

Certification Test Report

FCC ID: 2ADDK360FLY4K
IC: 12404A-360FLY4K

FCC Rule Part: 15.407
IC Radio Standards Specification: RSS-247

ACS Report Number: 16-2006.W06.4A

Applicant: 360fly, Inc.
Model(s): 360FLY4K

Test Begin Date: **February 12, 2016**
Test End Date: **March 2, 2016**

Report Issue Date: April 7, 2016



FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER AT-1533

This report must not be used by the client to claim product certification, approval, or endorsement by ANAB, ANSI, or any agency of the Federal Government.

Reviewed by:

A handwritten signature in blue ink, appearing to read "Thierry Jean-Charles".

Thierry Jean-Charles
EMC Engineer
Advanced Compliance Solutions, Inc.

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This report contains 20 pages

TABLE OF CONTENTS

1	GENERAL	3
1.1	Purpose	3
1.2	Applicant Information	3
1.3	Product Description.....	3
1.4	Test Methodology and Considerations	3
2	TEST FACILITIES	5
2.1	Location.....	5
2.2	Laboratory Accreditations/Recognitions/Certifications	5
2.3	Radiated & Conducted Emissions Test Site Description	6
3	APPLICABLE STANDARD REFERENCES.....	8
4	LIST OF TEST EQUIPMENT.....	9
5	SUPPORT EQUIPMENT	10
6	EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM	11
7	SUMMARY OF TESTS.....	12
7.1	Antenna Requirement – FCC: Section 15.203	12
7.2	Band-Edge Compliance and Spurious Emissions-FCC 15.407(b) IC: RSS-247 6.2.....	12
7.3	Power Line Conducted Emissions – FCC: Section 15.207 IC: RSS-Gen 8.8.....	17
8	CONCLUSION.....	20

1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart E of the FCC's Code of Federal Regulations and Industry Canada's Radio Standards Specification RSS-247.

1.2 Applicant Information

360fly, Inc.
1000 Town Center Way, Suite 200
Canonsburg, PA 15317

1.3 Product Description

The product 360FLY4K is a camera which includes a single transceiver that supports GPS, Bluetooth 3.0/4.0 and Wi-Fi 2.4/5GHz bands. The function of the transceiver is to communicate with smart phones or tablet over Bluetooth and Wi-Fi using custom application. The custom application allows users to change the camera settings, capture pictures, record videos, share media and edit videos using Wi-Fi connection. This test report document results for the IEEE 802.11 5 GHz radio.

Technical Details

Mode of Operation: WLAN IEEE 802.11n
Modulations: OFDM
Antenna Type/Gain: Loop Antenna, 1.9 dBi
Input Power: 3.8 VDC, Lithium Ion Battery

Band of Operation* (MHz)	Mode of Operation (802.11)	Ch. Range (MHz)	Number of Available Channels	Channel Spacing	MCS Index
5150 - 5250	n (HT20)	5180 - 5240	4	20	MCS0 (6.5 Mbps)
5725 - 5850		5745 - 5825	5		
5150 - 5250	n (HT40)	5190 - 5230	2	40	MCS0 (13 Mbps)
5725 - 5850		5755 - 5795	2		

Model Number: 360FLY4K

Test Sample Serial Number(s): PIB179 (Radiated and Power Line Conducted Emissions).

Test Sample Condition: The samples were in good conditions with no observable physical damages.

1.4 Test Methodology and Considerations

The EUT was evaluated for radiated and power line conducted emissions for the 802.11n 5 GHz WLAN radio. The data rates used for the testing and reported in this document led to the highest radiated emissions as compared to the limits. The RF conducted measurements were performed by a different test facility which documented the results in a separate test report.

For the radiated emission evaluation, preliminary evaluation was performed for the EUT standalone, the EUT powered via a power supply and the EUT connected to a laptop computer. The radiated emissions from the three configurations did not differ significantly and the final measurements were collected using the laptop configuration.

The power line conducted emissions evaluation was performed for the EUT powered using a wall adapter. Preliminary evaluations were performed for all the transceiver modes of operation. The results are reported for the worst case.

The EUT was also evaluated for unintentional emissions. The results are reported separately in a Declaration of Conformity/Verification test report.

Table 1.4-1: IEEE 802.11n Test Configuration

Band of Operation	Mode of Operation	Frequency (MHz)	Channel	Power Setting	Modulation Index (Data Rate)
U-NII-1 (5.15 - 5.25 GHz)	802.11n 20 MHz	5180	36	12	MCS0 (6.5Mbps)
		5200	40		
		5240	48		
	802.11n 40 MHz	5190	38	9	MCS0 (13.5 Mbps)
		5230	46		
U-NII-3 (5.725 - 5.85 GHz)	802.11n 20 MHz	5745	149	12	MCS0 (6.5Mbps)
		5785	157		
		5825	165		
	802.11n 40 MHz	5755	151	9	MCS0 (13.5 Mbps)
		5795	159		

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
www.acstestlab.com

FCC Test Firm Registration #: 475089
Industry Canada Lab Code: 4175C

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by ANSI-ASQ National Accreditation Board under their ANAB program and has been issued certificate number AT-1533 in recognition of this accreditation. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

2.3 Radiated & Conducted Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl flooring.

The turntable is driven by pneumatic motor, which is capable of supporting a 2000 lb. load. The turntable is flush with the chamber floor which it is connected to, around its circumference, with a continuous metallic loaded spring. An EMCO Model 1050 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

The control room is an RF shielded enclosure attached to the semi-anechoic chamber with two bulkhead panels for connecting RF, and control cables. The dimension of the room is 7.3 m x 4.9 m x 3 m high and the entrance doors of both control and conducted rooms are 3 feet (0.91 m) by 7 feet (2.13 m).

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3.1-1 below:

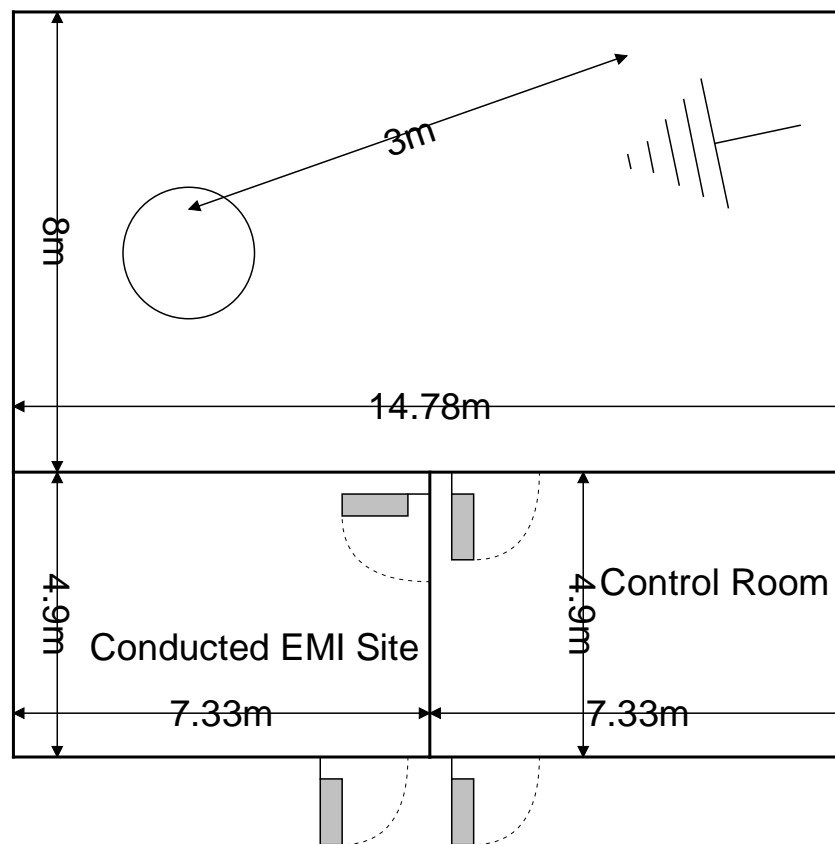


Figure 2.3.1-1: Semi-Anechoic Chamber Test Site

2.3.2 Conducted Emissions Test Site Description

The dimensions of the shielded conducted room are $7.3 \times 4.9 \times 3 \text{ m}^3$. The power line conducted emission site includes two LISNs: a Solar Model 8028-50 $50 \Omega/50 \mu\text{H}$ and an EMCO Model 3825/2R, which are installed as shown in the figure below. For evaluations requiring 230 V, 50 Hz AC input, a Polarad LISN (S/N 879341/048) is used in conjunction with a California Instruments signal generator Model 2001RP-OP1.

A diagram of the room is shown below in figure 2.3.2-1:

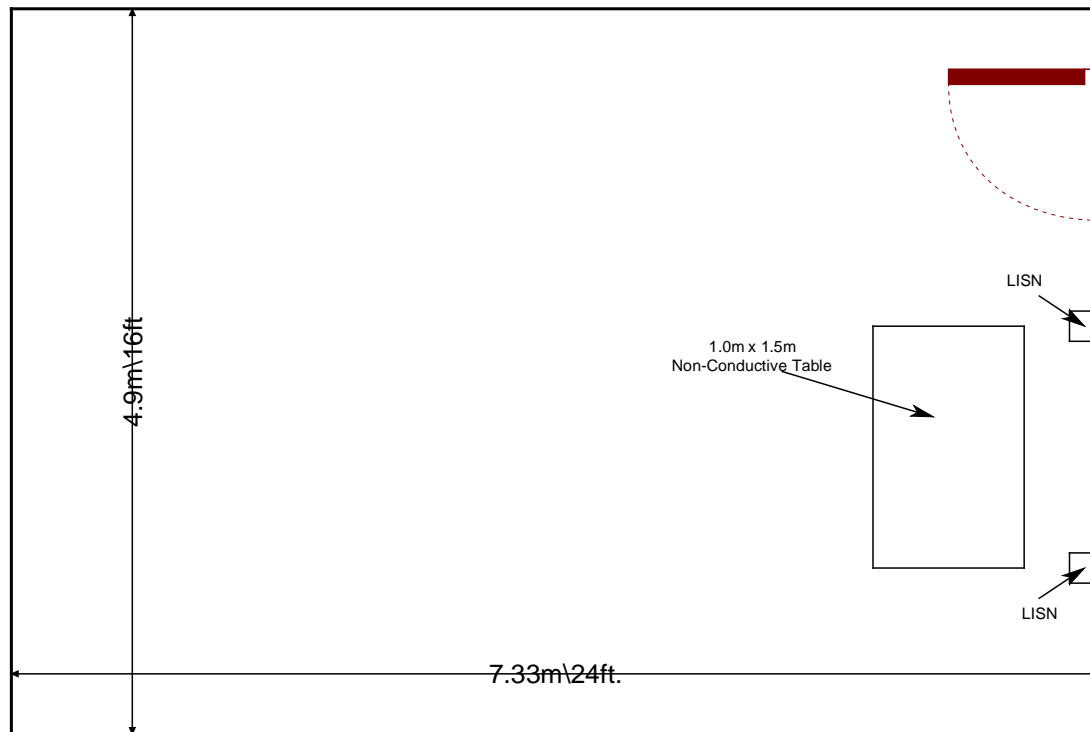


Figure 2.3.2-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ❖ ANSI C63.4-2014: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9 kHz to 40 GHz.
- ❖ ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
- ❖ US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2016.
- ❖ US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart E: Unlicensed National Information Infrastructure Devices, 2016
- ❖ Industry Canada Radio Standards Specification: RSS-247 — Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices, Issue 1, May 2015.
- ❖ Industry Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 4, November 2014.
- ❖ FCC OET KDB Publication No. 789033 D02 General U-NII Test Procedures New Rules v01r01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E, January, 2016.
- ❖ FCC OET KDB Publication No. 905462 D06 802.11 Channel Plans New Rules v01: Operation in U-NII Bands – 802.11 Channel Plan, 15.407 (Part 15E), 1st R&O (FCC 06-96) June 2014
- ❖ FCC OET KDB Publication No. 644545 D03 Guidance for IEEE 802.11ac New Rules v01: Guidance for IEEE Standard 802.11acTM Devices Emission Testing, August 2014

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
332	Rohde & Schwarz	TS-PR40	Amplifiers	100021	2/19/2014	2/19/2016
333	Rohde&Schwarz	3160-10	Antennas	45576	11/4/2010	NCR
479	Electro-Metrics	ALP-70	Antennas	158	12/3/2015	12/3/2017
523	Agilent	E7405	Spectrum Analyzers	MY45103293	12/26/2014	12/26/2016
653	Suhner	SF-102A	Cables	0944/2A	4/13/2015	4/13/2016
2002	EMCO	3108	Antennas	2147	11/19/2015	11/19/2017
2004	EMCO	3146	Antennas	1385	11/19/2015	11/19/2017
2006	EMCO	3115	Antennas	2573	4/14/2015	4/14/2017
2008	COM-Power	AH-826	Antennas	81009	NCR	NCR
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	11/18/2015	11/18/2016
2022	EMCO	LISN3825/2R	LISN	1095	9/14/2015	9/14/2017
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	11/11/2015	11/11/2016
2070	Mini Circuits	VHF-8400+	Filter	2070	11/17/2015	11/17/2016
2082	Teledyne Storm Products	90-010-048	Cables	2082	4/22/2015	4/22/2016
2086	Merrimac	FAN-6-10K	Attenuators	23148-83-1	11/16/2015	11/16/2016
2089	Agilent Technologies, Inc.	83017A	Amplifiers	3123A00214	12/9/2015	12/9/2016
2095	ETS Lindgren	TILE4! - Version 4.2.A	Software	85242	NCR	NCR
2097	Alpha Wire	9055B	Cables	2097	6/29/2015	6/29/2016
2099	Agilent Technologies	11970A	Mixer	2332A02313	1/27/2016	1/27/2017
2121	ACS Boca	Radiated Cable Set	Cable Set	2121	8/22/2015	8/22/2016
3004	Teseq	CFL 9206A	Attenuators	34720	10/7/2015	10/7/2016

Notes:

NCR = No Calibration Required

Asset 332 was used only during the active period of the calibration cycle.

5 SUPPORT EQUIPMENT**Table 5-1: EUT and Support Equipment (Radiated Emissions)**

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	360fly, Inc.	360FLY4K	PIB179
2	Dock	360fly, Inc.	360FLYBLK	N/A
3	Laptop	Apple, Inc	Macbook Pro A1278	C1MN2X3DTY3
4	Mouse	Dell	M-UARDEL7	LZ9440C43W5
5	Laptop AC Adapter	Apple, Inc	MagSafe	N/A
6	Earbuds	Maxell	N/A	N/A

Table 5-2: Cable Description (Radiated Emissions)

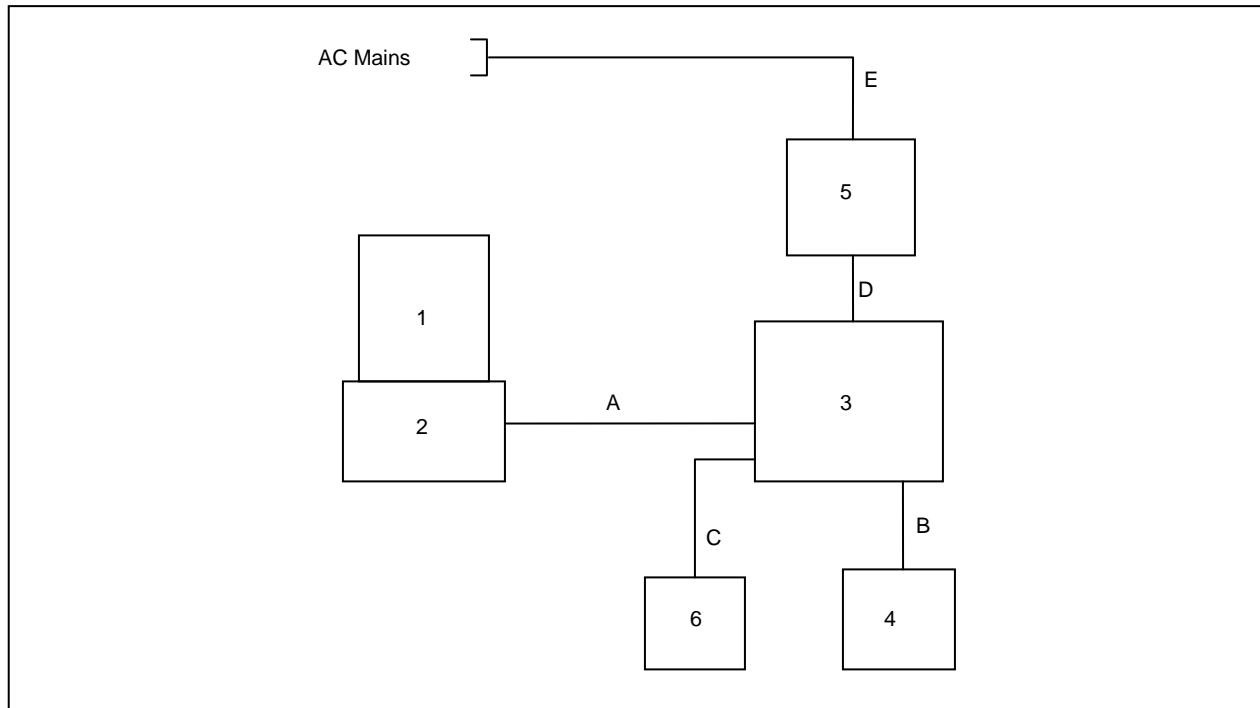
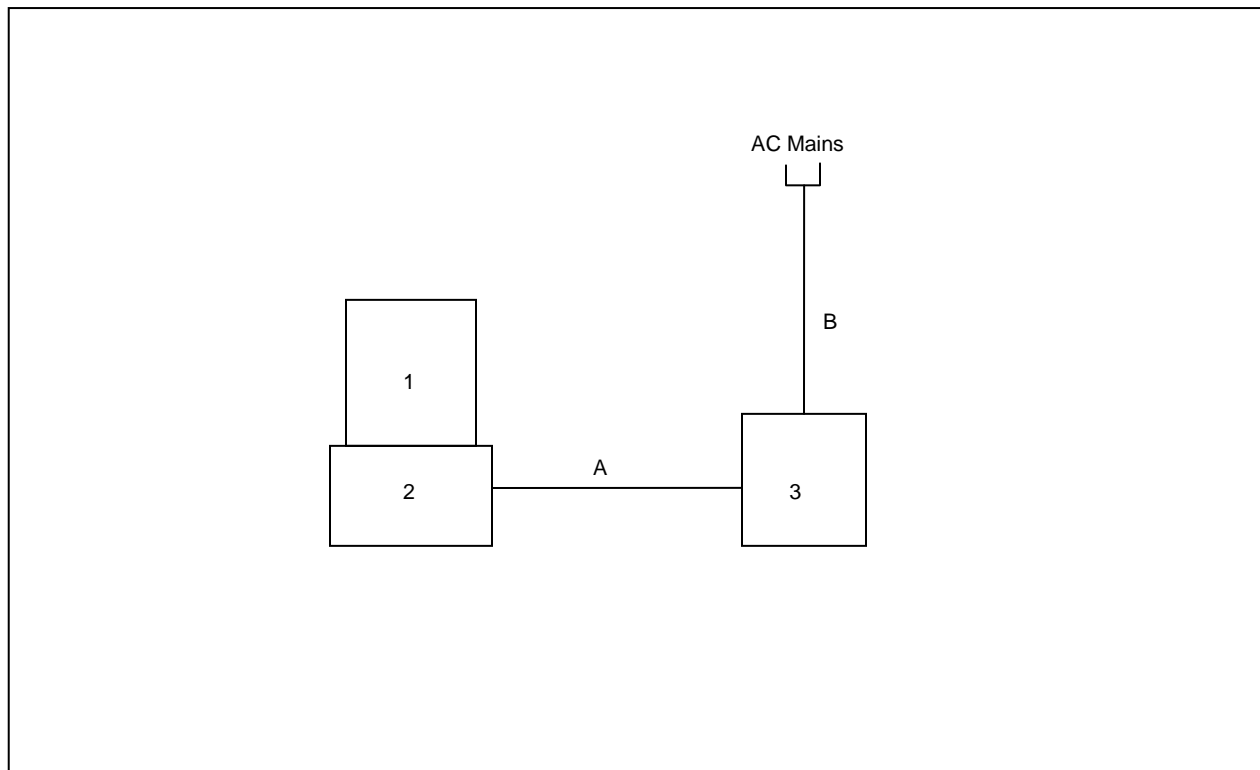
Cable #	Cable Type	Length	Shield	Termination
A	USB	0.56 m	No	EUT Dock to Laptop
B	USB	1.80 m	No	Mouse to Laptop
C	Audio	0.95 m	No	Laptop to Earbuds
D	Power	1.80 m	No	Laptop to AC Adapter
	Extension Cord	2.7 m	No	Laptop Adapter to AC Mains

Table 5-3: EUT and Support Equipment (Power Line Conducted Emissions)

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	360fly, Inc.	360FLY4K	PIB179
2	Dock	360fly, Inc.	360FLYBLK	N/A
3	5 VDC Wall AC Adapter	VSN	C-P06	141125011054

Table 5-4: Cable Description (Power Line Conducted Emissions)

Cable #	Cable Type	Length	Shield	Termination
A	USB	0.56 m	No	EUT Dock to Wall AC Adapter
B	Extension Cord	2.7 m	No	AC Adapter to AC Mains

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM**Figure 6-1: Figure 6-1: EUT Test Setup (Radiated Emissions)****Figure 6-2: EUT Test Setup (Power Line Conducted Emissions)**

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC: Section 15.203

The EUT uses an internal 1.9 dBi loop antenna which connects to the PCB via spring contact. The antenna meets the requirements of FCC Section 15.203.

7.2 Band-Edge Compliance and Spurious Emissions-FCC 15.407(b) IC: RSS-247 6.2

7.2.1 Radiated Emissions below 1 GHz

7.2.1.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 9 kHz to 1 GHz.

For measurements below 30 MHz, the receive antenna height was set to 1m and the EUT was rotated through 360 degrees. The resolution bandwidth was set to 200 Hz below 150 kHz and to 9 kHz above 150 kHz.

For frequencies from 30 MHz to 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected.

7.2.1.2 Measurement Results

The highest radiated emissions with respect to the limits found in from 9 kHz to 1 GHz are reported in the tables below.

Table 7.5.1.2-1: Radiated Emissions below 1 GHz

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
83.8521	51.52	45.55	H	-19.63	-----	25.91	-----	40.0	-----	14.1
119.827	44.67	41.97	H	-16.07	-----	25.90	-----	43.5	-----	17.6
960.008	36.52	34.57	H	-0.74	-----	33.83	-----	54.0	-----	20.2
47.9302	47.16	41.11	V	-16.30	-----	24.81	-----	40.0	-----	15.2
51.9073	39.03	36.22	V	-16.86	-----	19.36	-----	40.0	-----	20.6
119.85	42.78	40.27	V	-16.07	-----	24.19	-----	43.5	-----	19.3
672.008	36.38	34.08	V	-3.49	-----	30.59	-----	46.0	-----	15.4
710.396	37.32	35.39	V	-3.76	-----	31.63	-----	46.0	-----	14.4
748.796	36.44	35.08	V	-3.25	-----	31.83	-----	46.0	-----	14.2
768.02	35.15	32.80	V	-3.06	-----	29.74	-----	46.0	-----	16.3
806.41	33.77	31.35	V	-3.05	-----	28.29	-----	46.0	-----	17.7
864.003	32.07	29.64	V	-0.97	-----	28.67	-----	46.0	-----	17.3
998.401	36.28	33.84	V	0.14	-----	33.97	-----	54.0	-----	20.0

Note: The data reported corresponds to the worst case configuration which was achieved for the EUT operating at channel 36 in the 802.11n (HT20) mode.

7.2.2 Radiated Spurious Emissions above 1 GHz

7.2.2.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 1 GHz to 40 GHz. Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in section 15.209. The other emissions were evaluated either per the general radiated emission limits of FCC Section 15.209 or the limits of FCC Section 15.407(b) / IC RSS-247 6.2. The EIRP limits of FCC Section 15.407(b) / IC RSS-247 6.2 were converted to field strength limits using a correction factor of 95.2 dB.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. Peak measurements are made with RBW of 1 MHz and VBW of 3 MHz. Average measurements are performed in the linear scale using an RMS detector averaged over 100 sweeps.

7.2.2.2 Measurement Results

Radiated band-edge and spurious emissions found within or outside of the restricted frequency bands from 1 GHz to 40 GHz are reported in the tables below.

Band 5.15-5.25 GHz

Table 7.2.2.2-1: Radiated Spurious Emissions Tabulated Data – 802.11n 20 MHz

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel (5180 MHz)										
5150	63.24	47.34	H	4.08	67.32	51.42	74.0	54.0	6.7	2.6
5150	57.06	43.56	V	4.08	61.14	47.64	74.0	54.0	12.9	6.4
10360	44.77	-----	H	13.96	58.73	-----	77.7	-----	19.0	-----
10360	44.16	-----	V	13.96	58.12	-----	77.7	-----	19.6	-----
Middle Channel (5200 MHz)										
10400	44.17	-----	H	14.04	58.21	-----	77.7	-----	19.5	-----
10400	44.32	-----	V	14.04	58.36	-----	77.7	-----	19.3	-----
High Channel (5240 MHz)										
10480	44.93	-----	H	14.20	59.13	-----	77.7	-----	18.6	-----
10480	45.47	-----	V	14.20	59.67	-----	77.7	-----	18.0	-----

Notes:

- All emissions above 10.48 GHz were attenuated below the limits and the noise floor of the measurement equipment.
- The emissions above 10 GHz were measured at a test distance of 1m. The limits are corrected accordingly using a distance factor of $20 \cdot \log(3/1) = 9.5$ dB.

Table 7.2.2.2-2: Radiated Spurious Emissions Tabulated Data – 802.11n 40 MHz

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel (5190 MHz)										
5150	64.00	48.87	H	4.08	68.08	52.95	74.0	54.0	5.9	1.1
5150	55.69	43.11	V	4.08	59.77	47.19	74.0	54.0	14.2	6.8
10380	42.84	-----	H	14.00	56.84	-----	77.7	-----	20.9	-----
10380	42.96	-----	V	14.00	56.96	-----	77.7	-----	20.7	-----
High Channel (5230 MHz)										
10460	43.55	-----	H	14.16	57.71	-----	77.7	-----	20.0	-----
10460	43.39	-----	V	14.16	57.55	-----	77.7	-----	20.2	-----

Notes:

- All emissions above 10.46 GHz were attenuated below the limits and the noise floor of the measurement equipment.
- The emissions above 10 GHz were measured at a test distance of 1m. The limits are corrected accordingly using a distance factor of $20 \cdot \log(3/1) = 9.5$ dB.

Band 5.725-5.85 GHz

Table 7.2.2.2-3: Radiated Spurious Emissions Tabulated Data – 802.11n 20 MHz

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel (5745 MHz)										
5715	54.97	-----	H	5.59	60.56	-----	68.2	-----	7.6	-----
5715	54.84	-----	V	5.59	60.43	-----	68.2	-----	7.8	-----
5725	69.77	-----	H	5.60	75.37	-----	78.2	-----	2.8	-----
5725	67.4	-----	V	5.60	73.00	-----	78.2	-----	5.2	-----
11490	44.12	35.80	H	17.46	61.58	53.26	83.5	63.5	21.9	10.2
11490	42.04	32.23	V	17.46	59.50	49.69	83.5	63.5	24.0	13.8
Middle Channel (5785 MHz)										
11570	43.19	34.47	H	17.38	60.57	51.85	83.5	63.5	22.9	11.6
11570	43.14	33.33	V	17.38	60.52	50.71	83.5	63.5	23.0	12.8
High Channel (5825 MHz)										
5850	59.59	-----	H	5.83	65.42	-----	78.2	-----	12.8	-----
5850	57.35	-----	V	5.83	63.18	-----	78.2	-----	15.0	-----
5860	56.26	-----	H	5.85	62.11	-----	68.2	-----	6.1	-----
5860	53.47	-----	V	5.85	59.32	-----	68.2	-----	8.9	-----
11650	42.62	33.46	H	17.23	59.85	50.69	83.5	63.5	23.6	12.8
11650	41.83	31.82	V	17.23	59.06	49.05	83.5	63.5	24.4	14.4

Notes:

- All emissions above 11.65 GHz were attenuated below the limits and the noise floor of the measurement equipment.
- The emissions above 10 GHz were measured at a test distance of 1m. The limits are corrected accordingly using a distance factor of $20 \cdot \log(3/1) = 9.5$ dB.

Table 7.2.2.2-4: Radiated Spurious Emissions Tabulated Data – 802.11n 40 MHz

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel (5755 MHz)										
5715	62.13	47.22	H	5.59	67.72	52.81	74.0	54.0	6.3	1.2
5715	64.13	47.27	V	5.59	69.72	52.86	74.0	54.0	4.3	1.1
5725	66.49	-----	H	5.60	72.09	-----	78.2	-----	6.1	-----
5725	65.27	-----	V	5.60	70.87	-----	78.2	-----	7.3	-----
11510	43.83	35.98	H	17.49	61.32	53.47	83.5	63.5	22.2	10.0
11510	42.79	34.57	V	17.49	60.28	52.06	83.5	63.5	23.2	11.4
High Channel (5795 MHz)										
5850	55.78	-----	H	5.83	61.61	-----	78.2	-----	16.6	-----
5850	54.86	-----	V	5.83	60.69	-----	78.2	-----	17.5	-----
5860	53.60	-----	H	5.85	59.45	-----	68.2	-----	8.7	-----
5860	53.99	-----	V	5.85	59.84	-----	68.2	-----	8.4	-----
11590	41.39	30.59	H	17.34	58.73	47.93	83.5	63.5	24.8	15.6
11590	42.42	33.85	V	17.34	59.76	51.19	83.5	63.5	23.7	12.3

Notes:

- All emissions above 11.59 GHz were attenuated below the limits and the noise floor of the measurement equipment.
- The emissions above 10 GHz were measured at a test distance of 1m. The limits are corrected accordingly using a distance factor of $20 \cdot \log(3/1) = 9.5$ dB.
- The general intentional emissions limits were used for the emissions at 5715 MHz.

7.2.3 Sample Calculation:

$$R_C = R_U + CF_T$$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak

Corrected Level: $63.24 + 4.08 = 67.32$ dB μ V/m

Margin: 74 dB μ V/m – 67.32 dB μ V/m = 6.7 dB

Example Calculation: Average

Corrected Level: $47.34 + 4.08 = 51.42$ dB μ V/m

Margin: 54 dB μ V/m – 51.42 dB μ V/m = 2.6 dB

Example Calculation: EIRP Limits to Field Strength Limits

$E(\text{dB}\mu\text{V/m}) = P(\text{dBm EIRP}) + 95.2$

$E(\text{dB}\mu\text{V/m}) = -17\text{dBm} + 95.2 = 78.2$ dB μ V/m

$E(\text{dB}\mu\text{V/m}) = -27\text{dBm} + 95.2 = 68.2$ dB μ V/m

7.3 Power Line Conducted Emissions – FCC: Section 15.207 IC: RSS-Gen 8.8

7.3.1 Measurement Procedure

ANSI C63.4 sections 6 and 7 were the guiding documents for this evaluation. Conducted emissions were performed from 150 kHz to 30 MHz with the spectrum analyzer's resolution bandwidth set to 9 kHz and the video bandwidth set to 30 kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss

Margin = Applicable Limit - Corrected Reading

Preliminary evaluation was performed for all the modes of operation of the WLAN transceiver. The results reported correspond to the worst case. The EUT was in the 802.11 ac (VHT80) mode at channel 48.

7.3.2 Measurement Results

Results are shown below.

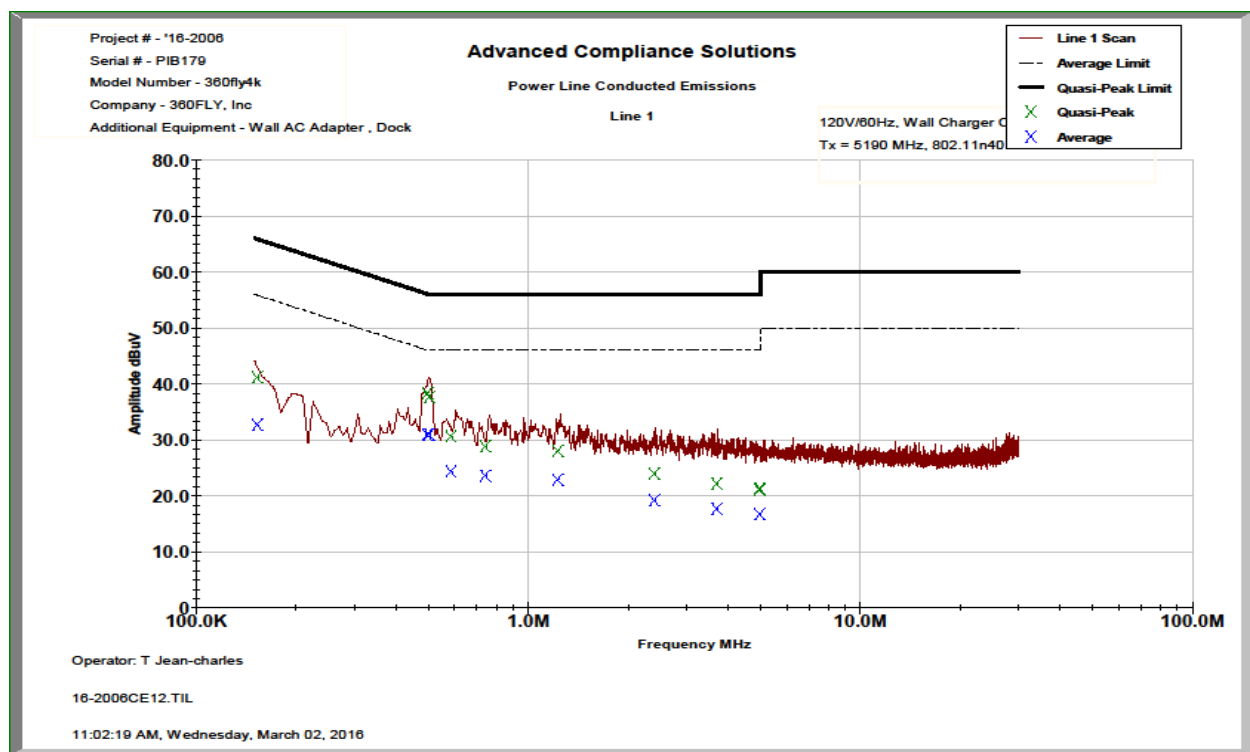


Figure 7.3.2-1: Conducted Emissions Results – Line 1

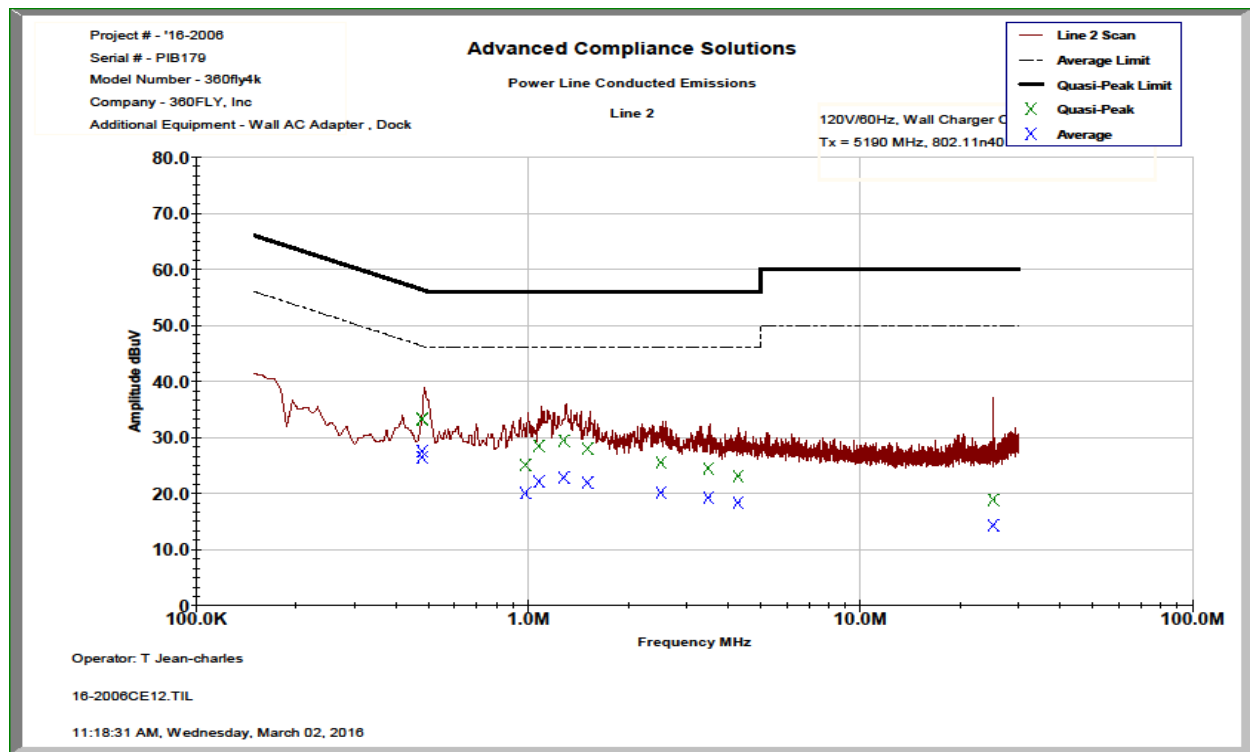


Figure 7.3.2-2: Conducted Emissions Results – Line 2

Table 7.3.2-1: Conducted EMI Results

<div><div><div><input checked="" type="checkbox"/> Line 1</div><div><input checked="" type="checkbox"/> Line 2</div><div><input type="checkbox"/> Line 3</div></div><div><input type="checkbox"/> Line 4</div><div><input type="checkbox"/> To Ground</div><div><input checked="" type="checkbox"/> Floating</div></div> <div><div><input type="checkbox"/> Telecom Port</div><div></div></div> <div><div><input checked="" type="checkbox"/> dBµV</div><div><input type="checkbox"/> dBµA</div></div> <div>Plot Number: <u>16-2006CE12</u></div> <div>Power Supply Description: <u>5</u></div> <div><u>VDC</u></div>									
Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
Line 1									
0.152783	30.95	22.464	10.22	41.17	32.69	65.85	55.85	24.7	23.2
0.497199	28.149	20.729	10.21	38.36	30.94	56.05	46.05	17.7	15.1
0.503737	27.422	20.833	10.20	37.63	31.04	56.00	46.00	18.4	15.0
0.585213	20.431	14.152	10.20	30.63	24.36	56.00	46.00	25.4	21.6
0.741925	18.626	13.418	10.22	28.84	23.64	56.00	46.00	27.2	22.4
1.22699	17.839	12.72	10.20	28.04	22.92	56.00	46.00	28.0	23.1
2.3986	13.678	8.889	10.28	23.95	19.16	56.00	46.00	32.0	26.8
3.69707	11.823	7.335	10.35	22.18	17.69	56.00	46.00	33.8	28.3
4.98	10.687	6.27	10.39	21.08	16.66	56.00	46.00	34.9	29.3
4.9801	10.902	6.31	10.39	21.29	16.70	56.00	46.00	34.7	29.3
Line 2									
0.479813	23.043	17.293	10.21	33.25	27.50	56.34	46.34	23.1	18.8
0.479999	23.137	16.272	10.21	33.35	26.48	56.34	46.34	23.0	19.9
0.980725	14.852	9.814	10.21	25.06	20.02	56.00	46.00	30.9	26.0
1.07774	18.273	11.895	10.25	28.52	22.15	56.00	46.00	27.5	23.9
1.27923	19.188	12.589	10.25	29.44	22.84	56.00	46.00	26.6	23.2
1.51056	17.767	11.68	10.25	28.02	21.93	56.00	46.00	28.0	24.1
2.51054	15.19	9.831	10.32	25.51	20.15	56.00	46.00	30.5	25.9
3.48813	14.074	8.87	10.39	24.46	19.26	56.00	46.00	31.5	26.7
4.28661	12.672	7.91	10.44	23.11	18.35	56.00	46.00	32.9	27.6
25.1518	7.61	3.088	11.23	18.84	14.32	60.00	50.00	41.2	35.7

8 CONCLUSION

In the opinion of ACS, Inc., the model 360FLY4K meets the requirements of FCC Part 15 subpart E and Industry Canada's Radio Standards Specification RSS-247 for the test procedures documented in the test report.

END REPORT