

TEST REPORT



Dt&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC2603-0025

2. Customer

• Name (FCC) : AUTOIT CO LTD

• Address (FCC) : 117, Alphacity 1-ro, Suseong-gu, Daegu, South Korea, 42251

3. Use of Report : FCC Original Certification

4. Product Name / Model Name : AutoIT IMSF CCU / RV-C1000

FCC ID : 2BTCSR-V-C1000V10

5. FCC Regulation(s): Part 15.407

Test Method used: KDB789033 D02v02r01, ANSI C63.10-2020

6. Date of Test : 2026.01.13 ~ 2026.01.26

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager
	Name : SeungMin Gil 	Name : JaeJin Lee 

2026 . 03 . 09 .

Dt&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2603-0025	Mar. 09, 2026	Initial issue	SeungMin Gil	JaeJin Lee

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1. General Information

1.1. Description of EUT

Equipment Class	Unlicensed National Information Infrastructure TX(NII)
Product Name	AutoIT IMSF CCU
Model Name	RV-C1000
Add Model Name	-
Firmware Version Identification Number	v0.0.1
EUT Serial Number	2958E39714E
Power Supply	DC : 12, 24 V
Modulation Technique	OFDM
Antenna Specification	Antenna Type: Puck Antenna U-NII 1: 1.52 dBi U-NII 3: 3.31 dBi

Note: The antenna gain was corrected for the cable loss from the conducted feed point to the antenna terminal.

1.2. Declaration by the applicant / manufacturer

N/A

1.3. Testing Laboratory

Dt&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042. The test site complies with the requirements of Part 2.948.		
- FCC Designation No.: KR0034		
- FCC Test Firm Registration No.: 704742		
- ISED CAB identifier: KR0034		
- ISED#: 5740A		
www.dtnc.net		
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1.4. Testing Environment

Ambient Condition	
▪ Temperature	+21 °C ~ +23 °C
▪ Relative Humidity	+35 % ~ +42 %

1.5. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.10-2020. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated emission (1 GHz Below)	5.0 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz ~ 18 GHz)	4.8 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (18 GHz Above)	5.8 dB (The confidence level is about 95 %, $k = 2$)

1.6. Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	25/05/26	26/05/26	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	25/11/18	26/11/18	MY50410399
Spectrum Analyzer	KEYSIGHT	N9030B	25/11/20	26/11/20	MY55480168
Receiver	Rohde Schwarz	ESCI3	25/05/27	26/05/27	100798
DC Power Supply	SM techno	SDP30-5D	25/05/29	26/05/29	305DMG304
DC Power Supply	DIGITAL	DPR-303D	25/05/29	26/05/29	2090097
Multimeter	FLUKE	17B	25/11/21	26/11/21	26030065WS
Signal Generator	Rohde Schwarz	SMBV100A	25/11/20	26/11/20	255571
Signal Generator	ANRITSU	MG3695C	25/11/18	26/11/18	173501
Thermohygrometer	BODYCOM	BJ5478	25/11/24	26/11/24	120612-2
Thermohygrometer	BODYCOM	BJ5478	25/05/29	26/05/29	N/A
Loop Antenna	ETS-Lindgren	6502	25/11/06	27/11/06	00060496
Hybrid Antenna	Schwarzbeck	VULB9163	25/05/27	27/05/27	9163-572
Horn Antenna	ETS-Lindgren	3117	25/05/27	26/05/27	00143278
Horn Antenna	A.H.Systems Inc.	SAS-574	25/06/11	26/06/11	155
PreAmplifier	Agilent Technologies	8449B	25/11/17	26/11/17	3008A00161
PreAmplifier	tsj	MLA-1840-J02-45	25/05/29	26/05/29	16966-10728
PreAmplifier	H.P	8447D	25/11/17	26/11/17	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	25/05/26	26/05/26	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	25/05/26	26/05/26	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	25/05/26	26/05/26	3
Attenuator	Aeroflex/Weinschel	56-3	25/05/26	26/05/26	Y2370
Attenuator	Aeroflex/Weinschel	86-20-11	25/05/27	26/05/27	432
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A MA2490A MA2411B	25/11/26	26/11/26	1338004 1249303 1911481
Cable	Dt&C	Cable	26/01/02	27/01/02	G-2
Cable	OMT	YSS21S	26/01/02	27/01/02	G-5
Cable	Microwave	HF-290	26/01/02	27/01/02	G-6
Cable	Junkosha	MWX241	26/01/02	27/01/02	mmW-1
Cable	Junkosha	MWX241	26/01/02	27/01/02	mmW-4
Cable	HUBER+SUHNER	SUCOFLEX100	26/01/02	27/01/02	M-01
Cable	HUBER+SUHNER	SUCOFLEX100	26/01/02	27/01/02	M-02
Cable	JUNKOSHA	MWX241/B	26/01/02	27/01/02	M-03
Cable	JUNKOSHA	J12J101757-00	26/01/02	27/01/02	M-07
Cable	HUBER+SUHNER	SUCOFLEX106	26/01/02	27/01/02	M-09
Cable	Radiall	TESTPRO3	26/01/02	27/01/02	RFC-70
Test Software (Radiated)	tsj	EMI Measurement	NA	NA	Version 2.00.0185
3m Semi Anechoic Chamber	SYC	3m-SAC	25/06/13(NSA) 25/06/19(VSWR)	26/06/13(NSA) 26/06/19(VSWR)	3m-SAC-1
3m Semi Anechoic Chamber	SYC	3m-SAC	26/01/09(NSA) 26/01/14(VSWR)	27/01/09(NSA) 27/01/14(VSWR)	3m-SAC-2

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by Dt&C itself.

2. Test Methodology

The measurement procedures described in the ANSI C63.10-2020 and the guidance provided in KDB789033 D02v02r01 were used in measurement of the EUT.

The EUT was tested per the guidance of KDB789033 D02v02r01. And ANSI C63.10-2020 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the test mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E.

2.3. General Test Procedures

Conducted Emissions

The power-line conducted emission test procedure is not described on the KDB789033 D02v02r01.

So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10-2020.

The EUT is placed on the wooden table, which is 0.8 m above ground plane and the conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

Basically the radiated tests were performed with KDB789033 D02v02r01. But some requirements and procedures like test site requirements, EUT setup and maximizing procedure were fulfilled with the requirements in Section 5 and 6 of the ANSI C63.10-2020 as stated on KDB789033 D02v02r01.

The EUT is placed on a non-conductive table, which is 0.8 m above ground plane. For emission measurements above 1 GHz, the table height is 1.5 m. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 1 m or 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the highest emission, the relative positions of the EUT were rotated through three orthogonal axis.

2.4. Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.5. Description of Test Modes

The EUT has been tested with the operating condition for maximizing the emission characteristics. A test program is used to control the EUT for staying in continuous transmitting.

Tested Mode

Test mode	Mode	Worst case data rate
TM 1	802.11ac(VHT20)	MCS 0
TM 2	802.11ac(VHT40)	MCS 0
TM 3	802.11ac(VHT80)	MCS 0

3. Antenna Requirements

■ **According to Part 15.203**

“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.”

This device is professionally installed.

Therefore this E.U.T complies with the requirement of Part 15.203

4. Summary of Test Result

FCC Part Section(s)	Test Description	Limit	Test Condition	Status Note 1
15.205 15.209 15.407(b)	Unwanted Emissions	Part 15.209, 15.407(b) (Refer to section 5.2)	Radiated	C Note 2, 3
15.207	AC Conducted Emissions	Part 15.207 (Refer to section 5.3)	AC Line Conducted	NA Note 4
15.203	Antenna Requirements	Part 15.203 (Refer to section 3)	-	C
Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable Note 2: This test item was performed in three orthogonal EUT positions and the worst case data was reported. Note 3: The radiated test items were performed at DC 12 V and DC 24 V. And the worst case data are reported. Note 4: This device is installed in a car. Therefore the power source is a battery of car. Note 5: This device uses the certified module. (FCC ID: XMR201703FC20) Please refer to the module test for conducted signal test items. The conducted output power was verified to be equivalent to that of the module. Please refer to Appendix III for the output power verification data. Note 6: This device supports U-NII-1, U-NII 3 band only.				

5. Test Result

5.1. Unwanted Emissions

■ Test Requirements

- Part 15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the **5.15 GHz - 5.25 GHz band**: all emissions outside of the **5.15 GHz - 5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (2) For transmitters operating in the **5.25 GHz - 5.35 GHz band**: all emissions outside of the **5.15 GHz - 5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (3) For transmitters operating in the **5.47 GHz - 5.725 GHz band**: all emissions outside of the **5.47 GHz - 5.725 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (4) For transmitters operating in the **5.725 GHz - 5.85 GHz band**: (i) 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. The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (5) Unwanted emissions **below 1 GHz** must comply with the general field strength limits set forth in **Section 15.209**.
Further, any U-NII devices using an **AC power line** are required to comply also with the conducted limits set forth in **Section 15.207**.

- Part 15.209: General requirements

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
0.009 – 0.490	2 400 / F (kHz)	300
0.490 – 1.705	24 000 / F (kHz)	30
1.705 – 30.0	30	30

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

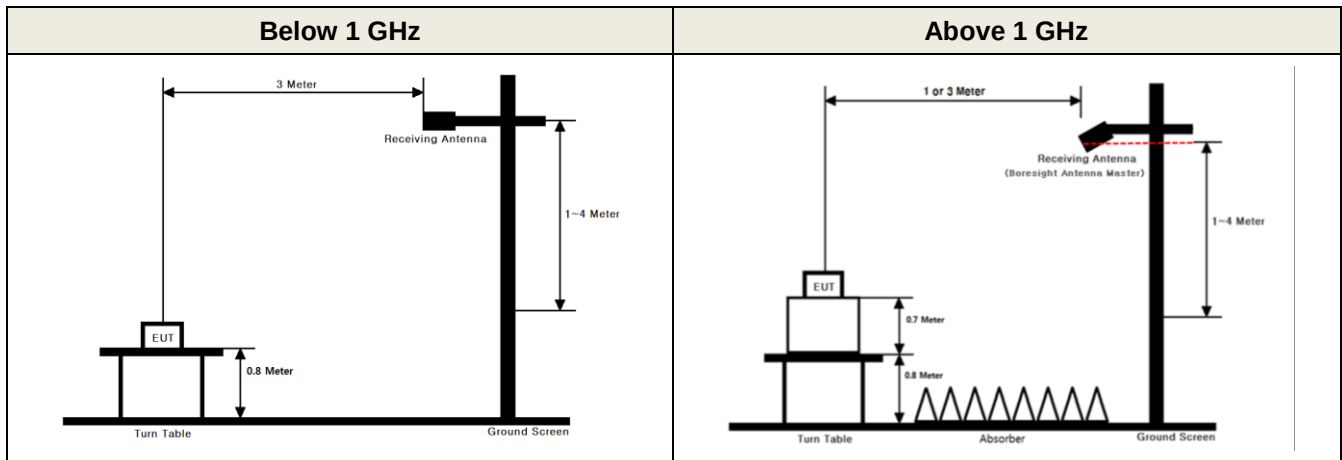
**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

- Part 15.205(a): Restricted band of operation

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.414 25 ~ 8.414 75	108 ~ 121.94	1 300 ~ 1 427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1 435 ~ 1 626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.173 5 ~ 2.190 5	12.519 75 ~ 12.520 25	149.9 ~ 150.05	1 645.5 ~ 1 646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.576 75 ~ 12.577 25	156.524 75 ~ 156.525 25	1 660 ~ 1 710	8.025 ~ 8.5	22.01 ~ 23.12
4.177 25 ~ 4.177 75	13.36 ~ 13.41	156.7 ~ 156.9	1 718.8 ~ 1 722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.207 25 ~ 4.207 75	16.42 ~ 16.423	162.012 5 ~ 167.17	2 200 ~ 2 300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 310 ~ 2 390	10.6 ~ 12.7	36.43 ~ 36.5
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 483.5 ~ 2 500	13.25 ~ 13.4	Above 38.6
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	2 655 ~ 2 900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 260 ~ 3 267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 332 ~ 3 339		
8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1240	3 345.8 ~ 3 358		
			3 600 ~ 4 400		

This test report is prohibited to copy or reissue in whole or in part without the approval of Dt&C Co., Ltd.

■ Test Configuration



■ Test Procedure

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turn table shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 1 m or 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Radiated spurious emission measured using following Measurement Procedure of KDB789033 D02v02r01

► General Requirements for Unwanted Emissions Measurements

The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

▪ EUT Duty Cycle

- (1) The EUT shall be configured or modified to **transmit continuously** except as stated in (ii), below. The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (**to no lower than 98 percent**) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.
- (2) If **continuous transmission (or at least 98 percent duty cycle) cannot be achieved** due to hardware limitations of the EUT (e.g., overheating), the following additions to the measurement and reporting procedures are required:
 - The EUT shall be configured to operate at the maximum achievable duty cycle.
 - Measure the duty cycle, x, of the transmitter output signal.
 - Adjustments to measurement procedures (e.g., increasing test time and number of traces averaged) shall be performed as described in the procedures below.
 - The test report shall include the following additional information:
 - The reason for the duty cycle limitation.
 - The duty cycle achieved for testing and the associated transmit duration and interval between transmissions.
 - The sweep time and the amount of time used for trace stabilization during max-hold measurements for peak emission measurements.
- (3) Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

► Measurements below 1 000 MHz

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Compliance shall be demonstrated using **CISPR quasi-peak detection**; however, **peak detection** is permitted as an alternative to quasi-peak detection.

► Measurements Above 1 000 MHz (Peak)

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Peak emission levels are measured by setting the analyzer as follows:
 - (i) **RBW = 1 MHz.**
 - (ii) **VBW ≥ 3 MHz.**
 - (iii) **Detector = Peak.**
 - (iv) Sweep time = Auto.
 - (v) Trace mode = Max hold.
 - (vi) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

► Measurements Above 1000 MHz (Method AD)

- (i) **RBW = 1 MHz.**
- (ii) **VBW ≥ 3 MHz.**
- (iii) **Detector = RMS**, if $\text{span} / (\# \text{ of points in sweep}) \leq \text{RBW} / 2$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, the detector mode shall be set to peak.
- (iv) Averaging type = power (i.e., RMS)
 - As an alternative, the detector and averaging type may be set for linear voltage averaging. Some analyzers require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- (v) Sweep time = Auto.
- (vi) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of 1/x, where x is the duty cycle. For example, with 50 percent duty cycle, at least 200 traces shall be averaged.
- (vii) If tests are performed with the EUT transmitting at a duty cycle less than 98 percent, a correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - **If power averaging (RMS) mode was used in step (iv) above, the correction factor is $10 \log(1/x)$, where x is the duty cycle.** For example, if the transmit duty cycle was 50 percent, then 3 dB must be added to the measured emission levels.
 - If linear voltage averaging mode was used in step (iv) above, the correction factor is $20 \log(1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 6 dB must be added to the measured emission levels.
 - If a specific emission is demonstrated to be continuous (100 percent duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.

Duty Cycle Correction factor

Test Mode	Date rate	T _{on} (ms)	T _{on+off} (ms)	$x = T_{on} / (T_{on+off})$	DCCF = $10 \log(1/x)$ (dB)
TM 1	MCS 0	1.930	2.074	0.930 6	0.31
TM 2	MCS 0	0.952	1.067	0.892 4	0.49
TM 3	MCS 0	0.464	0.615	0.754 1	1.23

Note1: Where, T = Transmission duration / x = Duty cycle

Note2: Please refer to the appendix II for duty cycle plots.

Test Results

Test Notes

- The radiated emissions below 1 GHz were investigated 9 kHz to 1 GHz. And the worst case data was reported.
- Information of Distance Correction Factor
For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.
In this case, the distance factor is applied to the result.
- Calculation of distance correction factor
At frequencies below 30 MHz = $40 \log(\text{tested distance} / \text{specified distance})$
At frequencies at or above 30 MHz = $20 \log(\text{tested distance} / \text{specified distance})$
When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.
- Sample Calculation.
Margin = Limit – Result / Result = Reading + TF + DCCF + DCF / TF = AF + CL + HL + AL – AG
Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss,
DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- The limit is converted to field strength.
 $E(\text{dBuV/m}) = \text{EIRP}(\text{dBm}) + 95.2 \text{ dB} = -27 \text{ dBm} + 95.2 = 68.2 \text{ dBuV/m}$

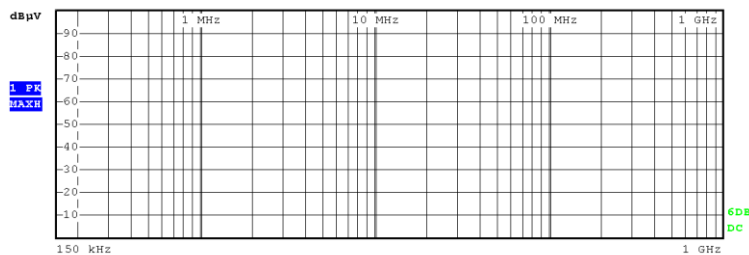
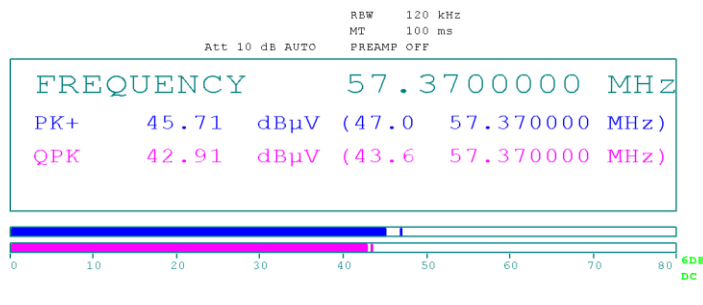
Unwanted Emissions data(9 kHz ~ 1 GHz) : **TM 1**

- DC 12 V

Band	Tested Frequency (MHz)	Frequency (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin(dB)
U-NII 1	5 180	57.37	V	X	QP	43.60	-7.05	N/A	N/A	36.55	40.00	3.45
		64.50	V	X	QP	44.60	-8.48	N/A	N/A	36.12	40.00	3.88
		204.40	H	Z	QP	44.90	-7.14	N/A	N/A	37.76	43.52	5.76
		-	-	-	-	-	-	-	-	-	-	-

TM 1 & U-NII 1 & 5 180 MHz & X axis & Ver

Detector Mode : QP



Date: 13.JAN.2026 15:26:34

Test Notes

- The radiated emissions above 1 GHz were investigated up to 40 GHz. And no other spurious and harmonic emissions were found below listed frequencies.
- Information of Distance Correction Factor
For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.
In this case, the distance factor is applied to the result.
- Calculation of distance correction factor
At frequencies below 30 MHz = $40 \log(\text{tested distance} / \text{specified distance})$
At frequencies at or above 30 MHz = $20 \log(\text{tested distance} / \text{specified distance})$
When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.
- Sample Calculation.
Margin = Limit – Result / Result = Reading + TF + DCCF + DCF / TF = AF + CL + HL + AL – AG
Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- The limit is converted to field strength.
 $E(\text{dBuV/m}) = \text{EIRP}(\text{dBm}) + 95.2 \text{ dB} = -27 \text{ dBm} + 95.2 = 68.2 \text{ dBuV/m}$

Unwanted Emissions data(1 GHz ~ 40 GHz) : TM 1

- DC 24 V

Band	Tested Frequency (MHz)	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	5 180	5 149.15	V	Y	PK	42.40	10.38	N/A	N/A	52.78	74.00	21.22
		5 149.51	V	Y	AV	32.35	10.38	0.31	N/A	43.04	54.00	10.96
		10 360.90	H	Z	PK	38.63	17.00	N/A	N/A	55.63	68.20	12.57
	5 200	10 399.60	H	Z	PK	39.02	16.90	N/A	N/A	55.92	68.20	12.28
	5 240	10 481.28	H	Z	PK	38.72	17.01	N/A	N/A	55.73	68.20	12.47
U-NII 3	5 745	5 644.05	V	Y	PK	40.21	11.07	N/A	N/A	51.28	68.20	16.92
		5 699.78	V	Y	PK	41.13	11.03	N/A	N/A	52.16	105.03	52.87
		11 491.36	H	Z	PK	39.14	17.76	N/A	N/A	56.90	74.00	17.10
		11 490.98	H	Z	AV	28.44	17.76	0.31	N/A	46.51	54.00	7.49
	5 785	11 570.42	H	Z	PK	39.02	17.92	N/A	N/A	56.94	74.00	17.06
		11 570.53	H	Z	AV	28.73	17.92	0.31	N/A	46.96	54.00	7.04
	5 825	5 916.01	V	Y	PK	41.16	11.73	N/A	N/A	52.89	74.85	21.96
		5 947.13	V	Y	PK	40.89	11.78	N/A	N/A	52.67	68.20	15.53
		11 650.18	H	Z	PK	39.60	18.12	N/A	N/A	57.72	74.00	16.28
		11 650.02	H	Z	AV	28.64	18.12	0.31	N/A	47.07	54.00	6.93

Unwanted Emissions data(1 GHz ~ 40 GHz) : TM 2

- DC 24 V

Band	Tested Frequency (MHz)	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	5 190	5 149.05	V	Y	PK	52.50	10.38	N/A	N/A	62.88	74.00	11.12
		5 149.99	V	Y	AV	35.09	10.38	0.49	N/A	45.96	54.00	8.04
		10 381.14	H	Z	PK	38.52	16.95	N/A	N/A	55.47	68.20	12.73
	5 230	10 459.15	H	Z	PK	38.97	16.98	N/A	N/A	55.95	68.20	12.25
U-NII 3	5 755	5 646.45	V	Y	PK	40.92	11.07	N/A	N/A	51.99	68.20	16.21
		5 694.60	V	Y	PK	41.43	11.04	N/A	N/A	52.47	101.20	48.73
		11 509.47	H	Z	PK	38.73	17.78	N/A	N/A	56.51	74.00	17.49
		11 509.60	H	Z	AV	28.58	17.78	0.49	N/A	46.85	54.00	7.15
	5 795	5 876.80	V	Y	PK	40.44	11.58	N/A	N/A	52.02	103.87	51.85
		5 926.72	V	Y	PK	40.90	11.74	N/A	N/A	52.64	68.20	15.56
		11 590.91	H	Z	PK	39.74	18.03	N/A	N/A	57.77	74.00	16.23
		11 591.15	H	Z	AV	28.87	18.03	0.49	N/A	47.39	54.00	6.61

Unwanted Emissions data(1 GHz ~ 40 GHz) : **TM 3**

- DC 24 V

Band	Tested Frequency (MHz)	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	5 210	5 138.30	V	Y	PK	45.63	10.35	N/A	N/A	55.98	74.00	18.02
		5 137.79	V	Y	AV	34.58	10.35	1.23	N/A	46.16	54.00	7.84
		10 419.16	H	Z	PK	39.01	16.93	N/A	N/A	55.94	68.20	12.26
U-NII 3	5 775	5 645.63	V	Y	PK	40.79	11.07	N/A	N/A	51.86	68.20	16.34
		5 695.55	V	Y	PK	43.77	11.04	N/A	N/A	54.81	101.91	47.10
		5 902.36	V	Y	PK	41.31	11.71	N/A	N/A	53.02	84.95	31.93
		5 929.04	V	Y	PK	41.62	11.74	N/A	N/A	53.36	68.20	14.84
		11 549.74	H	Z	PK	39.11	17.82	N/A	N/A	56.93	74.00	17.07
		11 549.19	H	Z	AV	28.88	17.82	1.23	N/A	47.93	54.00	6.07

- DC 12 V

Band	Tested Frequency (MHz)	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	5 210	5 145.55	V	Y	PK	44.22	10.37	N/A	N/A	54.59	74.00	19.41
		5 145.24	V	Y	AV	34.01	10.37	1.23	N/A	45.61	54.00	8.39
		10 419.30	H	Z	PK	39.30	16.93	N/A	N/A	56.23	68.20	11.97

5.2. AC Power-Line Conducted Emissions

■ Test Requirements and limit, Part 15.207

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network (LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

■ Test Configuration

NA

■ Test Procedure

Conducted emissions from the EUT were measured according to the ANSI C63.10-2020.

1. The test procedure is performed in a shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

■ Test Results

NA

APPENDIX I

Duty Cycle Information

■ Test Procedure

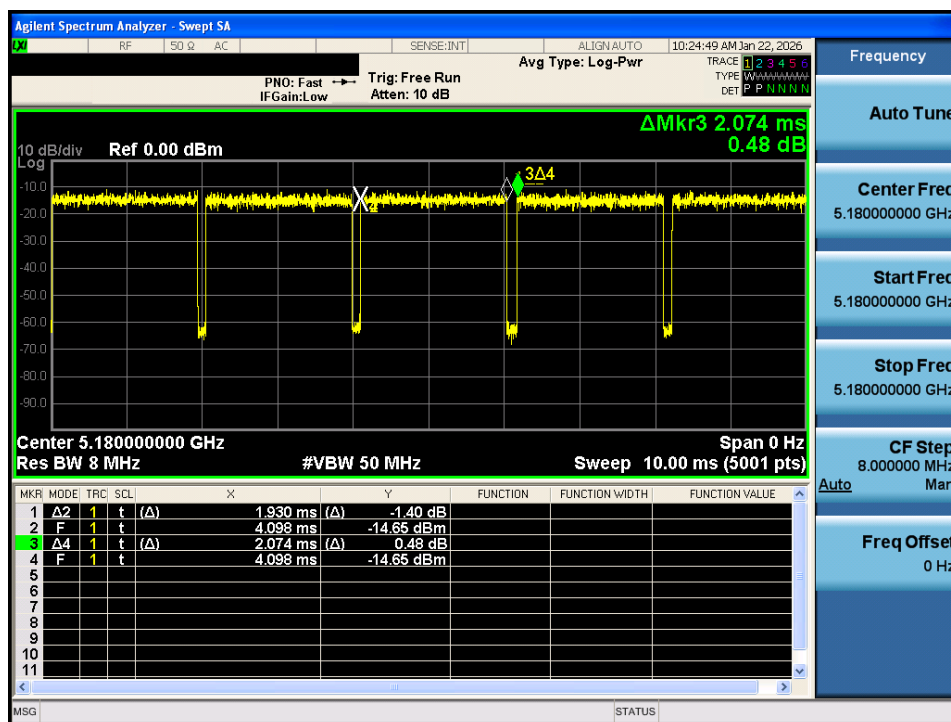
Duty Cycle [$X = \text{On Time} / (\text{On} + \text{Off time})$] is measured using Measurement Procedure of **KDB789033 D02v02r01**

1. Set the center frequency of the spectrum analyzer to the center frequency of the transmission.
2. Set RBW $\geq$ EBW if possible; otherwise, set RBW to the largest available value.
3. Set VBW $\geq$ RBW. Set detector = peak.
4. Note : The zero-span measurement method shall not be used unless both **RBW and VBW are $> 50 / T$** , where T is defined in section II.B.1.a), and **the number of sweep points across duration T exceeds 100**. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

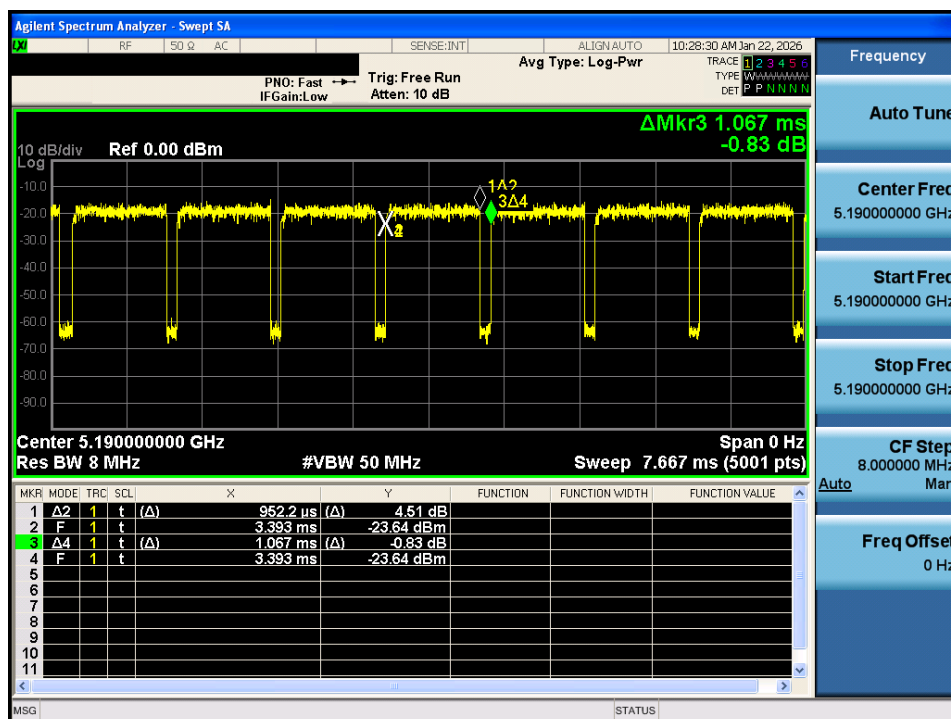
T : The minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

($T = \text{On time}$ of the above table since the EUT operates with above fixed Duty Cycle and it is the minimum On time)

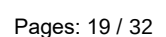
Test Mode: TM 1 & Ch.36



Test Mode: TM 2 & Ch.38



Test Mode: TM 3 & Ch.42

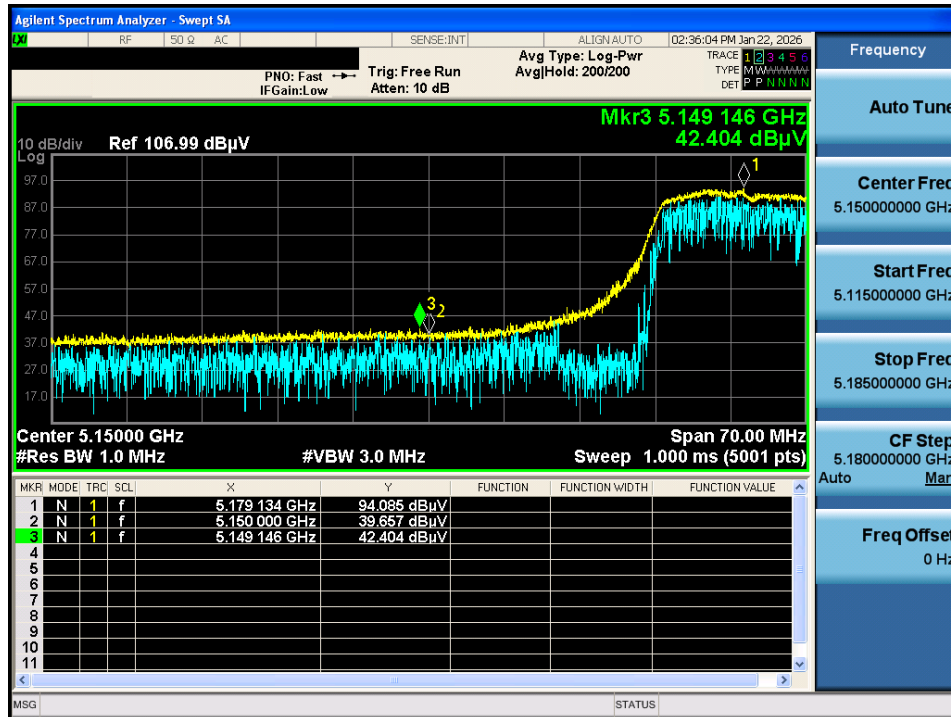


APPENDIX II

Unwanted Emissions (Radiated) Test Plot:

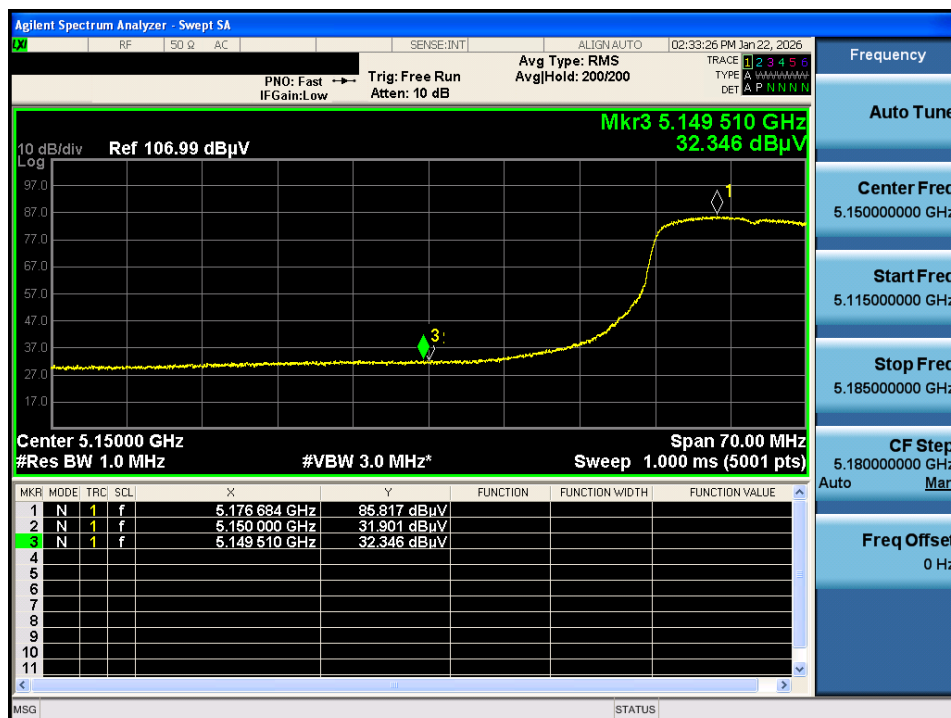
TM 1 & U-NII 1 & 5 180 MHz & Y axis & Ver

Detector Mode : PK



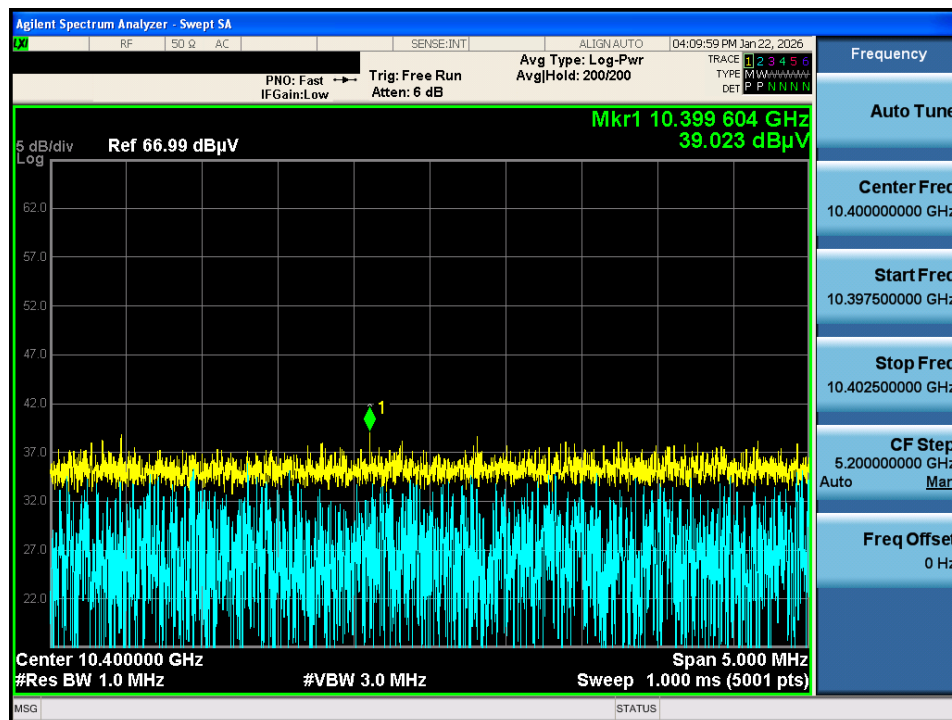
TM 1 & U-NII 1 & 5 180 MHz & Y axis & Ver

Detector Mode : AV



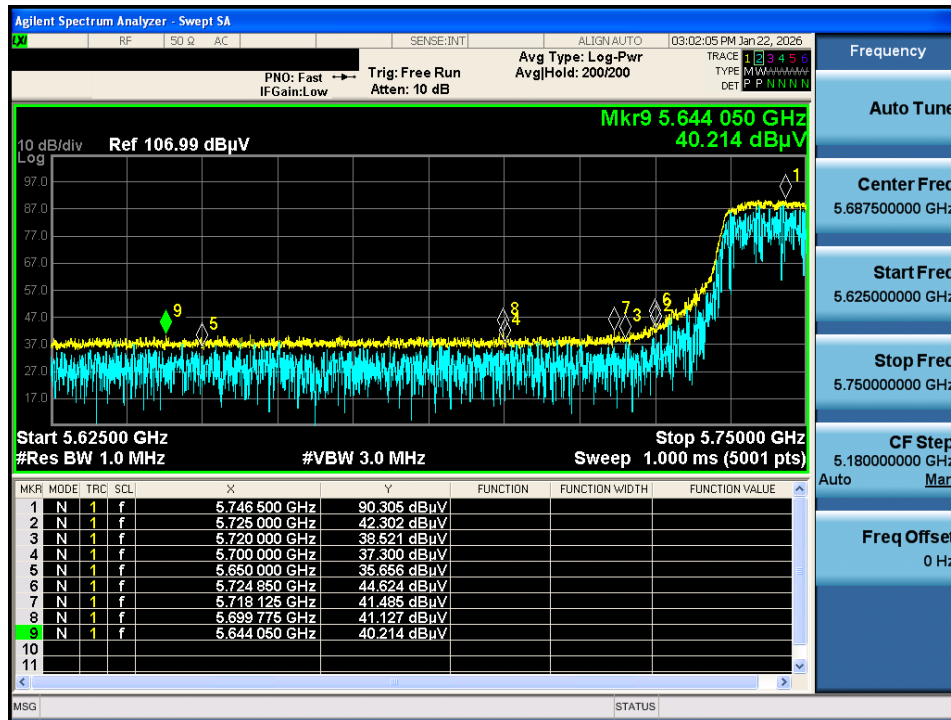
TM 1 & U-NII 1 & 5 180 MHz & Z axis & Hor

Detector Mode : PK



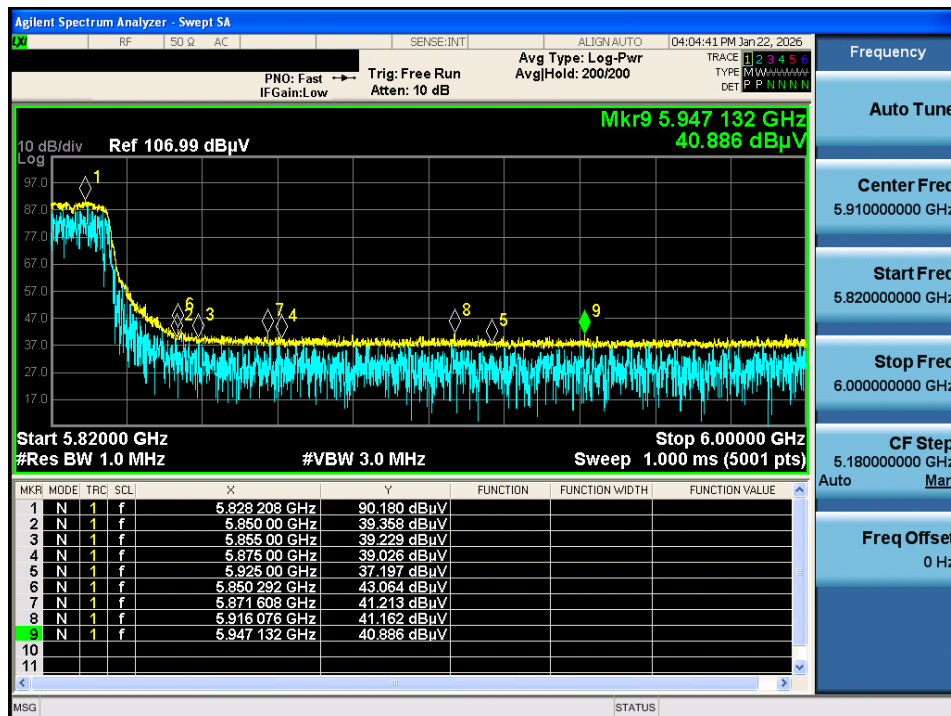
TM 1 & U-NII 3 & 5 745 MHz & Y axis & Ver

Detector Mode : PK



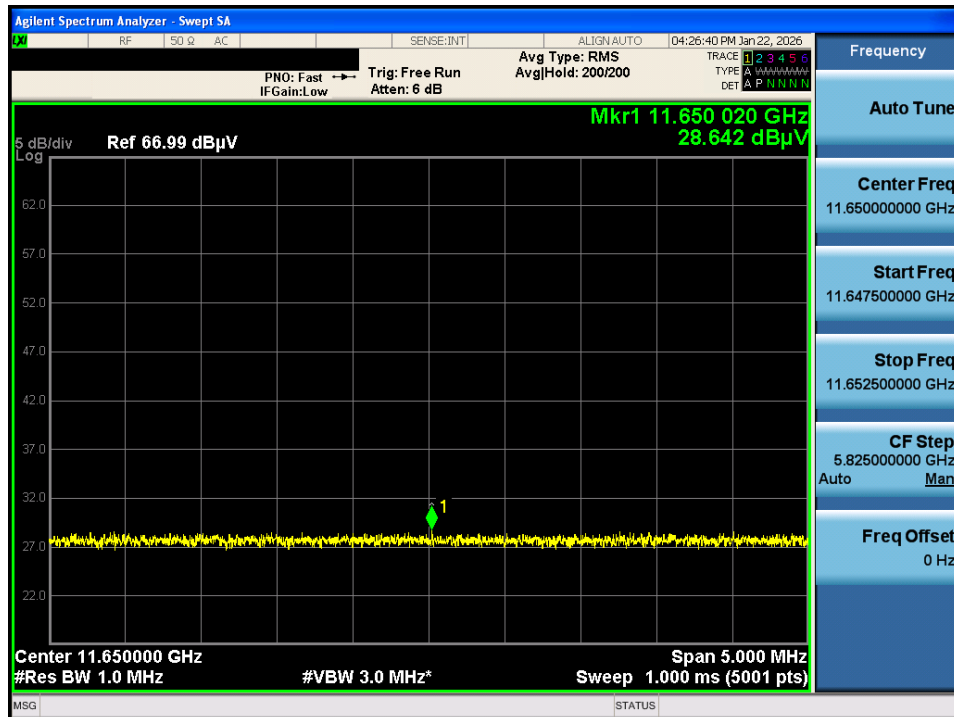
TM 1 & U-NII 3 & 5 825 MHz & Y axis & Ver

Detector Mode : PK



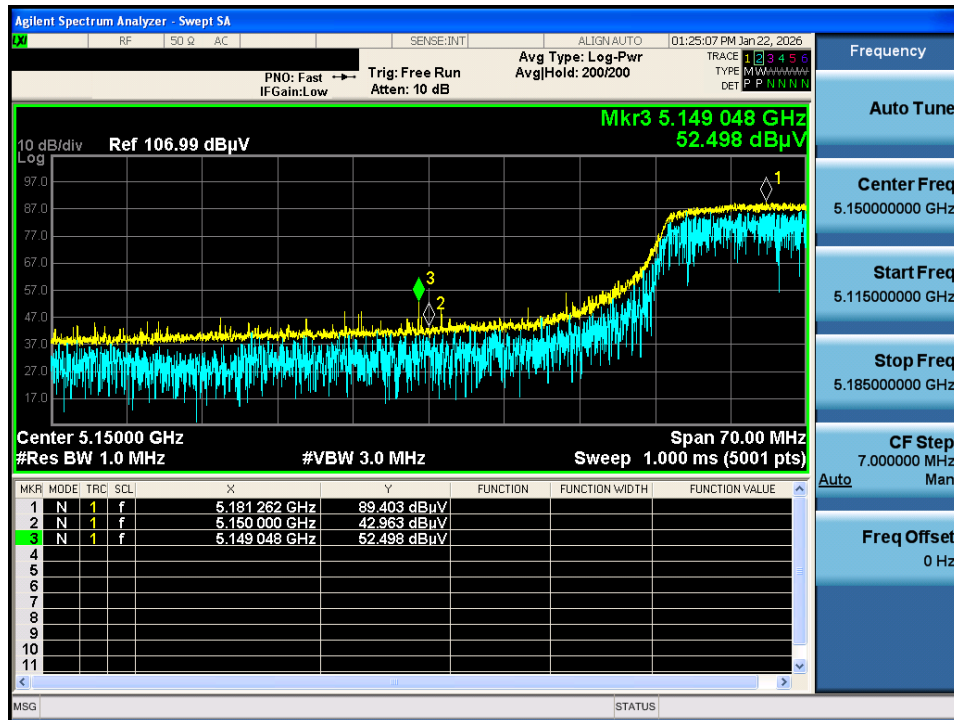
TM 1 & U-NII 3 & 5 825 MHz & Z axis & Hor

Detector Mode : AV



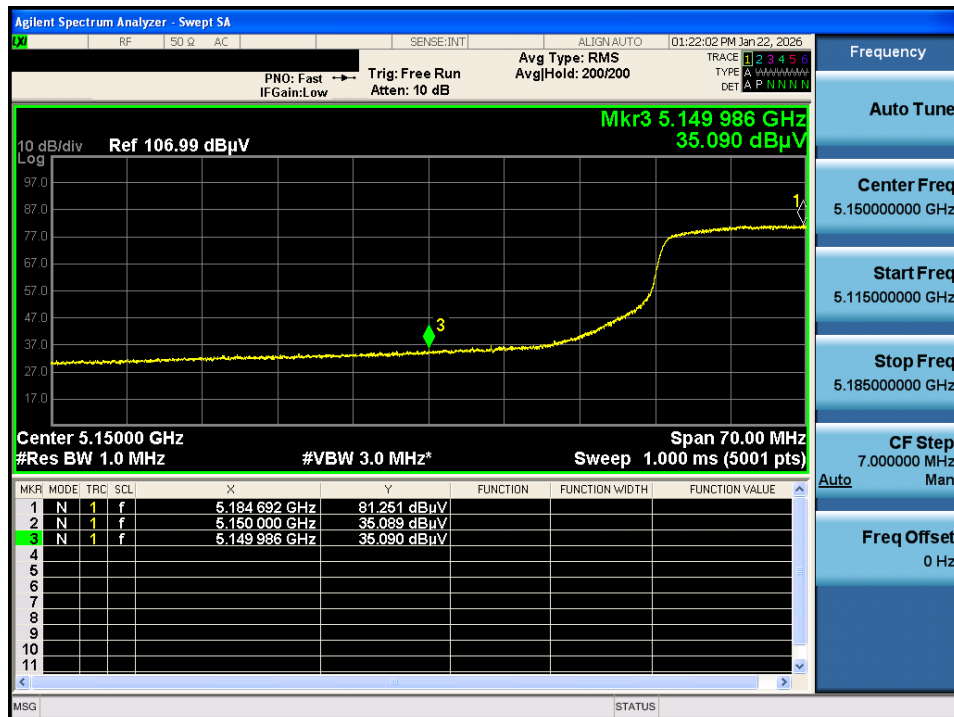
TM 2 & U-NII 1 & 5 190 MHz & Y axis & Ver

Detector Mode : PK

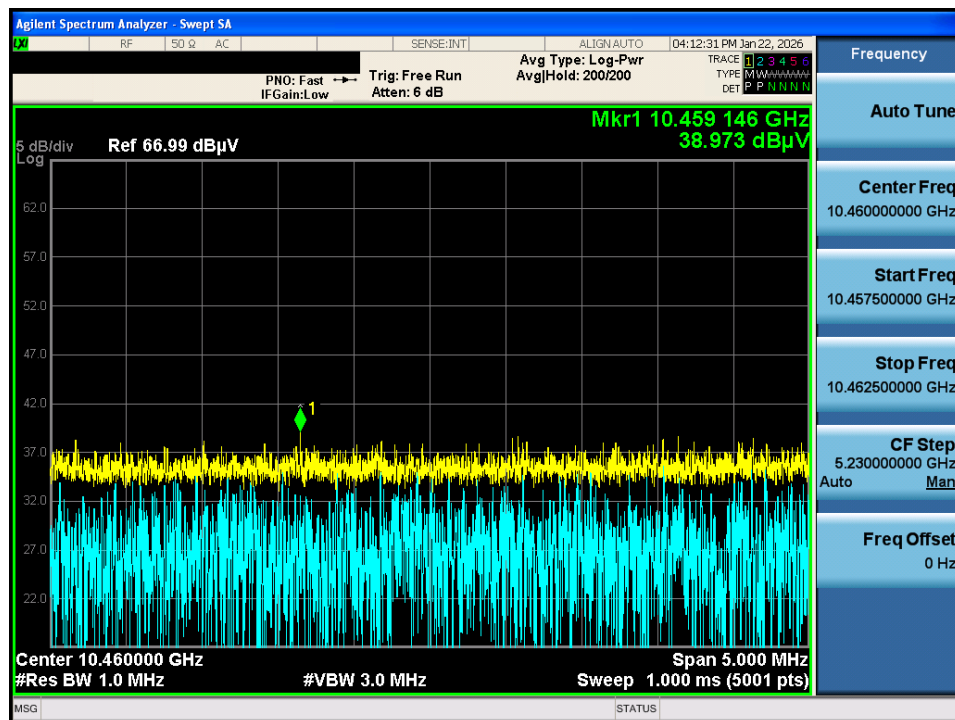


TM 2 & U-NII 1 & 5 190 MHz & Y axis & Ver

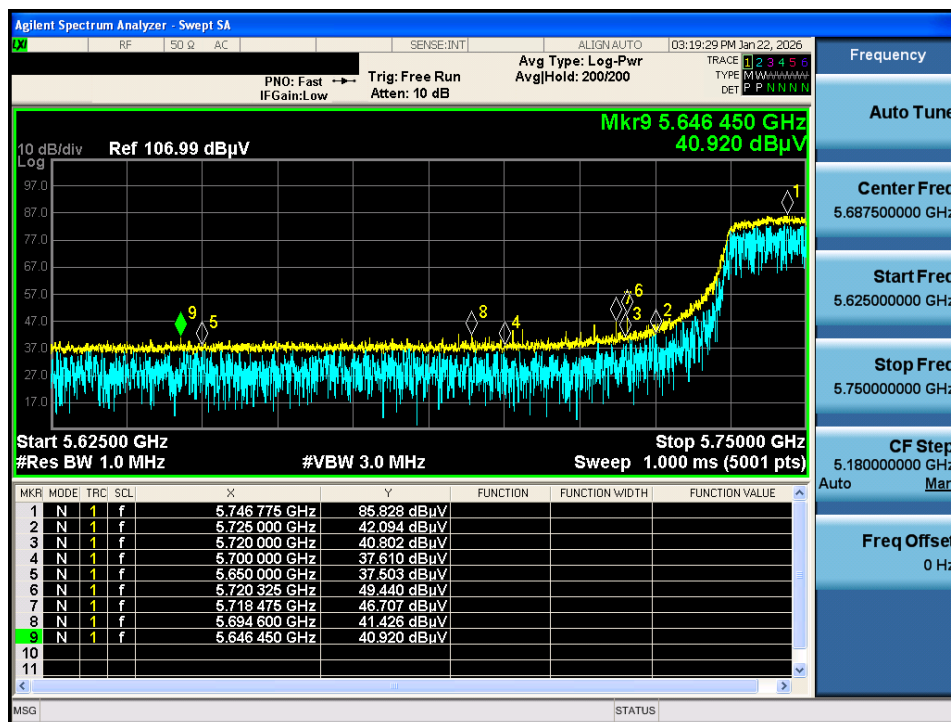
Detector Mode : AV



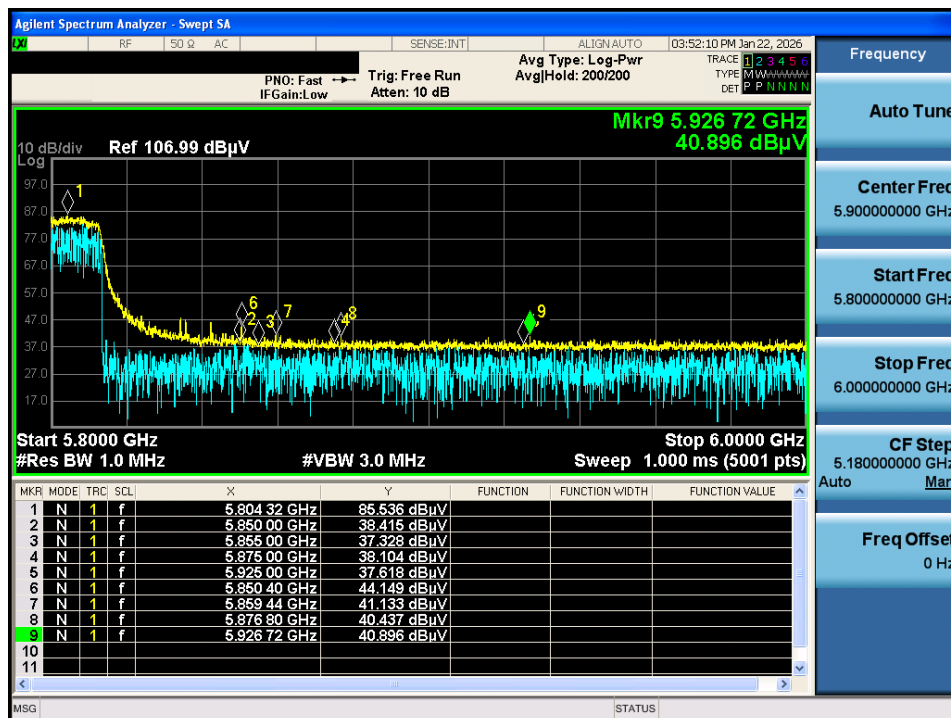
Detector Mode : PK



Detector Mode : PK

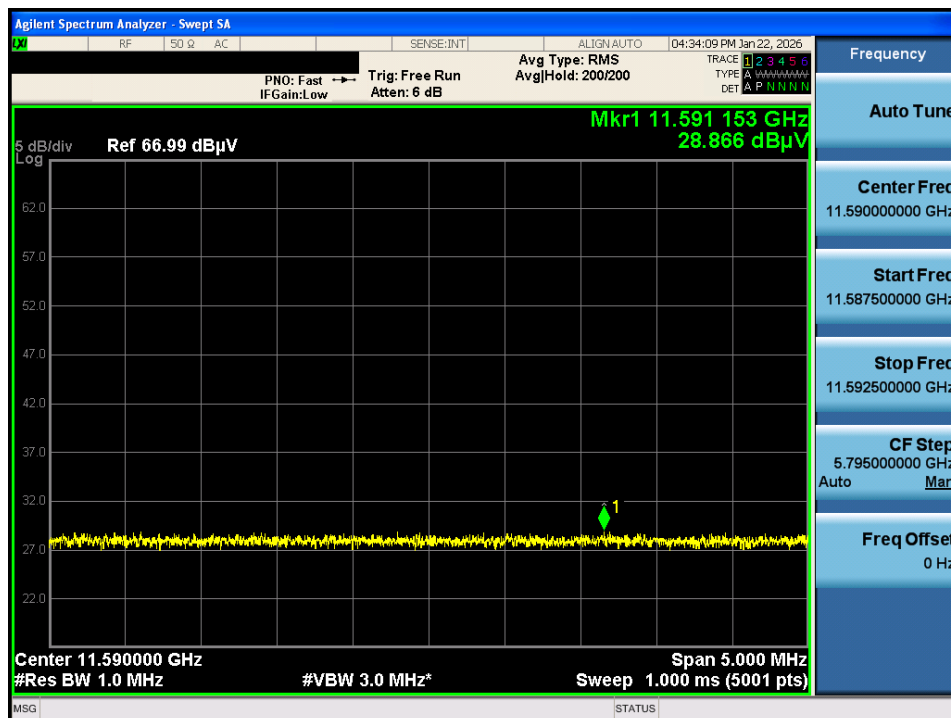


Detector Mode : PK

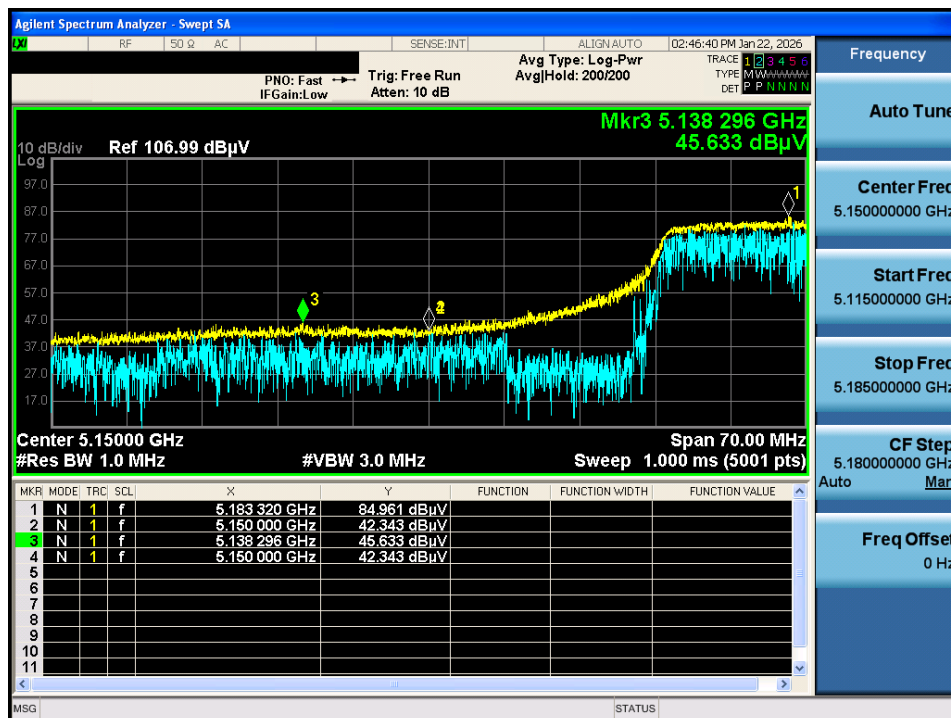


TM 2 & U-NII 3 & 5 755 MHz & Z axis & Hor

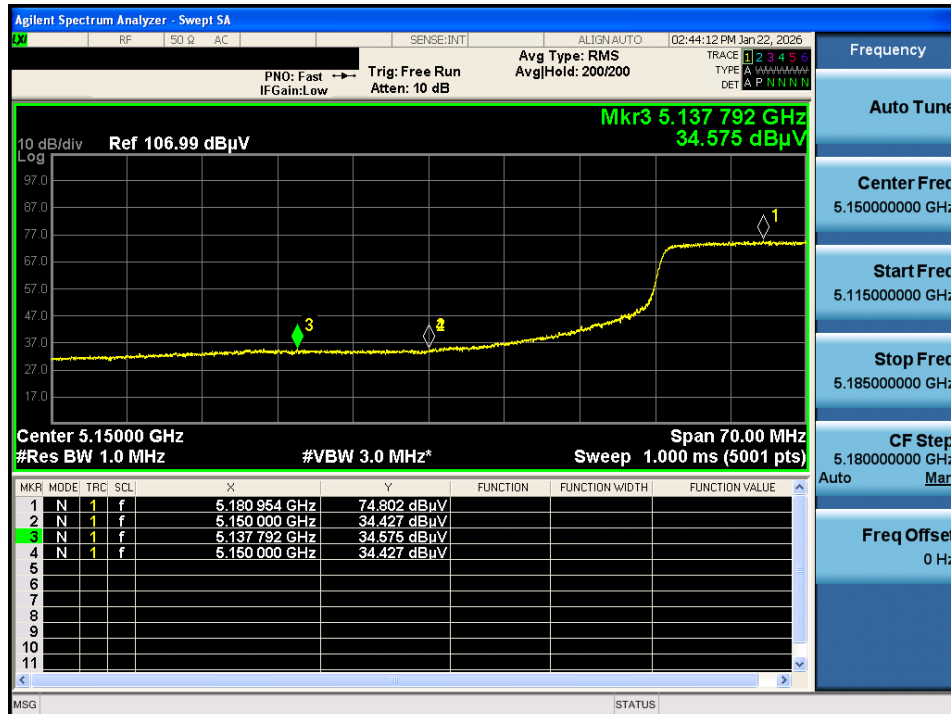
Detector Mode : AV



Detector Mode : PK

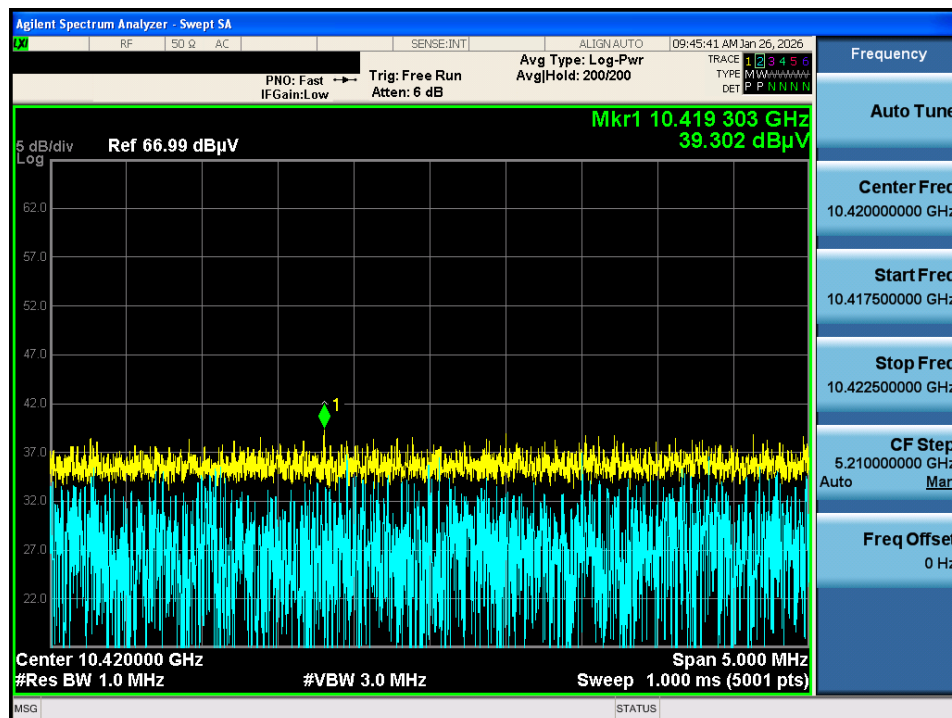


Detector Mode : AV



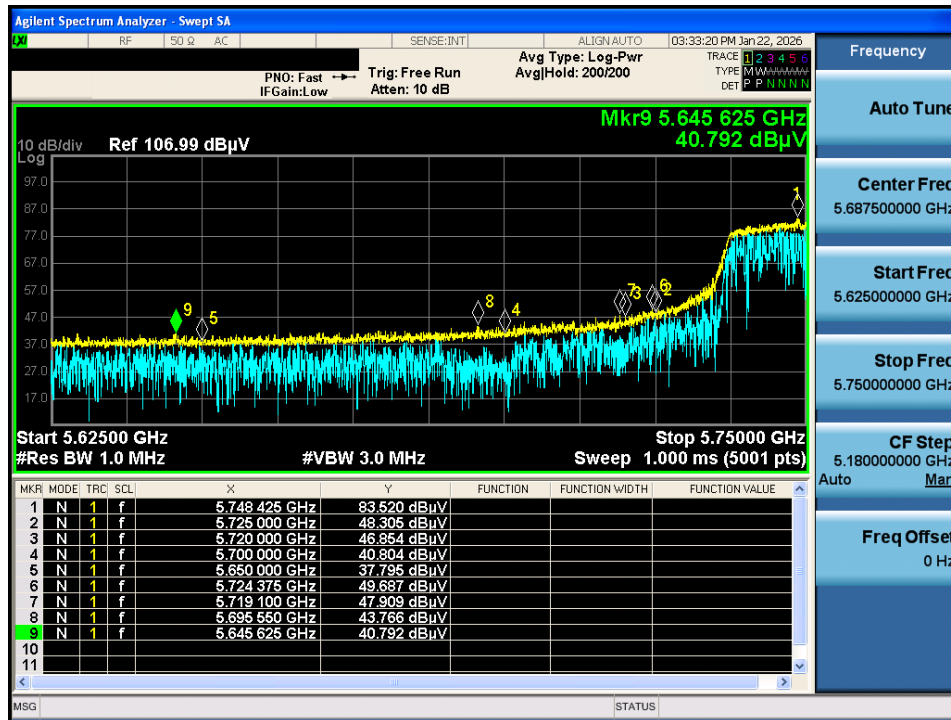
TM 3 & U-NII 1 & 5 210 MHz & Z axis & Hor

Detector Mode : PK



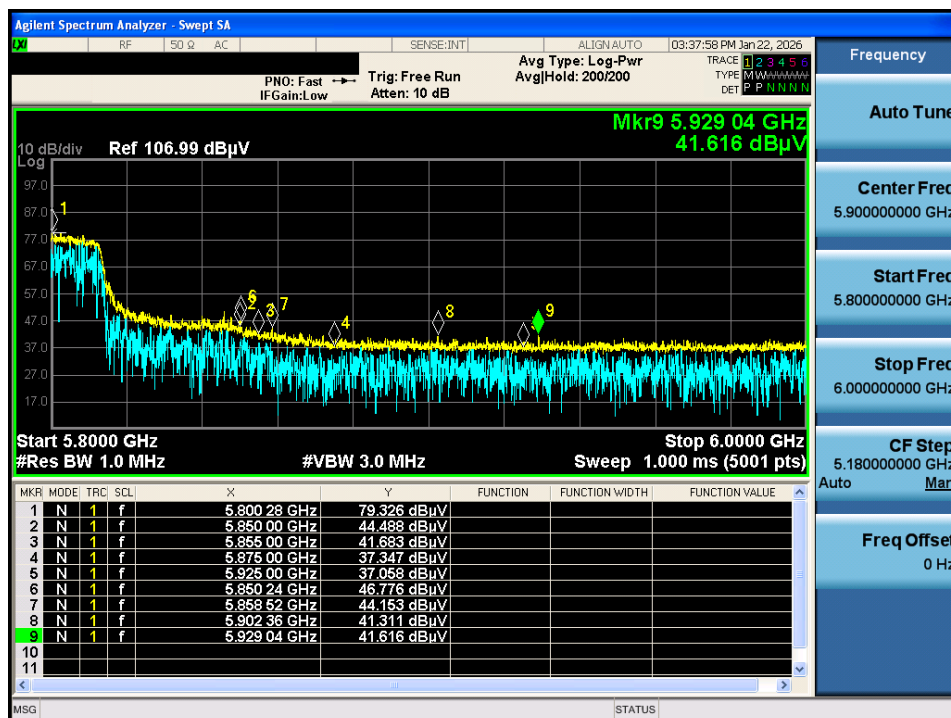
TM 3 & U-NII 3 & 5 775 MHz & Y axis & Ver

Detector Mode : PK



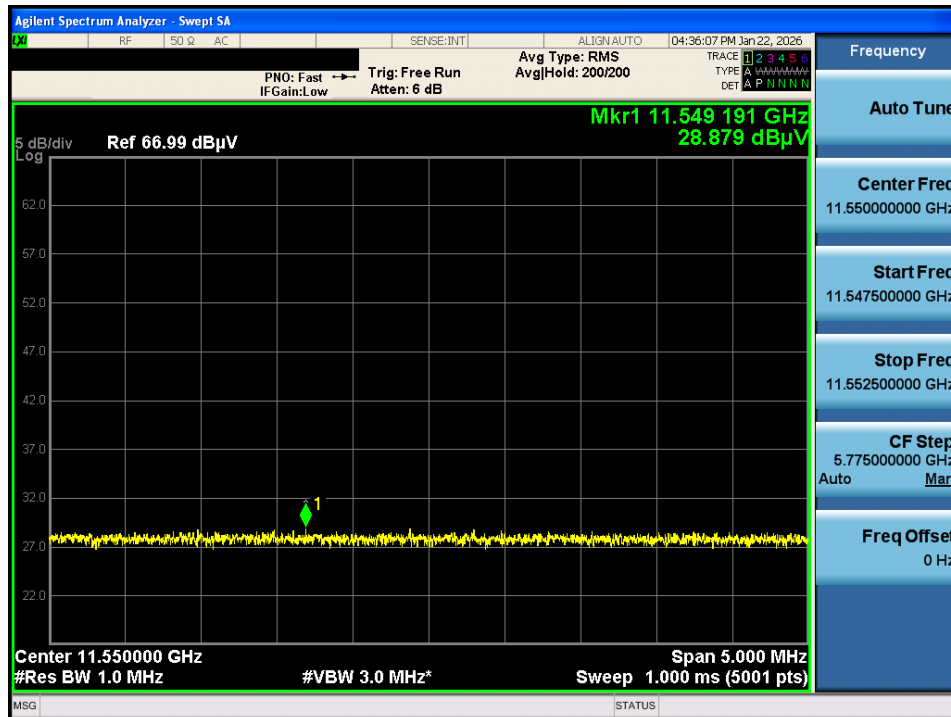
TM 3 & U-NII 3 & 5 775 MHz & Y axis & Ver

Detector Mode : PK



TM 3 & U-NII 3 & 5 775 MHz & Z axis & Hor

Detector Mode : AV



APPENDIX III

Output power verification

■ Test Configuration



Method PM-G

■ Test Procedure

Method PM-G of KDB789033 D02v02r01

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Mode	Band	Channel	Frequency (MHz)	Conducted Output Power(dBm)
802.11ac (VHT20)	U-NII 1	36	5 180	11.57
		40	5 200	11.63
		48	5 240	11.57
	U-NII 3	149	5 745	10.53
		157	5 785	11.22
		165	5 825	11.48

The worst-case mode was reported.

- End of test report -