

TEST REPORT

Report No...... : **ATA0126080261**

FCC ID..... : **2BW7U-GENESIS-F**

Applicant..... : **Jinan Vmyth Intelligent Technology Co., Ltd.**

Address..... : Rooms 101-105, Production Building, No. 2766 Yingxiu Road,
Shunhua Road Subdistrict, High-Tech Zone, Jinan City, Shandong
Province.

Manufacturer..... : **Jinan Vmyth Intelligent Technology Co., Ltd.**

Address..... : Rooms 101-105, Production Building, No. 2766 Yingxiu Road,
Shunhua Road Subdistrict, High-Tech Zone, Jinan City, Shandong
Province.

Product Name..... : **Desktop Laser Engraver**

Trade Mark..... : VMYTH

Model/Type reference..... : Genesis-F

Listed Model(s)..... : Genesis-F Pro,Genesis-F Max,Genesis-F Ultra

Standard..... : **FCC CFR Title 47 Part 15 Subpart C Section 15.247**

Test procedure..... : **ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to
C63.10a-2024**

Date of Receipt..... : Aug. 25, 2026

Date of Test Date..... : Aug. 25, 2026-Sep. 08, 2026

Date of issue..... : Sep. 08, 2026

Test result..... : **Pass**

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Testing Laboratory Name..... : **Shenzhen ATA Testing Lab. Inc**

Address..... : 4th Floor, Building 10, No. 60 Nanchang Road, Nanchang
Community,Xixiang Street, Bao'an District, Shenzhen City,
Guangdong, China

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TABLE OF CONTENTS

Page

1. TEST SUMMARY	3
1.1. TEST STANDARDS	3
1.2. REPORT VERSION	3
1.3. TEST DESCRIPTION	4
1.4. TEST FACILITY	5
1.5. MEASUREMENT UNCERTAINTY	6
1.6. ENVIRONMENTAL CONDITIONS	6
2. GENERAL INFORMATION	7
2.1. GENERAL DESCRIPTION OF EUT	7
2.2. OPERATION STATE	8
2.3. BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
2.4. DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS	10
2.5. MEASUREMENT INSTRUMENTS LIST	11
2.6. TEST SOFTWARE	13
3. TEST ITEM AND RESULTS	14
3.1. ANTENNA REQUIREMENT	14
3.2. CONDUCTED EMISSION	15
3.3. BAND EDGE AND SPURIOUS EMISSION (CONDUCTED)	18
3.4. 6dB BANDWIDTH	23
3.5. PEAK OUTPUT POWER	27
3.6. POWER SPECTRAL DENSITY	29
3.7. BAND EDGE EMISSIONS(RADIATED)	33
3.8. SPURIOUS EMISSION (RADIATED)	36
4. EUT TEST PHOTOS	42
5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL	42

1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Sep. 08, 2026	Original



1.3. Test Description

FCC Part 15 Subpart C(15.247)			
Test Item	Standard Section	Result	Remark
	FCC		
Antenna Requirement	15.203	Pass	
Conducted Emission	15.207	Pass	
Restricted Bands	15.205	Pass	
Output Power	15.247(b)	Pass	
Band Edge Emissions	15.247(d)	Pass	
Power Spectral Density	15.247(e)	Pass	
Radiated Emission	15.205&15.209	Pass	
Occupied Bandwidth	15.247(a)(1)(i)(2)	Pass	

Note:(1) "N/A" denotes test is not applicable to this device.



1.4. Test Facility

Test Site	Shenzhen ATA Testing Lab. Inc
Test Site Location	4th Floor, Building 10, No. 60 Nanchang Road, Nanchang Community, Xixiang Street, Bao'an District, Shenzhen City, Guangdong, People' s Republic of China
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The test facility is recognized, certified, or accredited by these organizations:	A2LA Accreditation Lab Certificate Number: 839205
	FCC Accreditation Lab Designation Number: CN1455
	ISED Accreditation Lab Designation Number: CN0201
	CNAS Certificate Registration Number is L25904.



1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen ATA Testing Lab. Inc. system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Below is the best measurement capability for Shenzhen ATA Testing Lab. Inc.

Test Items	Measurement Uncertainty	U(k=2)
Radiated Emissions 9K-30MHz	± 2.70 dB	1.96
Radiated Emissions 30~1000MHz	± 5.432 dB	1.96
Radiated Emissions 1~18GHz	± 3.88 dB	1.96
Radiated Emissions 18~40GHz	± 5.32 dB	1.96
Conducted Emissions 9kHz~150KHz	± 3.90 dB	1.96
Conducted Emissions 150Hz~30MHz	± 3.52 dB	1.96
Conducted spurious emissions	± 1.60 dB	1.96
RF Output Power Conducted	± 0.58 dB	1.96
Power Spectral Density Conducted	± 1.52 dB	1.96
Occupied Bandwidth	$\pm 0.463\%$	1.96
Humidity uncertainty	$\pm 1.95\%$ RH	1.96
Temperature uncertainty	$\pm 0.6^{\circ}\text{C}$	1.96
Barometric pressure uncertainty	0.5hPa	1.96

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050hPa

2. GENERAL INFORMATION

2.1. General Description of EUT

Product Name:	Desktop Laser Engraver
Trade Mark	VMYTH
Model/Type reference:	Genesis-F
Listed Model(s):	Genesis-F Pro,Genesis-F Max,Genesis-F Ultra
Model Difference:	The above-mentioned products share the same circuitry, PCB layout, electrical components, materials, circuit structure and decorative accessories' materials, but they differ in color.
Power Source:	Input: 24.0V $\equiv$
Adpater	Input: 100-240V~50/60Hz 3.5A Max Output:24.0V $\equiv$ 6.5A 156.0W
Battery	N/A
Hardware version:	V 1.0
Software version:	V1.0
2.4GHz WIFI	
Modulation:	IEEE 802.11b : DSSS (DBPSK, DQPSK, CCK) IEEE 802.11g/n (HGenesis-F0/HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Operation frequency:	802.11b/g/n20:2412~2462 MHz
Max Peak Output Power:	19.95dBm
Channel number:	802.11b/g/n20:11CH
Bit Rate of transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz) use 800 ns GI: 65.0/58.5/51.95/39.0/26.0/19.5/13.0/6.5 Mbps (MCS0~MCS7)
Antenna type:	FPC antenna
Antenna gain:	3.0 dBi
Note:(1)All antenna information is provided by the manufacturer, test laboratory will not be responsible if any error. (2) The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity. (3) "N/A" Indicates inapplicability	

2.2. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing. 2.4GWIFI, 11 channels are provided to the EUT. were selected for testing.

Operation Frequency List:

Channel List for 802.11b/g/n (20)

Channel	Channel	Frequency (MHz)
Low	01	2412
Middle	06	2437
High	11	2462

Channel List for 802.11n (40)

Channel	Channel	Frequency (MHz)
Low	03	2422
Middle	06	2437
High	09	2452

Channel List for 802.11b/g/n (20)

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	\	\

2.3. BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



AC Conducted Emission Test



RF Conducted Test



2.4. DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

Item	Equipment	Mfr/Brand	Model/Type	Note
E-1	Adapter	N/A	GQ240A-21400650-E1	Product combination usage

Item	Equipment	Mfr/Brand	Length	Note
C-1	line	N/A	1m	Test use

Note : (1) For detachable type VO cables should be specified the length in cm in Length column.

(2) "YES" is means "with core"; "NO" is means "without core".

2.5. Measurement Instruments List

Radiation emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	ATA-E-001	966 chamber	CRT	9*6*6M	CRTNDCR966	2025-03-21	2028-03-20
2	ATA-E-011	AC Power Source	XINOUEHUA	APW-1300N	202504292663	2026-05-07	2027-05-06
3	ATA-E-013	DC Power Source	XINOUEHUA	ADC250-32D	202504292667	2026-05-07	2027-05-06
4	ATA-E-033	Receiver	R&S	ESPI7	100092	2026-05-07	2027-05-06
5	ATA-E-034	Broadband antenna	Schwarzbeck	VULB9168	01839	2025-07-17	2027-07-17
6	ATA-E-035	High Frequency Horn Antenna	Schwarzbeck	BBHA 9120D	03169	2025-07-17	2027-07-17
7	ATA-E-038	Cable	Times	0-18GHz	/	2026-05-07	2027-05-06
9	ATA-E-040	6dB attenuator	Zhengchang Liubo	6dB	/	2026-05-07	2027-05-06
10	ATA-E-039	Cable	Times	0-1GHz	/	2026-05-07	2027-05-06
11	ATA-E-041	Preamplifier	COM MV	DLNA8-1-18G-2705	10241234	2026-05-07	2027-05-06
12	ATA-E-042	Preamplifier	COM MV	DLNA8-0.009-1000-1034	5252881	2026-05-07	2027-05-06
13	ATA-E-044	Filter	MWRFTest	ZHPF6-C3000-18000-3129	08252098	2026-05-07	2027-05-06
14	ATA-E-045	Filter	MWRFTest	ZHPF6-C6500-18000-175	08252097	2026-05-07	2027-05-06
15	ATA-E-046	Filter	MWRFTest	ZBSF6-C2400-2483.5-543	08252096	2026-05-07	2027-05-06
16	ATA-E-047	Filter	MWRFTest	ZBSF6-C5100-5900-5713	08252095	2026-05-07	2027-05-06
17	ATA-E-051	Spectrum Analyzer	R&S	FSV40-N	101779	2025-07-29	2026-07-28
18	ATA-E-052	Cable	HELPLIGHT	2.92J/2.92J 10M	/	2026-01-19	2027-01-18
19	ATA-E-054	Cable	HELPLIGHT	2.92J/2.92J 0.8M	/	2026-01-19	2027-01-18
20	ATA-E-059	Antenna Tower	CRT	AT-1	/	/	/
21	ATA-E-005	Temperature and humidity meter	deli	LE502-WH	/	2026-05-07	2027-05-06
22	ATA-E-064	Barometer	Qingping	CGP23W	/	2026-01-28	2027-01-27
23	ATA-E-048	Loop Antenna	ZHINA	ZN30900C	21104CCUT SE019	2026-05-07	2027-05-06
24	ATA-E-049	Horn Antenna	ECHO MICrowave.,Ltd.	OBH100400	12221225	2026-05-07	2027-05-06
25	ATA-E-051	Spectrum Analyzer	R&S	FSV40-N	101779	2026-05-07	2027-05-06

Conduction emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	ATA-E-032	EMI TEST RECEIVER	Schwarzbeck	ESCI3	1009300	2026-05-07	2027-05-06
2	ATA-E-037	Pulse Limiter	Schwarzbeck	VTSD 9561 F-N	/	2026-05-07	2027-05-06
3	ATA-E-069	Conductive test cable	Schwarzbeck	2.5m	N/A	2026-01-28	2027-01-27
4	ATA-E-036	LISN	Schwarzbeck	NSLK 8127	01169	2026-05-07	2027-05-06
5	ATA-E-072	Three-Line V-Network	ZHINAN	2N33770A	13003	2026-01-27	2027-01-26
6	ATA-E-009	Temperature and humidity meter	deli	LE502-WH	/	2026-05-07	2027-05-06
7	ATA-E-010	Barometer	Qingping	CGP23W	/	2026-05-07	2027-05-06

RF Conducted Test							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
	ATA-E-029	Spectrum Analyzer	Keysight	N9020A	MY50530404	2026-05-07	2027-05-06
1	ATA-E-030	MXG Anaio Signal Generator	Agilent	N5181A	MY47420598	2026-05-07	2027-05-06
2	ATA-E-031	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	161163	2026-05-07	2027-05-06
3	ATA-E-043	Radio Control Unit	MWRFTest	MW100-RFCB	MW250428A TA-55	2026-05-07	2027-05-06

Note:

- 1)The Cal. Interval was one year The darkroom calibration cycle is three years
- 2)The cable loss has calculated in test result which connection between each test instruments.

2.6. Test Software

Software name	Model	Version
Conducted emission Measurement Software	EZ-EMC	FARAD-3A1.1+
Radiated emission Measurement Software	EZ-EMC	FARAD-3A1.1+
Bluetooth and WIFI Test System	MWRF8310	2.0.0.0



3. TEST ITEM AND RESULTS

3.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: The antenna is permanently fixed to the EUT

Antenna Information

The maximum gain of antenna was 3.0 dBi.

Note: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, **Shenzhen ATA Testing Lab. Inc** does not assume any responsibility.

3.2. Conducted Emission

Limit

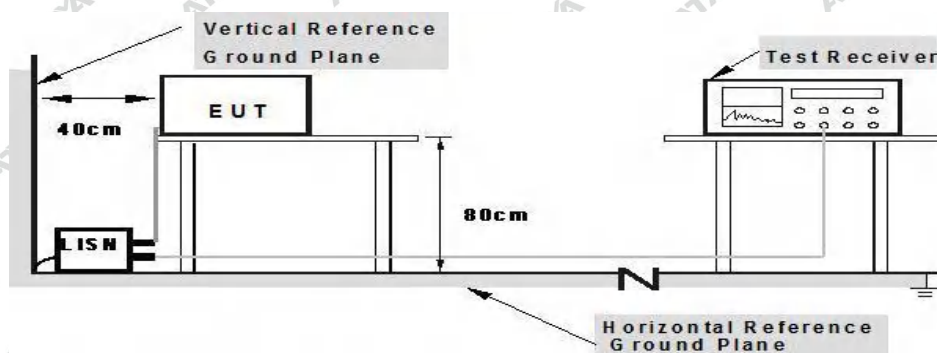
Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



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

Test Procedure

1. The EUT was setup according to ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 0.8m above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 0.8m from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

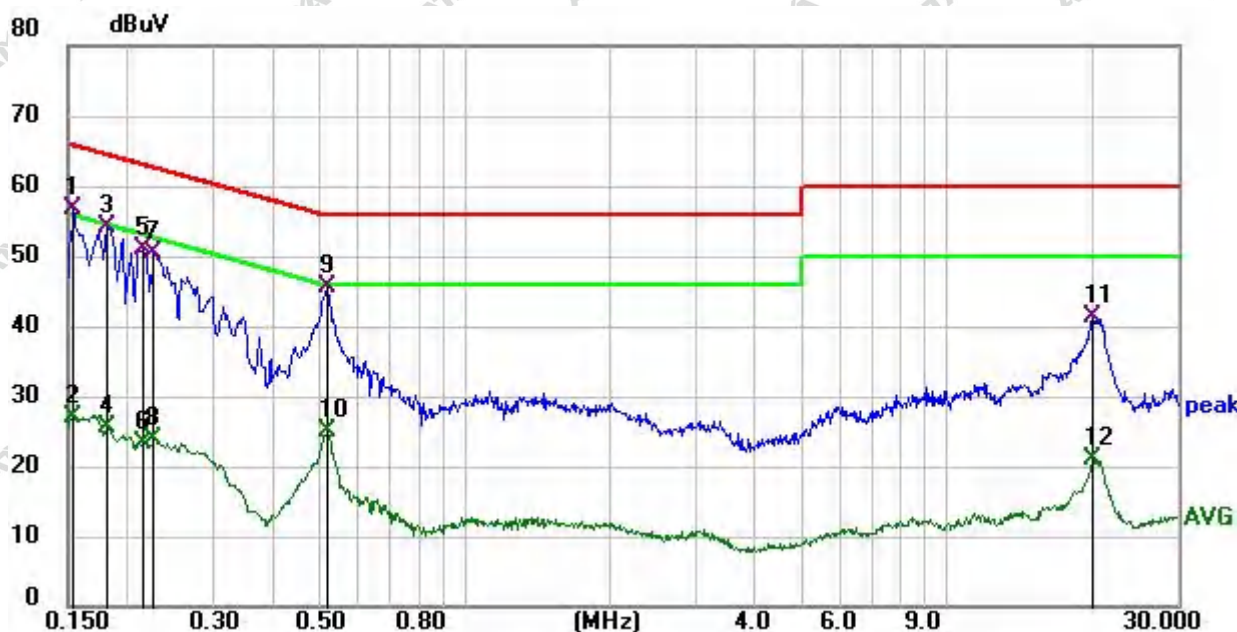
Test Mode:

Please refer to the clause 2.3.

Test Results

Pre-scan Low Channel, Middle Channel and High channel, and found Low Channel channel which it is worse case, so only show the test data for worse case.

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F
Pressure:	1010 hPa	Phase:	L
Temperature	24.8°C	Humidity	52.1%
Test Mode:	TX-802.11n(HT20) 2462MHz(Worst Case)	Test Voltage:	AC 120V 60Hz by Adapter by Adapter



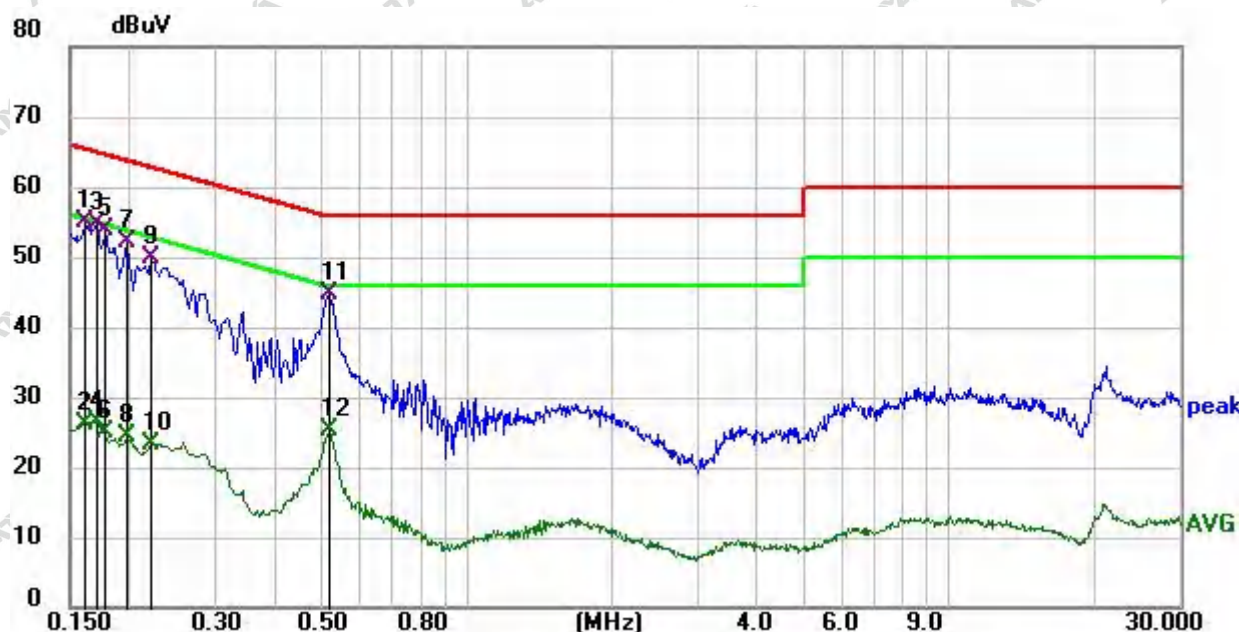
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1539	46.59	10.11	56.70	65.79	-9.09	QP
2	0.1539	16.84	10.11	26.95	55.79	-28.84	AVG
3	0.1819	44.17	10.10	54.27	64.40	-10.13	QP
4	0.1819	15.33	10.10	25.43	54.40	-28.97	AVG
5	0.2140	40.88	10.10	50.98	63.05	-12.07	QP
6 *	0.2140	13.25	10.10	23.35	53.05	-29.70	AVG
7	0.2260	40.38	10.10	50.48	62.60	-12.12	QP
8	0.2260	13.80	10.10	23.90	52.60	-28.70	AVG
9	0.5180	35.39	10.13	45.52	56.00	-10.48	QP
10	0.5180	14.79	10.13	24.92	46.00	-21.08	AVG
11	20.1620	30.82	10.35	41.17	60.00	-18.83	QP
12	20.1620	10.59	10.35	20.94	50.00	-29.06	AVG

Remark: 1. All readings are Quasi-Peak and Average values

2. Margin = Result (Result = Reading + Factor) - Limit

3. Factor = LISN factor + Cable loss + Limiter (10dB)

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F
Pressure:	1010 hPa	Phase:	N
Temperature	24.8°C	Humidity	52.1%
Test Mode:	TX-802.11n(HT20) 2462MHz(Worst Case)	Test Voltage:	AC 120V 60Hz by Adapter by Adapter



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1620	44.90	10.11	55.01	65.36	-10.35	QP
2	0.1620	16.05	10.11	26.16	55.36	-29.20	AVG
3	0.1700	44.62	10.11	54.73	64.96	-10.23	QP
4	0.1700	16.37	10.11	26.48	54.96	-28.48	AVG
5	0.1780	43.67	10.10	53.77	64.58	-10.81	QP
6 *	0.1780	15.00	10.10	25.10	54.58	-29.48	AVG
7	0.1980	42.14	10.10	52.24	63.69	-11.45	QP
8	0.1980	14.44	10.10	24.54	53.69	-29.15	AVG
9	0.2220	39.65	10.10	49.75	62.74	-12.99	QP
10	0.2220	13.28	10.10	23.38	52.74	-29.36	AVG
11	0.5180	34.59	10.13	44.72	56.00	-11.28	QP
12	0.5180	15.05	10.13	25.18	46.00	-20.82	AVG

Remark: 1. All readings are Quasi-Peak and Average values

2. Margin = Result (Result = Reading + Factor) - Limit

3. Factor = LISN factor + Cable loss + Limiter (10dB)

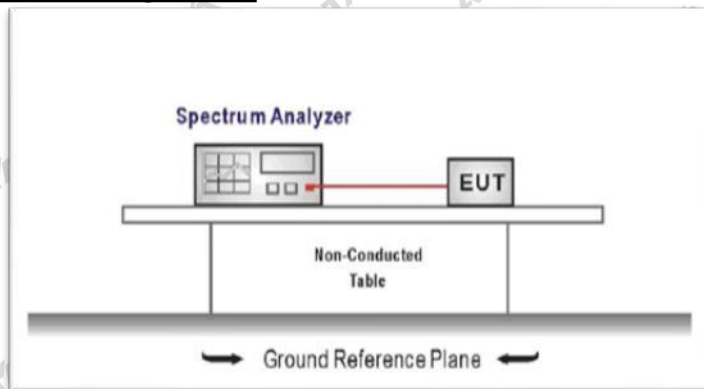
3.3. Band edge and Spurious Emission (conducted)

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Test Configuration



Test Procedure

1. Connect the antenna port(s) to the spectrum analyzer input.
2. Establish a reference level by using the following procedure
Center frequency=DTS channel center frequency
The span = 1.5 times the DTS bandwidth.
RBW = 100 kHz, VBW $\geq 3 \times$ RBW
Detector = peak, Sweep time = auto couple, Trace mode = max hold
Allow trace to fully stabilize
Use the peak marker function to determine the maximum PSD level

Note: the channel found to contain the maximum PSD level can be used to establish the reference level.

3. Emission level measurement
Set the center frequency and span to encompass frequency range to be measured
RBW = 100 kHz, VBW $\geq 3 \times$ RBW
Detector = peak, Sweep time = auto couple, Trace mode = max hold
Allow trace to fully stabilize
Use the peak marker function to determine the maximum amplitude level.
4. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
5. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emissions relative to the limit.

Test Mode

Please refer to the clause 2.3.

Test Results

Test Date

802.11b Mode:

Channel	Measured Max. Band Edge Emission(dBm)	Limit(dBc) Carrier Level	Verdict
Low Channel	-41.78	-20	Pass
High Channel	-51.28	-20	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission(dBm)	Limit(dBc) Carrier Level	Verdict
Low Channel	-33.77	-20	Pass
High Channel	-40.14	-20	Pass

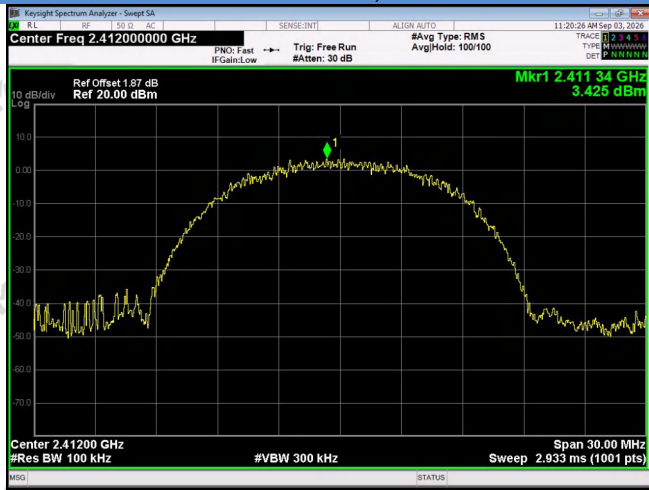
802.11n-20 Mode:

Channel	Measured Max. Band Edge Emission(dBm)	Limit(dBc) Carrier Level	Verdict
Low Channel	-35.97	-20	Pass
High Channel	-42.87	-20	Pass

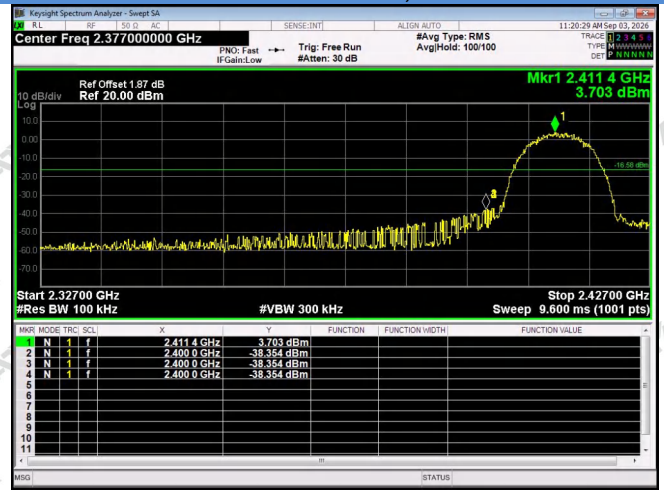
Note: Calculation Note: The limit of this item is -20 dBc. Criterion: measured maximum spurious emission $\leq$ -20 dBc. Margin(dB)=Limit - Measured Value.

Test Graphs:

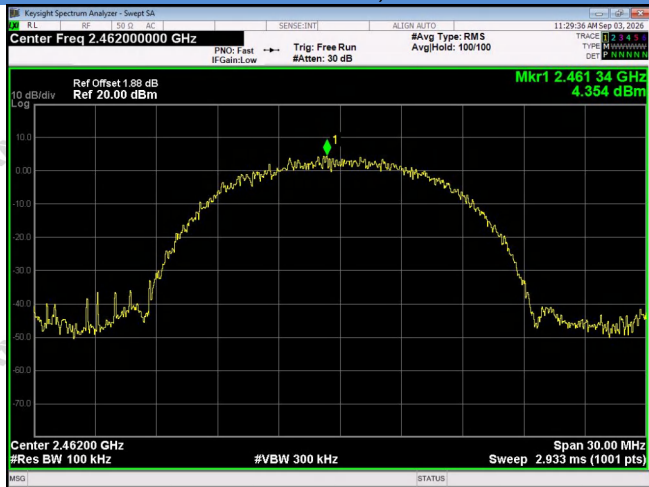
802.11b LOW CHANNEL, CARRIER LEVEL



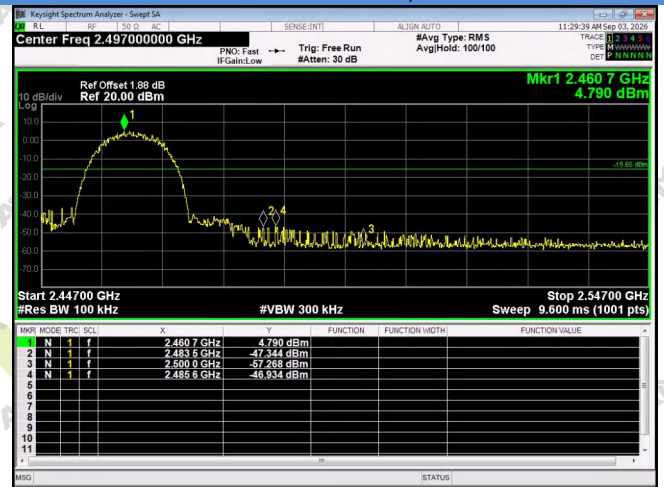
802.11b LOWCHANNEL, BAND EDGE



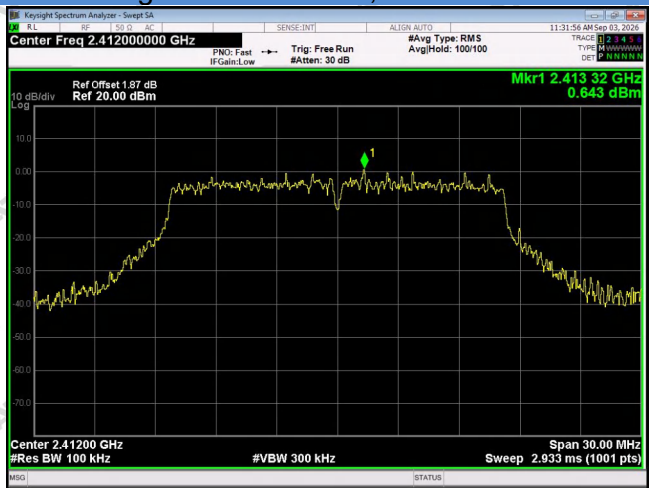
802.11b HIGH CHANNEL, CARRIER LEVEL



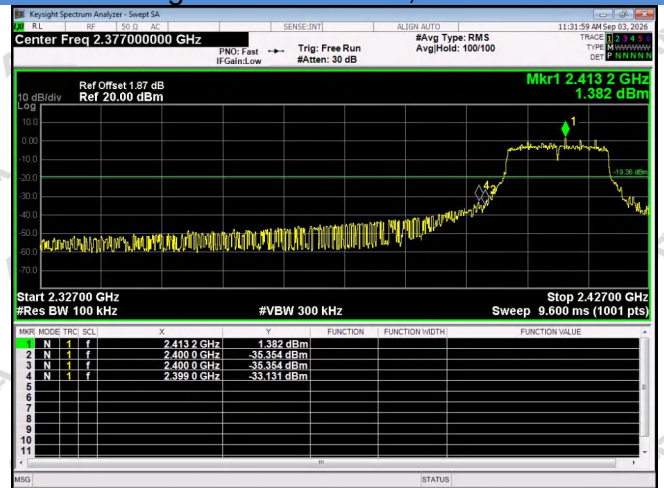
802.11b HIGHCHANNEL, BAND EDGE



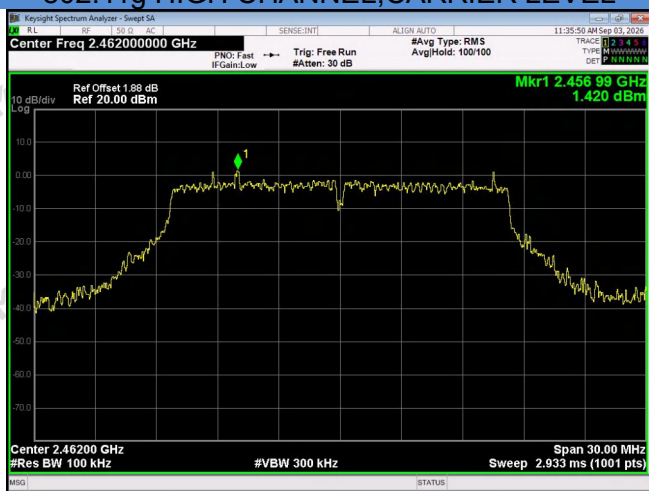
802.11g LOWCHANNEL, CARRIER LEVEL



802.11g LOW CHANNEL, BAND EDGE



802.11g HIGH CHANNEL, CARRIER LEVEL



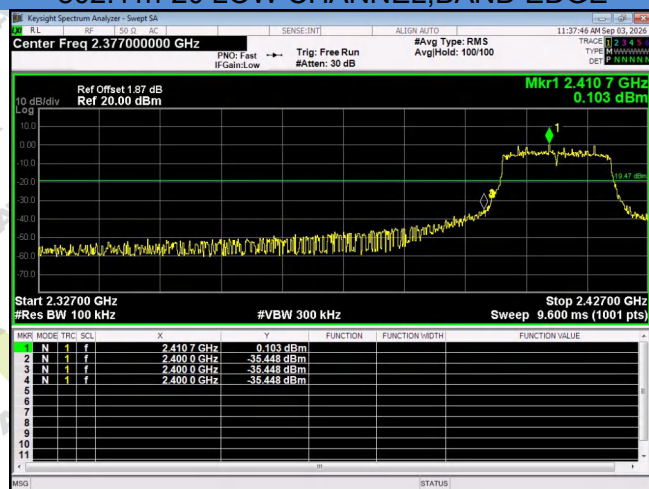
802.11g HIGHCHANNEL, BAND EDGE



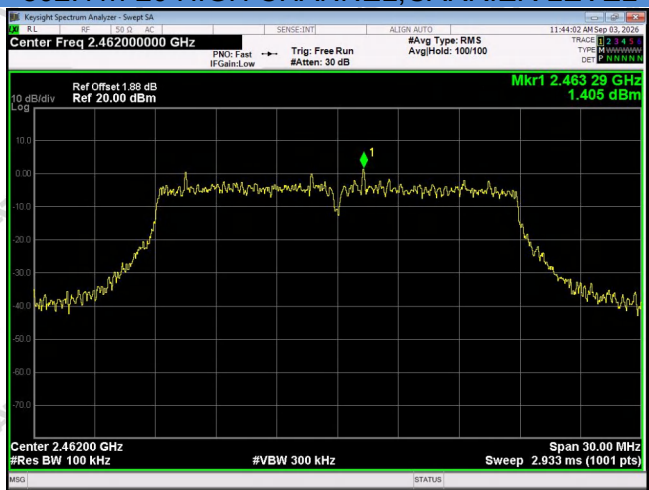
802.11n-20 LOWCHANNEL, CARRIER LEVEL



802.11n-20 GHz LOW CHANNEL, BAND EDGE



802.11n-20 HIGH CHANNEL, CARRIER LEVEL

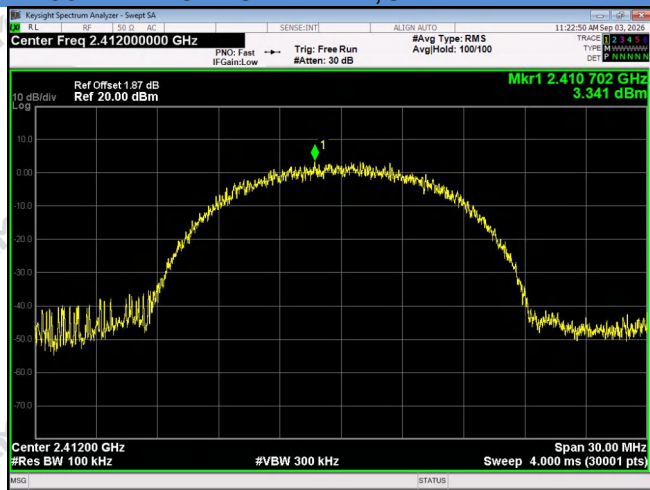


802.11n-20 HIGHCHANNEL, BAND EDGE

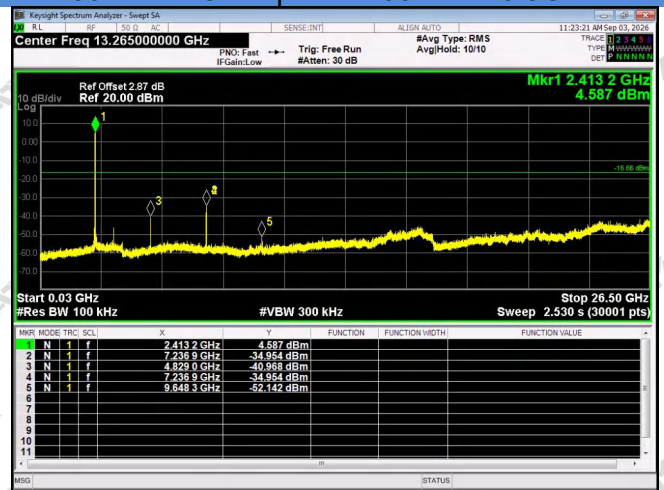


Spurious RF Conducted Emissions

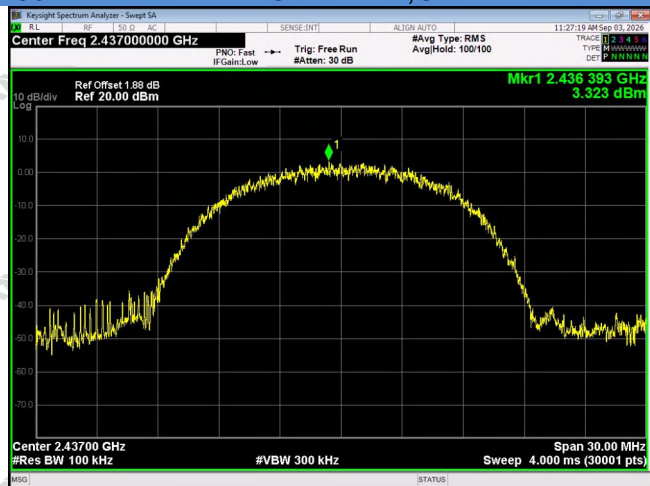
802.11b LOW CHANNEL, CARRIER LEVEL



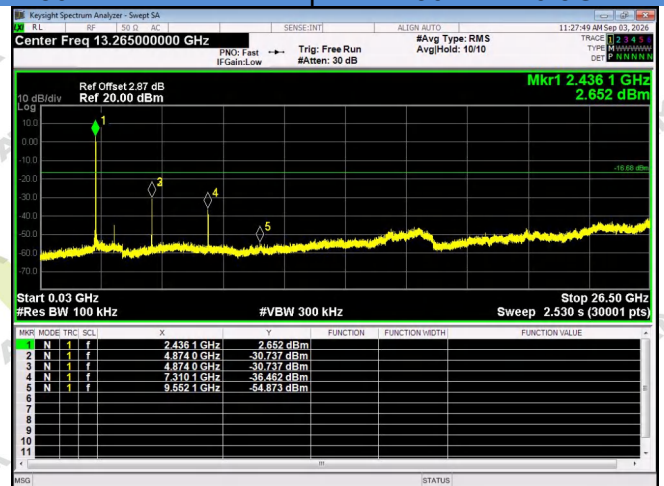
802.11b LOW Spurious 30MHz-26.5GHz



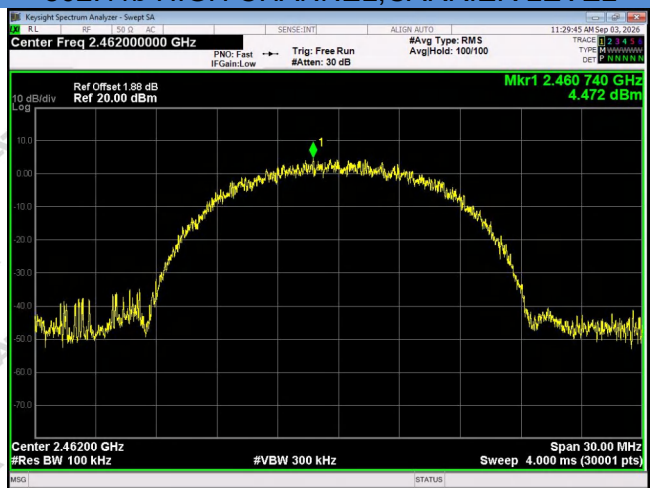
802.11b MIDDLE CHANNEL, CARRIER LEVEL



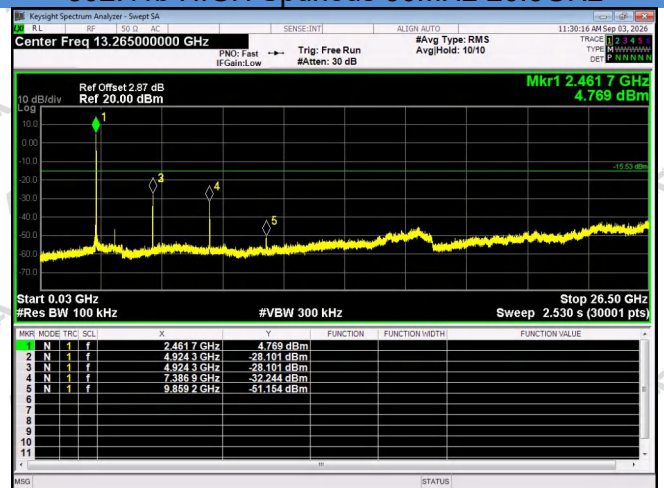
802.11b MIDDLE Spurious 30MHz-26.5GHz



802.11b HIGH CHANNEL, CARRIER LEVEL



802.11b HIGH Spurious 30MHz-26.5GHz

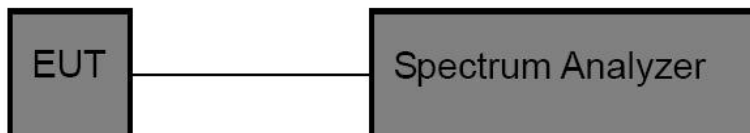


3.4. 6dB Bandwidth

Limit

Test Item	Limit	Frequency Range(MHz)
Bandwidth	≥ 500 KHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
3. The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.
4. Spectrum Setting:
6dB bandwidth:
 - (1) Set RBW= shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.
 - (6) Allow the trace to stabilize.
- (7) 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.

NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

Please refer to the clause 2.3.

Test Results

Test Data

802.11b Mode:

Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limits(kHz)
Low	9.225	≥500
Middle	10.11	≥500
High	9.4	≥500

802.11g Mode:

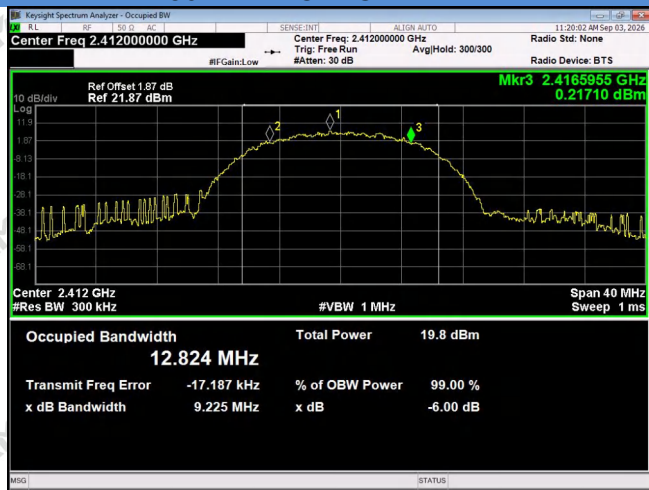
Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limits(kHz)
Low	16.47	≥500
Middle	16.5	≥500
High	16.57	≥500

802.11n-20 Mode:

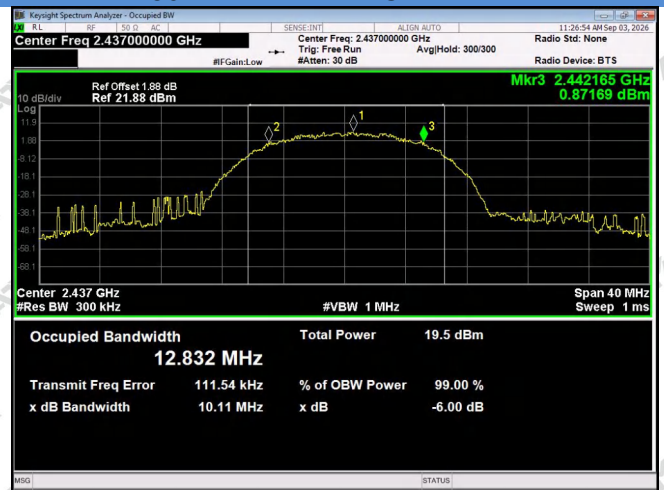
Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limits(kHz)
Low	17.37	≥500
Middle	17.64	≥500
High	17.44	≥500

Test Graphs:

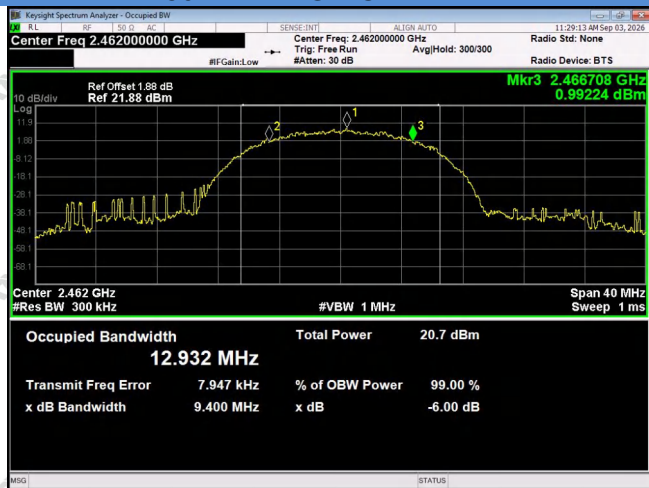
802.11b LOW CHANNEL



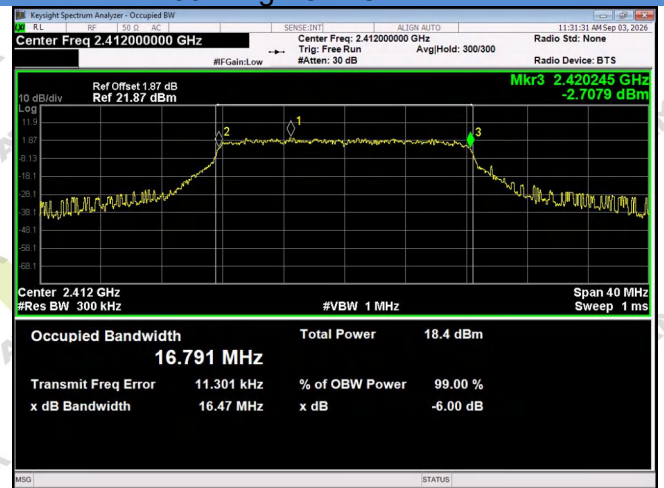
802.11b MIDDLE CHANNEL



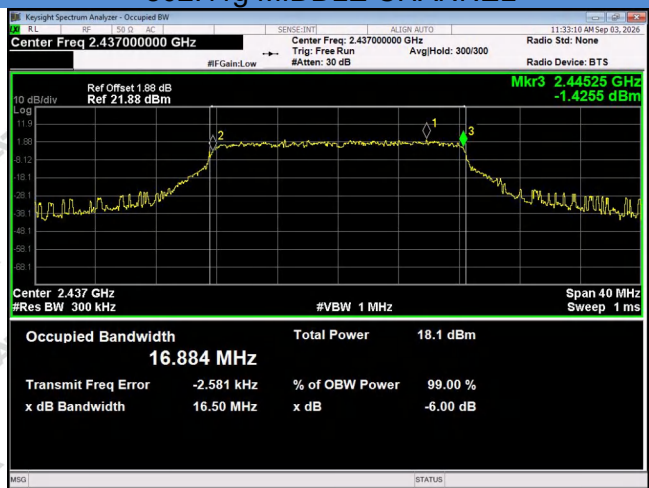
802.11b HIGH CHANNEL



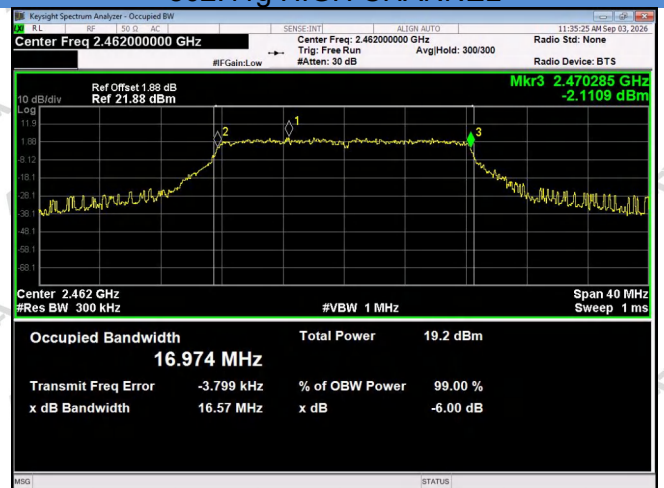
802.11g LOW CHANNEL



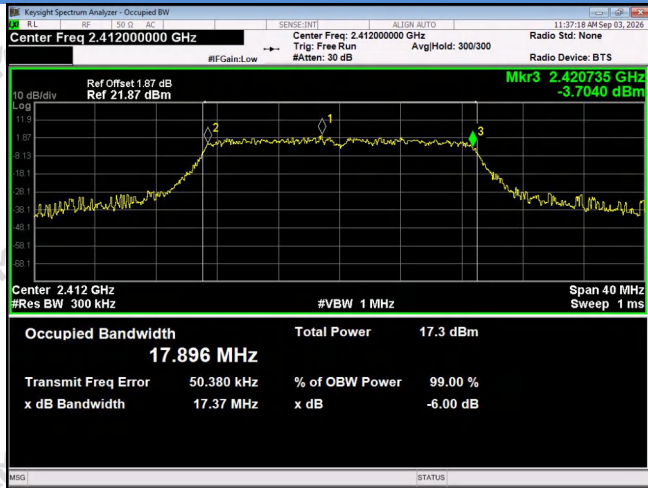
802.11g MIDDLE CHANNEL



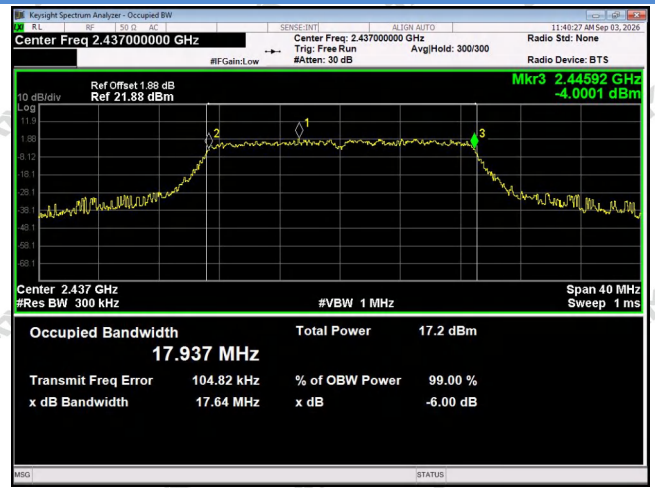
802.11g HIGH CHANNEL



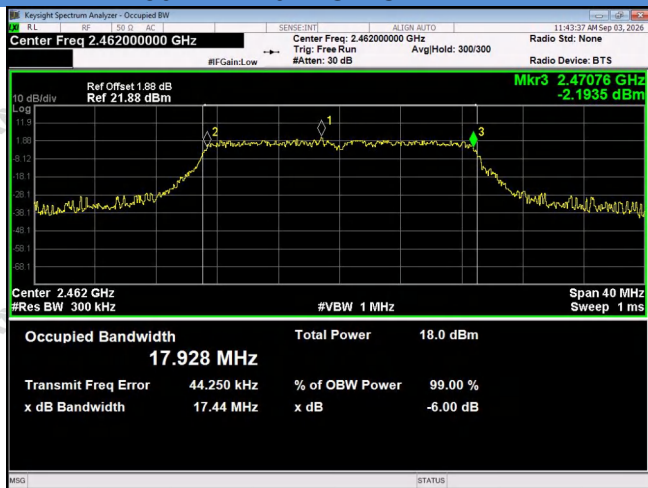
802.11n-20 LOW CHANNEL



802.11n-20 MIDDLE CHANNEL



802.11n-20 HIGH CHANNEL



3.5. Peak Output Power

Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

Test Configuration



Test Procedure

- 1.The maximum peak conducted output power may be measured using a broadband peak RF power meter.
- 2.The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

Test Mode

Please refer to the clause 2.3.

Test Result



Test Data

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F
Pressure:	1012 hPa	Test Voltage:	AC 120V 60Hz by Adapter
Test Mode:	TX Mode /CH01, CH06, CH11		

802.11b

Test Channel	Frequency (MHz)	Maximum Peak Conducted Output Power(dBm)	Limit (dBm)
Low	2412	17.10	30
Middle	2437	17.00	30
High	2462	18.11	30

802.11g

Test Channel	Frequency (MHz)	Maximum Peak Conducted Output Power(dBm)	Limit (dBm)
Low	2412	19.10	30
Middle	2437	18.90	30
High	2462	19.95	30

802.11n20

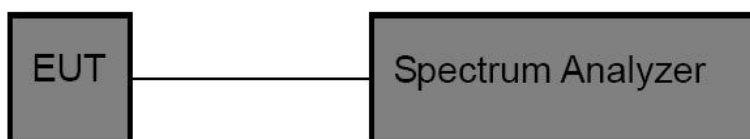
Test Channel	Frequency (MHz)	Maximum Peak Conducted Output Power(dBm)	Limit (dBm)
Low	2412	19.10	30
Middle	2437	18.90	30
High	2462	19.95	30

3.6. Power Spectral Density

Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
 - Set analyser center frequency to DTS channel center frequency.
 - Set the span to 1.5 times the DTS bandwidth.
 - Set the RBW to: 30 kHz
 - Set the VBW to: 100 kHz
 - Detector: peak
 - Sweep time: auto
 - Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

Please refer to the clause 2.3.

Test Result

Note:

Power Density(dBm/3kHz)=Power Density(dBm/10kHz)-10*Log(10/3)

Test Data

802.11b Mode:

Channel	Spectral Power Density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.96	8
Middle	-11.62	8
High	-9.04	8

802.11g Mode:

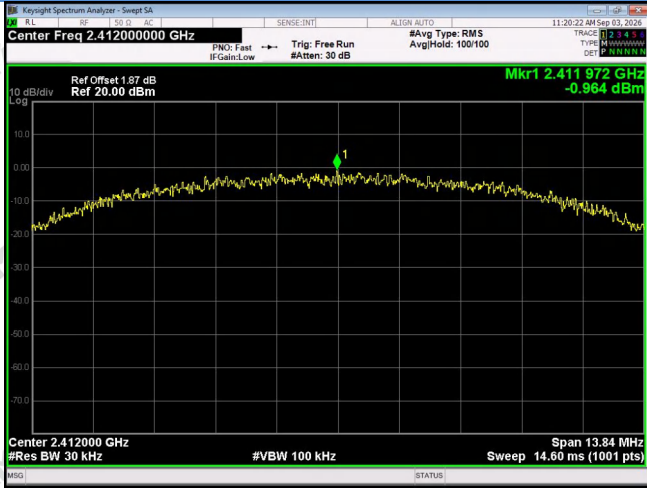
Channel	Spectral Power Density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-13.37	8
Middle	-12.93	8
High	-12.85	8

802.11n-20 Mode:

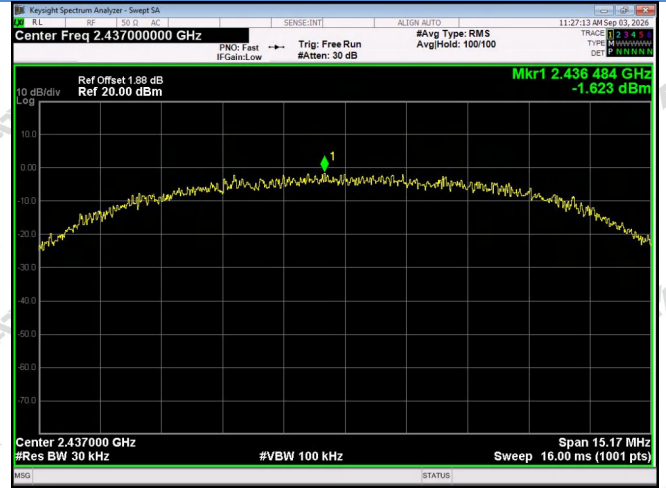
Channel	Spectral Power Density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-14.31	8
Middle	-14.77	8
High	-13.59	8

Test Graphs:

802.11b LOW CHANNEL



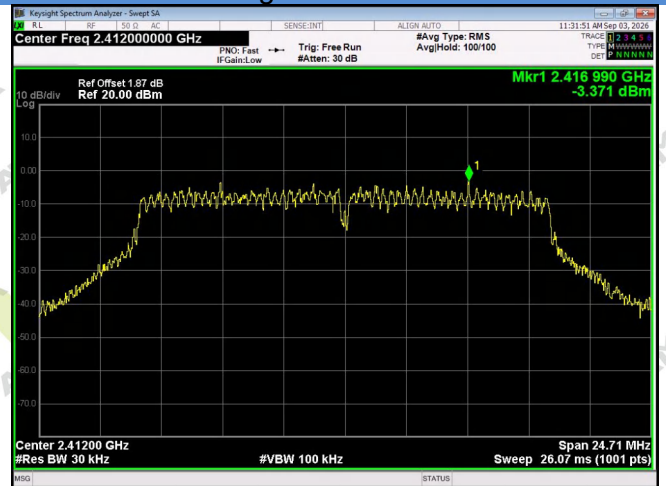
802.11b MIDDLE CHANNEL



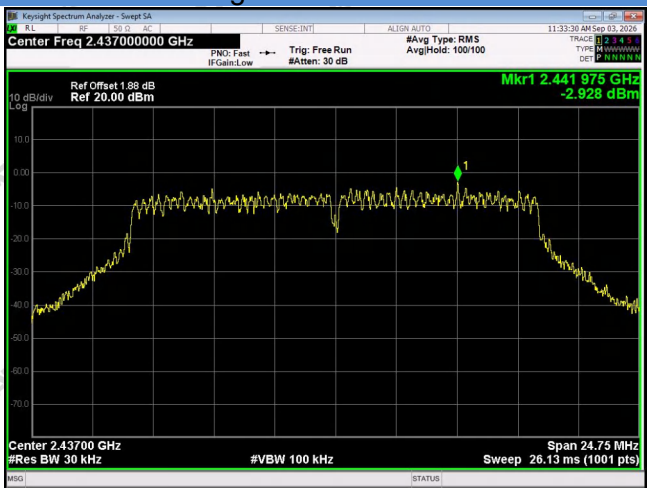
802.11b HIGH CHANNEL



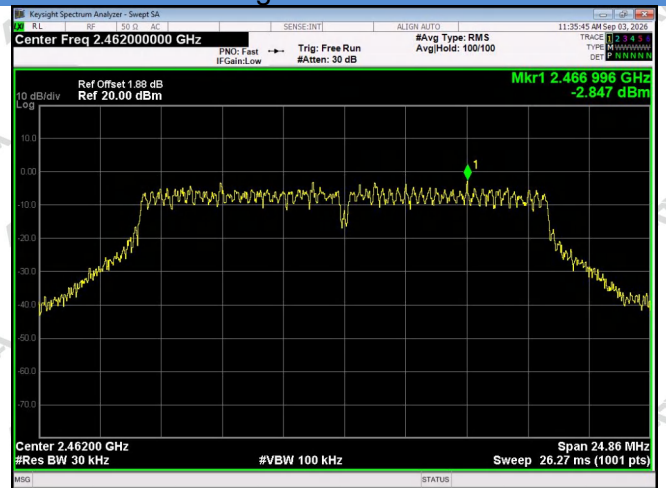
802.11g LOW CHANNEL



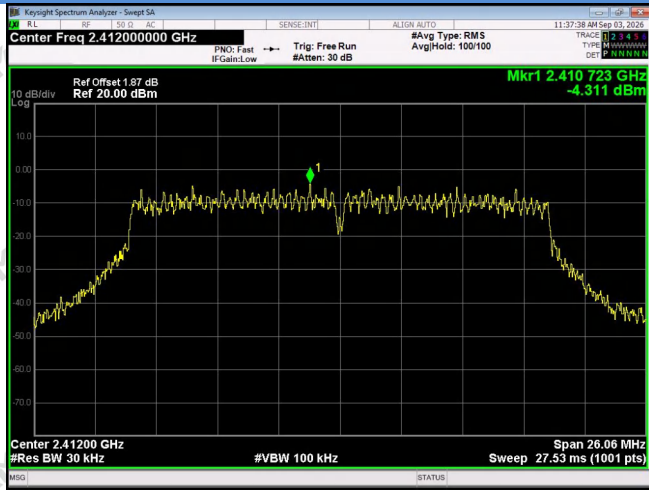
802.11g MIDDLE CHANNEL



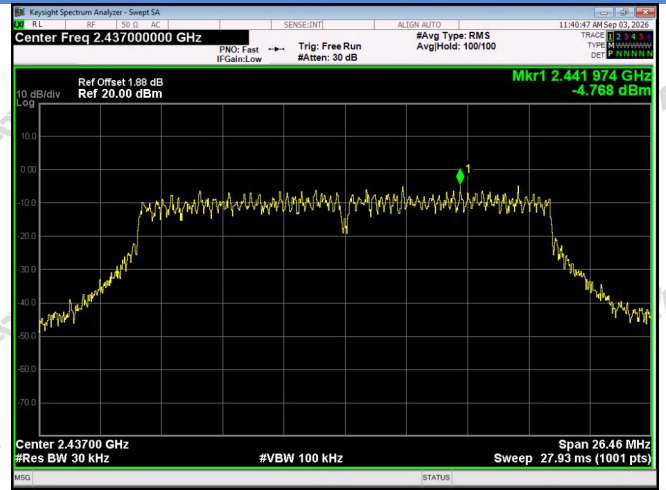
802.11g HIGH CHANNEL



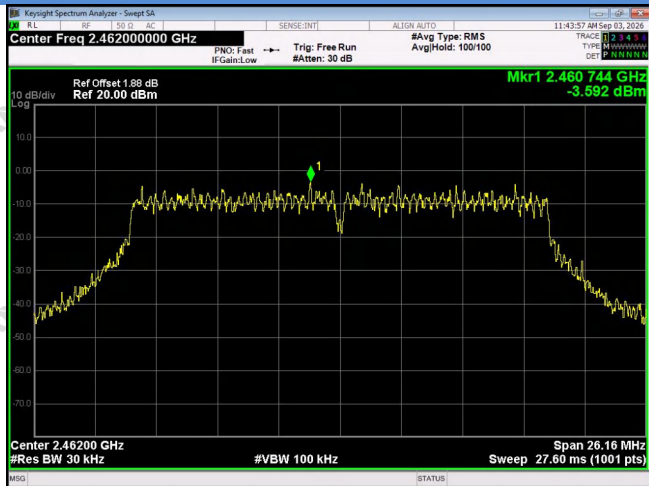
802.11n-20 LOW CHANNEL



802.11n-20 MIDDLE CHANNEL



802.11n-20 HIGH CHANNEL

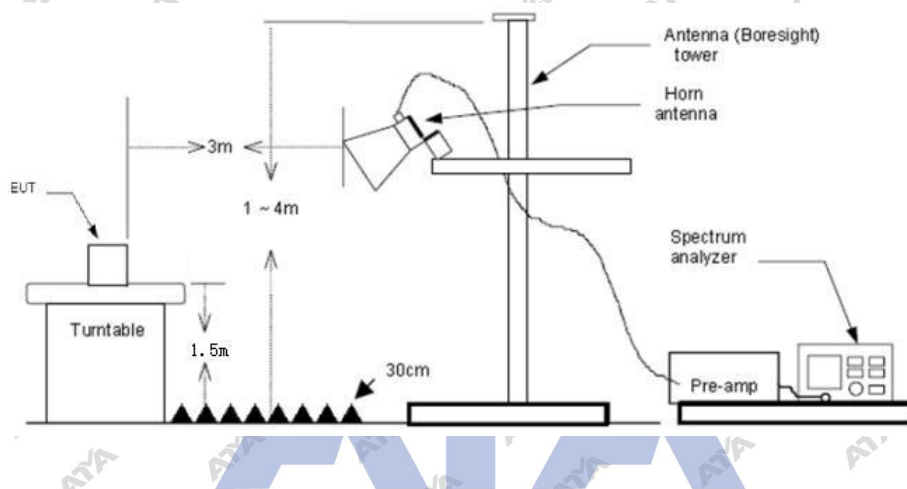


3.7. Band Edge Emissions(Radiated)

Limit

Restricted Frequency Band (MHz)	(dBuV/m)(at 3m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54
Note: All restriction bands have been tested, only the worst case is reported.		

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 on radiated measurement.
5. The receiver set as follow:
 RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
 RBW=1MHz, VBW=10Hz with PEAK Detector for Average Value.

Test Mode

Please refer to the clause 2.2.

Test Results

Note:

Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

Test Data**Radiated Band Edge**

Frequency (MHz)	Meter Reading (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
802.11b									
2310.00	49.75	3.40	27.80	32.41	48.54	74	-25.46	Pk	Horizontal
2310.00	37.19	3.40	27.80	32.41	35.98	54	-18.02	AV	Horizontal
2310.00	48.85	3.40	27.80	32.41	47.64	74	-26.36	Pk	Vertical
2310.00	37.52	3.40	27.80	32.41	36.31	54	-17.69	AV	Vertical
2390.00	49.15	3.45	27.70	32.49	47.81	74	-26.19	Pk	Vertical
2390.00	37.95	3.45	27.70	32.49	36.61	54	-17.39	AV	Vertical
2390.00	49.99	3.45	27.70	32.49	48.65	74	-25.35	Pk	Horizontal
2390.00	38.07	3.45	27.70	32.49	36.73	54	-17.27	AV	Horizontal
2483.50	51.15	3.48	28.53	32.55	50.61	74	-23.39	Pk	Vertical
2483.50	37.88	3.48	28.53	32.55	37.34	54	-16.66	AV	Vertical
2483.50	49.83	3.48	28.53	32.55	49.29	74	-24.71	Pk	Horizontal
2483.50	37.54	3.48	28.53	32.55	37	54	-17.00	AV	Horizontal
2500.00	49.02	3.49	29.20	32.66	49.05	74	-24.95	Pk	Vertical
2500.00	37.57	3.49	29.20	32.66	37.6	54	-16.4	AV	Vertical
2500.00	49.19	3.49	29.20	32.66	49.22	74	-24.78	Pk	Horizontal
2500.00	37.7	3.49	29.20	32.66	37.73	54	-16.27	AV	Horizontal
802.11g									
2310.00	49.64	3.40	27.80	32.41	48.43	74	-25.57	Pk	Horizontal
2310.00	37.23	3.40	27.80	32.41	36.02	54	-17.98	AV	Horizontal
2310.00	48.64	3.40	27.80	32.41	47.43	74	-26.57	Pk	Vertical
2310.00	37.38	3.40	27.80	32.41	36.17	54	-17.83	AV	Vertical
2390.00	49.48	3.45	27.70	32.49	48.14	74	-25.86	Pk	Vertical
2390.00	38.22	3.45	27.70	32.49	36.88	54	-17.12	AV	Vertical
2390.00	50.12	3.45	27.70	32.49	48.78	74	-25.22	Pk	Horizontal
2390.00	37.99	3.45	27.70	32.49	36.65	54	-17.35	AV	Horizontal
2483.50	51.08	3.48	28.53	32.55	50.54	74	-23.46	Pk	Vertical
2483.50	38.02	3.48	28.53	32.55	37.48	54	-16.52	AV	Vertical
2483.50	50.04	3.48	28.53	32.55	49.5	74	-24.50	Pk	Horizontal
2483.50	37.89	3.48	28.53	32.55	37.35	54	-16.65	AV	Horizontal
2500.00	49.09	3.49	29.20	32.66	49.12	74	-24.88	Pk	Vertical
2500.00	37.81	3.49	29.20	32.66	37.84	54	-16.16	AV	Vertical
2500.00	49.18	3.49	29.20	32.66	49.21	74	-24.79	Pk	Horizontal
2500.00	37.28	3.49	29.20	32.66	37.31	54	-16.69	AV	Horizontal

Radiated Band Edge

802.11n20									
2310.00	49.77	3.40	27.80	32.41	46.11	74	-25.44	Pk	Horizontal
2310.00	37.14	3.40	27.80	32.41	33.48	54	-18.07	AV	Horizontal
2310.00	48.49	3.40	27.80	32.41	44.83	74	-26.72	Pk	Vertical
2310.00	37.55	3.40	27.80	32.41	33.89	54	-17.66	AV	Vertical
2390.00	49.19	3.45	27.70	32.49	45.40	74	-26.15	Pk	Vertical
2390.00	38.4	3.45	27.70	32.49	34.61	54	-16.94	AV	Vertical
2390.00	50.27	3.45	27.70	32.49	46.48	74	-25.07	Pk	Horizontal
2390.00	38.31	3.45	27.70	32.49	34.52	54	-17.03	AV	Horizontal
2483.50	51.21	3.48	28.53	32.55	48.22	74	-23.33	Pk	Vertical
2483.50	37.99	3.48	28.53	32.55	35.00	54	-16.55	AV	Vertical
2483.50	50.13	3.48	28.53	32.55	47.14	74	-24.41	Pk	Horizontal
2483.50	37.74	3.48	28.53	32.55	34.75	54	-16.8	AV	Horizontal
2500.00	49.33	3.49	29.20	32.66	46.91	74	-24.64	Pk	Vertical
2500.00	37.77	3.49	29.20	32.66	35.35	54	-16.2	AV	Vertical
2500.00	49.21	3.49	29.20	32.66	46.79	74	-24.76	Pk	Horizontal
2500.00	37.68	3.49	29.20	32.66	35.26	54	-16.29	AV	Horizontal



3.8. Spurious Emission (Radiated)

Limit

Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/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

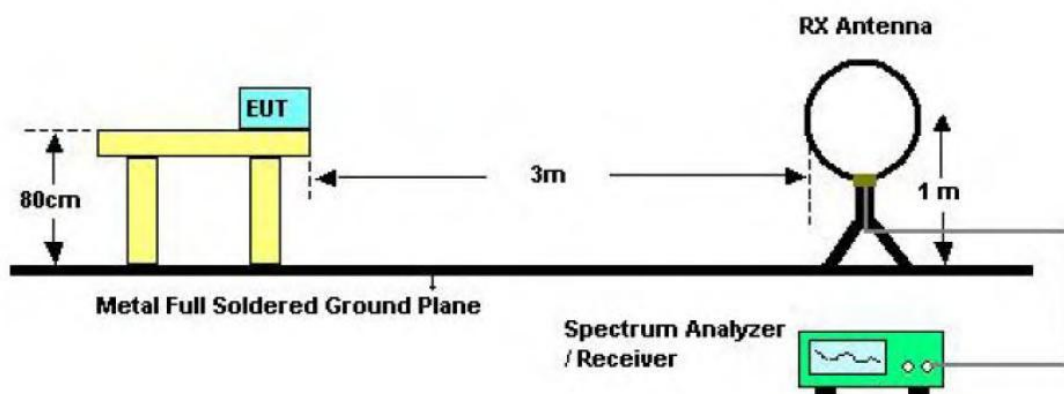
Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

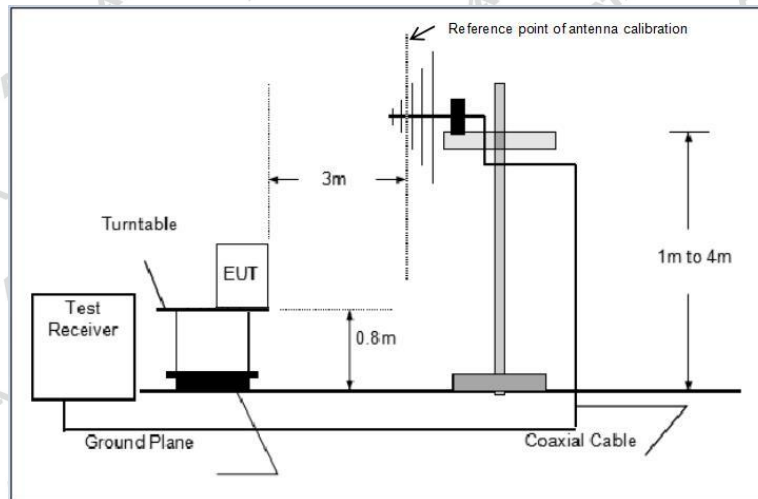
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

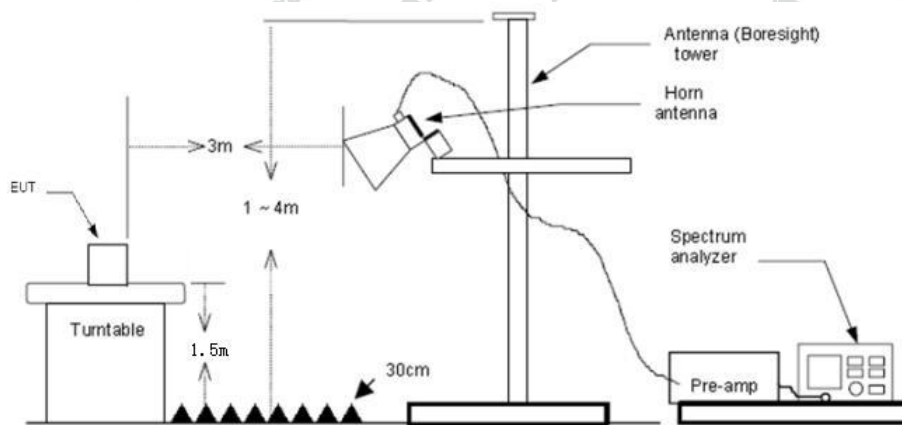
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10-2020 + Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW=10Hz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

Test Result**9 KHz~30 MHz**

From 9 KHz~30 MHz : Conclusion: PASS

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F-
Pressure:	1010 hPa	Phase:	H/V
Temperature	24.8℃	Humidity	52.1%
Test Mode:	TX-802.11n(HT20) 2462MHz(Worst Case)	Test Voltage:	AC 120V 60Hz by Adapter

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	--
--	--	--	--	--

Note:

1. For 9kHz-30MHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = 40 log (specific distance/test distance)(dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.

Note:

- 1) Measurement = Reading level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Preamplifier Factor
- 2) The peak level is lower than average limit (54 dBuV/m), this data is too weak instrument of signal is unable to test.
- 3) The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Results of Radiated Emissions (30MHz~ 1000MHz)

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F
Pressure:	1010 hPa	Phase:	Horizontal
Temperature	24.8℃	Humidity	52.1%
Test Mode:	TX-802.11n(HT20) 2462MHz(Worst Case)	Test Voltage:	AC 120V 60Hz by Adapter



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.9881	40.73	-12.63	28.10	40.00	-11.90	QP
2	88.9639	45.36	-16.66	28.70	40.00	-11.30	QP
3	136.9390	45.82	-12.40	33.42	40.00	-6.58	QP
4 *	187.0956	42.21	-14.66	27.55	40.00	-12.45	QP
5 !	232.5318	37.24	-13.60	23.64	47.00	-23.36	QP
6 !	633.9072	32.29	-3.79	28.50	47.00	-18.50	QP

Emission Level= Read Level+ Correct Factor

EUT:	Desktop Laser Engraver	Model Name:	Genesis-F
Pressure:	1010 hPa	Phase:	Vertical
Temperature	24.8°C	Humidity	52.1%
Test Mode:	TX-802.11n(HT20) 2462MHz(Worst Case)	Test Voltage:	AC 120V 60Hz by Adapter



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	91.4947	46.25	-16.51	29.74	40.00	-10.26	QP
2	138.8734	40.69	-12.19	28.50	40.00	-11.50	QP
3	185.7882	44.61	-14.54	30.07	40.00	-9.93	QP
4 *	239.9873	44.35	-13.41	30.94	47.00	-16.06	QP
5 !	281.9945	46.14	-12.09	34.05	47.00	-12.95	QP
6 !	338.4000	41.15	-10.60	30.55	47.00	-16.45	QP

Emission Level= Read Level+ Correct Factor

Spurious Emission (1GHz-25GHz)

TX-802.11n(HT20) (Worst Case)

Frequency (MHz)	Read Level (dBμV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Low Channel (2412 MHz)(802.11n(HT20))--Above 1G									
4824.263	68.07	4.36	32.92	45.53	59.82	74.00	-14.18	Pk	Vertical
4824.263	47.63	4.36	32.92	45.53	39.38	54.00	-14.62	AV	Vertical
7236.159	63.38	5.02	37.63	45.56	60.47	74.00	-13.53	Pk	Vertical
7236.159	44.88	5.02	37.63	45.56	41.97	54.00	-12.03	AV	Vertical
4824.374	67.01	4.36	32.92	45.53	58.76	74.00	-15.24	Pk	Horizontal
4824.374	46.06	4.36	32.92	45.53	37.81	54.00	-16.19	AV	Horizontal
7236.218	68.03	5.02	37.63	45.56	65.12	74.00	-8.88	Pk	Horizontal
7236.218	46.12	5.02	37.63	45.56	43.21	54.00	-10.79	AV	Horizontal
Middle Channel (2437 MHz)(802.11n(HT20))--Above 1G									
4874.143	68.32	4.41	33.01	45.76	59.98	74.00	-14.02	Pk	Vertical
4874.143	49.45	4.41	33.01	45.76	41.11	54.00	-12.89	AV	Vertical
7311.255	65.15	5.02	37.68	45.59	62.26	74.00	-11.74	Pk	Vertical
7311.255	46.57	5.02	37.68	45.59	43.68	54.00	-10.32	AV	Vertical
4874.167	68.05	4.41	33.01	45.76	59.71	74.00	-14.29	Pk	Horizontal
4874.167	49.42	4.41	33.01	45.76	41.08	54.00	-12.92	AV	Horizontal
7311.094	67.35	5.02	37.68	45.59	64.46	74.00	-9.54	Pk	Horizontal
7311.094	47.85	5.02	37.68	45.59	44.96	54.00	-9.04	AV	Horizontal
High Channel (2462 MHz)(802.11n)--Above 1GD									
4924.238	68.14	4.50	33.26	46.07	59.83	74.00	-14.17	Pk	Vertical
4924.238	49.11	4.50	33.26	46.07	40.8	54.00	-13.20	AV	Vertical
7386.351	64.92	5.02	37.78	45.77	61.95	74.00	-12.05	Pk	Vertical
7386.351	46.35	5.02	37.78	45.77	43.38	54.00	-10.62	AV	Vertical
4924.129	67.78	4.50	33.26	46.07	59.47	74.00	-14.53	Pk	Horizontal
4924.129	49.06	4.50	33.26	46.07	40.75	54.00	-13.25	AV	Horizontal
7386.241	66.93	5.02	37.78	45.77	63.96	74.00	-10.04	Pk	Horizontal
7386.241	68.14	5.02	37.78	45.77	59.83	54.00	-14.17	AV	Horizontal

Note:

All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).

Emission Level= Antenna Factor + Cable Loss + Read Level - Preamplifier Factor.

All the modulation modes have been tested, and only the worst results are reflected in the report.

(2) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

(3) "802.11n(HT20)" mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

4. EUT TEST PHOTOS

Note: Refer to the attached test photos

5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Note: Refer to the attached exterior and interior photos



*****THE END*****