Client: Icon Health & Fitness Date: 25 Jun 2021 DNB Job: 16125

EUT: Exercise bike console with Bluetooth capability Model No: 417110

Requirement: General limit of 15.209 Tech: CL Payne

Low Channel: 2402 MHz Result: Pass

Radiated Spurious											
Freq in MHz	Meter Reading (dBuV/m)	Pre-Amp (dB)	Cable (dB)	Antenna (dB)	Corr'd Reading (dBuV/m)	Limit (dBuV/m)	Delta	Azimuth (degrees)	Height (m)	Polarity	Meas Type
4804	34.38	25.68	5.92	33.09	47.72	74.00	-26.28	0	1.00	Vert	Peak
4804	21.31	25.68	5.92	33.09	34.65	54.00	-19.35	0	1.00	Vert	Ave
7206	30.47	25.50	7.21	36.96	49.14	74.00	-24.86	0	1.00	Vert	Peak
7206	19.82	25.50	7.21	36.96	38.49	54.00	-15.51	0	1.00	Vert	Ave
9608	30.02	25.06	9.10	37.94	52.01	74.00	-21.99	0	1.00	Vert	Peak
9608	17.33	25.06	9.10	37.94	39.32	54.00	-14.68	0	1.00	Vert	Ave
12010	28.80	24.70	10.50	40.02	54.62	74.00	-19.38	0	1.00	Vert	Peak
12010	16.07	24.70	10.50	40.02	41.89	54.00	-12.11	0	1.00	Vert	Ave
4804	34.00	25.68	5.92	33.09	47.34	74.00	-26.66	168	1.36	Horz	Peak
4804	24.90	25.68	5.92	33.09	38.24	54.00	-15.76	168	1.36	Horz	Ave
7206	31.72	25.50	7.21	36.96	50.39	74.00	-23.61	330	1.68	Horz	Peak
7206	19.05	25.50	7.21	36.96	37.72	54.00	-16.28	330	1.68	Horz	Ave
9608	30.70	25.06	9.10	37.94	52.69	74.00	-21.31	0	1.00	Horz	Peak
9608	17.26	25.06	9.10	37.94	39.25	54.00	-14.75	0	1.00	Horz	Ave
12010	29.35	24.70	10.50	40.02	55.17	74.00	-18.83	0	1.00	Horz	Peak
12010	16.02	24.70	10.50	40.02	41.84	54.00	-12.16	0	1.00	Horz	Ave

Client: Icon Health & Fitness Date: 25 Jun 2021 DNB Job: 16125

EUT: Exercise bike console with Bluetooth capability Model No: 417110

Requirement: General limit of 15.209 Tech: CL Payne

Mid Channel: 2440 MHz Result: Pass

Radiated Spurious											
Freq in MHz	Meter Reading (dBuV/m)	Pre-Amp (dB)	Cable (dB)	Antenna (dB)	Corr'd Reading (dBuV/m)	Limit (dBuV/m)	Delta	Azimuth (degrees)	Height (m)	Polarity	Meas Type
4880	36.40	25.65	5.95	33.37	50.07	74.00	-23.93	87	1.00	Vert	Peak
4880	30.28	25.65	5.95	33.37	43.95	54.00	-10.05	87	1.00	Vert	Ave
7320	30.70	25.50	7.32	37.06	49.58	74.00	-24.42	280	1.00	Vert	Peak
7320	17.16	25.50	7.32	37.06	36.04	54.00	-17.96	280	1.00	Vert	Ave
9760	29.70	25.00	9.10	38.00	51.81	74.00	-22.19	0	1.00	Vert	Peak
9760	16.50	25.00	9.10	38.00	38.61	54.00	-15.39	0	1.00	Vert	Ave
12200	29.50	24.62	10.58	40.32	55.78	74.00	-18.22	0	1.00	Vert	Peak
12200	16.74	24.62	10.58	40.32	43.02	54.00	-10.98	0	1.00	Vert	Ave
4880	36.50	25.65	5.95	33.37	50.17	74.00	-23.83	246	1.00	Horz	Peak
4880	26.40	25.65	5.95	33.37	40.07	54.00	-13.93	246	1.00	Horz	Ave
7320	30.22	25.50	7.32	37.06	49.10	74.00	-24.90	125	1.00	Horz	Peak
7320	17.70	25.50	7.32	37.06	36.58	54.00	-17.42	125	1.00	Horz	Ave
9760	29.60	25.00	9.10	38.00	51.71	74.00	-22.29	0	1.00	Horz	Peak
9760	16.49	25.00	9.10	38.00	38.60	54.00	-15.40	0	1.00	Horz	Ave
12200	29.10	24.62	10.58	40.32	55.38	74.00	-18.62	0	1.00	Horz	Peak
12200	16.70	24.62	10.58	40.32	42.98	54.00	-11.02	0	1.00	Horz	Ave

Client: Icon Health & Fitness Date: 25 Jun 2021 DNB Job: 16125

EUT: Exercise bike console with Bluetooth capability Model No: 417110

Requirement: General limit of 15.209 Tech: CL Payne

High Channel: 2480 MHz Result: Pass

Radiated Spurious											
Freq in MHz	Meter Reading (dBuV/m)	Pre-Amp (dB)	Cable (dB)	Antenna (dB)	Corr'd Reading (dBuV/m)	Limit (dBuV/m)	Delta	Azimuth (degrees)	Height (m)	Polarity	Meas Type
4960	40.41	25.62	5.98	33.66	54.43	74.00	-19.57	75	1.00	Vert	Peak
4960	37.39	25.62	5.98	33.66	51.41	54.00	-2.59	75	1.00	Vert	Ave
7440	30.78	25.50	7.44	37.15	49.87	74.00	-24.13	306	1.00	Vert	Peak
7440	17.77	25.50	7.44	37.15	36.86	54.00	-17.14	306	1.00	Vert	Ave
9920	30.30	24.93	9.10	38.07	52.54	74.00	-21.46	0	1.00	Vert	Peak
9920	16.54	24.93	9.10	38.07	38.78	54.00	-15.22	0	1.00	Vert	Ave
12400	28.70	24.54	10.66	40.64	55.46	74.00	-18.54	0	1.00	Vert	Peak
12400	16.89	24.54	10.66	40.64	43.65	54.00	-10.35	0	1.00	Vert	Ave
4960	41.27	25.62	5.98	33.66	55.29	74.00	-18.71	236	2.15	Horz	Peak
4960	38.17	25.62	5.98	33.66	52.19	54.00	-1.81	236	2.15	Horz	Ave
7440	32.10	25.50	7.44	37.15	51.19	74.00	-22.81	71	1.18	Horz	Peak
7440	18.13	25.50	7.44	37.15	37.22	54.00	-16.78	71	1.18	Horz	Ave
9920	29.32	24.93	9.10	38.07	51.56	74.00	-22.44	0	1.00	Horz	Peak
9920	16.70	24.93	9.10	38.07	38.94	54.00	-15.06	0	1.00	Horz	Ave
12400	29.03	24.54	10.66	40.64	55.79	74.00	-18.21	0	1.00	Horz	Peak
12400	16.03	24.54	10.66	40.64	42.79	54.00	-11.21	0	1.00	Horz	Ave

11.12.2 Antenna-port conducted measurements

11.12.2.1 General

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions is required.

11.12.2.2 General procedure for conducted measurements in restricted bands

The general procedure for conducted measurements in restricted bands is as follows:

a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).

c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies ≤ 30 MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies > 1000 MHz).

d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).

e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log d + 104.8$$

where
E is the electric field strength in dBµV/m
EIRP is the equivalent isotropically radiated power in dBm
d is the specified measurement distance in m

f) Compare the resultant electric field strength level with the applicable regulatory limit.

g) Perform the radiated spurious emission test.

15.247 (d) Restricted Bands - *continued*

Note: With respect to steps e) and f) a limit line (EIRP) based upon the dBuV/m limit was calculated and put on the plots to satisfy the requirement of step f) above. Formula is: (E + 20 log *d*) - 104.8 = (EIRP limit). The appropriate correction factor from step c) was included in the final calculation.

Limit Calculation:

Formula: E – 104.8 + 20log(3) – antenna gain – ground reflection factor

30 MHz - 88 MHz	40 - 104.8 + 20log(d) - 2 - 4.7	= -61.96 dBm
88 MHz - 216 MHz	43 - 104.8 + 20log(d) - 2 - 4.7	= -58.96 dBm
216 MHz - 960 MHz	46 - 104.8 + 20log(d) - 2 - 4.7	= -55.96 dBm
960 MHz - 1000 MHz	54 - 104.8 + 20log(d) - 2 - 4.7	= -47.96 dBm
> 1000 MHz	54 - 104.8 + 20log(d) - 2 - 0	= -43.26 dBm

Note: (d) = Measurement distance in meters = 3 meters

Requirement: FCC Part 15.247 Clause (d)

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

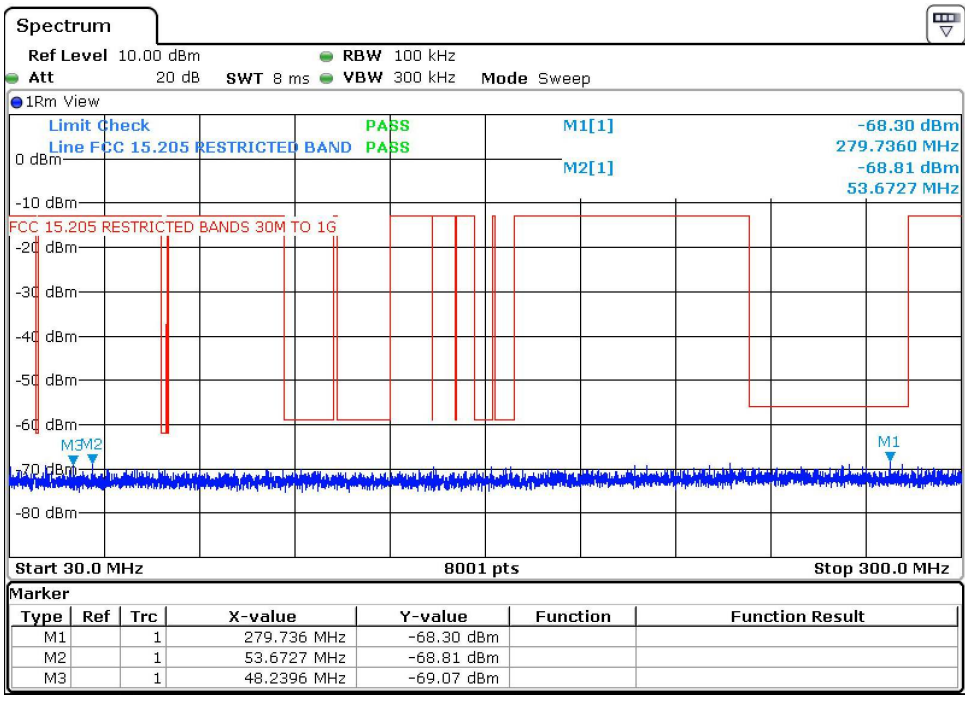
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 30 MHz to 300 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

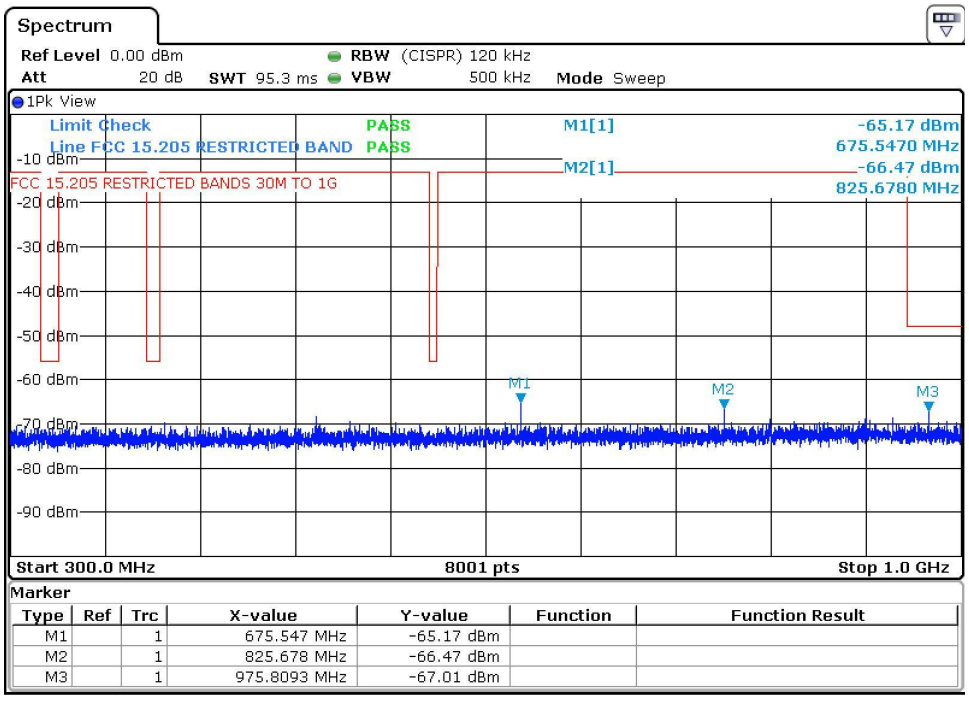
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 300 MHz to 1000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

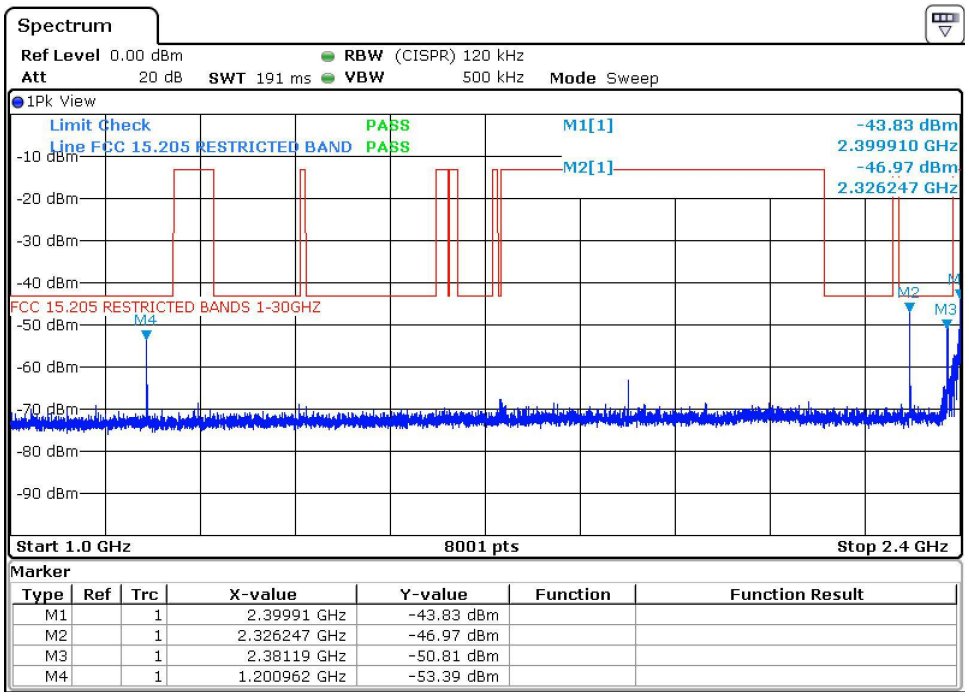
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 1000 MHz to 2400 MHz | Result: Pass

Detector Function: Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.39991 GHz	-43.83 dBm		
M2		1	2.326247 GHz	-46.97 dBm		
M3		1	2.38119 GHz	-50.81 dBm		
M4		1	1.200962 GHz	-53.39 dBm		

Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

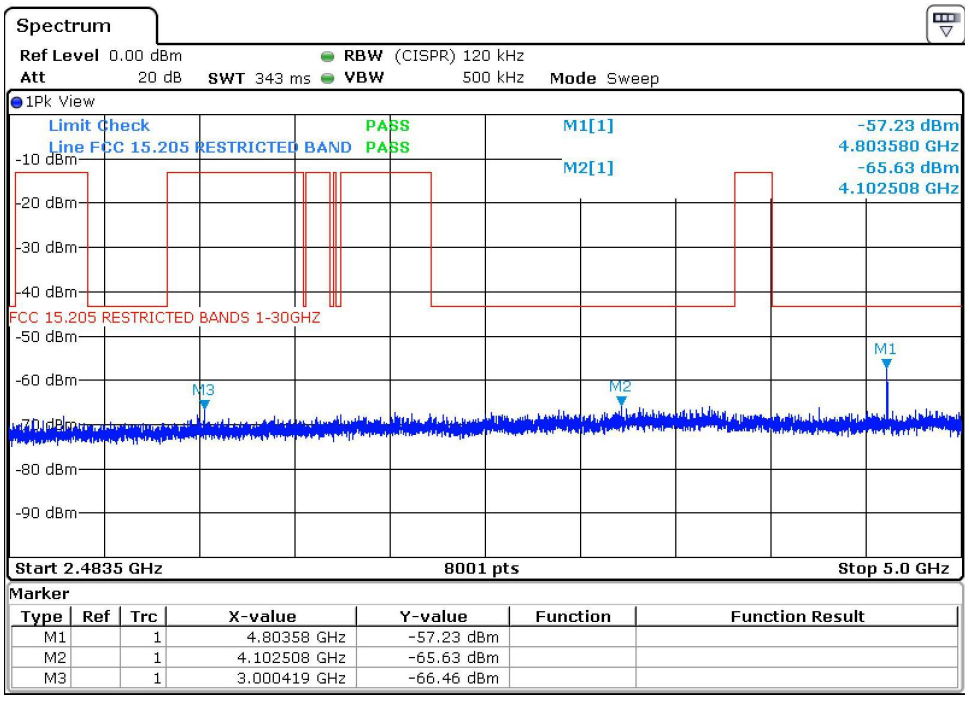
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 2483.5 MHz to 5000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

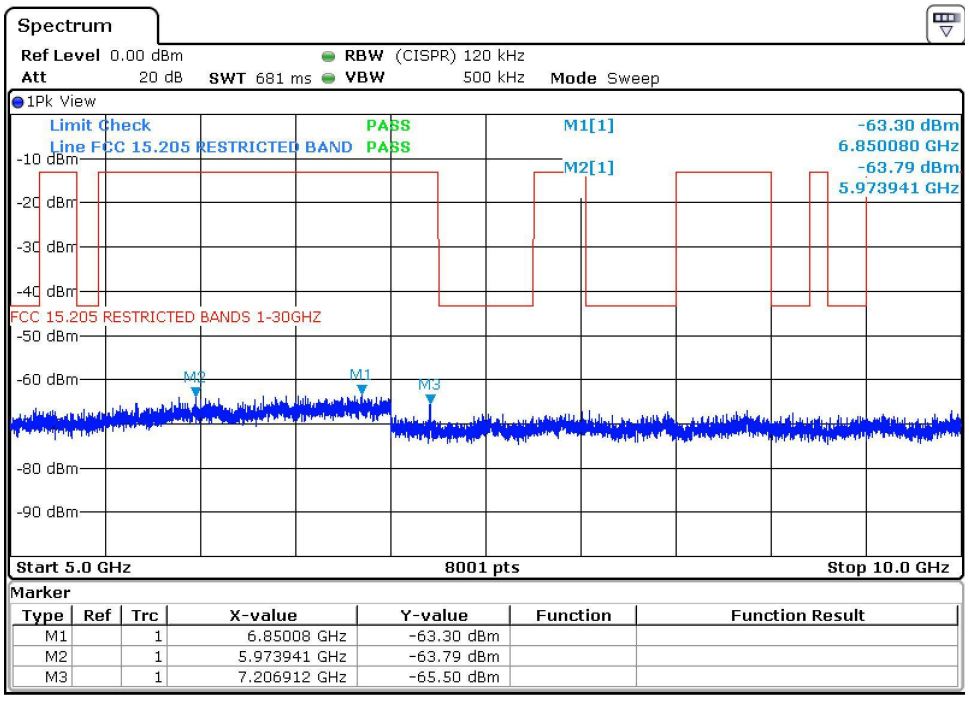
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 5000 MHz to 10000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

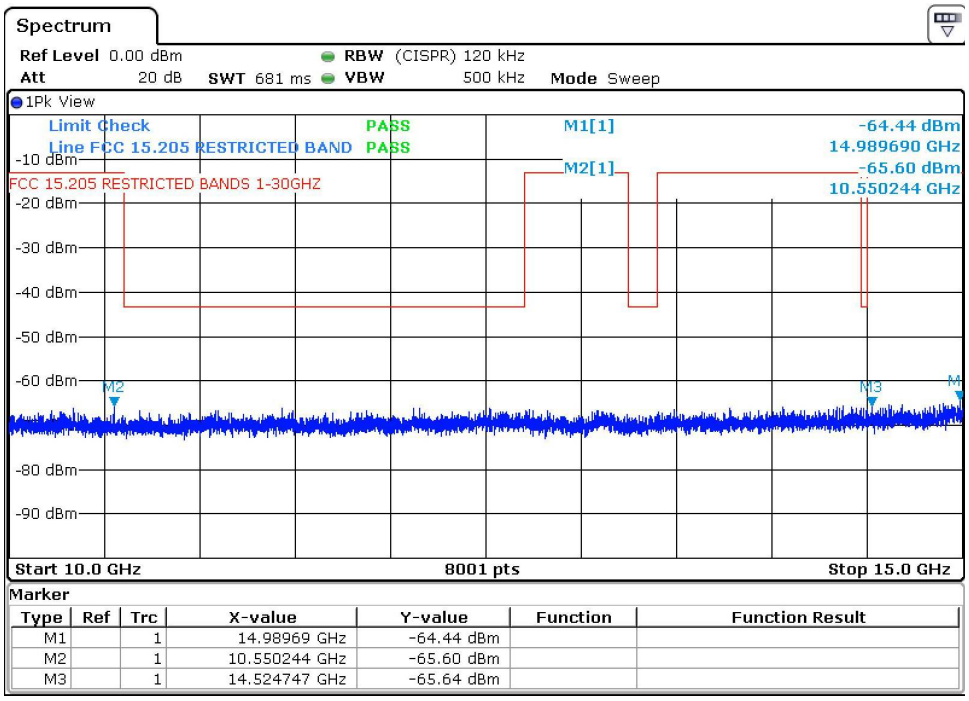
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 10000 MHz to 15000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

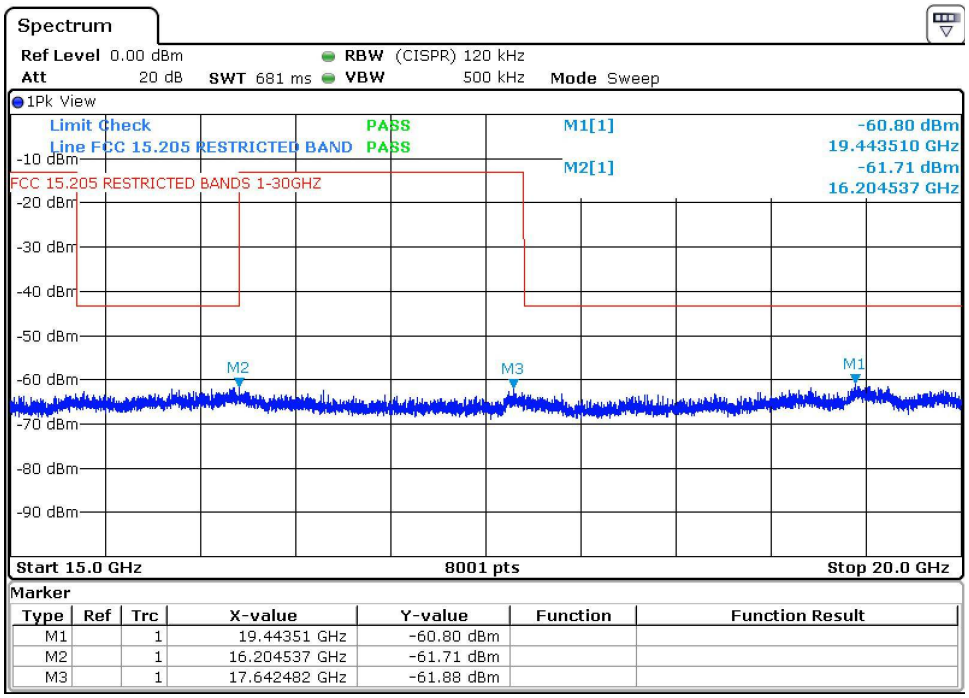
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 15000 MHz to 20000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

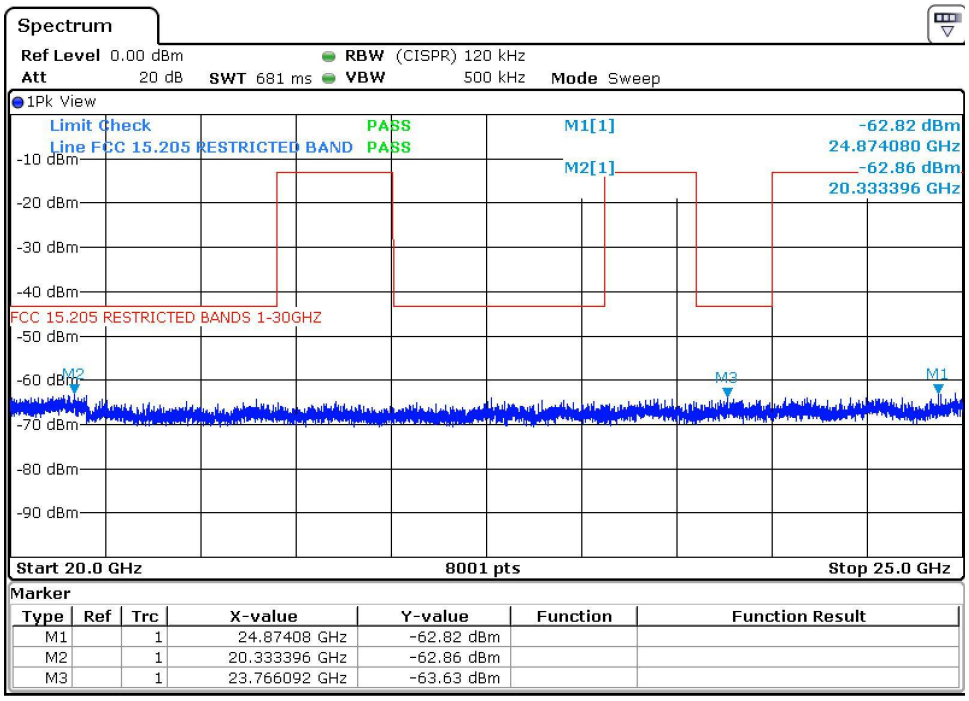
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Low Channel: 2402 MHz | Data Rate: 1Mb/s

Frequency Range: 20000 MHz to 25000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

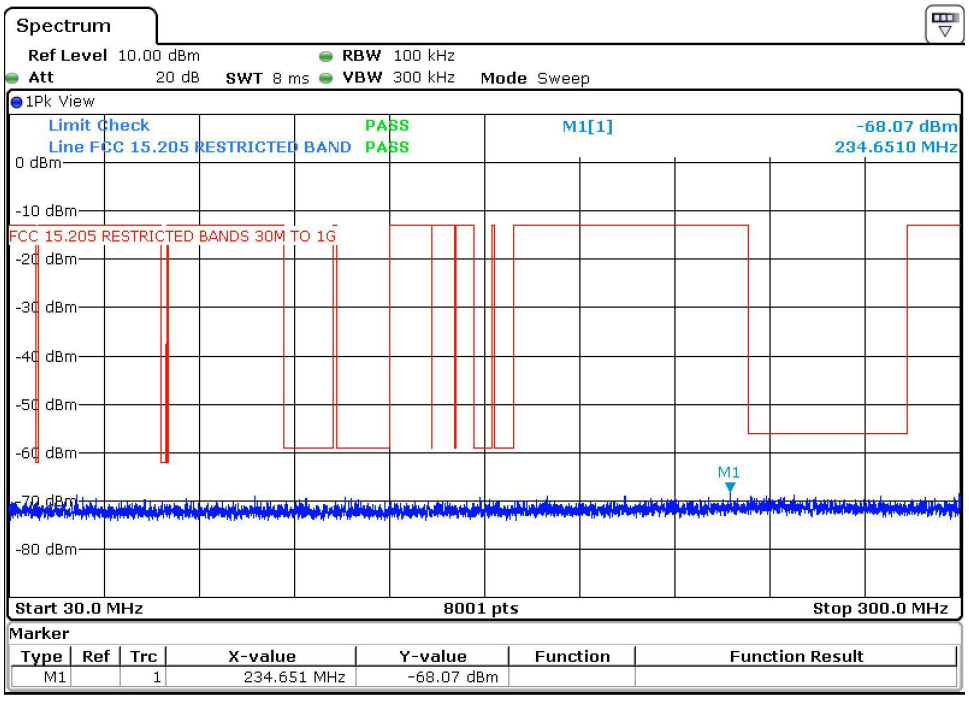
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 30 MHz to 300 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

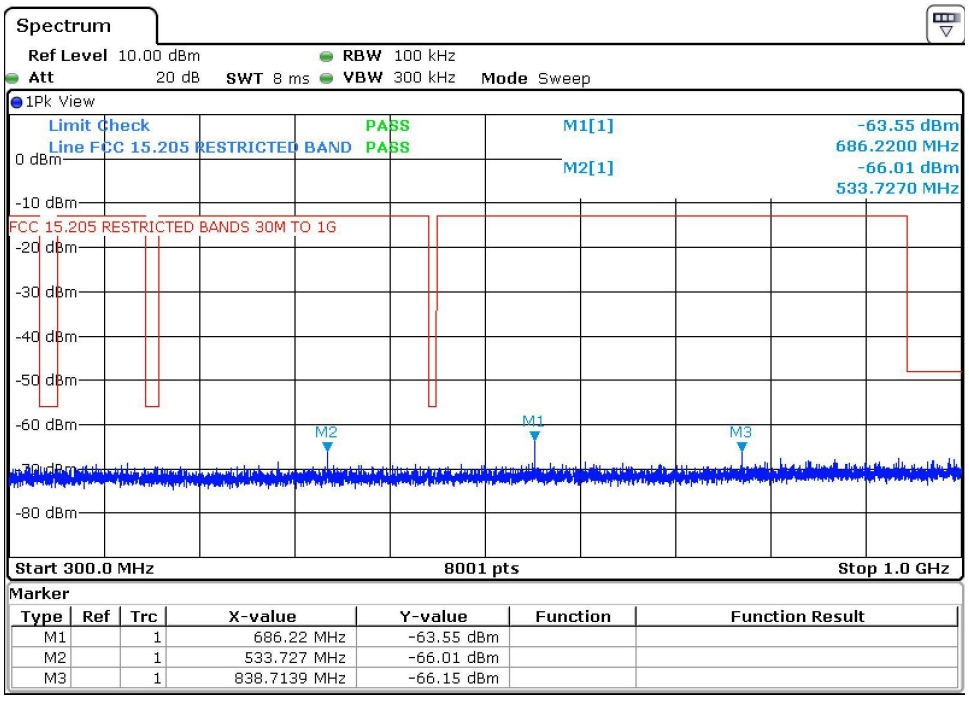
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 300 MHz to 1000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

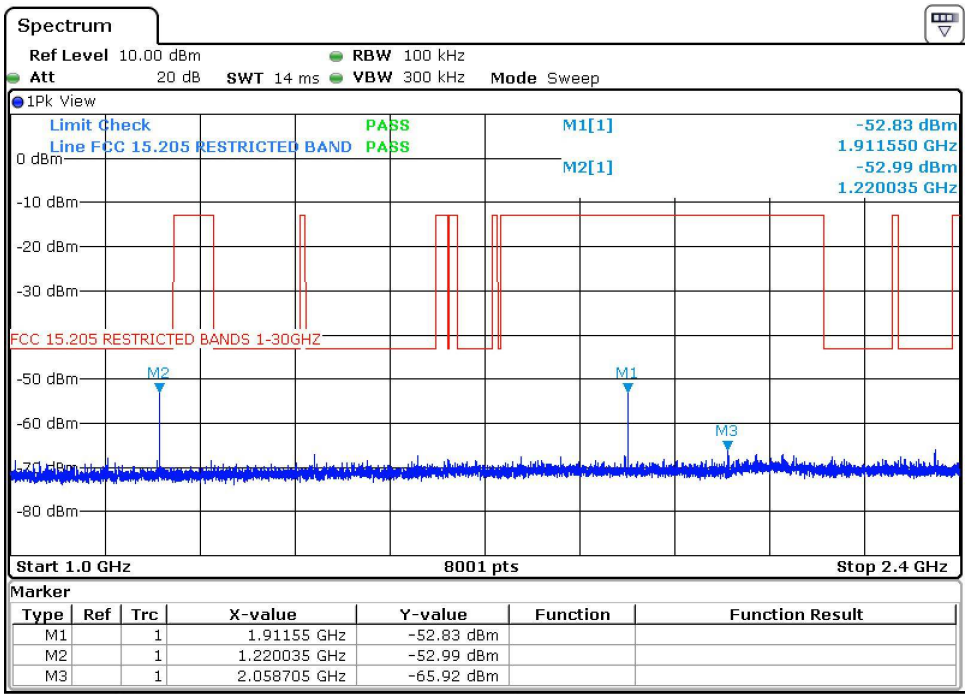
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 1000 MHz to 2400 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

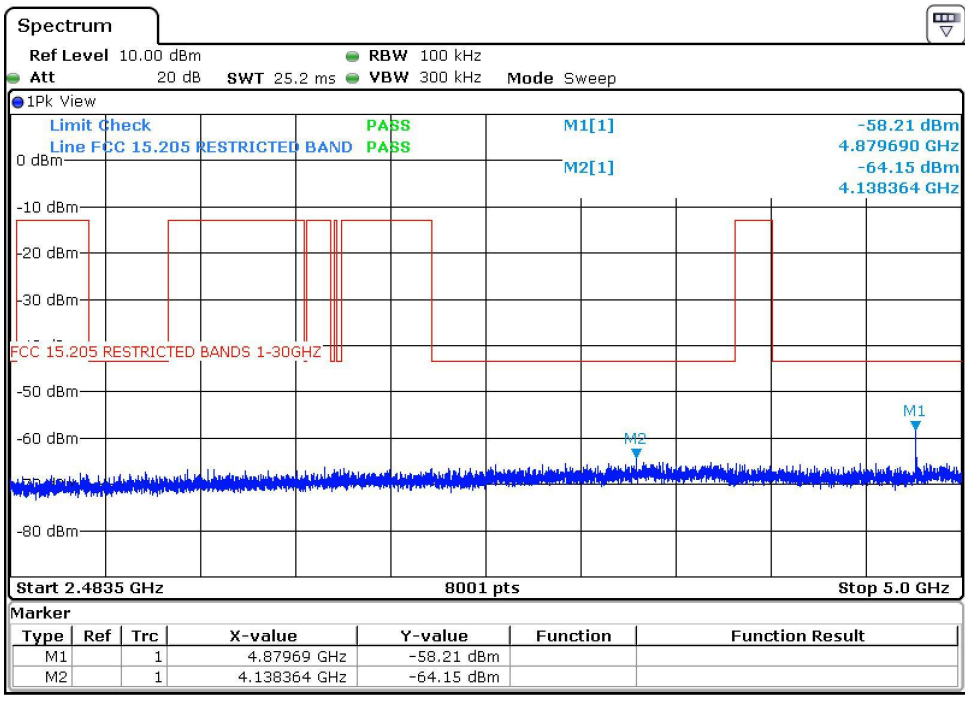
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 2483.5 MHz to 5000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

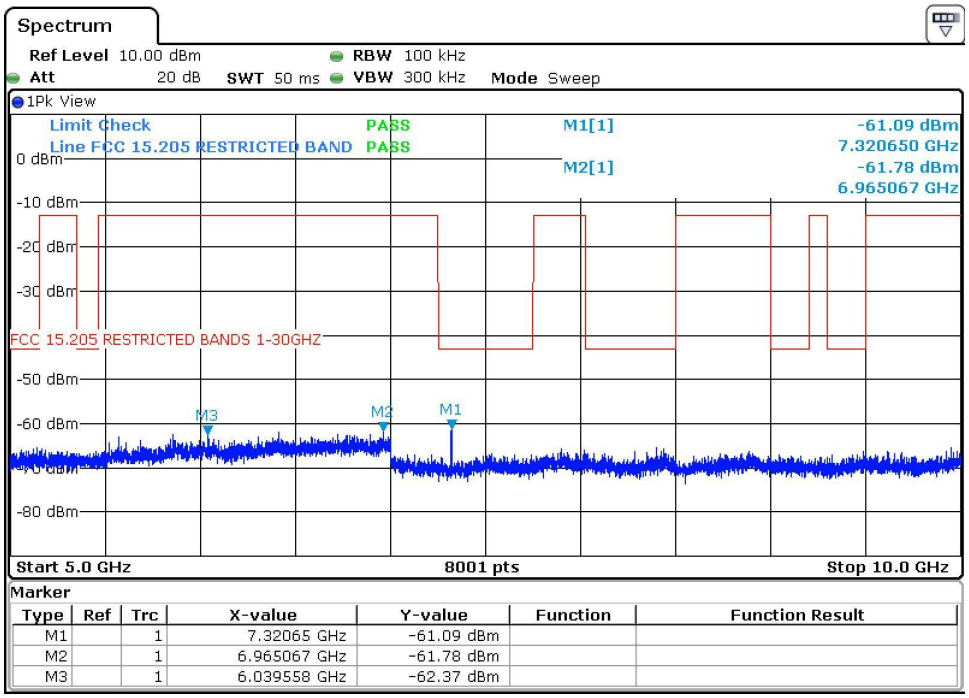
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 5000 MHz to 10000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

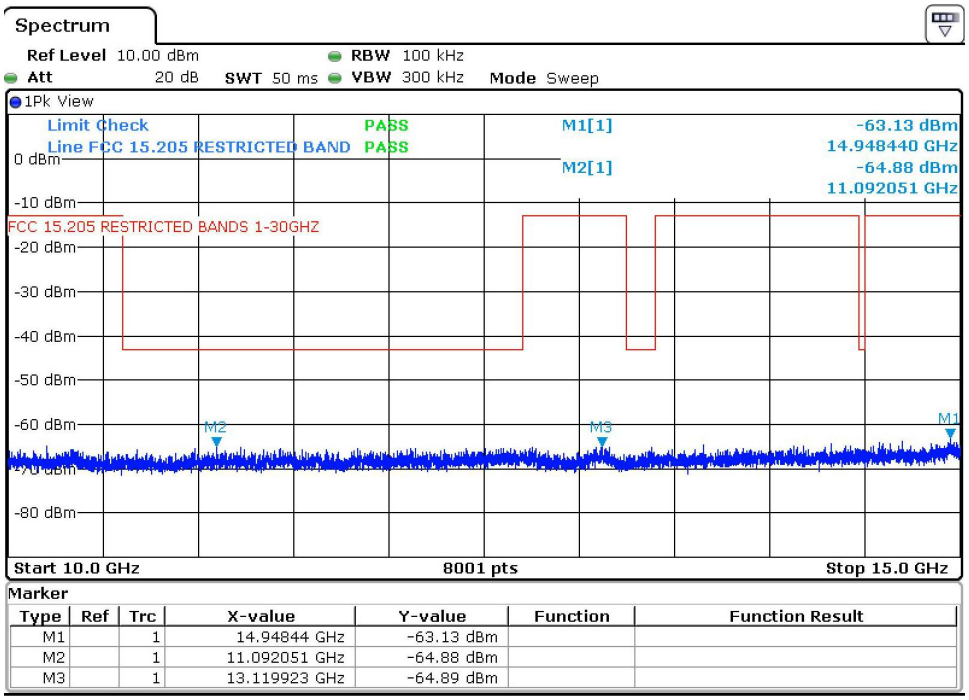
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 10000 MHz to 15000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

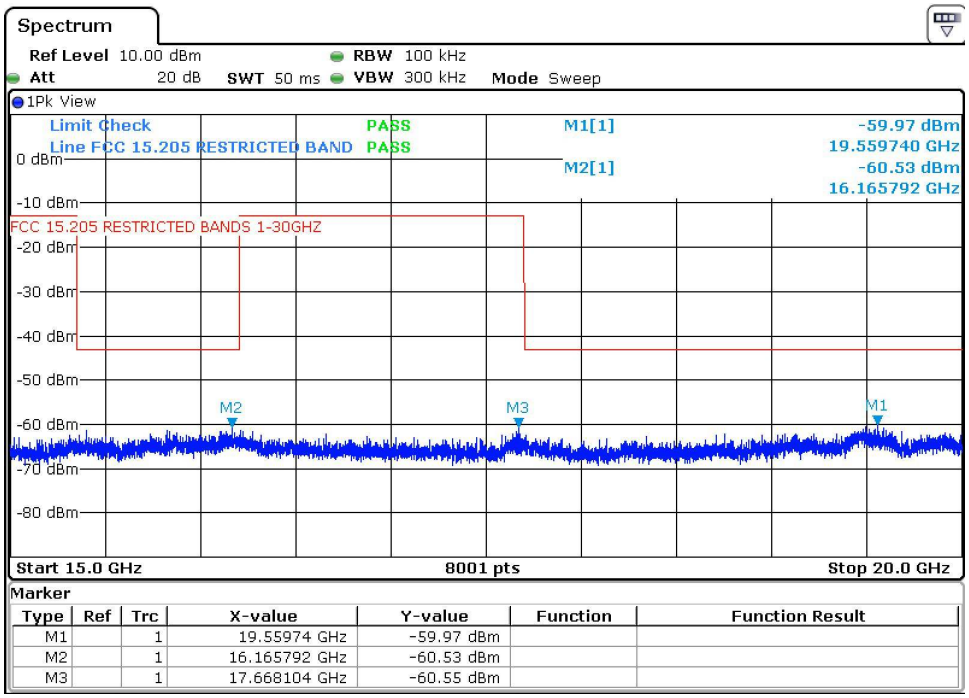
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 15000 MHz to 20000 MHz | Result: Pass

Detector Function: Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	19.55974 GHz	-59.97 dBm		
M2		1	16.165792 GHz	-60.53 dBm		
M3		1	17.668104 GHz	-60.55 dBm		

Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

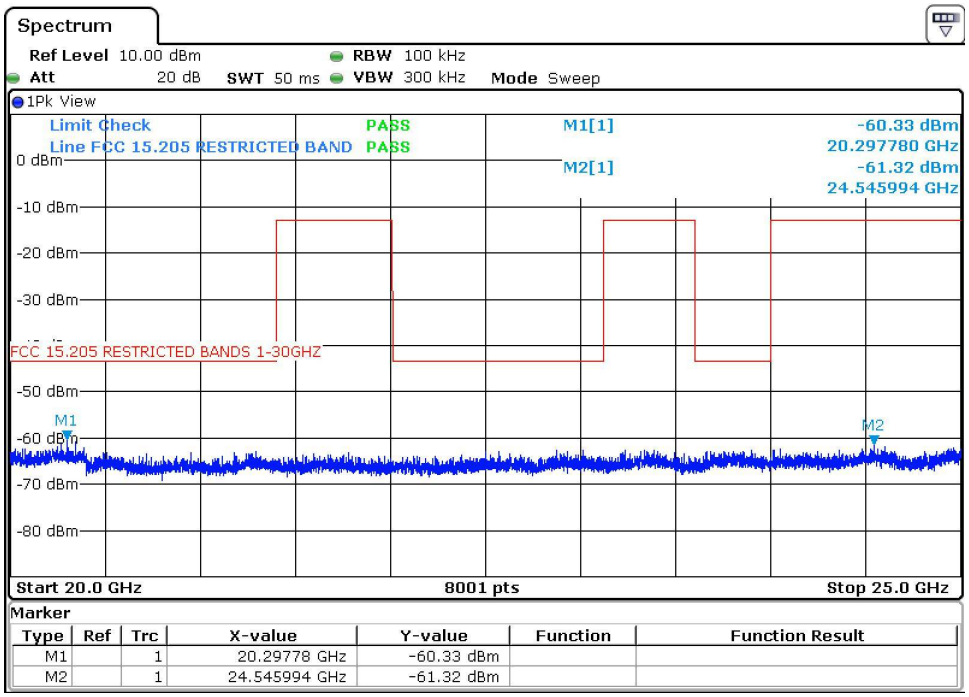
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

Mid Channel: 2440 MHz | Data Rate: 1Mb/s

Frequency Range: 20000 MHz to 25000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

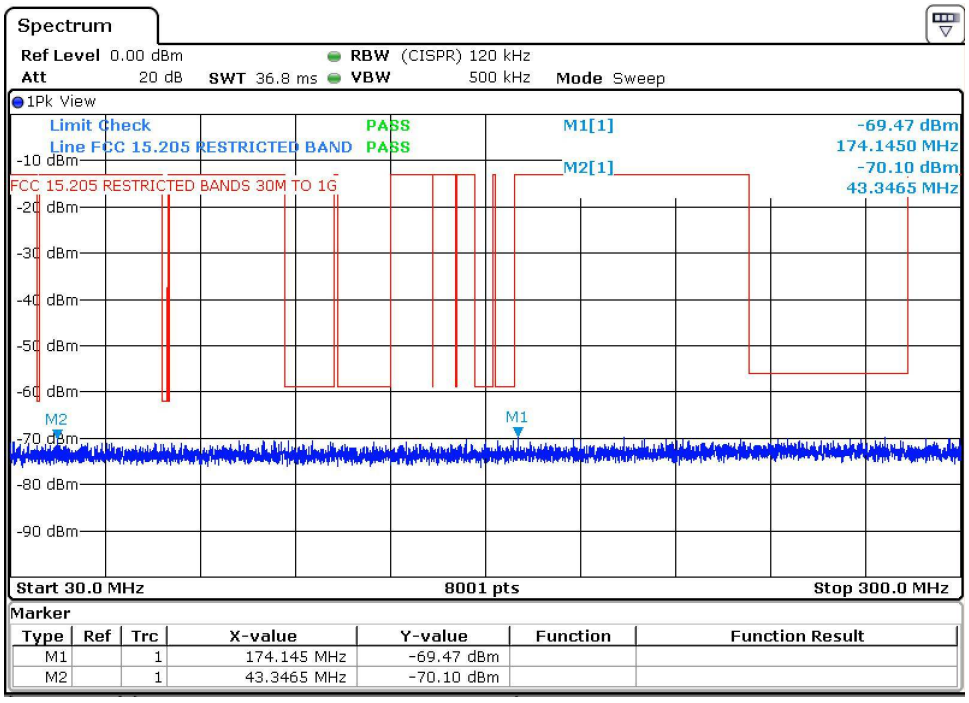
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 30 MHz to 300 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

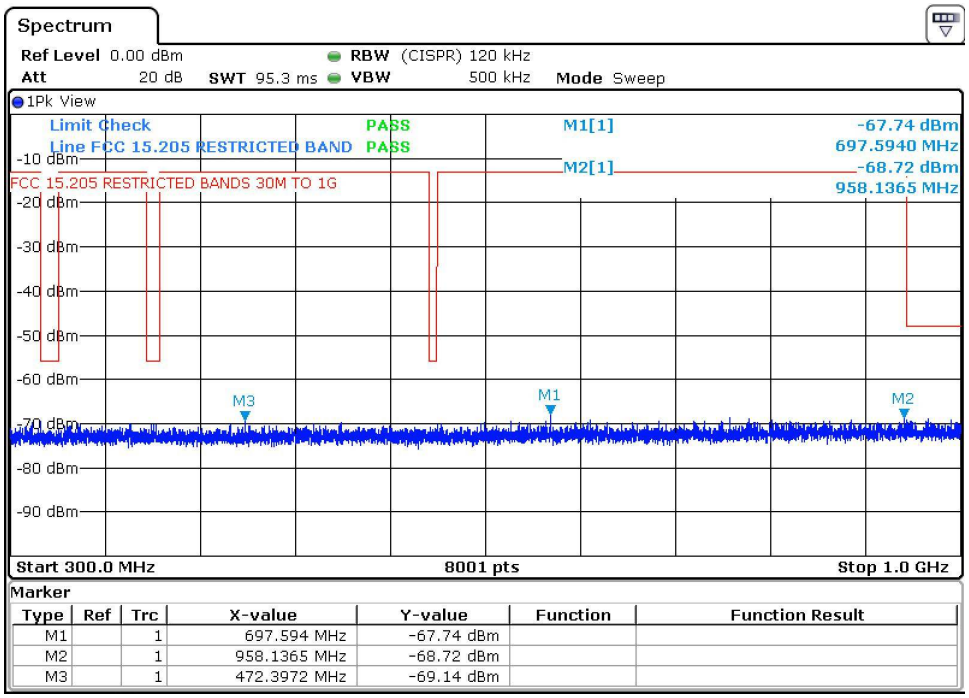
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 300 MHz to 1000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

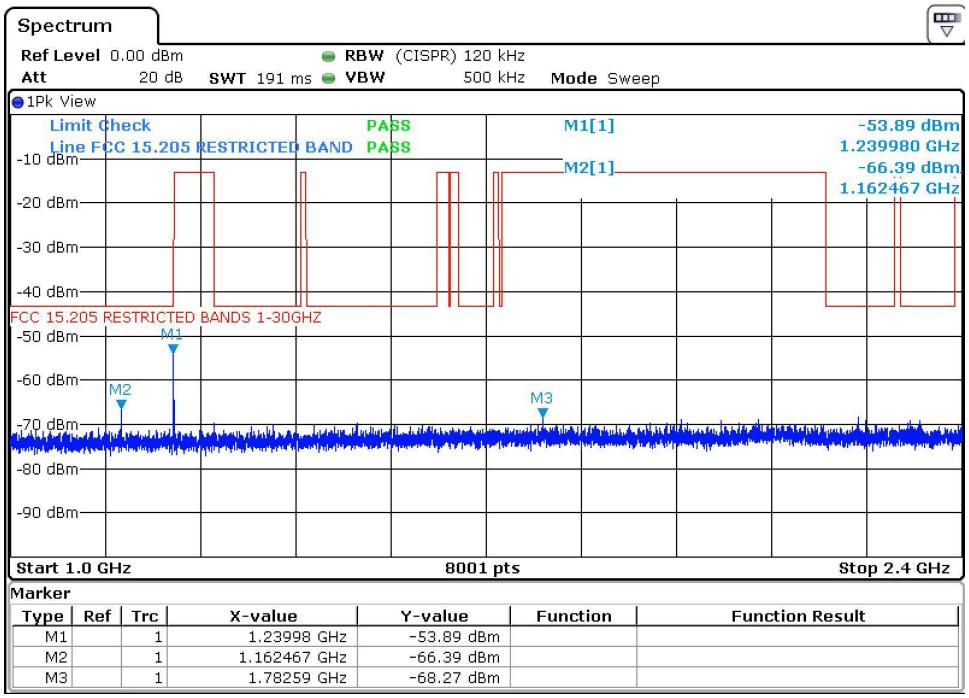
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 1000 MHz to 2400 MHz | Result: Pass

Detector Function: Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.23998 GHz	-53.89 dBm		
M2		1	1.162467 GHz	-66.39 dBm		
M3		1	1.78259 GHz	-68.27 dBm		

Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

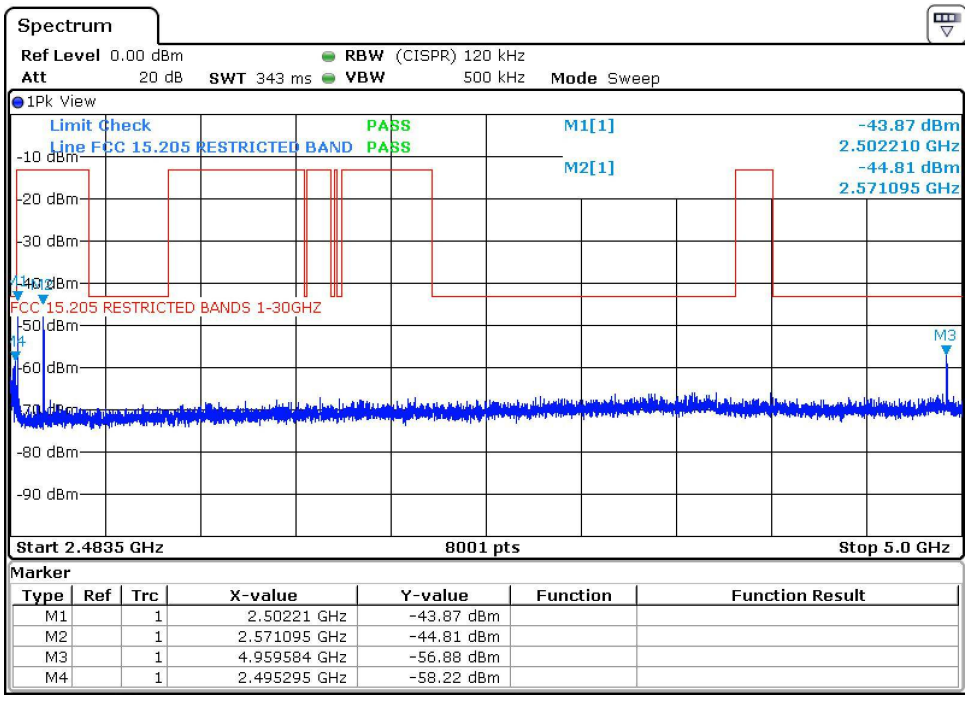
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 2483.5 MHz to 5000 MHz | Result: Pass

Detector Function: Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.50221 GHz	-43.87 dBm		
M2		1	2.571095 GHz	-44.81 dBm		
M3		1	4.959584 GHz	-56.88 dBm		
M4		1	2.495295 GHz	-58.22 dBm		

Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

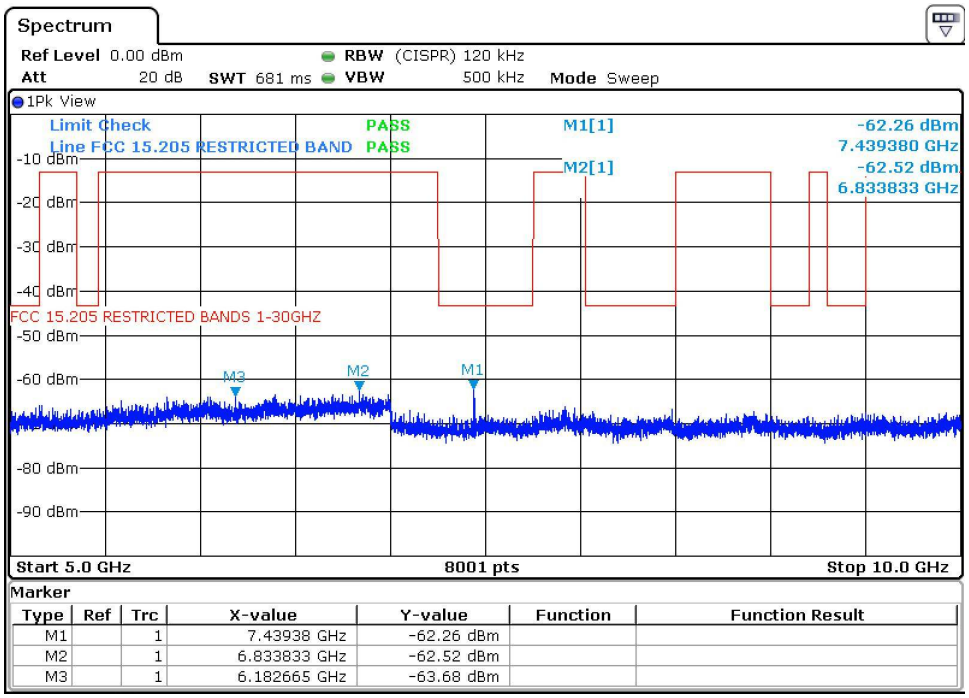
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 5000 MHz to 10000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

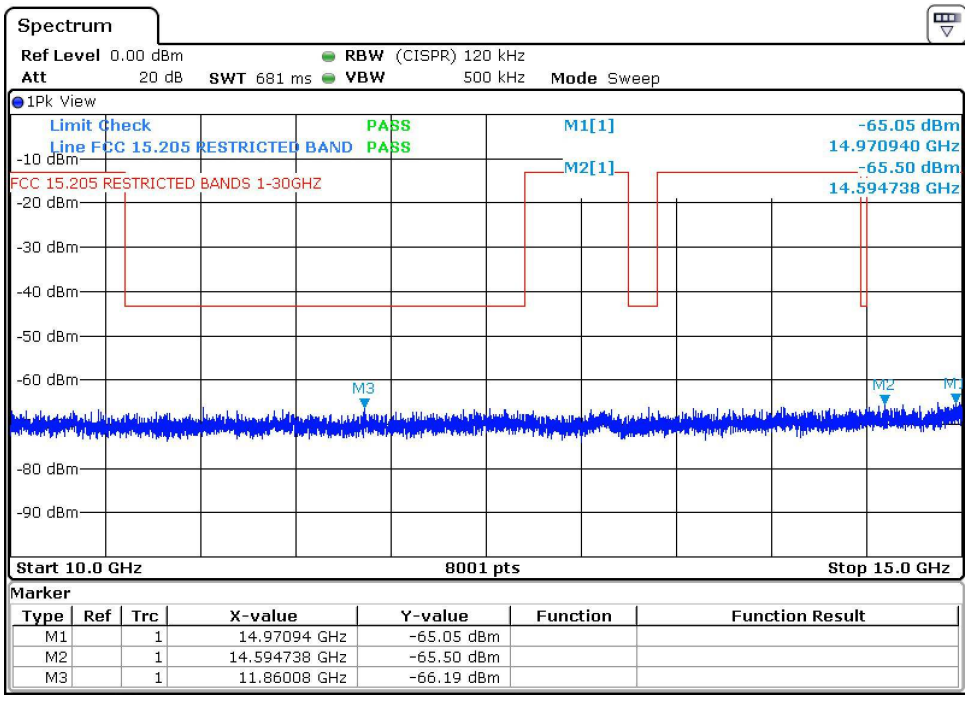
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 10000 MHz to 15000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

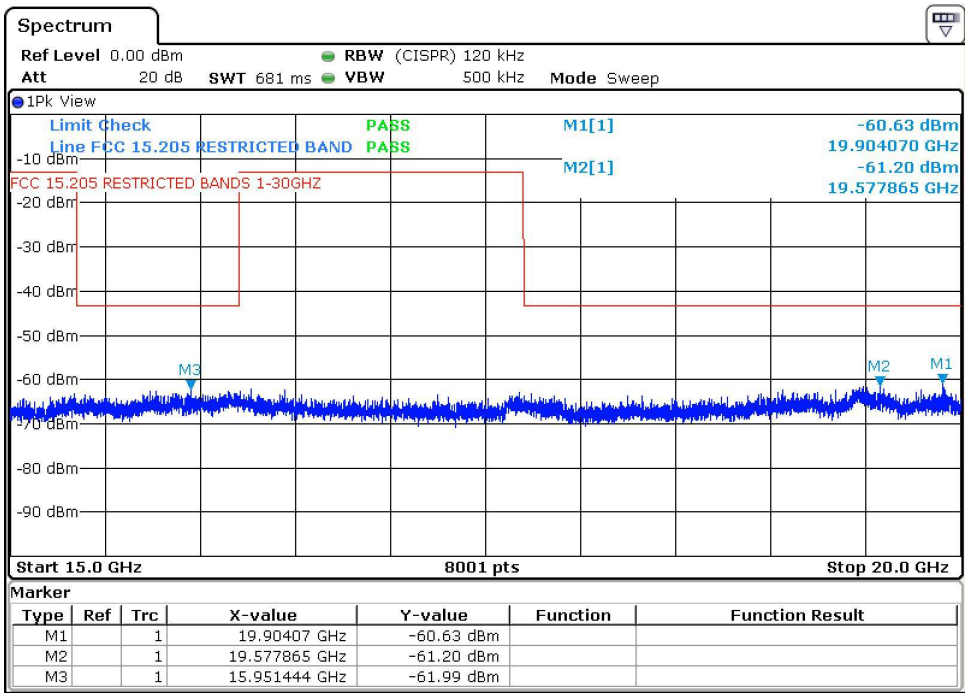
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 15000 MHz to 20000 MHz | Result: Pass

Detector Function: Peak



Client: Icon Health & Fitness | Date: 1 Jul 2021 | DNB Job: 16125

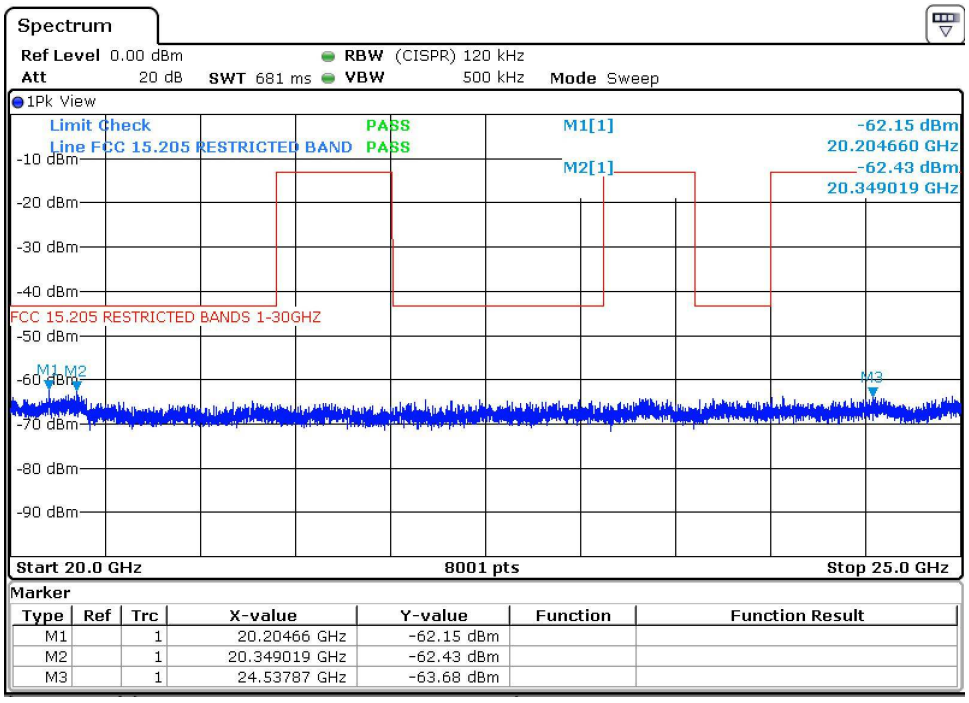
EUT: Exercise bike console with Bluetooth capability | Model No: 417110

Requirement: Emissions Below Restricted Band Limits | Tech: CL Payne

High Channel: 2480 MHz | Data Rate: 1Mb/s

Frequency Range: 20000 MHz to 25000 MHz | Result: Pass

Detector Function: Peak



End of Report UT16125A-002