

RF EXPOSURE REPORT



Applicant: Axon Enterprise, Inc.
17800 N 85th St, Scottsdale, AZ 85255, United States

Manufacturer: Axon Enterprise, Inc.
17800 N 85th St, Scottsdale, AZ 85255, United States

Product Name: Fleet Hub

Brand Name: Axon

Model No.: AX1033

Model Difference: N/A

Report Number: ER/2021/20094

FCC ID X4GS01405

IC: 8803A-S01405

FCC Rule Part Part 2.1091

IC Rule: RSS-102 issue 5 Mar. 19, 2015

Issue Date: May 3, 2021

We hereby certify that:

The above equipment was verified by SGS Taiwan Ltd. The evaluation in this report is in compliance with the above rule(s).

The results of this report relate only to the sample identified in this report.

Approved By:**John Yeh / Asst. Manager**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Revision History

Report Number	Revision	Description	Issue Date	Revised By
ER/2021/20094	Rev.00	Original.	May 3, 2021	Ariel Chang

Note:

- 1、Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Contents

1	DESCRIPTION OF EQUIPMENT UNDER TEST (EUT).....	4
2	FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	10

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 General:

Product Name	Fleet Hub
Brand Name	Axon
Model No.	AX1033
Model Difference	N/A
Hardware Version	X3
Firmware Version	IG2.DVT.1.2
Power Supply	12Vdc

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1.2 Antenna Information:

1.2.1 WLAN 2.4GHz

Antenna Type	Supplier	Antenna Part No.	Main/Aux	Freq. (MHz)	Peak Antenna Gain (dBi)	Directional Antenna Gain of Beamforming (dBi)
PIFA	Airgain	AP-AXONF3-MMF-Q-MS-BL-15	Main	2412-2462	2.3	5.30
Dipole	Airgain	AP-AXONF3-GL-WWG-BL-3M	Main		N/A	N/A
					N/A	

Note: The N/A represents that the Antenna does not available in the specified frequency.

1.2.2 BT

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
Dipole	Airgain	AP-AXONF3-GL-WWG-BL-3M	2.4GHz	2.50	-

1.2.1 5GHz IC

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Main Antenna Peak Gain (dBi)	Directional Gain of Beamforming (dBi)
PIFA	Airgain	AP-AXONF3-MMF-Q-MS-BL-15	5250~5350	0.7	3.70
			5470~5725	N/A	N/A
			5725~5850	N/A	N/A
Dipole	Airgain	AP-AXONF3-GL-WWG-BL-3M	5250~5350	N/A	N/A
			5470~5725	1.10	4.10
			5725~5850	1.30	4.10

Note: The N/A represents that the Antenna does not available in the specified frequency.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1.2.2 5GHz FCC

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Main Antenna Peak Gain (dBi)	Directional Gain of Beamforming (dBi)
PIFA	Airgain	AP-AXONF3-MMF-Q-MS-BL-15	5150~5250	0.5	3.50
			5250~5350	0.7	3.70
			5470~5725	N/A	N/A
			5725~5850	N/A	N/A
Dipole	Airgain	AP-AXONF3-GL-WWG-BL-3M	5150~5250	N/A	N/A
			5250~5350	N/A	N/A
			5470~5725	1.10	4.10
			5725~5850	1.30	4.10
Note: The N/A represents that the Antenna does not available in the specified frequency.					

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1.3 Rated Power

1.3.1 Bluetooth / WLAN 2.4GHz

Mode	Freq. Range (MHz)	Channels	Modulation Technology	Max Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
BR+EDR	2402-2480	79	GFSK + π / 4DQPSK + 8DPSK	6.91	2.50	9.41	V
BLE	2402-2480	40	GFSK	4.55	2.50	7.05	
802.11b/g/n_HT20/ax_HE20/n_HT40/n_HE40	2412-2472	13	DSSS & OFDM	26.08	2.30	28.38	V
Modulation type:			CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM				

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1.3.2 WLAN 5GHz:

802.11	Freq. Range (MHz)	Modulation Technology	Max. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
a	5150~5250	OFDM	23.29	0.50	23.79	
	5250~5350		22.92	0.70	23.62	
	5470~5725		22.35	1.10	23.45	
	5725~5850		29.09	1.30	30.39	
n HT20 ac VHT20	5150~5250		20.52	3.50	24.02	
	5250~5350		20.48	3.70	24.18	
	5470~5725		19.82	4.10	23.92	
	5725~5850		26.47	4.10	30.57	
n HT40 ac VHT40	5150~5250		20.39	3.50	23.89	
	5250~5350		20.54	3.70	24.24	
	5470~5725		20.49	4.10	24.59	
	5725~5850		24.84	4.10	28.94	
ac VHT80	5150~5250		19.72	3.50	23.22	
	5250~5350		18.23	3.70	21.93	
	5470~5725		20.56	4.10	24.66	
	5725~5850		20.80	4.10	24.90	
ax HE20	5150~5250	OFDMA	20.66	3.50	24.16	
	5250~5350		20.66	3.70	24.36	
	5470~5725		19.93	4.10	24.03	
	5725~5850		27.53	4.10	31.63	V
ax HE40	5150~5250		20.43	3.50	23.93	
	5250~5350		20.28	3.70	23.98	
	5470~5725		20.20	4.10	24.30	
	5725~5850		24.84	4.10	28.94	
ax HE80	5150~5250		19.27	3.50	22.77	
	5250~5350		17.94	3.70	21.64	
	5470~5725		20.53	4.10	24.63	
	5725~5850		20.74	4.10	24.84	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

1.3.3 WLAN 5GHz:

802.11	Freq. Range (MHz)	Modulation Technology	Max. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
a	5260~5320	OFDM	22.92	0.70	23.62	
	5500~5580		22.92	1.10	24.02	
	5660~5700		22.35	1.10	23.45	
	5745~5825		29.09	1.30	30.39	
n HT20 ac VHT20	5260~5320		20.48	3.70	24.18	
	5500~5580		19.82	4.10	23.92	
	5660~5700		19.23	4.10	23.33	
	5745~5825		26.47	4.10	30.57	
n HT40 ac VHT40	5270~5310		20.54	3.70	24.24	
	5510~5550		20.05	4.10	24.15	
	5670~5670		20.49	4.10	24.59	
	5755~5795		24.84	4.10	28.94	
ac VHT80	5290~5290		18.23	3.70	21.93	
	5530~5530		16.63	4.10	20.73	
	5775~5775		20.80	4.10	24.90	
ax HE20	5260~5320	OFDMA	20.66	3.70	24.36	
	5500~5580		19.93	4.10	24.03	
	5660~5700		18.81	4.10	22.91	
	5745~5825		27.53	4.10	31.63	V
ax HE40	5270~5310		20.28	3.70	23.98	
	5510~5550		19.50	4.10	23.60	
	5670~5670		20.20	4.10	24.30	
	5755~5795		24.84	4.10	28.94	
ax HE80	5290~5290		17.94	3.70	21.64	
	5530~5530		15.29	4.10	19.39	
	5775~5775		20.74	4.10	24.84	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

2.2 ISED Standard Applicable

This submittal(s) (test report) is intended to comply with RSS-102 issue 5 Radio frequency Radiation Exposure requirement.

This is a Mobile device, the MPE is required.

Limits for Maximum Permissible Exposure (MPE)

RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field Strength (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

F = frequency in MHz

* = Based on nerve stimulation (NS).

** = Based on specific absorption rate (SAR)

Maximum Permissible Exposure (MPE) Evaluation

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

2.3 Power Density Calculation (Worst Case)

FCC Standalone MPE

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. output Power (dBm)	Antenna Gain (dBi)	Max. output Power EIRP (mW)	Power Density (PD) (mW/cm ²)	Limit (mW/cm ²)	Pass / Fail	Power Density / Limit	Collocated MPE
BT	2441.00	20	6.91	2.50	8.73	0.0017	1.000	Pass	0.002	V
WLAN 2.4G	2462.00	20	26.08	2.30	688.65	0.137	1.000	Pass	0.137	V
WLAN 5G	5745.00	20	27.53	4.10	1455.46	0.290	1.000	Pass	0.290	V

ISED Standalone MPE

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. output Power (dBm)	Antenna Gain (dBi)	Output Power EIRP (mW)	Power Density (PD) (W/m ²)	Limit (W/m ²)	Pass / Fail	Power Density / Limit	Collocated MPE
BT	2441.00	20	6.91	2.50	8.73	0.017	5.410	Pass	0.003	V
WLAN 2.4G	2462.00	20	26.08	2.3	688.65	1.371	5.442	Pass	0.252	
WLAN 5G	5180.00	20	26.47	4.10	1140.25	2.270	9.047	Pass	0.251	V

~ End of Report ~

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.