RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.247** **IC RSS-247 issue 2 and IC RSS-GEN issue 5**
Product name	**Tablet**
Brand Name	**ICON/iFit**
Model No.	**MP22-ARGON2X-C**
Test Result	**Pass**
Statements of Conformity	**Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Approved by:

Kevin Tsai
Deputy Manager

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 27, 2021	Initial Issue	ALL	Allison Chen
01	October 4, 2021	See the following Note Rev.(01)	ALL	Allison Chen

Note
Rev.(01)
1. Add spot check test data of radiated emission above 1GHz and power table.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

FCC Applicant	Compal Electronics Inc No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei city, 11492 Taiwan
IC Applicant	COMPAL ELECTRONICS INC. No. 581 & 581-1, Ruiguang Rd,, Neihu District Taipei R.O.C. 114 Taiwan
Manufacturer	Compal Electronics Inc No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei city, 11492 Taiwan
Equipment	Tablet
Model No.	MP22-ARGON2X-C
Model Discrepancy	N/A
Trade Name	ICON/iFit
Received Date	July 30, 2021
Date of Test	September 9 ~ 13, 2021
Power Operation	EUT Power from Power Supply. (DC12V)
HW Version	LA-K651P
SW Version	Android 9
EUT Serial #	NN23D30006 5891432400021

Remark:

1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.2 INFORMATION ABOUT THE FHSS CHARACTERISTICS

1.2.1 Pseudorandom Frequency Hopping Sequence

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master; the phase in the hopping sequence is determined by the Bluetooth clock of the master. The channel is divided into time slots where each slot corresponds to an RF hop frequency. Consecutive hops correspond to different RF hop frequencies. The nominal hop rate is 1 600 hops/s.

1.2.2 Equal Hopping Frequency Use

The channels of this system will be used equally over the long-term distribution of the hopsets.

1.2.3 Example of a 79 hopping sequence in data mode:

02, 05, 31, 24, 20, 10, 43, 36, 30, 23, 40, 06, 21, 50, 44, 09, 71, 78, 01, 13, 73, 07, 70, 72, 35, 62, 42, 11, 41, 08, 16, 29, 60, 15, 34, 61, 58, 04, 67, 12, 22, 53, 57, 18, 27, 76, 39, 32, 17, 77, 52, 33, 56, 46, 37, 47, 64, 49, 45, 38, 69, 14, 51, 26, 79, 19, 28, 65, 75, 54, 48, 03, 25, 66, 05, 16, 68, 74, 59, 63, 55

1.2.4 System Receiver Input Bandwidth

Each channel bandwidth is 1MHz.
The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

1.2.5 Equipment Description

RSS-247, 5.1 (a): The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

1.3 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	1. GFSK for BDR-1Mbps 2. π/4-DQPSK for EDR-2Mbps 3. 8DPSK for EDR-3Mbps
Number of channel	79 Channels

Remark:
Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.4 ANTENNA INFORMATION

Antenna Type	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	1.37 dBi
Antenna Connector	IPEX

Remark:
1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203.

1.5 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~1G (Horizontally)	+/- 3.91
3M Semi Anechoic Chamber / 30M~1G (Vertically)	+/- 4.57
3M Semi Anechoic Chamber / 1G~6G	+/- 5.20
3M Semi Anechoic Chamber / 6G~18G	+/- 5.18
3M Semi Anechoic Chamber / 18G~40G	+/- 3.68

Remark:

1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.6 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at
No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	N/A	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li	-
RF Conducted	Lance Chen	-

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.7 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Coaxial Cable	Woken	WC12	CC003	06/28/2021	06/27/2022
Power Meter	Anritsu	ML2487A	6K00003260	05/24/2021	05/23/2022
Power Seneor	Anritsu	MA2490A	032910	05/24/2021	05/23/2022
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Software	Radio Test Software Ver. 21				

Remark: Each piece of equipment is scheduled for calibration once a year.

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/08/2021	02/07/2022
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/17/2021	09/16/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/28/2021	09/27/2022
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/09/2020	12/08/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	12/09/2020	12/08/2021
Pre-Amplifier	EMEC	EM330	060609	02/24/2021	02/23/2022
Pre-Amplifier	HP	8449B	3008A00965	12/25/2020	12/24/2021
Pre-Amplifier	MITEQ	AMF-6F-18004000-37-8P	985646	09/08/2021	09/07/2022
Signal Analyzer	R&S	FSV 40	101073	09/07/2021	09/06/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180419c				

Remark: Each piece of equipment is scheduled for calibration once a year.

1.8 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
	N/A				

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	Adapter	WEIHAI POWER	HAS060123-EA	N/A	N/A

1.9 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, RSS-247 Issue 2 and RSS-GEN Issue 5.

2. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	RSS-GEN 6.8	1.3	Antenna Requirement	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.1	Radiation Spurious Emission	Pass
15.247(b)(1)	RSS-247(5.4)(b)	4.2	Output Power Measurement	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	GFSK for BDR-1Mbps (DH5) 8DPSK for EDR-3Mbps (3DH5)
Test Channel Frequencies	**GFSK for BDR-1Mbps:** 1.Lowest Channel: 2402MHz 2.Middle Channel: 2441MHz 3.Highest Channel: 2480MHz **8DPSK for EDR-3Mbps:** 1.Lowest Channel: 2402MHz 2.Middle Channel: 2441MHz 3.Highest Channel: 2480MHz

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power Supply. (1st)** **Mode 2: EUT power by Power Supply. (2nd)**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report

4. TEST RESULT

4.1 RADIATION SPURIOUS EMISSION

4.1.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Remark:
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Note: Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (m)
9-490 kHz Note	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

Note: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

4.1.2 Test Procedure

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.

3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

4. For harmonic, the worst case of output power was BDR-1Mbps. Therefore only BDR-1Mbps record in the report.

5. The SA setting following：

(1) Below 1G：RBW = 100kHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2) Above 1G：

(2.1) For Peak measurement：RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

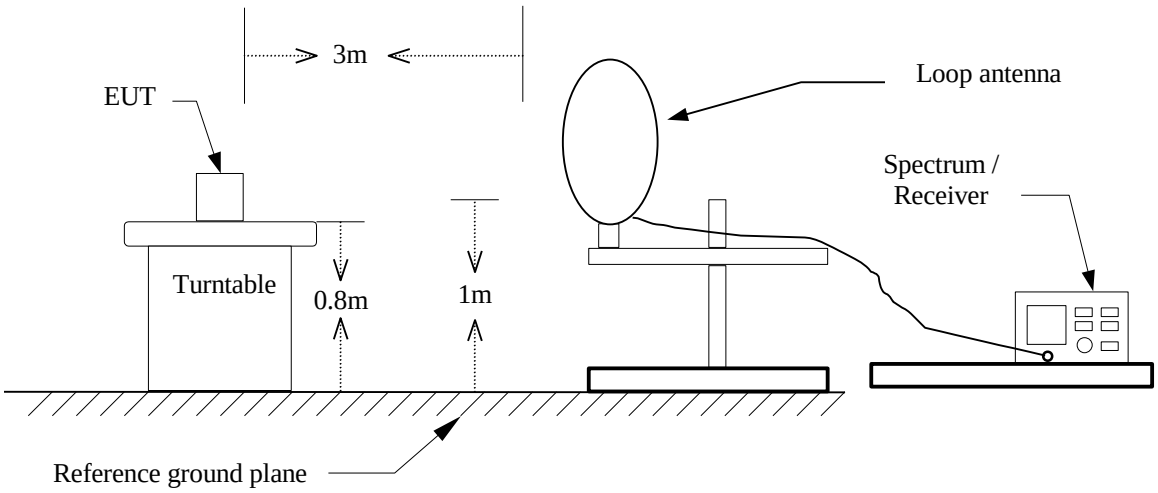
(2.2) For Average measurement：RBW = 1MHz, VBW

˙If Duty Cycle ≥ 98%, VBW=10Hz.

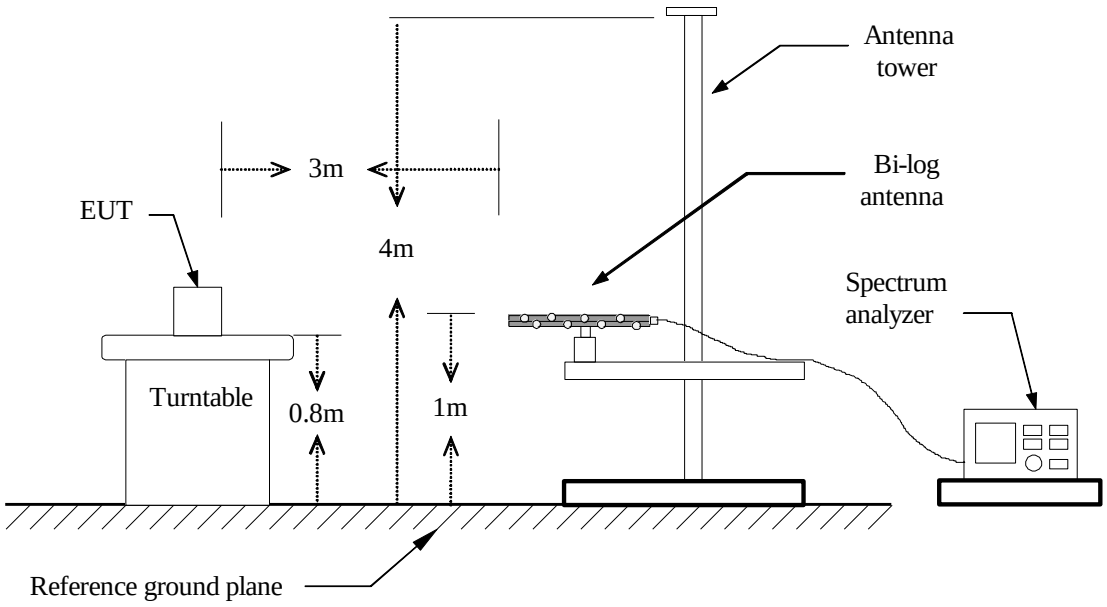
˙If Duty Cycle < 98%, VBW≥1/T.

4.1.3 Test Setup

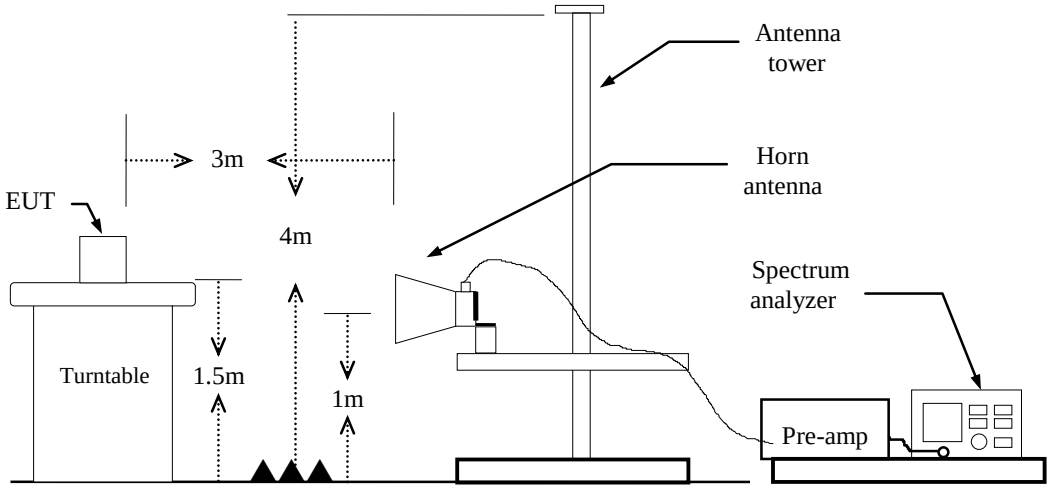
9kHz ~ 30MHz



30MHz ~ 1GHz



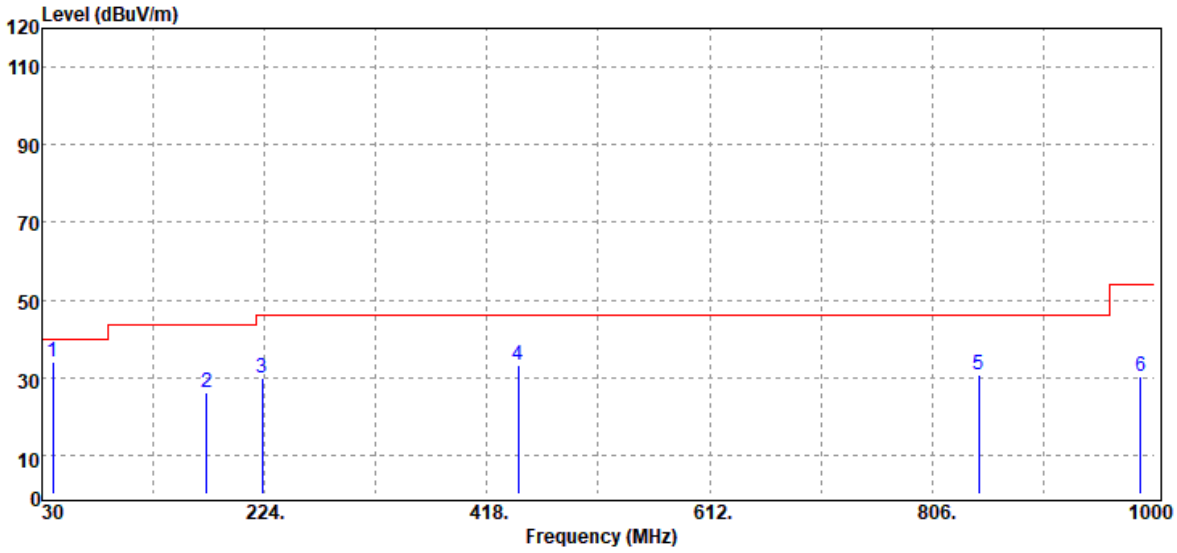
Above 1 GHz



4.1.4 Test Result

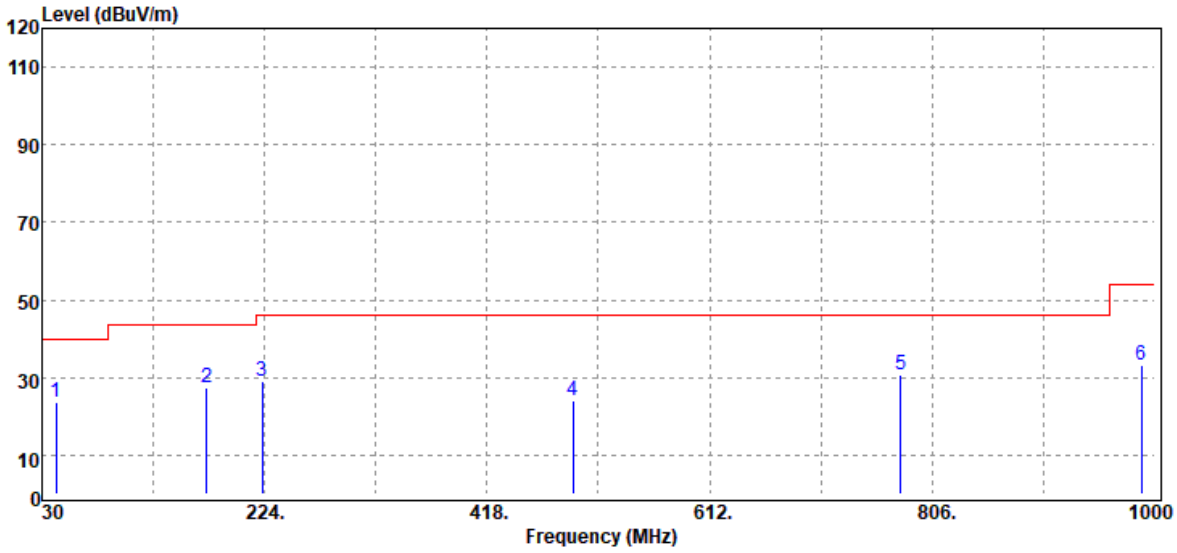
Below 1G Test Data

Test Mode:	BT Mode	Temp/Hum	23.1(℃)/ 55%RH
Test Item	30MHz-1GHz	Test Date	September 9, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



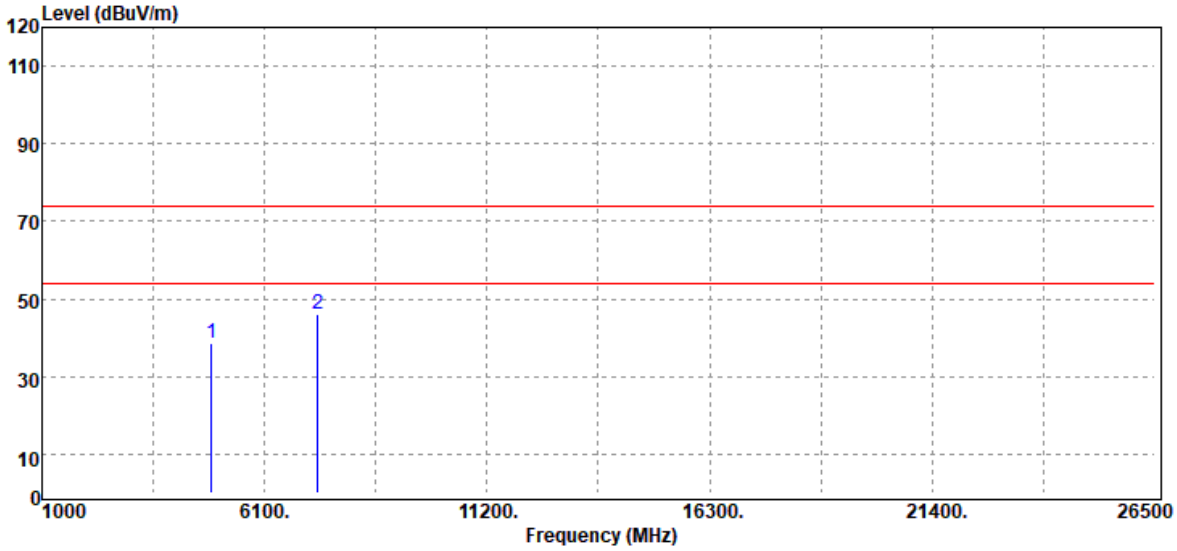
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
39.70	Peak	43.45	-9.54	33.91	40.00	-6.09
173.56	Peak	37.59	-11.29	26.30	43.50	-17.20
222.06	Peak	41.71	-11.77	29.94	46.00	-16.06
445.16	Peak	37.83	-4.52	33.31	46.00	-12.69
846.74	Peak	28.60	2.24	30.84	46.00	-15.16
987.39	Peak	26.09	4.29	30.38	54.00	-23.62

Test Mode:	BT Mode	Temp/Hum	23.1(℃)/ 55%RH
Test Item	30MHz-1GHz	Test Date	September 9, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
42.61	Peak	35.07	-11.45	23.62	40.00	-16.38
173.56	Peak	38.67	-11.29	27.38	43.50	-16.12
222.06	Peak	40.91	-11.77	29.14	46.00	-16.86
492.69	Peak	27.29	-3.41	23.88	46.00	-22.12
778.84	Peak	29.58	1.21	30.79	46.00	-15.21
988.36	Peak	28.90	4.35	33.25	54.00	-20.75

Test Mode:	GFSK_BR-1Mbps Mid CH	Temp/Hum	23.6(℃)/ 40%RH
Test Item	Harmonic	Test Date	September 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		

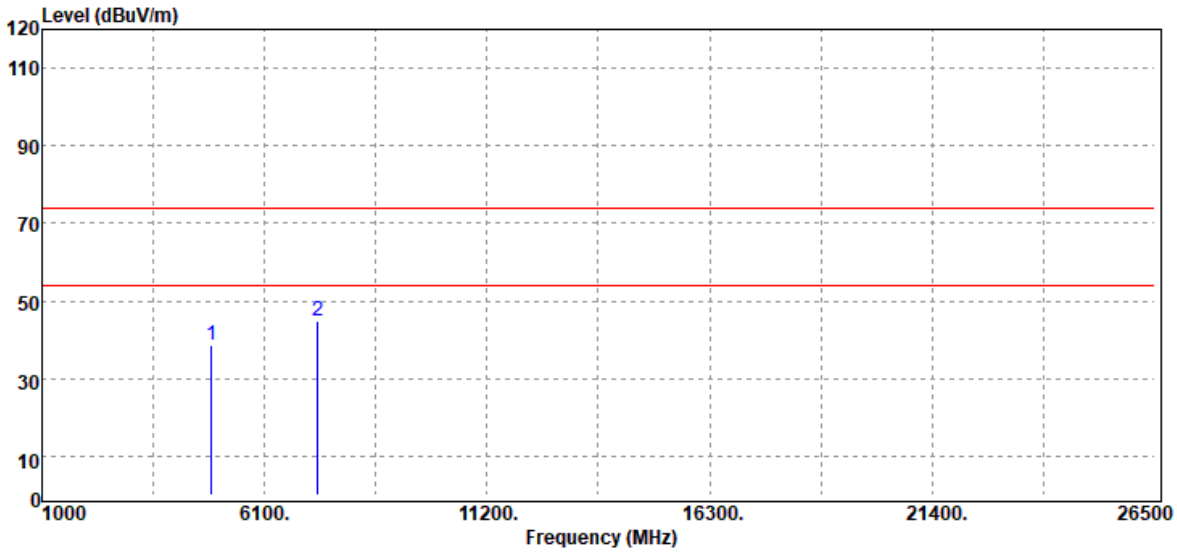


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4882.00	Peak	32.54	5.99	38.53	74.00	-35.47
7323.00	Peak	32.79	13.20	45.99	74.00	-28.01
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode:	GFSK_BR-1Mbps Mid CH	Temp/Hum	23.6(℃)/ 40%RH
Test Item	Harmonic	Test Date	September 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4882.00	Peak	32.42	5.99	38.41	74.00	-35.59
7323.00	Peak	31.77	13.20	44.97	74.00	-29.03
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit

4.2 OUTPUT POWER MEASUREMENT

4.2.1 Test Limit

According to §15.247(a)(1) and RSS-247 section 5.4(b)

Peak output power：

FCC

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

IC

According to RSS-247 section 5.4(b), For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

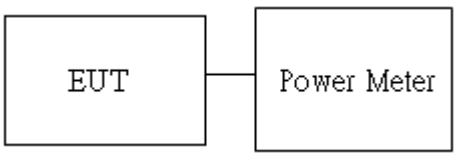
Limit	☒ Antenna not exceed 6 dBi：21dBm ☐ Antenna with DG greater than 6 dBi：21dBm [Limit = 30 – (DG – 6)]

Average output power：For reporting purposes only.

4.2.2 Test Procedure

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 20.1~25.7℃ **Test date:** September 9~13, 2021

Humidity: 54~61% RH **Tested by:** Lance Chen

FCC	by power meter	
1M	**2402**	**2441**
Avg	3.21	3.02
Peak	3.8	3.56
setting	default	default

4.3 TEST DATA RE-USE SUMMARY

Introduction Section:

The application re-uses data collected on a similar device. The subject device of this application (Model: MP22-ARGON2X-C, FCC ID: GKR436391, IC: 2533B-436391) is electrically identical to the reference device (Model: MP22-ARGON2-C, FCC ID: GKR421914, IC: 2533B-421914) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 484596 D01.

Differences Brief Description:

The WLAN and Bluetooth hardware of this device are identical to the implementation in

FCC ID: GKR436391

IC: 2533B-436391

The Product Equality Declaration document includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.

Spot Check Verification Result Summary

Equipment Class	Reference FCC ID / IC No.	Folder Test	Report Title/ Section
DSS-BT	GKR421914 / 2533B-421914	T200908W02-RP1	All Section (Except for Radiation Spurious Emission below 1GHz)

Summery of the spot check for Unlicensed bands and Licensed bands

In order to confirm hardware similarity of the subject device with the reference device, we used same setting power to radiated emission measurement were performed on the subject device for the Band edge and Harmonic, the test result were similar with FCC ID: GKR421914 / IC: 2533B-421914.

BT

Report	Test Item	Mode / CH.	Measured Frequency (MHz)	GKR421914 / 2533B-421914			GKR436391 / 2533B-436391			Gap (dB)	
				Peak	Average	Ant. Pol.	Peak	Average	Ant. Pol.	Peak	Average
DSS (BT)	Band edge	DH5 / Low	2390	52.23	39.5	H	49.05	37.73	H	3.18	1.77
	Emission 1G~26.5G	DH5 / Mid	4882	42.56	-	V	38.53	-	V	4.03	-

Report	Test Item	Mode / CH.	Ant. Pol.	Measured Frequency (MHz)	GKR421914 / 2533B-421914		Measured Frequency (MHz)	GKR436391 / 2533B-436391		Gap (dB)	
					Peak	Average		Peak	Average	Peak	Average
DSS (BT)	LF	DH5 / Mid	V	148.34	37.18	-	39.7	33.91	-	3.27	-

- End of Test Report -