



MEASUREMENT REPORT

FCC ID : 2BMCE- VigilX0001
APPLICANT : Yun-X Tek CO.,LTD.

Application Type : Certification
Product : Non-Contact Edge-AI Fall Detection Camera
Model No. : VX0001
Brand Name : YUN-X

FCC Classification : Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s) : Part 15 Subpart E (Section 15.407)
Test Procedure(s) : ANSI C63.10-2013
Received Date : July 29, 2024
Test Date : October 19, 2024~October 28, 2024

Tested By : *Kaunaz Lee*
(Kaunaz Lee)

Reviewed By : *Paddy Chen*
(Paddy Chen)

Approved By : *Chenz Ker*
(Chenz Ker)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10 Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2407TW7401-U3	1.0	Original Report	2024-11-25	

CONTENTS

Description	Page
1. INTRODUCTION	7
1.1. Scope	7
1.2. MRT Test Location	7
2. PRODUCT INFORMATION	8
2.1. Equipment Description.....	8
2.2. Operation Frequencies and Channel List.....	9
2.3. Test Mode	10
2.4. Test Software.....	10
2.5. Device Capabilities	11
2.6. Test Configuration	12
2.7. EMI Suppression Device(s)/Modifications	13
2.8. Labeling Requirements.....	13
3. DESCRIPTION OF TEST	14
3.1. Evaluation Procedure	14
3.2. AC Line Conducted Emissions	14
3.3. Radiated Emissions.....	15
4. ANTENNA REQUIREMENTS.....	16
5. TEST EQUIPMENT CALIBRATION DATE.....	17
6. MEASUREMENT UNCERTAINTY.....	18
7. TEST RESULT	19
7.1. Summary.....	19
7.2. 26dB Bandwidth Measurement.....	20
7.2.1. Test Limit	20
7.2.2. Test Procedure used.....	20
7.2.3. Test Setting.....	20
7.2.4. Test Setup	20
7.2.5. Test Result.....	21
7.3. 6dB Bandwidth Measurement.....	29
7.3.1. Test Limit	29
7.3.2. Test Procedure used.....	29
7.3.3. Test Setting.....	29
7.3.4. Test Setup	29

7.3.5. Test Result.....	30
7.4. Output Power Measurement.....	33
7.4.1. Test Limit	33
7.4.2. Test Procedure Used	34
7.4.3. Test Setting.....	35
7.4.4. Test Setup	35
7.4.5. Test Result.....	36
7.5. Transmit Power Control	38
7.5.1. Test Limit	38
7.5.2. Test Procedure Used	38
7.5.3. Test Setting.....	38
7.5.4. Test Setup	38
7.5.5. Test Result.....	39
7.6. Power Spectral Density Measurement.....	40
7.6.1. Test Limit	40
7.6.2. Test Procedure Used	40
7.6.3. Test Setting.....	41
7.6.4. Test Setup	41
7.6.5. Test Result.....	42
7.7. Frequency Stability Measurement	51
7.7.1. Test Limit	51
7.7.2. Test Limit	51
7.7.3. Test Setup	52
7.7.4. Test Result.....	52
7.8. Radiated Spurious Emission Measurement	53
7.8.1. Test Limit	53
7.8.2. Test Procedure Used	53
7.8.3. Test Setting.....	53
7.8.4. Test Setup	55
7.8.5. Test Result.....	57
7.9. Radiated Restricted Band Edge Measurement	131
7.9.1. Test Limit	131
7.9.2. Test Result.....	134
7.10. AC Conducted Emissions Measurement	184
7.10.1. Test Limit	184
7.10.2. Test Procedure	184
7.10.3. Test Setup	185
7.10.4. Test Result.....	186

8. CONCLUSION	190
Appendix A : Test Photograph	191
Appendix B : External Photograph	191
Appendix C : Internal Photograph	191

General Information

Applicant	Yun-X Tek CO.,LTD.
Applicant Address	3F.-1, No.329-1 Longjiang Rd., Zhongshan Dist., Taipei City 104, Taiwan(R.O.C)
Manufacturer	AMobile Solutions Corp.
Manufacturer Address	8F.-1, No. 700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082
FCC Rule Part(s)	Part 15 Subpart E (Section 15.407)
Test Device Serial No.	#1-1 ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification	Unlicensed National Information Infrastructure (UNII)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan (R.O.C)

- MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
- MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
- MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Canada, EU and TELEC Rules.

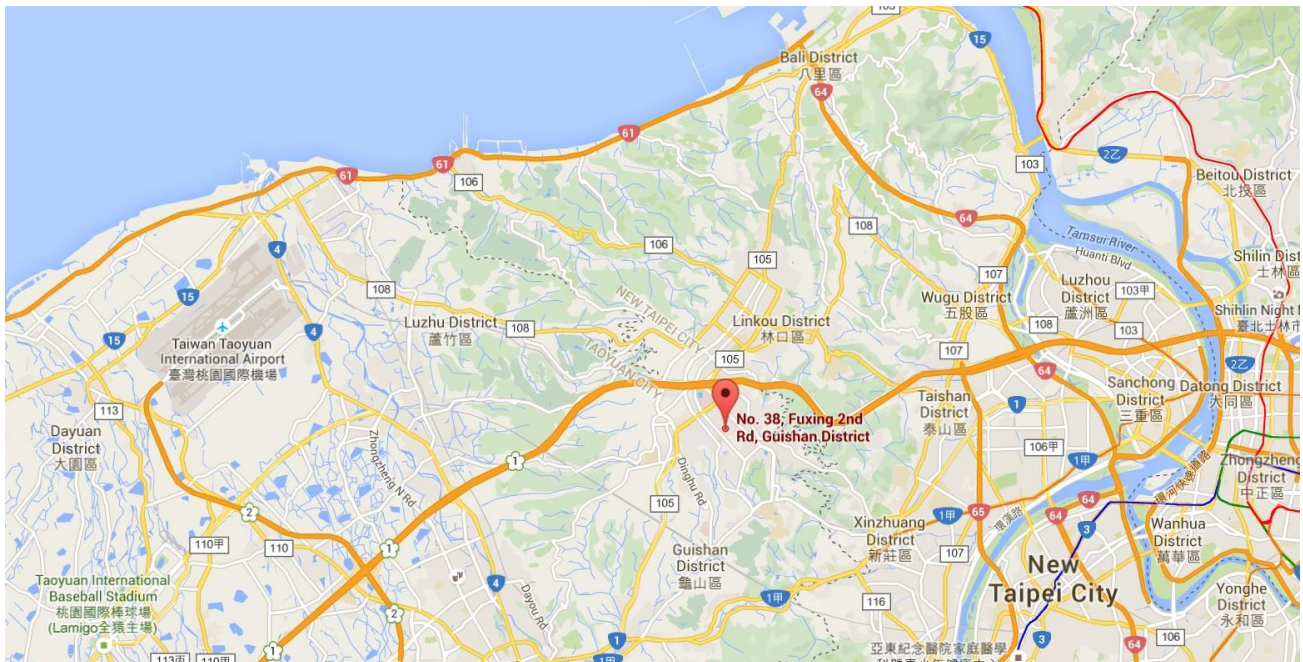
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Non-Contact Edge-AI Fall Detection Camera
Brand Name	YUN-X
Wi-Fi Specification	802.11a/n (1TX/1RX)
Frequency Range	<u>5GHz:</u> For 802.11a/n-HT20: 5180~5320MHz, 5500~5700MHz, 5745~5825MHz For 802.11n-HT40: 5190~5310MHz, 5510~5670MHz, 5755~5795MHz
Modulation Type	802.11a/n-20/n-40: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Accessory	
Switching Power Supply	Brand Name: TenPao Model: S024CEU1200200 Input: AC 100-240V~50-60Hz 0.6A, Output: 12.0V=2.0A DC Cable Out: Non-Shielded, 1.5m

2.2. Operation Frequencies and Channel List

802.11 n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz
144	5720 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11 n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
126	5630 MHz	134	5670 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

2.3. Test Mode

Test Mode	Mode 1: Transmit by 802.11a
	Mode 2: Transmit by 802.11n-HT20
	Mode 3: Transmit by 802.11n-HT40

2.4. Test Software

The test utility software used during testing was “adb.exe”.

2.5. Device Capabilities

5GHz (NII) operation is possible in 20MHz, 40MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = average per the guidance of Section B)2)b) of KDB 789033 D02v02r01. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

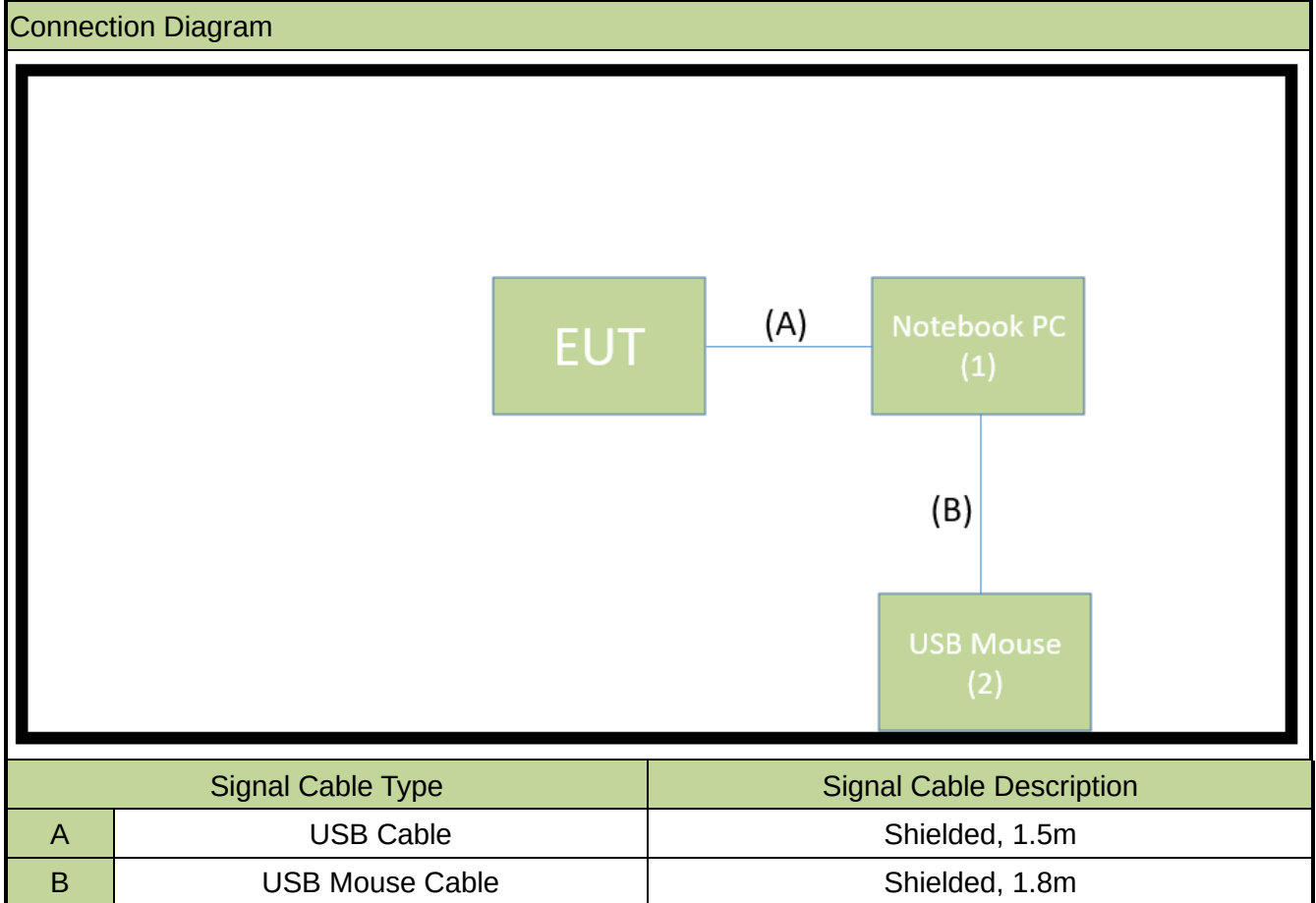
Duty Cycle

Test Mode	Duty Cycle
802.11a	96.47%
802.11 n-HT20	96.09%
802.11 n-HT40	92.59%



2.6. Test Configuration

This device was tested per the guidance of KDB 789033 D02v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.



2.7. Test System Details

The types for all equipment, and descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	P65F	N/A	Non-shielded, 0.8m
2	USB Mouse	Logitech	M90	N/A	N/A

2.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 789033 were used in the measurement of the device.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 9'x4'x3' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50 Ω /50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.10.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the **Non-Contact Edge-AI Fall Detection Camera**, is permanently attached.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT unit complies with the requirement of §15.203.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Pulse	ANT1608LL14R2455A	Chip	3.43dBi

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2025/3/5
Cable	Rosnol	N1C50-RG400-B 1C50-500CM	MRTTWE00013	1 year	2025/6/14
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2025/3/5

Radiated Emissions – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2025/5/7
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00086	1 year	2025/11/5
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2025/2/28
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2025/2/28
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2025/3/26
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2025/3/21
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2025/3/5
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2025/3/14
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2025/6/14
Cable	Rosnol	K1K50-UP0264- K1K50-4M	MRTTWE00012	1 year	2025/6/14
Temperature/Humidity Meter	TFA	35.1083	MRTTWA00050	1 year	2025/6/2

Conducted Test Equipment – SR5

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2025/9/24
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2025/8/12
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2025/5/21

Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software
EMI	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Conducted Emission- Power Line
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.15MHz~30MHz: $\pm 2.53\text{dB}$
Radiated Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 9kHz~30MHz: $\pm 3.92\text{dB}$ 30MHz~1GHz: $\pm 4.25\text{dB}$ 1GHz~18GHz: $\pm 4.40\text{dB}$ 18GHz~40GHz: $\pm 4.45\text{dB}$
Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 78.4\text{Hz}$
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.84\text{dB}$
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 2.65\text{ dB}$
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 3.3\%$
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.82^\circ\text{C} / \pm 3\%$
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.3\%$

7. TEST RESULT

7.1. Summary

Company Name: Non-Contact Edge-AI Fall Detection Camera

Model No.: VX0001

Data Rate(s) Tested: 6Mbps ~ 54Mbps (a);
6.5/7.2Mbps ~ 130/144.4Mbps (n-HT20);
13.5/15.0Mbps ~ 270/300Mbps (n-HT40);

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section 7.2
15.407(e)	6dB Bandwidth	$\geq 500\text{kHz}$		Pass	Section 7.3
15.407(a)(1)(i), (2), (3)	Maximum Conducted Output Power	Refer to Section 7.5		Pass	Section 7.4
15.407(h)(1)	Transmit Power Control	$\leq 24\text{ dBm}$		N/A	Section 7.5
15.407(a)(1)(i), (2), (3), (5)	Power Spectral Density	Refer to Section 7.7		Pass	Section 7.6
15.407(g)	Frequency Stability	N/A		Pass	Section 7.7
15.407(b)(1), (4)	Undesirable Emissions	$\leq -27\text{dBm/MHz EIRP}$ $\leq -17\text{dBm/MHz EIRP}$	Radiated	Pass	Section 7.8 & 7.9
15.205, 15.209 15.407(b)(8), (9), (10)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		Pass	
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.10

Notes:

- Determining compliance is based on the test results met the regulation limits or requirements declared by clients, and the test results don't take into account the value of measurement uncertainty.
- All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

7.2. 26dB Bandwidth Measurement

7.2.1. Test Limit

N/A

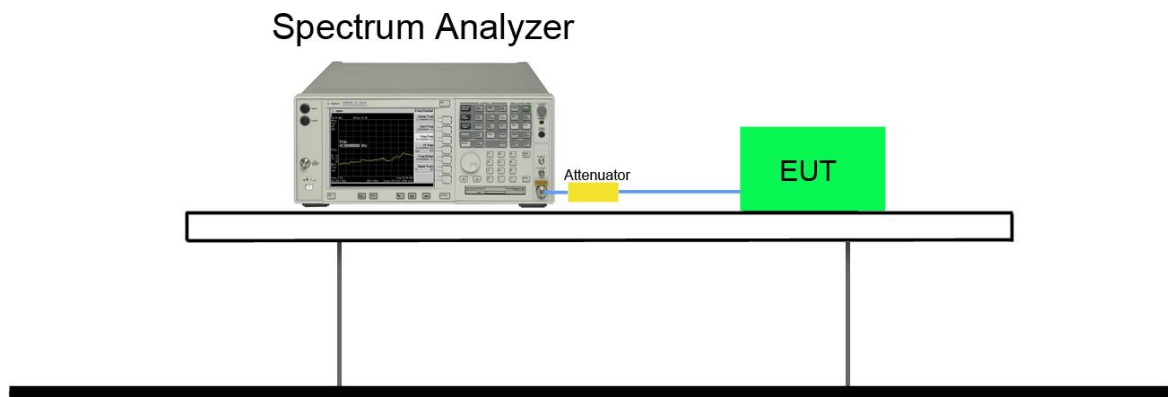
7.2.2. Test Procedure used

KDB 789033 D02v02r01 - Section C.1

7.2.3. Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 26$. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.

7.2.4. Test Setup



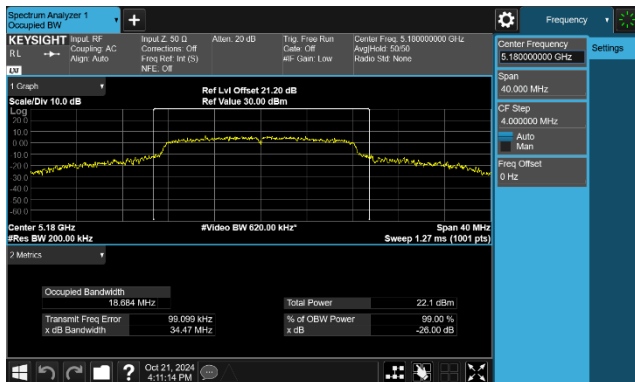
7.2.5. Test Result

Product	Non-Contact Edge-AI Fall Detection Camera	Test Engineer	Peter
Test Site	SR6	Test Date	2024/10/21~2024/10/22
Test Item	26dB Bandwidth		

Test Mode	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	36	5180	34.47	18.684
802.11a	44	5220	32.25	18.713
802.11a	48	5240	33.94	20.511
802.11a	52	5260	34.31	18.881
802.11a	60	5300	29.53	18.033
802.11a	64	5320	33.05	18.248
802.11a	100	5500	28.54	17.328
802.11a	116	5580	30.77	17.678
802.11a	140	5700	26.39	16.856
802.11a	144	5720	26.09	16.857
802.11a	149	5745	28.70	16.819
802.11a	157	5785	26.73	16.983
802.11a	165	5825	28.56	17.123
802.11n-HT20	36	5180	25.11	17.781
802.11n-HT20	44	5220	31.23	17.868
802.11n-HT20	48	5240	27.69	17.788
802.11n-HT20	52	5260	29.71	17.904
802.11n-HT20	60	5300	31.18	17.780
802.11n-HT20	64	5320	23.13	17.804
802.11n-HT20	100	5500	21.31	17.722
802.11n-HT20	116	5580	24.23	17.785
802.11n-HT20	140	5700	20.90	17.677
802.11n-HT20	144	5720	21.91	17.657
802.11n-HT20	149	5745	20.50	17.679
802.11n-HT20	157	5785	22.80	17.693
802.11n-HT20	165	5825	25.31	17.744

Test Mode	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11n-HT40	38	5190	40.68	36.160
802.11n-HT40	46	5230	67.97	36.475
802.11n-HT40	54	5270	65.49	36.619
802.11n-HT40	62	5310	62.93	36.441
802.11n-HT40	102	5510	61.73	36.356
802.11n-HT40	110	5550	61.02	36.320
802.11n-HT40	118	5590	58.93	36.245
802.11n-HT40	134	5670	43.20	36.247
802.11n-HT40	151	5755	40.22	36.094
802.11n-HT40	159	5795	40.84	36.132

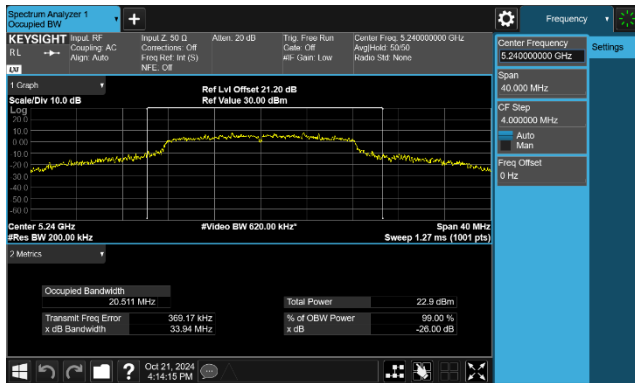
802.11 a CH36 (5180MHz)



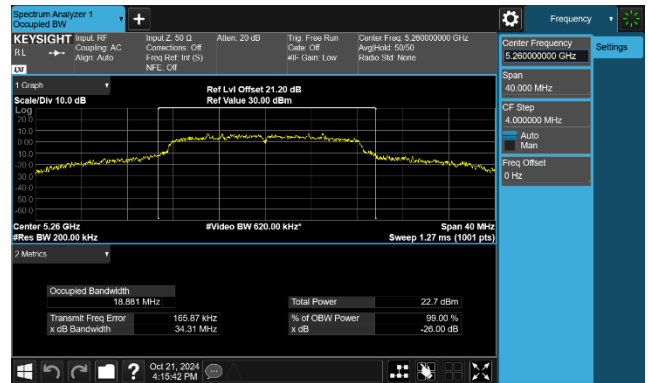
802.11 a CH44 (5220MHz)



802.11 a CH48 (5240MHz)



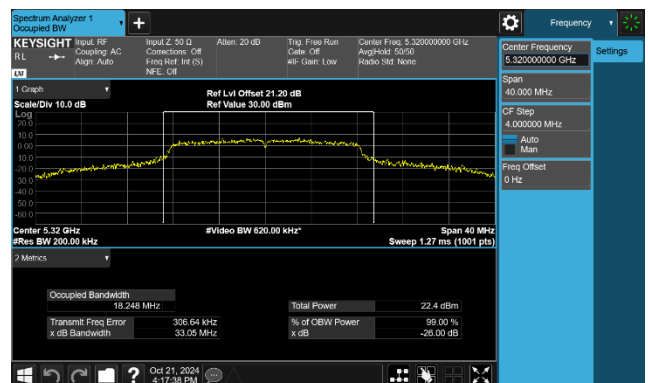
802.11 a CH52 (5260MHz)



802.11 a CH60 (5300MHz)



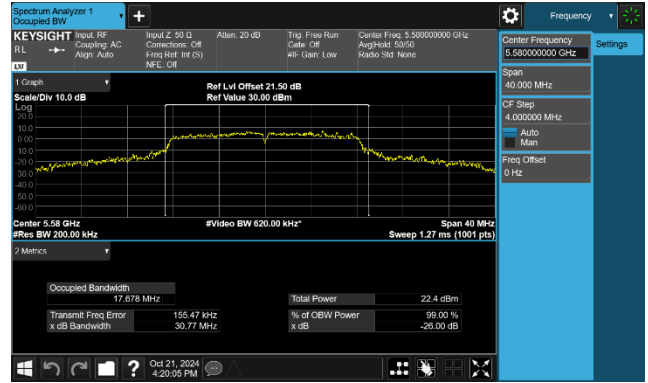
802.11 a CH64 (5320MHz)



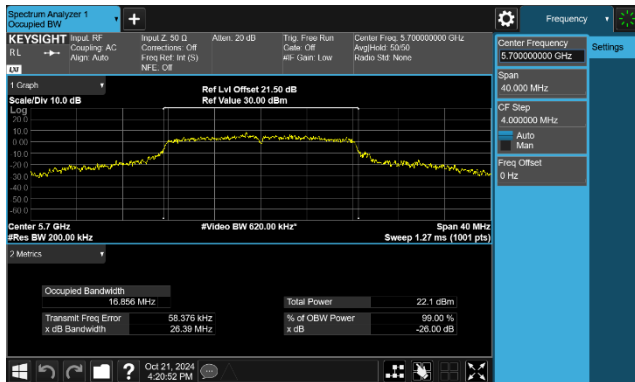
802.11 a CH100 (5500MHz)



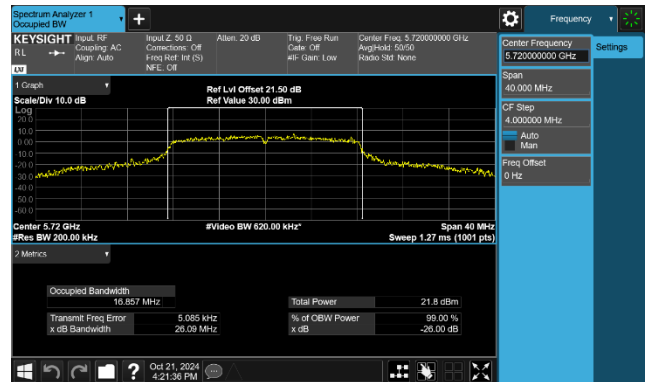
802.11 a CH116 (5580MHz)



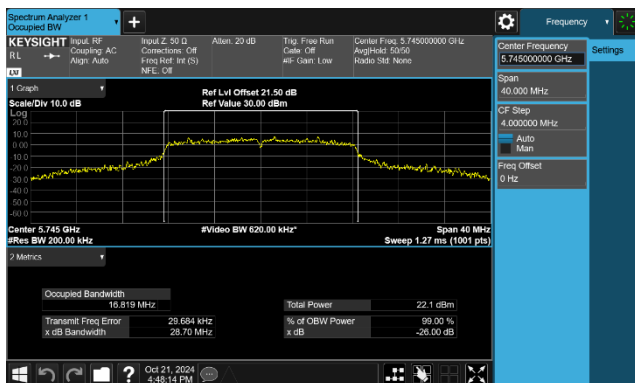
802.11 a CH140 (5700MHz)



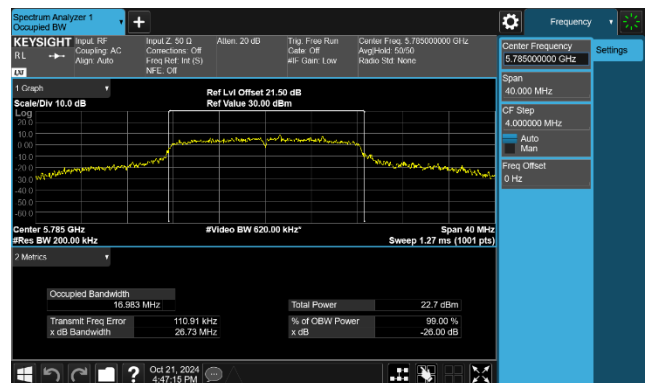
802.11 a CH144 (5720MHz)



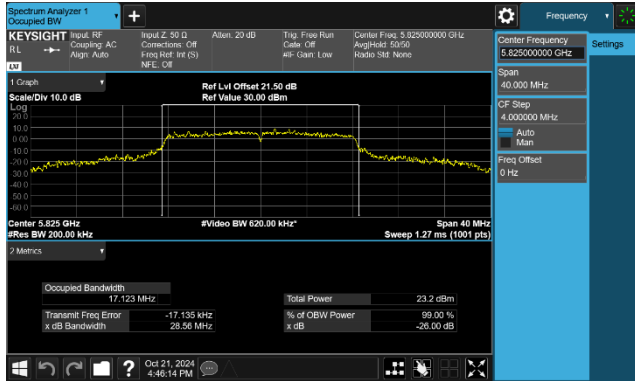
802.11 a CH149 (5745MHz)



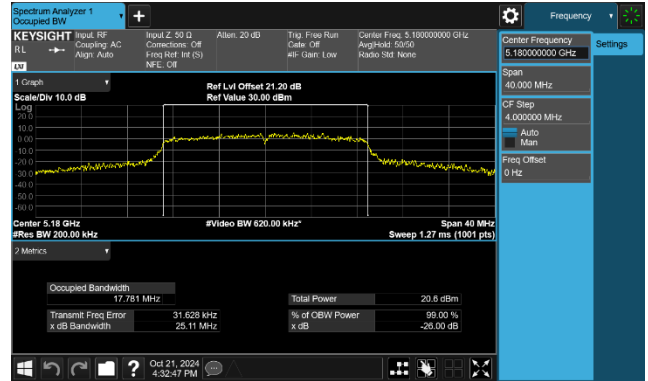
802.11 a CH157 (5785MHz)



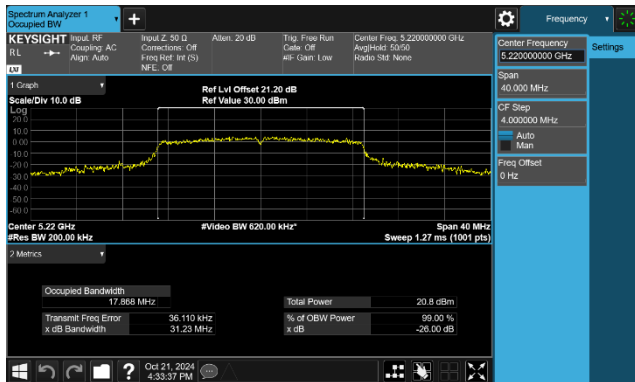
802.11 a CH165 (5825MHz)



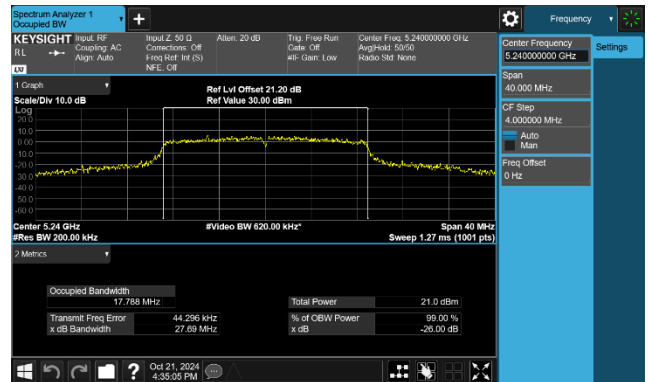
802.11 n-HT20 CH36 (5180MHz)



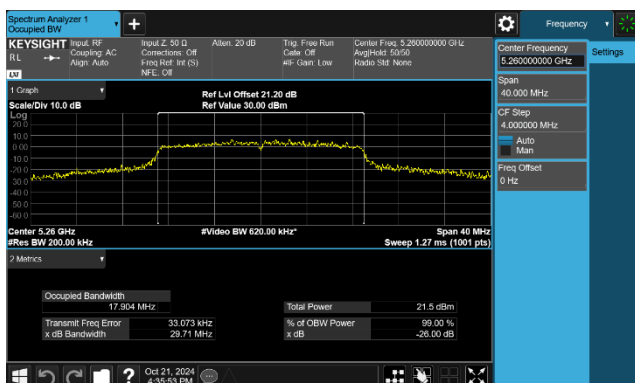
802.11 n-HT20 CH44 (5220MHz)



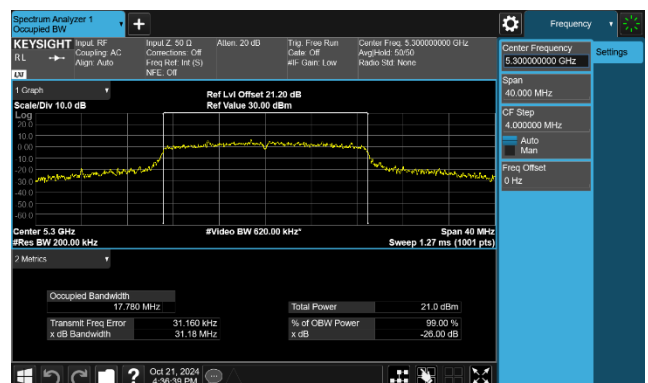
802.11 n-HT20 CH48 (5240MHz)



802.11 n-HT20 CH52 (5260MHz)



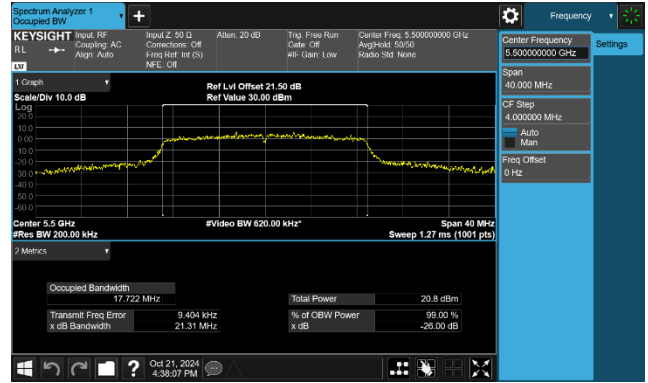
802.11 n-HT20 CH60 (5300MHz)



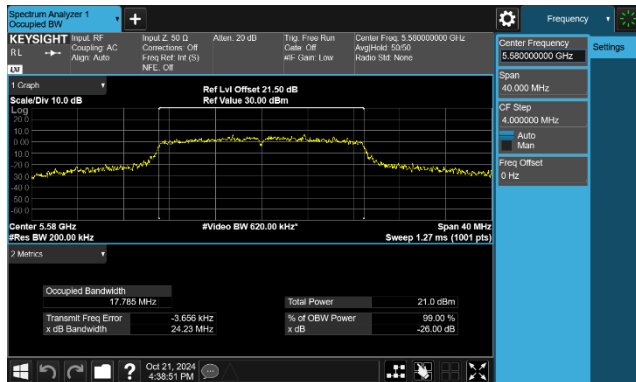
802.11 n-HT20 CH64 (5320MHz)



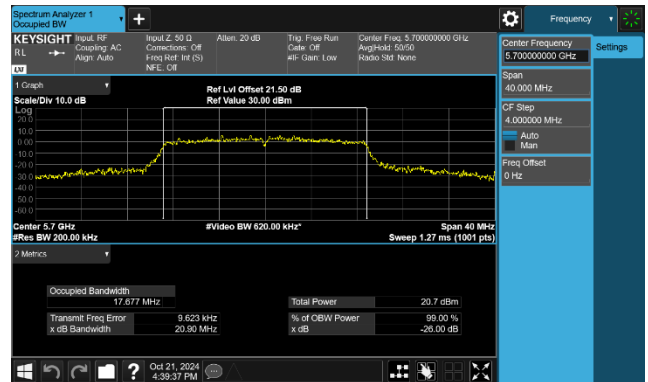
802.11 n-HT20 CH100 (5500MHz)



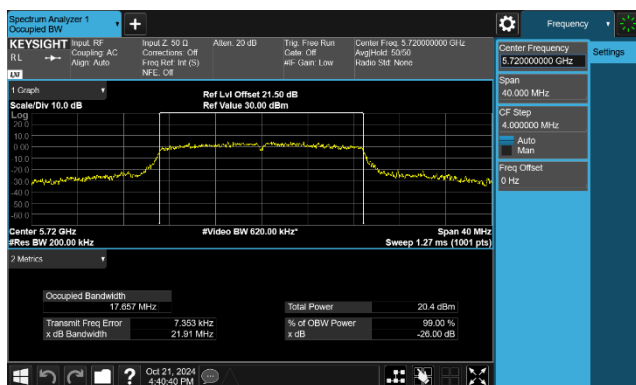
802.11 n-HT20 CH116 (5580MHz)



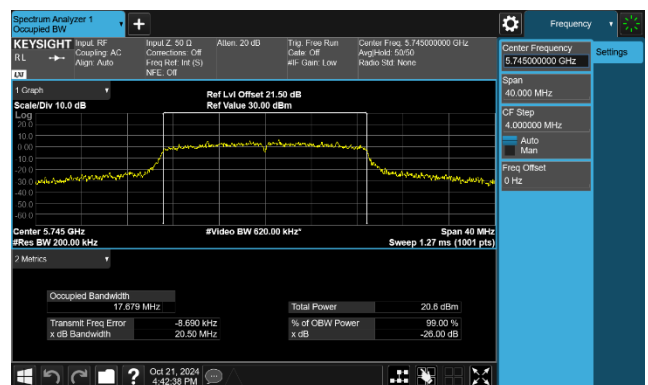
802.11 n-HT20 CH140 (5700MHz)



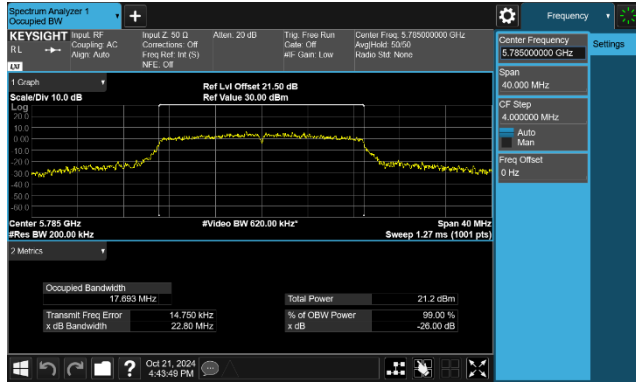
802.11 n-HT20 CH144 (5720MHz)



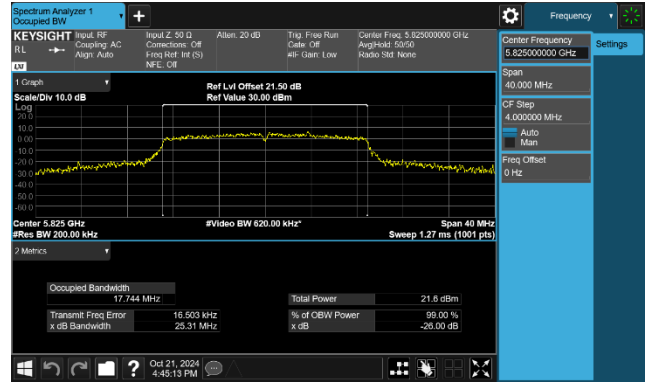
802.11 n-HT20 CH149 (5745MHz)



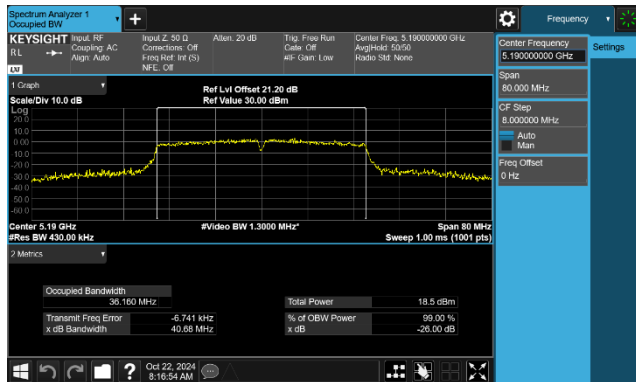
802.11 n-HT20 CH157 (5785MHz)



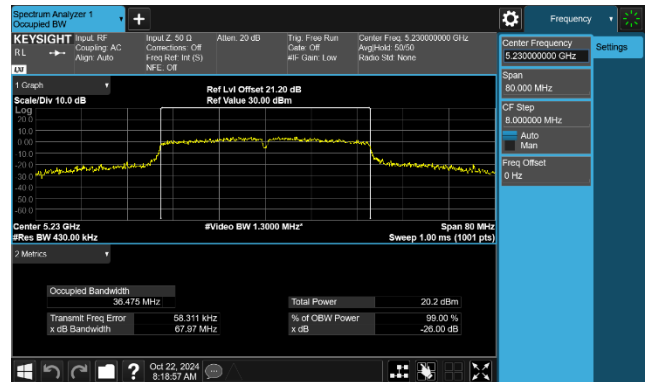
802.11 n-HT20 CH165 (5825MHz)



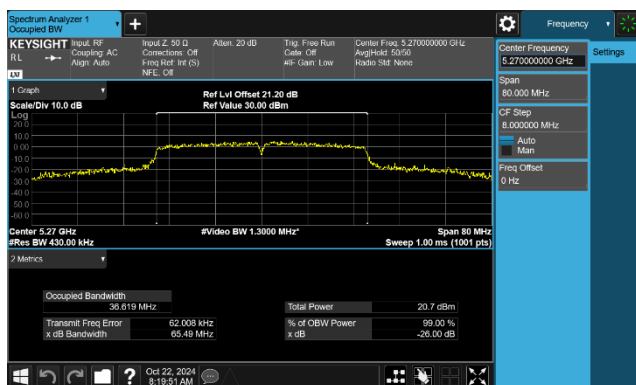
802.11 n-HT40 CH38 (5190MHz)



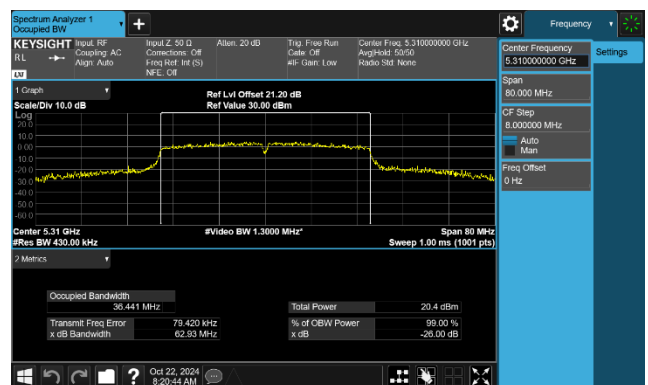
802.11 n-HT40 CH46 (5230MHz)



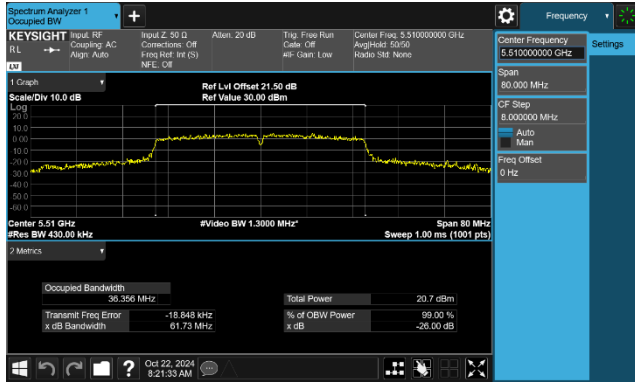
802.11 n-HT40 CH54 (5270MHz)



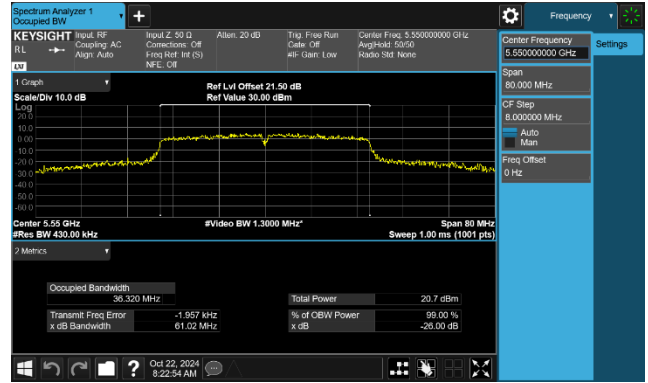
802.11 n-HT40 CH62 (5310MHz)



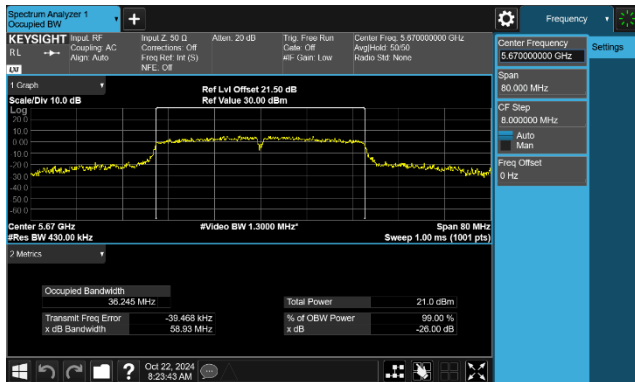
802.11 n-HT40 CH102 (5510MHz)



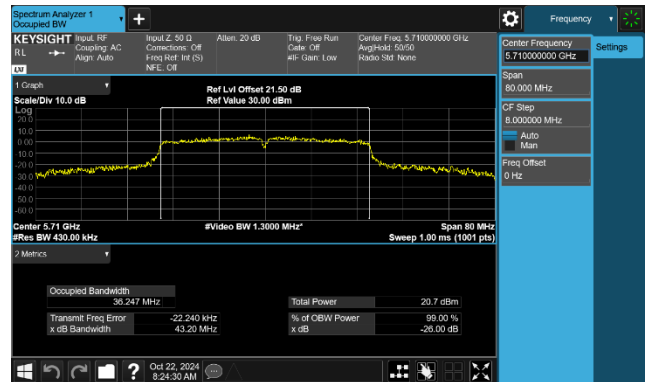
802.11 n-HT40 CH110 (5550MHz)



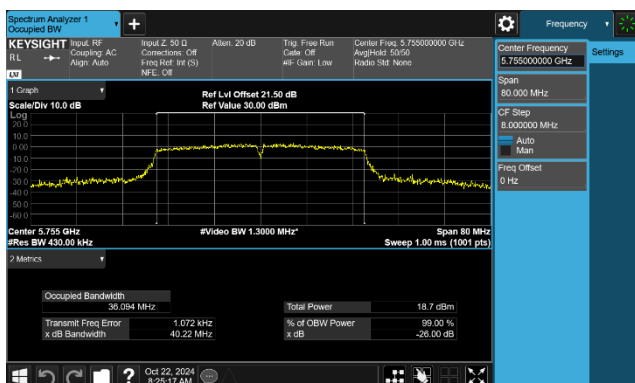
802.11 n-HT40 CH134 (5670MHz)



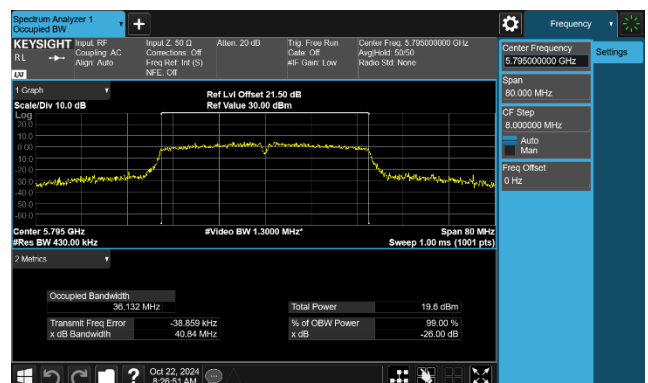
802.11 n-HT40 CH142 (5710MHz)



802.11 n-HT40 CH151 (5755MHz)



802.11 n-HT40 CH159 (5795MHz)



7.3. 6dB Bandwidth Measurement

7.3.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

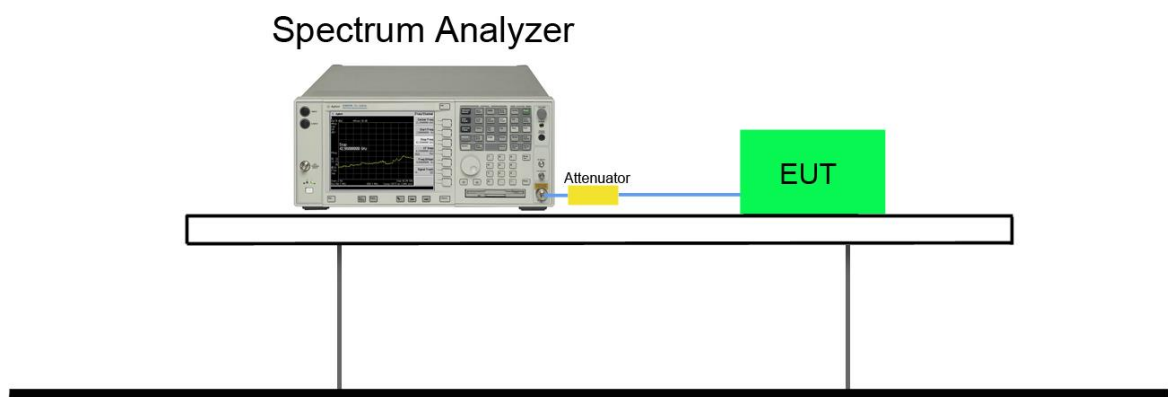
7.3.2. Test Procedure used

KDB 789033 D02v02r01 - Section C.2

7.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3.4. Test Setup

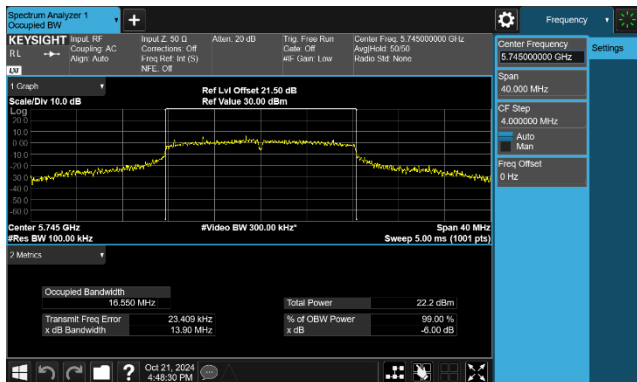


7.3.5. Test Result

Product	Non-Contact Edge-AI Fall Detection Camera	Test Engineer	Peter
Test Site	SR6	Test Date	2024/10/21~2024/10/22
Test Item	6dB Bandwidth		

Test Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	149	5745	13.90	≥ 0.5	Pass
802.11a	157	5785	15.03	≥ 0.5	Pass
802.11a	165	5825	15.11	≥ 0.5	Pass
802.11n-HT20	149	5745	15.98	≥ 0.5	Pass
802.11n-HT20	157	5785	15.07	≥ 0.5	Pass
802.11n-HT20	165	5825	17.22	≥ 0.5	Pass
802.11n-HT40	151	5755	32.65	≥ 0.5	Pass
802.11n-HT40	159	5795	32.56	≥ 0.5	Pass

802.11 a CH149 (5745MHz)



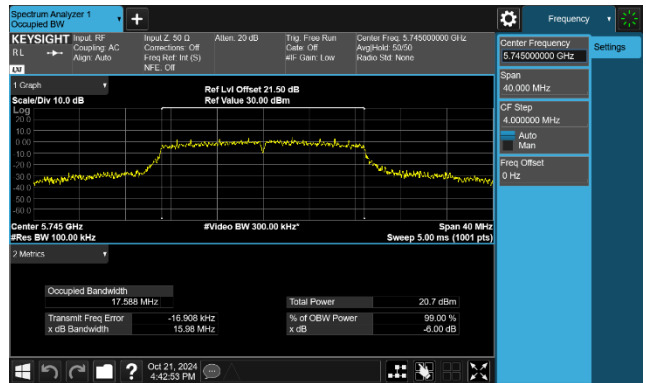
802.11 a CH157 (5785MHz)



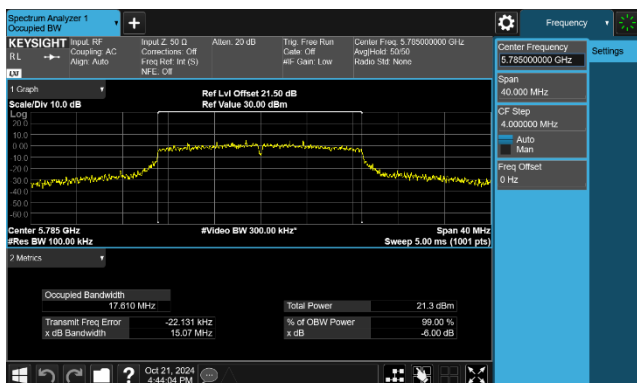
802.11 a CH165 (5825MHz)



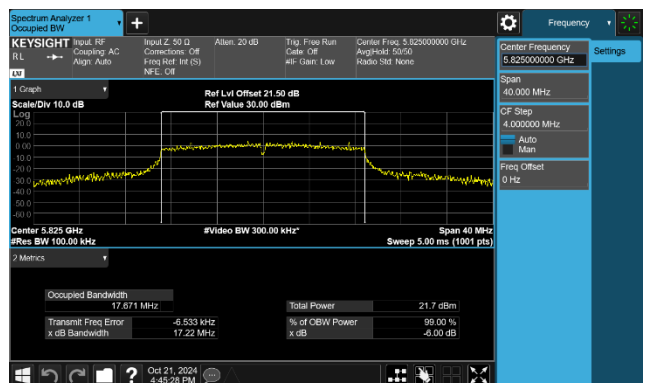
802.11 n-HT20 CH149 (5745MHz)



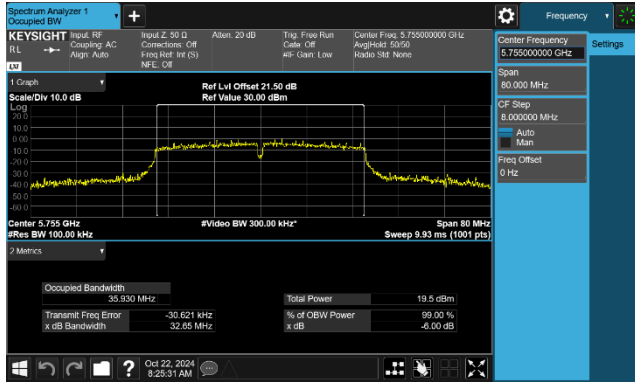
802.11 n-HT20 CH157 (5785MHz)



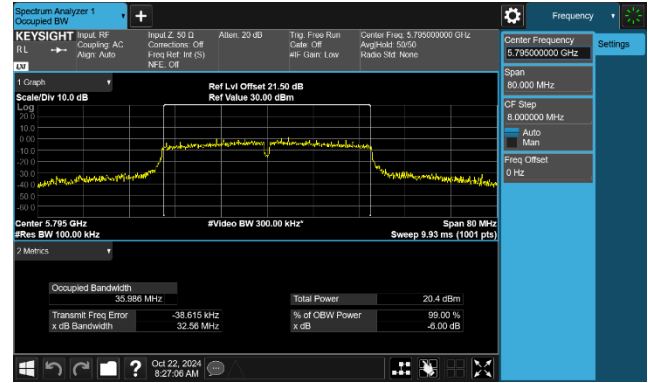
802.11 n-HT20 CH165 (5825MHz)



802.11 n-HT40 CH151 (5755MHz)



802.11 n-HT40 CH159 (5795MHz)



7.4. Output Power Measurement

7.4.1. Test Limit

For FCC Power Measurement Limit

For client operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 250mW.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (23.98dBm) or $11\text{dBm} + 10 \log(26\text{dB BW})$.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

For IC Power Measurement Limit

For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW (23.01dBm) or $10 + 10 \cdot \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed 250 mW (23.98dBm) or $11 + 10 \log_{10} B$, dBm, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W (30dBm) or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.725-5.85 GHz band, the maximum conducted output power shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

EIRP Limit Calculation as below:

For 5150-5250MHz

$$802.11a: 10 + 10 \log_{10} (16.81\text{MHz}) = 22.26\text{dBm} < 23.01\text{dBm};$$

$$802.11n\text{-HT20}: 10 + 10 \log_{10} (17.92\text{MHz}) = 22.53\text{dBm} < 23.01\text{dBm};$$

$$802.11n\text{-HT40}/ac\text{-VHT80}: 10 + 10 \log_{10} B > 23.01\text{dBm};$$

For 5250-5350MHz, 5470-5725MHz

$$802.11a: 17 + 10 \log_{10} (16.79\text{MHz}) = 29.27\text{dBm} < 30\text{dBm};$$

$$802.11n\text{-HT20}: 17 + 10 \log_{10} (17.93\text{MHz}) = 29.54\text{dBm} < 30\text{dBm};$$

$$802.11n\text{-HT40}/ac\text{-VHT80}: 10 + 10 \log_{10} B > 30\text{dBm};$$

Max Conducted Output Power Limit Calculation as below:

For 5250-5350MHz, 5470-5725MHz

$$802.11a: 11 + 10 \log_{10} (16.79\text{MHz}) = 23.26\text{dBm} < 23.98\text{dBm};$$

$$802.11n\text{-HT20}: 11 + 10 \log_{10} (17.93\text{MHz}) = 23.53\text{dBm} < 23.98\text{dBm};$$

$$802.11n\text{-HT40}/ac\text{-VHT80}: 11 + 10 \log_{10} B > 23.98\text{dBm};$$

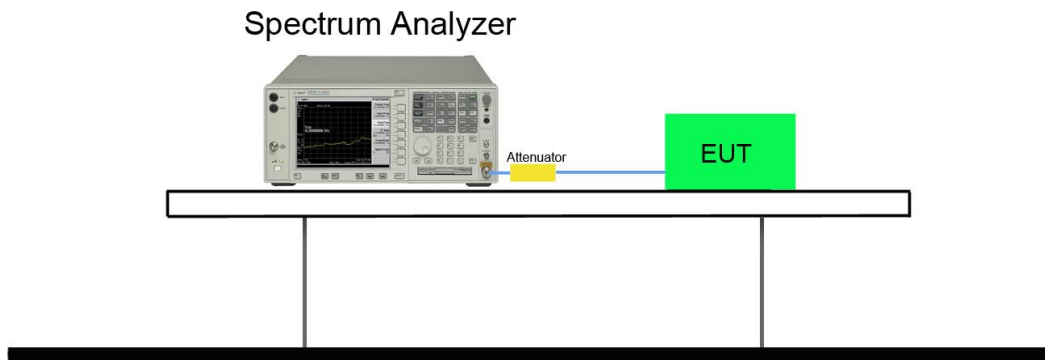
7.4.2. Test Procedure Used

KDB 789033 D02v02r01 - Section E) 3) b) Method PM-G

7.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.4.4. Test Setup



7.4.5. Test Result

Product	Non-Contact Edge-AI Fall Detection Camera	Test Engineer	Peter
Test Site	SR6	Test Date	2024/10/21
Test Item	Output Power		

Model	Rate	Ch.	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)
802.11a Band1	6M	36	5180	18.35	23.98
	6M	44	5220	18.44	23.98
	6M	48	5240	18.69	23.98
802.11a Band2	6M	52	5260	18.61	23.98
	6M	60	5300	18.19	23.98
	6M	64	5320	18.43	23.98
802.11a Band3	6M	100	5500	18.34	23.98
	6M	116	5580	18.46	23.98
	6M	140	5700	16.17	23.98
	6M	144	5720	16.79	17.99
802.11a Band4	6M	149	5745	15.33	30.00
	6M	157	5785	15.00	30.00
	6M	165	5825	15.35	30.00
n-HT20 Band1	MCS0	36	5180	17.07	23.98
	MCS0	44	5220	17.19	23.98
	MCS0	48	5240	17.25	23.98
n-HT20 Band2	MCS0	52	5260	17.59	23.98
	MCS0	60	5300	17.18	23.98
	MCS0	64	5320	17.36	23.98
n-HT20 Band3	MCS0	100	5500	17.37	23.98
	MCS0	116	5600	17.53	23.98
	MCS0	140	5700	17.26	23.98
	MCS0	144	5720	17.14	17.99
n-HT20 Band4	MCS0	149	5745	15.19	30.00
	MCS0	157	5785	15.89	30.00

	MCS0	165	5825	15.24	30.00
n-HT40 Band1	MCS0	38	5190	15.83	23.98
	MCS0	46	5230	17.02	23.98
n-HT40 Band2	MCS0	54	5270	17.41	23.98
	MCS0	62	5310	17.01	23.98
n-HT40 Band3	MCS0	102	5510	17.45	23.98
	MCS0	110	5550	17.41	23.98
	MCS0	134	5670	17.63	23.98
	MCS0	142	5710	17.50	23.98
n-HT40 Band4	MCS0	151	5755	16.19	30.00
	MCS0	159	5795	16.80	30.00

Note: Output power =Reading value on Spectrum Analyzer + duty cycle factor + cable loss。

7.5. Transmit Power Control

7.5.1. Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

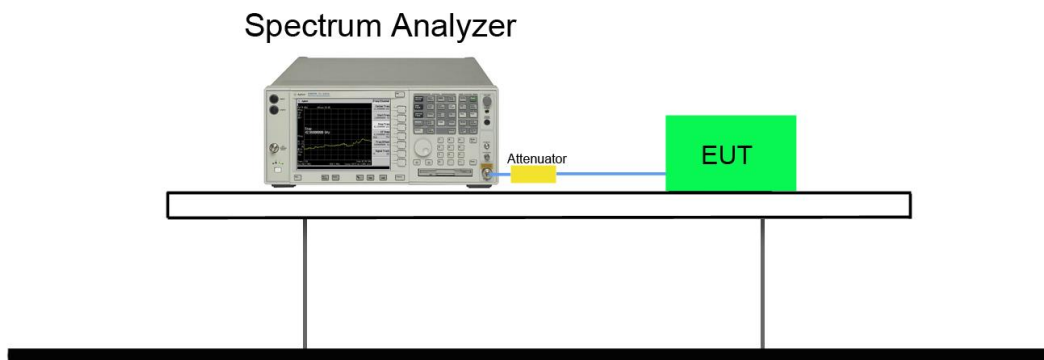
7.5.2. Test Procedure Used

KDB 789033 D02v02r01 - Section E) 3) b) Method PM-G

7.5.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.5.4. Test Setup



7.5.5. Test Result

A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

7.6. Power Spectral Density Measurement

7.6.1. Test Limit

For FCC Power Spectral Density Limit

For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

For IC Power Spectral Density Limit

For the band 5.15-5.25 GHz, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

For the 5.725-5.85 GHz band, the power spectral density shall not exceed 30 dBm in any 500 kHz band.

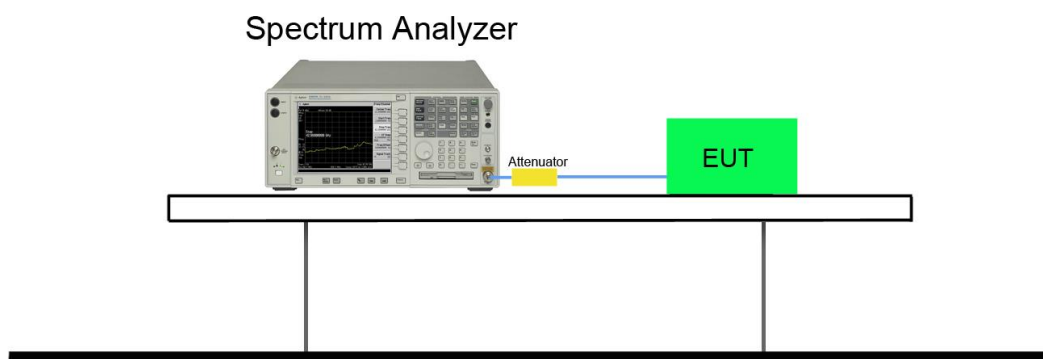
7.6.2. Test Procedure Used

KDB 789033 D02v02r01 - Section F

7.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,
4. RBW = 100 kHz
5. VBW = 3MHz
6. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
7. Detector = power averaging (Average)
8. Sweep time = auto
9. Trigger = free run
10. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
11. Add $10 \cdot \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \cdot \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

7.6.4. Test Setup



7.6.5. Test Result

Product	Non-Contact Edge-AI Fall Detection Camera	Test Engineer	Peter
Test Site	SR6	Test Date	2024/10/21~2024/10/22
Test Item	Power Spectral Density		

U-NII-1 & U-NII-2A & U-NII-2C:

Test Mode	Channel No.	Freq. (MHz)	PSD (dBm/ MHz) Ant0	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)	Result
11a	36	5180	7.643	96.47%	7.799	≤ 11.00	Pass
11a	40	5200	7.292	96.47%	7.448	≤ 11.00	Pass
11a	48	5240	8.014	96.47%	8.170	≤ 11.00	Pass
11a	52	5260	7.778	96.47%	7.934	≤ 11.00	Pass
11a	60	5300	7.681	96.47%	7.837	≤ 11.00	Pass
11a	64	5320	7.811	96.47%	7.967	≤ 11.00	Pass
11a	100	5500	7.548	96.47%	7.704	≤ 11.00	Pass
11a	116	5580	7.776	96.47%	7.932	≤ 11.00	Pass
11a	140	5700	7.671	96.47%	7.827	≤ 11.00	Pass
11a	144	5720	7.764	96.47%	7.920	≤ 11.00	Pass
11n-HT20	36	5180	5.671	96.09%	5.844	≤ 11.00	Pass
11n-HT20	40	5200	5.979	96.09%	6.152	≤ 11.00	Pass
11n-HT20	48	5240	5.989	96.09%	6.162	≤ 11.00	Pass
11n-HT20	52	5260	6.558	96.09%	6.731	≤ 11.00	Pass
11n-HT20	60	5300	6.114	96.09%	6.287	≤ 11.00	Pass
11n-HT20	64	5320	6.305	96.09%	6.478	≤ 11.00	Pass
11n-HT20	100	5500	5.791	96.09%	5.964	≤ 11.00	Pass
11n-HT20	116	5580	5.837	96.09%	6.010	≤ 11.00	Pass
11n-HT20	140	5700	5.823	96.09%	5.996	≤ 11.00	Pass
11n-HT20	144	5720	5.767	96.09%	5.940	≤ 11.00	Pass

Test Mode	Channel No.	Freq. (MHz)	PSD (dBm/ MHz) Ant0	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)	Result
11n-HT40	38	5190	1.155	92.59%	1.489	≤ 11.00	Pass
11n-HT40	46	5230	2.390	92.59%	2.724	≤ 11.00	Pass
11n-HT40	54	5270	2.811	92.59%	3.145	≤ 11.00	Pass
11n-HT40	62	5310	2.668	92.59%	3.002	≤ 11.00	Pass
11n-HT40	102	5510	2.807	92.59%	3.141	≤ 11.00	Pass
11n-HT40	110	5550	2.745	92.59%	3.079	≤ 11.00	Pass
11n-HT40	134	5670	3.412	92.59%	3.746	≤ 11.00	Pass
11n-HT40	142	5710	2.907	92.59%	3.241	≤ 11.00	Pass

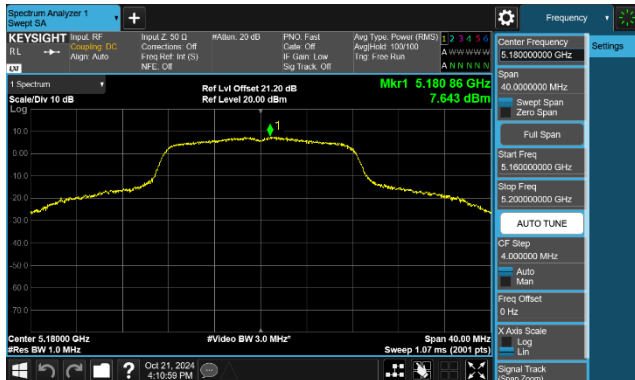
Note: the total PSD (dBm/MHz) = PSD (dBm/MHz) + 10*log (1/Duty Cycle) (dBm/MHz).

U-NII-3:

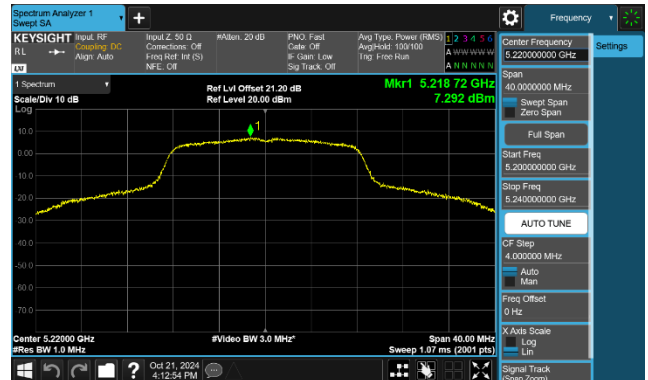
Test Mode	Channel No.	Freq. (MHz)	PSD (dBm/ 510kHz) Ant0	Duty Cycle (%)	Total PSD (dBm/ 510kHz)	PSD Limit (dBm/500kHz)	Result
11a	149	5745	5.255	96.47%	5.411	≤ 30.00	Pass
11a	157	5785	5.524	96.47%	5.680	≤ 30.00	Pass
11a	165	5825	5.996	96.47%	6.152	≤ 30.00	Pass
11n-HT20	149	5745	3.145	96.09%	3.318	≤ 30.00	Pass
11n-HT20	157	5785	4.189	96.09%	4.362	≤ 30.00	Pass
11n-HT20	165	5825	4.160	96.09%	4.333	≤ 30.00	Pass
11n-HT40	151	5755	-1.812	92.59%	-1.478	≤ 30.00	Pass
11n-HT40	159	5795	-1.215	92.59%	-0.881	≤ 30.00	Pass

Note: the total PSD (dBm/kHz) = PSD (dBm/kHz) + $10 \cdot \log(1/\text{Duty Cycle})$ (dBm/kHz).

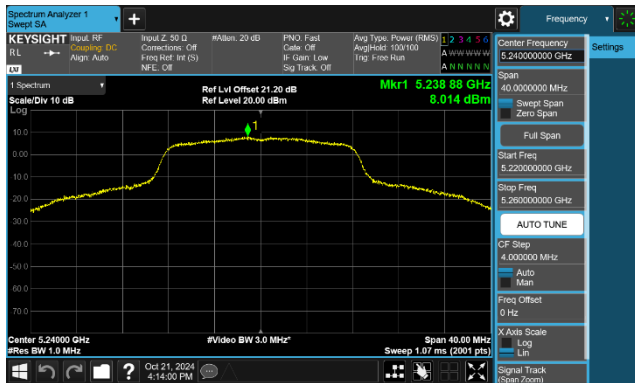
802.11 a CH36 (5180MHz)



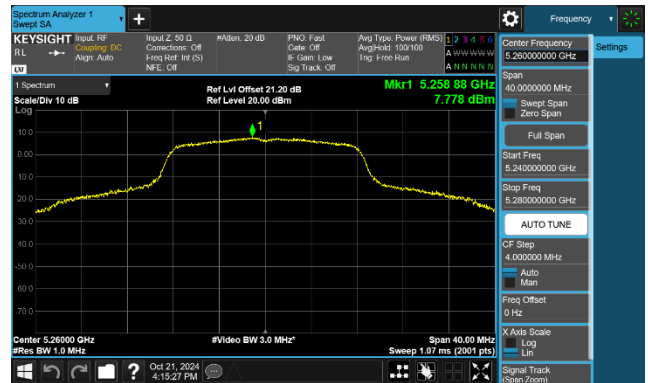
802.11 a CH44 (5220MHz)



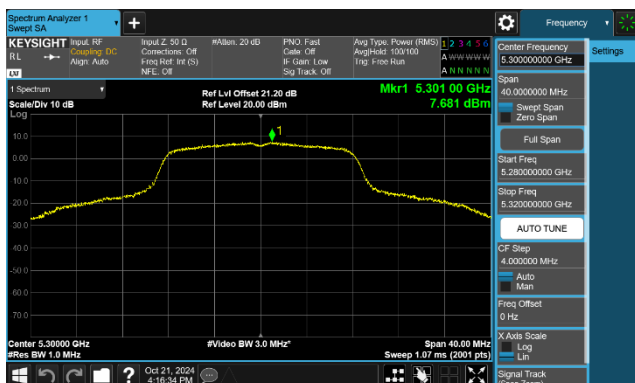
802.11 a CH48 (5240MHz)



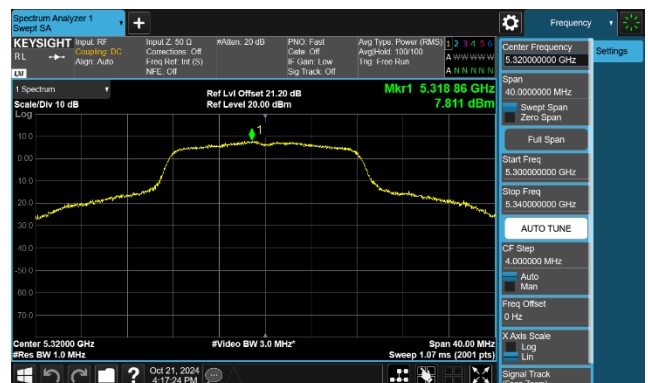
802.11 a CH52 (5260MHz)



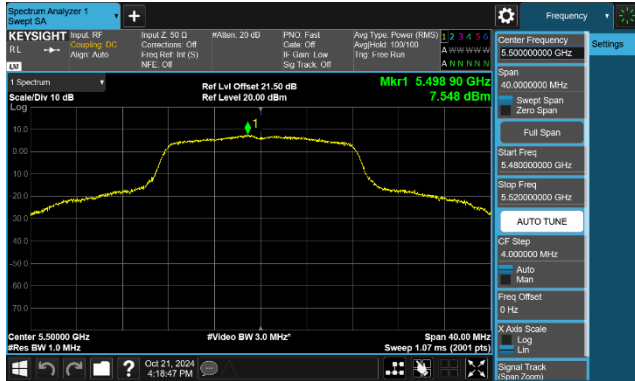
802.11 a CH60 (5300MHz)



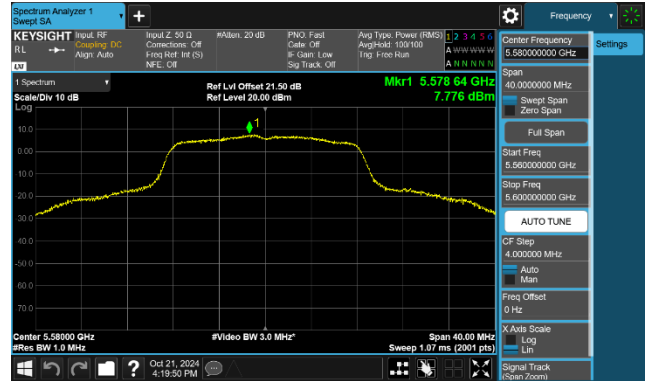
802.11 a CH64 (5320MHz)



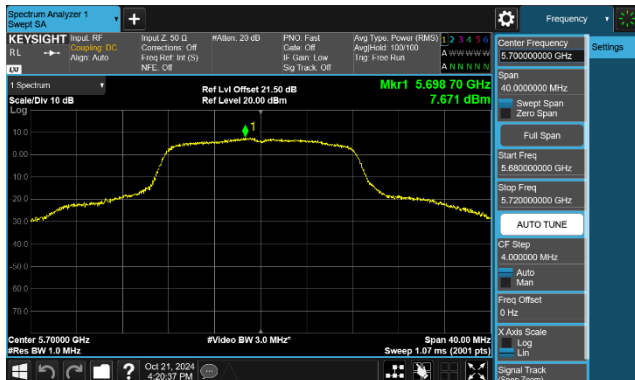
802.11 a CH100 (5500MHz)



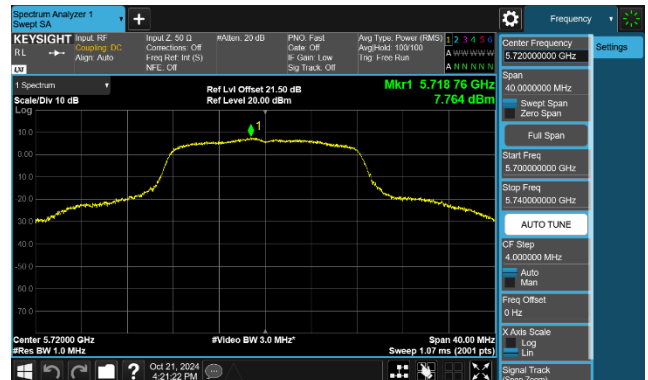
802.11 a CH116 (5580MHz)



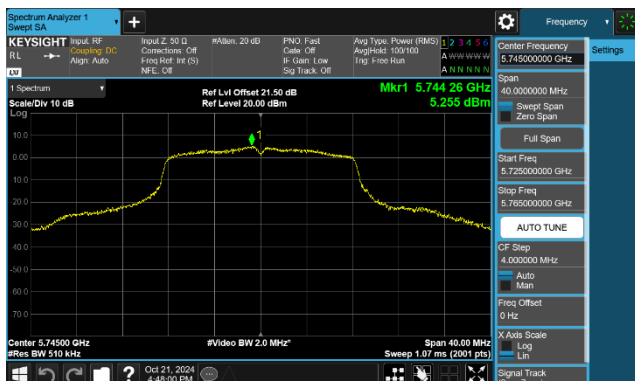
802.11 a CH140 (5700MHz)



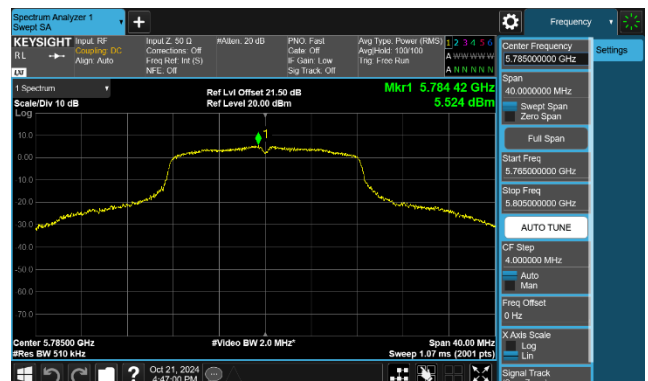
802.11 a CH144 (5720MHz)



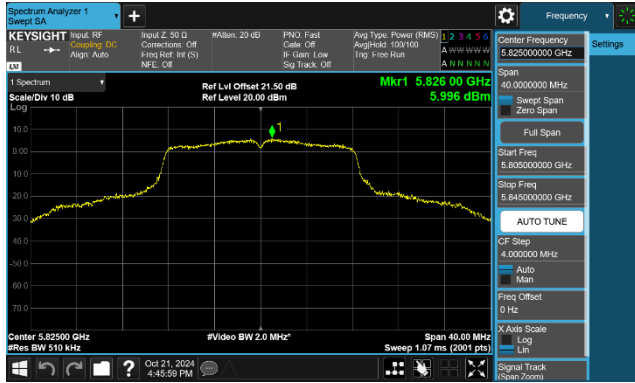
802.11 a CH149 (5745MHz)



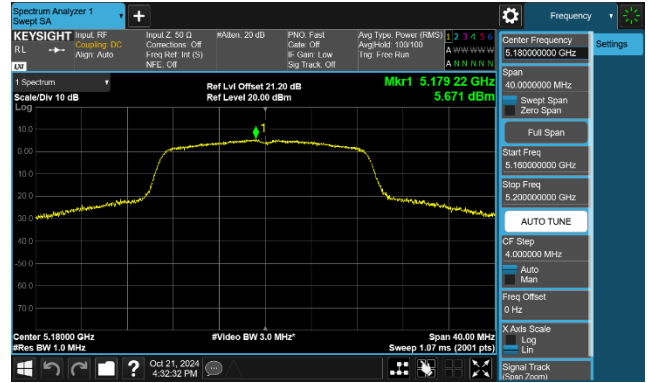
802.11 a CH157 (5785MHz)



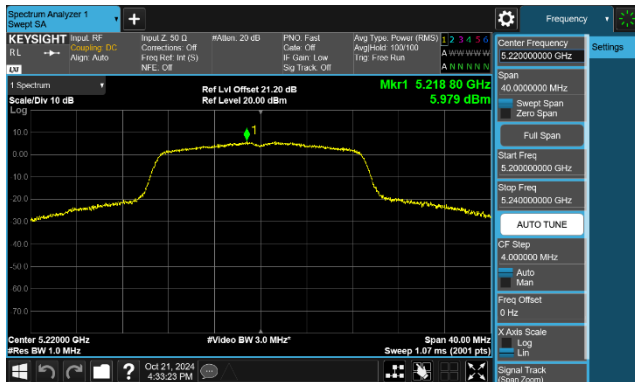
802.11 a CH165 (5825MHz)



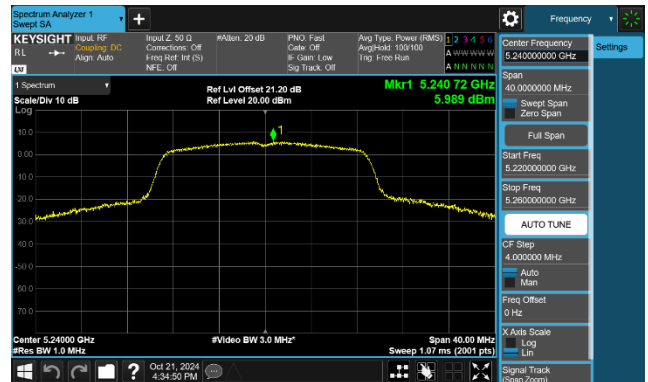
802.11 n-HT20 CH36 (5180MHz)



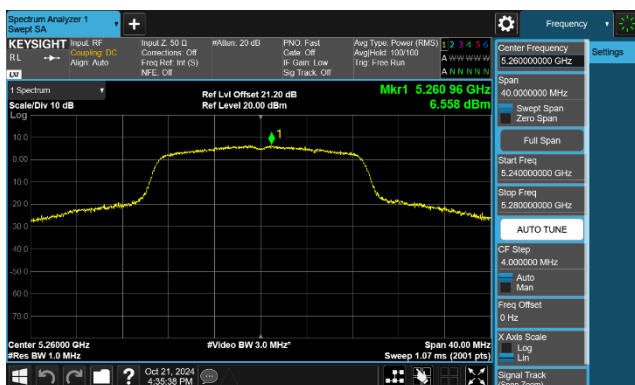
802.11 n-HT20 CH44 (5220MHz)



802.11 n-HT20 CH48 (5240MHz)



802.11 n-HT20 CH52 (5260MHz)



802.11 n-HT20 CH60 (5300MHz)

