FCC Test Report

Product Name	Bike Navigation computer
Model No	ROX GPS 12.0
FCC ID.	M5LROX-12-0

Applicant	SIGMA-ELEKTRO GMBH
Address	Dr.-Julius-Leber-Str. 15, 67433 Neustadt a. d. Weinstrase

Date of Receipt	May 25, 2017
Issue Date	July 27, 2017
Report No.	1750612R-RFUSP25V00
Report Version	V1.0

Testing Laboratory
3023

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
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Test Report

Issue Date: July 27, 2017
Report No.: 1750612R-RFUSP25V00

Product Name	Bike Navigation computer
Applicant	SIGMA-ELEKTRO GMBH
Address	Dr.-Julius-Leber-Str. 15, 67433 Neustadt a. d. Weinstrase
Manufacturer	SIGMA-ELEKTRO GMBH
Model No.	ROX GPS 12.0
FCC ID.	M5LROX-12-0
EUT Rated Voltage	DC 3.7V (Power by Battery) or DC 5V (Power by USB)
EUT Test Voltage	DC 5V (Power by USB)
Trade Name	SIGMA-ELEKTRO GMBH
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By : Genie Chang

(Senior Adm. Specialist / Genie Chang)

Tested By : Ivan Chuang

(Senior Engineer / Ivan Chuang)

Approved By :

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Bike Navigation computer
Trade Name	SIGMA-ELEKTRO GMBH
Model No.	ROX GPS 12.0
FCC ID.	M5LROX-12-0
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 150Mbps
Channel separation	802.11b/g/n: 5 MHz
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Ceramic PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	SIGMA-ELEKTRO GMBH	N/A	Ceramic PIFA Antenna	1.1 dBi for 2.4 GHz

Note: The antenna of EUT is conforming to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is a Bike Navigation computer with a built-in 2.4GHz WLAN、Bluetooth and ANT+ transceiver, this report for 2.4GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 7.2Mbps and 802.11n(40M-BW) is 15Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

1.2. Operational Description

The EUT is a Bike Navigation computer, This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11g).

The device provided of eight kinds of transmitting speed 7.2,14.4,21.7,28.9,43.3,57.8,65 and 72.2Mbps in 802.11n(20M-BW) mode and 15,30,45,60,90,120,135 and 150 Mbps (40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), The IEEE 802.11n is Single In, Single Out" (SISO) technology and one antennas to support 1(Transmit) * 1(Receive) SISO technology.

This equipment includes WLAN、Bluetooth and ANT+, which can not transmit signals simultaneously.

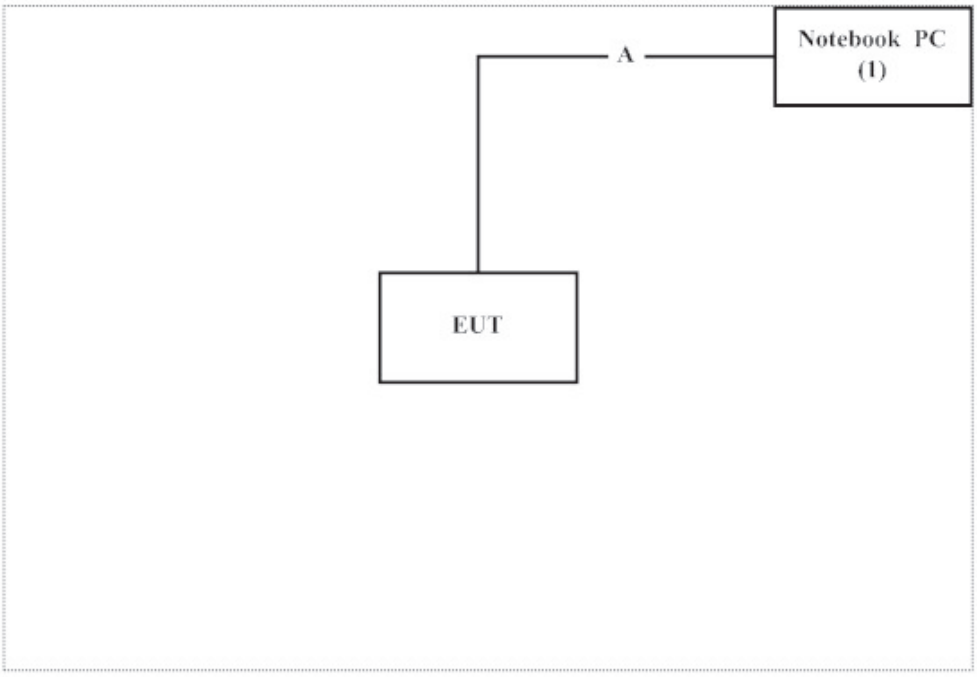
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	P62G	CY9FJC2	N/A

Signal Cable Type		Signal cable Description
A	Micro USB to USB Cable	Non-Shielded, 1.5m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Ant RF Test App (Ver 1.00.00)” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd.
Site Address: No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,
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TEL: 886-2-2602-7968 / FAX : 866-2-2602-3286
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW1014

1.7. List of Test Item and Equipment

For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	161601	2017.01.06	2018.01.05
X	Two-Line V-Network	R&S	ENV216	101306	2017.02.16	2018.02.15
X	Two-Line V-Network	R&S	ENV216	101307	2017.03.17	2018.03.16
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2017.05.24	2018.05.23

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

For Conducted measurements /ASR4

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2017.01.09	2018.01.08
X	Power Meter	Anritsu	ML2496A	1548003	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531024	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531025	2016.12.15	2017.12.14
	Bluetooth Tester	R&S	CBT	101238	2017.01.03	2018.01.02

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek Conduction Test System V8.0.110

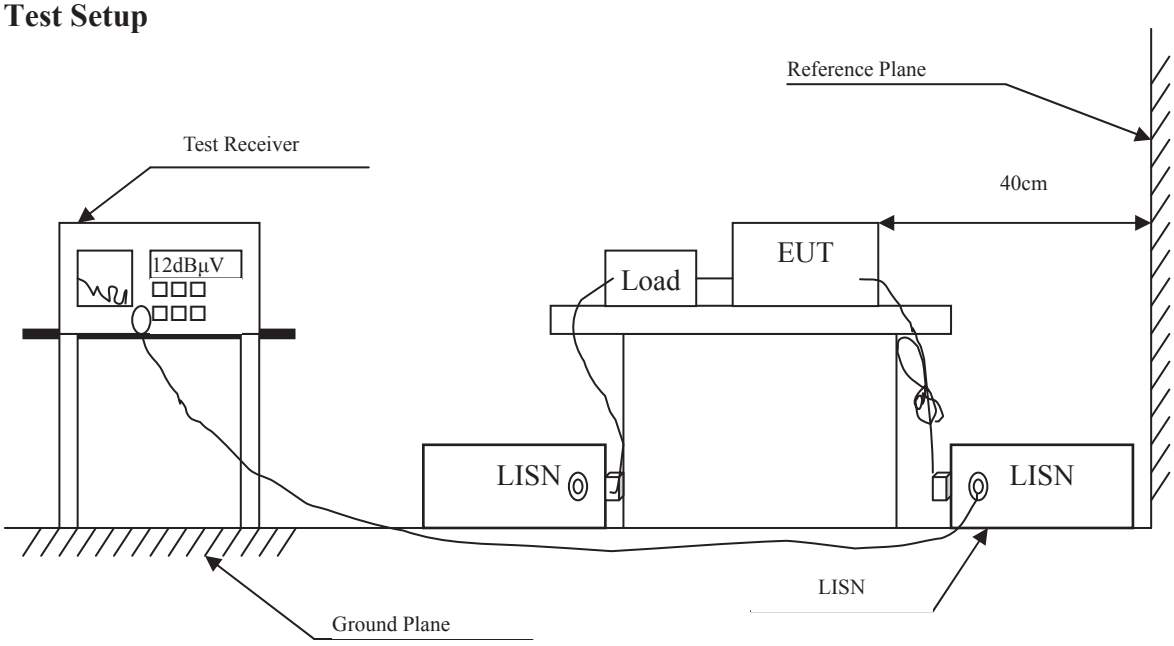
For Radiated measurements /ACB1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	TESEQ	HLA6121	37133	2016.03.18	2018.03.17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2017.02.09	2018.02.08
X	Horn Antenna	ETS-Lindgren	3117	00203800	2016.10.13	2017.10.12
X	Horn Antenna	Com-Power	AH-840	101087	2017.05.24	2018.05.23
X	Pre-Amplifier	EMCI	EMC001330	980316	2017.05.14	2018.05.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2017.05.17	2018.05.16
X	Filter	MICRO TRONICS	BRM50702	G251	2016.08.11	2017.08.10
	Filter	MICRO TRONICS	BRM50716	G188	2016.08.11	2017.08.10
X	EMI Test Receiver	R&S	ESR7	101602	2016.12.15	2017.12.14
X	Spectrum Analyzer	R&S	FSV40	101148	2017.01.24	2018.01.23
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2017.05.25	2018.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2016.08.11	2017.08.10

Note:
1. Loop Antenna is calibrated every two year, the other equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.35 dB

2.5. Test Result of Conducted Emission

Product : Bike Navigation computer
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)
Test Date : 2017/06/21

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.154	9.707	41.183	50.890	-14.996	65.886
0.490	9.736	27.088	36.824	-19.462	56.286
0.940	9.753	17.686	27.439	-28.561	56.000
2.200	9.802	15.087	24.889	-31.111	56.000
3.300	9.836	20.916	30.752	-25.248	56.000
9.800	9.995	19.251	29.246	-30.754	60.000
Average					
0.154	9.707	23.571	33.277	-22.609	55.886
0.490	9.736	20.029	29.765	-16.521	46.286
0.940	9.753	12.469	22.222	-23.778	46.000
2.200	9.802	7.104	16.906	-29.094	46.000
3.300	9.836	11.292	21.128	-24.872	46.000
9.800	9.995	14.500	24.495	-25.505	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bike Navigation computer
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)
Test Date : 2017/06/21

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.157	9.697	36.924	46.621	-19.179	65.800
0.480	9.725	27.569	37.294	-19.277	56.571
0.940	9.753	15.738	25.491	-30.509	56.000
1.400	9.760	18.693	28.453	-27.547	56.000
3.300	9.836	21.137	30.973	-25.027	56.000
9.900	10.000	10.742	20.741	-39.259	60.000
Average					
0.157	9.697	21.962	31.659	-24.141	55.800
0.480	9.725	19.422	29.147	-17.424	46.571
0.940	9.753	10.207	19.960	-26.040	46.000
1.400	9.760	13.381	23.141	-22.859	46.000
3.300	9.836	12.029	21.864	-24.136	46.000
9.900	10.000	6.137	16.137	-33.863	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup

3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

3.4. Uncertainty

±0.86 dB

3.5. Test Result of Peak Power Output

Product : Bike Navigation computer
Test Item : Peak Power Output Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/06/03

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	15.75	--	--	--	17.84	<30dBm	Pass
06	2437	15.62	15.59	15.55	15.41	17.91	<30dBm	Pass
11	2462	15.56	--	--	--	17.89	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Bike Navigation computer
Test Item : Peak Power Output Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)
Test Date : 2017/06/03

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	5.01	--	--	--	--	--	--	--	14.89	<30dBm	Pass
06	2437	5.28	5.11	5.08	5.06	5.01	4.97	4.95	4.92	15.41	<30dBm	Pass
11	2462	5.48	--	--	--	--	--	--	--	15.74	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Bike Navigation computer
Test Item : Peak Power Output Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)
Test Date : 2017/06/03

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2		
		Measurement Level (dBm)										
01	2412	4.73	--	--	--	--	--	--	--	16.14	<30dBm	Pass
06	2437	5.18	5.02	4.97	4.93	4.89	4.85	4.81	4.77	16.67	<30dBm	Pass
11	2462	5.45	--	--	--	--	--	--	--	17.08	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Bike Navigation computer
Test Item : Peak Power Output Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)
Test Date : 2017/06/03

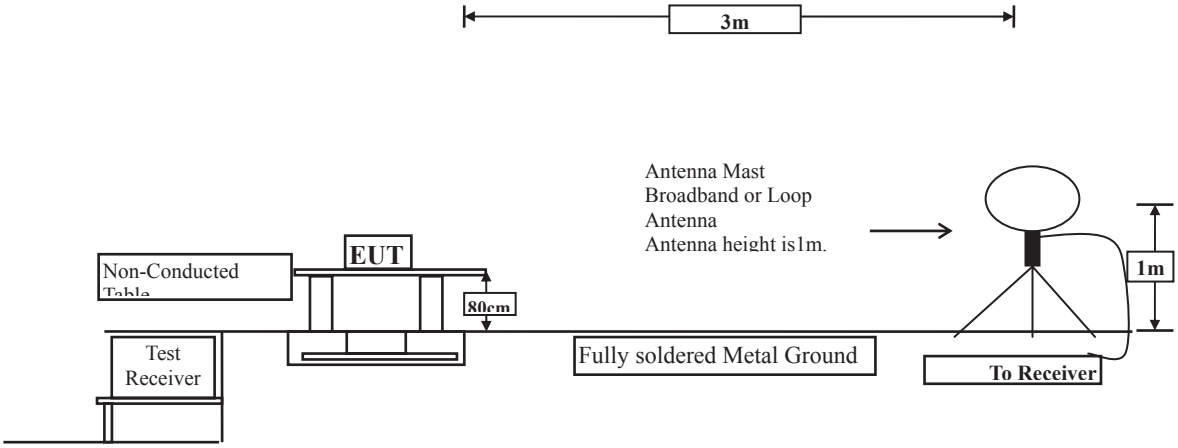
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		15	30	45	60	90	120	135	150	15		
		Measurement Level (dBm)										
03	2422	4.77	--	--	--	--	--	--	--	16.12	<30dBm	Pass
06	2437	5.01	4.96	4.92	4.89	4.85	4.81	4.78	4.76	16.43	<30dBm	Pass
09	2452	5.15	--	--	--	--	--	--	--	16.62	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

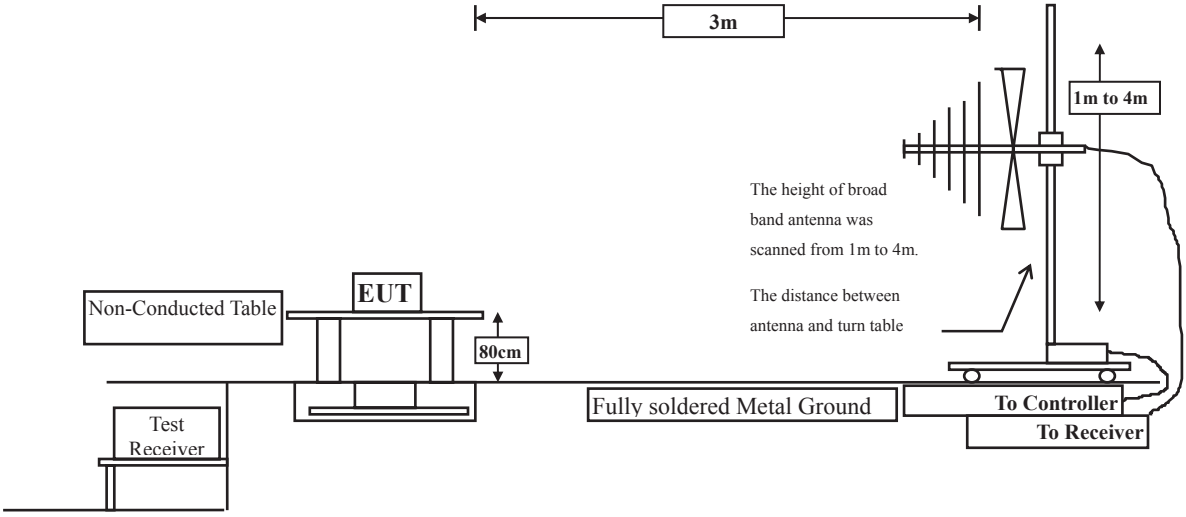
4. Radiated Emission

4.1. Test Setup

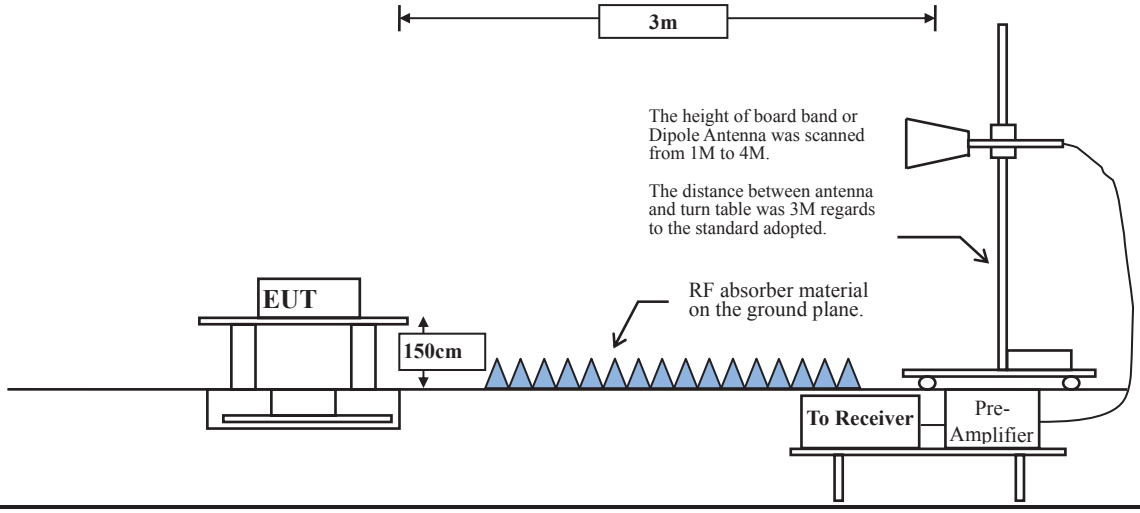
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.
The turn table is rotated 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.
The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.
Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Uncertainty

Horizontal：
30-300MHz: ±4.08dB；300M-1GHz: ±3.86dB；1-18GHz: ±3.77dB；18-40GHz: ±3.98dB。
Vertical：
30-300MHz: ±4.81dB；300M-1GHz: ±3.87dB；1-18GHz: ±3.83dB；18-40GHz: ±3.98dB。

4.5. Test Result of Radiated Emission

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	53.100	49.316	-24.684	74.000
7236.000	-0.753	44.910	44.156	-29.844	74.000
9648.000	1.186	42.490	43.676	-30.324	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	49.900	46.116	-27.884	74.000
7236.000	-0.753	45.250	44.496	-29.504	74.000
9648.000	1.186	42.150	43.336	-30.664	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	49.030	45.260	-28.740	74.000
7311.000	-0.719	44.320	43.602	-30.398	74.000
9748.000	1.331	42.910	44.241	-29.759	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	50.220	46.450	-27.550	74.000
7311.000	-0.719	45.520	44.802	-29.198	74.000
9748.000	1.331	43.440	44.771	-29.229	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	48.060	44.317	-29.683	74.000
7386.000	-0.683	43.260	42.577	-31.423	74.000
9848.000	1.571	42.360	43.931	-30.069	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	46.770	43.027	-30.973	74.000
7386.000	-0.683	44.030	43.347	-30.653	74.000
9848.000	1.571	43.830	45.401	-28.599	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	44.960	41.176	-32.824	74.000
7236.000	-0.753	43.930	43.176	-30.824	74.000
9648.000	1.186	42.030	43.216	-30.784	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	44.060	40.276	-33.724	74.000
7236.000	-0.753	44.180	43.426	-30.574	74.000
9648.000	1.186	42.720	43.906	-30.094	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	44.860	41.090	-32.910	74.000
7311.000	-0.719	44.060	43.342	-30.658	74.000
9748.000	1.331	43.180	44.511	-29.489	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	43.820	40.050	-33.950	74.000
7311.000	-0.719	44.050	43.332	-30.668	74.000
9748.000	1.331	43.220	44.551	-29.449	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	44.150	40.407	-33.593	74.000
7386.000	-0.683	43.130	42.447	-31.553	74.000
9848.000	1.571	43.910	45.481	-28.519	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	44.740	40.997	-33.003	74.000
7386.000	-0.683	43.210	42.527	-31.473	74.000
9848.000	1.571	42.360	43.931	-30.069	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	44.530	40.746	-33.254	74.000
7236.000	-0.753	44.080	43.326	-30.674	74.000
9648.000	1.186	42.030	43.216	-30.784	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	44.410	40.626	-33.374	74.000
7236.000	-0.753	44.140	43.386	-30.614	74.000
9648.000	1.186	42.890	44.076	-29.924	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	44.400	40.630	-33.370	74.000
7311.000	-0.719	44.170	43.452	-30.548	74.000
9748.000	1.331	43.550	44.881	-29.119	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	43.840	40.070	-33.930	74.000
7311.000	-0.719	43.800	43.082	-30.918	74.000
9748.000	1.331	43.810	45.141	-28.859	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	44.480	40.737	-33.263	74.000
7386.000	-0.683	44.100	43.417	-30.583	74.000
9848.000	1.571	42.500	44.071	-29.929	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	44.560	40.817	-33.183	74.000
7386.000	-0.683	42.880	42.197	-31.803	74.000
9848.000	1.571	42.410	43.981	-30.019	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2422MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4844.000	-3.778	44.390	40.611	-33.389	74.000
7266.000	-0.732	44.220	43.488	-30.512	74.000
9688.000	1.249	41.850	43.100	-30.900	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4844.000	-3.778	43.920	40.141	-33.859	74.000
7266.000	-0.732	44.090	43.358	-30.642	74.000
9688.000	1.249	42.280	43.530	-30.470	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	44.630	40.860	-33.140	74.000
7311.000	-0.719	43.530	42.812	-31.188	74.000
9748.000	1.331	43.560	44.891	-29.109	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	44.250	40.480	-33.520	74.000
7311.000	-0.719	43.810	43.092	-30.908	74.000
9748.000	1.331	42.950	44.281	-29.719	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2452 MHz)
Test Date : 2017/06/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4904.000	-3.766	44.610	40.844	-33.156	74.000
7356.000	-0.693	43.700	43.007	-30.993	74.000
9808.000	1.467	42.950	44.416	-29.584	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4904.000	-3.766	45.280	41.514	-32.486	74.000
7356.000	-0.693	43.190	42.497	-31.503	74.000
9808.000	1.467	43.820	45.286	-28.714	74.000
Average Detector:					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bike Navigation computer
Test Item : General Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)
Test Date : 2017/06/22

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
35.623	-11.685	36.795	25.111	-14.889	40.000
143.870	-10.956	34.584	23.627	-19.873	43.500
202.913	-13.531	43.152	29.622	-13.878	43.500
378.638	-8.177	30.042	21.864	-24.136	46.000
507.971	-5.385	30.040	24.655	-21.345	46.000
668.232	-2.558	30.496	27.937	-18.063	46.000
Vertical					
51.087	-11.013	41.727	30.714	-9.286	40.000
79.203	-15.244	37.007	21.763	-18.237	40.000
201.507	-13.590	38.784	25.194	-18.306	43.500
294.290	-10.202	32.779	22.577	-23.423	46.000
382.855	-8.059	29.601	21.543	-24.457	46.000
433.464	-6.805	29.859	23.055	-22.945	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bike Navigation computer
Test Item : General Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)
Test Date : 2017/06/22

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
35.623	-11.685	34.336	22.652	-17.348	40.000
80.609	-15.509	35.466	19.957	-20.043	40.000
149.493	-10.756	33.740	22.985	-20.515	43.500
201.507	-13.590	42.602	29.012	-14.488	43.500
344.899	-9.089	31.174	22.085	-23.915	46.000
443.304	-6.575	27.520	20.945	-25.055	46.000
Vertical					
59.522	-11.878	38.743	26.865	-13.135	40.000
153.710	-10.677	30.557	19.880	-23.620	43.500
304.130	-9.984	31.935	21.951	-24.049	46.000
412.377	-7.295	29.636	22.340	-23.660	46.000
491.101	-5.701	29.498	23.797	-22.203	46.000
547.333	-4.589	29.678	25.088	-20.912	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bike Navigation computer
Test Item : General Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)
Test Date : 2017/06/22

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
77.797	-14.987	35.972	20.986	-19.014	40.000
142.464	-11.007	32.351	21.344	-22.156	43.500
214.159	-13.092	43.631	30.540	-12.960	43.500
353.333	-8.880	30.191	21.311	-24.689	46.000
458.768	-6.262	28.819	22.557	-23.443	46.000
524.841	-5.044	28.923	23.879	-22.121	46.000
Vertical					
58.116	-11.732	39.738	28.006	-11.994	40.000
142.464	-11.007	30.162	19.155	-24.345	43.500
273.203	-10.876	32.135	21.259	-24.741	46.000
298.507	-10.106	31.612	21.506	-24.494	46.000
429.246	-6.903	30.924	24.021	-21.979	46.000
491.101	-5.701	28.984	23.283	-22.717	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bike Navigation computer
Test Item : General Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2437 MHz)
Test Date : 2017/06/22

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
79.203	-15.244	35.545	20.301	-19.699	40.000
146.681	-10.855	33.475	22.620	-20.880	43.500
214.159	-13.092	44.956	31.865	-11.635	43.500
315.377	-9.742	29.554	19.812	-26.188	46.000
415.188	-7.231	29.378	22.148	-23.852	46.000
586.696	-3.647	28.207	24.560	-21.440	46.000
Vertical					
51.087	-11.013	40.193	29.180	-10.820	40.000
145.275	-10.906	29.773	18.867	-24.633	43.500
201.507	-13.590	35.437	21.847	-21.653	43.500
302.725	-10.014	32.062	22.048	-23.952	46.000
423.623	-7.033	28.034	21.001	-24.999	46.000
607.783	-3.271	29.722	26.451	-19.549	46.000

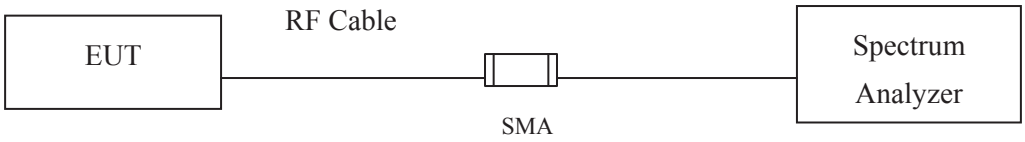
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF antenna conducted test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

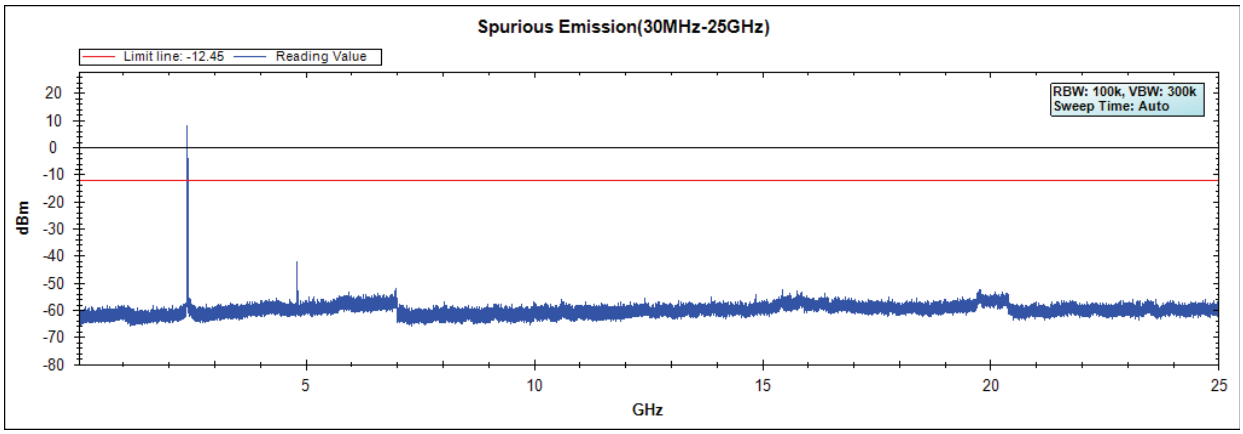
5.4. Uncertainty

±1.23dB

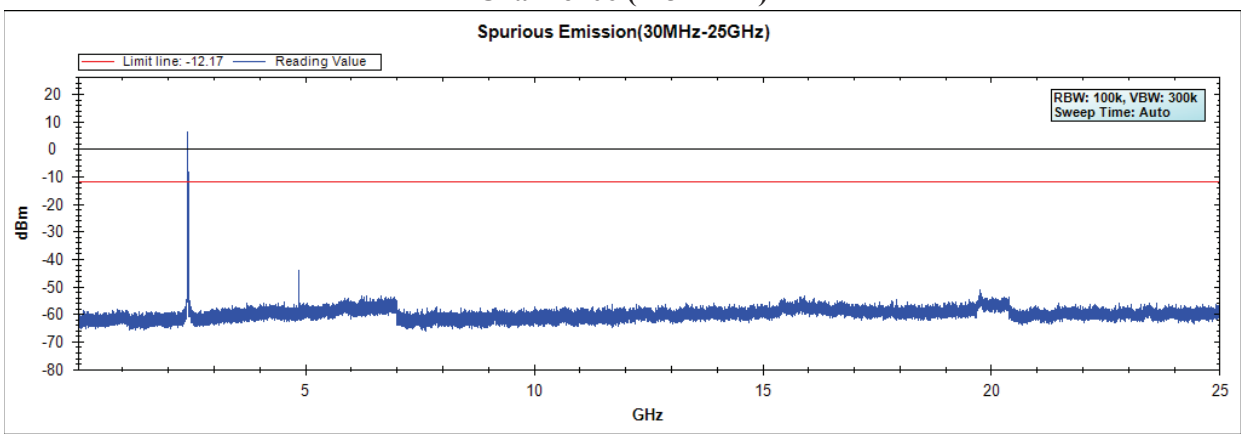
5.5. Test Result of RF antenna conducted test

Product : Bike Navigation computer
Test Item : RF antenna conducted test
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/06/02

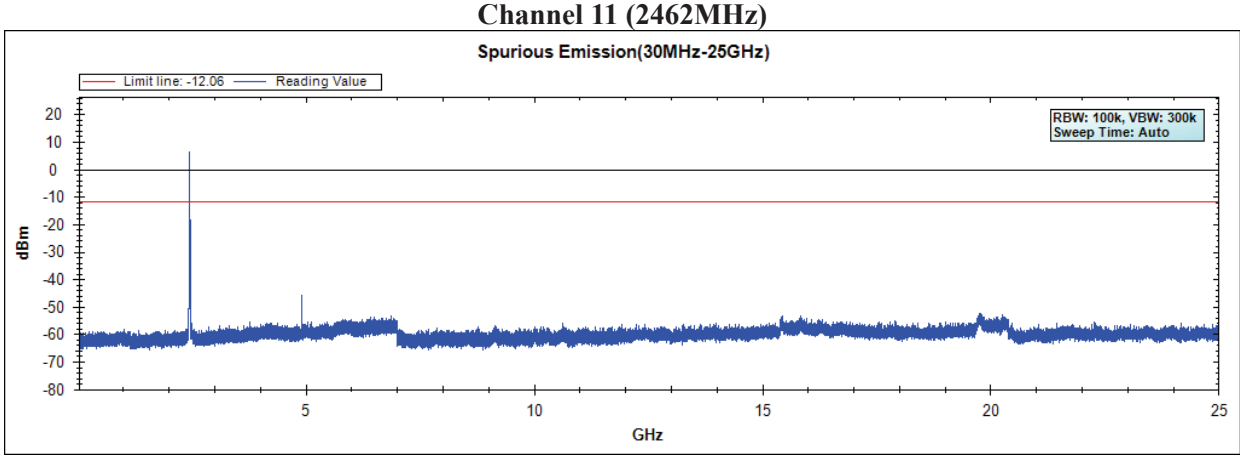
Channel 01 (2412MHz)



Channel 06 (2437MHz)



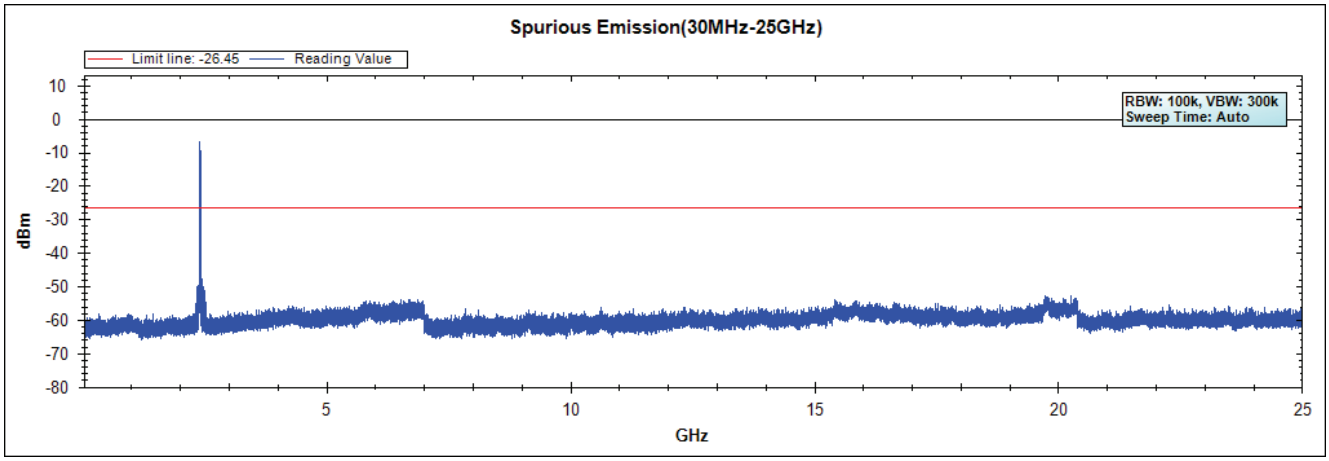
Channel 11 (2462MHz)



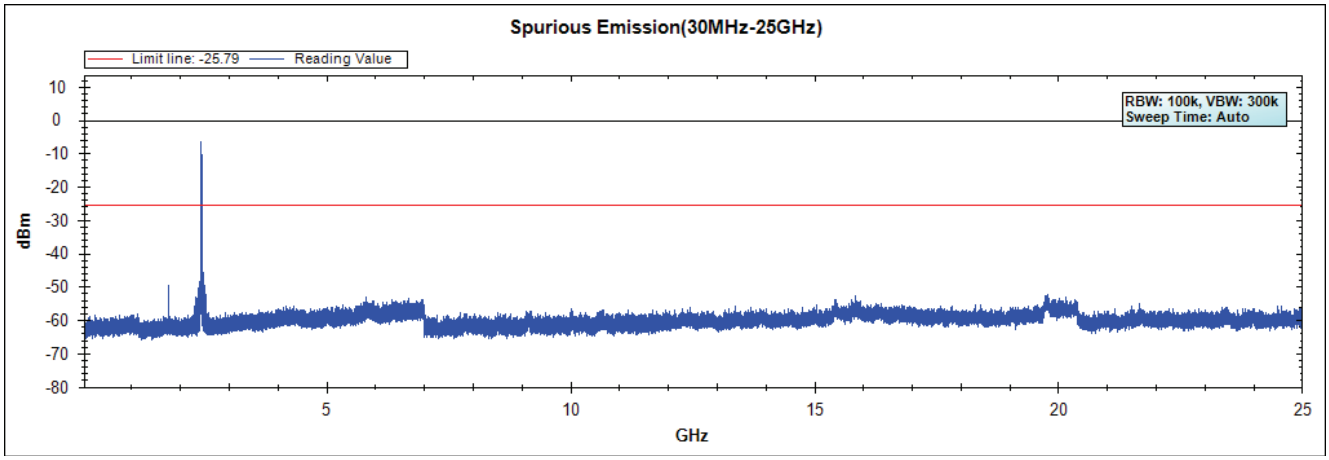
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Bike Navigation computer
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)
Test Date	:	2017/06/02

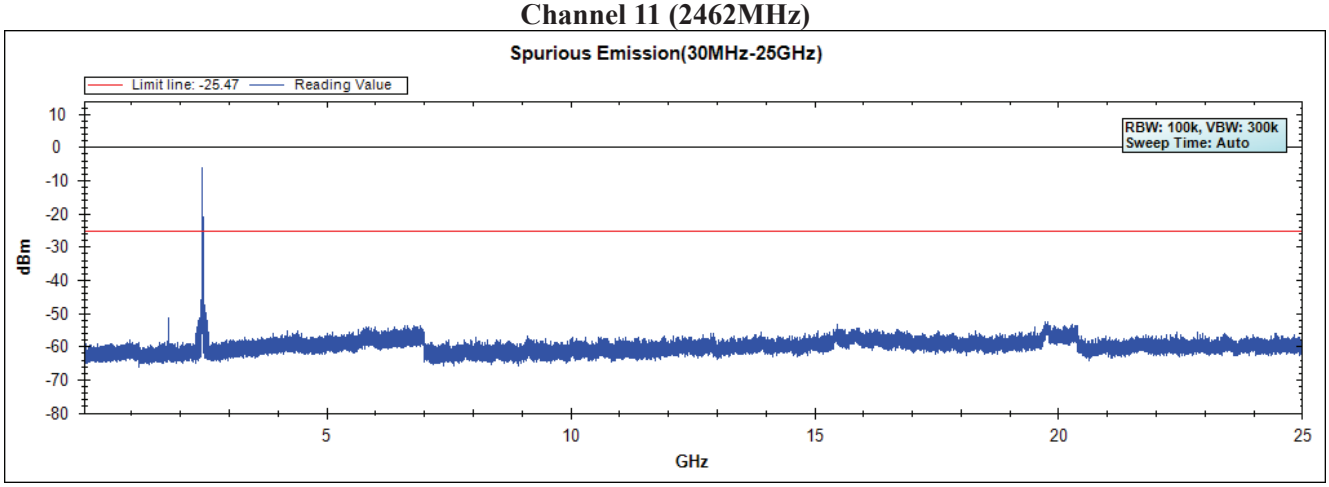
Channel 01 (2412MHz)



Channel 06 (2437MHz)



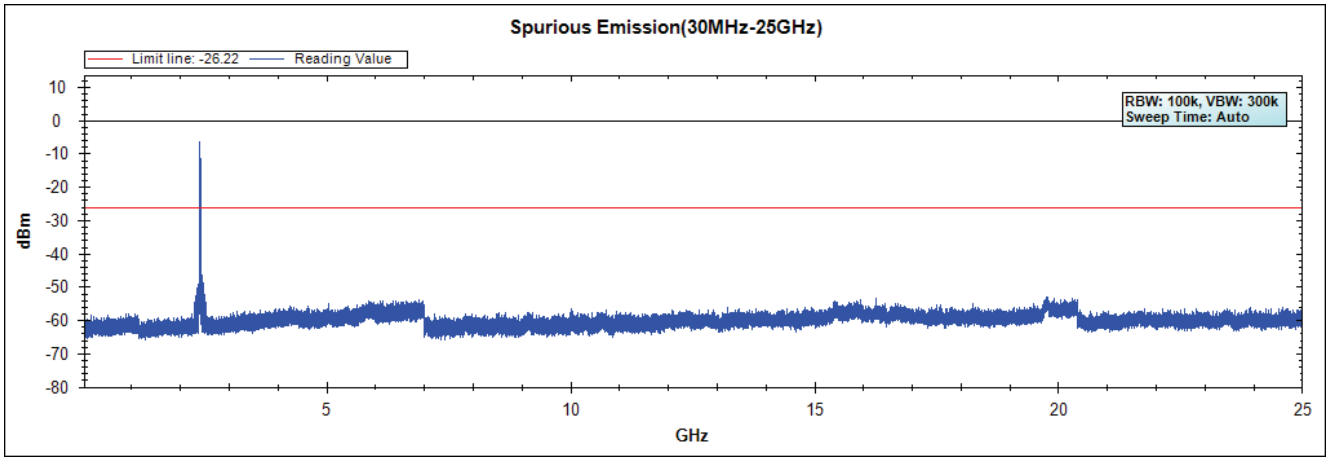
Channel 11 (2462MHz)



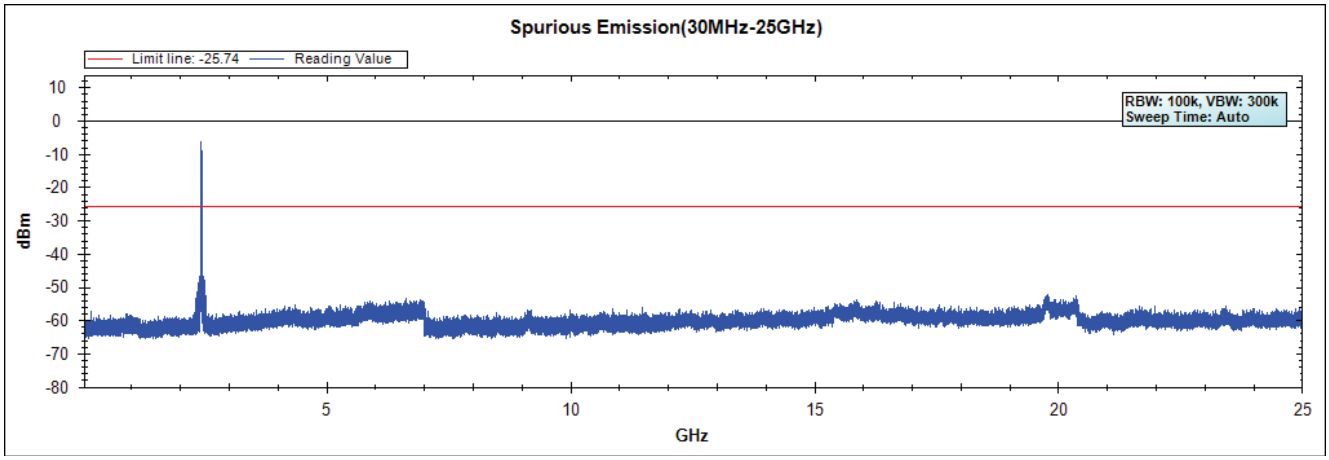
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Bike Navigation computer
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)
Test Date	:	2017/06/02

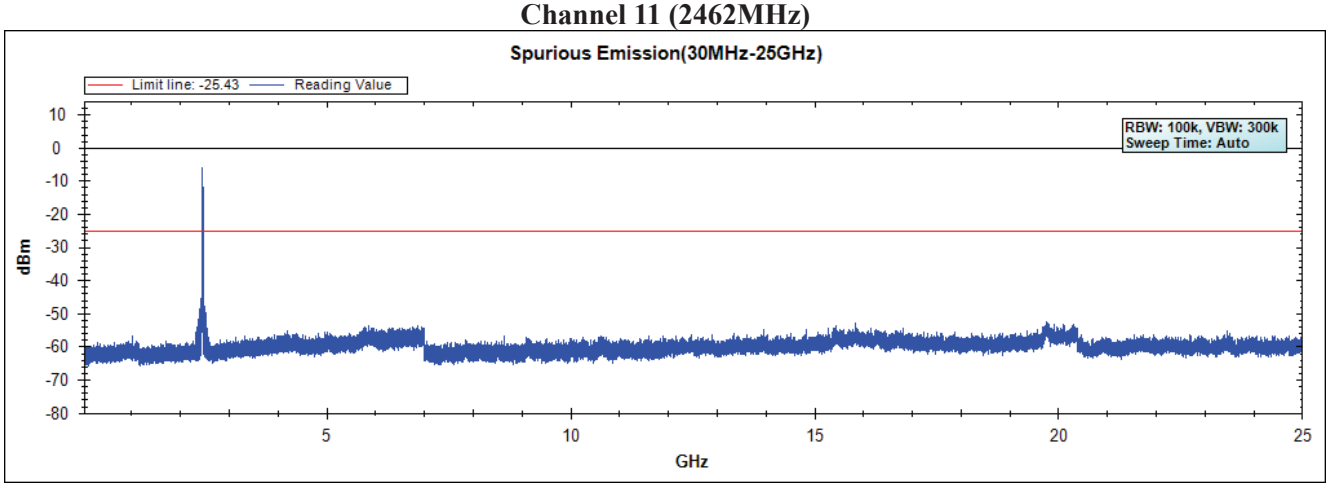
Channel 01 (2412MHz)



Channel 06 (2437MHz)



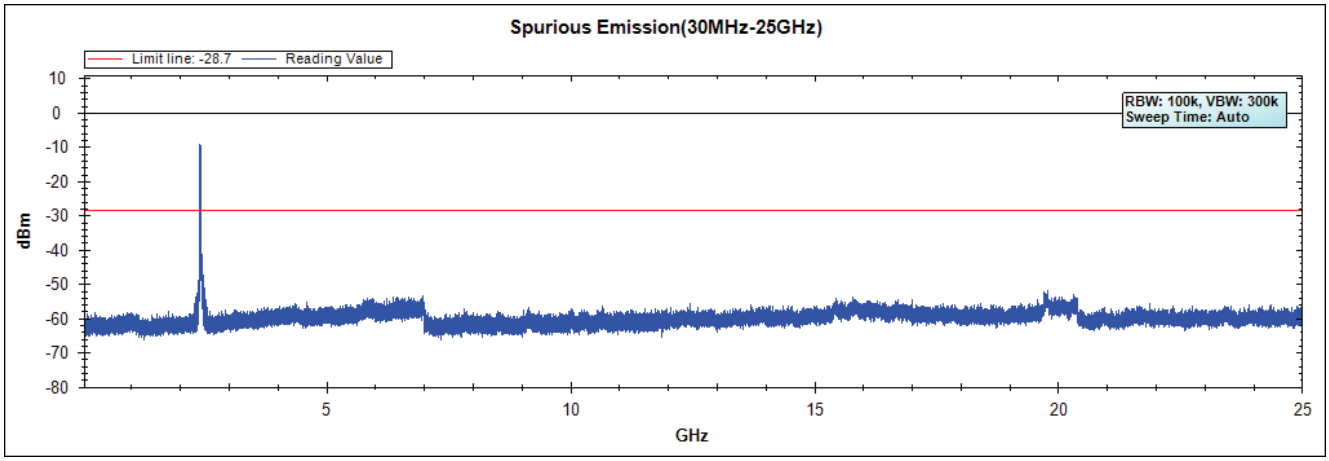
Channel 11 (2462MHz)



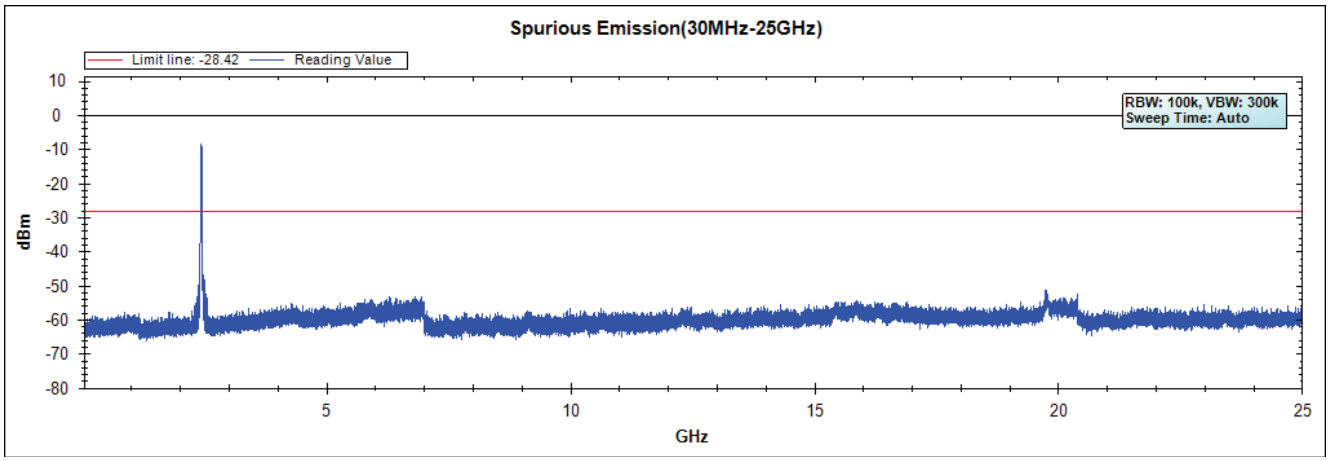
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Bike Navigation computer
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)
Test Date	:	2017/06/02

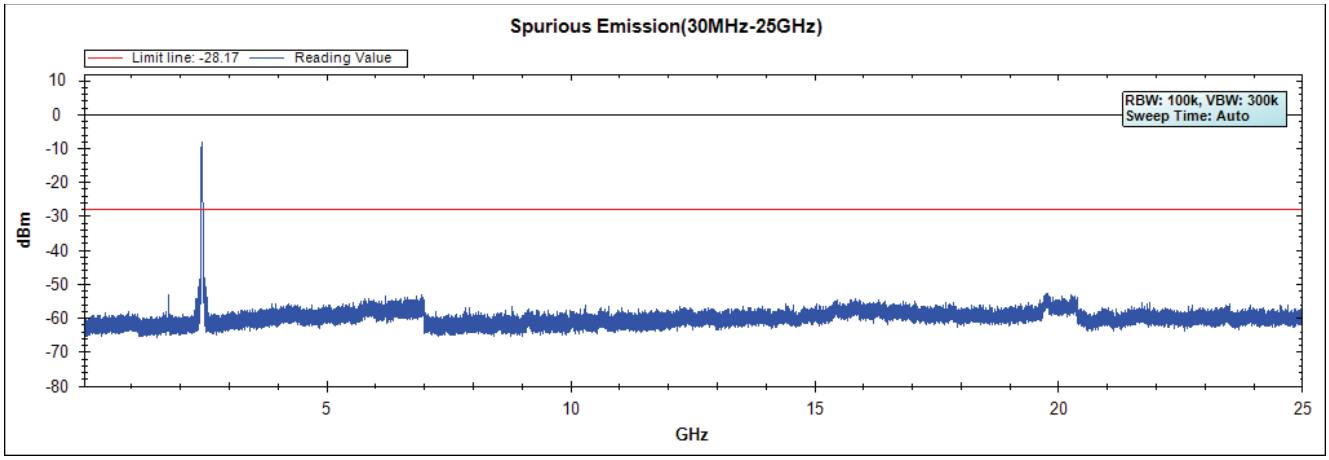
Channel 01 (2422MHz)



Channel 04 (2437MHz)



Channel 07 (2452MHz)

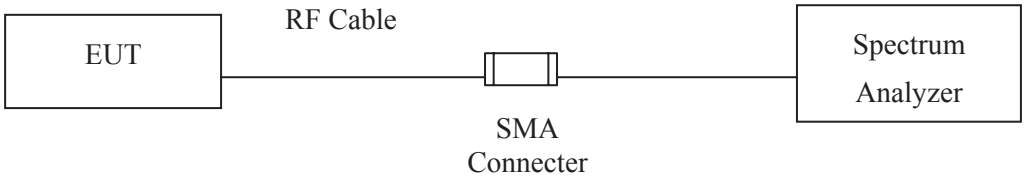


Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

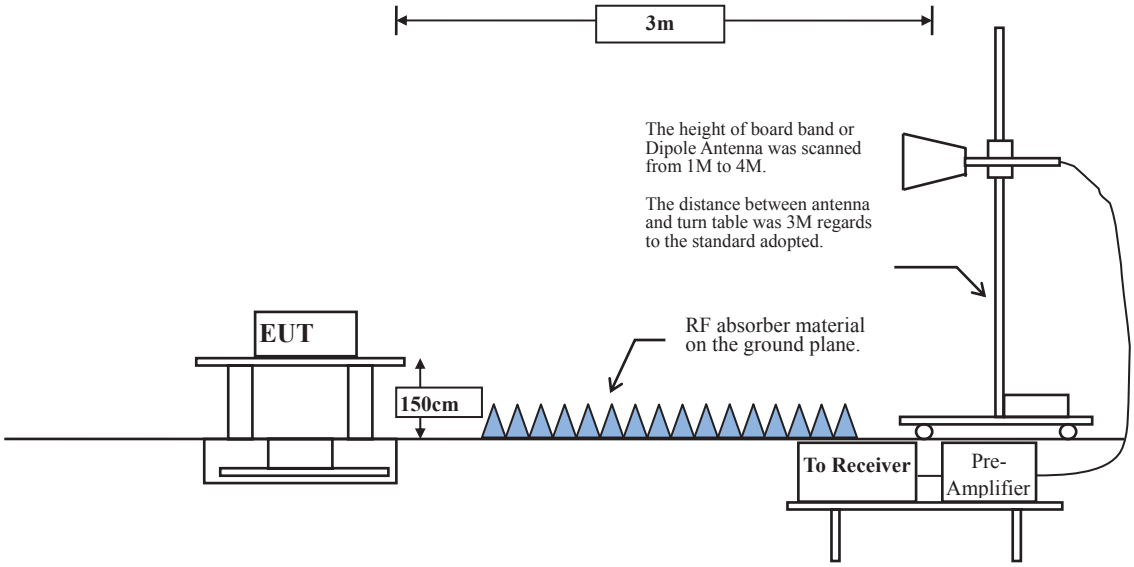
6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

6.4. Uncertainty

Conducted: ±1.23dB
Radiated:
Horizontal polarization：1-18GHz: ±3.77dB
Vertical polarization：1-18GHz : ±3.83dB

6.5. Test Result of Band Edge

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2386.812	11.548	32.133	43.681	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	29.658	41.214	74.00	54.00	Pass
01 (Peak)	2398.841	11.576	43.221	54.797	--	--	Pass
01 (Peak)	2400.000	11.579	41.207	52.786	--	--	Pass
01 (Peak)	2411.014	11.605	87.278	98.884	--	--	--
01 (Average)	2386.812	11.548	19.395	30.943	74.00	54.00	Pass
01 (Average)	2390.000	11.556	17.168	28.724	74.00	54.00	Pass
01 (Average)	2399.275	11.577	38.178	49.755	--	--	Pass
01 (Average)	2400.000	11.579	35.947	47.526	--	--	Pass
01 (Average)	2411.304	11.605	84.123	95.729	--	--	--

Figure Channel 01: Horizontal (Peak)

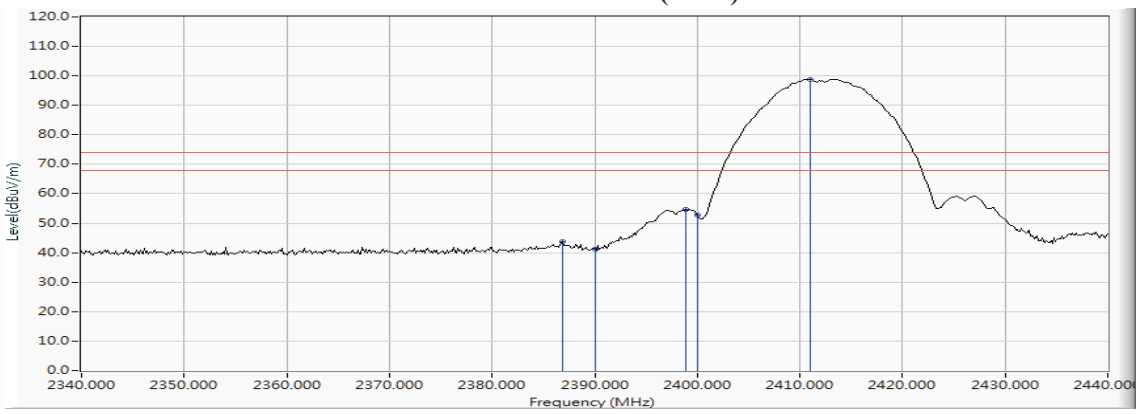
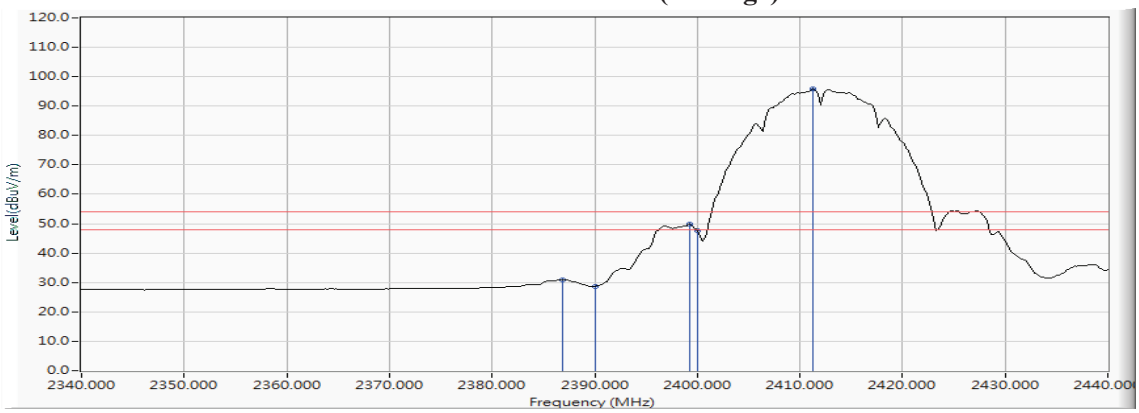


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
01 (Peak)	2387.536	11.550	29.606	41.156	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	28.178	39.734	74.00	54.00	Pass
01 (Peak)	2399.130	11.577	36.755	48.332	--	--	Pass
01 (Peak)	2400.000	11.579	35.056	46.635	--	--	Pass
01 (Peak)	2413.043	11.610	82.197	93.807	--	--	--
01 (Average)	2390.000	11.556	16.081	27.637	74.00	54.00	Pass
01 (Average)	2398.986	11.577	29.810	41.387	--	--	Pass
01 (Average)	2400.000	11.579	27.823	39.402	--	--	Pass
01 (Average)	2412.754	11.609	79.033	90.643	--	--	--

Figure Channel 01: VERTICAL (Peak)

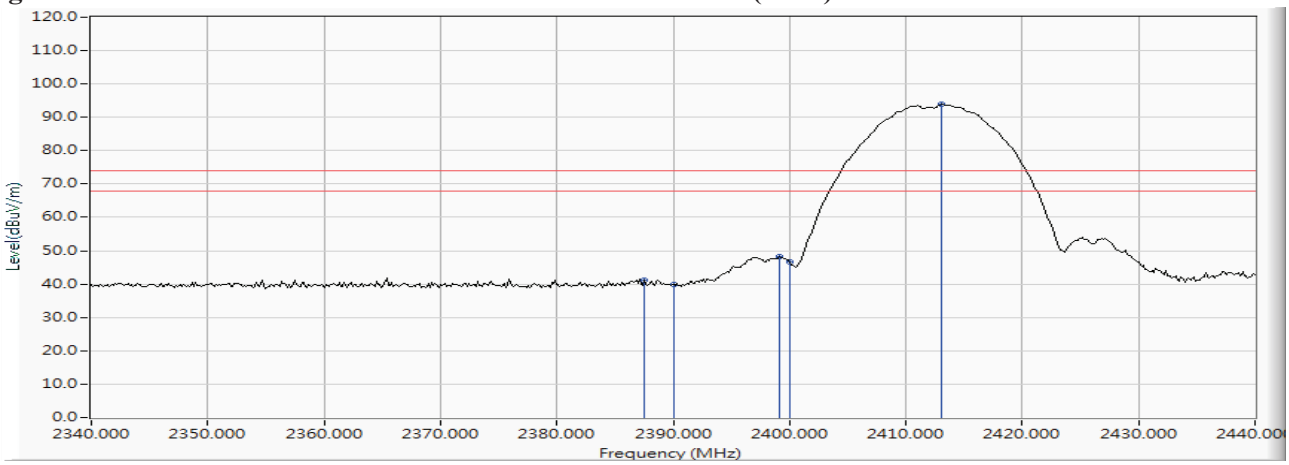
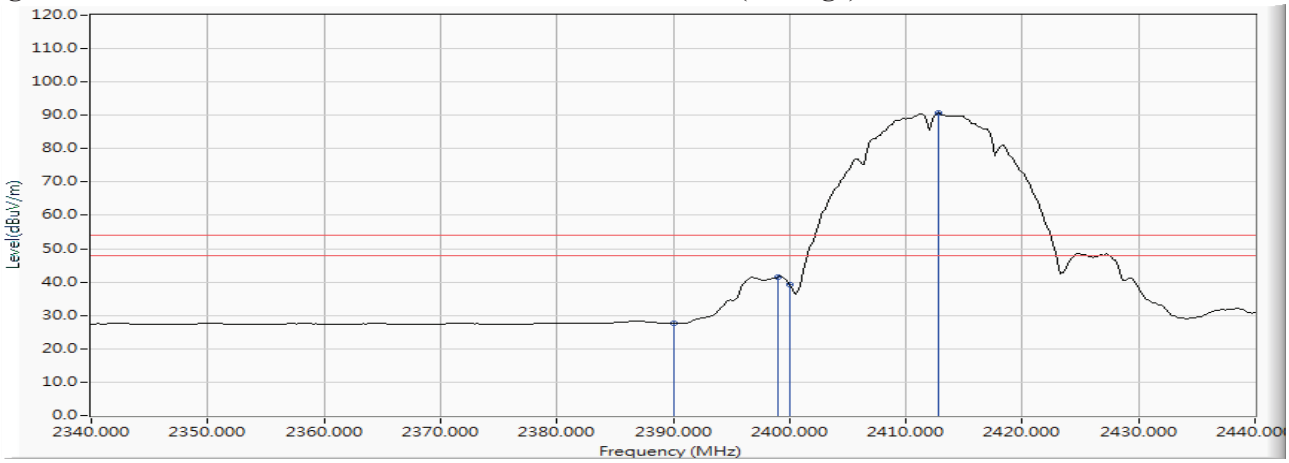


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2460.891	11.739	90.066	101.806	--	--	--
11 (Peak)	2483.500	11.800	32.213	44.013	74.00	54.00	Pass
11 (Peak)	2486.543	11.806	32.652	44.459	74.00	54.00	Pass
11 (Average)	2461.181	11.741	86.850	98.590	--	--	--
11 (Average)	2483.500	11.800	18.707	30.507	74.00	54.00	Pass
11 (Average)	2487.993	11.810	20.956	32.766	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

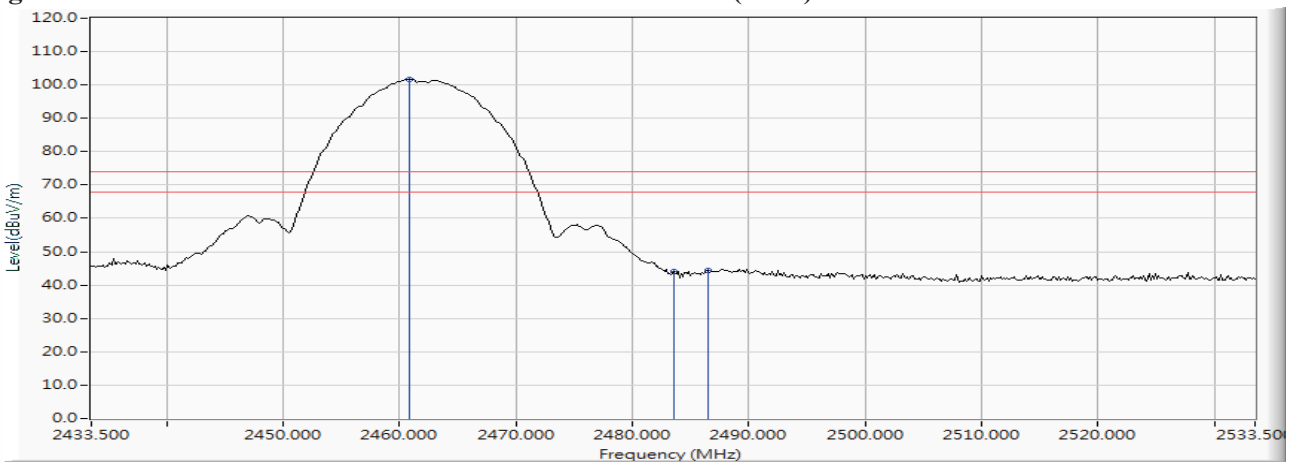
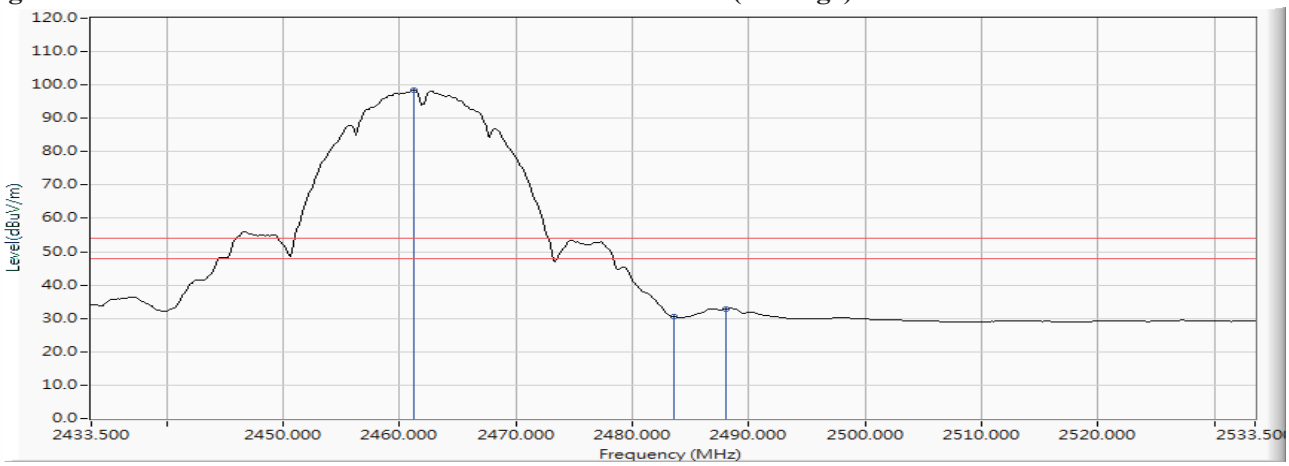


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2460.891	11.739	85.186	96.926	--	--	--
11 (Peak)	2483.500	11.800	32.367	44.167	74.00	54.00	Pass
11 (Average)	2461.181	11.741	82.017	93.757	--	--	--
11 (Average)	2483.500	11.800	17.430	29.230	74.00	54.00	Pass
11 (Average)	2486.688	11.806	18.054	29.861	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

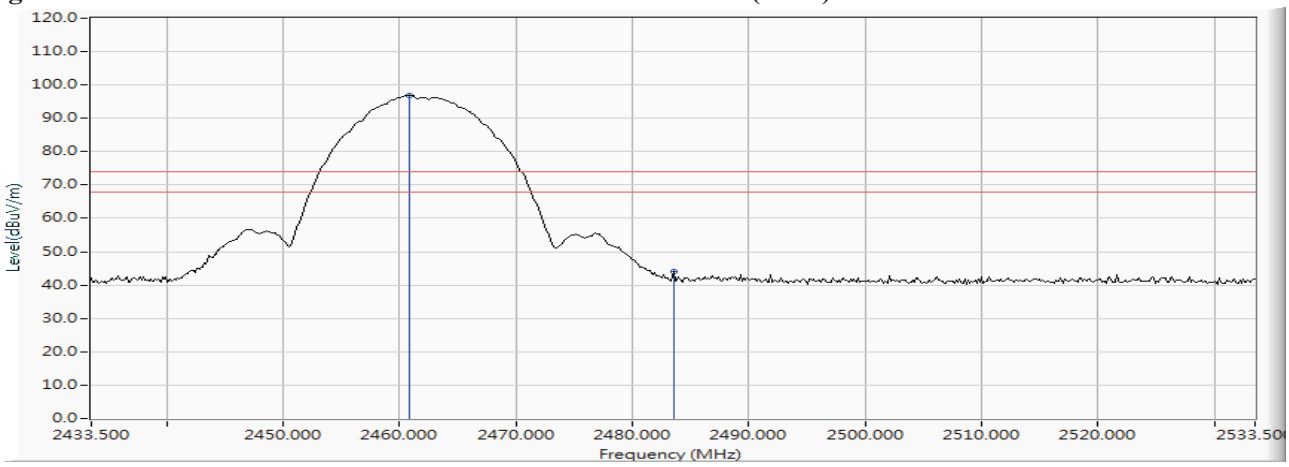
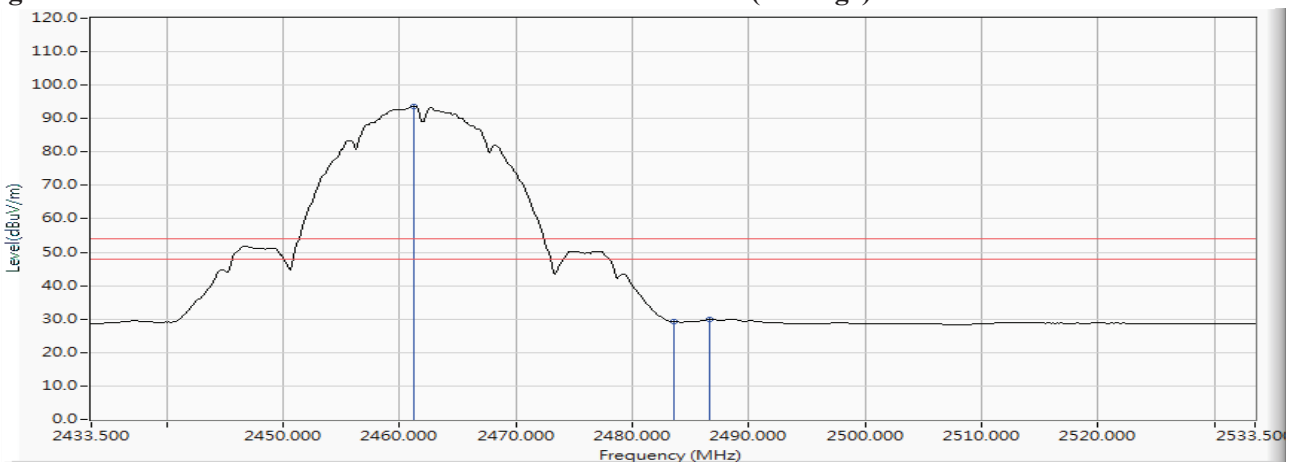


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	33.204	44.760	74.00	54.00	Pass
01 (Peak)	2396.812	11.571	38.276	49.848	--	--	Pass
01 (Peak)	2400.000	11.579	37.886	49.465	--	--	Pass
01 (Peak)	2415.652	11.617	76.020	87.636	--	--	--
01 (Average)	2390.000	11.556	17.835	29.391	74.00	54.00	Pass
01 (Average)	2400.000	11.579	25.255	36.834	--	--	Pass
01 (Average)	2416.232	11.617	65.059	76.677	--	--	--

Figure Channel 01: Horizontal (Peak)

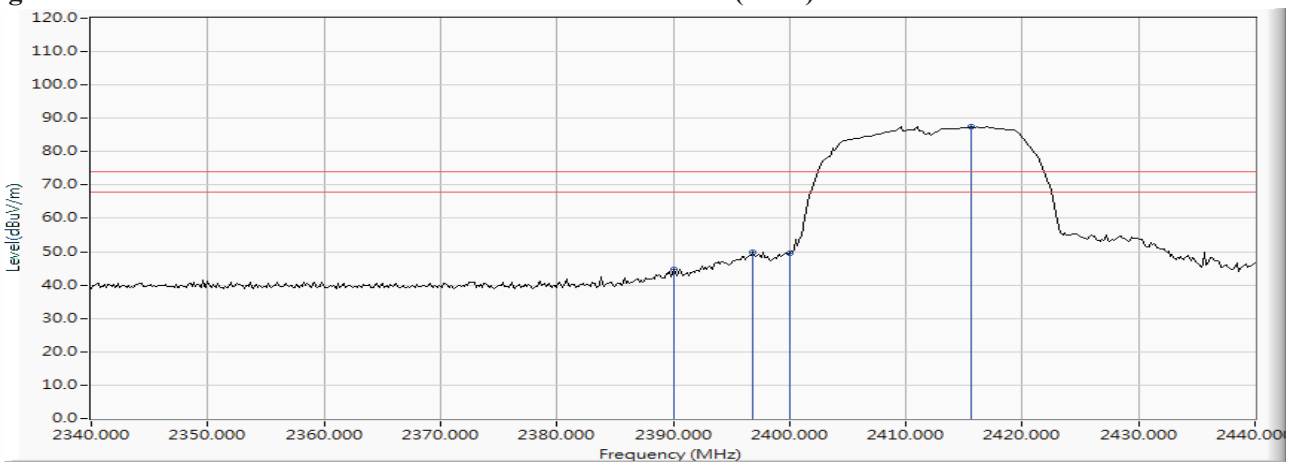
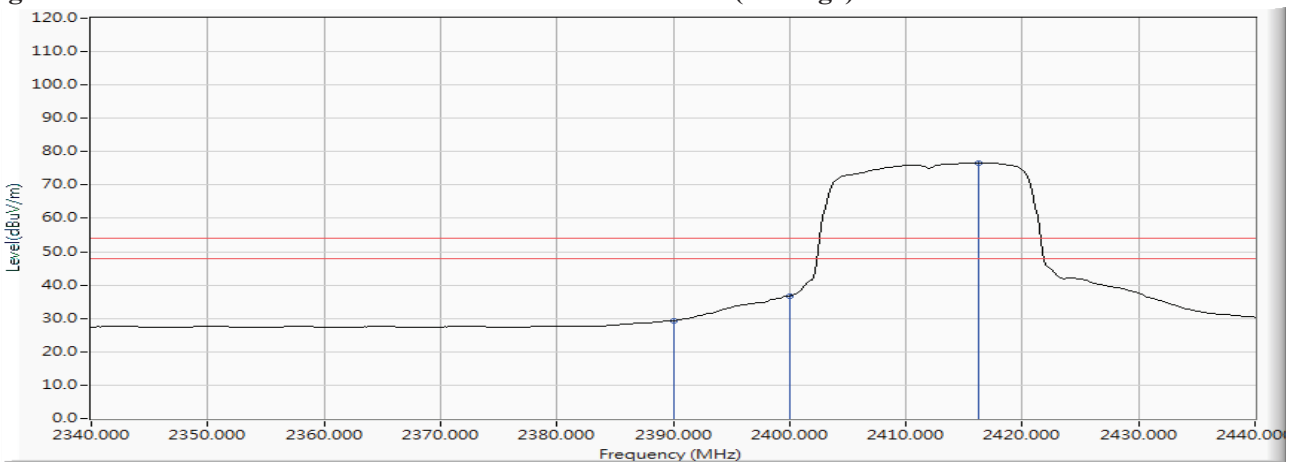


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.841	11.553	29.733	41.286	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	28.676	40.232	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	33.181	44.760	--	--	Pass
01 (Peak)	2416.522	11.618	70.307	81.926	--	--	--
01 (Average)	2390.000	11.556	16.382	27.938	74.00	54.00	Pass
01 (Average)	2400.000	11.579	20.046	31.625	--	--	Pass
01 (Average)	2416.087	11.617	59.699	71.317	--	--	--

Figure Channel 01: VERTICAL (Peak)

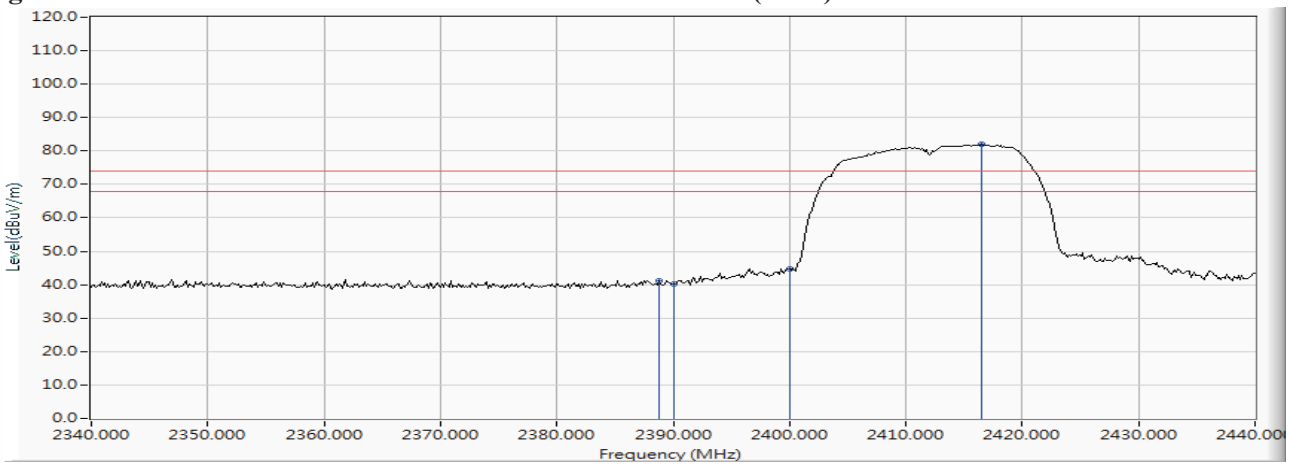
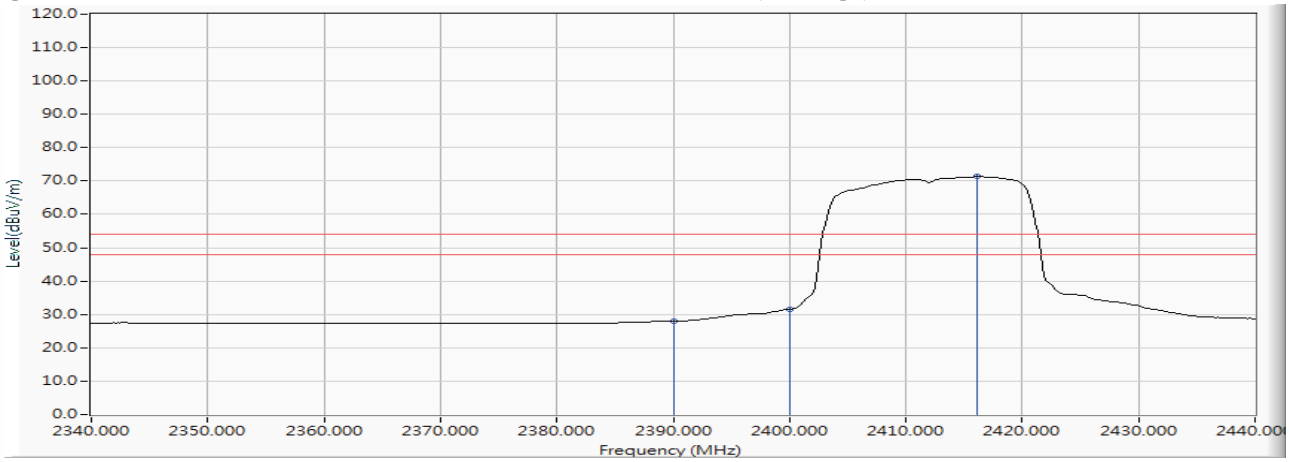


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2460.891	11.739	78.110	89.850	--	--	--
11 (Peak)	2483.500	11.800	33.997	45.797	74.00	54.00	Pass
11 (Peak)	2484.370	11.801	35.493	47.295	74.00	54.00	Pass
11 (Average)	2460.601	11.739	67.519	79.258	--	--	--
11 (Average)	2483.500	11.800	19.972	31.772	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

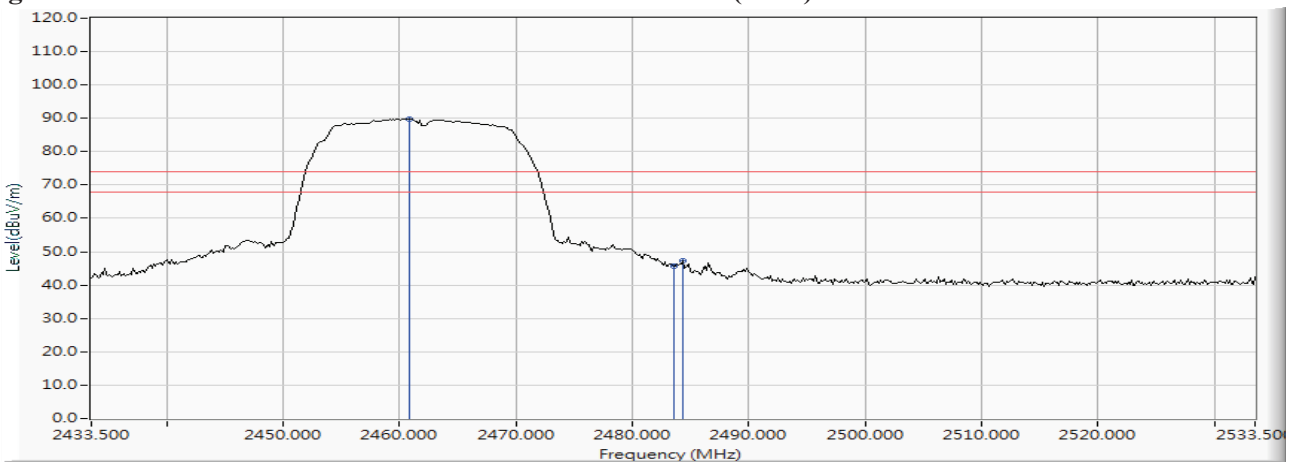
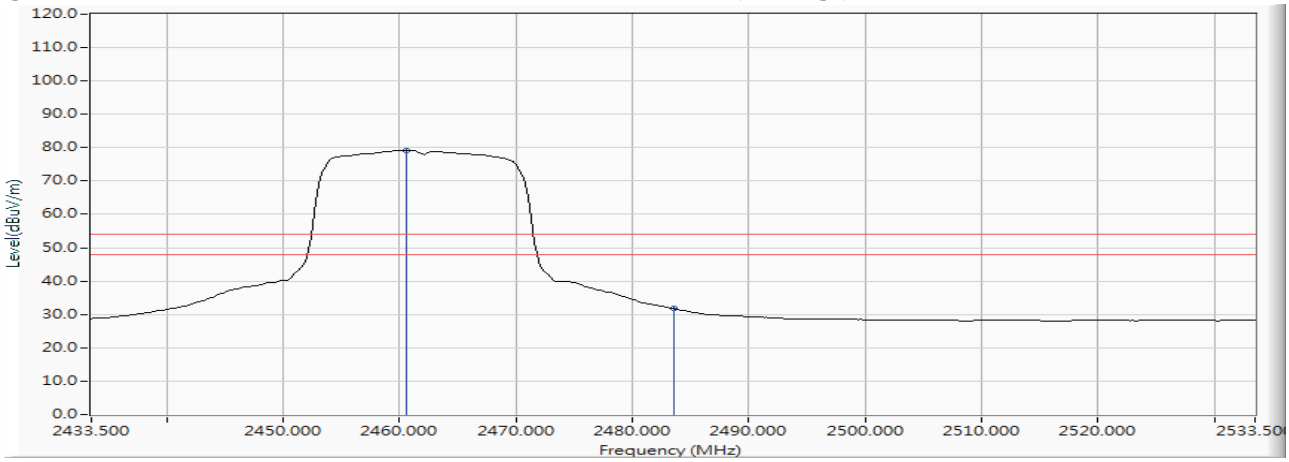


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
11 (Peak)	2460.601	11.739	73.623	85.362	--	--	--
11 (Peak)	2483.500	11.800	30.244	42.044	74.00	54.00	Pass
11 (Peak)	2484.225	11.801	30.967	42.768	74.00	54.00	Pass
11 (Average)	2460.746	11.739	63.200	74.939	--	--	--
11 (Average)	2483.500	11.800	17.804	29.604	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

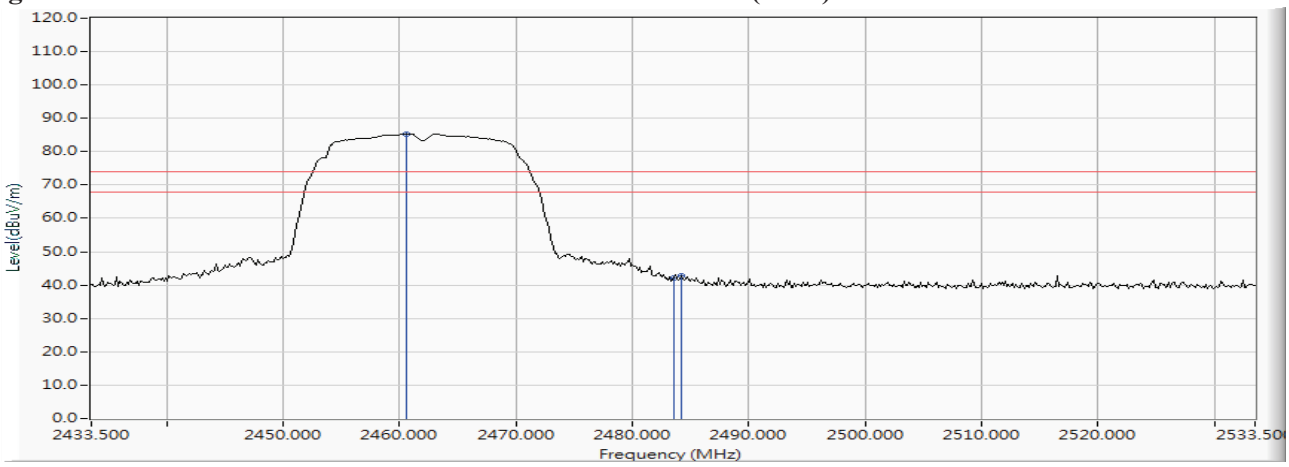
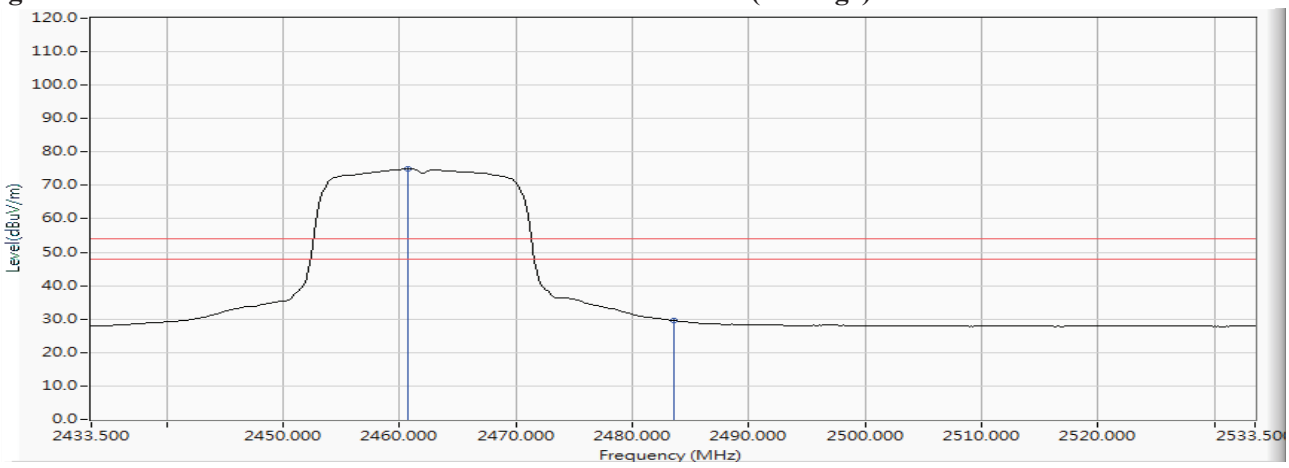


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.420	11.554	35.962	47.516	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	34.260	45.816	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	39.207	50.786	--	--	Pass
01 (Peak)	2414.638	11.614	76.599	88.213	--	--	--
01 (Average)	2390.000	11.556	17.867	29.423	74.00	54.00	Pass
01 (Average)	2400.000	11.579	25.573	37.152	--	--	Pass
01 (Average)	2415.217	11.616	63.925	75.540	--	--	--

Figure Channel 01: Horizontal (Peak)

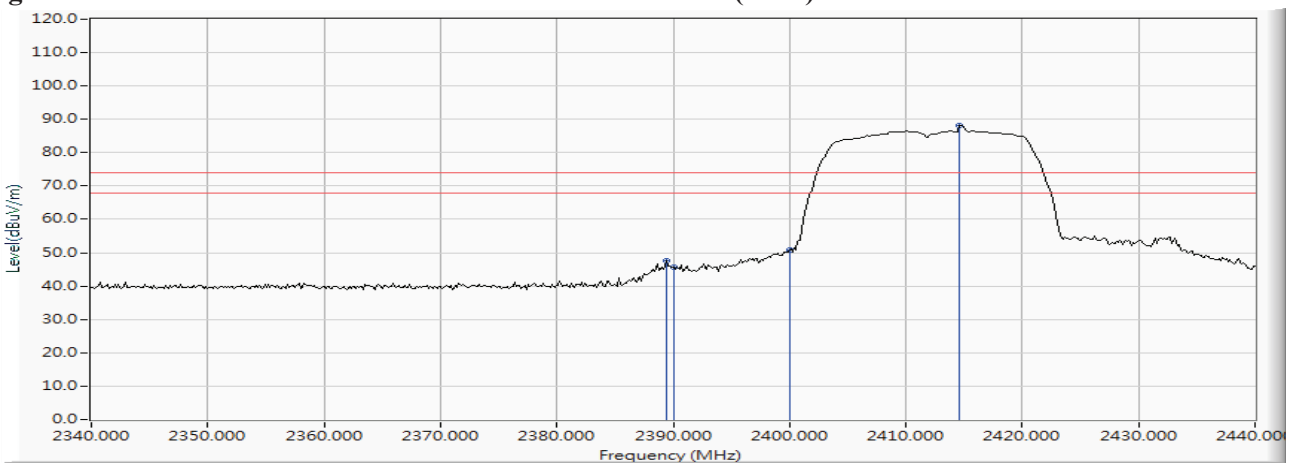
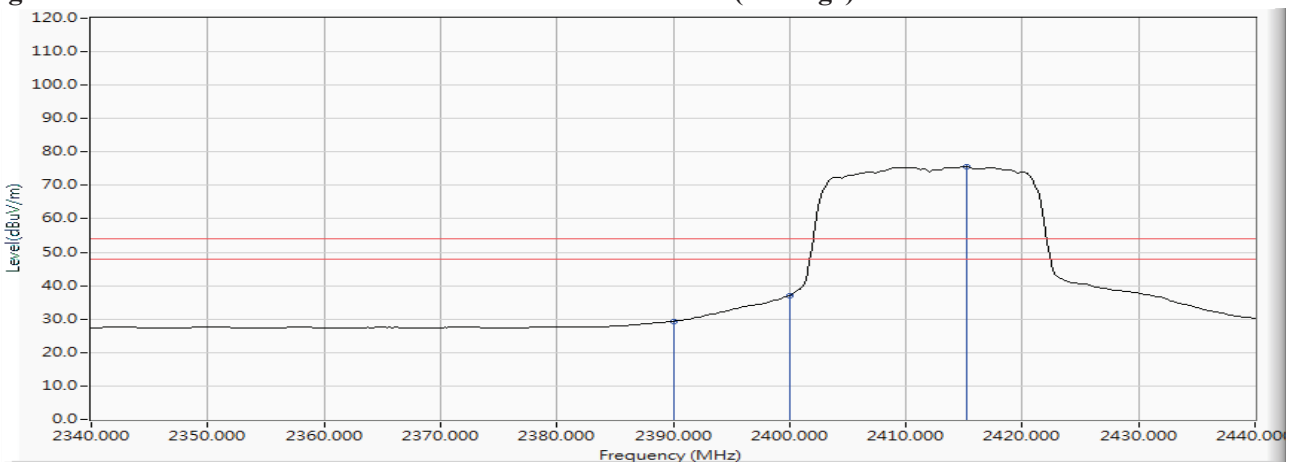


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
01 (Peak)	2388.696	11.552	31.910	43.463	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	30.361	41.917	74.00	54.00	Pass
01 (Peak)	2397.536	11.574	32.230	43.803	--	--	Pass
01 (Peak)	2400.000	11.579	31.824	43.403	--	--	Pass
01 (Peak)	2417.536	11.621	69.198	80.819	--	--	--
01 (Average)	2390.000	11.556	16.447	28.003	74.00	54.00	Pass
01 (Average)	2400.000	11.579	19.136	30.715	--	--	Pass
01 (Average)	2415.217	11.616	58.417	70.032	--	--	--

Figure Channel 01: VERTICAL (Peak)

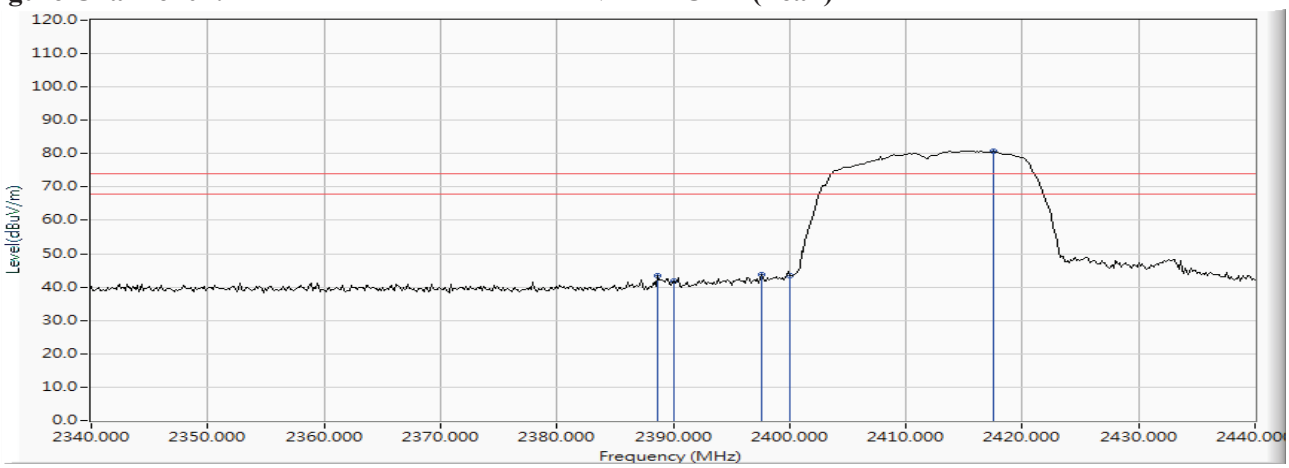
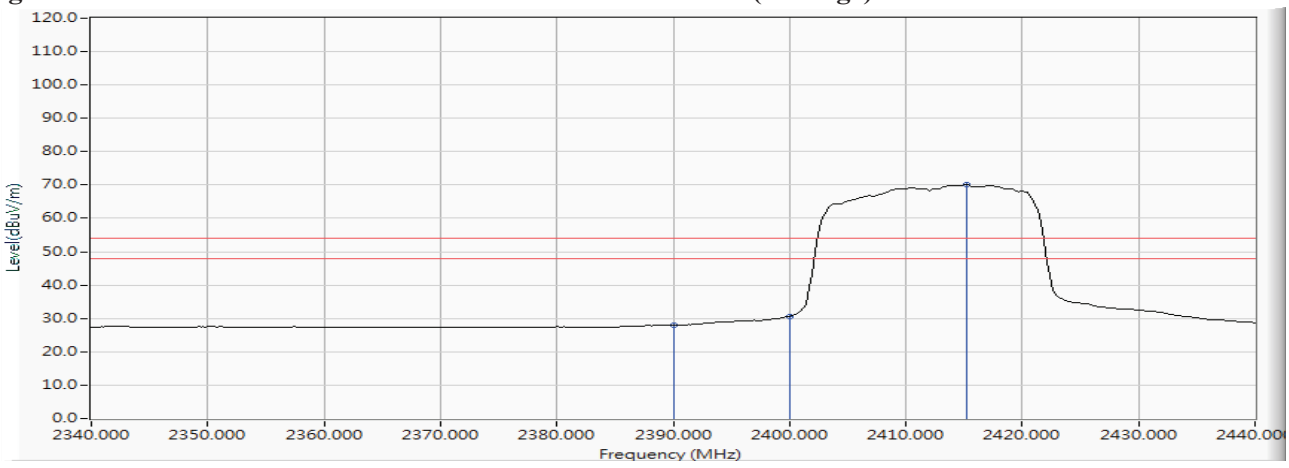


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2464.804	11.752	79.812	91.563	--	--	--
11 (Peak)	2483.500	11.800	38.060	49.860	74.00	54.00	Pass
11 (Average)	2460.457	11.739	67.772	79.510	--	--	--
11 (Average)	2483.500	11.800	21.569	33.369	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

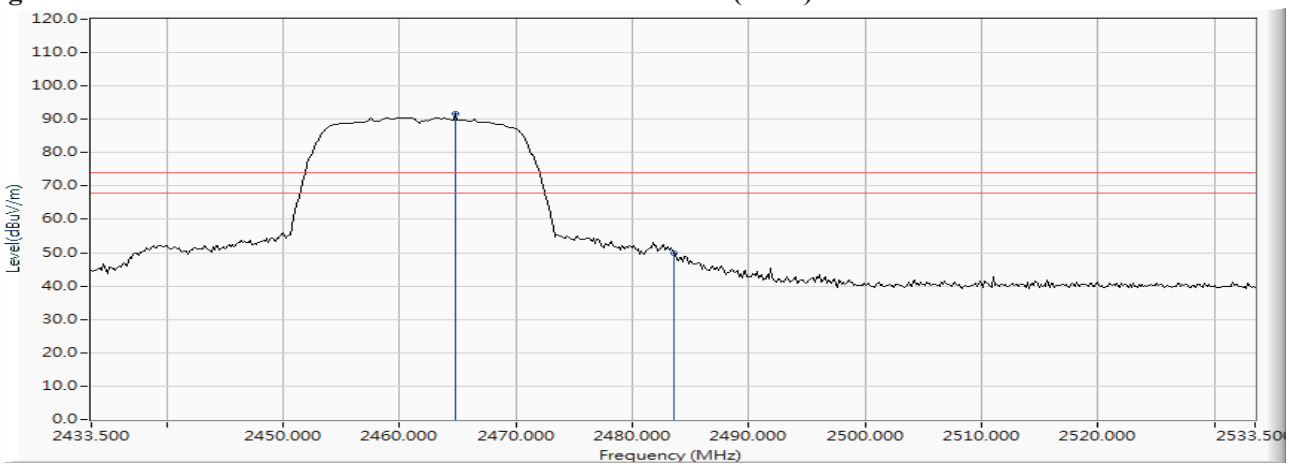
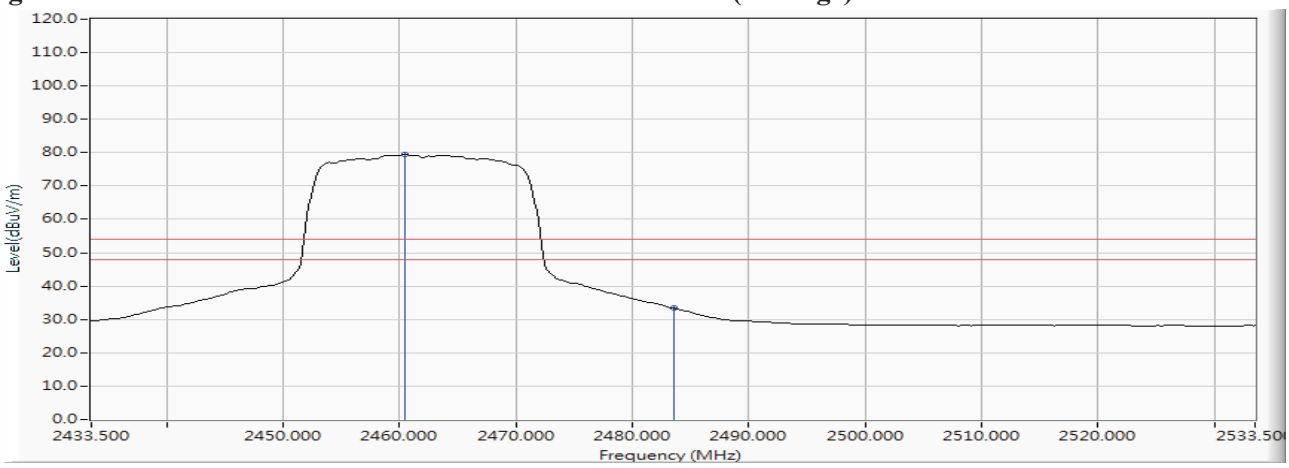


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
11 (Peak)	2464.514	11.751	72.643	84.393	--	--	--
11 (Peak)	2483.500	11.800	33.549	45.349	74.00	54.00	Pass
11 (Average)	2460.457	11.739	60.728	72.466	--	--	--
11 (Average)	2483.500	11.800	18.489	30.289	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

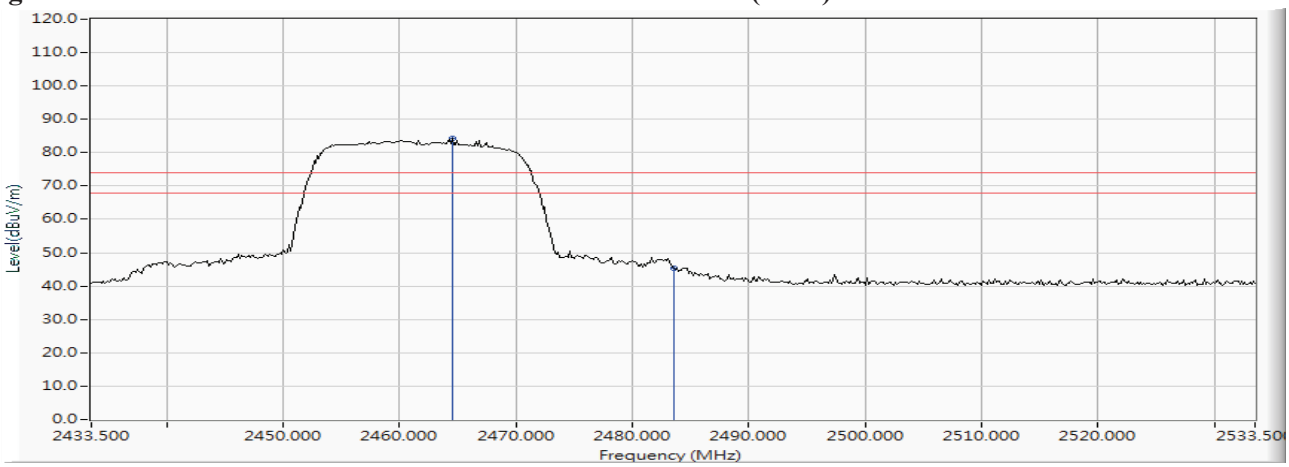
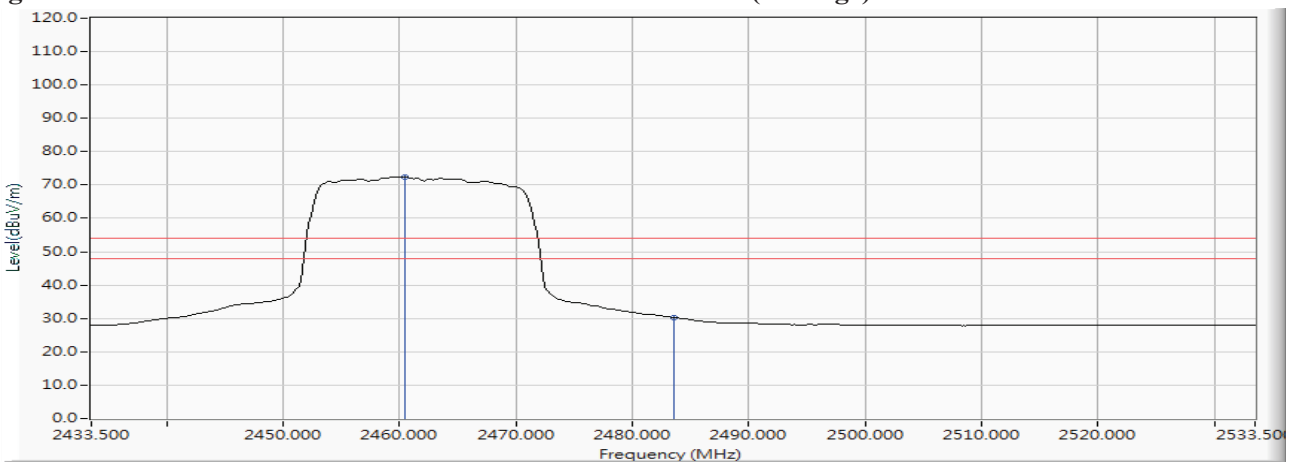


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2385.797	11.545	34.260	45.805	74.00	54.00	Pass
03 (Peak)	2390.000	11.556	33.729	45.285	74.00	54.00	Pass
03 (Peak)	2398.116	11.574	39.987	51.562	--	--	Pass
03 (Peak)	2400.000	11.579	39.390	50.969	--	--	Pass
03 (Peak)	2425.507	11.639	74.063	85.703	--	--	--
03 (Average)	2390.000	11.556	21.131	32.687	74.00	54.00	Pass
03 (Average)	2400.000	11.579	24.187	35.766	--	--	Pass
03 (Average)	2424.493	11.638	61.204	72.841	--	--	--

Figure Channel 03: Horizontal (Peak)

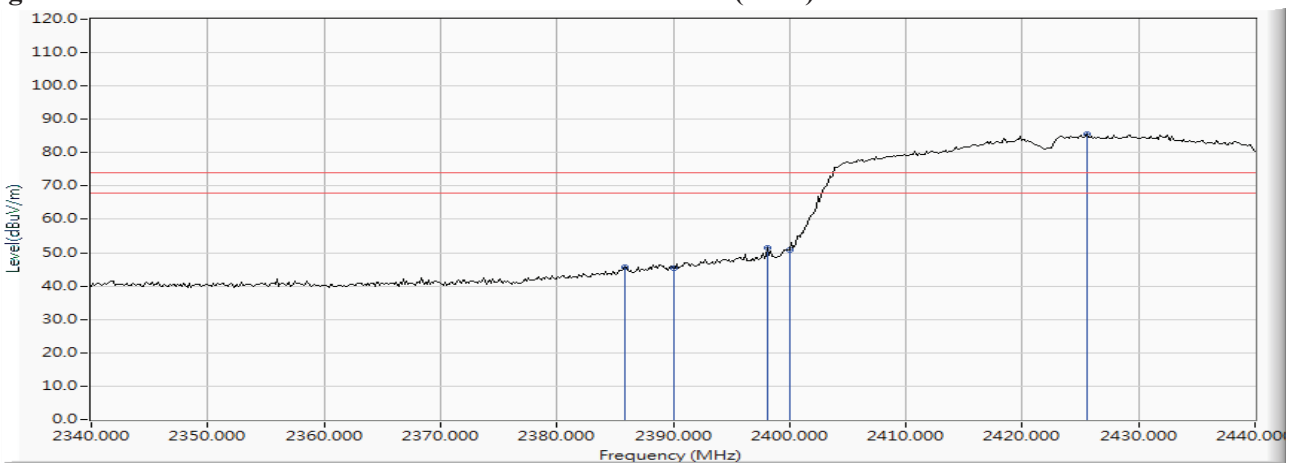
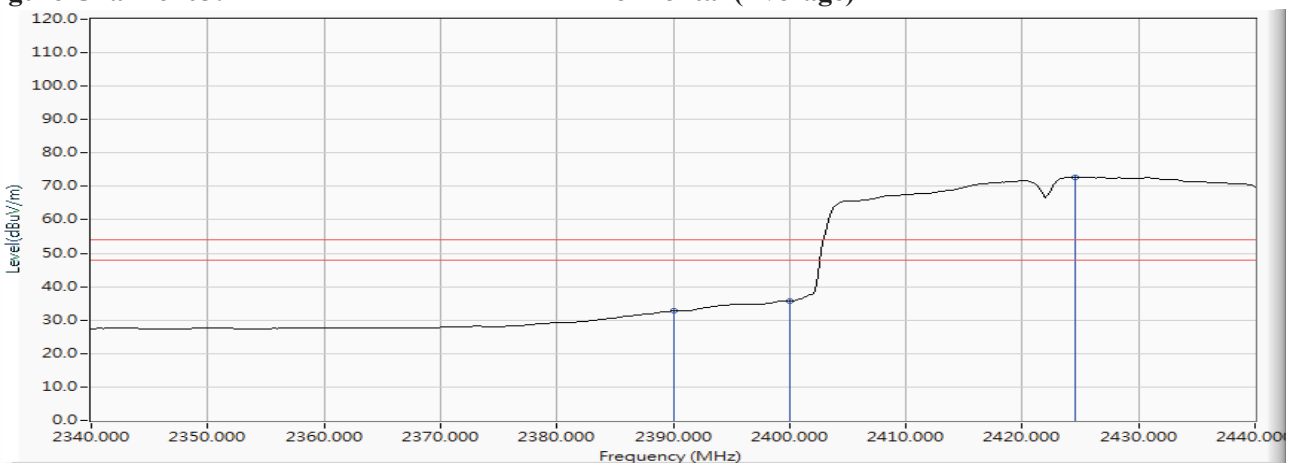


Figure Channel 03: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2390.000	11.556	30.736	42.292	74.00	54.00	Pass
03 (Peak)	2399.565	11.578	34.143	45.721	--	--	Pass
03 (Peak)	2400.000	11.579	32.091	43.670	--	--	Pass
03 (Peak)	2419.710	11.626	67.448	79.074	--	--	--
03 (Average)	2390.000	11.556	18.434	29.990	74.00	54.00	Pass
03 (Average)	2400.000	11.579	19.757	31.336	--	--	Pass
03 (Average)	2417.391	11.621	55.481	67.102	--	--	--

Figure Channel 03: VERTICAL (Peak)

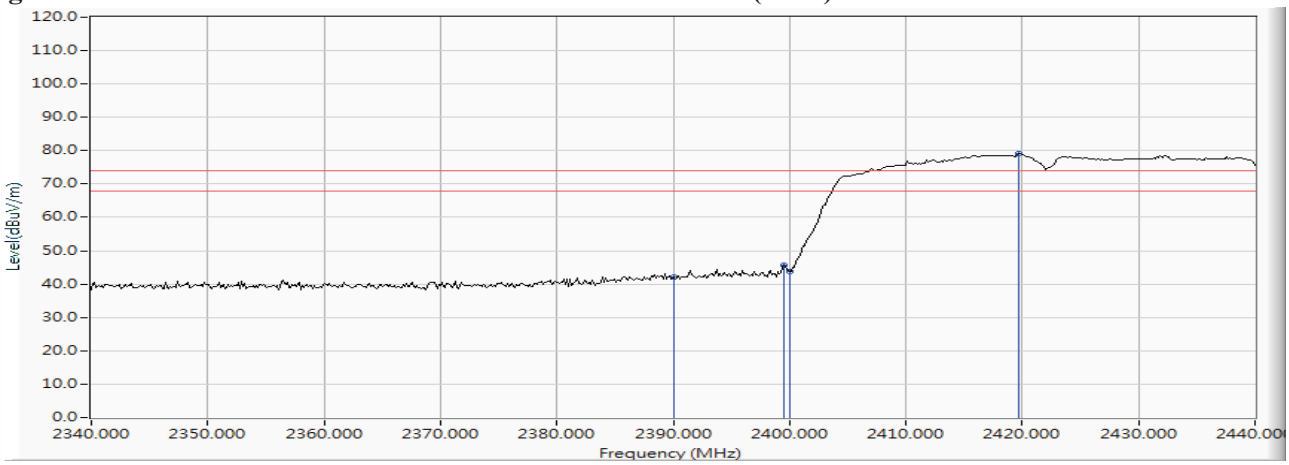
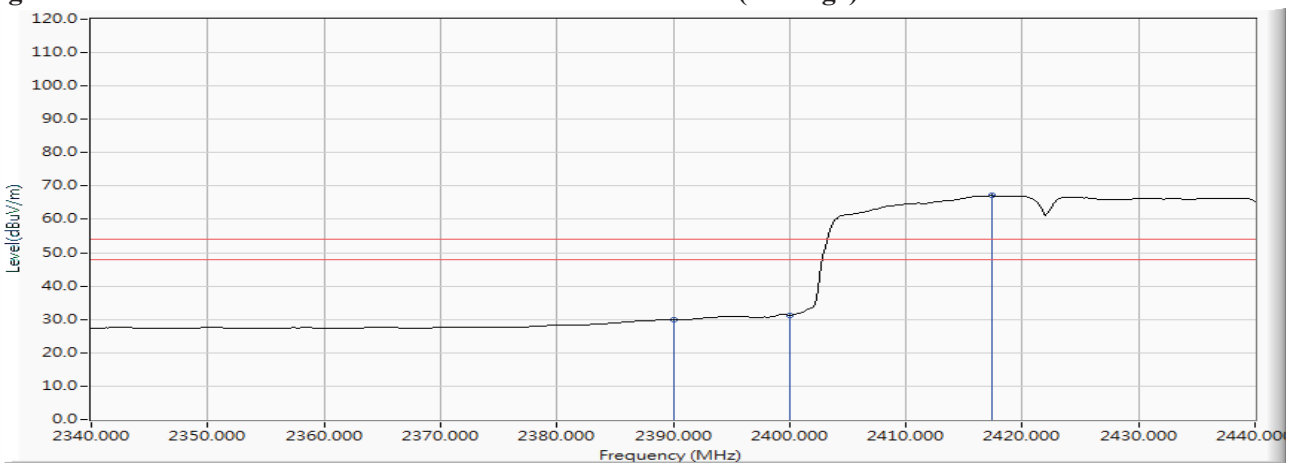


Figure Channel 03: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)
Test Date : 2017/06/02

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
09 (Peak)	2460.601	11.739	76.099	87.838	--	--	--
09 (Peak)	2483.500	11.800	39.415	51.215	74.00	54.00	Pass
09 (Peak)	2485.674	11.805	40.527	52.332	74.00	54.00	Pass
09 (Average)	2454.225	11.719	63.240	74.959	--	--	--
09 (Average)	2483.500	11.800	26.733	38.533	74.00	54.00	Pass

Figure Channel 09: Horizontal (Peak)

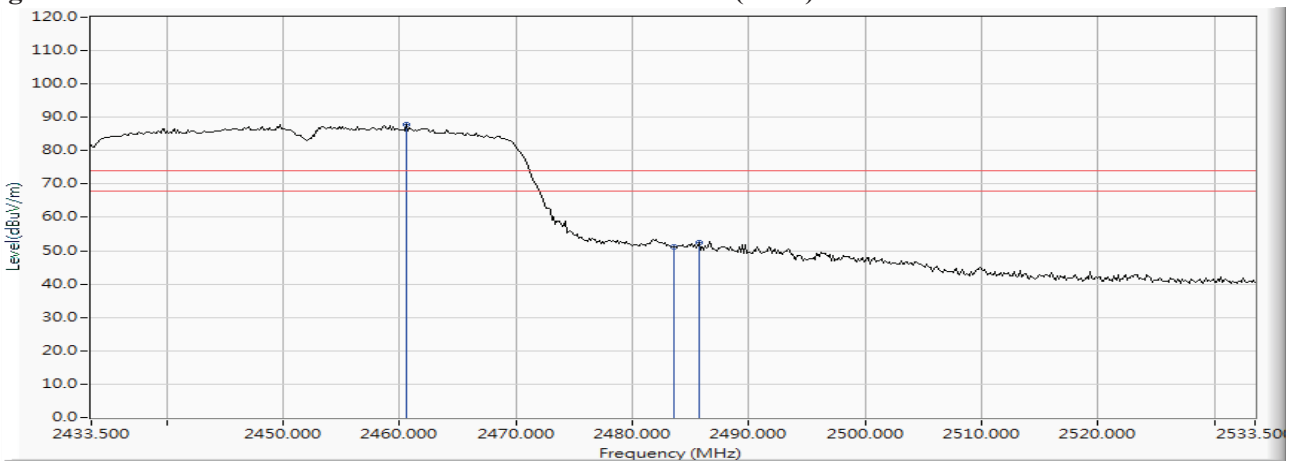
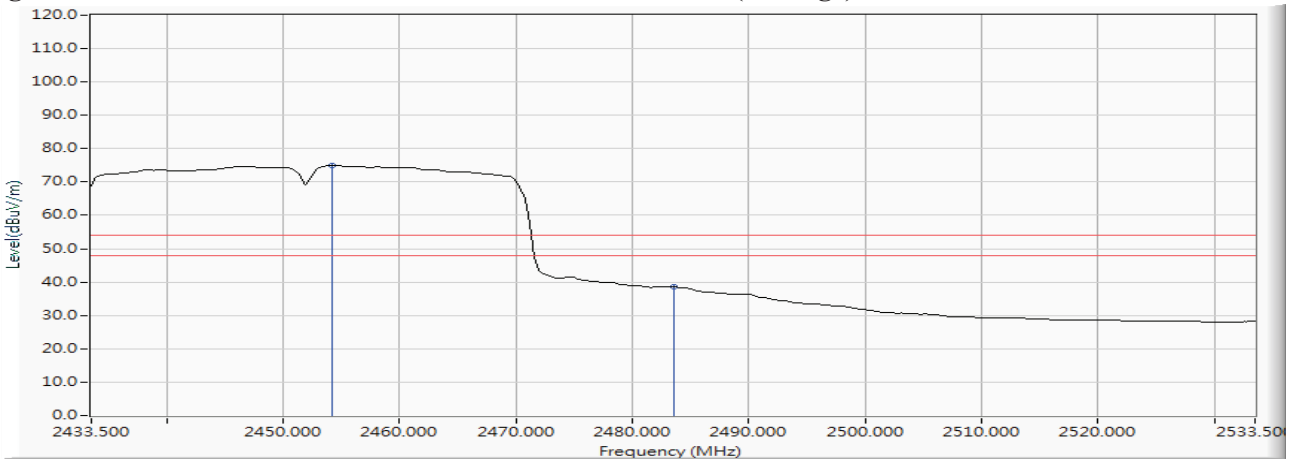


Figure Channel 09: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bike Navigation computer
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)
Test Date : 2017/06/02

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2449.587	11.707	71.026	82.732	--	--	--
09 (Peak)	2483.500	11.800	35.140	46.940	74.00	54.00	Pass
09 (Peak)	2485.239	11.804	36.221	48.025	74.00	54.00	Pass
09 (Average)	2454.080	11.719	58.828	70.547	--	--	--
09 (Average)	2483.500	11.800	23.133	34.933	74.00	54.00	Pass

Figure Channel 09: VERTICAL (Peak)

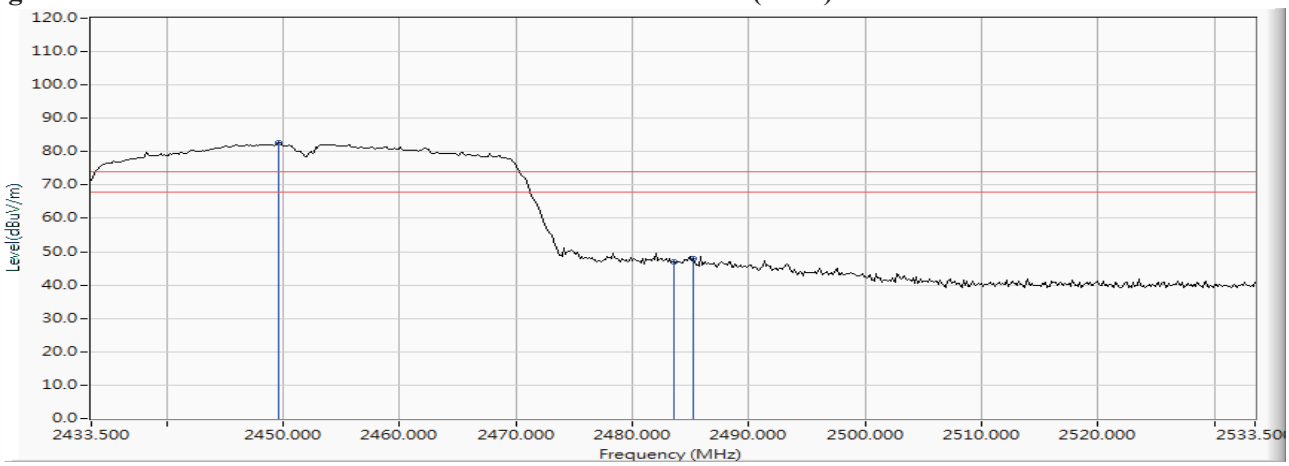
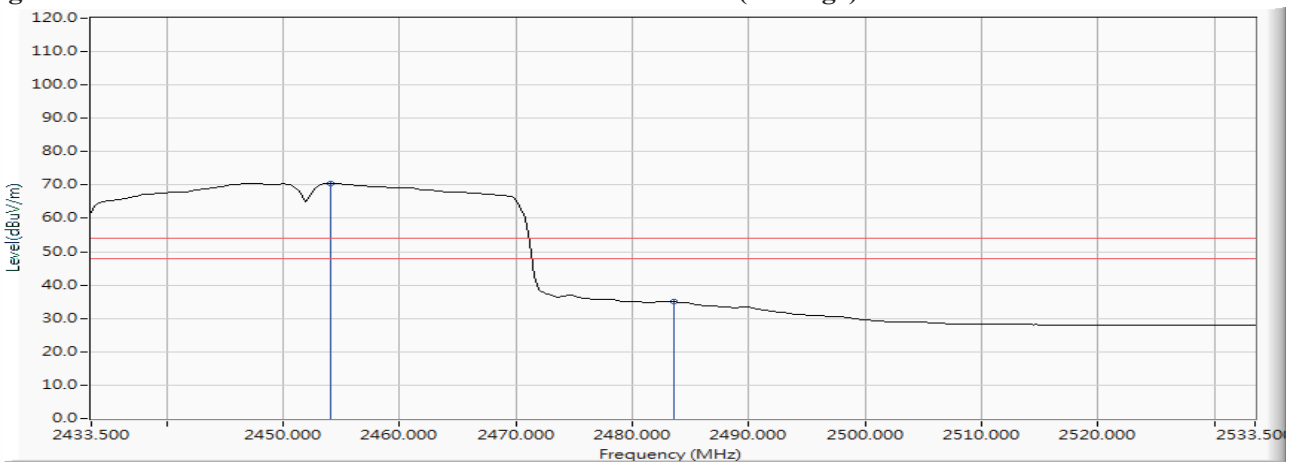


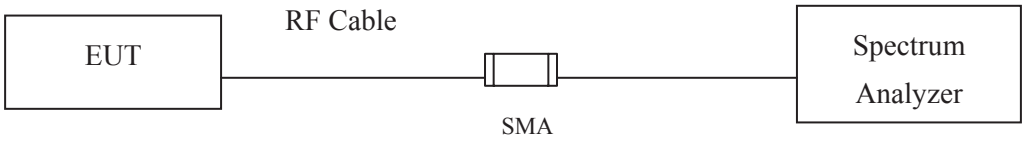
Figure Channel 09: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

± 279.2Hz

7.5. Test Result of 6dB Bandwidth

Product : Bike Navigation computer
Test Item : 6dB Bandwidth Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	9150	>500	Pass
06	2437	8700	>500	Pass
11	2462	9150	>500	Pass

Figure Channel 01:

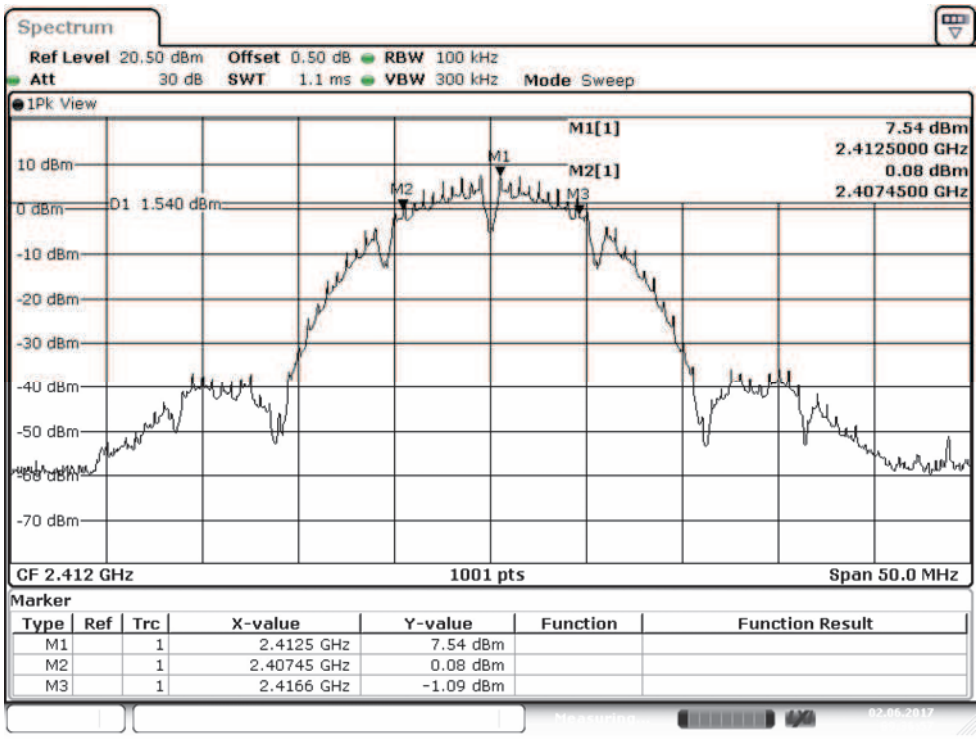


Figure Channel 06:

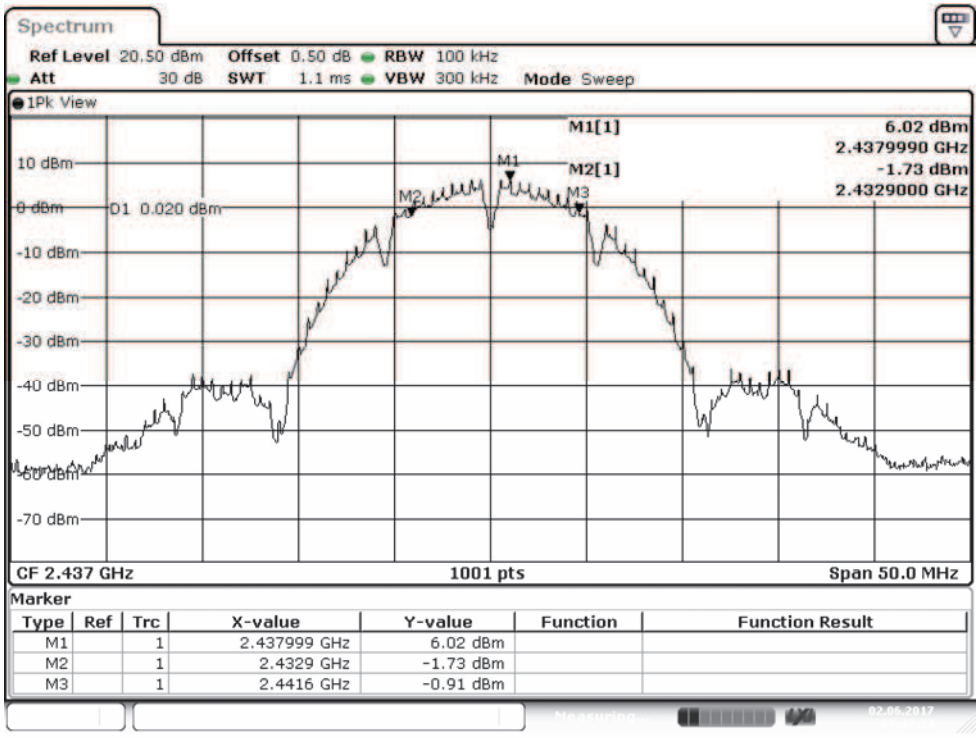
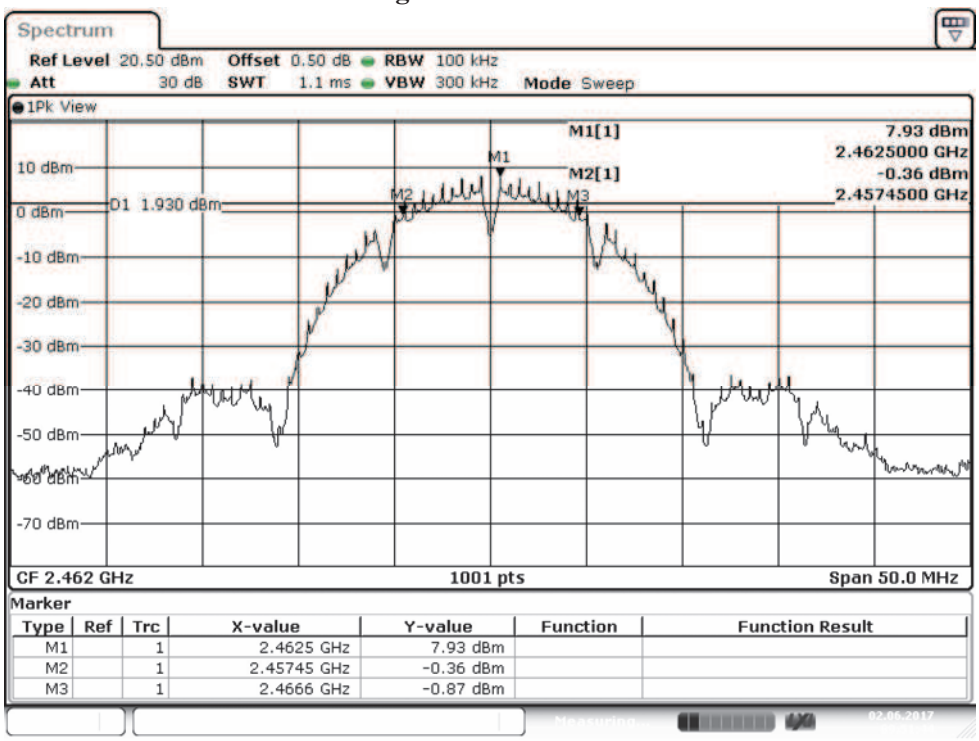


Figure Channel 11:



Product : Bike Navigation computer
Test Item : 6dB Bandwidth Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15750	>500	Pass
06	2437	15750	>500	Pass
11	2462	15750	>500	Pass

Figure Channel 01:

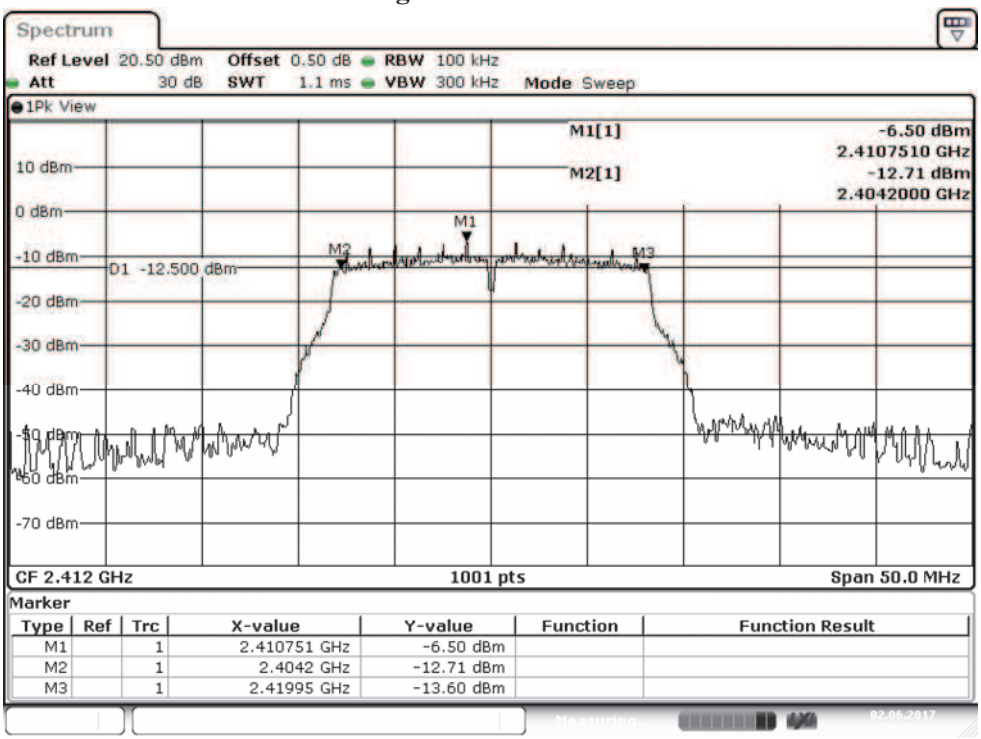


Figure Channel 06:

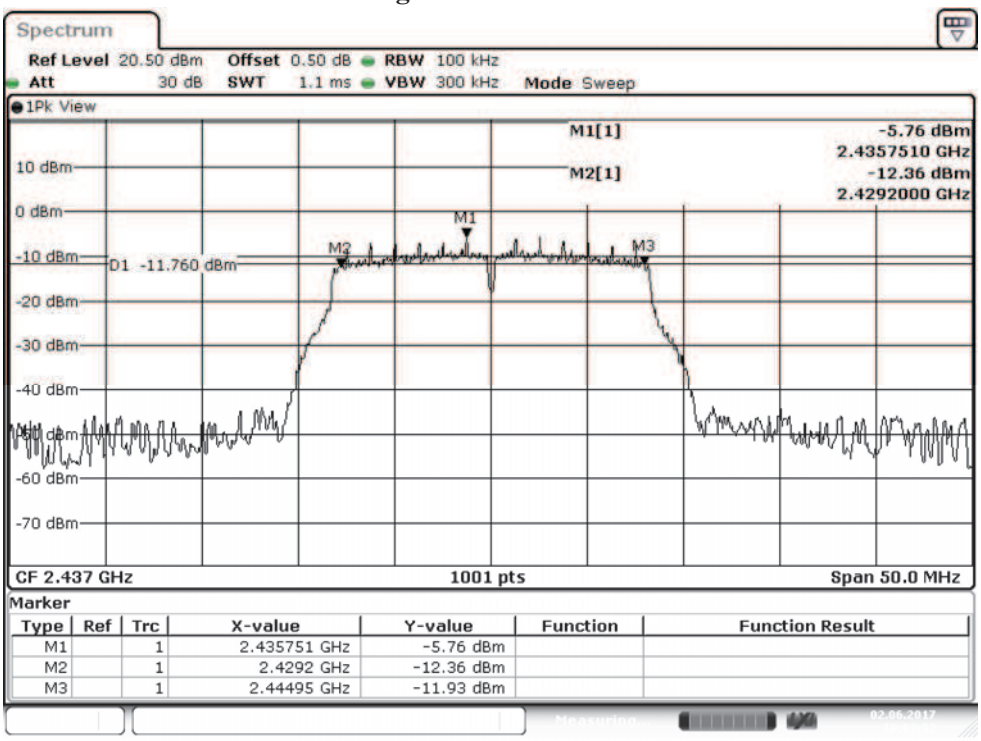
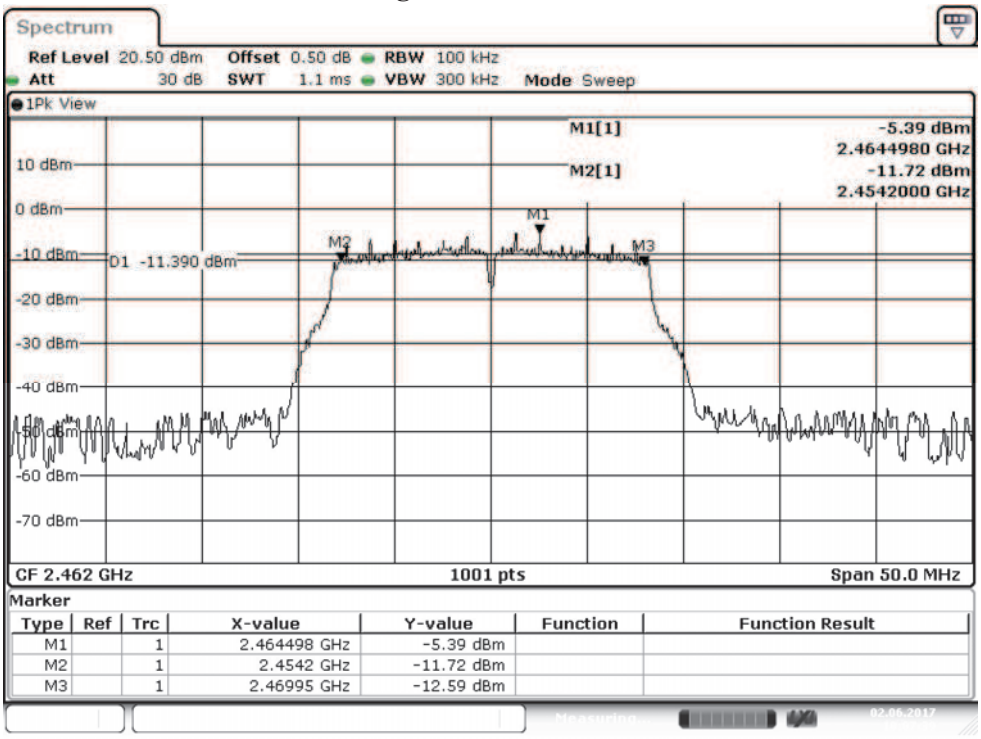


Figure Channel 11:



Product : Bike Navigation computer
Test Item : 6dB Bandwidth Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16950	>500	Pass
06	2437	16900	>500	Pass
11	2462	16850	>500	Pass

Figure Channel 01:

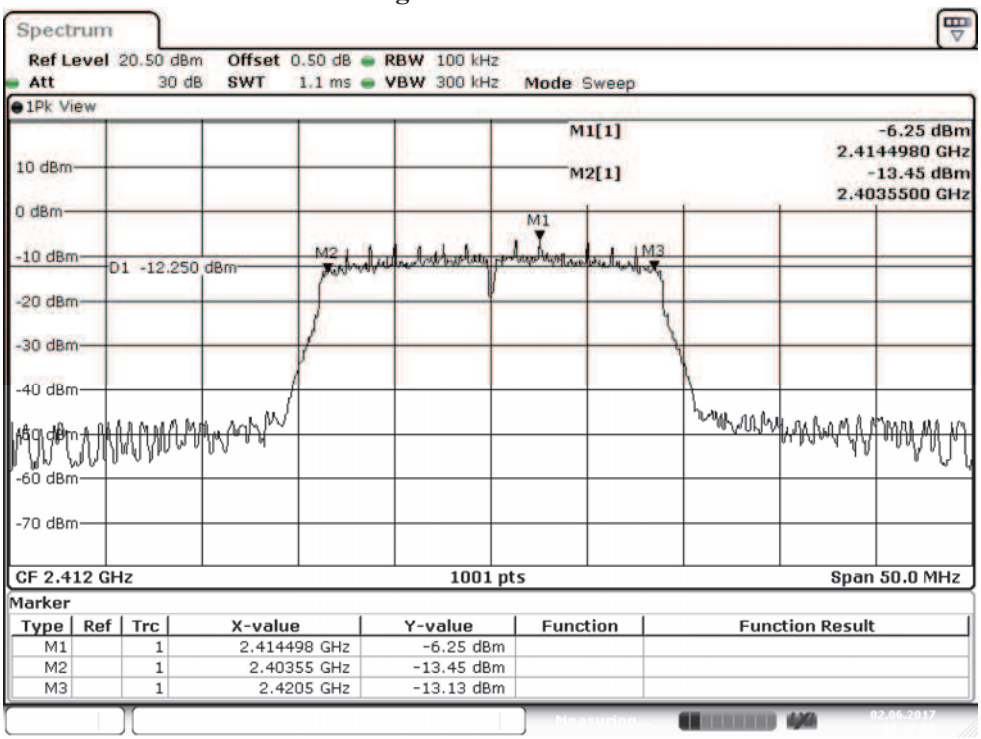


Figure Channel 06:

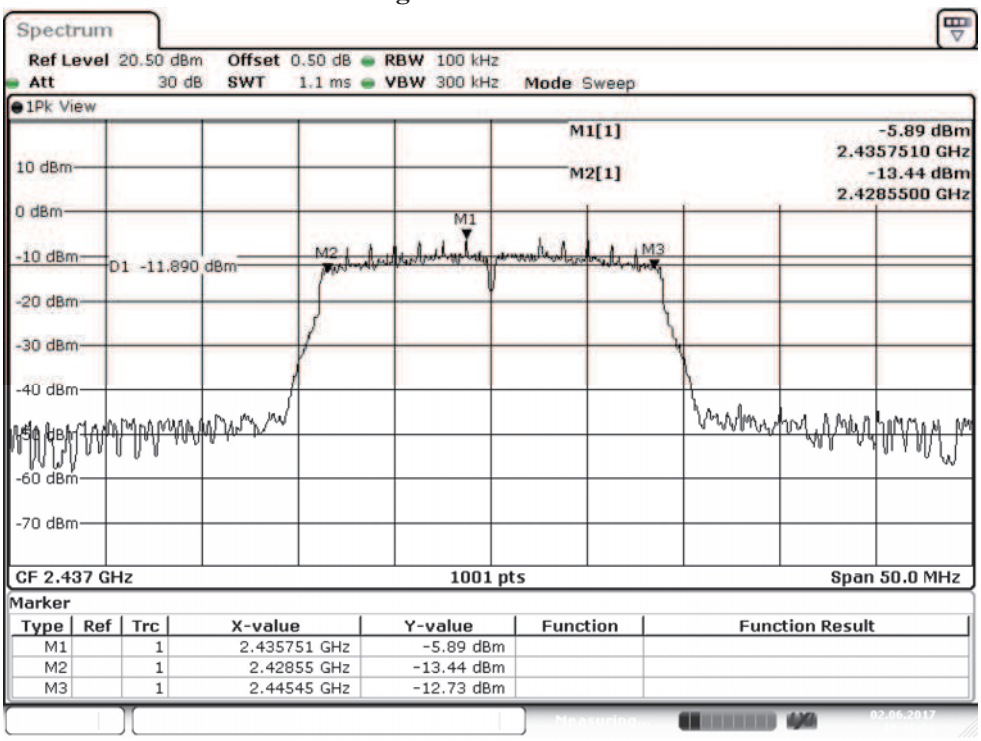
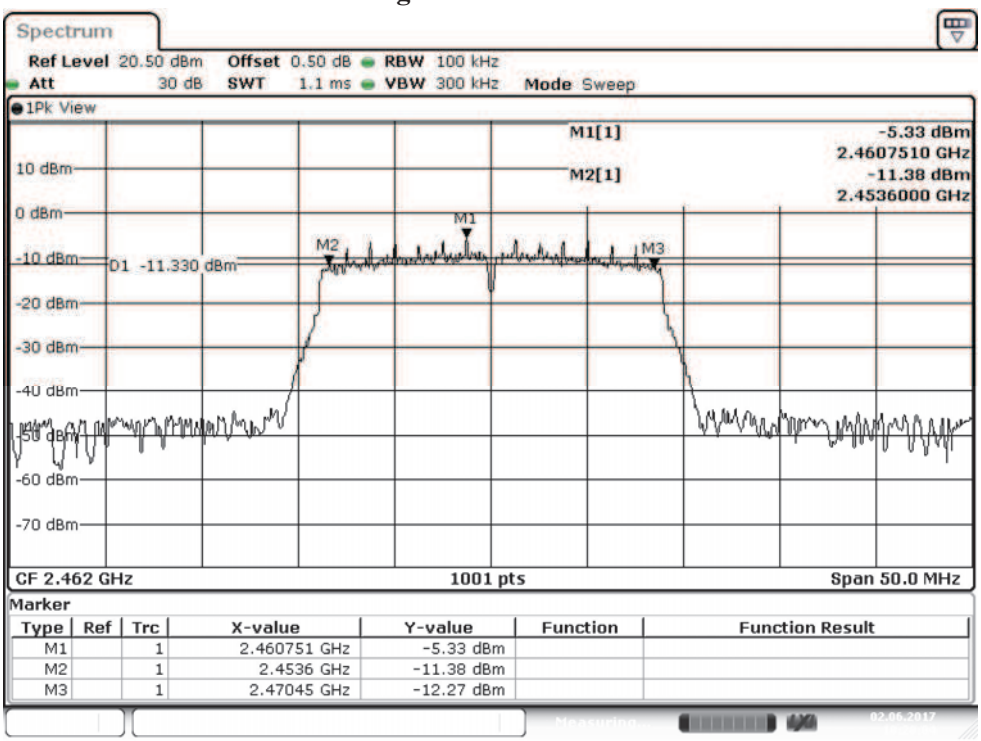


Figure Channel 11:



Product : Bike Navigation computer
Test Item : 6dB Bandwidth Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	35300	>500	Pass
06	2437	35300	>500	Pass
09	2452	35300	>500	Pass

Figure Channel 03:

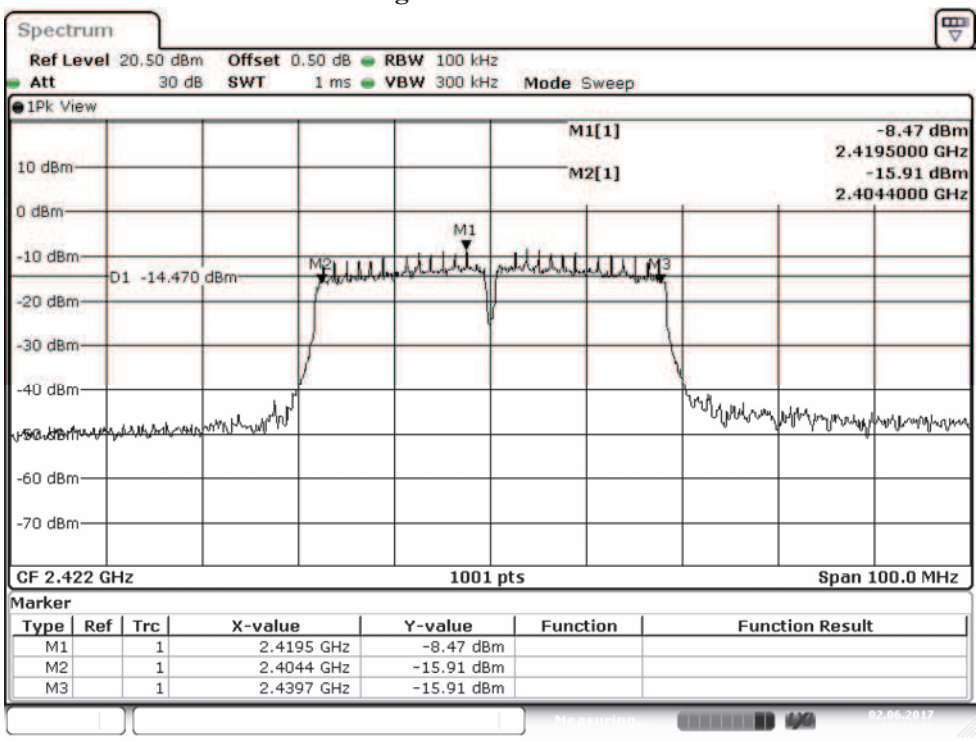


Figure Channel 06:

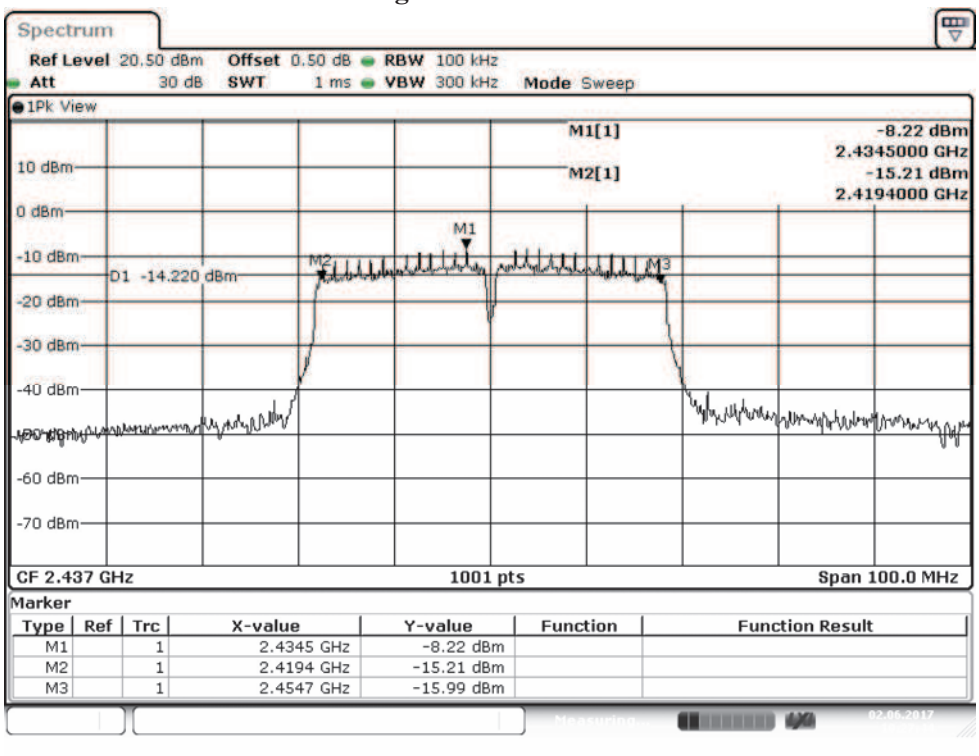
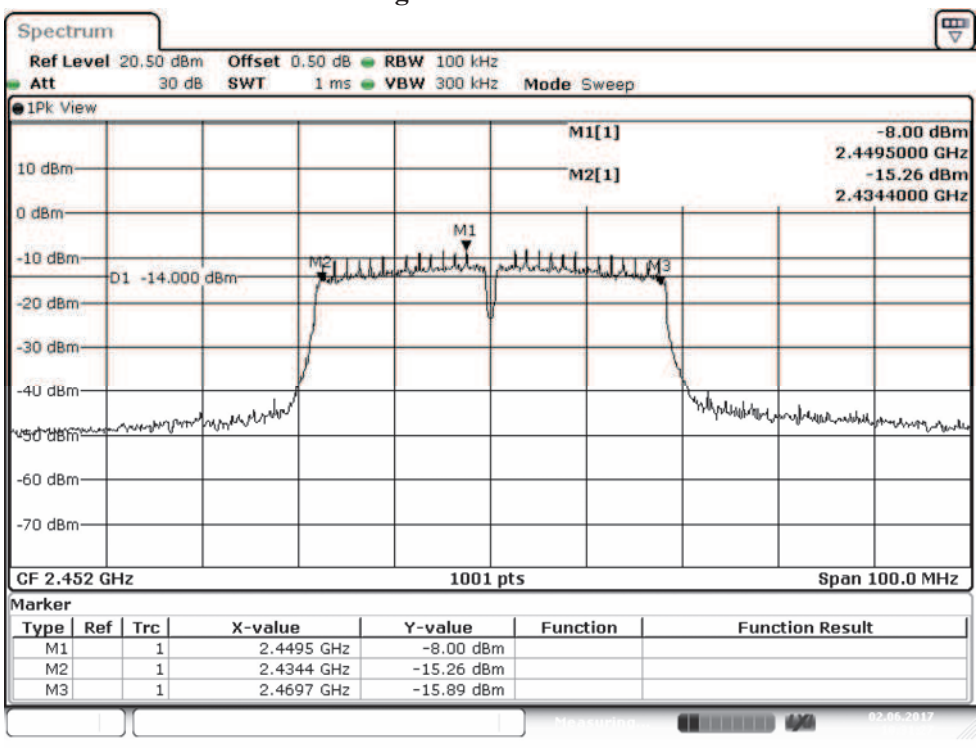
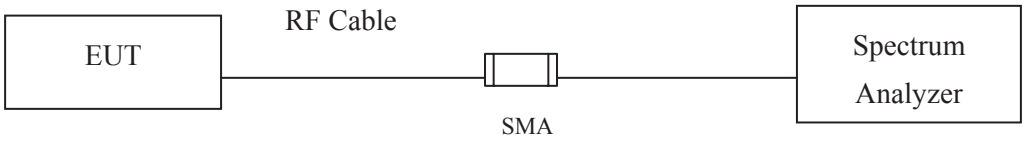


Figure Channel 09:



8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.4. Uncertainty

± 1.23 dB

8.5. Test Result of Power Density

Product : Bike Navigation computer
Test Item : Power Density Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	7.55	≦8dBm	Pass
06	2437	7.83	≦8dBm	Pass
11	2462	7.94	≦8dBm	Pass

Figure Channel 01:

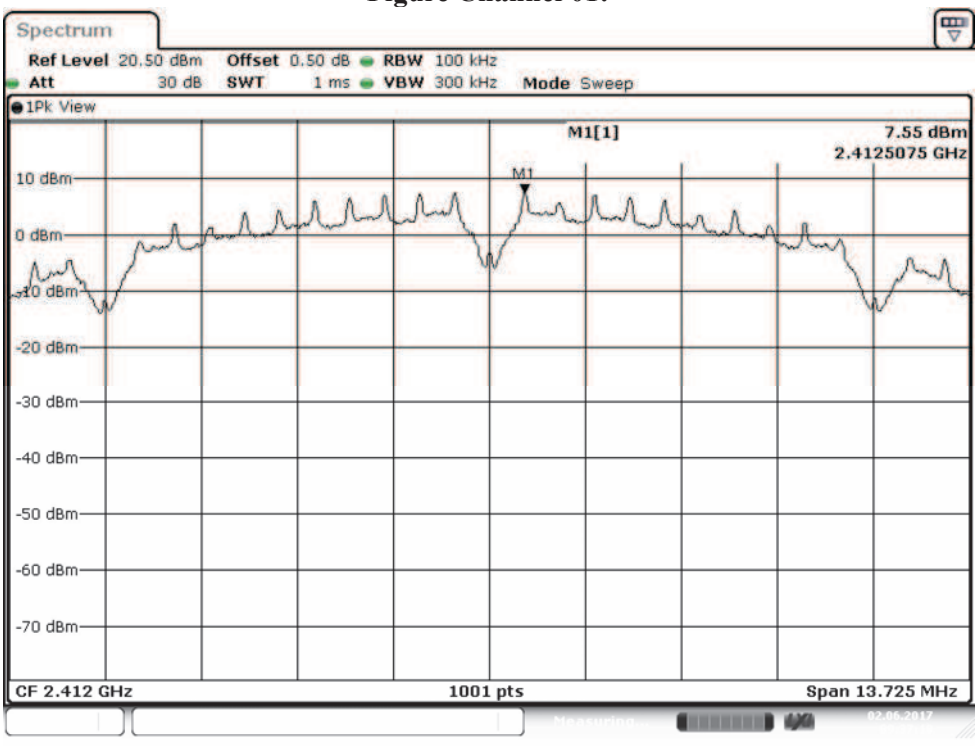


Figure Channel 06:

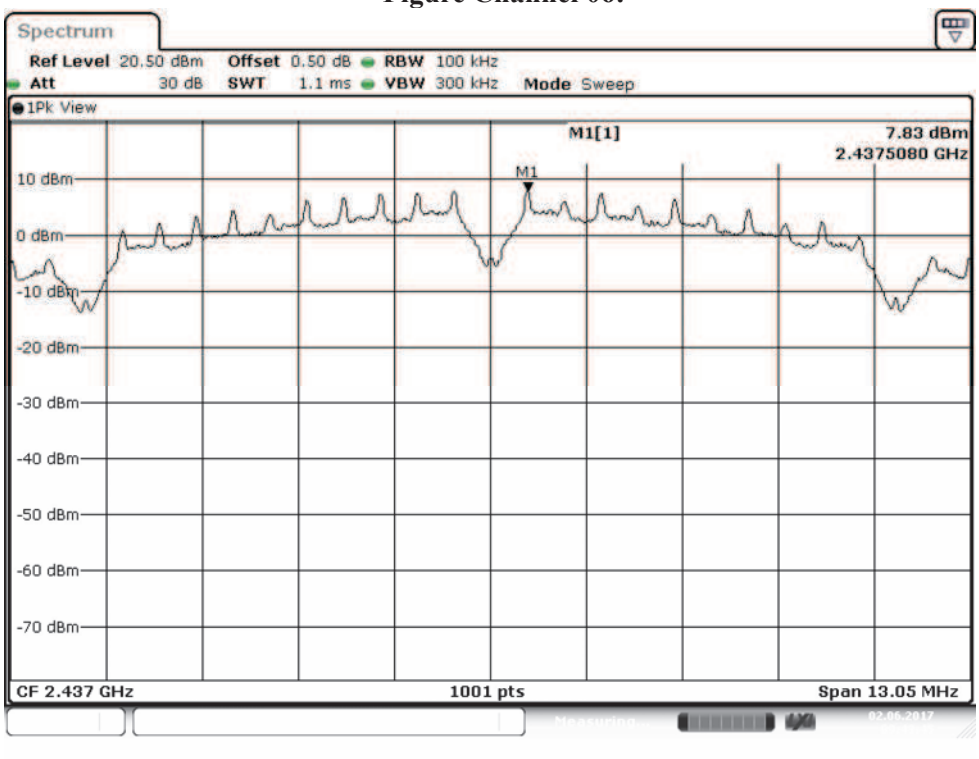
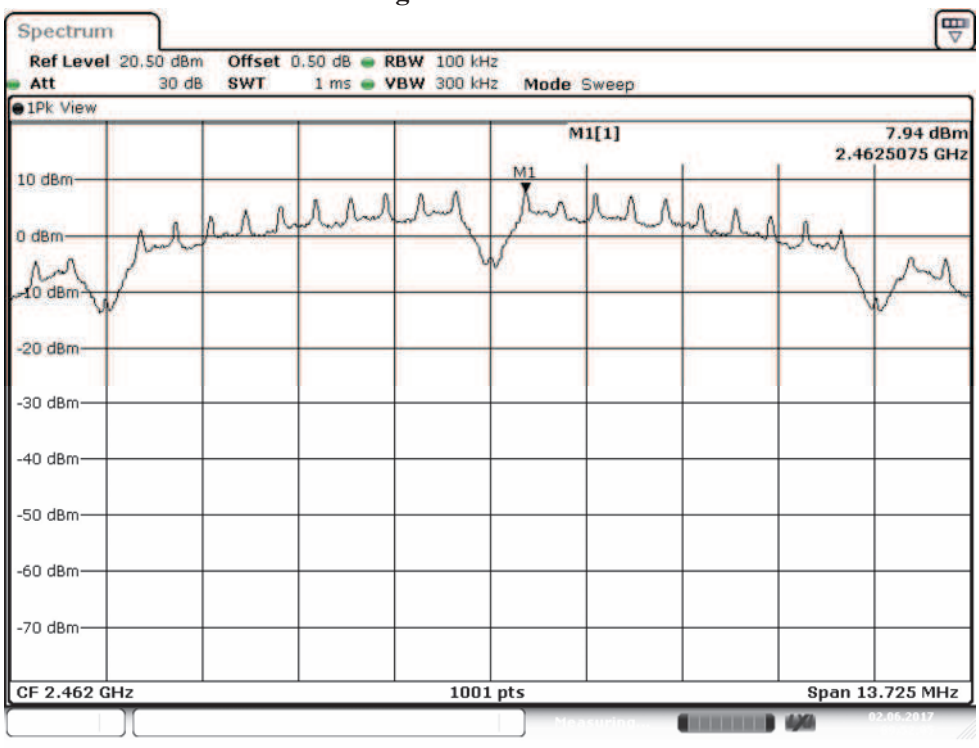


Figure Channel 11:



Product : Bike Navigation computer
Test Item : Power Density Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-6.45	≦8dBm	Pass
06	2437	-5.79	≦8dBm	Pass
11	2462	-5.47	≦8dBm	Pass

Figure Channel 01:

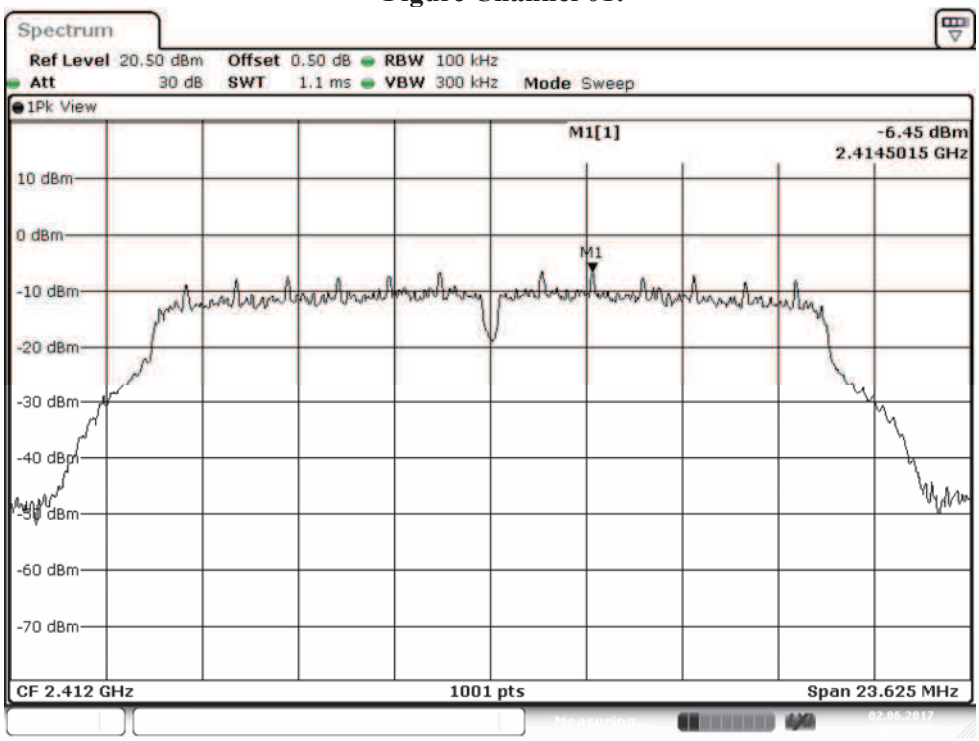


Figure Channel 06:

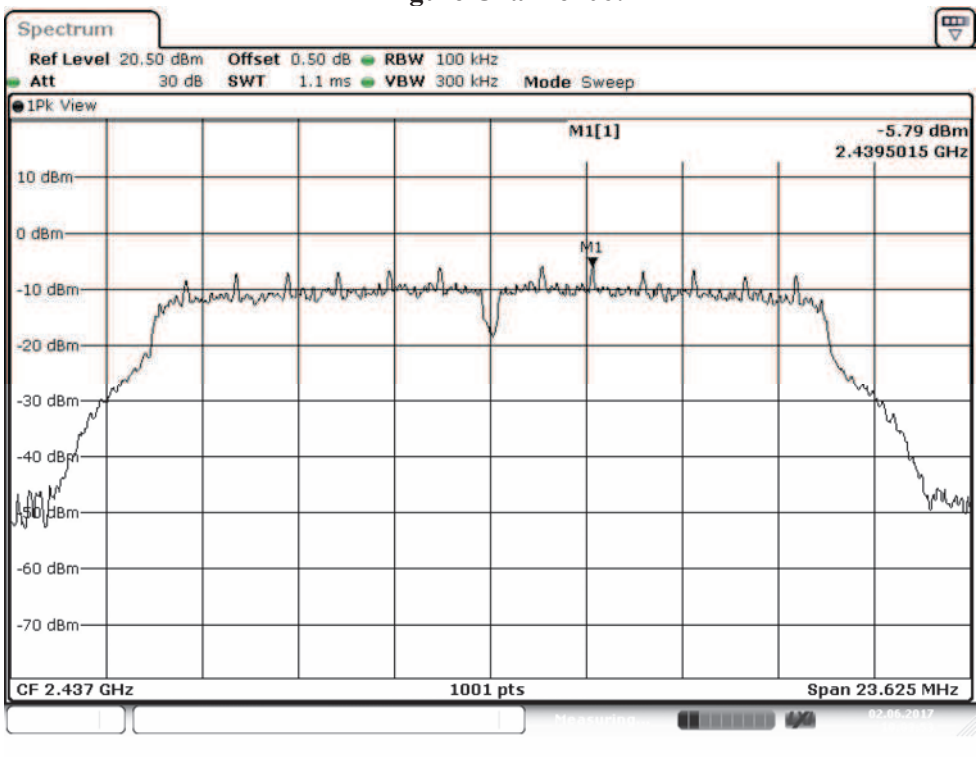
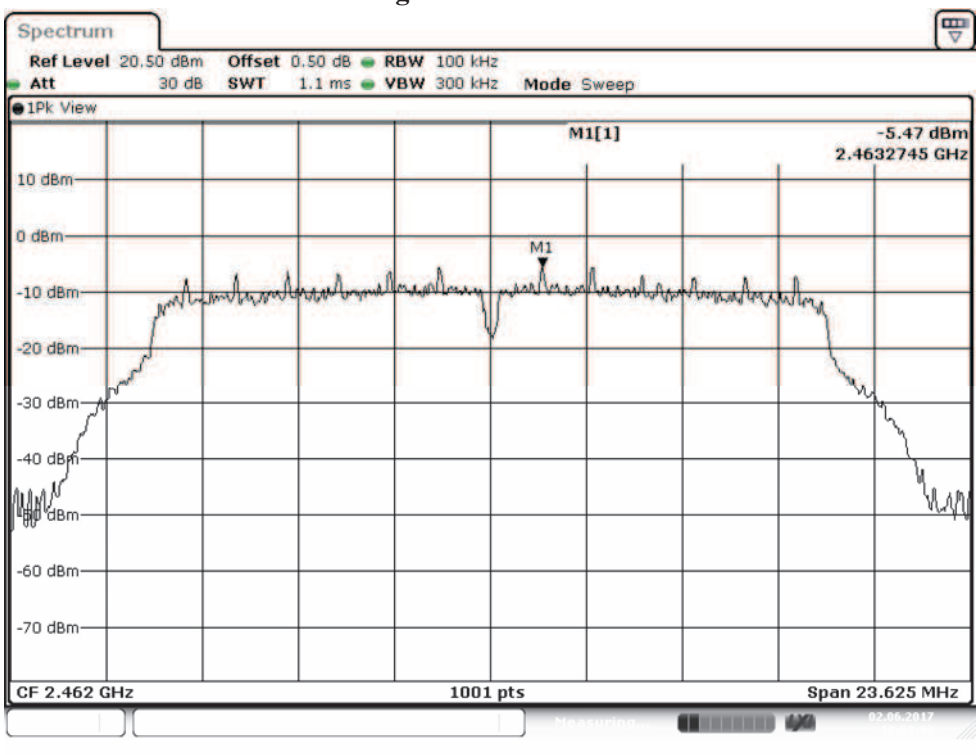


Figure Channel 11:



Product : Bike Navigation computer
Test Item : Power Density Data
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-6.22	≦8dBm	Pass
06	2437	-5.74	≦8dBm	Pass
11	2462	-5.43	≦8dBm	Pass

Figure Channel 01:

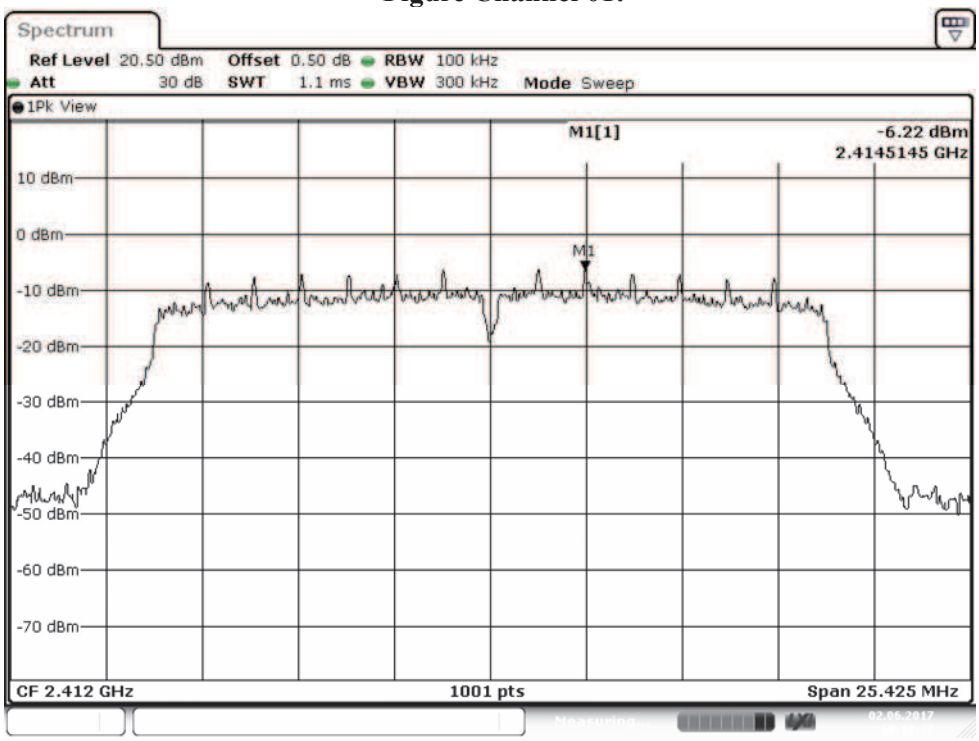


Figure Channel 06:

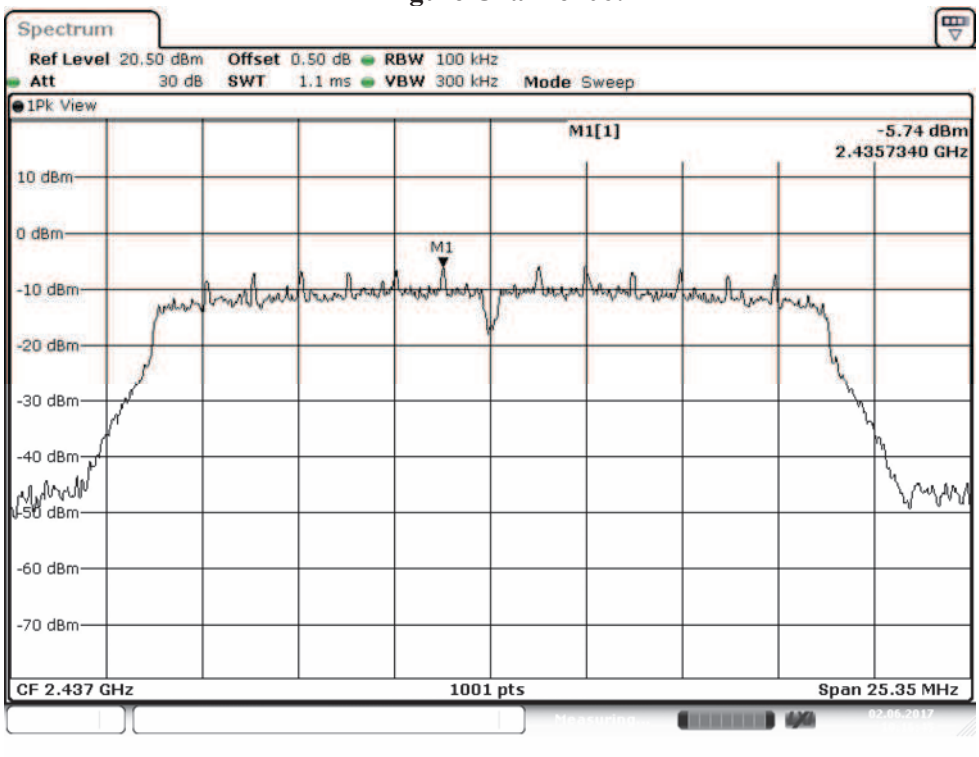
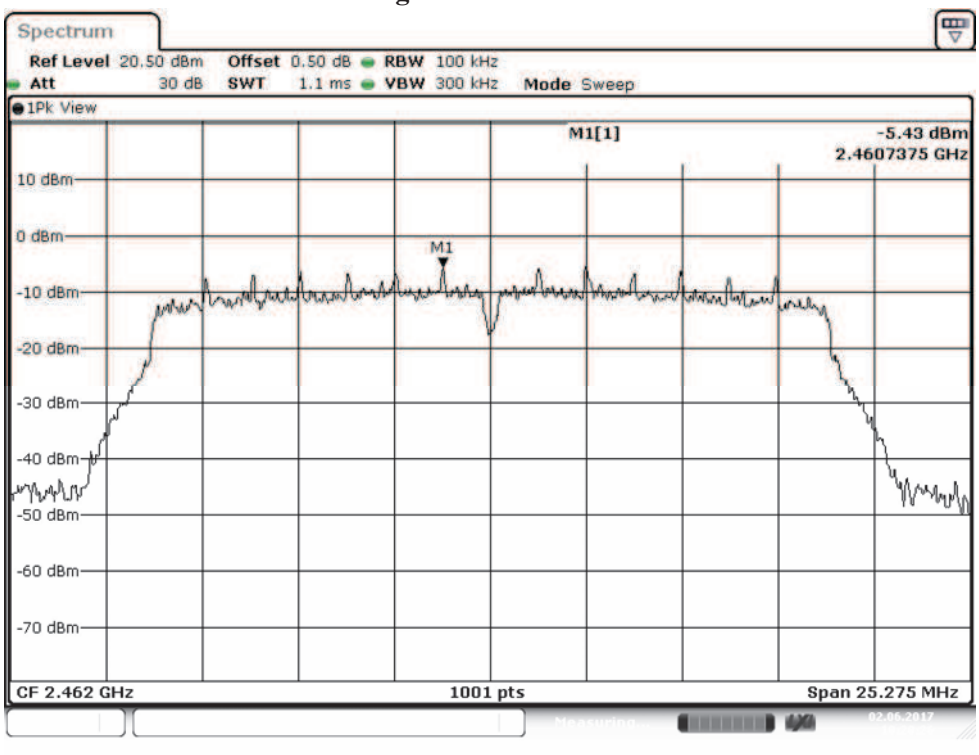


Figure Channel 11:



Product : Bike Navigation computer
Test Item : Power Density Data
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
03	2422	-8.70	≦8dBm	Pass
06	2437	-8.42	≦8dBm	Pass
09	2452	-8.17	≦8dBm	Pass

Figure Channel 03:

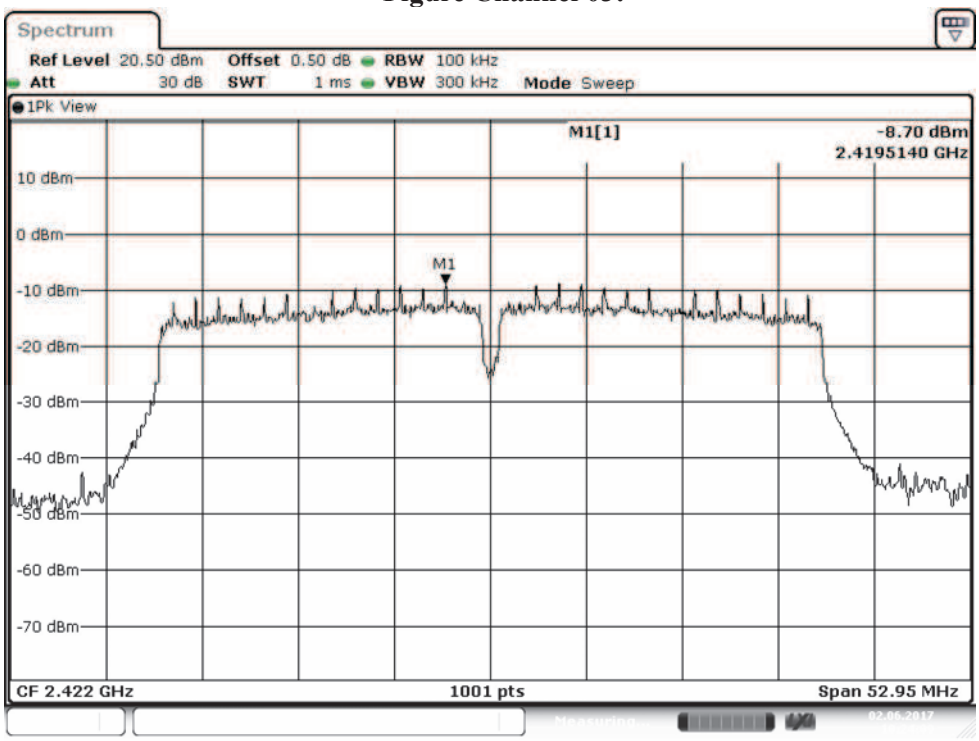


Figure Channel 06:

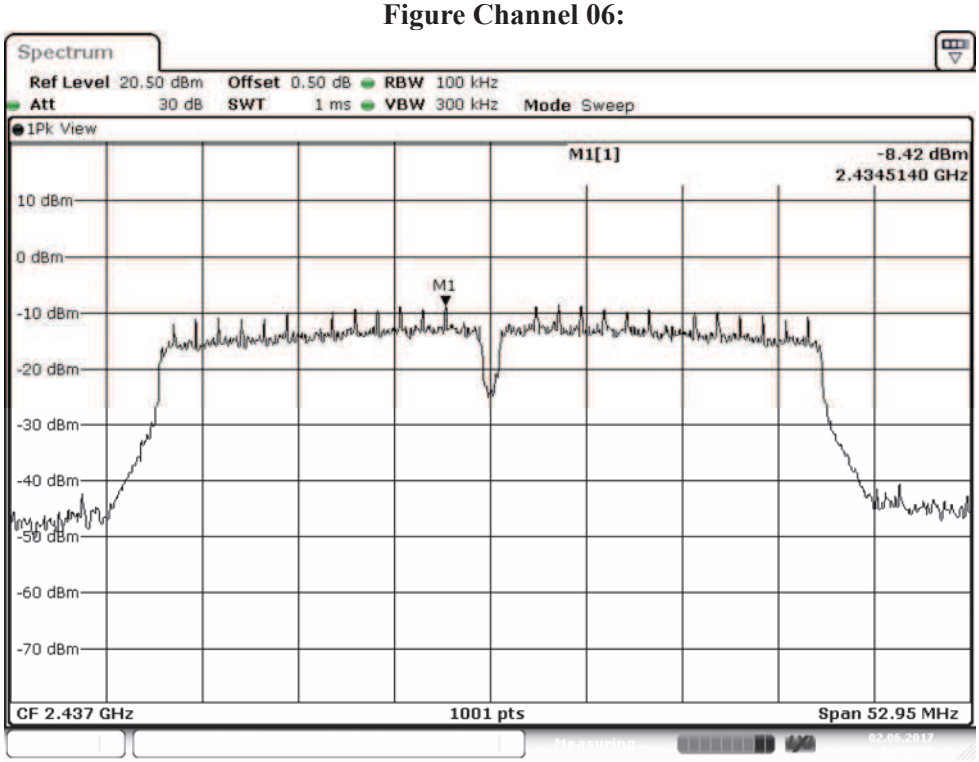
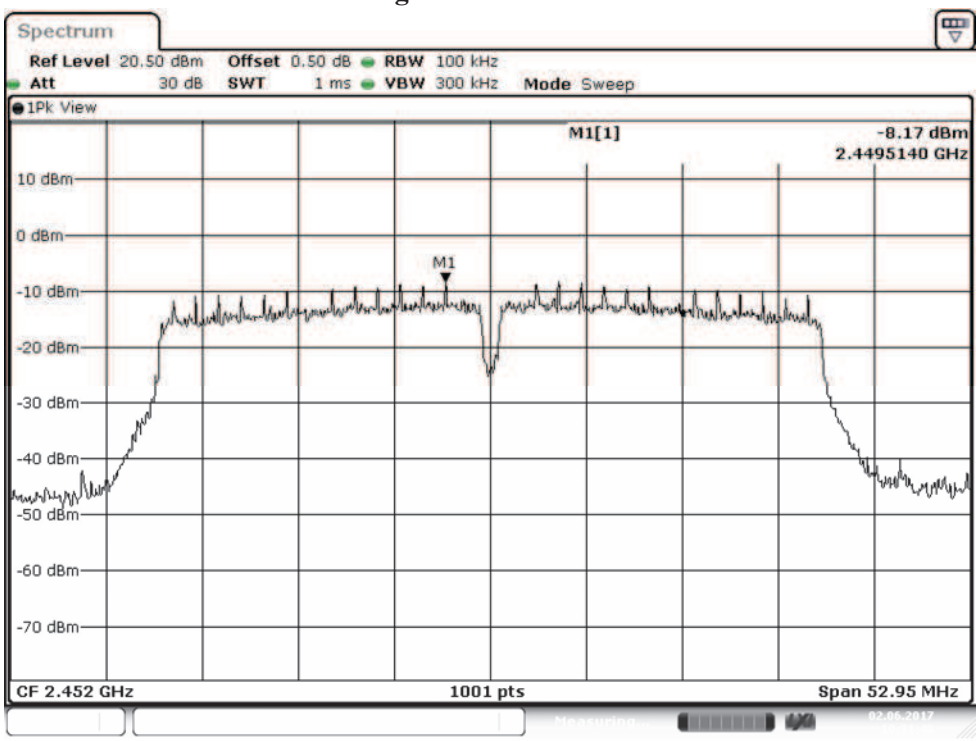


Figure Channel 09:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.