

FCC Test Report

Report No.: AGC13040231206FR01

FCC ID : 2ACVU-HM806ARF

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button

Scroll/Scroll Sensor)

BRAND NAME : ACTIVE KEY

MODEL NAME: HM806A-RF, AK-PMH30B-FUS-x, AK-PMH30S-FUS-x

APPLICANT : Active Key GmbH

DATE OF ISSUE : Jan. 22, 2024

STANDARD(S)

TEST PROCEDURE(S)

: FCC Part 15 Rules

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 22, 2024	Valid	Initial Release

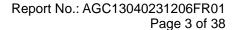




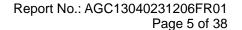
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1. VERIFICATION OF CONFORMITY

Applicant	Active Key GmbH
Address	Brunnenaecker 6, Pegnitz 91257, Germany
Manufacturer	Active Key GmbH
Address	Brunnenaecker 6, Pegnitz 91257, Germany
Factory	Zhuhai Heng Yu New Technology
Address	Heng Ke Technology Campus, Jin Hai Avenue Sanzao, Jinwan District, 519040, Zhuhai
Product Designation	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)
Brand Name	ACTIVE KEY
Test Model	HM806A-RF
Series Model(s)	AK-PMH3OB-FUS-x, AK-PMH3OS-FUS-x
Difference Description	HM806A-RF is Medical Mouse 3-Button Scroll and Scroll Sensor Wireless with Color White, Black and potentially further colors AK-PMH3OB-FUS-x is AK-PMH3 Medical Mouse 3-Button Scroll Wireless with Color White, Black and potentially further colors AK-PMH3OS-FUS-x is AK-PMH3 Medical Mouse Scroll Sensor Wireless with Color White, Black and potentially further colors Note: The suffix "x" indicates the color of the product, e.g. W=White; B=Black; RW=Red-White; Etc.
Date of receipt of test item	Jan. 08, 2024
Date of test	Jan. 08, 2024 to Jan. 22, 2024
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-2.4G/RF

Note: The test results of this report relate only to the tested sample identified in this report.

Cici Li
(Project Engineer)

Reviewed By

Calvin Liu
(Reviewer)

Approved By

Max Zhang
Authorized Officer

Jan. 22, 2024

Jan. 22, 2024



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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

.,	Attriajor teorificar decomption of Eo F is decompted as following			
Operation Frequency	2402MHz-2480MHz			
Maximum field strength	92.87dBuV/m(Peak)@3m			
Modulation	GFSK			
Number of channels	79 Channels			
Antenna Gain	1.87dBi			
Antenna Designation	PCB Antenna			
Hardware Version	Main PCB Wireless: HY-HM806-2-01-04 Touch-Scroll PCB: HY-HM806-5-01-04 3-Button Scroll PCB: HY-HM806-2-02-02			
Software Version	a) Touch-Scroll Variant: S3393V14 b) 3-Button Scroll Variant: S3392V15			
Power Supply	DC 1.5V by battery			



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2.2. TABLE OF CARRIER FREQUENCY

Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2402	28	2429	55	2456
2	2403	29	2430	56	2457
3	2404	30	2431	57	2458
4	2405	31	2432	58	2459
5	2406	32	2433	59	2460
6	2407	33	2434	60	2461
7	2408	34	2435	61	2462
8	2409	35	2436	62	2463
9	2410	36	2437	63	2464
10	2411	37	2438	64	2465
11	2412	38	2439	65	2466
12	2413	39	2440	66	2467
13	2414	40	2441	67	2468
14	2415	41	2442	68	2469
15	2416	42	2443	69	2470
16	2417	43	2444	70	2471
17	2418	44	2445	71	2472
18	2419	45	2446	72	2473
19	2420	46	2447	73	2474
20	2421	47	2448	74	2475
21	2422	48	2449	75	2476
22	2423	49	2450	76	2477
23	2424	50	2451	77	2478
24	2425	51	2452	78	2479
25	2426	52	2453	79	2480
26	2427	53	2454		
27	2428	54	2455		



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2.3. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna which is integrated into the PCB and no other antenna can be used with the device. Therefore, it is in compliance with 47 CFR 15.203. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

2.4 Test Methodology

The tests were performed according to following standards:

No.	No. Identity Document Title	
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices



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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$



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4. DESCRIPTION OF TEST MODES

Summary Table of Test Cases				
	Equipment type / Modulation			
Test Item	2.4G / GFSK			
Radiated Test Cases	Mode 1: 2.4G Tx CH01_2402 MHz (Battery powered) Mode 2: 2.4G Tx CH41_2442 MHz (Battery powered) Mode 3: 2.4G Tx CH79_2480 MHz(Battery powered)			
AC Conducted Emission	N/A			

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. The battery is full-charged during the test.
- 3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
- 5. The fixed frequency mode is to press the key to trigger the frequency point without external software.

Test Mode	Channel	Max TX Power Index
GFSK	L/M/H	0x05 (5 dBm)

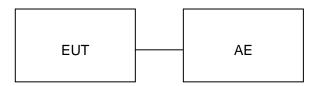


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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:



5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	AK-PMH3 MEDICAL MOUSE WIRELESS	HM806A-RF	2ACVU-HM806ARF	EUT
2	Redmi Notebook PC	XMA2002-AB	N/A	AE
3	Redmi Notebook Adapter	AD100G	N/A	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249&15.209	Radiated Emission	Compliant
§15.249	Band Edges	Compliant
§15.215	20dB bandwidth	Compliant
§15.207	Conducted Emission	Not Applicable

Note: The conducted emission tests at AC port are not required for devices which only employ battery power for operation



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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

• F	Radiated Spurious Emission								
Used	Equipment No.	Test Equipment	Manufacturer	Model No. Serial No.		Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)		
	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2023-02-18	2024-02-17		
\boxtimes	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02		
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31		
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2022-03-12	2024-03-11		
\boxtimes	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	494	2023-01-05	2025-01-04		
	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00154520	2023-06-03	2024-06-02		
\boxtimes	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23		
\boxtimes	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03		
\boxtimes	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31		
\boxtimes	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08		
	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08		

AC Power Line Conducted Emission								
Illsed I Equipment No. 1 Test Equipment Manufacturer Model No. 1 Serial No. 1							Next Cal. Date (YY-MM-DD)	
	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02	
	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08	
	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02	



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• Te:	Test Software								
Used	Equipment No.	Test Equipment	Model No.	Version Information					
\boxtimes	AGC-EM-S004	RE Test System	Tonscend	TS+ Ver2.1(JS32-RE)	4.0.0.0				
\boxtimes	AGC-EM-S011	RSE Test System	Tonscend	TS+ Ver2.1(JS36-RSE)	4.0.0.0				
	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71				
	AGC-ER-S009	BT/WIFI Test System	Tonscend	JS1120-3	2.6.77.0518				



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7. RADIATED EMISSION

7.1. TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental	Field Strength of Harmonics
	(millivolts/meter)	(microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency	Distance	Field Strengths Limit			
(MHz)	Meters	μ V/m	dB(μV)/m		
0.009 ~ 0.490	300	2400/F(kHz)			
0.490 ~ 1.705	30	24000/F(kHz)			
1.705 ~ 30	30	30			
30 ~ 88	3	100	40.0		
88 ~ 216	3	150	43.5		
216 ~ 960	3	200	46.0		
960 ~ 1000	3	500	54.0		
Above 1000	3	Other:74.0 dB(µV)/m (Pea	k) 54.0 dB(μV)/m (Average)		

Remark:

- (1) Emission level dB μ V = 20 log Emission level μ V/m.
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.



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7.2. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use minimum resolution bandwidth of 1 MHz. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.



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The following table is the setting of spectrum analyzer and receiver.

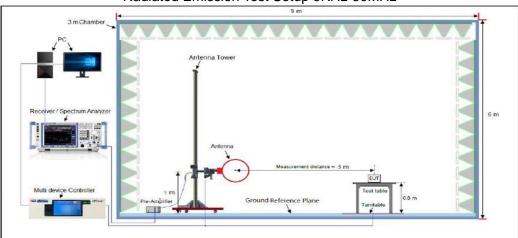
Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
	1GHz~26.5GHz
Start ~Stop Frequency	RBW 2.4MHz/ VBW 8MHz for Peak,
	RBW 2.4MHz/3MHz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

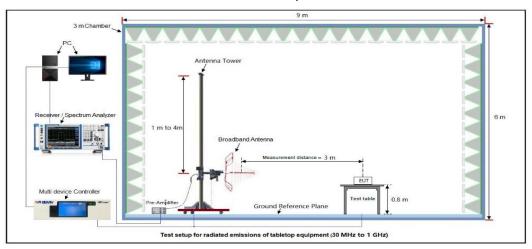


7.3. TEST SETUP

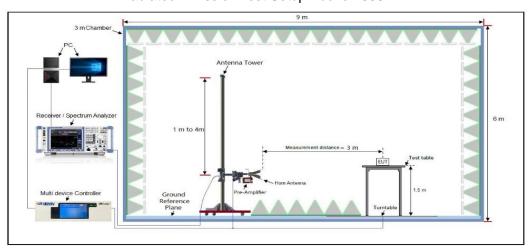
Radiated Emission Test Setup 9KHz-30MHz



Radiated Emission Test Setup 30MHz-1000MHz



Radiated Emission Test Setup Above 1000MHz



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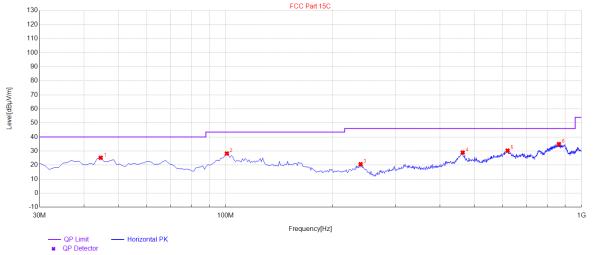
7.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

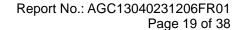
RADIATED EMISSION 30MHz-1GHZ

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	24.0°C	Relative Humidity	59.1%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 3	Polarization	Horizontal



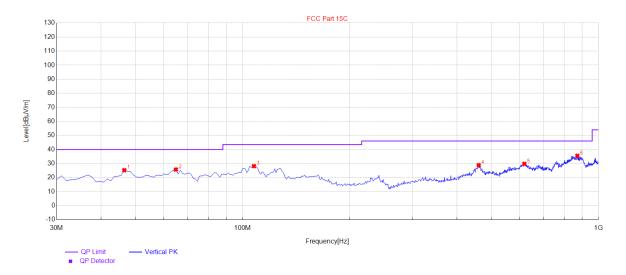
Suspected Data List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	44.55	25.20	12.51	40.00	14.80	100	140	Horizontal
2	100.81	28.22	17.03	43.50	15.28	100	100	Horizontal
3	239.52	20.62	16.00	46.00	25.38	100	40	Horizontal
4	463.59	28.96	23.86	46.00	17.04	100	40	Horizontal
5	619.76	30.28	25.90	46.00	15.72	100	50	Horizontal
6	864.2	34.96	29.87	46.00	11.04	100	100	Horizontal

RESULT: PASS





EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	24.0°C	Relative Humidity	59.1%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 3	Polarization	Vertical

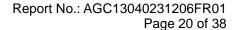


NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	46.49	25.26	13.48	40.00	14.74	100	80	Vertical
2	64.92	25.73	16.29	40.00	14.27	100	140	Vertical
3	107.6	28.14	16.67	43.50	15.36	100	180	Vertical
4	460.68	28.83	24.60	46.00	17.17	100	250	Vertical
5	618.79	29.79	25.79	46.00	16.21	100	340	Vertical
6	871.96	35.52	29.61	46.00	10.48	100	270	Vertical

RESULT: PASS

Note: Factor=Antenna Factor + Cable loss, Margin=Limit-Level.

The "Factor" value can be calculated automatically by software of measurement system.





FIELD STRENGTH OF FUNDAMENTAL

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	23.7°C	Relative Humidity	59.6%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Modulation	GFSK	Polarization	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
2402	43.53	49.05	92.58	114.00	-21.42	peak	
2402	32.50	49.05	81.55	94.00	-12.45	AVG	
2442	42.13	49.12	91.25	114.00	-22.75	peak	
2442	31.31	49.12	80.43	94.00	-13.57	AVG	
2480	43.62	49.25	92.87	114.00	-21.13	peak	
2480 34.31 49.25 83.56 94.00 -10.44 AVG							
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	23.7°C	Relative Humidity	59.6%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Modulation	GFSK	Polarization	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2402	44.37	49.05	72.70	114.00	-41.30	peak
2402	29.51	49.05	64.12	94.00	-29.88	AVG
2442	45.31	49.12	70.63	114.00	-43.37	peak
2442	30.11	49.12	63.41	94.00	-30.59	AVG
2480	40.78	49.25	82.73	114.00	-31.27	peak
2480 30.48 49.25 73.00 94.00 -21.00 AVG						
Remark:						
actor = Ante	enna Factor + Ca	able Loss – P	re-amplifier.			



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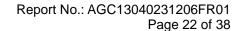
RADIATED EMISSION ABOVE 1GHZ

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 1	Polarization	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804	48.35	3.76	52.11	74.00	-21.89	peak
4804	39.16	3.76	42.92	54.00	-11.08	AVG
7206	41.87	8.17	50.04	74.00	-23.96	peak
7206 32.59 8.17 40.76 54.00 -13.24 AVG						
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 1	Polarization	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4804	48.55	3.76	52.31	74.00	-21.69	peak	
4804	37.43	3.76	41.19	54.00	-12.81	AVG	
7206	42.12	8.17	50.29	74.00	-23.71	peak	
7206 31.45 8.17 39.62 54.00 -14.38 AVG							
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							



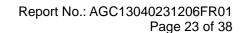


EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 2	Polarization	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
4884	47.56	3.78	51.34	74.00	-22.66	peak	
4884	38.36	3.78	42.14	54.00	-11.86	AVG	
7326	32.49	8.23	40.72	74.00	-33.28	peak	
7326	7326 32.42 8.23 40.65 54.00 -13.35 AVG						
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 2	Polarization	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4884	46.92	3.78	50.70	74.00	-23.30	peak
4884	38.42	3.78	42.20	54.00	-11.80	AVG
7326	42.50	8.23	50.73	74.00	-23.27	peak
7326 31.51 8.23 39.74 54.00 -14.26 AVG						
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						





	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V
Test Mode	Mode 3	Polarization	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type		
4960	48.62	3.81	52.43	74.00	-21.57	peak		
4960	37.54	3.81	41.35	54.00	-12.65	AVG		
7440	42.19	8.27	50.46 74.00	74.00	-23.54	peak		
7440	7440 32.64 8.27 40.91 54.00 -13.09							
Remark:								
Factor = Antenna Factor + Cable Loss – Pre-amplifier.								

EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	19.2°C	Relative Humidity	46.2%
Pressure	985kPa	Test Voltage	DC 1.5V
Test Mode	Mode 3	Polarization	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type		
4960	47.62	3.81	51.43	74.00	-22.57	peak		
4960	38.54	3.81	42.35	54.00	-11.65	AVG		
7440	42.31	8.27	50.58	50.58 74.00 -23.42	-23.42	peak		
7440	7440 31.69 8.27 39.96 54.00 -14.04							
Remark:								
Factor = Ante	Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

RESULT: PASS

Note: The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Emission Level-Limit.

The "Factor" value can be calculated automatically by software of measurement system.



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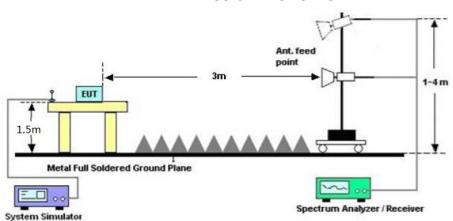
8. BAND EDGE EMISSION

8.1. MEASUREMENT PROCEDURE

- 1. The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.
- 2. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=1MHz, VBW=3MHz / Sweep=AUTO
- (b) AVERAGE: RBW=1MHz; VBW=3MHz / Sweep=AUTO
- 3. Other procedures refer to clause 7.2.

8.2. TEST SETUP

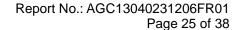
RADIATED EMISSION TEST SETUP



8.3 RADIATED TEST RESULT

Note:

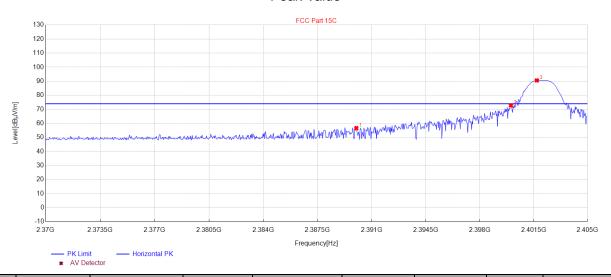
- 1. Factor=Antenna Factor + Cable loss Amplifier gain. Field Strength=Factor + Reading level
- 2. The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μ V) to represent the Amplitude. Use the F dB(μ V/m) to represent the Field Strength. So A=F.





EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	23.7°C	Relative Humidity	59.6%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 1	Polarization	Horizontal

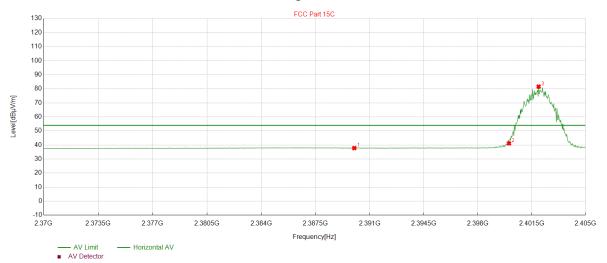
Peak Value



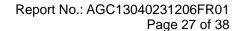
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2390.005	56.58	34.40	74.00	17.42	150	120	Horizontal
2	2400.025	72.77	34.43	74.00	1.23	150	38	Horizontal
3	2401.7067	90.58	34.43	114.00	23.42	150	34	Horizontal



Average Value



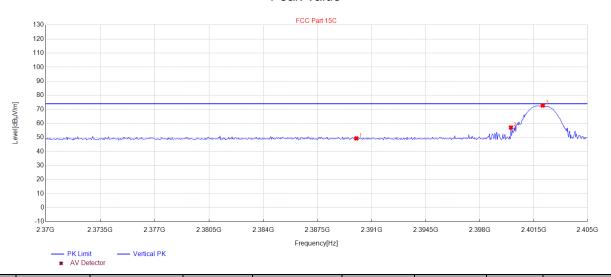
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2390.005	37.78	34.40	54.00	16.22	150	59	Horizontal
2	2400.025	41.14	34.43	54.00	12.86	150	17	Horizontal
3	2401.952	81.55	34.44	94.00	12.45	150	34	Horizontal





EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF	
Temperature	23.7°C	Relative Humidity	59.6%	
Pressure	985kPa	Test Voltage	DC 1.5V by battery	
Test Mode	Mode 1	Polarization	Vertical	

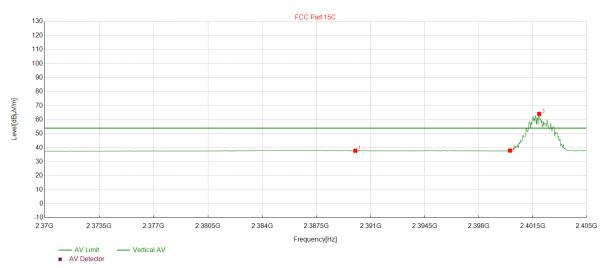
Peak Value



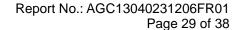
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2390.005	49.30	34.40	74.00	24.70	150	58	Vertical
2	2400.025	57.06	34.43	74.00	16.94	150	186	Vertical
3	2402.0921	72.70	34.44	114.00	41.30	150	215	Vertical



Average Value



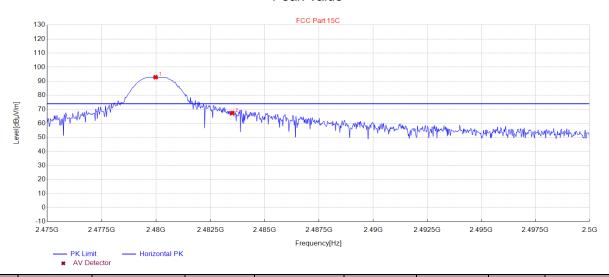
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2390.005	37.82	34.40	54.00	16.18	150	346	Vertical
2	2400.025	37.94	34.43	54.00	16.06	150	127	Vertical
3	2401.9169	64.12	34.44	94.00	29.88	150	214	Vertical





EUT	AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)	Model Name	HM806A-RF
Temperature	23.7°C	Relative Humidity	59.6%
Pressure	985kPa	Test Voltage	DC 1.5V by battery
Test Mode	Mode 3	Polarization	Horizontal

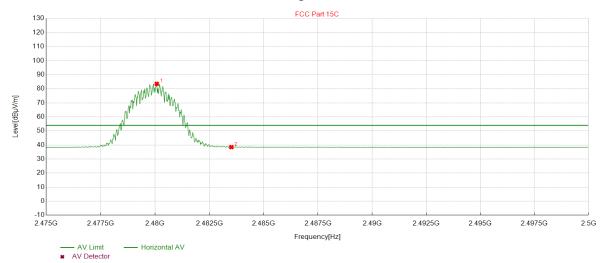
Peak Value



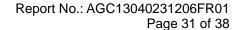
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2479.98	92.87	34.65	114.00	21.13	150	103	Horizontal
2	2483.5085	67.39	34.66	74.00	6.61	150	326	Horizontal



Average Value



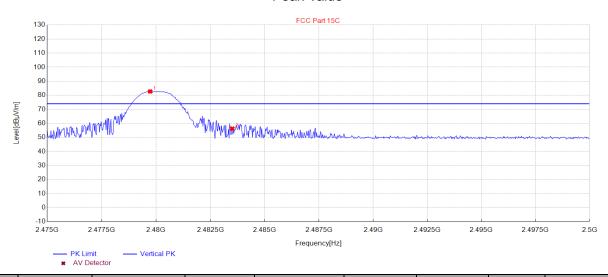
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.0801	83.56	34.65	94.00	10.44	150	111	Horizontal
2	2483.5085	38.46	34.66	54.00	15.54	150	330	Horizontal



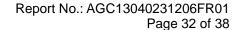


AK-PMH3 MEDICAL MOUSE WIRELESS (3-Button Scroll/Scroll Sensor)		Model Name	HM806A-RF	
Temperature	23.7°C	Relative Humidity	59.6%	
Pressure	985kPa	Test Voltage	DC 1.5V by battery	
Test Mode	Mode 3	Polarization	Vertical	

Peak Value

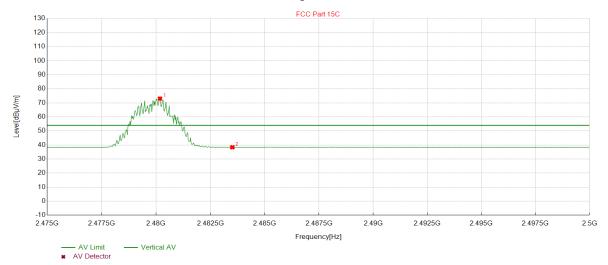


NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2479.7297	82.73	34.65	114.00	31.27	150	187	Vertical
2	2483.5085	56.26	34.66	74.00	17.74	150	171	Vertical

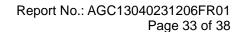




Average Value



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.1802	73.00	34.65	94.00	21.00	150	191	Vertical
2	2483.5085	38.37	34.66	54.00	15.63	150	22	Vertical



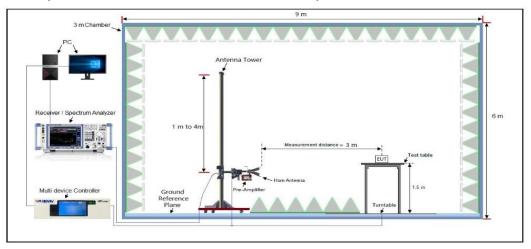


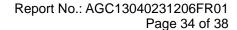
9. 20DB BANDWIDTH

9.1. MEASUREMENT PROCEDURE

- 1. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 2. Set SPA Centre Frequency = Operation Frequency, RBW= 30 KHz, VBW≥3×RBW.
- 3. Set SPA Trace 1 Max hold, then View.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)







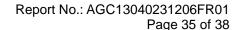
9.3. MEASUREMENT RESULTS

TEST ITEM	20DB BANDWIDTH
TEST MODULATION	GFSK

Test Channel (MHz)	20DB BANDWIDTH (MHz)	99% BANDWIDTH (MHz)	Criteria
2402	1.177	1.0769	PASS
2442	1.174	1.0713	PASS
2480	1.172	1.0494	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL







TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

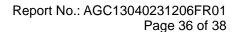


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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10. FCC LINE CONDUCTED EMISSION TEST

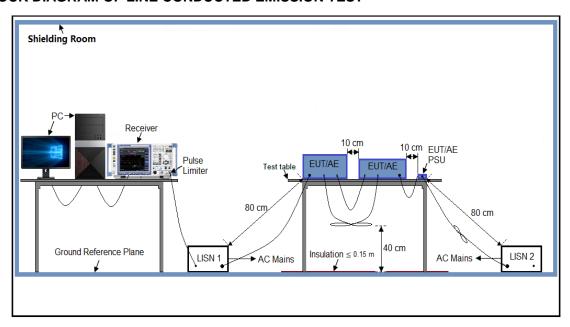
10.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Francis	Maximum RF Line Voltage				
Frequency	Q.P.(dBuV)	Average(dBuV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

10.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





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10.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 1.5V power from battery.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

10.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

10.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

N/A

Note: The conducted emission tests at AC port are not required for devices which only employ battery power for operation



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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC13040231206AP02

APPENDIX B: PHOTOGRAPHS OF THE EUT

Refer to the Report No.: AGC13040231206AP03

----END OF REPORT----



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