SGS Korea Co., Ltd.
4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
Tel. +82 31 428 5700 / Fax. +82 31 427 2370
http://www.sgsgroup.kr

TEST REPORT

of

FCC Part 15 Subpart E §15.407

FCC ID: 2BG62-PABLOXF40

Equipment Under Test	:	Drone
Model Name	:	PabloX F40
Variant Model Name(s)	:	-
Applicant	:	PABLO AIR Co., Ltd.
Manufacturer	:	PABLO AIR Co., Ltd.
Date of Receipt	:	2024.06.14
Date of Test(s)	:	2024.06.18 ~ 2024.07.04
Date of Issue	:	2024.07.04

In the configuration tested, the EUT complied with the standards specified above.
This test report does not assure KOLAS accreditation.

1) The results of this test report are effective only to the items tested.
2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.
3) This test report cannot be reproduced, except in full, without prior written permission of the Company.
4) The data marked ※ in this report was provided by the customer and may affect the validity of the test results.
We are responsible for all the information of this test report except for the data(※) provided by the customer.

Tested by:  **Demian Kim**

Technical Manager:  **Jinhyoung Cho**

SGS Korea Co., Ltd. Gunpo Laboratory

INDEX

Table of contents

1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx.

Phone No. : +82 31 688 0901
Fax No. : +82 31 688 0921

1.2. Details of Applicant

Applicant : PABLO AIR Co., Ltd.
Address : 5F, 82, Venture-ro, Yeonsu-gu, Incheon, Republic of Korea, 22013
Contact Person : Yoon, Jun-han
Phone No. : +82 70 5222 6968

1.3. Details of Manufacturer

Company : PABLO AIR Co., Ltd.
Address : 5F, 82, Venture-ro, Yeonsu-gu, Incheon, Republic of Korea, 22013

1.4. Description of EUT

Kind of Product	Drone
Model Name	PabloX F40
Approved Module	FCC ID: 2AD56HLK-RM58S
Variant Model Names	-
Serial Number	001
Power Supply	DC 14.8 V
Frequency Range	5 745 ㎒ ~ 5 825 ㎒ (Band 3: 11a/n_HT20, 11ac_VHT20) 5 755 ㎒ ~ 5 795 ㎒ (Band 3: 11n_HT40, 11ac_VHT40) 5 775 ㎒ (Band 3: 11ac_VHT80)
Modulation Technique	OFDM
Number of Channels	5 channels (Band 3: 11a/n_HT20, 11ac_VHT20) 2 channels (Band 3: 11n_HT40, 11ac_VHT40) 1 channel (Band 3: 11ac_VHT80)
Antenna Type	Wire Antenna
Antenna Gain※	2.67 ㏈i
H/W Version	4.0.1
S/W Version	1.0.1
FVIN	N/A

1.5. Automatically Discontinue Transmission

1.5.1. Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operating failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

1.5.2. Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting form remote device and verify whether it shall resend or discontinue transmission.

1.6. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Signal Generator	R&S	SMA100B	106887	Oct. 06, 2023	Annual	Oct. 06, 2024
Spectrum Analyzer	R&S	FSW8	101659	May 28, 2024	Annual	May 28, 2025
Spectrum Analyzer	Agilent	N9020A	MY53421758	Sep. 01, 2023	Annual	Sep. 01, 2024
Spectrum Analyzer	Agilent	N9030A	US51350132	Nov. 27, 2023	Annual	Nov. 27, 2024
Attenuator	AEROFLEX / INMET	40AH2W-6	3	Mar. 18, 2024	Annual	Mar. 18, 2025
High Pass Filter	Wainwright Instrument GmbH	WHKX3.0/18G-10SS	21	Jun. 07, 2024	Annual	Jun. 07, 2025
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	15	Jun. 07, 2024	Annual	Jun. 07, 2025
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	May 17, 2024	Annual	May 17, 2025
Low Pass Filter	WT MICROWAVE INC	WT-A1700-LS	WT151207001	Apr. 08, 2024	Annual	Apr. 08, 2025
Power Meter	Anritsu	ML2495A	1223004	May 29, 2024	Annual	May 29, 2025
Power Sensor	Anritsu	MA2411B	1207272	May 29, 2024	Annual	May 29, 2025
DC Power Supply	R&S	HMP2020	022802107	Oct. 31, 2023	Annual	Oct. 31, 2024
Preamplifier	H.P.	8447F	2944A03909	Aug. 04, 2023	Annual	Aug. 04, 2024
Signal Conditioning Unit	R&S	SCU-18F	101058	Dec. 07, 2023	Annual	Dec. 07, 2024
Pre Amplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Oct. 06, 2023	Annual	Oct. 06, 2024
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 21, 2023	Biennial	Aug. 21, 2025
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB 9163	9163-396	Apr. 02, 2024	Biennial	Apr. 02, 2026
Horn Antenna	R&S	HF906	100326	Feb. 19, 2024	Annual	Feb. 19, 2025
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9170	BBHA9170223	Oct. 10, 2023	Annual	Oct. 10, 2024
EMI Test Receiver	R&S	ESU26	100109	Jan. 16, 2024	Annual	Jan. 16, 2025
Turn Table	Innco systems GmbH	DS 1200 S	N/A	N.C.R.	N/A	N.C.R.
Controller	Innco systems GmbH	CONTROLLER CO3000-4P	CO3000/963/38330516/L	N.C.R.	N/A	N.C.R.
Antenna Mast	Innco systems GmbH	MA4640-XP-ET	MA4640/536/38330516/L	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-5 m	TPC2402190004	Apr. 03, 2024	Semi-Annual	Oct. 03, 2024
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-10 m	TPC2402190001	Apr. 03, 2024	Semi-Annual	Oct. 03, 2024
Coaxial Cable	RFONE	PL360P-292M292M-1.5M-A	20200324002	Apr. 12, 2024	Semi-Annual	Oct. 12, 2024

1.7. Summary of Test Result

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15 Subpart E		
Section in FCC	**Test Item(s)**	**Result**
15.205(a) 15.209(a) 15.407(b)(4)	Transmitter Radiated Spurious Emissions	Complied
15.407(a)	26 ㏈ Bandwidth & 99 % Bandwidth	Complied[1)]
15.407(e)	6 ㏈ Bandwidth	Complied[1)]
15.407(a)(3)	Maximum Conducted Output Power	Complied
15.407(a)(3)	Maximum Power Spectral Density	Complied[1)]
15.207	AC Power Line Conducted Emission	N/A[2)]

Note;
1) The EUT uses the approved module. Other test items were complied with module test report.
- Module FCC ID: 2AD56HLK-RM58S
- Test Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.
- Test report number: WTX19X10074455W-1

2) The AC power line test was not performed because the EUT use battery power for operation and which do not operate from the AC power lines.

1.8. Test Procedure(s)

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 General UNII Test Procedures New Rules v02r01 were used in the measurement of the DUT.

1.9. Sample Calculation

Where relevant, the following sample calculation is provided:

1.9.1. Conducted Test

Offset value (㏈) = Attenuator (㏈) + Cable loss (㏈)

1.9.2. Radiation Test

Field strength level (㏈㎶/m)

= Measured level (㏈㎶) + Antenna factor (㏈/m) + Cable loss (㏈) - Amplifier gain (㏈)

1.10. Information of Software for test

- Using the software of QATool 0.0.1.58 to test for the WLAN.

1.11. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty	
Maximum Conducted Output Power	0.34 dB	
Radiated Emission, 9 kHz to 30 MHz	H	3.60 dB
	V	3.60 dB
Radiated Emission, below 1 GHz	H	4.60 dB
	V	4.90 dB
Radiated Emission, above 1 GHz	H	3.90 dB
	V	3.80 dB

All measurement uncertainty values are shown with a coverage factor k = 2 to indicate a 95 % level of confidence

1.12. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL005234	2024.07.04	Initial

1.13. Test Mode

Mode	Bandwidth (MHz)	Data rate with highest output power
11a	20	6 Mbps
11n_HT20	20	MCS0
11n_HT40	40	MCS0
11ac_VHT80	80	MCS0

Radiated emission below 1 GHz was performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1 GHz was performed with the EUT set to transmit Low/Middle/High Channels.

1.14. Duty Cycle of EUT

Regarding to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Ⅱ.B, the maximum duty cycles of all modes were investigated and set the spectrum analyzer as below.
Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value, Set VBW ≥ RBW.
Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100.

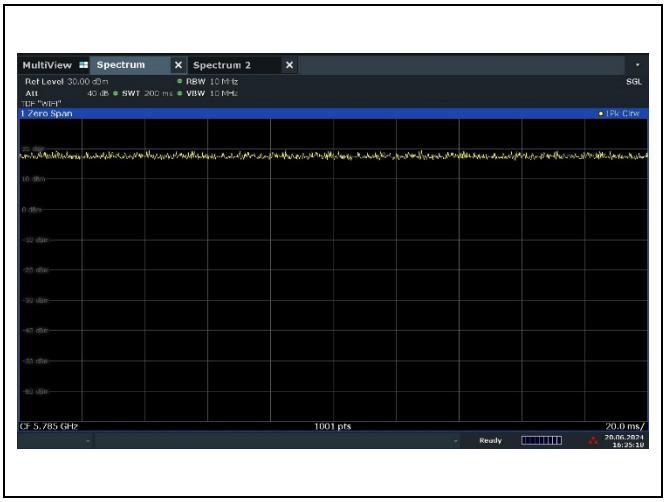
Mode	Data Rate	Duty Cycle (%)	Correction Factor (dB)
11a	6 Mbps	100	-
11n_HT20	MCS0	100	-
11n_HT40	MCS0	100	-
11ac_VHT80	MCS0	100	-

Remark;

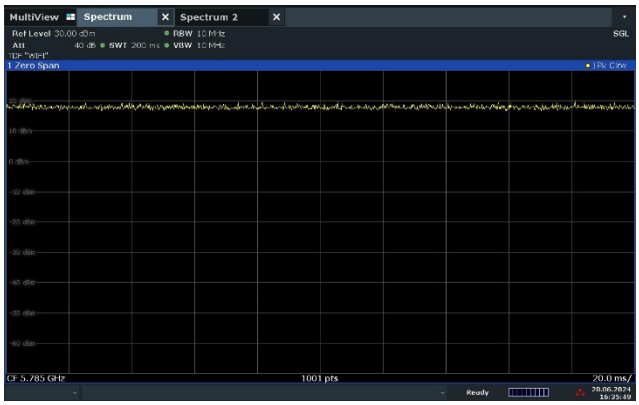
1. As measured duty cycles of EUT, all of mode and data rate keep constant period and are converted to log scale (power averaging) to compensate correction factor to result of average test items.
2. Duty Cycle (%) = (Tx on time / Tx on + off time) x 100
3. Correction Factor (dB) = 10 log (1 / Duty Cycle)
4. Duty cycle is over 98 %, compensation is no required.

- Test plots

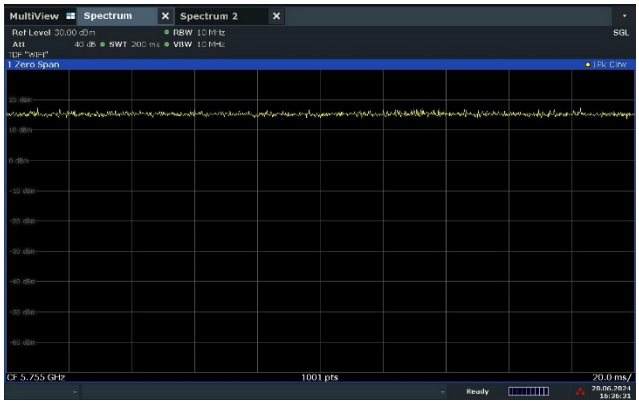
11a



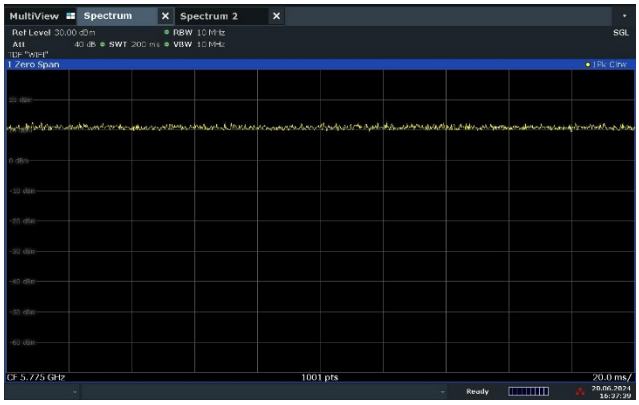
11n_HT20



11n_HT40



11ac_VHT80

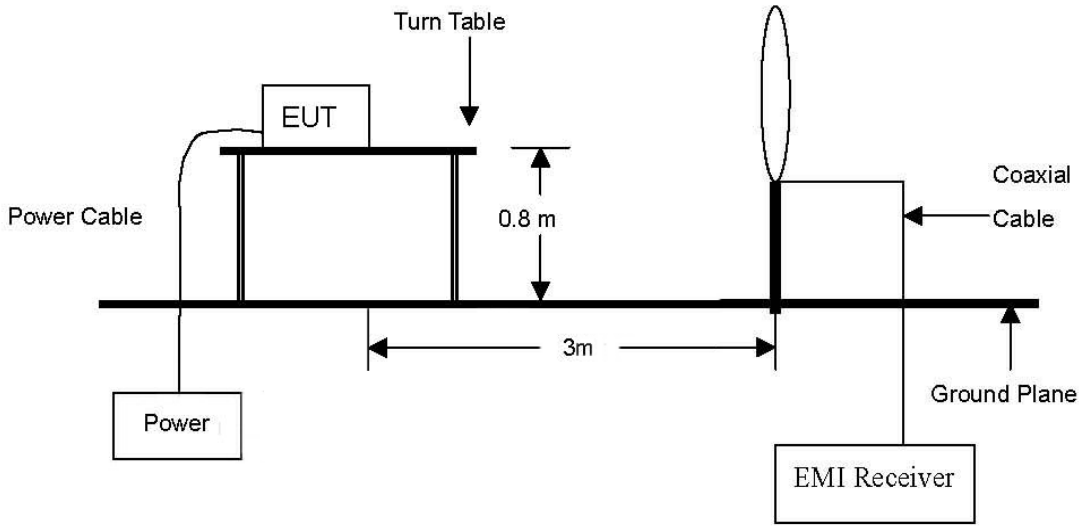


2. Transmitter Radiated Spurious Emissions

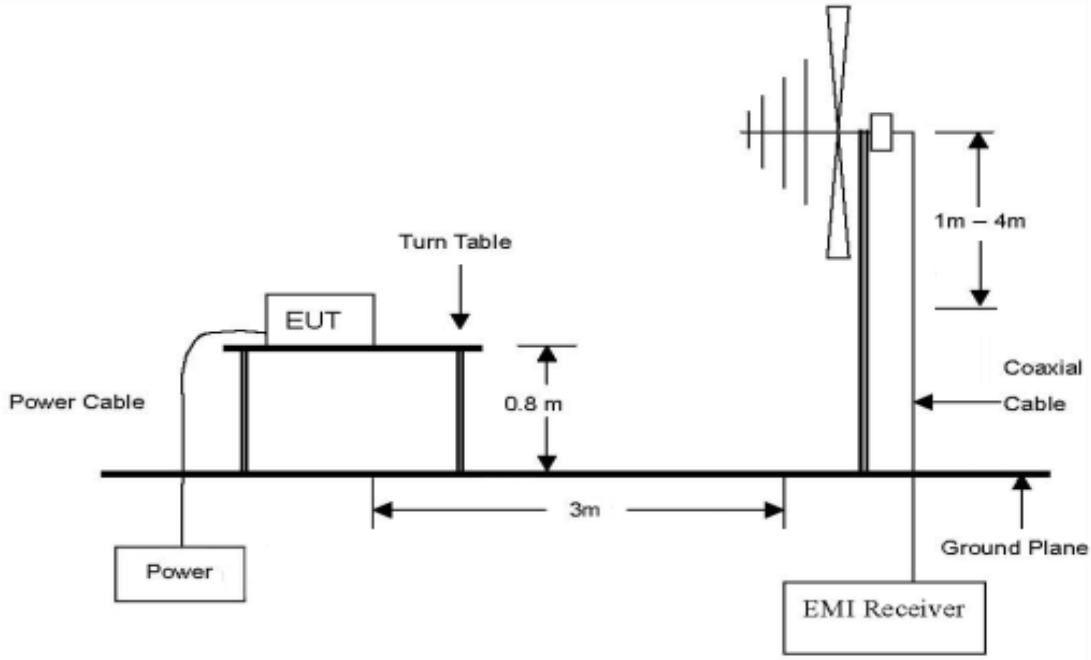
2.1. Test Setup

2.1.1. Transmitter radiated spurious emissions

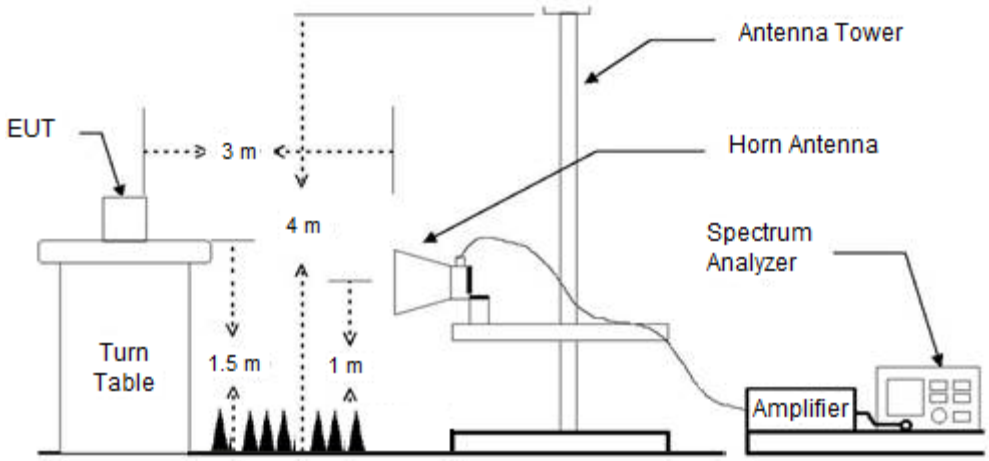
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission. The spurious emissions were investigated form 1 ㎓ to the 10th harmonic of the highest fundamental frequency or 40 ㎓, whichever is lower.



2.2. Limit

According to § 15.407(b)
(4) For transmitters operating in the 5.725-5.85 ㎓ band:
(i) All emissions shall be limited to a level of -27 ㏈m/㎒ at 75 ㎒ or more above or below the band edge increasing linearly to 10 ㏈m/㎒ at 25 ㎒ above or below the band edge, and from 25 ㎒ above or below the band edge increasing linearly to a level of 15.6 ㏈m/㎒ at 5 ㎒ above or below the band edge, and from 5 ㎒ above or below the band edge increasing linearly to a level of 27 ㏈m/㎒ at the band edge.

According to § 15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (㎒)	Field Strength (㎶/m)	Measurement Distance (Meters)
0.009-0.490	2 400/F(㎑)	300
0.490-1.705	24 000/F(㎑)	30
1.705-30.0	30	30
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 ㎒, 76-88 ㎒, 174-216 ㎒ or 470-806 ㎒. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

2.3. Test Procedures

Radiated spurious emissions from the EUT were measured according to the dictates in section G of KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI C63.10-2013.

2.3.1. Test Procedures for emission below 30 ㎒

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Then antenna is a loop antenna is fixed at one meter above the ground to determine the maximum value of the field strength. Both parallel and perpendicular of the antenna are set to make the measurement.
3. For each suspected emission, the EUT was arranged to its worst case and then the table was turned from 0 degrees to 360 degrees to find the maximum reading.
4. The test-receiver system was set to average or quasi peak detect function and Specified Bandwidth with Maximum Hold Mode.

2.3.2. Test Procedures for emission from above 30 ㎒

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site below 1 ㎓ and 1.5 meter above the ground at a 3 meter anechoic chamber test site above 1 ㎓. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 ㎓, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 ㎓, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a bi-log antenna, a horn antenna and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. For measurements below 1 ㎓ resolution bandwidth is set to 100 ㎑ for peak detection measurements or 120 ㎑ for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.
6. For measurements Above 1 ㎓ resolution bandwidth is set to 1 ㎒, the video bandwidth is set to 3 ㎒ for peak measurements and as applicable for average measurements.

- II.G.4. Unwanted emissions measurements below 1 ㎓.
Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

- II.G.5. Unwanted maximum emissions measurements above 1 ㎓.
Peak emission levels are measured by setting the analyzer as follows:
Set to RBW = 1 ㎒, VBW ≥ 3 ㎒, Detector = Peak, Sweep time = auto, Trace mode= Max hold.

- II.G.6. Average unwanted emissions measurements above 1 ㎓.
Set to RBW = 1 ㎒, VBW ≥ 3 ㎒, Detector = power averaging (rms), Averaging type = power averaging (rms), Sweep time = auto, 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 % duty cycle, at least 200 traces shall be averaged.

If tests are performed with the EUT transmitting at a duty cycle less than 98 %, 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 % duty cycle. The correction factor is computed as follows:

- If power averaging (rms) mode was used in II.G.6.c)(iv), the correction factor is 10 log (1 / x), where x is the duty cycle. For example, if the transmit duty cycle was 50 %, then 3 ㏈ must be added to the measured emission levels.

- The radiation test of the EUT was investigated in three orthogonal orientations X, Y, and Z described in the test setup photo. All radiated testing of EUT was performed with worst case axis.

2.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

2.4.1. Radiated Spurious Emission below 1 000 ㎒

The frequency spectrum from 9 ㎑ to 1 000 ㎒ was investigated. All reading values are peak values.

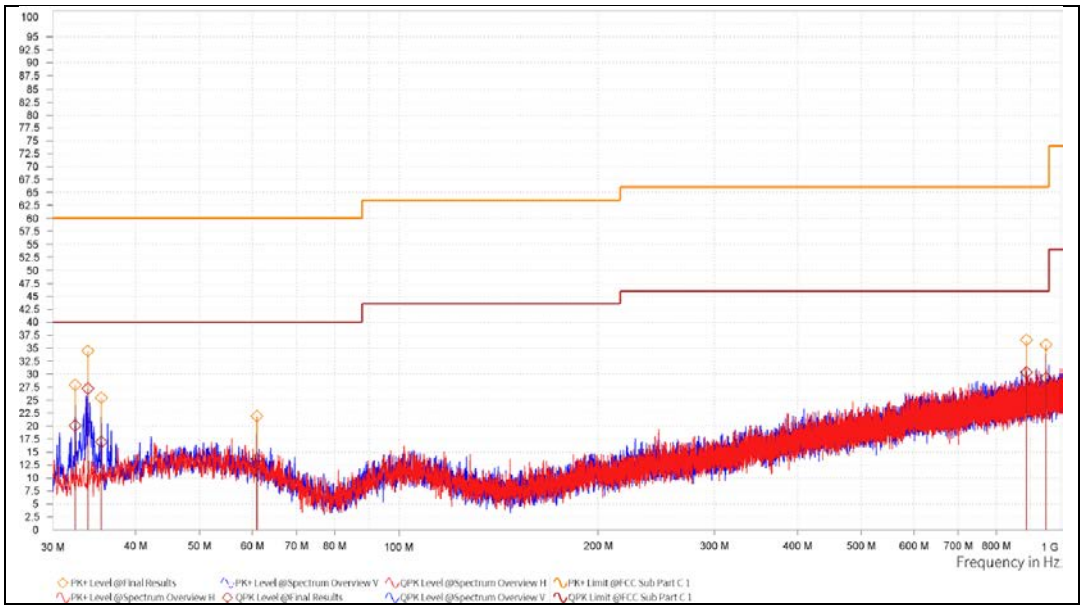
11n_HT20 (Band 3) / High channel

Radiated Emissions			Ant	Correction (dB/m)	Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.		Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
32.43	31.80	Quasi Peak	V	-11.78	20.02	40.00	19.98
33.88	38.47	Quasi Peak	V	-11.27	27.20	40.00	12.80
887.97	27.66	Quasi Peak	H	2.67	30.33	46.00	15.67
950.69	26.06	Quasi Peak	V	3.15	29.21	46.00	16.79

Remark;

1. Spurious emissions for all channels and modes were investigated and almost the same below 1 ㎓.
2. Test from 30 ㎒ to 1 000 ㎒ was performed using the software of ELEKTRA(V5.02) from Rohde & Schwarz GmbH & Co. KG.
3. Radiated spurious emission measurement as below.
   (Actual = Reading + Correction)
   (Correction = Antenna Factor + AMP Factor + Cable Loss)
4. According to §15.31(o), emission levels are not report much lower than the limits by over 20 ㏈.

- Test plot



2.4.2. Radiated Spurious Emission above 1 000 ㎒

11a (Band 3)

A. Low Channel (5 745 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 644.28	17.95	Peak	V	34.10	9.71	61.76	68.23	6.47
5 679.95	18.05	Peak	V	34.10	9.72	61.87	90.39	28.52
5 715.42	17.78	Peak	V	34.13	9.76	61.67	109.55	47.88
5 725.00	21.93	Peak	V	34.15	9.79	65.87	122.23	56.36

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

B. Middle Channel (5 785 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

C. High Channel (5 825 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 852.94	17.87	Peak	V	34.41	9.92	62.20	115.52	53.32
5 855.00	18.50	Peak	V	34.41	9.91	62.82	110.83	48.01
5 898.92	18.76	Peak	V	34.50	9.87	63.13	87.53	24.40
5 933.80	19.18	Peak	V	34.57	9.93	**63.68**	68.23	4.55

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

11n_HT20 (Band 3)

A. Low Channel (5 745 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 649.20	18.00	Peak	V	34.10	9.71	61.81	68.23	6.42
5 699.02	18.70	Peak	V	34.10	9.72	62.52	104.50	41.98
5 719.93	21.10	Peak	V	34.14	9.78	65.02	110.81	45.79
5 725.00	23.93	Peak	V	34.15	9.79	67.87	122.23	54.36

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

B. Middle Channel (5 785 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

C. High Channel (5 825 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 850.42	19.69	Peak	V	34.40	9.93	64.02	121.27	57.25
5 861.72	18.37	Peak	V	34.42	9.89	62.68	108.95	46.27
5 899.26	18.49	Peak	V	34.50	9.87	62.86	87.28	24.42
5 937.00	20.12	Peak	V	34.57	9.94	**64.63**	68.23	3.60

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

11n_HT40 (Band 3)

A. Low Channel (5 755 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 643.46	19.36	Peak	V	34.10	9.71	63.17	68.23	5.06
5 685.08	19.43	Peak	V	34.10	9.72	63.25	94.19	30.94
5 719.31	26.84	Peak	V	34.14	9.77	70.75	110.63	39.88
5 723.82	29.01	Peak	V	34.15	9.79	72.95	119.54	46.59

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

B. High Channel (5 795 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 850.00	16.74	Peak	V	34.40	9.93	61.07	122.23	61.16
5 869.11	17.92	Peak	V	34.44	9.87	62.23	106.88	44.65
5 877.08	18.41	Peak	V	34.45	9.85	62.71	103.69	40.98
5 927.25	19.24	Peak	V	34.55	9.92	**63.71**	68.23	4.52

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

11ac_VHT80 (Band 3)

A. Middle Channel (5 775 ㎒)

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 620.60	19.05	Peak	V	34.10	9.68	62.83	68.23	5.40
5 696.62	24.38	Peak	V	34.10	9.72	68.20	102.73	34.53
5 714.65	25.46	Peak	V	34.13	9.76	69.35	109.33	39.98
5 722.27	24.10	Peak	V	34.14	9.78	68.02	116.00	47.98
5 853.97	21.12	Peak	V	34.41	9.92	65.45	113.18	47.73
5 857.89	20.33	Peak	V	34.42	9.90	64.65	110.02	45.37
5 875.00	18.44	Peak	V	34.45	9.85	62.74	105.23	42.49
5 960.30	19.62	Peak	V	34.62	9.96	**64.20**	68.35	4.15

Radiated Emissions			Ant.	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Above 1 000.00	Not detected	-	-	-	-	-	-	-

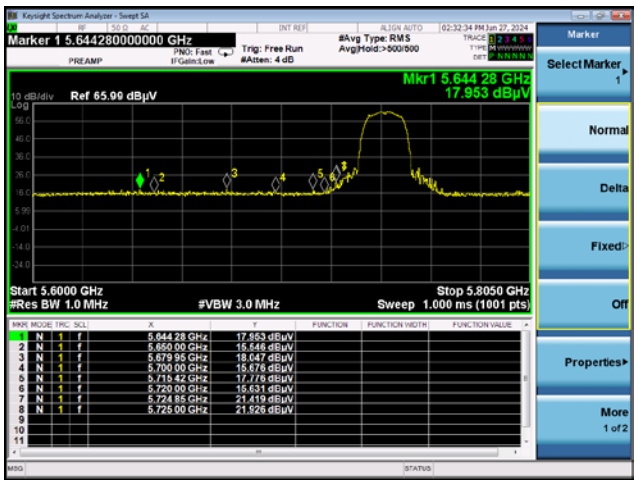
Remark;

1. "*" means the restricted band.
2. Radiated emissions measured in frequency above 1 000 ㎒ were made with an instrument using Peak / average detector mode if frequency was in restricted band. Otherwise the frequency was out of restricted band, only peak detector should be used.
3. Actual = Reading + AF + CL + (DF) or Reading + AF + AMP + CL + (DF).
4. If frequency was out of restricted band, the calculation method for peak limit is same as below.
   68.23 dB㎶/m = EIRP - 20 log (d) + 104.77 = -27 - 20 log (3) + 104.77
5. In case of the emissions within ±75 ㎒ from band edge of band 3, limit should be adjusted to emission mask of 15.407(4)(i).
6. According to § 15.31(o), emission levels are not reported much lower than the limits by over 20 ㏈.
7. The maximized peak measured value complies with the average limit, to perform an average measurement is unnecessary.

- Test plots

11a

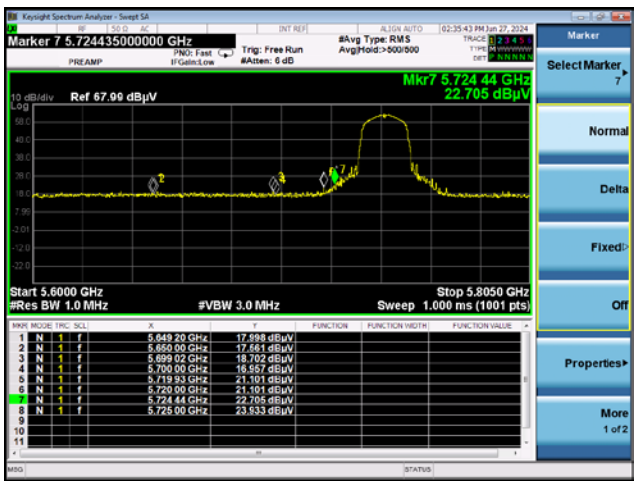
Low channel Band edge (Peak) - Band 3



High channel Band edge (Peak) - Band 3

11n_HT20

Low channel Band edge (Peak) - Band 3

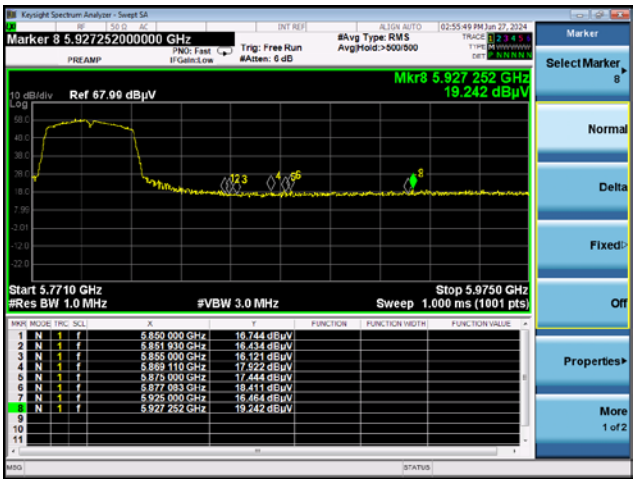


High channel Band edge (Peak) – Band 3

11n_HT40

Low channel Band edge (Peak) - Band 3

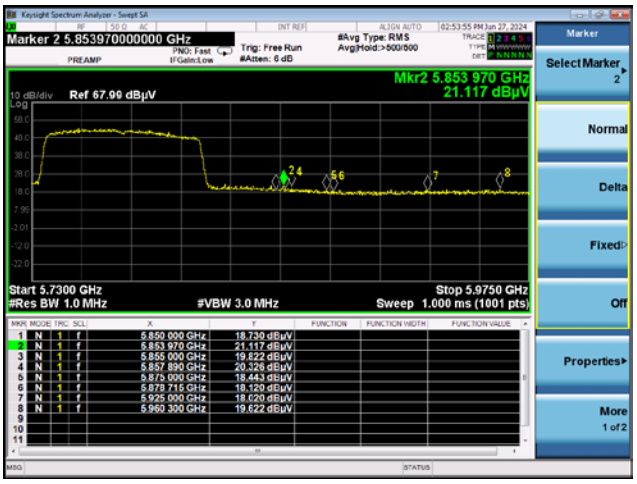
High channel Band edge (Peak) - Band 3



11ac_VHT80

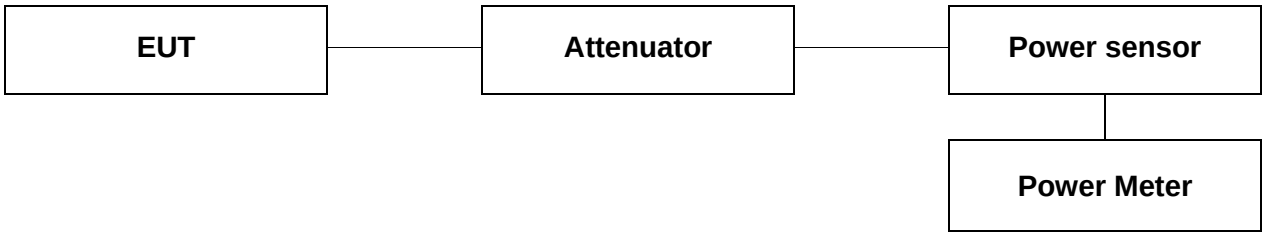
Middle channel Band edge (Peak) - Band 3

Middle channel Band edge (Peak) - Band 3



3. Maximum Conducted Output Power

3.1. Test Setup



3.2. Limit

According to 15.407(a)(3)
For the band 5.725-5.85 ㎓, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 ㏈m in any 500-㎑ band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i. However, fixed point-to point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 ㏈i without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.3. Test Procedure

1. This measurement settings are specified in section Ⅱ.E.3.a of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied:
   - The EUT is configured to transmit continuously or to transmit with a consistent duty cycle.
   - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
   - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
3. If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.
4. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
5. Adjust the measurement in dB m by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25 %).

3.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Test mode: 11a

Band	Frequency (㎒)	Data Rate	Average Power (㏈m)	Duty Cycle Correction Factor (㏈)	Average Power Result (㏈m)
U-NII 3	5 745	6 Mbps	11.14	-	11.14
	5 785		10.42		10.42
	5 825		10.82		10.82

Band	FCC Limit			
	Frequency (㎒)	Fixed Limit (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
U-NII 3	5 745	30	2.67	30
	5 785			
	5 825			

Remark;

1. Average Power Result (㏈m) = Average Power (㏈m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. (㏈m) = Average Power Result (㏈m) + Antenna Gain (㏈i)

Test mode: 11n_HT20

Band	Frequency (㎒)	Data Rate	Average Power (㏈m)	Duty Cycle Correction Factor (㏈)	Average Power Result (㏈m)
U-NII 3	5 745	MCS0	10.63	-	10.63
	5 785		10.59		10.59
	5 825		11.25		11.25

Band	FCC Limit			
	Frequency (㎒)	Fixed Limit (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
U-NII 3	5 745	30	2.67	30
	5 785			
	5 825			

Remark;

1. Average Power Result (㏈m) = Average Power (㏈m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. (㏈m) = Average Power Result (㏈m) + Antenna Gain (㏈i)

Test mode: 11n_HT40

Band	Frequency (㎒)	Data Rate	Average Power (㏈ m)	Duty Cycle Correction Factor (㏈)	Average Power Result (㏈ m)
U-NII 3	5 755	MCS0	10.68	-	10.68
	5 795		10.99		10.99

Band	FCC Limit			
	Frequency (㎒)	Fixed Limit (㏈ m)	Antenna Gain (㏈ i)	Limit (㏈ m)
U-NII 3	5 755	30	2.67	30
	5 795			

Remark;

1. Average Power Result (㏈ m) = Average Power (㏈ m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. (㏈ m) = Average Power Result (㏈ m) + Antenna Gain (㏈ i)

Test mode: 11ac_VHT80

Band	Frequency (㎒)	Data Rate	Average Power (㏈ m)	Duty Cycle Correction Factor (㏈)	Average Power Result (㏈ m)
U-NII 3	5 775	MCS0	10.84	-	10.84

Band	FCC Limit			
	Frequency (㎒)	Fixed Limit (㏈ m)	Antenna Gain (㏈ i)	Limit (㏈ m)
U-NII 3	5 775	30	2.67	30

Remark;

1. Average Power Result (㏈ m) = Average Power (㏈ m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. (㏈ m) = Average Power Result (㏈ m) + Antenna Gain (㏈ i)

4. Antenna Requirement

4.1. Standard Applicable

For intentional device, according to FCC 47 CFR 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 shall be considered sufficient to comply with the provisions of this section. 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. And according to FCC 47 CFR Section §15.407(a) if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted power and the maximum power spectral density shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

4.2. Antenna Connected Construction

Antenna used in this product is Wire Antenna with gain of 2.67 dBi.

- End of the Test Report -