2/F., Garment Centre,
576 Castle Peak Road, Kowloon,
Hong Kong SAR, China.

Telephone: (852) 2173 8888
Facsimile: (852) 2785 5487
www.intertek.com

TEST REPORT

Report Number: 24050818HKG-002

Skyrocket Toys LLC

Application For Certification
(Original Grant)

FCC ID: O5318721

Transceiver

This report contains the data of Wi-Fi portion only

Prepared and Checked by:	**Approved by:**
Signed On File Leung Chun Ning, Peter Assistant Engineer	Digitally signed by Herbert Wong Location: Intertek Testing Services Hong Kong Limited Wong Cheuk Ho, Herbert Assistant Manager Date: June 06, 2024

TEST REPORT

GENERAL INFORMATION

Applicant Name:	Skyrocket Toys LLC
Applicant Address:	12910 Culver Blvd, Suite F, Los Angeles, CA 90066, United States.
Manufacturer:	Skyrocket Toys LLC
Manufacturer Address:	12910 Culver Blvd, Suite F, Los Angeles, CA 90066, United States.
FCC Specification Standard:	FCC Part 15, October 1, 2022 Edition
FCC ID:	O5318721
Model:	18721
Type of EUT:	Spread Spectrum Transmitter
Description of EUT:	Sky Viper Vista HD Video - Drone
Serial Number:	Not Labelled
Sample Receipt Date:	May 17, 2024
Date of Test:	May 30, 2024 to June 03, 2024
Report Date:	June 06, 2024
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%
Conclusion:	Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 Certification. This report contains the data of Wi-Fi portion only.

TEST REPORT

TABLE OF CONTENTS

TEST REPORT

1.0 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.1 Summary of Test Results

Test Items	FCC Part 15 Section	Results	Details See Section
Antenna Requirement	15.203	Pass	2.1
Max. Conducted Output Power (Peak)	15.247(b)(3)&(4)	Pass	4.1
Min. 6dB RF Bandwidth	15.247(a)(2)	Pass	4.2
Max. Power Density (average)	15.247(e)	Pass	4.3
Out of Band Antenna Conducted Emission	15.247(d)	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.247(d), 15.209 & 15.109	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	Not Applicable	4.7

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standard:

FCC Part 15, October 1, 2022 Edition

TEST REPORT

2.0 GENERAL DESCRIPTION

2.1 Product Description

The Equipment Under Test (EUT) is a portable 2.4GHz and Wi-Fi Transceiver (Drone Unit) for a Video Drone.

For Wi-Fi portion, the Equipment Under Test (EUT) operates at frequency range of 2412MHz to 2462MHz with 11 channels. For 2.4GHz Portion, it operates at frequency range of 2449MHz to 2479MHz with 30 channels, the channels are shown in below table.

2449	2450	2451	2452	2453
2454	2455	2456	2457	2458
2459	2460	2461	2462	2463
2464	2465	2466	2467	2468
2469	2470	2471	2472	2473
2474	2475	2476	2477	2479

For 802.11b mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Direct-sequence spread spectrum (DSSS) modulation. Maximum bit rate can be up to 11Mbps.

For 802.11g mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can be up to 54Mbps.

For 802.11n (with 20MHz bandwidth) mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can support up to 65Mbps.

The EUT is powered by 1 x 3.7V LiPo battery. After switching on the EUT, the drone will undergo different movement based on the switches pressed in the controller. It can be paired up with a smartphone and the real time display of the camera on the drone will be transmitted to a mobile app for photo and video taking function.

The antenna(s) used in the EUT is integral, and the test sample is a prototype.
Peak Antenna Gain: 3.85dBi

The circuit description is saved with filename: descri.pdf.

2.2 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Preliminary radiated scans and all radiated measurements were performed in radiated emission test sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. Antenna port conducted measurements were performed according to ANSI C63.10 (2013) and KDB Publication No.558074 D01 v05r01 (11-February-2019) All other measurements were made in accordance with the procedures in 47 CFR Part 2.

TEST REPORT

2.3 Test Facility

The radiated emission test site and antenna port conducted measurement facility used to collect the radiated data and conductive data are at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been fully placed on file with the FCC.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (Wi-Fi Portion).

The Certificate procedure of transceiver for this transceiver (with FCC ID: O5318721TX) is being processed as the same time of this application.

TEST REPORT

3.0 SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The EUT was powered by 3.7VDC (1 x 3.7V LiPo Battery).

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

Different data rates have been tested. Worst case is reported only.

All relevant operation modes have been tested, and the worst-case data is included in this report.

For simultaneous transmission, both Wi-Fi and 2.4GHz portions are also switched on when taking radiated emission for determining worst-case spurious emission.

3.2 EUT Exercising Software

The EUT exercise program (ETF GUI Tool Version 1.0.8g) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.3 Special Accessories

There are no special accessories necessary for compliance of this product.

3.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

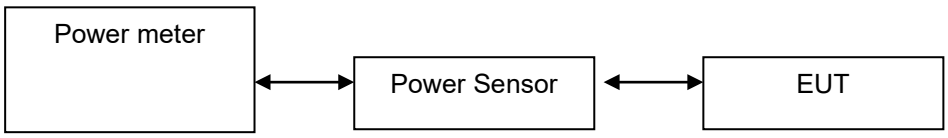
TEST REPORT

4.0 TEST RESULTS

4.1 Maximum Conducted (peak) Output Power at Antenna Terminals

RF Conduct Measurement Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer.

☒ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to the obtain power at the EUT antenna terminals. The measurement procedure 8.3.2.3 was used.

☐ The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

IEEE 802.11b (DSSS, 1 Mbps) Peak Antenna Gain = 3.85 dBi (Refer to Test Data1.pdf)

Frequency (MHz)	Output in dBm	Output in mW
Low Channel: 2412 (P.8)	13.1	20.4
Middle Channel: 2437 (P.30)	14.1	25.7
High Channel: 2462 (P.47)	14.0	25.1

IEEE 802.11g (OFDM, 6 Mbps) Peak Antenna Gain = 3.85 dBi (Refer to Test Data2.pdf)

Frequency (MHz)	Output in dBm	Output in mW
Low Channel: 2412 (P.8)	13.2	20.9
Middle Channel: 2437 (P.30)	12.6	18.2
High Channel: 2462 (P.47)	12.9	19.5

IEEE 802.11n (20MHz) (OFDM, MCS0) Peak Antenna Gain = 3.85 dBi (Refer to Test Data3.pdf)

Frequency (MHz)	Output in dBm	Output in mW
Low Channel: 2412 (P.8)	12.8	19.1
Middle Channel: 2437 (P.30)	12.0	15.8
High Channel: 2462 (P.47)	12.8	19.1

TEST REPORT

4.1 Maximum Conducted Output Power at Antenna Terminals – Cont'd

Cable loss: 0.5 dB External Attenuation : 0 dB

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

IEEE 802.11b (DSSS, 1 Mbps)
max. conducted (peak) output level = 14.1 dBm

IEEE 802.11g (OFDM, 9 Mbps)
max. conducted (peak) output level = 13.2 dBm

IEEE 802.11n (20MHz) (OFDM, MCS0)
max. conducted (peak) output level = 12.8 dBm

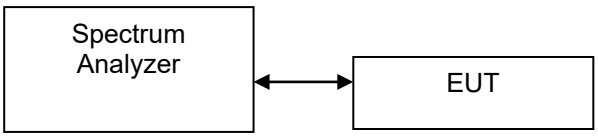
Limits:
☒ 1W (30dBm) for antennas with gains of 6dBi or less

☐ ___W (___dBm) for antennas with gains more than 6dBi

TEST REPORT

4.2 Minimum 6dB RF Bandwidth

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.3)	8.2
Middle Channel: 2437 (P.28)	9.2
High Channel: 2462 (P.45)	8.2

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.3)	16.6
Middle Channel: 2437 (P.28)	16.7
High Channel: 2462 (P.45)	16.6

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

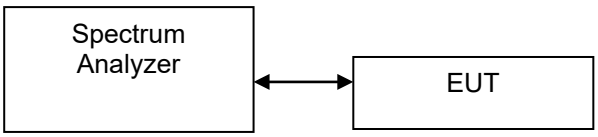
Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.3)	17.7
Middle Channel: 2437 (P.28)	17.7
High Channel: 2462 (P.45)	17.8

Limits
6 dB bandwidth shall be at least 500kHz.

TEST REPORT

4.3 Maximum Power Spectral Density

The figure below shows the test setup, which is utilized to make these measurements.



Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure 10.2 PKPSD was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

IEEE 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412 (P.9)	4.073
Middle Channel: 2437 (P.31)	4.427
High Channel: 2462 (P.48)	5.252

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412 (P.9)	0.987
Middle Channel: 2437 (P.31)	0.145
High Channel: 2462 (P.48)	-1.879

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412 (P.9)	0.623
Middle Channel: 2437 (P.31)	-0.317
High Channel: 2462 (P.48)	1.114

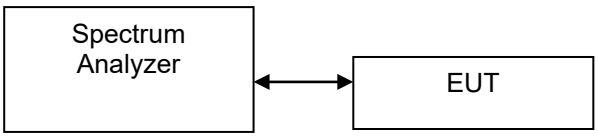
Cable Loss: 0.5 dB

Limit: 8dBm in 3kHz

TEST REPORT

4.4 Out of Band Conducted Emissions

The figure below shows the test setup, which is utilized to make these measurements.



For IEEE 802.11b/g/n20MHz, the maximum conducted (peak) output power was used to demonstrate compliance as described in 9.1. Then the display line (in red) shown in the following plots denotes the limit at 20dB below maximum measured in-band peak PSD level in 100 KHz bandwidth for IEEE 802.11b/g/n20MHz.

The measurement procedures under sections 11 of KDB558074 D01 v05r02 (April 2, 2019) were used.

Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

Limits:

All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB below the maximum measured in-band peak PSD level for IEEE 802.11b/g/n20MHz.

IEEE 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.11
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.50

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.11
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.50

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.11
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.50

TEST REPORT

4.5 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Example
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBμV/m. This value in dBμV/m is converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBμV/m

Level in μV/m = Common Antilogarithm [(32.0 dBμV/m)/20] = 39.8 μV/m

TEST REPORT

4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission
at

696.026250 MHz

The worst-case radiated emission configuration photographs are saved with filename: Radiated Photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-10 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 4.0 dB margin

TEST REPORT

RADIATED EMISSION DATA

Mode: TX-Channel 01

Table 1
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	43.4	33	29.4	39.8	54.0	-14.2
V	4824.000	40.4	33	34.9	42.3	54.0	-11.7
V	7236.000	30.5	33	37.9	35.4	54.0	-18.6
H	9648.000	27.8	33	40.4	35.2	54.0	-18.8
V	12060.000	29.9	33	40.5	37.4	54.0	-16.6
H	14472.000	34.3	33	40.0	41.3	54.0	-12.7

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	59.8	33	29.4	56.2	74.0	-17.8
V	4824.000	51.1	33	34.9	53.0	74.0	-21.0
V	7236.000	43.3	33	37.9	48.2	74.0	-25.8
H	9648.000	40.9	33	40.4	48.3	74.0	-25.7
V	12060.000	44.0	33	40.5	51.5	74.0	-22.5
H	14472.000	47.5	33	40.0	54.5	74.0	-19.5

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 2
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	46.5	33	34.9	48.4	54.0	-5.6
V	7311.000	26.5	33	37.9	31.4	54.0	-22.6
V	9748.000	28.1	33	40.4	35.5	54.0	-18.5
V	12185.000	30.5	33	40.5	38.0	54.0	-16.0
H	14622.000	35.2	33	38.4	40.6	54.0	-13.4

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	54.1	33	34.9	56.0	74.0	-18.0
V	7311.000	41.4	33	37.9	46.3	74.0	-27.7
V	9748.000	41.0	33	40.4	48.4	74.0	-25.6
V	12185.000	43.7	33	40.5	51.2	74.0	-22.8
H	14622.000	49.0	33	38.4	54.4	74.0	-19.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 3
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	44.0	33	29.4	40.4	54.0	-13.6
V	4924.000	43.2	33	34.9	45.1	54.0	-8.9
V	7386.000	29.9	33	37.9	34.8	54.0	-19.2
H	9848.000	31.7	33	40.4	39.1	54.0	-14.9
V	12310.000	30.3	33	40.5	37.8	54.0	-16.2
V	14772.000	34.5	33	38.4	39.9	54.0	-14.1

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	59.3	33	29.4	55.7	74.0	-18.3
V	4924.000	52.4	33	34.9	54.3	74.0	-19.7
V	7386.000	42.9	33	37.9	47.8	74.0	-26.2
H	9848.000	43.5	33	40.4	50.9	74.0	-23.1
V	12310.000	44.7	33	40.5	52.2	74.0	-21.8
V	14772.000	48.0	33	38.4	53.4	74.0	-20.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 01

Table 4
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	43.1	33	29.4	39.5	54.0	-14.5
V	4824.000	31.6	33	34.9	33.5	54.0	-20.5
V	7236.000	28.8	33	37.9	33.7	54.0	-20.3
V	9648.000	27.3	33	40.4	34.7	54.0	-19.3
H	12060.000	30.0	33	40.5	37.5	54.0	-16.5
V	14472.000	34.3	33	40.0	41.3	54.0	-12.7

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	56.2	33	29.4	52.6	74.0	-21.4
V	4824.000	48.8	33	34.9	50.7	74.0	-23.3
V	7236.000	44.6	33	37.9	49.5	74.0	-24.5
V	9648.000	41.2	33	40.4	48.6	74.0	-25.4
H	12060.000	43.7	33	40.5	51.2	74.0	-22.8
V	14472.000	48.0	33	40.0	55.0	74.0	-19.0

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 5
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	28.6	33	34.9	30.5	54.0	-23.5
V	7311.000	28.4	33	37.9	33.3	54.0	-20.7
H	9748.000	29.4	33	40.4	36.8	54.0	-17.2
V	12185.000	30.1	33	40.5	37.6	54.0	-16.4
H	14622.000	35.3	33	38.4	40.7	54.0	-13.3

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	46.8	33	34.9	48.7	74.0	-25.3
V	7311.000	42.8	33	37.9	47.7	74.0	-26.3
H	9748.000	42.9	33	40.4	50.3	74.0	-23.7
V	12185.000	43.0	33	40.5	50.5	74.0	-23.5
H	14622.000	48.3	33	38.4	53.7	74.0	-20.3

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 6
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	51.0	33	29.4	47.4	54.0	-6.6
V	4924.000	32.5	33	34.9	34.4	54.0	-19.6
V	7386.000	28.1	33	37.9	33.0	54.0	-21.0
V	9848.000	27.7	33	40.4	35.1	54.0	-18.9
H	12310.000	30.1	33	40.5	37.6	54.0	-16.4
V	14772.000	34.6	33	38.4	40.0	54.0	-14.0

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	70.8	33	29.4	67.2	74.0	-6.8
V	4924.000	48.7	33	34.9	50.6	74.0	-23.4
V	7386.000	41.3	33	37.9	46.2	74.0	-27.8
V	9848.000	41.9	33	40.4	49.3	74.0	-24.7
H	12310.000	43.3	33	40.5	50.8	74.0	-23.2
V	14772.000	48.0	33	38.4	53.4	74.0	-20.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 01

Table 7
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	48.5	33	29.4	44.9	54.0	-9.1
V	4824.000	29.4	33	34.9	31.3	54.0	-22.7
H	7236.000	28.4	33	37.9	33.3	54.0	-20.7
H	9648.000	29.5	33	40.4	36.9	54.0	-17.1
H	12060.000	29.8	33	40.5	37.3	54.0	-16.7
V	14472.000	34.3	33	40.0	41.3	54.0	-12.7

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	67.2	33	29.4	63.6	74.0	-10.4
V	4824.000	45.2	33	34.9	47.1	74.0	-26.9
H	7236.000	42.7	33	37.9	47.6	74.0	-26.4
H	9648.000	42.6	33	40.4	50.0	74.0	-24.0
H	12060.000	43.8	33	40.5	51.3	74.0	-22.7
V	14472.000	47.4	33	40.0	54.4	74.0	-19.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 8
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	4874.000	29.6	33	34.9	31.5	54.0	-22.5
H	7311.000	28.2	33	37.9	33.1	54.0	-20.9
V	9748.000	28.2	33	40.4	35.6	54.0	-18.4
V	12185.000	30.2	33	40.5	37.7	54.0	-16.3
V	14622.000	35.3	33	38.4	40.7	54.0	-13.3

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	4874.000	44.9	33	34.9	46.8	74.0	-27.2
H	7311.000	41.7	33	37.9	46.6	74.0	-27.4
V	9748.000	41.9	33	40.4	49.3	74.0	-24.7
V	12185.000	43.5	33	40.5	51.0	74.0	-23.0
V	14622.000	48.8	33	38.4	54.2	74.0	-19.8

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 9
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	47.1	33	29.4	43.5	54.0	-10.5
V	4924.000	29.7	33	34.9	31.6	54.0	-22.4
V	7386.000	28.8	33	37.9	33.7	54.0	-20.3
H	9848.000	30.5	33	40.4	37.9	54.0	-16.1
V	12310.000	30.1	33	40.5	37.6	54.0	-16.4
H	14772.000	34.5	33	38.4	39.9	54.0	-14.1

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	64.0	33	29.4	60.4	74.0	-13.6
V	4924.000	46.3	33	34.9	48.2	74.0	-25.8
V	7386.000	43.3	33	37.9	48.2	74.0	-25.8
H	9848.000	43.2	33	40.4	50.6	74.0	-23.4
V	12310.000	43.2	33	40.5	50.7	74.0	-23.3
H	14772.000	47.9	33	38.4	53.3	74.0	-20.7

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: Wi-Fi and 2.4GHz Transmitting

Table 10

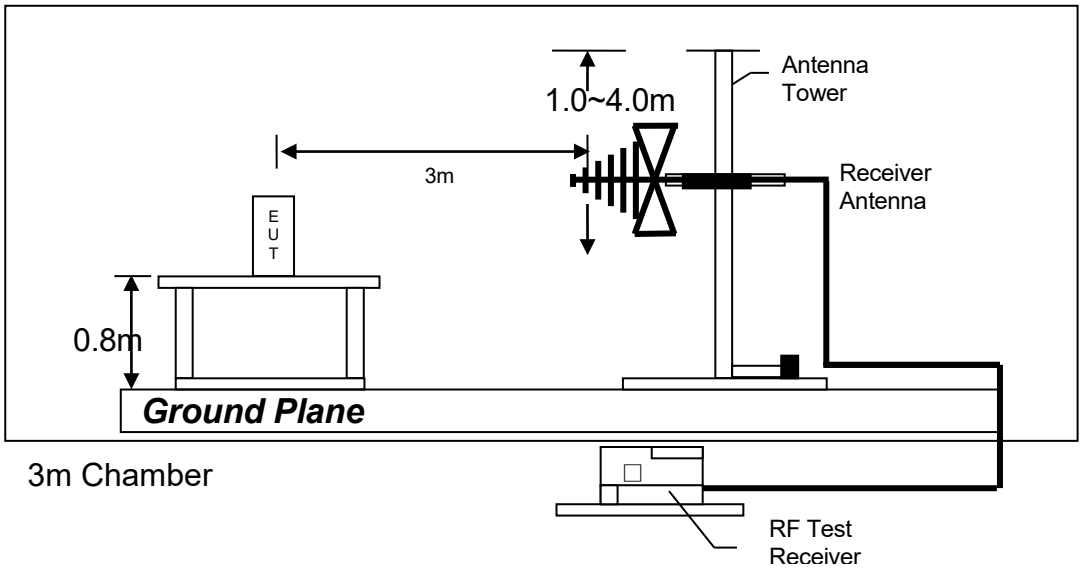
Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	30.364	24.3	16	10.0	18.3	40.0	-21.7
V	49.885	21.1	16	11.0	16.1	40.0	-23.9
V	137.185	24.6	16	14.0	22.6	43.5	-20.9
H	179.986	21.8	16	20.0	25.8	43.5	-17.7
H	300.024	30.3	16	22.0	36.3	46.0	-9.7
H	419.940	28.2	16	25.0	37.2	46.0	-8.8
H	696.026	28.0	16	30.0	42.0	46.0	-4.0
H	720.034	25.7	16	30.0	39.7	46.0	-6.3
H	840.071	20.5	16	31.0	35.5	46.0	-10.5
H	900.090	23.7	16	32.0	39.7	46.0	-6.3

Notes:
1. Peak and Quasi-Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
5. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

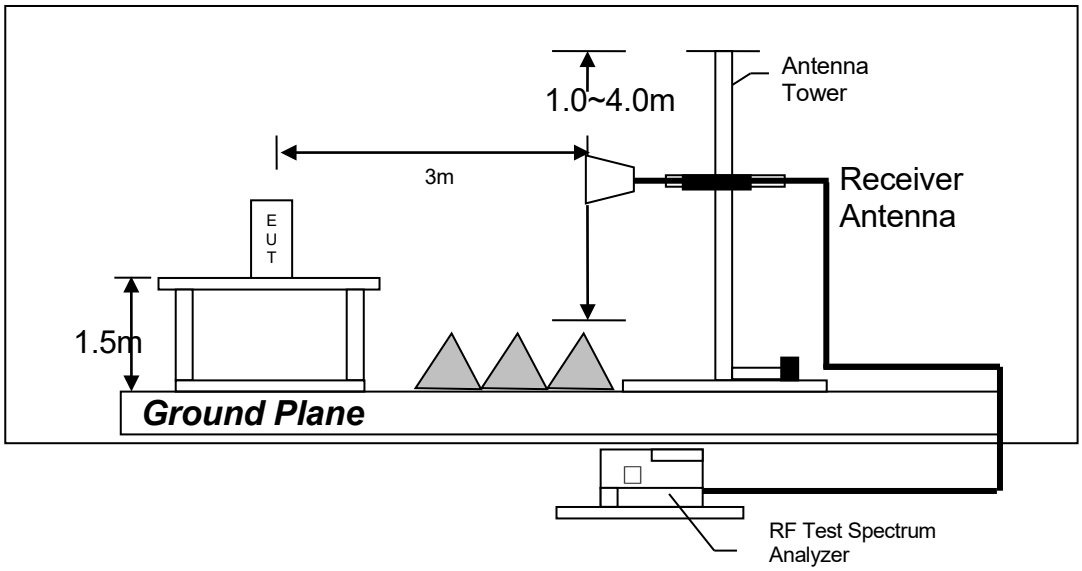
TEST REPORT

4.6.3 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

TEST REPORT

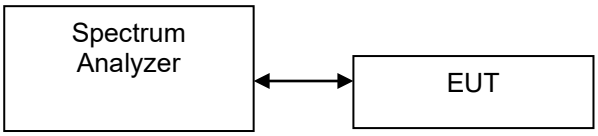
4.6.4 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

TEST REPORT

OCCUPIED BANDWIDTH

The figure below shows the test setup, which is utilized to make these measurements.



Occupied Bandwidth Results: (IEEE 802.11b) (Refer to Test Data1.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.5)	12.70
Middle Channel: 2437 (P.25)	12.90
High Channel: 2462 (P.42)	12.70

Occupied Bandwidth Results: (IEEE 802.11g) (Refer to Test Data2.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.5)	16.90
Middle Channel: 2437 (P.25)	16.50
High Channel: 2462 (P.42)	16.50

Occupied Bandwidth Results: (IEEE 802.11n (20MHz)) (Refer to Test Data3.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.5)	17.70
Middle Channel: 2437 (P.25)	17.80
High Channel: 2462 (P.42)	17.60

TEST REPORT

5.0 EQUIPMENT LIST

1) Radiated Emissions Test

Equipment	EMI Test Receiver (9kHz to 26.5GHz)	Biconical Antenna (30MHz to 300MHz)	Log Periodic Antenna
Registration No.	EW-3156	EW-3242	EW-3243
Manufacturer	ROHDESCHWARZ	EMCO	EMCO
Model No.	ESR26	3110C	3148B
Calibration Date	January 31, 2024	April 26, 2022	October 30, 2022
Calibration Due Date	January 31, 2025	July 26, 2024	July 30, 2024

Equipment	Double Ridged Guide Antenna (1GHz - 18GHz)	Active Loop Antenna (H-field) (9kHz to 30MHz)	RF Preamplifier (9kHz to 6000MHz)
Registration No.	EW-0194	EW-3326	EW-3006b
Manufacturer	EMCO	EMCO	SCHWARZBECK
Model No.	3115	6502	BBV9718
Calibration Date	May 10, 2023	January 05, 2024	October 20, 2023
Calibration Due Date	November 10, 2024	July 05, 2025	October 20, 2024

Equipment	2.4GHz Notch Filter	14m Double Shield RF Cable (9kHz - 6GHz)	RF Cable 14m (1GHz to 26.5GHz)
Registration No.	EW-3435	EW-2376	EW-2781
Manufacturer	MICROWAVE	RADIALL	GREATBILLION
Model No.	N0324413	n m/br56/bnc m 14m	SMA m/SHF5MPU /SMA m ra14m,26G
Calibration Date	September 26, 2023	September 19, 2023	January 16, 2024
Calibration Due Date	September 26, 2024	September 19, 2024	January 16, 2025

Equipment	12 metre RF Cable (1-40)GHz	Pyramidal Horn Antenna
Registration No.	EW-2774	EW-0905
Manufacturer	GREATBILLION	EMCO
Model No.	SMA m-m ra 12m 40G outdoor	3160-09
Calibration Date	January 16, 2024	December 15, 2023
Calibration Due Date	January 16, 2025	June 15, 2025

TEST REPORT

2) Conducted Emissions Test

Equipment	RF Cable 240cm (RG142) (9kHz to 30MHz)	Artificial Mains Network	EMI Test Receiver (9kHz to 3GHz)
Registration No.	EW-2454	EW-3360	EW-3095
Manufacturer	RADIALL	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	Bnc m st / 142 / bnc mra 240cm	ENV-216	ESCI
Calibration Date	June 13, 2023	April 07, 2024	January 18, 2024
Calibration Due Date	June 13, 2024	April 07, 2025	January 18, 2025

3) Conductive Measurement Test

Equipment	RF Power Meter with Power Sensor (N1921A)	EMI Test Receiver (9kHz to 26.5GHz)
Registration No.	EW-3309	EW-3156
Manufacturer	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	NRP-Z81	ESR26
Calibration Date	February 14, 2023	January 31, 2024
Calibration Due Date	August 14, 2024	January 31, 2025

4) Control Software for Radiated Emission

Software Information	
Software Name	EMC32
Manufacturer	ROHDESCHWARZ
Software version	10.50.40

END OF TEST REPORT