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FCC REPORT

Application No.: SZEM1410005822RF

Applicant: ACCO Brands, Inc.

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Factory: Dongguan Newmen Electronics Technology Co.,LTD

Product Name: Pro Fit® Wireless Mobile Mouse

Model No.(EUT): M01293-M
Trade Mark: Kensington

FCC ID: GV3M01293-M

Standards: 47 CFR Part 15, Subpart C (2013)

Date of Receipt: 2014-10-30

Date of Test: 2014-11-11 to 2014-11-17

Date of Issue: 2014-11-19

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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2 Version

Revision Record					
Version	Chapter	Date	Modifier	Remark	
00		2014-11-19		Original	

Authorized for issue by:		
Tested By	Jack Lieng	2014-11-17
	(Jack Liang) /Project Engineer	Date
Prepared By	Berlin	2014-11-19
	(Bella Ou) /Clerk	Date
Checked By	Emen-Li	2014-11-20
	(Emen Li) /Reviewer	Date



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3 Test Summary

Test Item	Test Requirement	Test method	Result	
Antenna	47 CFR Part 15, Subpart C Section	ANSI C63.10 (2009)	PASS	
Requirement	15.203	ANSI 003.10 (2009)	FASS	
Field Strength of the	47 CFR Part 15, Subpart C Section	ANSI C63.10 (2009)	DAGG	
Fundamental Signal	15.249 (a)	ANSI C63.10 (2009)	PASS	
Spurious Emissions	47 CFR Part 15, Subpart C Section	ANSI C63.10 (2009)	PASS	
Spurious Ellissions	15.249 (a)/15.209	ANSI C63.10 (2009)		
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2009)	PASS	
20dB Occupied	47 CFR Part 15, Subpart C Section	ANSI C63.10 (2009)	PASS	
Bandwidth	15.215 (c)	ANSI 003.10 (2009)	FASS	



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5 General Information

5.1 Client Information

Applicant:	ACCO Brands, Inc.
Address of Applicant:	333 Twin Dolphin Dr. 6F, Redwood City, California, 94065, USA
Manufacturer:	Dongguan Newmen Electronics Technology Co.,LTD
Address of Manufacturer:	No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China
Factory:	Dongguan Newmen Electronics Technology Co.,LTD
Address of Factory:	No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China

5.2 General Description of EUT

Name:	Pro Fit® Wireless Mobile Mouse		
Model No.:	M01293-M		
Trade Mark:	Kensington		
Frequency Range:	2406MHz~24	476MHz	
Modulation Type:	FSK		
Number of Channels:	16 (declared by the client)		
Sample Type:	Portable production		
Antenna Type:	Integral		
Antenna Gain:	2.3dBi		
PowerSupply:	Adapter: N/A		
	Battery: DC 1.5V "AA"		
Test Voltage:	DC 1.5V		



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Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency		
1CH	2406 MHz	14CH	2469 MHz		
2CH	2411 MHz	15CH	2473 MHz		
3CH	2414 MHz	16CH	2476MHz		
4CH	2417 MHz				
5CH	2424 MHz				
6CH	2429 MHz				
7CH	2433 MHz				
8CH	2436 MHz				
9CH	2447 MHz				
10CH	2451 MHz				
11CH	2455 MHz				
12CH	2459 MHz				
13CH	2467 MHz				

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH1)	2406MHz
The Middle channel(CH20)	2447MHz
The Highest channel(CH39)	2476MHz



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5.3 Test Environment and Mode

Operating Environment:	Operating Environment:			
Temperature:	24.0 °C			
Humidity:	55 % RH			
Atmospheric Pressure:	1010 mbar			
Test mode:				
Transmitting mode: Keep the EUT in transmitting mode.				

5.4 Description of Support Units

The EUT has been tested independent unit.

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



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5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

VCCI

The 10m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None

5.9 Other Information Requested by the Customer

None.



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5.10Equipment List

	RE in Chamber				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2015-06-10
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2015-10-24
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-24
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2015-10-24
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-16
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-24
9	Coaxial cable	SGS	N/A	SEL0027	2015-05-29
10	Coaxial cable	SGS	N/A	SEL0189	2015-05-29
11	Coaxial cable	SGS	N/A	SEL0121	2015-05-29
12	Coaxial cable	SGS	N/A	SEL0178	2015-05-29
13	Band filter	Amindeon	82346	SEL0094	2015-05-16
14	Barometer	Chang Chun	DYM3	SEL0088	2015-05-16
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
16	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2015-05-16
18	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2015-10-24
19	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-06-04



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	RF connected test				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
2	Humidity/ Temperature Indicator	74.00		SEL0033	2015-10-24
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-24
4	Coaxial cable	SGS	N/A	SEL0178	2015-05-29
5	Coaxial cable	SGS	N/A	SEL0179	2015-05-29
6	Barometer	ChangChun	DYM3	SEL0088	2015-05-16
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-05-16
8	Band filter	amideon	82346	SEL0094	2015-05-16
9	POWER METER	R&S	NRVS	SEL0144	2015-10-24
10	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2015-05-16
11	Power Divider(splitter)	Agilent Technologies	11636B	SEL0130	2015-10-24



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6 Test results and Measurement Data

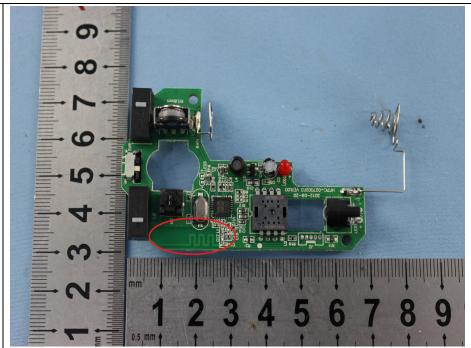
6.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203

15.203 requirement:

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, 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.

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.3dBi.





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6.2 Radiated Emission

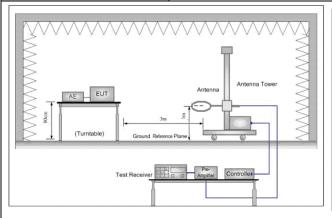
Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209						
Test Method:	ANSI C63.10: 2009						
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)						
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark		
	0.009MHz-0.090MH	z Peak	10kHz	30KHz	Peak		
	0.009MHz-0.090MH	z Average	10kHz	30KHz	Average		
	0.090MHz-0.110MH	z Quasi-peal	10kHz	30KHz	Quasi-peak		
	0.110MHz-0.490MH	z Peak	10kHz	30KHz	Peak		
	0.110MHz-0.490MH	z Average	10kHz	30KHz	Average		
	0.490MHz -30MHz	Quasi-peal	10kHz	30kHz	Quasi-peak		
	30MHz-1GHz	Quasi-peal	100 kHz	300KHz	Quasi-peak		
	Above 1GHz	Peak	1MHz	3MHz	Peak		
	Above Tariz	Peak	1MHz	10Hz	Average		
Limit: (Spurious Emissions)	Frequency	Field streng (microvolt/me		Remark	Measurement distance (m)		
(Opulious Elilissions)	0.009MHz-0.490MHz	2400/F(kHz	_ ' \ ` _ '	-	300		
	0.490MHz-1.705MHz	24000/F(kH	<i>,</i>	-	30		
	1.705MHz-30MHz	30	-	-	30		
	30MHz-88MHz	100	40.0	Quasi-peak	3		
	88MHz-216MHz	150	43.5	Quasi-peak	3		
	216MHz-960MHz	200	46.0	Quasi-peak	3		
	960MHz-1GHz	500	54.0	Quasi-peak	3		
	Above 1GHz	500	54.0	Average	3		
	Note: 15.35(b), Unless	•		•			
	emissions is 20d		•	J			
	applicable to the equipment under test. This peak limit applies to the total						
	peak emission level radiated by the device.						
Limit:	Frequency Limit (dBuV/m @3m) Remark			ark			
(Field strength of the	2400MHz-2483.5MHz						
fundamental signal)			114.0	Peak \	/alue		



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Test Setup:



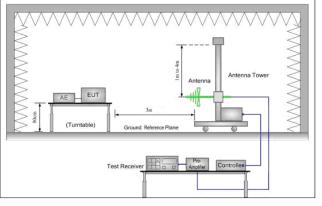


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

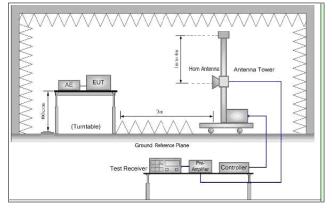


Figure 3. Above 1 GHz

Test Procedure:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna 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.
- d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



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	 f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel,the middle channel,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.
Test Mode:	Transmitting mode
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



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Measurement Data

6.2.1.1 Field Strength Of The Fundamental Signal

Peak value:

i can value.							•	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2406.000	4.92	32.41	38.46	88.59	87.46	114	-26.54	Horizontal
2406.000	4.92	32.41	38.46	88.58	87.45	114	-26.55	Vertical
2447.000	4.98	32.43	38.46	88.68	87.63	114	-26.37	Horizontal
2447.000	4.98	32.43	38.46	87.07	86.02	114	-27.98	Vertical
2476.000	5.02	32.44	38.47	87.18	86.17	114	-27.83	Horizontal
2476.000	5.02	32.44	38.47	87.12	86.11	114	-27.89	Vertical

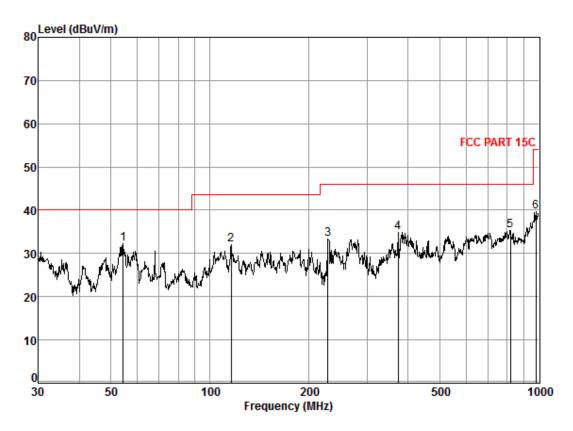


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6.2.1.2 Spurious Emissions

30MHz~1GHz		
Test mode:	Transmitting	Vertical



Condition: FCC PART 15C 3m VULB 9160 3M Vertical

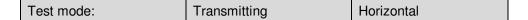
Job No. : 5822CR Test Mode: TX mode

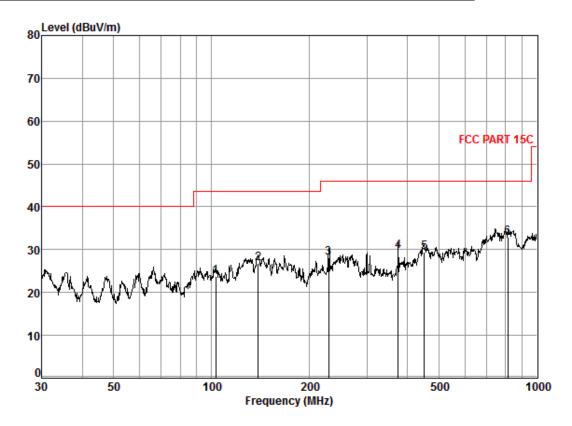
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	54.45	0.85	12.42	32.66	51.70	32.31	40.00	-7.69	
2	116.13	1.22	11.67	32.64	51.77	32.02	43.50	-11.48	
3	228.49	1.73	11.17	32.58	53.02	33.34	46.00	-12.66	
4	373.31	2.22	14.72	32.53	50.54	34.95	46.00	-11.05	
5	818.83	3.23	21.89	32.27	42.39	35.24	46.00	-10.76	
6	979.18	3.58	23.43	31.09	43.85	39.77	54.00	-14.23	



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Condition: FCC PART 15C 3m VULB 9160 3M Horizontal

Job No. : 5822CR Test Mode: TX mode

C3 C	Mode. IX	mouc								
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	103.08	1.15	10.50	32.65	44.73	23.73	43.50	-19.77		
2	138.87	1.32	13.28	32.62	44.89	26.87	43.50	-16.63		
3	229.29	1.73	11.21	32.58	47.84	28.20	46.00	-17.80		
4	374.62	2.22	14.75	32.53	45.22	29.66	46.00	-16.34		
5	451.14	2.42	16.38	32.56	43.14	29.38	46.00	-16.62		
6	813.11	3.21	21.85	32.30	40.20	32.96	46.00	-13.04		

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Above 1GHz	Above 1GHz									
Test mode:	Т	ransmitting	Test chai	nnel:	Lo	west	Remark:		Pea	ak
Frequency (MHz)	Cable Loss (dB)	Factor	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dE	it	Polarization
3663.017	6.87	33.05	38.81	48.22		49.33	74	-24.0	67	Vertical
4812.000	6.44	34.71	39.24	54.35		56.26	74	-17.	74	Vertical
6060.637	8.07	36.23	39.18	49.58		54.70	74	-19.	30	Vertical
7218.000	8.94	35.62	39.07	48.26	;	53.75	74	-20.	25	Vertical
9624.000	9.98	37.38	37.92	43.01		52.45	74	-21.	55	Vertical
11323.540	10.35	38.14	38.38	43.33		53.44	74	-20.	56	Vertical
3641.878	6.89	33.03	38.80	48.80	1	49.92	74	-24.	80	Horizontal
4812.000	6.44	34.71	39.24	59.60		61.51	74	-12.4	49	Horizontal
6034.386	8.07	36.26	39.18	50.80		55.95	74	-18.	05	Horizontal
7218.000	8.94	35.62	39.07	48.78		54.27	74	-19.	73	Horizontal
9624.000	9.98	37.38	37.92	46.08		55.52	74	-18.4	48	Horizontal
11422.280	10.37	38.17	38.43	43.92		54.03	74	-19.	97	Horizontal

Test mode:	Tran	smitting	Test char	nnel:	Lov	west	Remark:		Ave	erage
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dB	it	Polarization
3663.017	6.87	33.05	38.81	48.22	!	49.33	54	-4.6	57	Vertical
3663.017	6.87	33.05	38.81	32.12	:	33.23	54	-20.	77	Vertical
4812.000	6.44	34.71	39.24	37.68	;	39.59	54	-14.4	41	Vertical
6060.637	8.07	36.23	39.18	31.56	;	36.68	54	-17.	32	Vertical
7218.000	8.94	35.62	39.07	30.56	;	36.05	54	-17.9	95	Vertical
9624.000	9.98	37.38	37.92	25.66	;	35.10	54	-18.9	90	Vertical
11323.540	10.35	38.14	38.38	26.35	,	36.46	54	-17.	54	Horizontal
3641.878	6.89	33.03	38.80	30.00)	31.12	54	-22.8	88	Horizontal
4812.000	6.44	34.71	39.24	42.96	;	44.87	54	-9.1	3	Horizontal
6034.386	8.07	36.26	39.18	30.98	;	36.13	54	-17.8	87	Horizontal
7218.000	8.94	35.62	39.07	30.21		35.70	54	-18.3	30	Horizontal
9624.000	9.98	37.38	37.92	29.57	,	39.01	54	-14.9	99	Horizontal



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Test mode:	Tran	smitting	Test char	nnel:	Middle	Remark:	Pe	eak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV	Level (dRuV/n	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3673.633	6.87	33.06	38.82	49.57	50.68	74	-23.32	Vertical
4894.000	6.61	34.80	39.27	54.02	56.16	74	-17.84	Vertical
6069.413	8.06	36.22	39.18	50.71	55.81	74	-18.19	Vertical
7341.000	9.11	35.48	39.05	49.14	54.68	74	-19.32	Vertical
9788.000	9.89	37.88	37.82	42.56	52.51	74	-21.49	Vertical
11290.820	10.34	38.13	38.37	43.97	54.07	74	-19.93	Vertical
3579.190	6.92	32.98	38.78	48.11	49.23	74	-24.77	Horizontal
4894.000	6.61	34.80	39.27	60.65	62.79	74	-11.21	Horizontal
6051.874	8.07	36.24	39.18	48.55	53.68	74	-20.32	Horizontal
7341.000	9.10	35.48	39.05	47.40	52.93	74	-21.07	Horizontal
9788.000	9.89	37.88	37.82	43.93	53.88	74	-20.12	Horizontal
11372.800	10.36	38.15	38.41	43.28	53.38	74	-20.62	Horizontal

Test mode:	Tran	smitting	Test char	nnel:	Mic	ddle	Remark:		Ave	erage
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dB	it	Polarization
3673.633	6.87	33.06	38.82	31.26	5	32.37	54	-21.0	63	Vertical
4894.000	6.61	34.80	39.27	40.02	2	42.16	54	-11.8	84	Vertical
6069.413	8.06	36.22	39.18	32.59)	37.69	54	-16.3	31	Vertical
7341.000	9.11	35.48	39.05	32.44	L L	37.98	54	-16.0	02	Vertical
9788.000	9.89	37.88	37.82	25.12	2	35.07	54	-18.9	93	Vertical
11290.820	10.34	38.13	38.37	26.59)	36.69	54	-17.	31	Vertical
3579.190	6.92	32.98	38.78	30.52	2	31.64	54	-22.3	36	Horizontal
4894.000	6.61	34.80	39.27	41.07	,	43.21	54	-10.	79	Horizontal
6051.874	8.07	36.24	39.18	30.45	;	35.58	54	-18.4	42	Horizontal
7341.000	9.10	35.48	39.05	29.68	3	35.21	54	-18.	79	Horizontal
9788.000	9.89	37.88	37.82	25.68	3	35.63	54	-18.3	37	Horizontal
11372.800	10.36	38.15	38.41	26.54	L	36.64	54	-17.	36	Horizontal



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Test mode:	Tran	smitting	Test char	nnel:	Highest	Remark:	Pe	ak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV	Level (dRuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3358.425	7.24	32.67	38.68	47.94	49.17	74	-24.83	Vertical
4952.000	6.74	34.85	39.28	63.93	66.24	74	-7.76	Vertical
6034.386	8.07	36.26	39.18	48.97	54.12	74	-19.88	Vertical
7428.000	9.22	35.43	39.05	46.69	52.29	74	-21.71	Vertical
9904.000	9.82	38.22	37.76	43.53	53.81	74	-20.19	Vertical
11757.650	10.50	38.46	38.59	45.00	55.37	74	-18.63	Vertical
3427.149	7.11	32.81	38.71	48.40	49.61	74	-24.39	Horizontal
4952.000	6.74	34.85	39.28	54.20	56.51	74	-17.49	Horizontal
6025.661	8.07	36.27	39.18	49.28	54.44	74	-19.56	Horizontal
7428.000	10.01	36.99	38.04	40.92	49.88	74	-24.12	Horizontal
9904.000	9.82	38.22	37.76	43.90	54.18	74	-19.82	Horizontal
11488.580	10.39	38.22	38.46	43.60	53.75	74	-20.25	Horizontal

Test mode:	Tran	smitting	Test char	nnel:	Highest	Remark:	Α	verage
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3358.425	7.24	32.67	38.68	30.27	31.50	54	-22.50	Vertical
4952.000	6.74	34.85	39.28	44.03	46.34	54	-7.66	Vertical
6034.386	8.07	36.26	39.18	31.26	36.41	54	-17.59	Vertical
7428.000	9.22	35.43	39.05	28.21	33.81	54	-20.19	Vertical
9904.000	9.82	38.22	37.76	26.59	36.87	54	-17.13	Vertical
11757.650	10.50	38.46	38.59	27.22	37.59	54	-16.41	Vertical
3427.149	7.11	32.81	38.71	30.56	31.77	54	-22.23	Horizontal
4952.000	6.74	34.85	39.28	40.98	43.29	54	-10.71	Horizontal
6025.661	8.07	36.27	39.18	31.26	36.42	54	-17.58	Horizontal
7428.000	10.01	36.99	38.04	24.12	33.08	54	-20.92	Horizontal
9904.000	9.82	38.22	37.76	25.63	35.91	54	-18.09	Horizontal
11488.580	10.39	38.22	38.46	25.22	35.37	54	-18.63	Horizontal



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Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

2) Scan from 9kHz to 25GHz, The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.





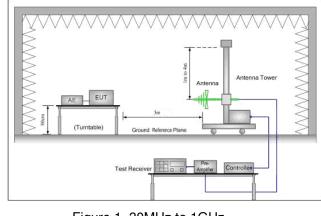
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6.3 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205								
Test Method:	ANSI C63.10: 2009								
Test Site:	Measurement Distance: 3m	(Semi-Anechoic Chambe	er)						
Limit(Band Edge):	Emissions radiated outside	of the specified frequenc	y bands, except for						
	harmonics, shall be attenua	ited by at least 50 dB belo	w the level of the						
	fundamental or to the gene	ral radiated emission limit	s in Section 15.209,						
	whichever is the lesser atte	nuation.							
	Frequency	Limit (dBuV/m @3m)	Remark						
	30MHz-88MHz	40.0	Quasi-peak Value						
	88MHz-216MHz	43.5	Quasi-peak Value						
	216MHz-960MHz	46.0	Quasi-peak Value						
	960MHz-1GHz	54.0	Quasi-peak Value						
	Alassa 4011-	54.0 Average Value							
	Above 1GHz	74.0	Peak Value						
Test Setup:									





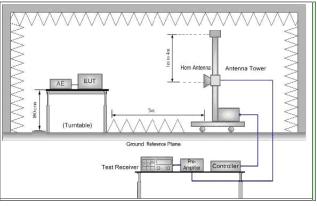


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

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Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.			
	b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.			
	c. The antenna 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.			
	d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.			
	e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.			
	f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel			
	g. Test the EUT in the lowest channel, the Highest channel			
	h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.			
	 i. Repeat above procedures until all frequencies measured was complete. 			
Instruments Used:	Refer to section 5.10 for details			
Test Mode:	Transmitting mode			
Test Results:	Pass			

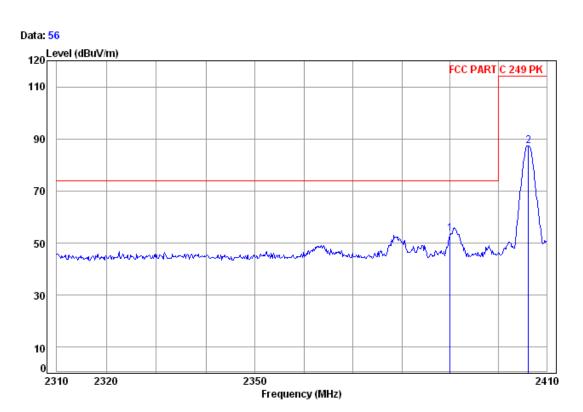


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Test plot as follows:

Worse case mode: FSK Test channel: Lowest Remark: Peak Vertical



Site : chamber

Condition: FCC PART C 249 PK 3m Vertical

Job No: : 5822CR

Mode: : 2406 Band edge

Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit MHz dB/m dBuV dBuV/m dBuV/m 2390.00 4.90 32.35 38.46 54.69 53.48 74.00 -20.52 2406.22 4.92 32.41 38.46 88.59 87.46 114.00 -26.54

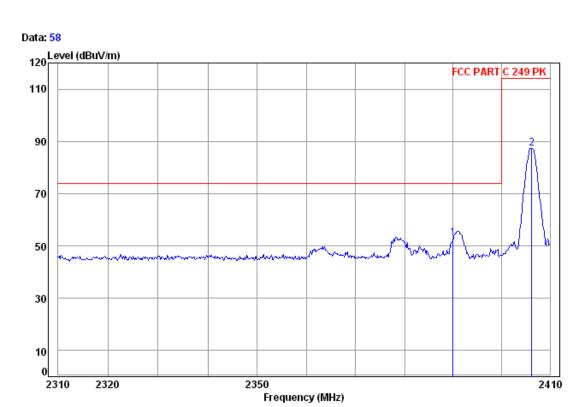
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Worse case mode: FSK Test channel: Lowest Remark: Peak Horizontal



Site : chamber

Condition: FCC PART C 249 PK 3m Horizontal

Job No: : 5822CR

Mode: : 2406 Band edge

Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Line Limit Level dBuV dBuV/m dBuV/m MHz dB dB/m dB 2390.00 4.90 32.35 38.46 54.22 53.01 74.00 -20.99 2406.22 4.92 32.41 38.46 88.58 87.45 114.00 -26.55

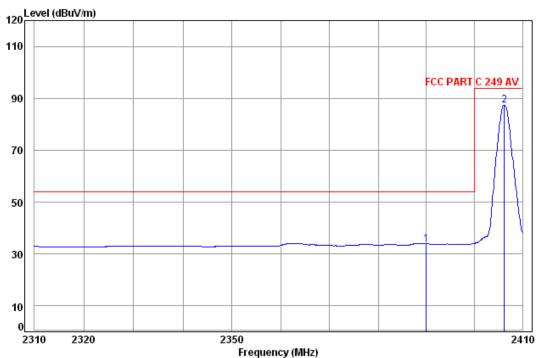


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Worse case mode: FSK Test channel: Lowest Remark: Average Vertical





Site : chamber

Condition: FCC PART C 249 AV 3m Vertical

Job No: : 5822CR

Mode: : 2406 Band edge

Cable Ant Preamp Read Limit 0∨er Loss Factor Factor Le∨el Le∨el Line Limit dBuV dBuV/m dBuV/m MHz dΒ dB/m 2390.00 4.90 32.35 38.46 34.98 33.77 54.00 -20.23 2406.22 4.92 32.41 38.46 88.46 87.33 94.00 -6.67

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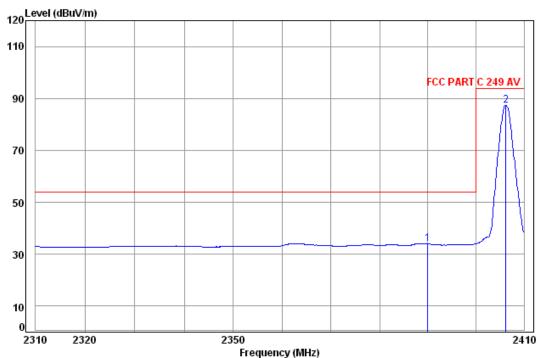


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Worse case mode: FSK Test channel: Lowest Remark: Average Horizontal





Site : chamber

Condition: FCC PART C 249 AV 3m Horizontal

Job No: : 5822CR

Mode: : 2406 Band edge

Cable Ant Preamp Limit 0ver Read Loss Factor Factor Level Level Line Limit MHz dΒ dB/m dΒ dBuV dBuV/m dBuV/m 2390.00 4.90 32.35 38.46 35.11 33.90 54.00 -20.10 2406.22 4.92 32.41 38.46 88.45 87.32 94.00 -6.68

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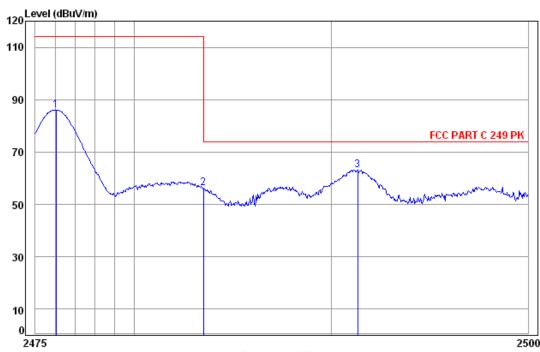


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Worse case mode:	FSK	Test channel:	Highest	Remark:	Peak	Vertical
	. •					





Frequency (MHz)

Site : chamber

Condition: FCC PART C 249 PK 3m Vertical

Job No: : 5822CR

Mode: : 2476 Band edge

		Cable	Ant	Preamp	Read		Limit	0∨er
	Freq	Loss	Factor	Factor	Le∨el	Level	Line	Limit
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2476.05	5.02	32.44	38.47	87.12	86.11	114.00	-27.89
2	2483.50	5.03	32.44	38.47	57.29	56.29	74.00	-17.71
3 рр	2491.32	5.04	32.44	38.47	64.18	63.19	74.00	-10.81

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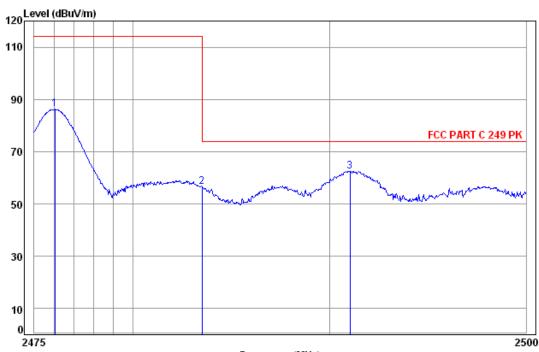


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٧	Vorse case mode:	FSK	Test channel:	Highest	Remark:	Peak	Horizontal	
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Frequency (MHz)

Site : chamber

Condition: FCC PART C 249 PK 3m Horizontal

Job No: : 5822CR

Mode: : 2476 Band edge

		Cable	Ant	Preamp	Read		Limit	0∨er
	Freq	Loss	Factor	Factor	Le∨el	Le∨el	Line	Limit
-								
	MHz	dB	dB/m	dB	dBu∀	dBuV/m	dBuV/m	dB
1	2476.05	E 02	22 44	20 47	07 10	96 17	114 00	27 92
1	24/0.05	5.02	52.44	50.47	0/.10	00.1/	114.00	-2/.05
2	2483.50	5.03	32.44	38.47	57.71	56.71	74.00	-17.29
3 рр	2491.02	5.04	32.44	38.47	63.55	62.56	74.00	-11.44

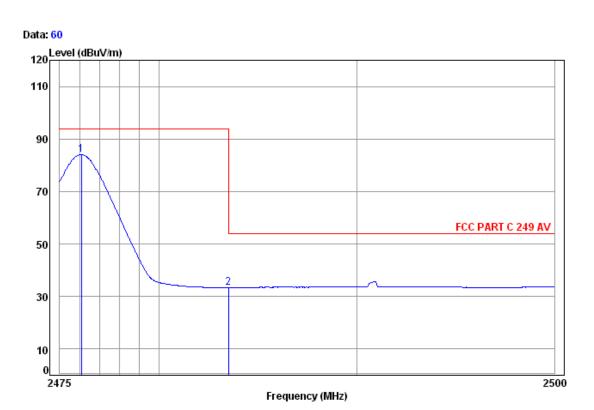
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Worse case mode:	FSK	Test channel:	Highest	Remark:	Average	Vertical



Site : chamber

Condition: FCC PART C 249 AV 3m Vertical

Job No: : 5822CR

Mode: : 2476 Band edge

Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit MHz dB dBuV dBuV/m dBuV/m dB/m dΒ 2476.10 5.02 32.44 38.47 85.01 84.00 94.00 -10.00 2483.50 5.03 32.44 38.47 34.49 33.49 54.00 -20.51

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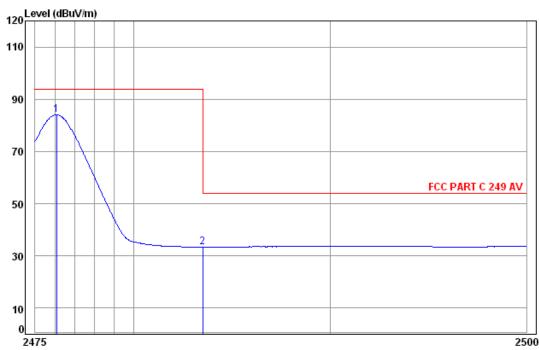
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Worse case	mode: FSK	Test channel:	Highest	Remark:	Average	Horizontal	
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Frequency (MHz)

Site : chamber

Condition: FCC PART C 249 AV 3m Horizontal

Job No: : 5822CR

Mode: : 2476 Band edge

	Freq			Preamp Factor				
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
	2476.10 2483.50							

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier equation with a sample calculation is as follows:

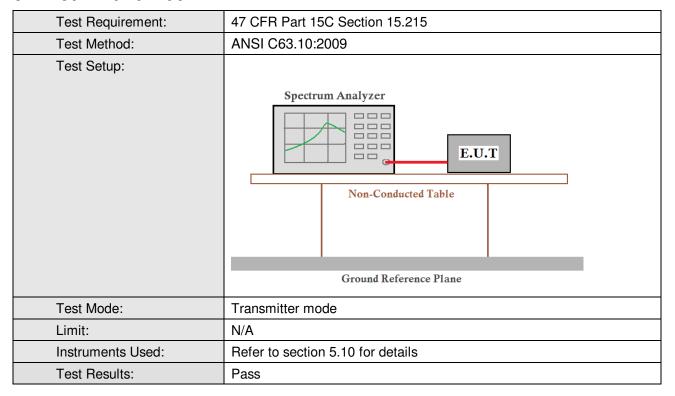
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor



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6.4 20dB Bandwidth



Measurement Data

Test Channel	20dB bandwidth (MHz)	Results
Lowest	1.4808	Pass
Middle	1.6538	Pass
Highest	1.6394	Pass

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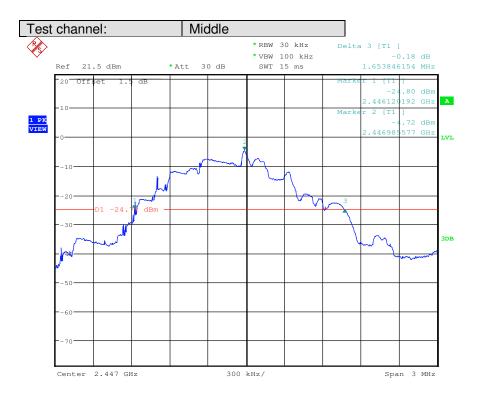


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Test plot as follows:







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