)	26 dB Bandwidth	Compliance
15.407(e)	6 dB Bandwidth	Compliance
15.203	Antenna Requirement	Compliance

NOTE:

1. Except the data of RSE, Band Edge Measurement and AC Power Conducted Emission, other data please refer to the appendix A and Appendix B.

***Test Lab Information Reference**

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

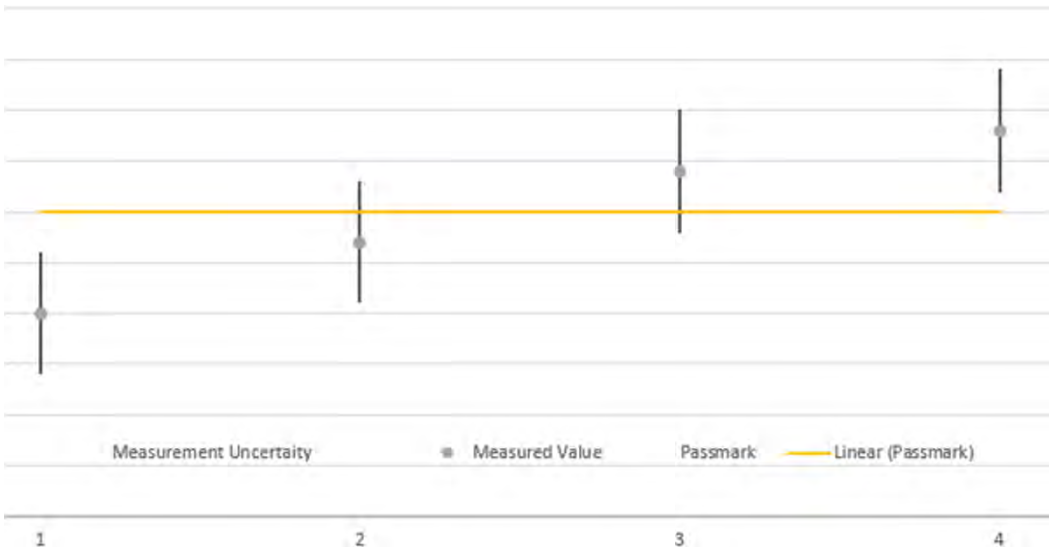
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	5G Fixed Wireless Access
BRAND NAME*	inhand
MODEL NAME*	FWA12-NANR
NOMINAL VOLTAGE*	12.0Vdc(adapter or host equipment)
MODULATION *	OFDM, OFDMA
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 866.6Mbps 802.11ax: up to 1201Mbps 802.11be: up to 2882.4Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n/ac/ax/be(20MHz) 2 for 802.11n/ac/ax/be (40MHz) 1 for 802. 802.11ac/ax/be (80MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n/ac/ax/be (20MHz)/ 2 for 802.11n/ac/ax/be (40MHz) 1 for 802.11ac/ax/be (80MHz)
Resource Unit (RU)	Single RU: 26-tone, 52-tone,106-tone,242-tone,484-tone, 996-tone,2*996-tone Multi-RU (Small RU):52-tone + 26-tone, 106-tone + 26-tone Multi-RU (Large RU):484-tone + 242-tone, 996-tone + 484-tone, 996-tone+ 484-tone +242-tone
MAX. OUTPUT POWER	62 mW for 5180 ~ 5240MHz 61 mW for 5745 ~ 5825MHz
ANTENNA TYPE*	Built-in FPC Antenna
ANTENNA GAIN*	ANT 1/2/3: 4.9dBi for 5180 ~ 5240MHz 4.9dBi for 5745 ~ 5825MHz
HW VERSION*	V1.6
SW VERSION*	V2.0
I/O PORTS*	Refer to user's manual

NOTE:

1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3. The EUT incorporates a MIMO function. Physically, the EUT provides three transmitter and three receiver.

MODULATION MODE	TX FUNCTION
802.11a	3TX /3RX
802.11n/802.11ac/ax/be (20MHz)	3TX /3RX
802.11n/802.11ac/ax/be (40MHz)	3TX /3RX
802.11ac/ax/be (80MHz)	3TX /3RX
802.11ax (20MHz RU 26/52/106/242)	3TX /3RX
802.11ax (40MHz RU 26/52/106/242/484)	3TX /3RX
802.11ax (80MHz RU 26/52/106/242/484/996)	3TX /3RX
802.11be(20MHz MRU52+26/106+26)	3TX /3RX
802.11be(40MHz MRU52+26/106+26/484+242)	3TX /3RX
802.11be(80MHz MRU52+26/106+26/484+242/996+484/ 996+484+242)	3TX /3RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
5. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

2.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n, 802.11ac/ax/be (20MHz)/ 802.11ax/be (20MHz RU 26/52/106/242)/ 802.11be (20MHz MRU52+26/106+26):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n, 802.11ac/ax/be (40MHz)/ 802.11ax/be

(40MHz RU 26/52/106/242/484)/ 802.11be (40MHz MRU52+26/106+26/484+242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channels are provided for 802.11ac/ax/be (80MHz)/ 802.11ax/be (80MHz RU 26/52/106/242/484/996)/ 802.11be (80MHz MRU52+26/106+26/484+242/996+ 484/996+484+242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
42	5210 MHz		

FOR 5745 ~ 5825MHz

5 channels are provided for 802.11a, 802.11n, 802.11ac/ax/be (20MHz)/ 802.11ax/be (20MHz RU 26/52/106/242)/ 802.11be (20MHz MRU52+26/106+26):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n, 802.11ac/ax/be (40MHz)/ 802.11ax/be

(40MHz RU 26/52/106/242/484)/ 802.11be (40MHz MRU52+26/106+26/484+242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
142	5710 MHz	159	5795 MHz
151	5755 MHz		

1 channel is provided for 802.11ac/ax/be (80MHz)/ 802.11ax/be (80MHz RU 26/52/106/242/484/996)/ 802.11be (80MHz MRU52+26/106+26/484+242/996+

484/996+484+242):

CHANNEL	FREQUENCY
155	5775 MHz

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	**-**	**Powered by Adapter with wifi(5G) link**
B	-	-	-	√	Powered by Battery with wifi(5G) link
C	-	-	-	-	Powered by USB with wifi(5G) link

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE:
The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
NOTE: "-"means no effect

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ The following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5745-5825	142 to 159	159	OFDM	MCS0

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ The following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax/be (20MHz RU 242)		36 to 48	36, 40, 48	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax/be (40MHz RU 484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax/be (80MHz RU 996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144,149, 157,165	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax/be (20MHz RU 242)		144 to 165	144,149, 157,165	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax/be (40MHz RU 484)		142 to 159	142,151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax/be (80MHz RU 996)		138 to 155	138,155	OFDM, OFDMA	MCS0

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ The following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5745-5825	142 to 159	159	OFDM	MCS0

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ The following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax (20MHz RU 242)		36 to 48	36, 40, 48	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax (40MHz RU 484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax (80MHz RU 996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144, 149, 157,165	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax (20MHz RU 242)		144 to 165	144, 149, 157,165	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax (40MHz RU 484)		142 to 159	142, 151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax (80MHz RU 996)		138,155	138, 155	OFDM, OFDMA	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ The following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax (20MHz RU 242)		36 to 48	36, 40, 48	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax (40MHz RU 484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax (80MHz RU 996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144, 149, 157,165	OFDM	6.0
A	802.11n/ac/ax/be (20MHz)/ 802.11ax (20MHz RU 242)		144 to 165	144, 149, 157,165	OFDM, OFDMA	MCS0
A	802.11n/ac/ax/be (40MHz)/ 802.11ax (40MHz RU 484)		142 to 159	142, 151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax/be (80MHz)/ 802.11ax (80MHz RU 996)		138,155	138, 155	OFDM, OFDMA	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	23deg. C, 70%RH	DC12V By Adapter	Hanwen Xu
RE≥1G	23deg. C, 70%RH	DC 12V By Adapter	Hanwen Xu
PLC	25deg. C, 52%RH	DC12V By Adapter	Hanwen Xu
APCM	25deg. C, 60%RH	DC 14V By DC Adapter	Hanwen Xu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix A/B Of this test report.

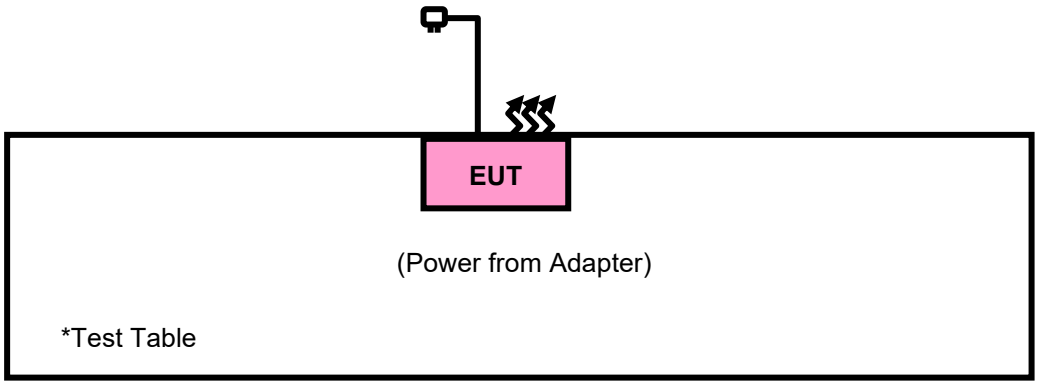
2.4 DESCRIPTION OF SUPPORT UNITS

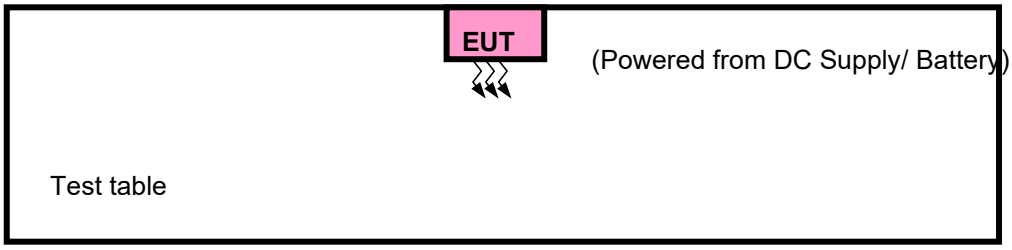
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

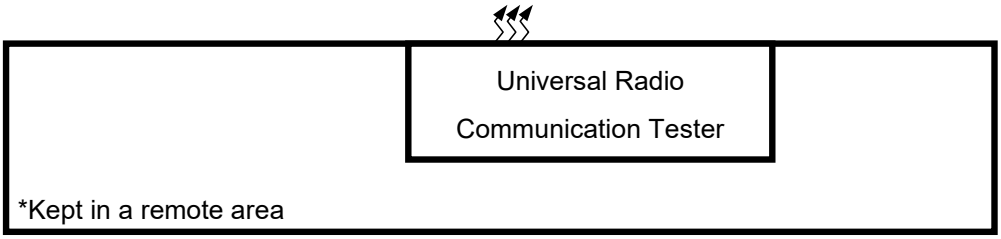
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	Thinkpad E14	SL10W47313	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m
2	AC Line: Unshielded, Detachable 1.5m
3	AC Line: Unshielded, Detachable 1.5m
4	DC Line: Unshielded, Detachable 1.0m

2.4.1 CONFIGURATION OF SYSTEM UNDER TEST







2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
ANSI C63.10-2020

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.1.2 LIMITS OF UNWANTED EMISSION

RESTRICTED BANDS	**APPLICABLE TO**	**LIMIT**	
	789033 D02 General UNII Test Procedures New Rules v02r01	**FIELD STRENGTH AT 3m (dBµV/m)**	
		PK : 74	AV : 54
OUT OF THE RESTRICTED BANDS	**APPLICABLE TO**	**EIRP LIMIT (dBm/MHz)**	**EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m)**
	15.407(b)(1)	PK : -27	PK : 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See note 2 (FCC 16-24)	

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ µV/m, where P is the eirp (Watts).

2. All emissions shall be limited to a level of -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, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,23	Aug.29,25
Pre-Amplifier	R&S	SCU08F1	101028	Jan.22,24	Jan.21,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,23	Aug.21,25
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,23	Aug.21,25
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,25	Feb.22,27
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,23	Aug.30,25
Hygrothermograph	DELI	20210528	SZ014	Sep.06,23	Sep.05,25
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25

NOTE: 1. The calibration interval of the above test instruments is 12 /24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

3.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

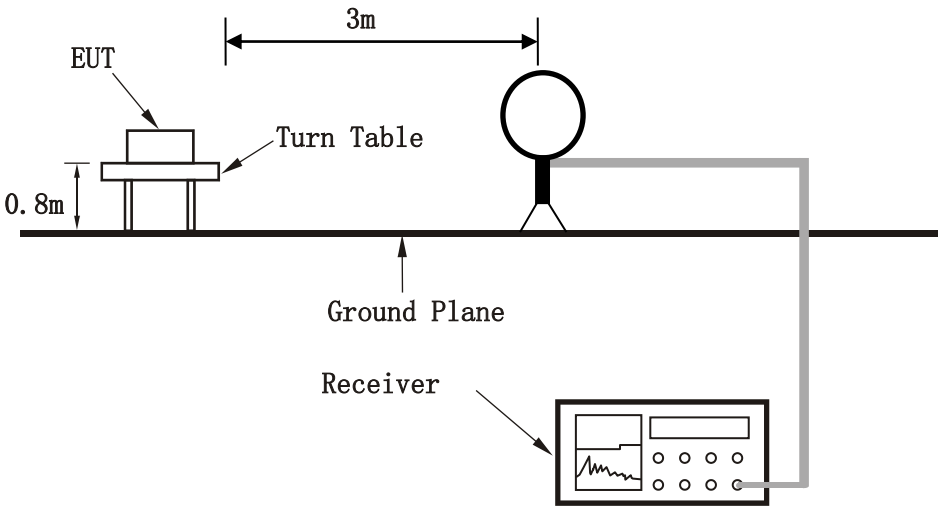
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.1.5 DEVIATION FROM TEST STANDARD

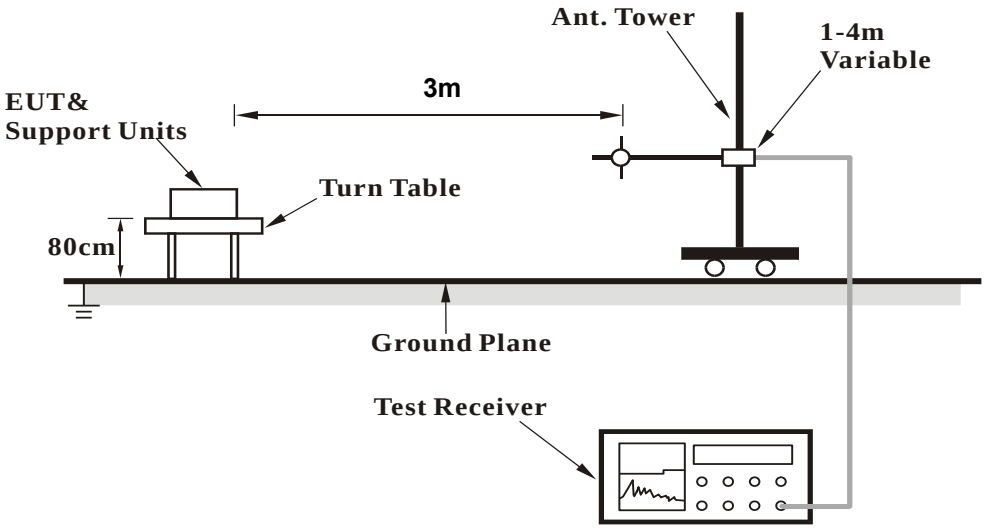
No deviation.

3.1.6 TEST SETUP

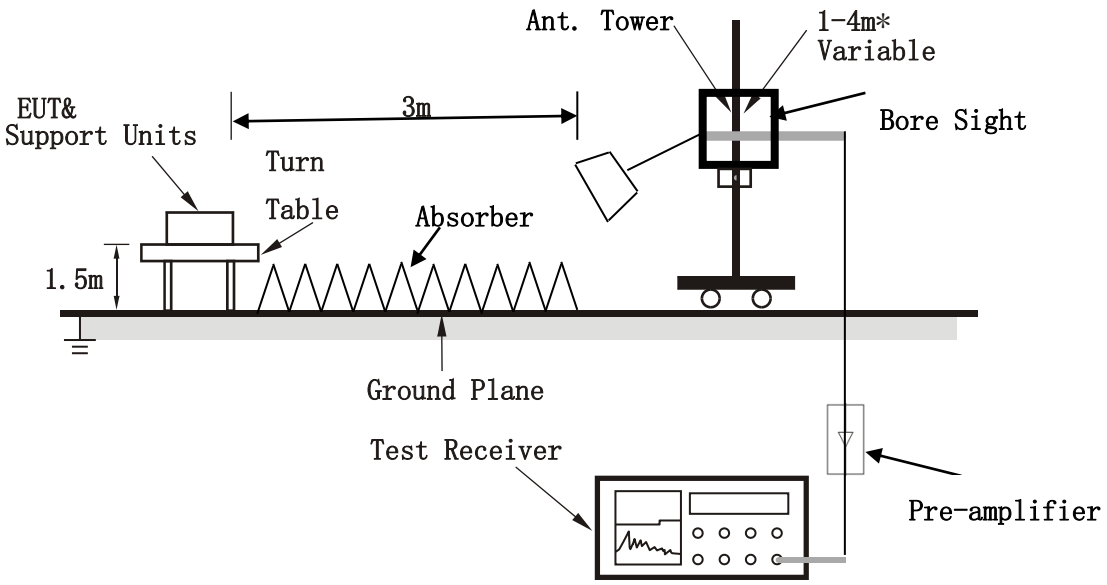
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.7 EUT OPERATING CONDITION

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.1.8 TEST RESULTS

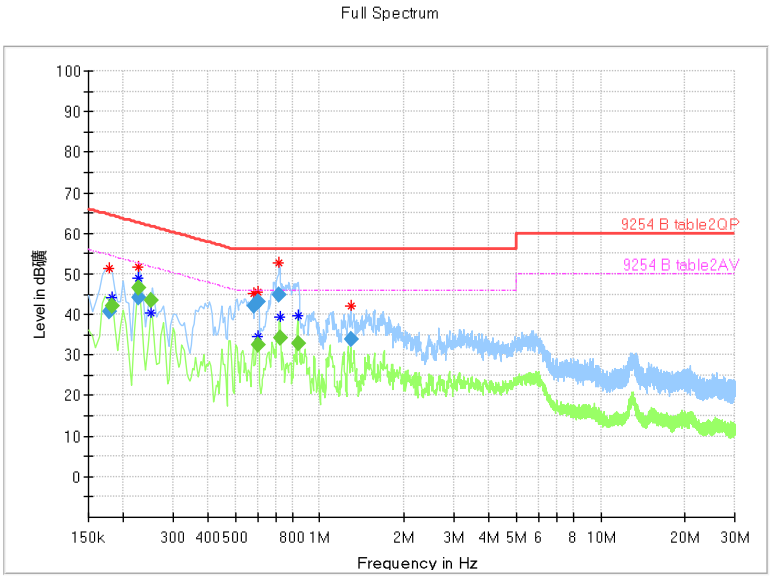
NOTE ： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

A “reference path loss” Corr.(dB) is established and the L_{cable}+ATT+VDF is the attenuation of ” reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$P_{result}=P_{mea}$+ Corr.(dB)

Sample calculation: (40.61dBμV) = (30.21dBμV) + (10.4dB), the corresponding frequency is 0.177136MHz.



L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	QuasiPeak	CAverage	Limit (dB)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Line	Corr. (dB)	Pmea (dBμV)
0.177136	40.61	---	64.62	24.01	5000.0	9.000	N	10.4	30.21
0.181659	---	42.16	54.41	12.25	5000.0	9.000	N	10.4	31.76
0.226886	---	46.66	52.56	5.91	5000.0	9.000	N	10.4	36.26
0.226886	44.15	---	62.56	18.41	5000.0	9.000	N	10.4	33.75
0.249500	---	43.60	51.77	8.17	5000.0	9.000	N	10.4	33.2
0.579659	42.05	---	56.00	13.95	5000.0	9.000	N	10.4	31.65
0.602273	43.25	---	56.00	12.75	5000.0	9.000	N	10.4	32.85
0.602273	---	32.59	46.00	13.41	5000.0	9.000	N	10.4	22.19
0.715341	44.90	---	56.00	11.10	5000.0	9.000	N	10.4	34.50
0.719864	---	34.10	46.00	11.90	5000.0	9.000	N	10.4	23.70
0.837455	---	32.75	46.00	13.25	5000.0	9.000	N	10.4	22.35
1.289727	33.83	---	56.00	22.17	5000.0	9.000	N	10.4	23.43

3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Mar.28,24	Mar.27,26
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Mar.28,24	Mar.27,26
CABLE	Rohde&Schwarz	W61.01	N/A	Apr.27,24	Apr.26,25
CABLE	Rohde&Schwarz	W601	N/A	Apr.27,24	Apr.26,25

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.2.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

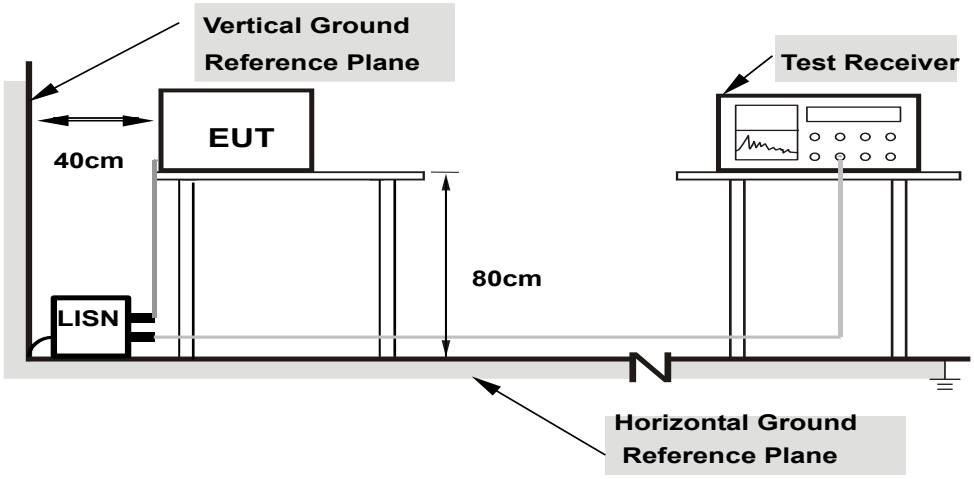
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

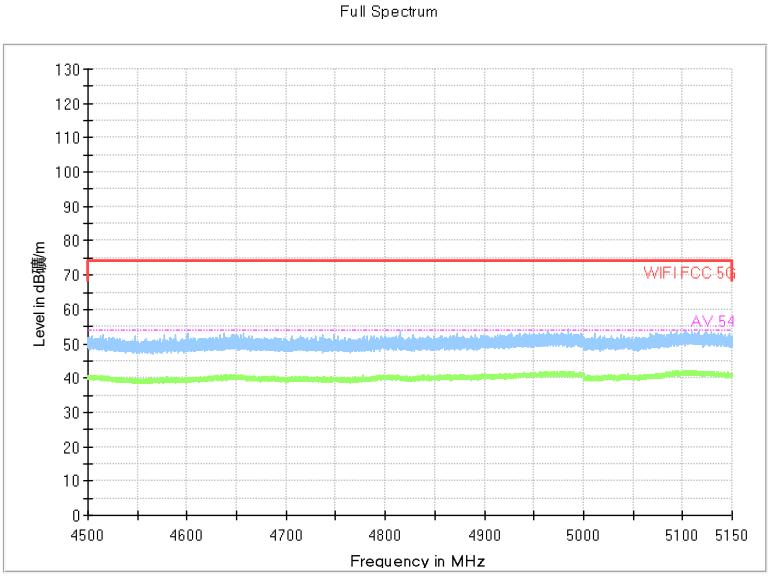
3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.7.

3.2.7 TEST RESULTS

Radiated Emission Band Edge for WIFI

20M

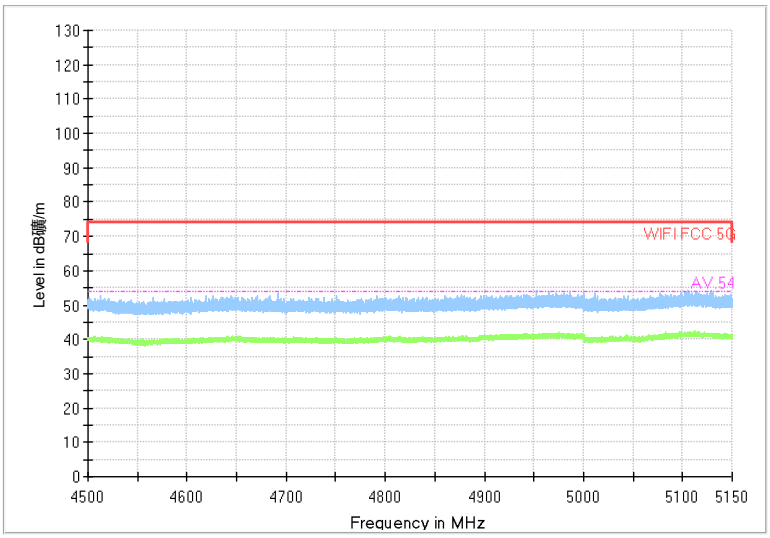


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11a

Polarization：V

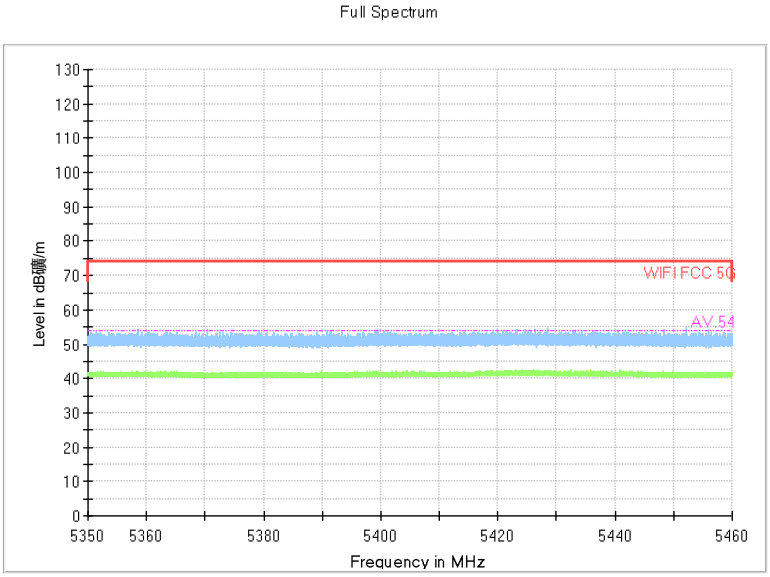


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11a

Polarization：H

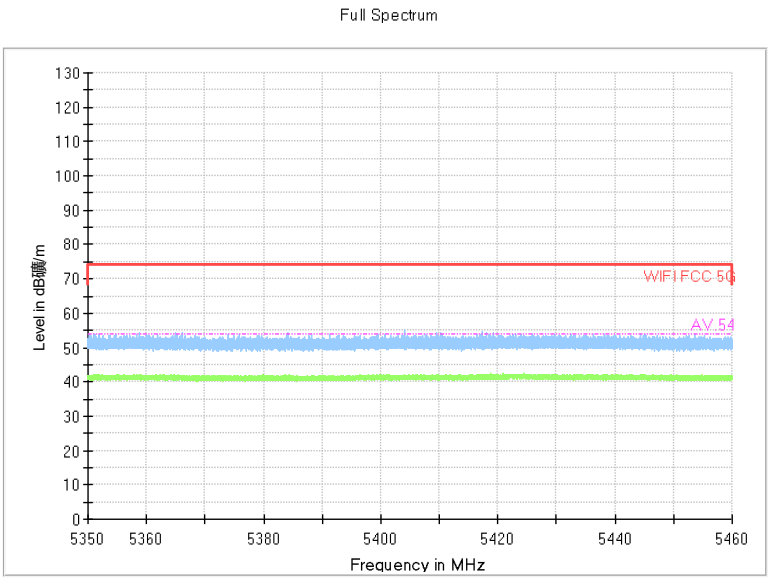


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11a

Polarization：V

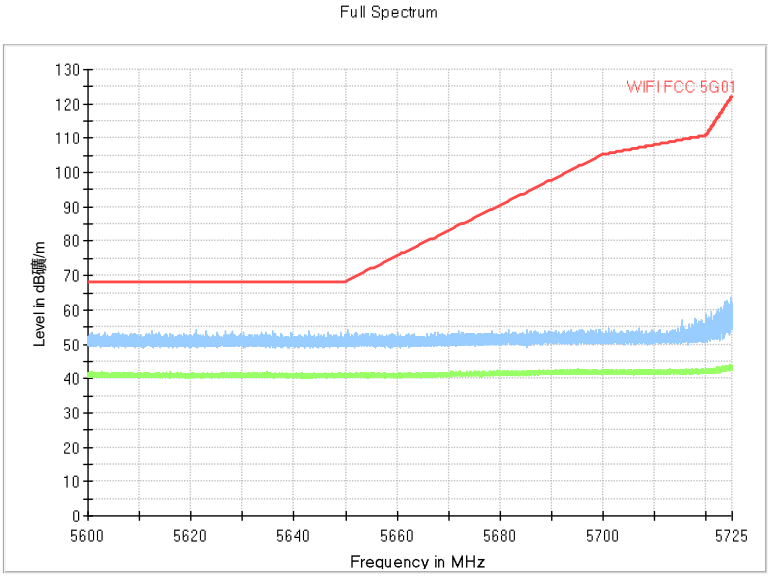


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11a

Polarization：H

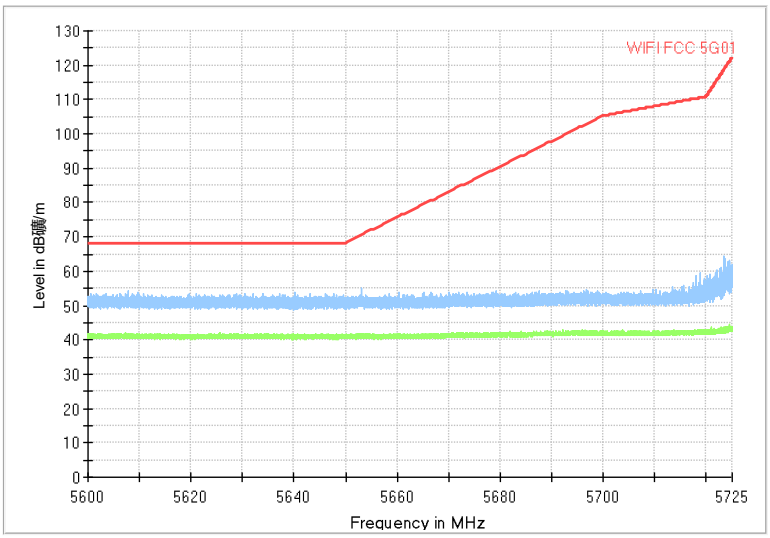


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11a

Polarization：V

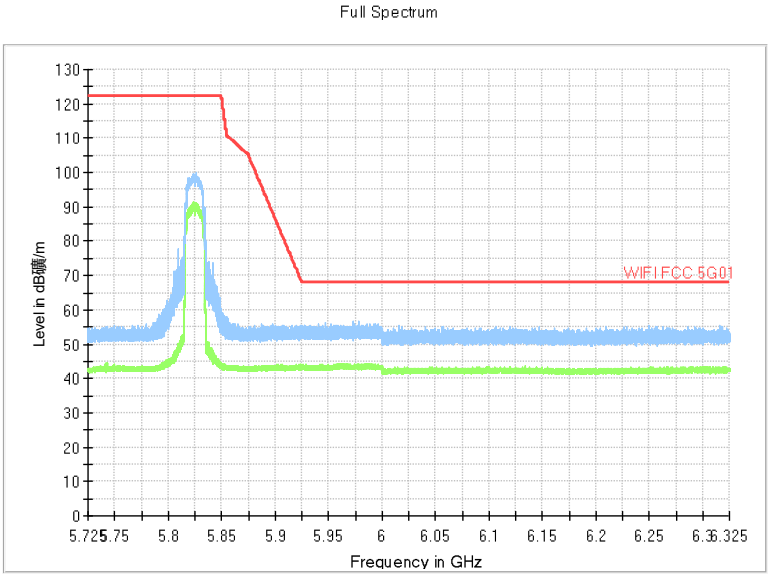


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11a

Polarization：H

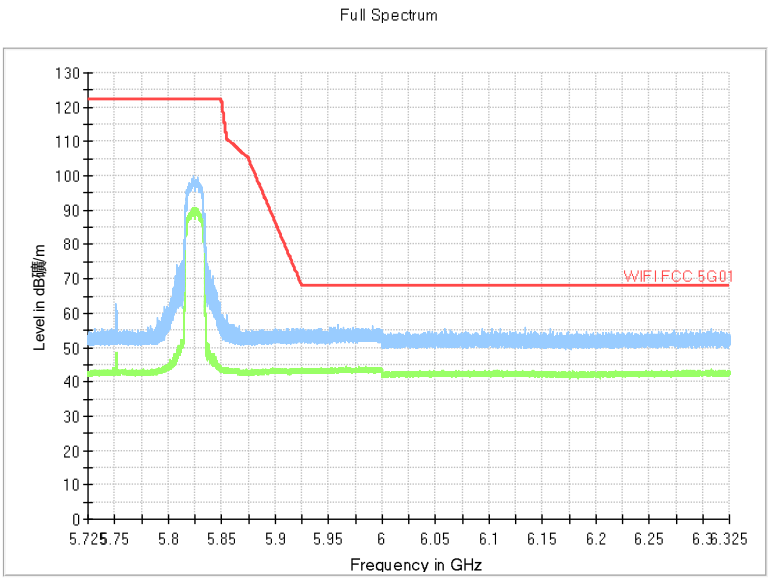


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11a

Polarization：V

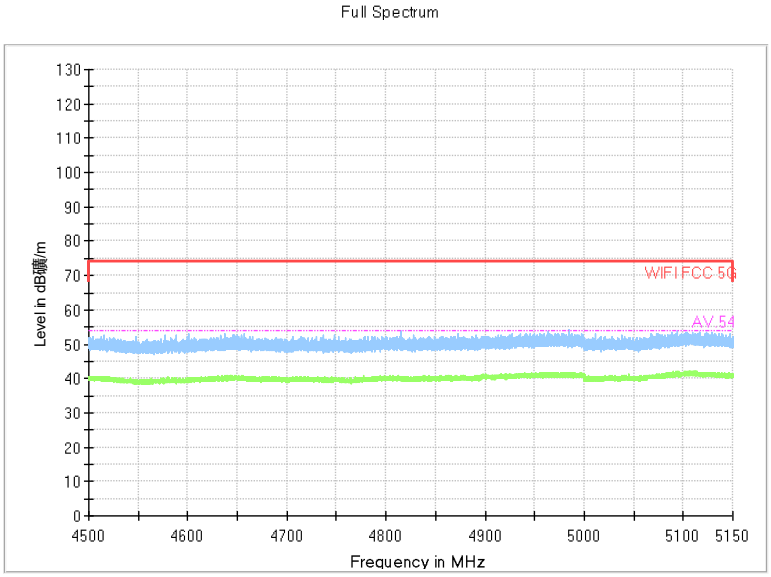


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11a

Polarization：H

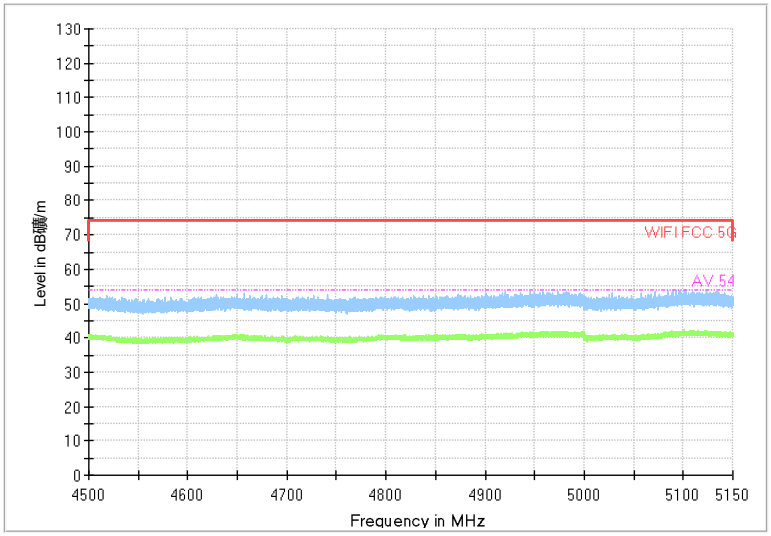


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11n

Polarization：V

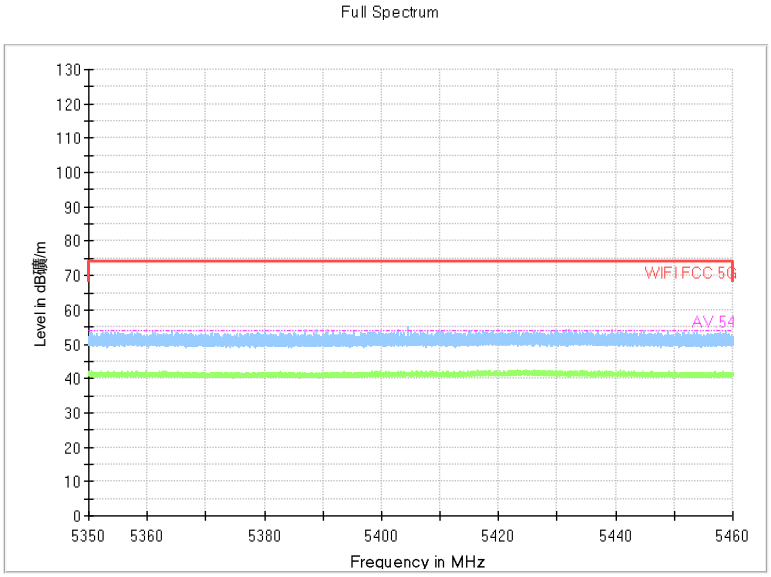


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11n

Polarization：H

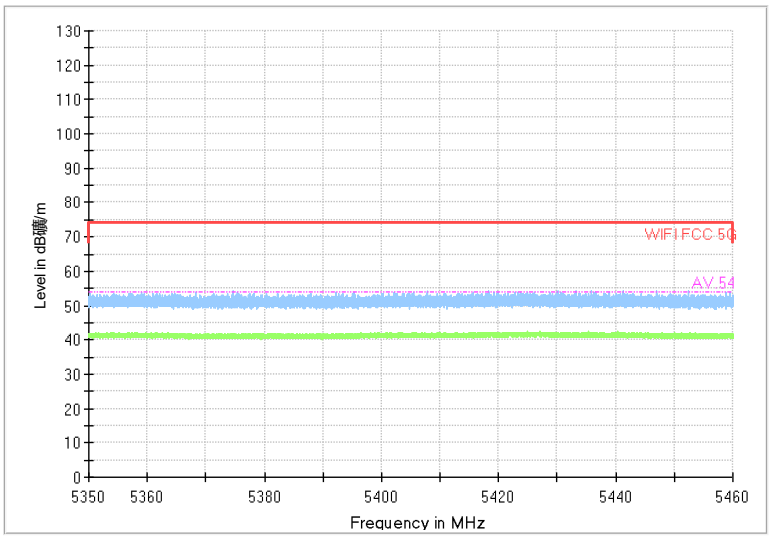


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11n

Polarization：V

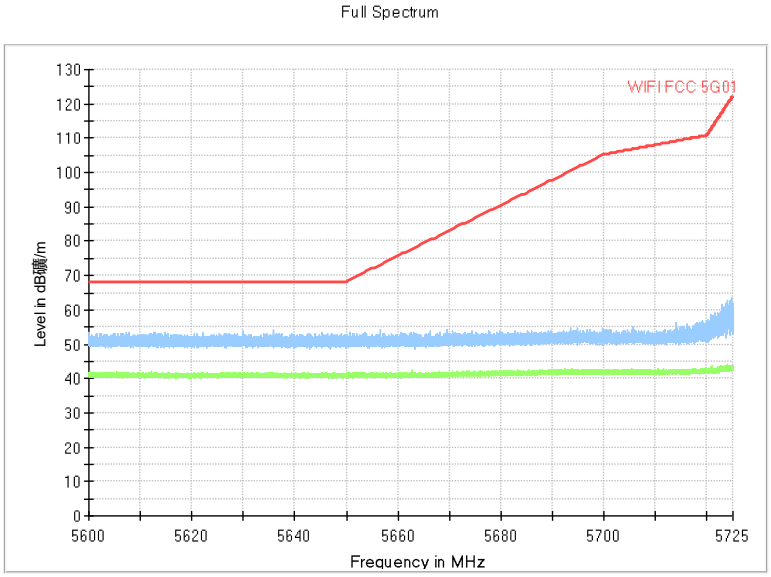


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11n

Polarization：H

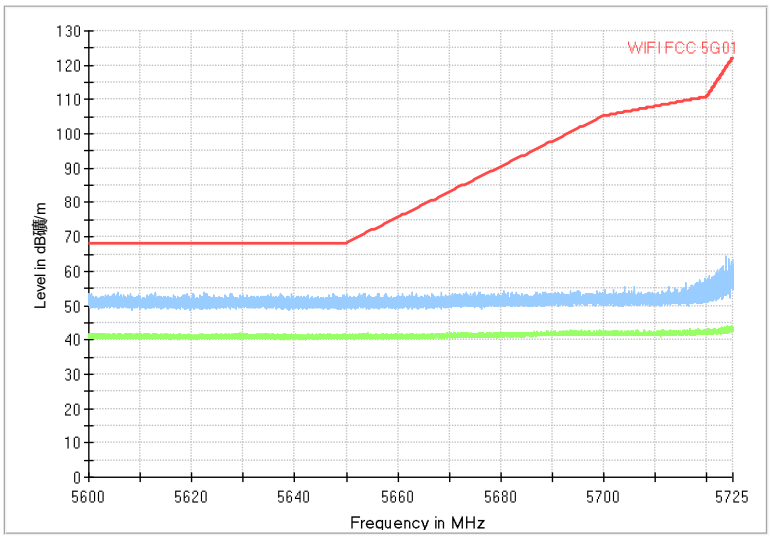


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11n

Polarization：V

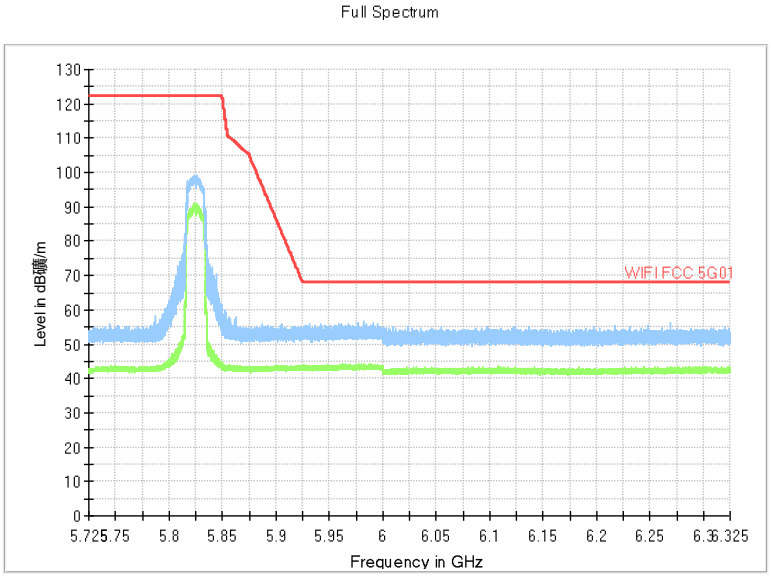


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11n

Polarization：H

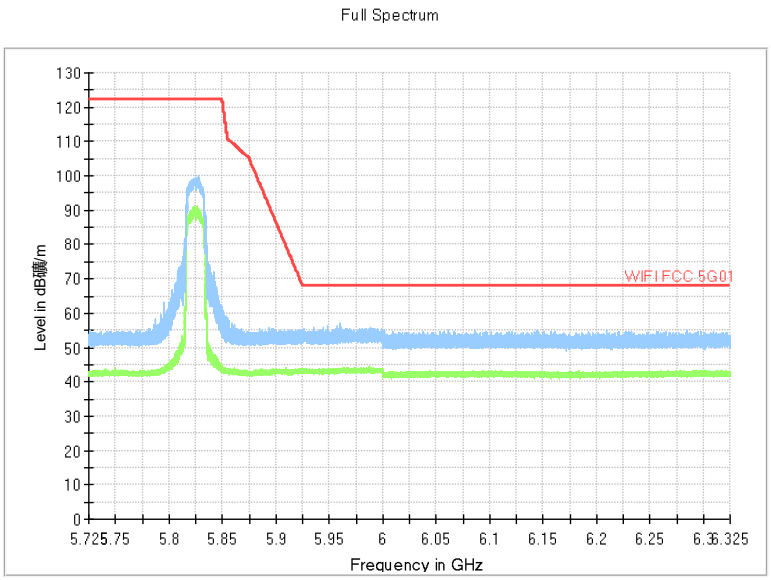


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11n

Polarization：V

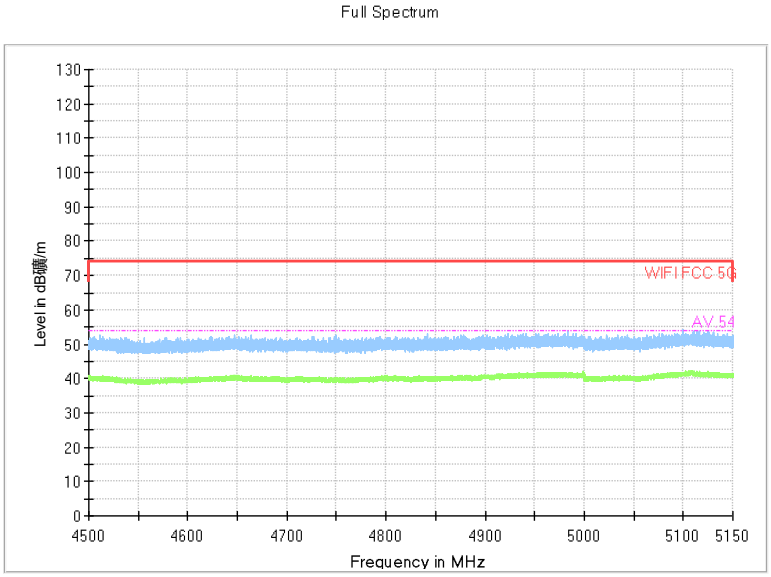


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11n

Polarization：H

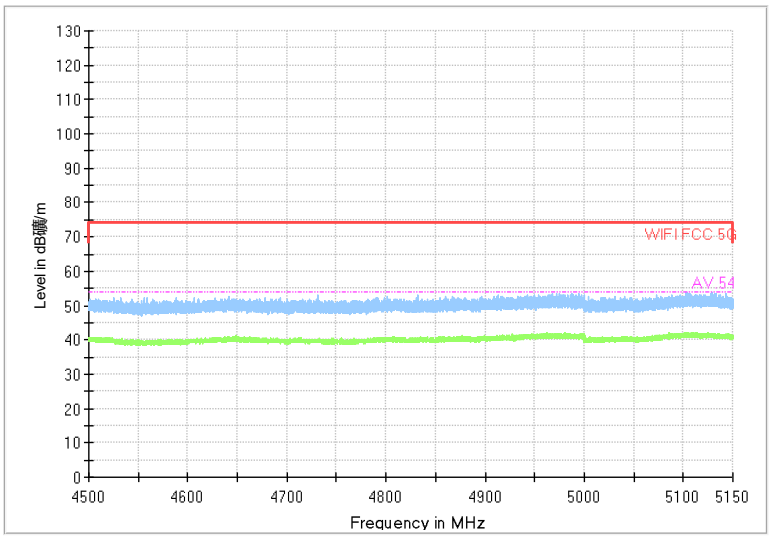


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11ac

Polarization：V

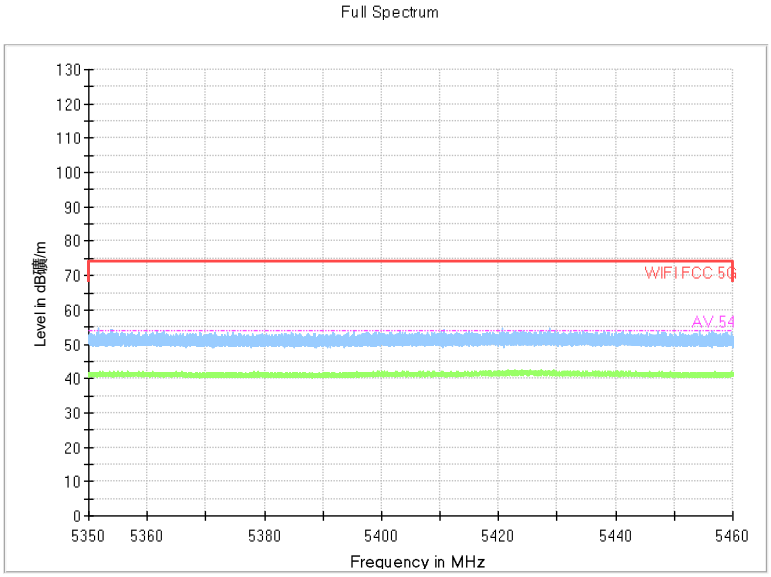


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11ac

Polarization：H

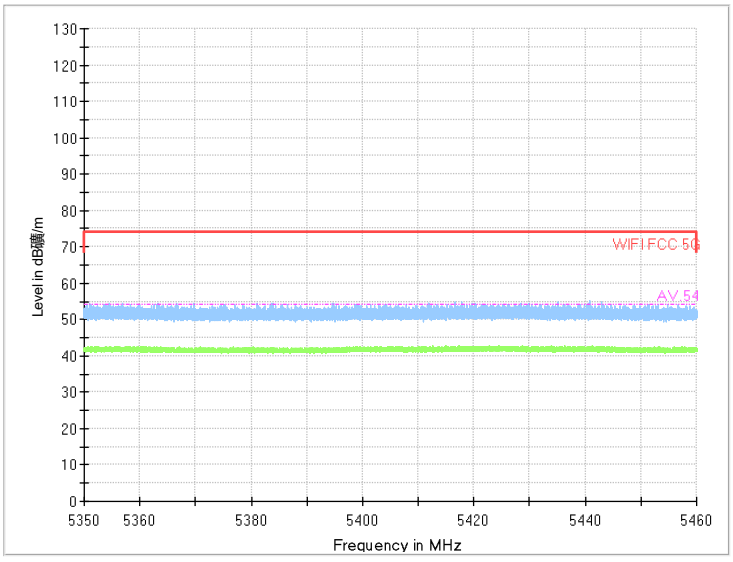


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11ac

Polarization：V



Radiated Emission Band Edge

Channel No.:64

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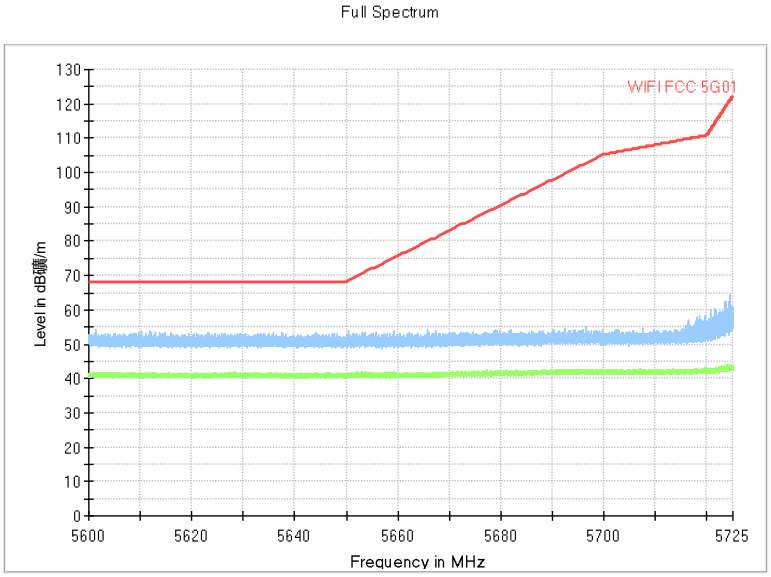

Radiated Emission Band Edge

Channel No.:149

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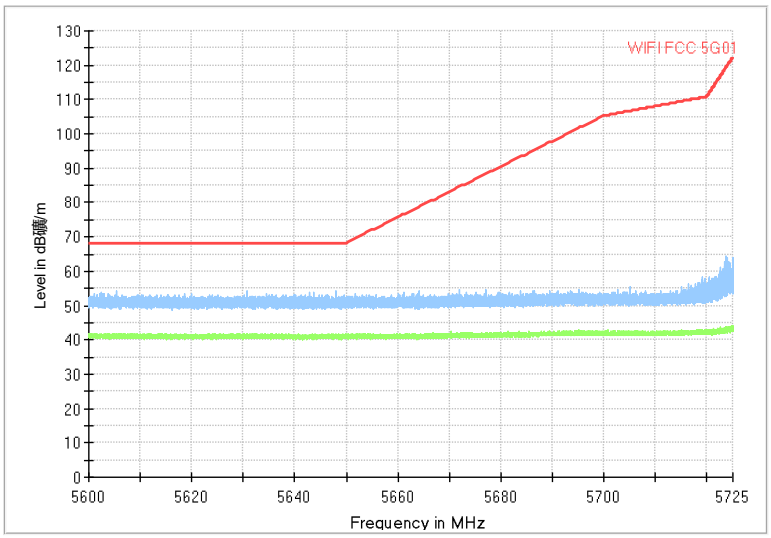
Polarization：V



Radiated Emission Band Edge

Channel No.:149

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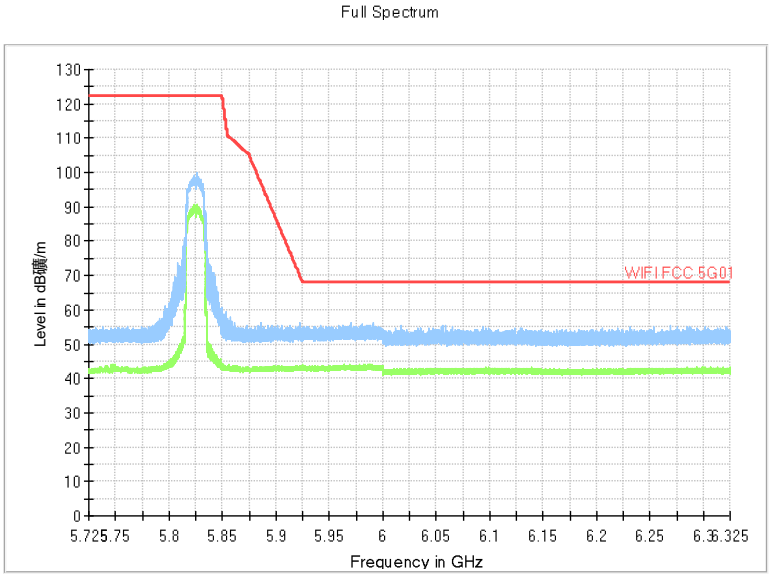
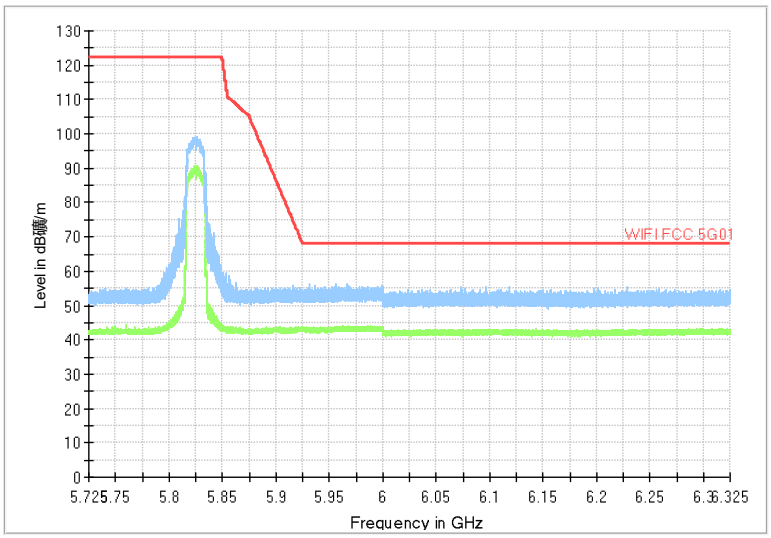


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11ac

Polarization：V



Radiated Emission Band Edge

Channel No.:165

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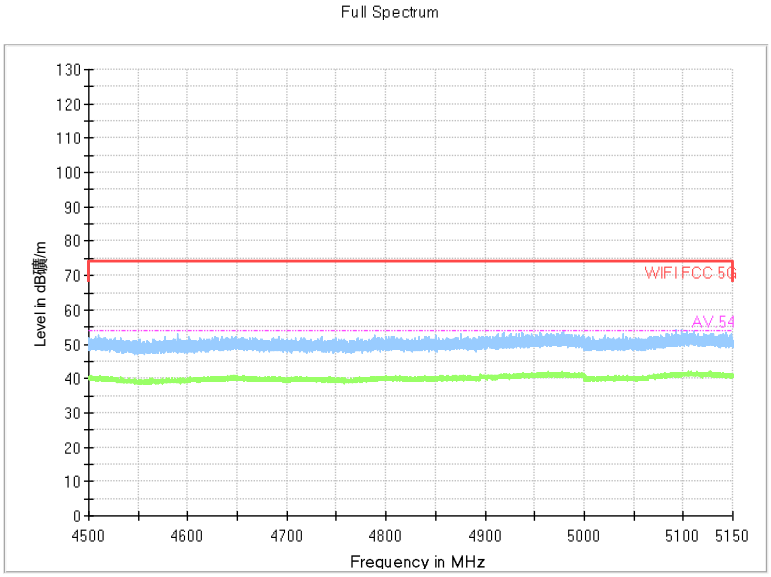
Polarization：H

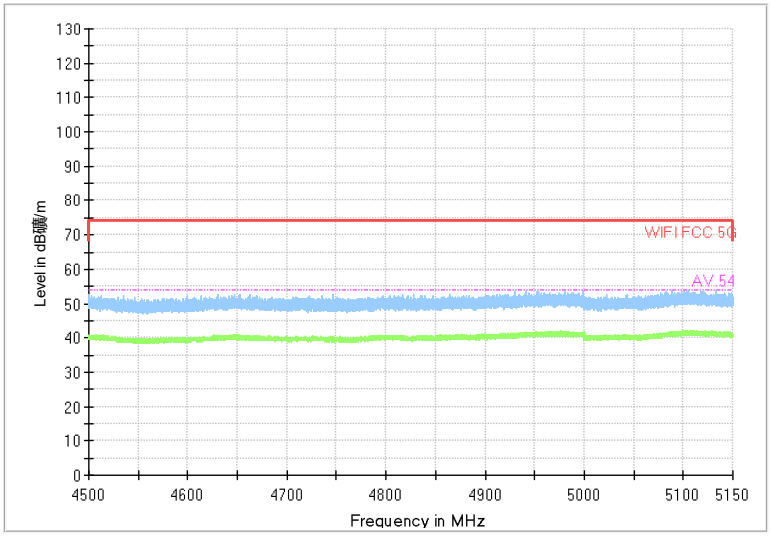


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11 ax

Polarization：V

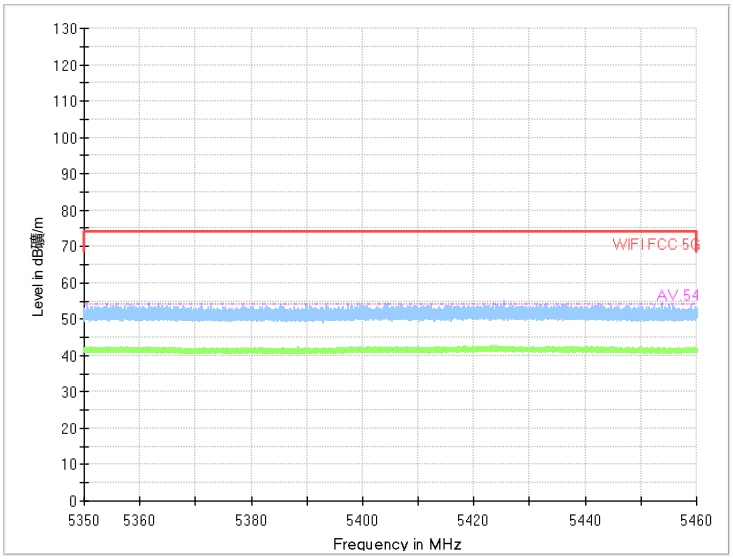


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11 ax

Polarization：H

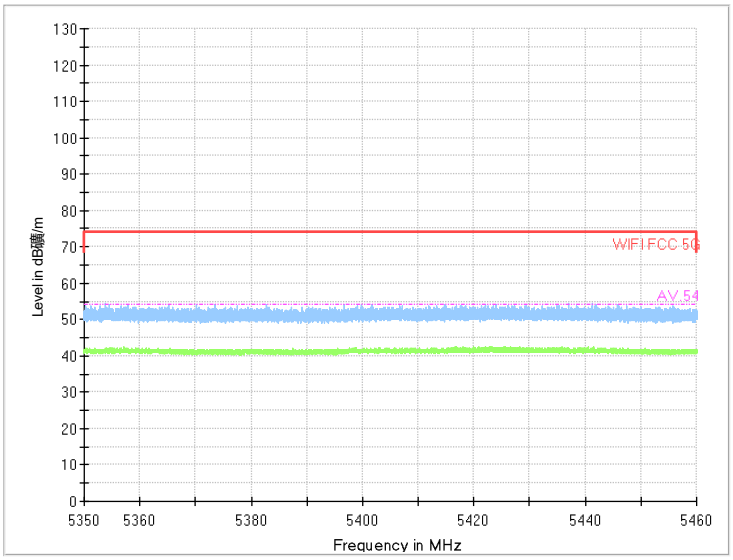


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11 ax

Polarization：V

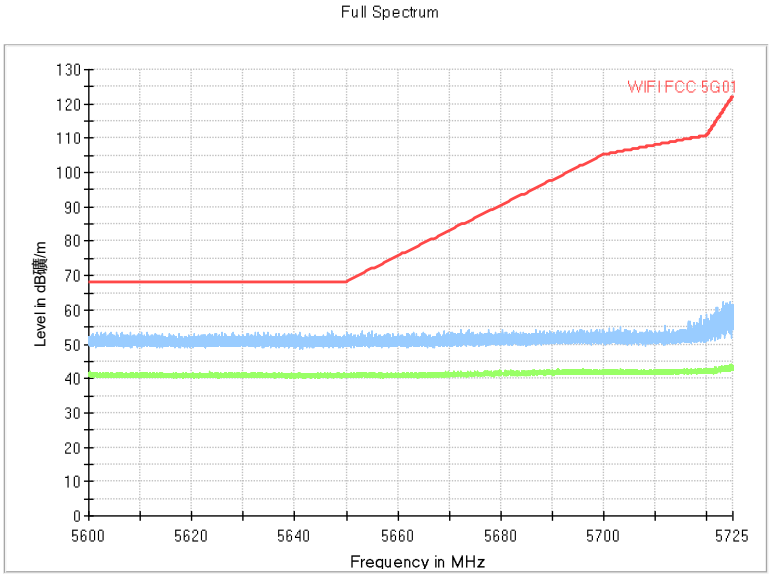


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11 ax

Polarization：H

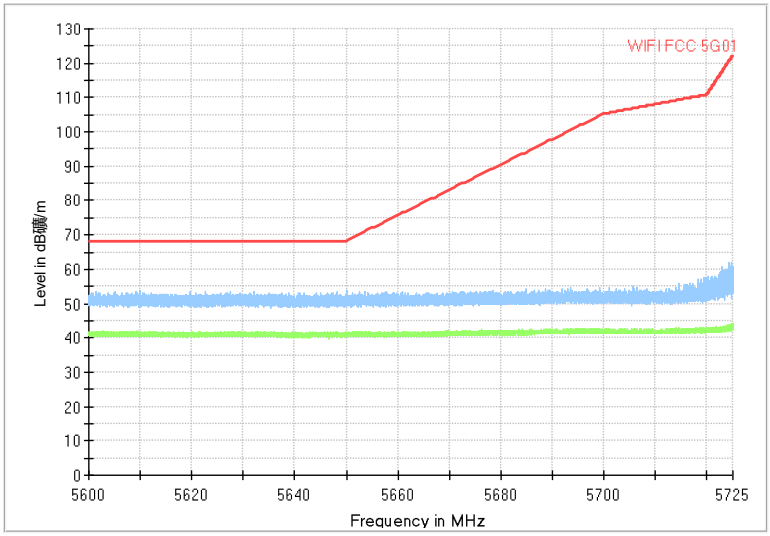


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11ax

Polarization：V

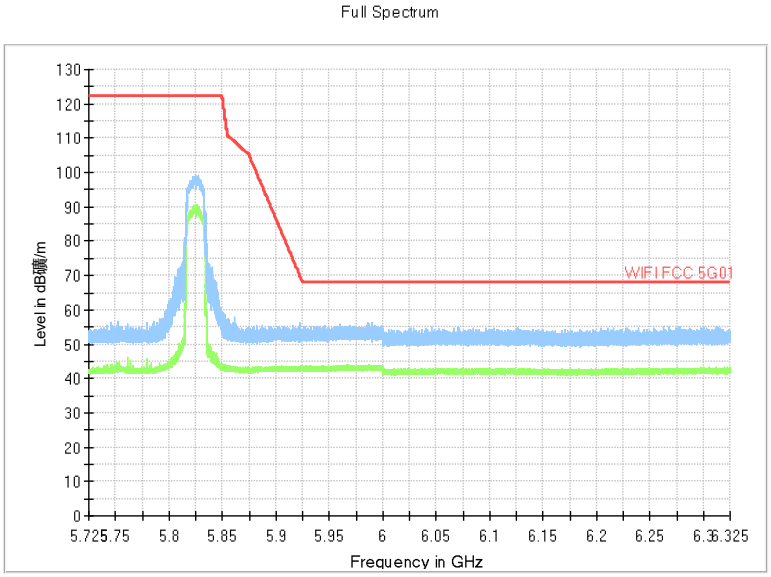


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11ax

Polarization：H

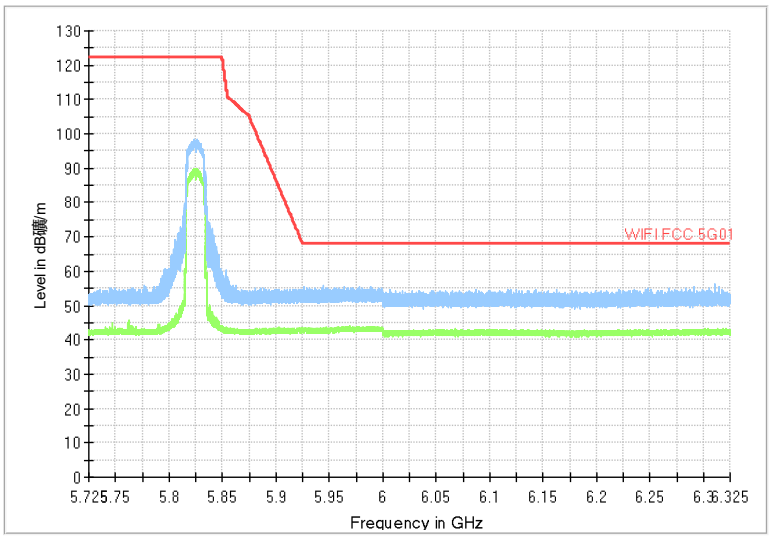


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11 ax

Polarization：V



Radiated Emission Band Edge

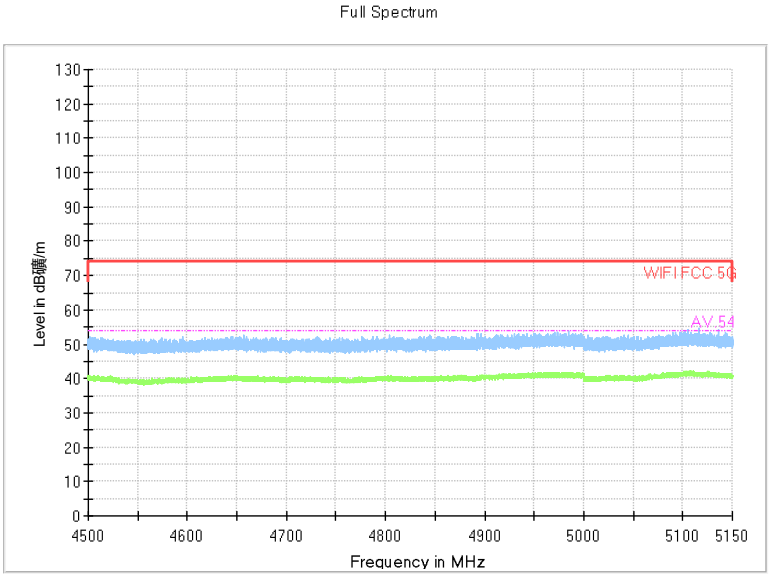
Channel No.:165

Test Mode: 802.11ax

Polarization：H

20M

Partial RU (Tone26)

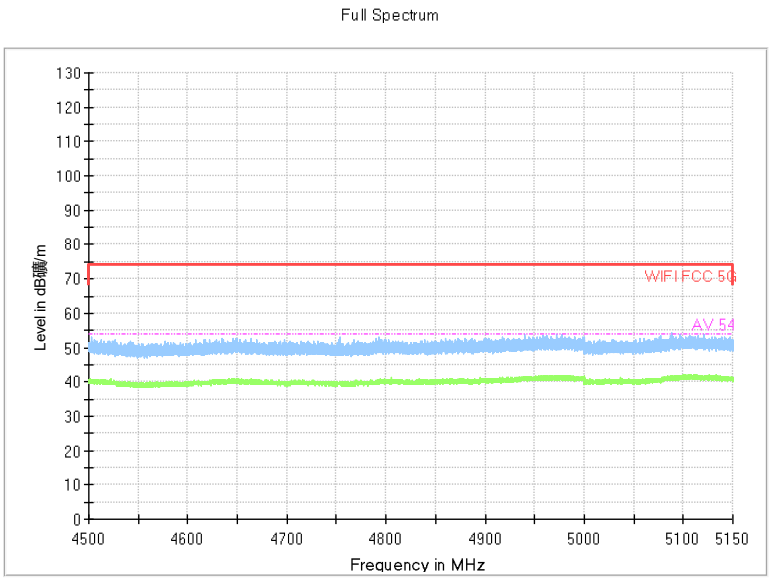


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11ax

Polarization：V

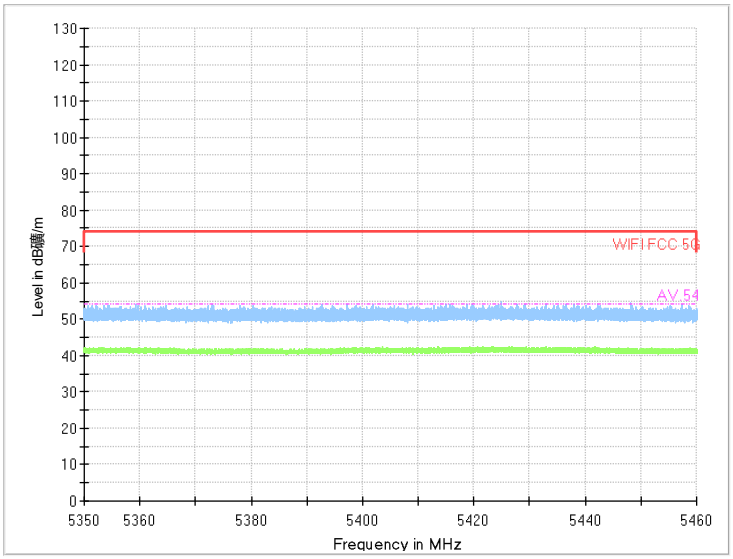


Radiated Emission Band Edge

Channel No.:36

Test Mode: 802.11ax

Polarization：H

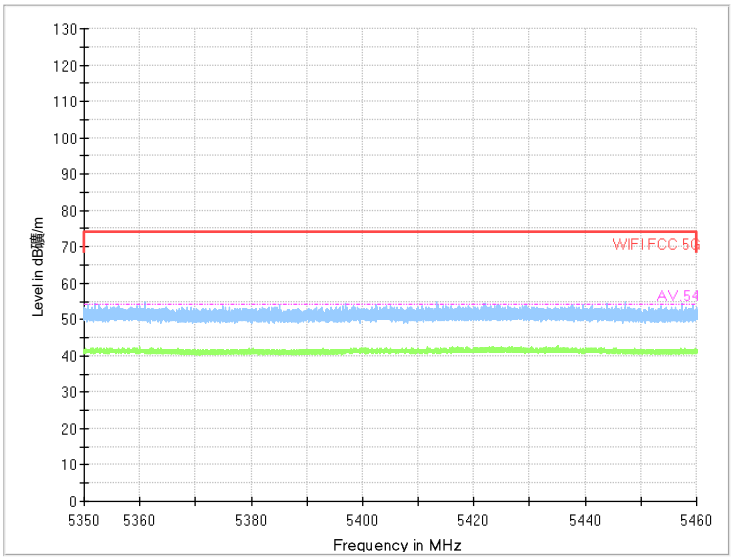


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11ax

Polarization：V

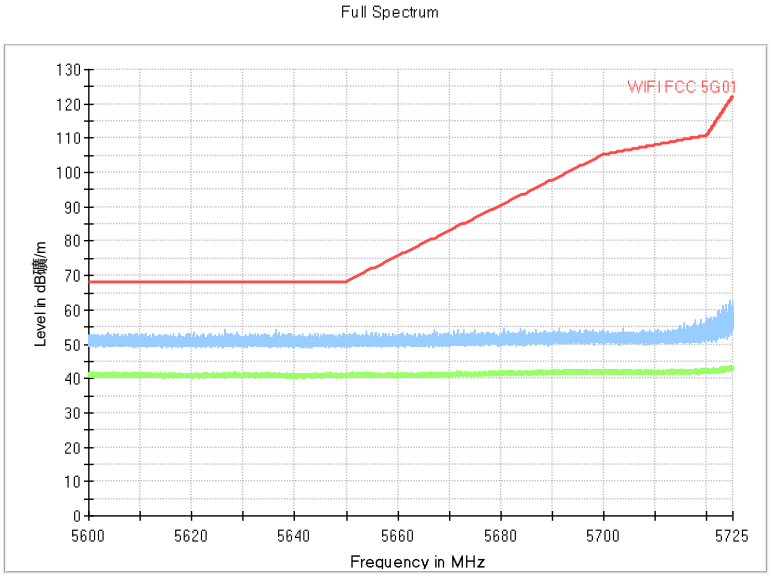


Radiated Emission Band Edge

Channel No.:64

Test Mode: 802.11ax

Polarization：H

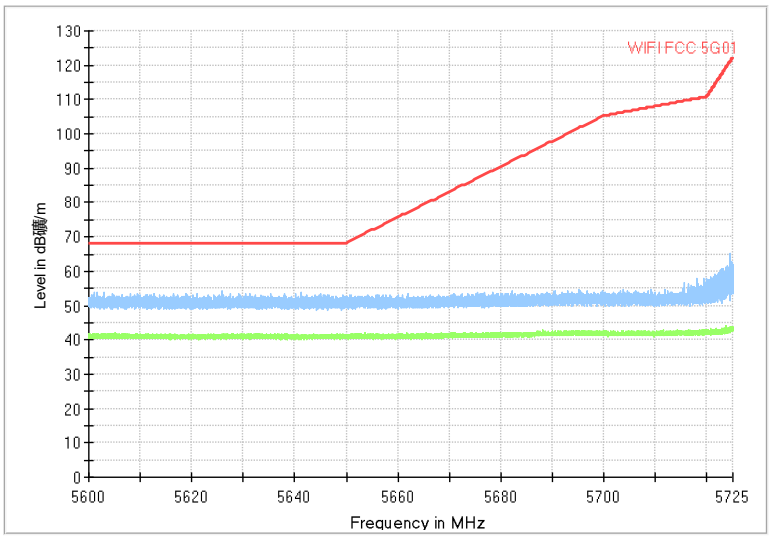


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11ax

Polarization：V

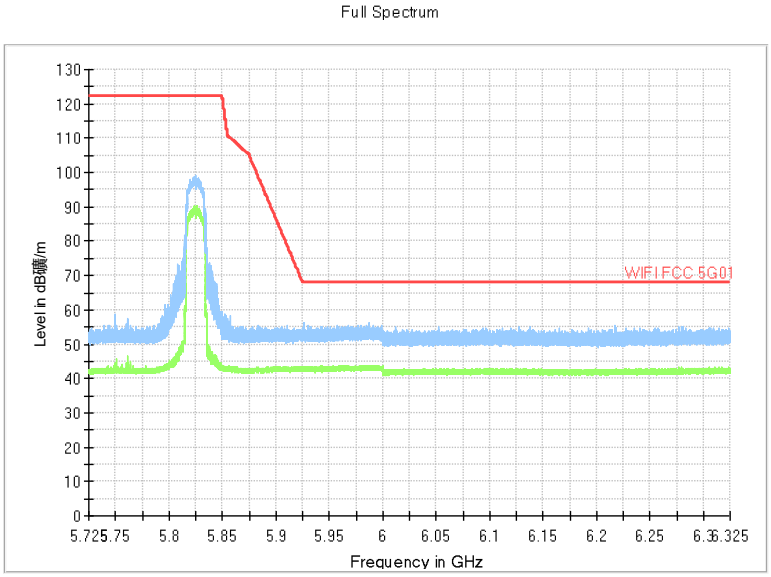


Radiated Emission Band Edge

Channel No.:149

Test Mode: 802.11ax

Polarization：H

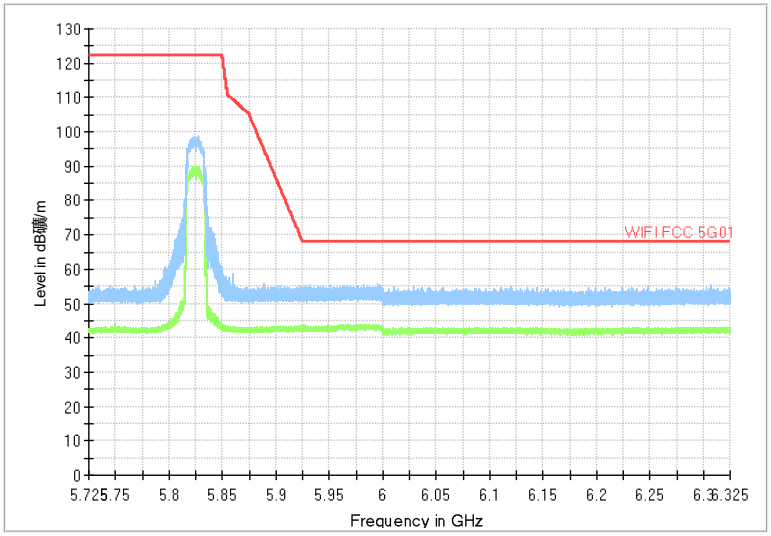


Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11ax

Polarization：V



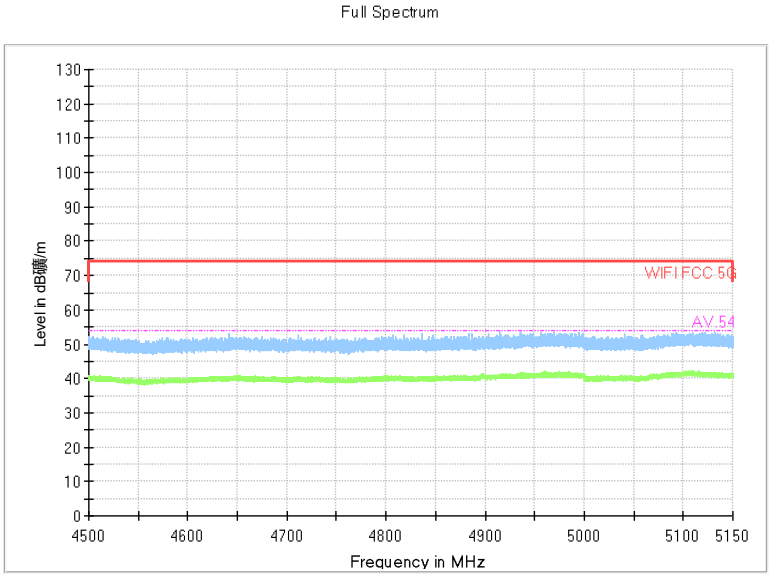
Radiated Emission Band Edge

Channel No.:165

Test Mode: 802.11ax

Polarization：H

40M

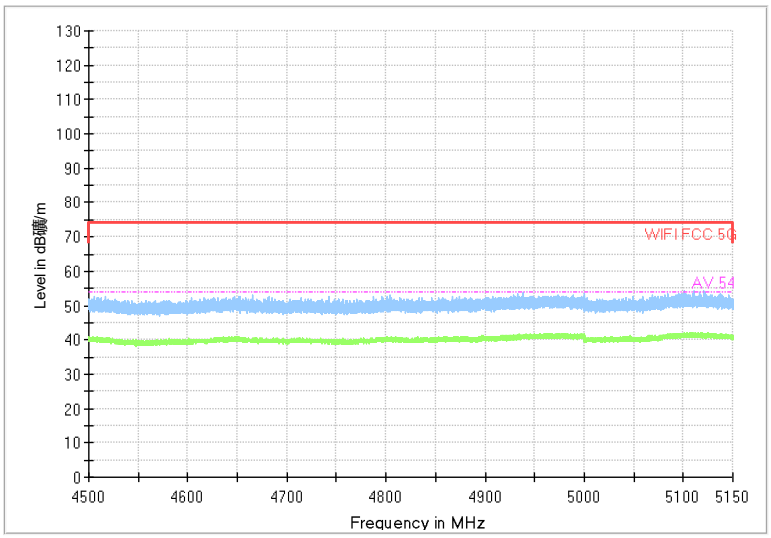


Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11n

Polarization：V

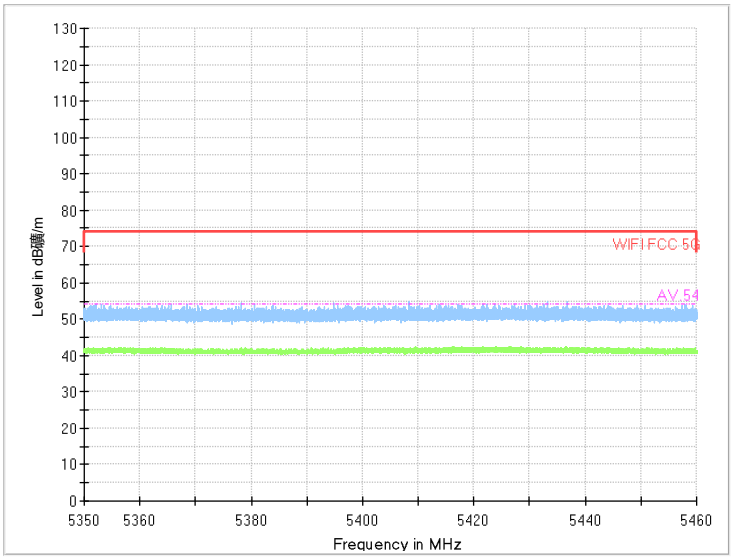


Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11n

Polarization：H

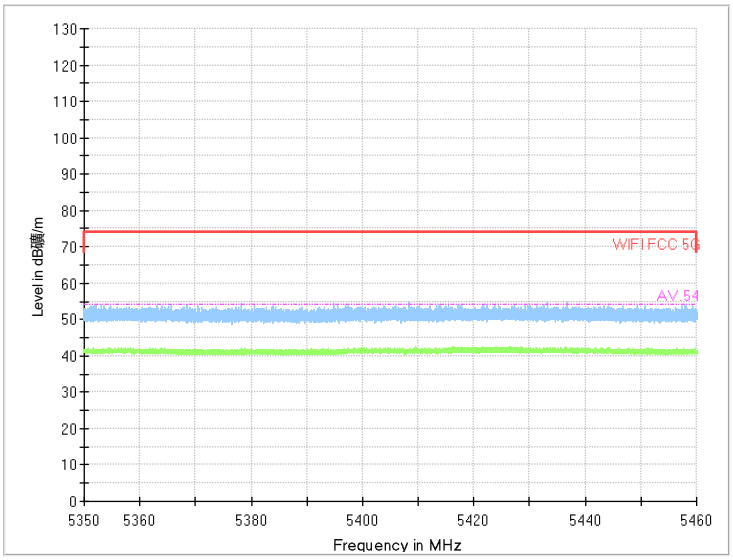


Radiated Emission Band Edge

Channel No.:62

Test Mode: 802.11n

Polarization：V

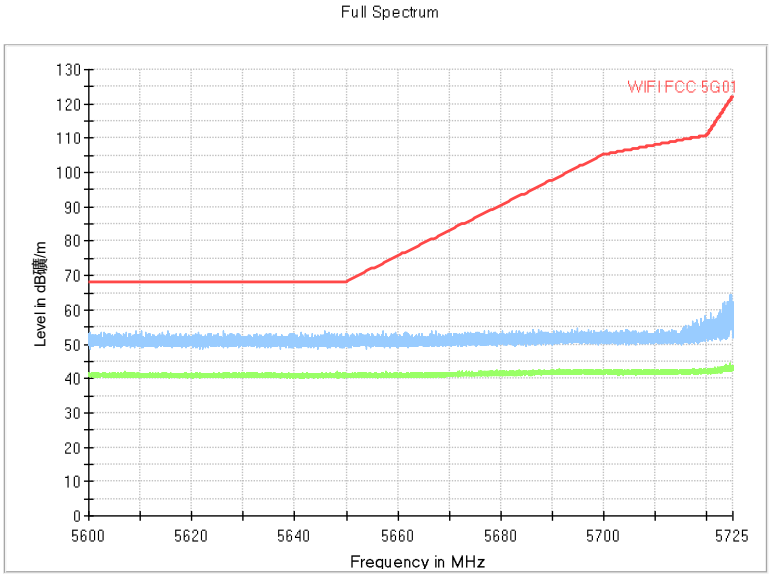


Radiated Emission Band Edge

Channel No.:62

Test Mode: 802.11n

Polarization：H

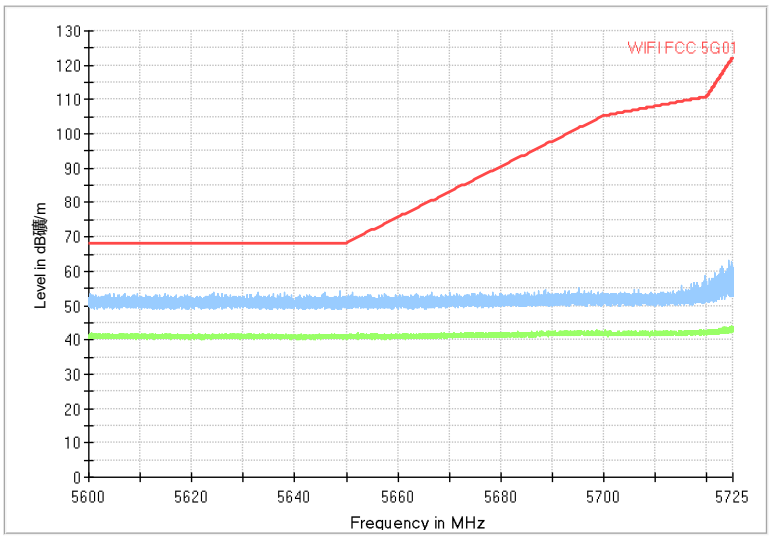


Radiated Emission Band Edge

Channel No.:151

Test Mode: 802.11n

Polarization：V

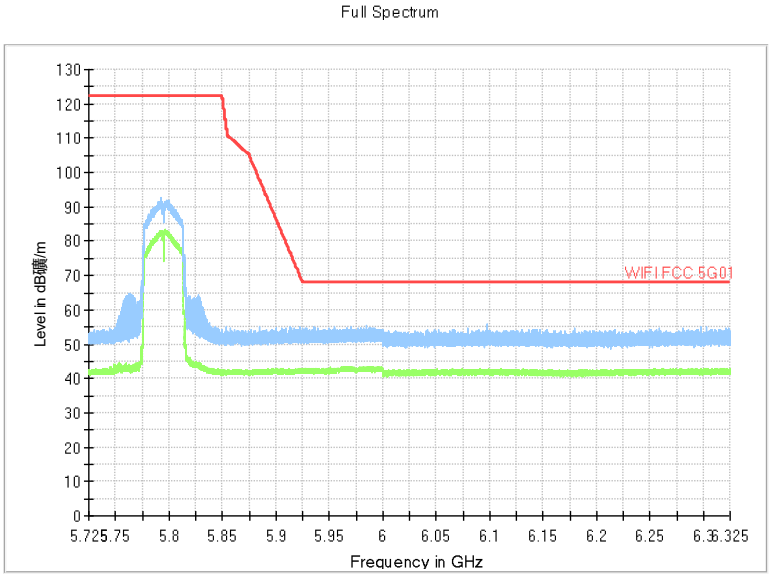


Radiated Emission Band Edge

Channel No.:151

Test Mode: 802.11n

Polarization：H

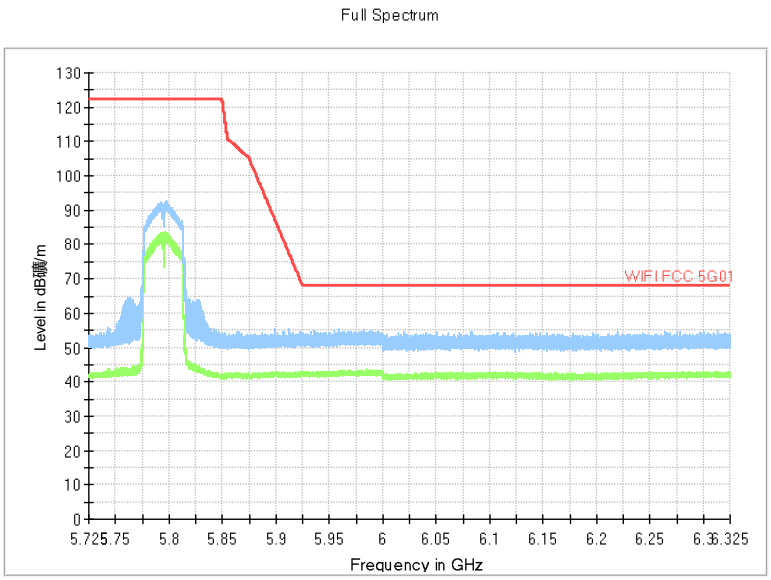


Radiated Emission Band Edge

Channel No.:159

Test Mode: 802.11n

Polarization：V

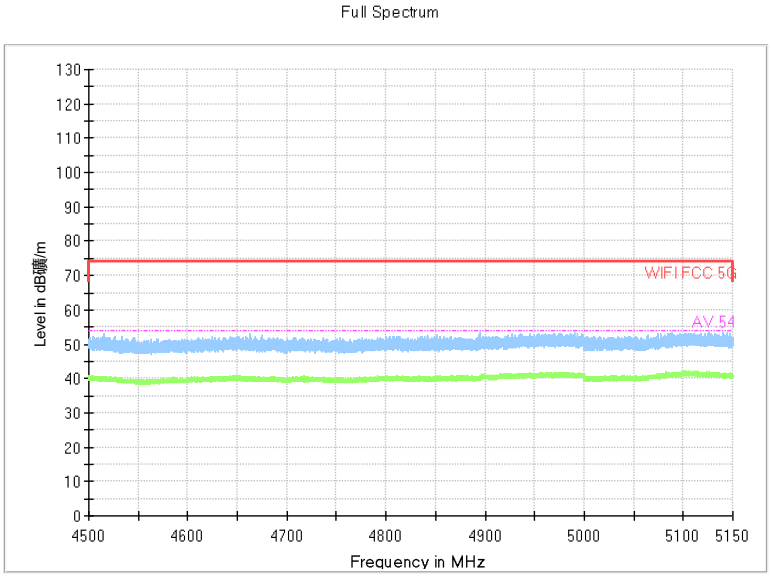


Radiated Emission Band Edge

Channel No.:159

Test Mode: 802.11n

Polarization：H

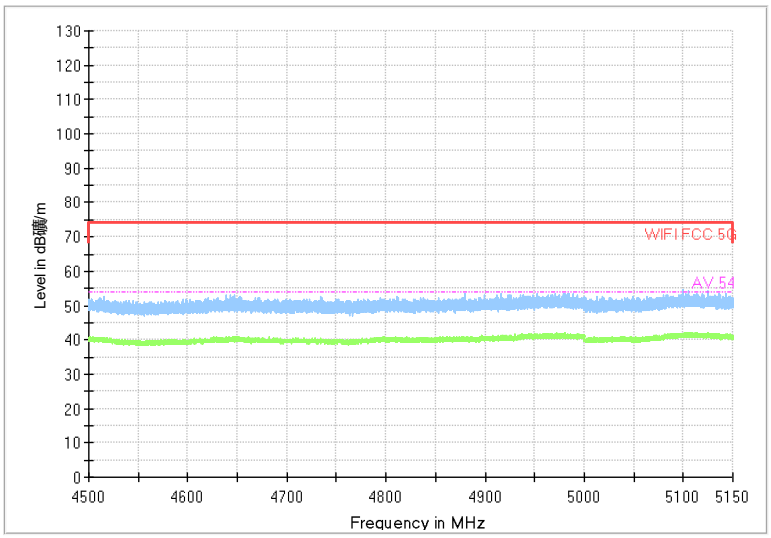


Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11ac

Polarization：V

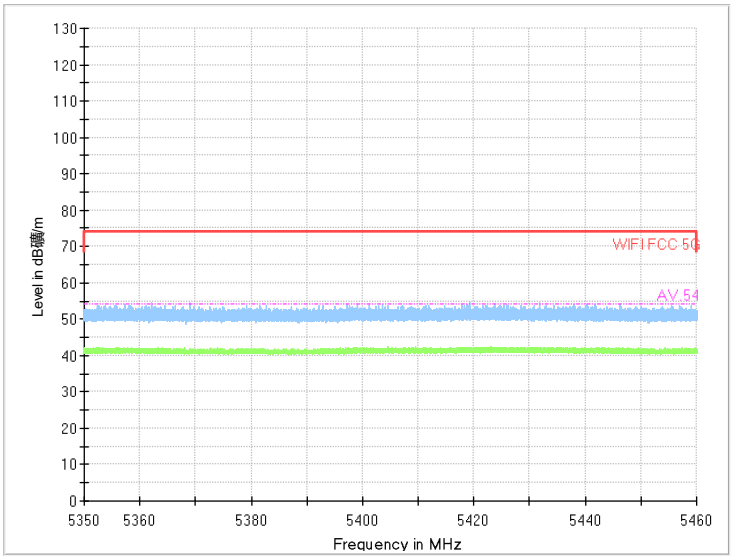


Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11ac

Polarization：H

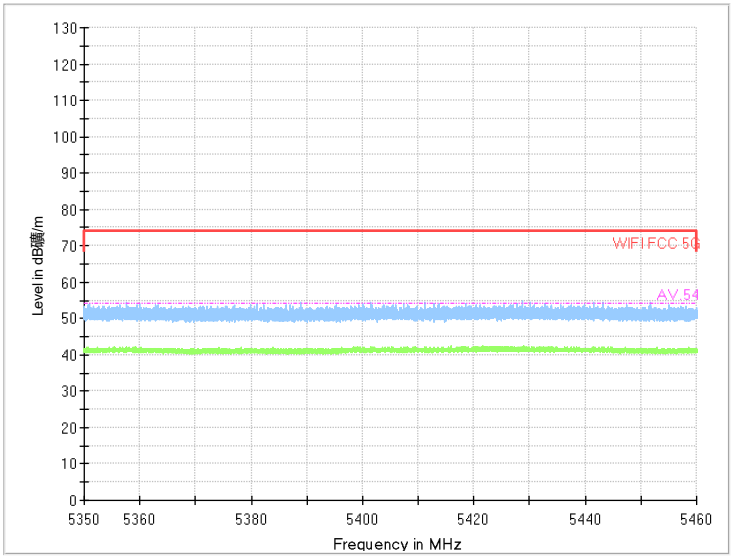


Radiated Emission Band Edge

Channel No.:62

Test Mode: 802.11ac

Polarization：V

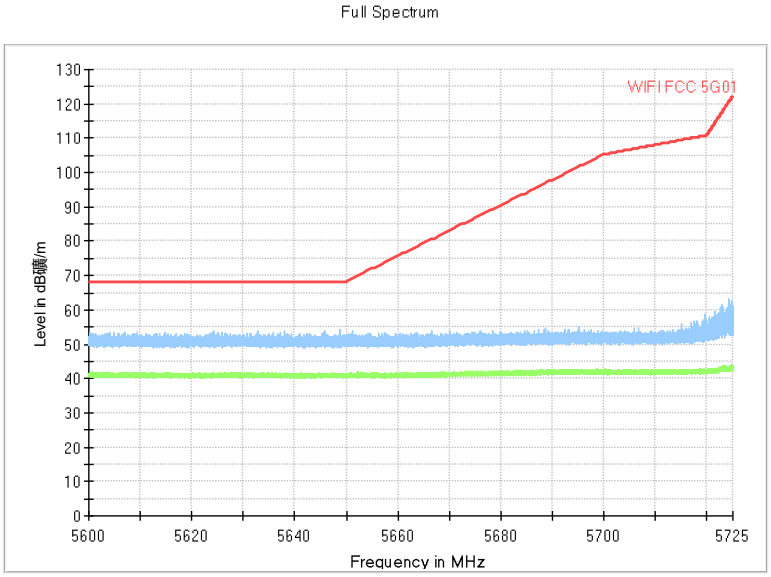


Radiated Emission Band Edge

Channel No.:62

Test Mode: 802.11ac

Polarization：H

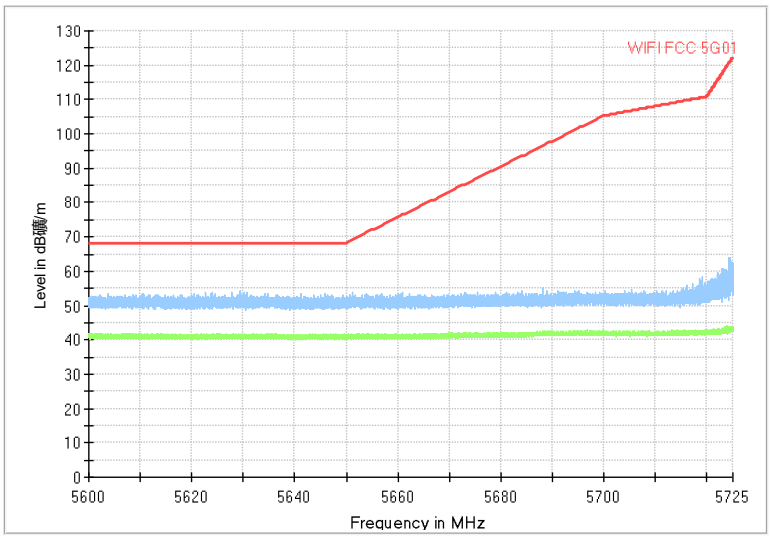


Radiated Emission Band Edge

Channel No.:151

Test Mode: 802.11ac

Polarization：V

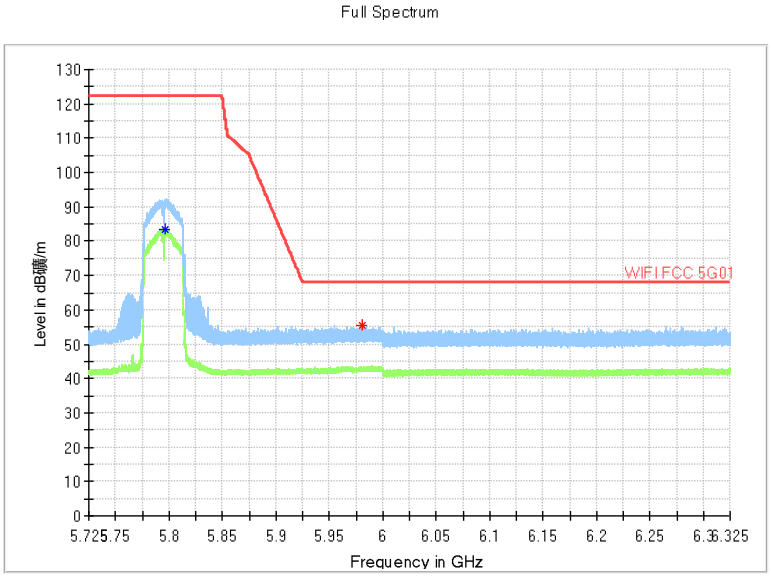


Radiated Emission Band Edge

Channel No.:151

Test Mode: 802.11ac

Polarization：H

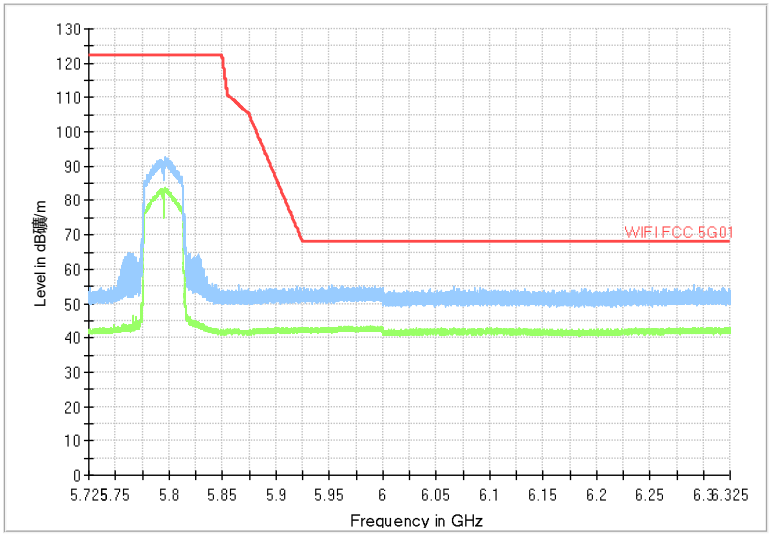


Radiated Emission Band Edge

Channel No.:159

Test Mode: 802.11ac

Polarization：V

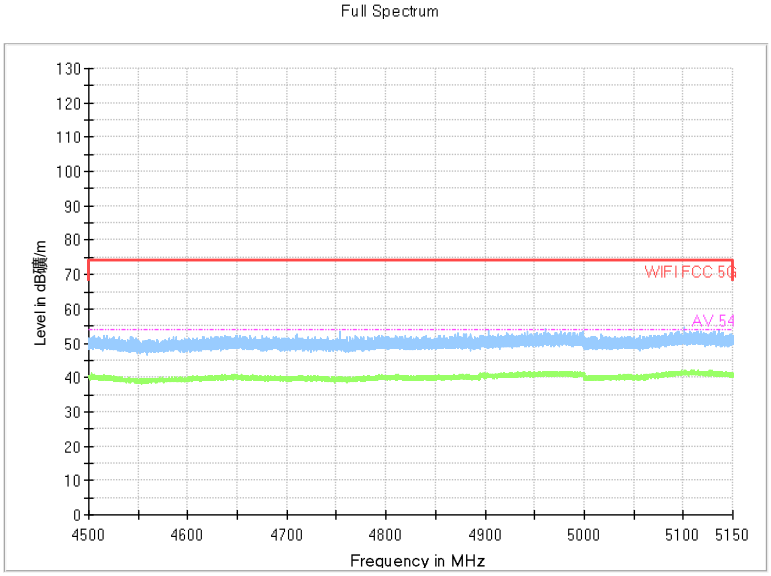


Radiated Emission Band Edge

Channel No.:159

Test Mode: 802.11ac

Polarization：H

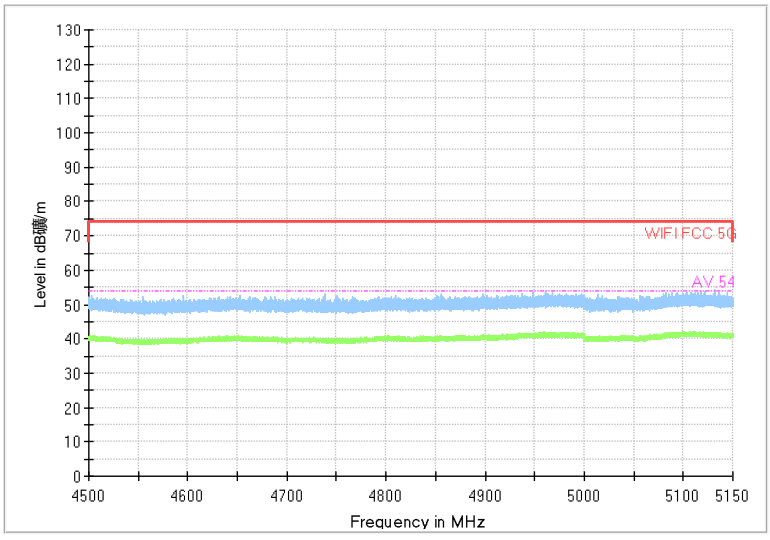


Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11ax

Polarization：V



Radiated Emission Band Edge

Channel No.:38

Test Mode: 802.11ax

Polarization：H