Prüfbericht-Nr.: *Test report No.:*	**50345705 001**	**Auftrags-Nr.:** *Order No.:*	168148803	**Seite 1 von 20** *Page 1 of 20*
Kunden-Referenz-Nr.: *Client reference No.:*	N/A	**Auftragsdatum:** *Order date.:*	13.01.2020	
Auftraggeber: *Client:*	**Targus International LLC** 1211 North Miller Street, Anaheim, CA 92806 USA			
Prüfgegenstand: *Test item:*	Smart Power Surge Protector			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	APS811 (Trademark: Targus)			
Auftrags-Inhalt: *Order content:*	FCC and IC approval			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 2: Section 2.1093		RSS-247 Issue 2 February 2017 RSS-Gen Issue 5 April 2018 RSS-102 Issue 5 March 2015	

Wareneingangsdatum: *Date of receipt:*	17.02.2020
Prüfmuster-Nr.: *Test sample No.:*	A001061530-001 to 002
Prüfzeitraum: *Testing period:*	25.11.2019 - 16.03.2020
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass

Please refer to photo documents

geprüft von / *tested by:*

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
30.06.2020	Ryan Yang / Assistant Project Manager	

kontrolliert von / *reviewed by:*

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
30.06.2020	Winnie Hou / Technical Certifier	

Sonstiges / *Other:*

FCC ID: OXM000102
IC: 3760B-00096 HVIN: APS811

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient	5 = poor
	P(ass) = passed a.m. test specifications(s)		F(ail) = failed a.m. test specifications(s)	N/A = not applicable	N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER
RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 6DB BANDWIDTH
RESULT: Pass

5.1.5 99% BANDWIDTH
RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS
RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION
RESULT: Pass

5.1.8 CONDUCTED EMISSION ON AC MAINS
RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of BLE

Appendix B: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC accredited testing laboratory: CN1260

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Radio Spectrum Testing (TS8997)					
Equip. No.	**Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
1825795	Signal Analyzer	R&S	FSV 40	101441	20.08.2020
1825798	OSP	R&S	OSP 150	101017	17.12.2020
1825799	Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
1825800	Test Software	R&S	WMS32 (V10.50.10)	N/A	N/A
1825801	Power Meter	R&S	NRP2	107105	17.12.2020
1825802	Wideband Power Sensor	R&S	NRP-Z81	105350	17.12.2020
1826431	Shielding Room 8#	Albatross	SR8	APC17151-SR8	23.07.2020
Unwanted Emission Testing (TS9975)					
Equip. No.	**Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
1826021	EMI Test Receiver	R&S	ESR 7	102021	19.08.2020
1826023	Signal Analyzer	R&S	FSV 40	101439	21.08.2020
1826024	System Controller Interface	R&S	SCI-100	S10010038	N/A
1826025	Filterbank	R&S	Wlan	100759	21.08.2020
1826026	OSP	R&S	OSP 120	102040	N/A
1826028	Pre-amplifier	R&S	SCU08F1	08320031	20.08.2020
1826029	Amplifier	R&S	SCU-18F	180070	20.08.2020
1826030	Amplifier	R&S	SCU40A	100475	20.09.2020
1826031	Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	02.09.2020
1826032	Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	02.09.2020
1826033	Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	02.09.2020
1826034	Active Loop Antenna	Schwarzbeck	FMZB 1513	302	01.09.2020
1826035	Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18313	02.09.2020
1826036	Test software	R&S	EMC32 (V10.50.40)	N/A	N/A
1826037	Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
1826433	3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	06.07.2020

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty
Radio Frequency	±1 x 10-7
RF Power (conducted)	±2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	±6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	±6 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 dB
Temperature	±1 °C
Humidity	±5 %
Voltage (DC)	±1 %
Voltage (AC, <10kHz)	±2 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a Smart Power Surge Protector , which supports Bluetooth 5.0 technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Smart Power Surge Protector
Type Designation	APS811
Trademark	Targus
FCC ID	OXM000102
IC	3760B-00096
HVIN	APS811
Operating Voltage	AC 120V@60Hz
Testing Voltage	AC 120V@60Hz
Technical Specification of BLE	
Operating Frequency	2402 MHz to 2480 MHz
Type of Modulation	GFSK
Channel Number	40 channels
Channel Separation	2MHz
Antenna Type	Wire monopole antenna
Antenna Gain	1.5 dBi

Table 3: RF Channel and Frequency of BLE

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	**2402**	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	**19**	**2440**	29	2460	**39**	**2480**

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz for BLE

3.3 Independent Operation Modes

The basic operation modes are:

A. On, Bluetooth Low Energy transmitting mode
   1) Low Channel
   2) Middle Channel
   3) High Channel
B. On, Transmitting on Hopping channel
C. On, Full Load
D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

N/A

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model APS811 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

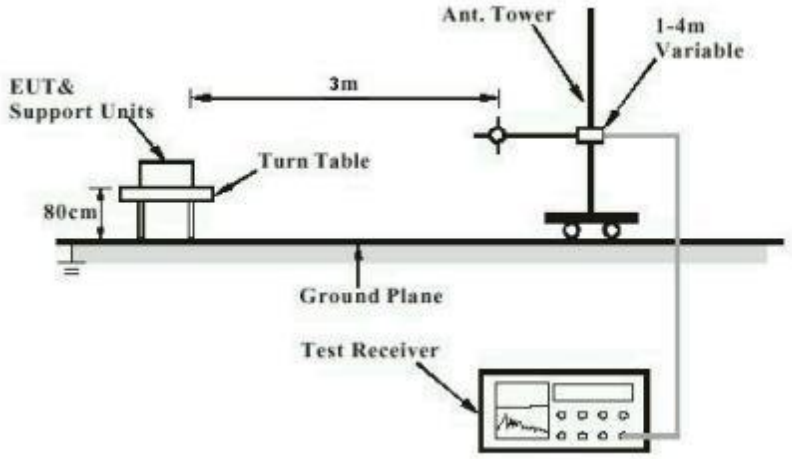


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

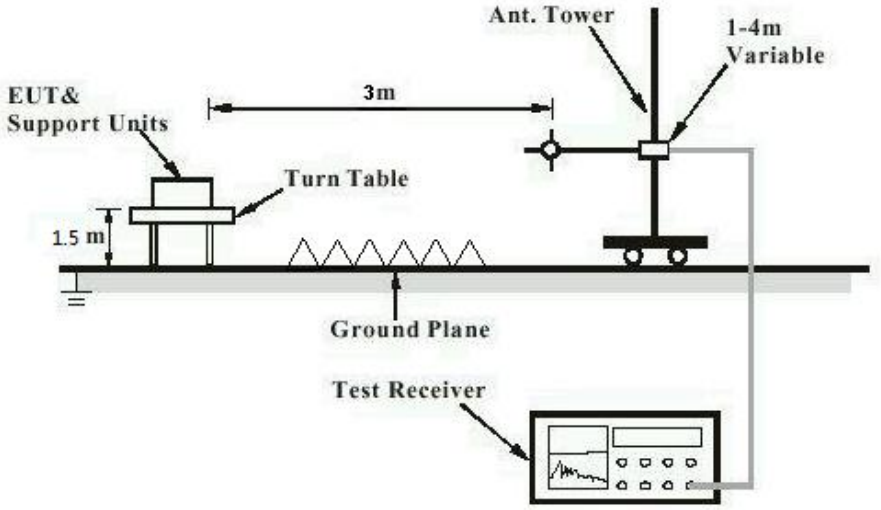


Diagram of Measurement Configuration for Mains Conduction Measurement

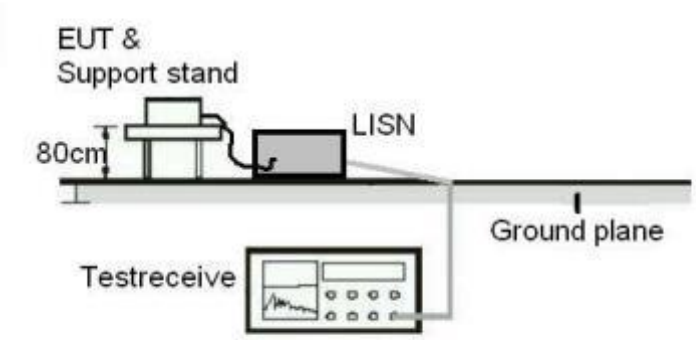
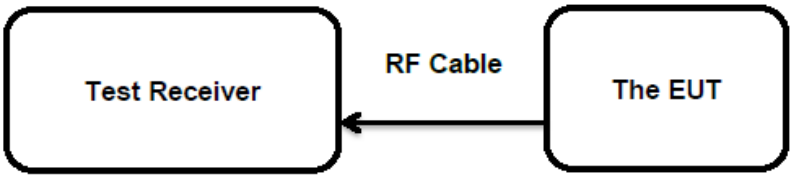


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 1.5 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(b)(3) RSS-247 Clause 5.4(d)
Basic standard	:	ANSI C63.10: 2013
Limits	:	1.0 Watts
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	13.03.2020
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25.4 ℃
Relative humidity	:	52 %
Atmospheric pressure	:	101 kPa

For details refer to following test result.

Table 5: Test Result of Maximum Peak Conducted Output Power

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
BLE	Low CH	7.54	0.0057	< 1
	Middle CH	7.51	0.0056	
	High CH	7.36	0.0054	

Note:
1) The cable loss is taken into account in results.
2) Antenna gain(G) of BLE: 1.5 dBi,
e.i.r.p.=$P_{(Peak\ power)}$+ G, which is far below the 4 W

5.1.3 Conducted Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(e) RSS-247 Clause 5.2(b)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 8 dBm / 3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

5.1.4 6dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(2) RSS-247 Clause 5.2(a)
Basic standard	:	ANSI C63.10: 2013
Limits	:	> 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

5.1.5 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	RSS-Gen Clause 6.6
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

5.1.6 Conducted Spurious Emissions

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

5.1.7 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	FCC Part 15.209(a) RSS-Gen Table 5
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

Remark:
Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

5.1.8 Conducted Emission on AC Mains

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.207(a) RSS-Gen Clause 8.8
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) RSS-Gen Clause 8.8
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	Refer to test result
Input voltage	:	AC 120V@60Hz
Operation mode	:	C
Earthing	:	Not connected
Ambient temperature	:	24 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

7 List of Tables

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Appendix A: Test Results of BLE

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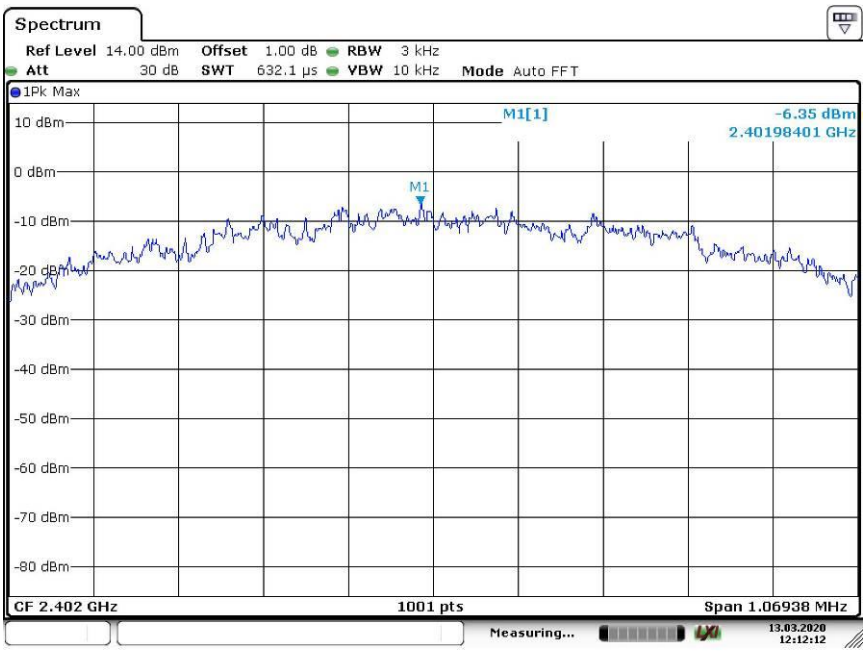
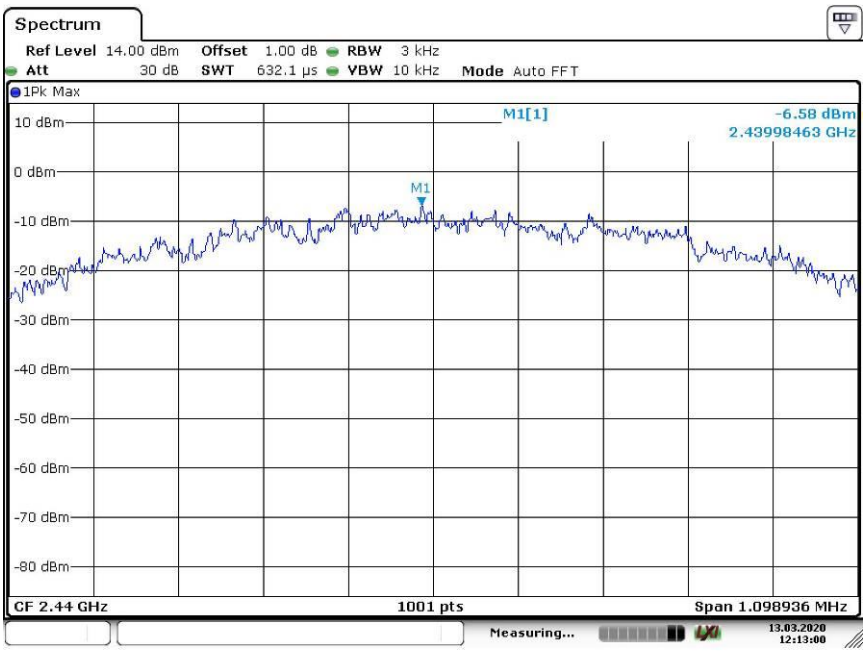
Appendix A.1: Test Results of Conducted Power Spectral Density

Low Channel



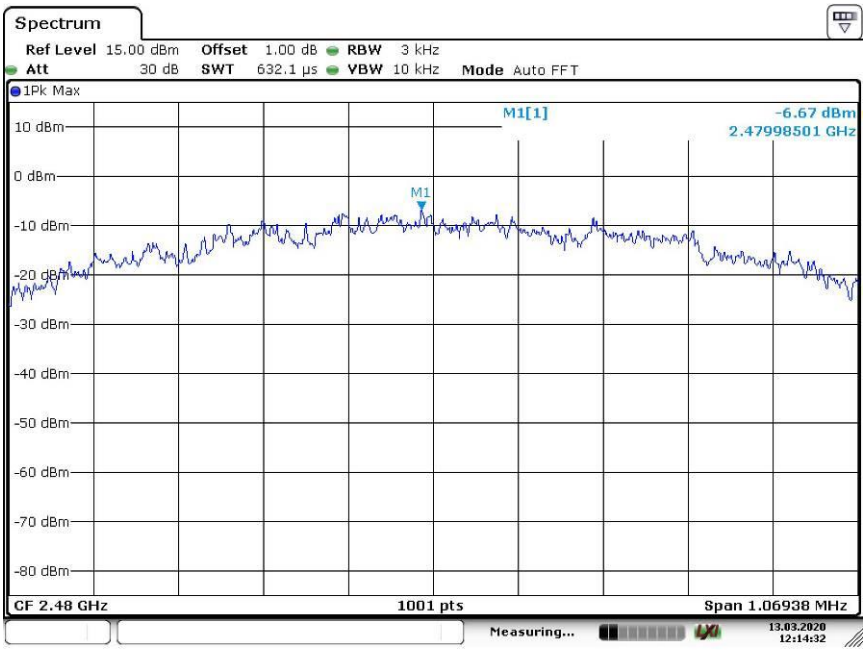
Date: 13.MAR.2020 12:12:12

Middle Channel



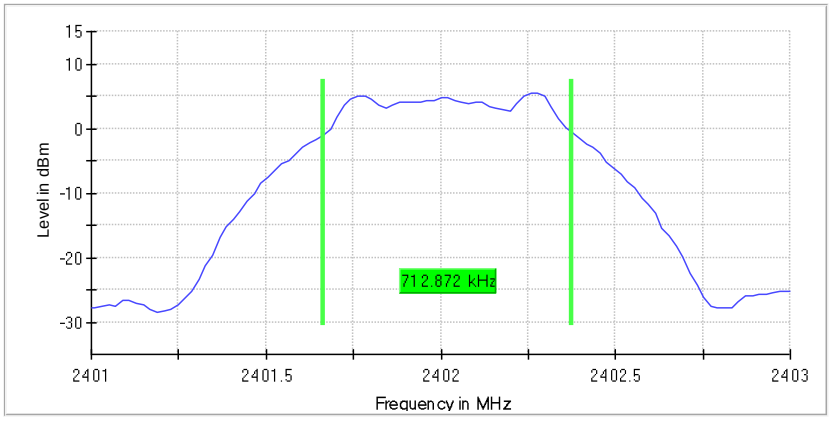
Date: 13.MAR.2020 12:13:00

High Channel

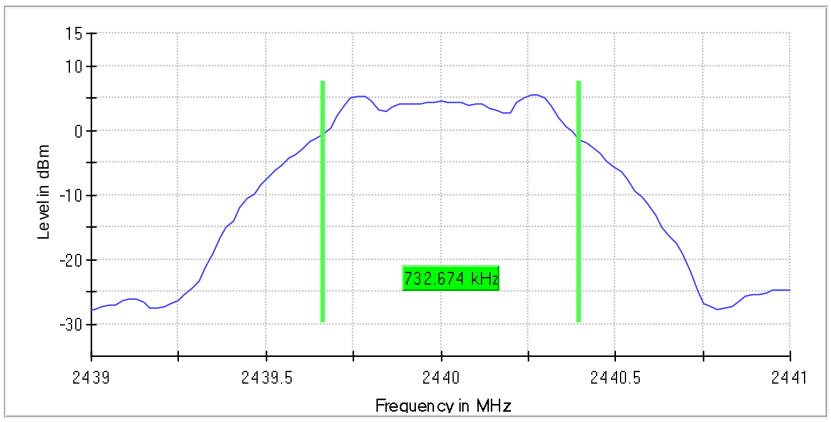


Appendix A.2: Test Results of 6dB Bandwidth

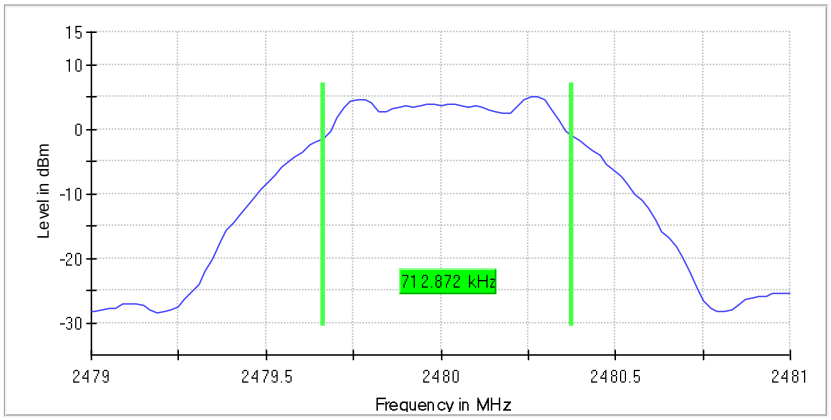
Low Channel
(RBW=100KHz, VBW=300KHz)



Middle Channel
(RBW=100KHz, VBW=300KHz)

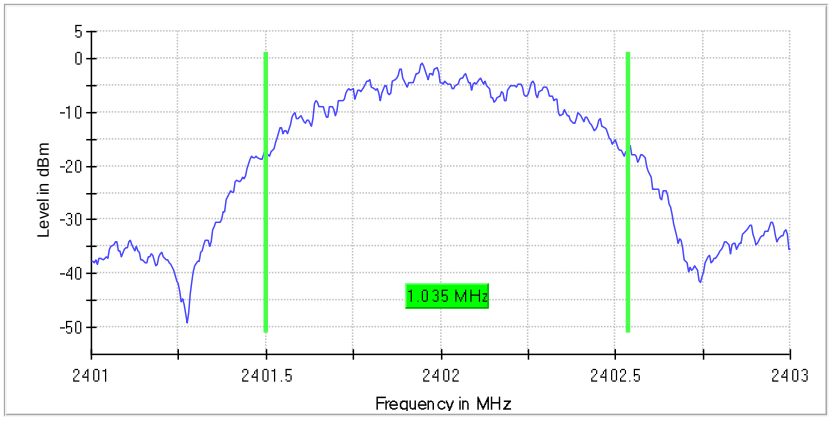


High Channel
(RBW=100KHz, VBW=300KHz)

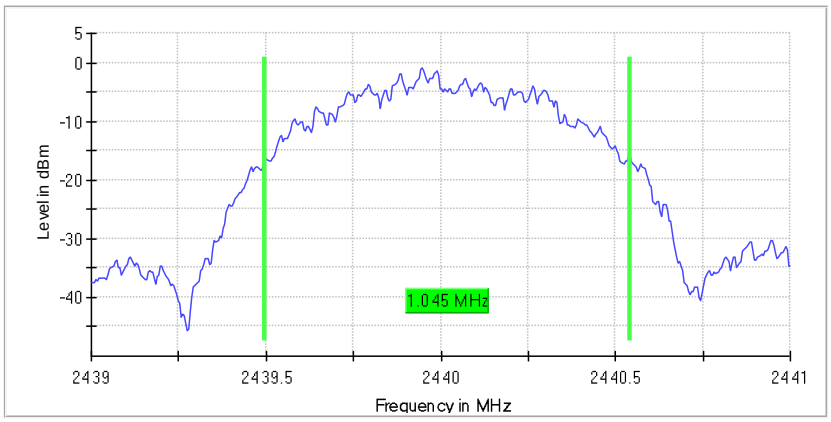


Appendix A.3: Test Results of 99% Bandwidth

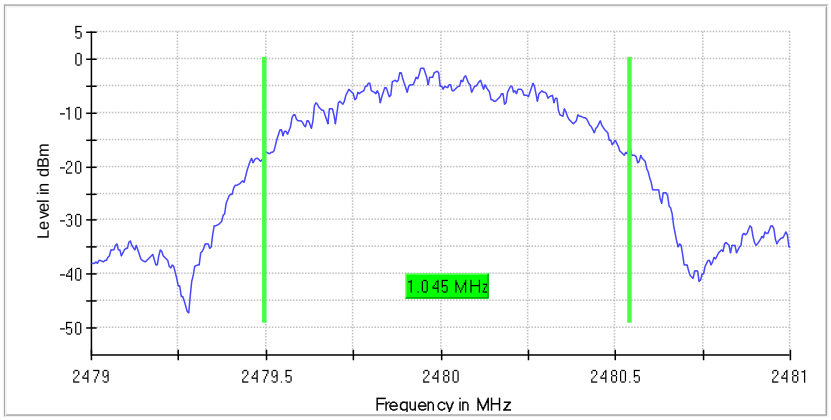
Low Channel
(RBW=10KHz, VBW=30KHz)



Middle Channel
(RBW=10KHz, VBW=30KHz)

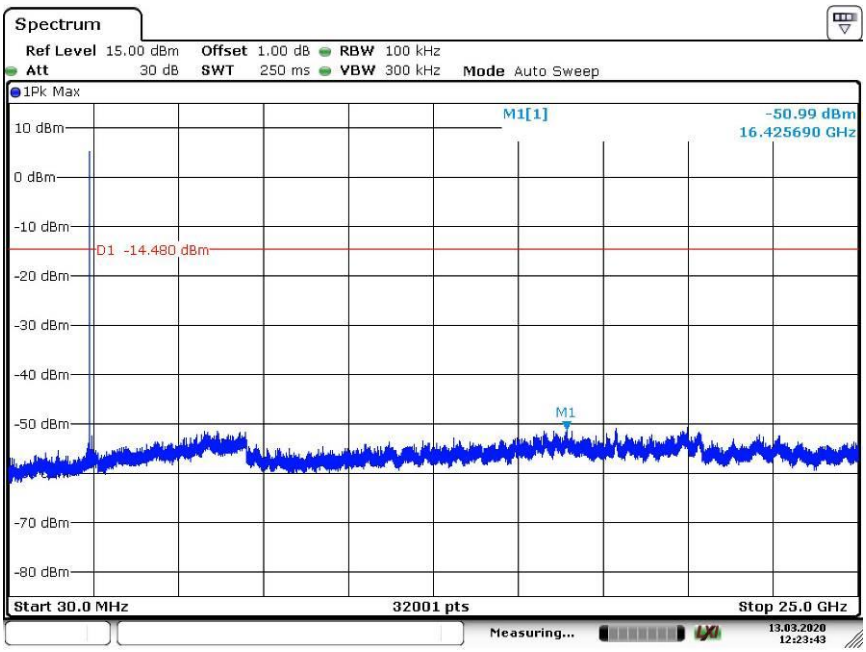


High Channel
(RBW=10KHz, VBW=30KHz)



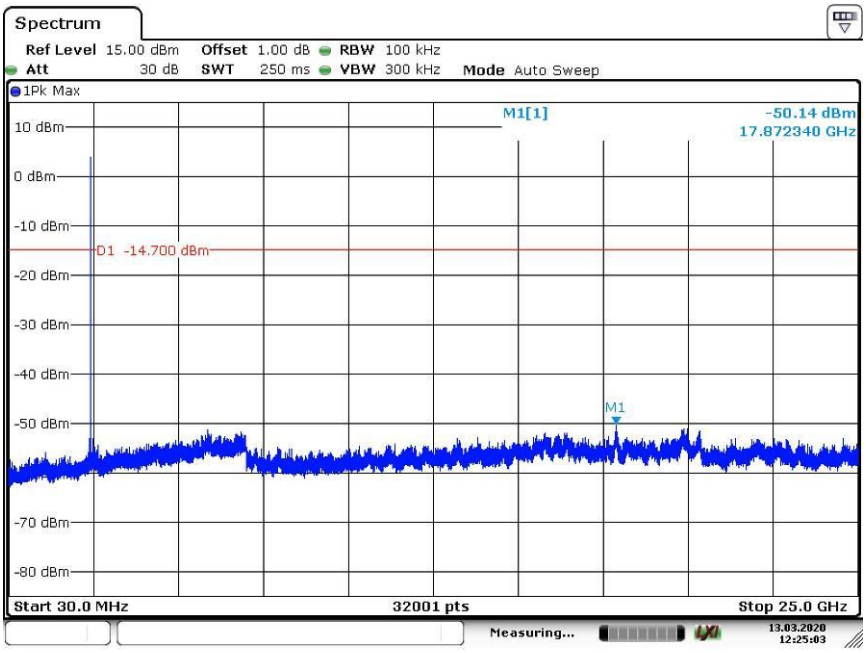
Appendix A.4: Test Results of Conducted Spurious Emissions

Low Channel



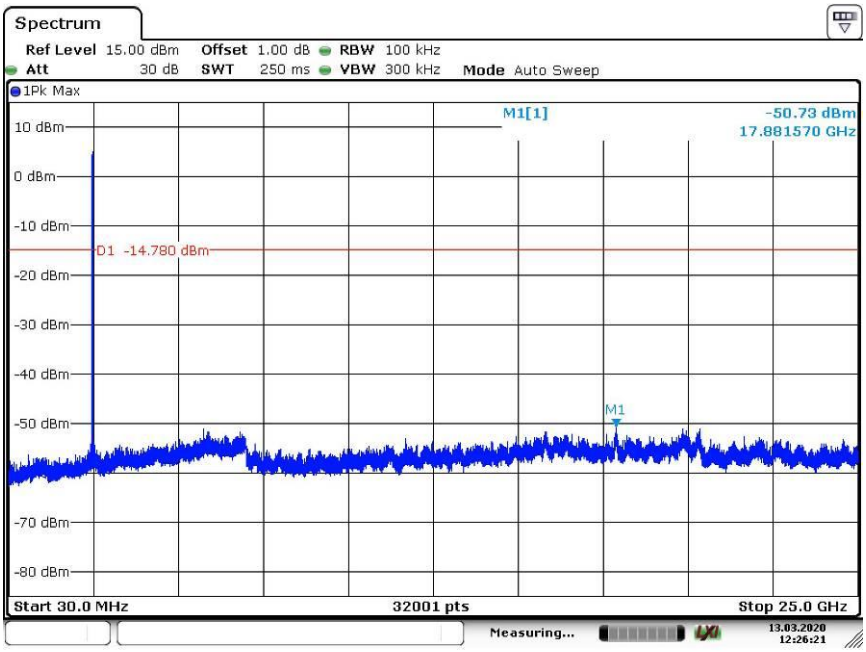
Date: 13.MAR.2020 12:23:44

Middle Channel



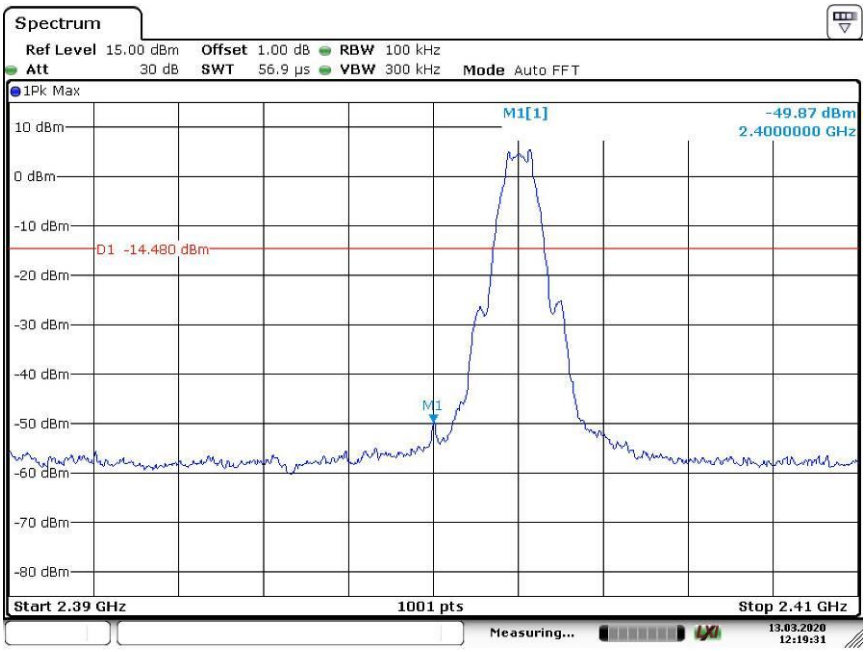
Date: 13.MAR.2020 12:25:04

High Channel



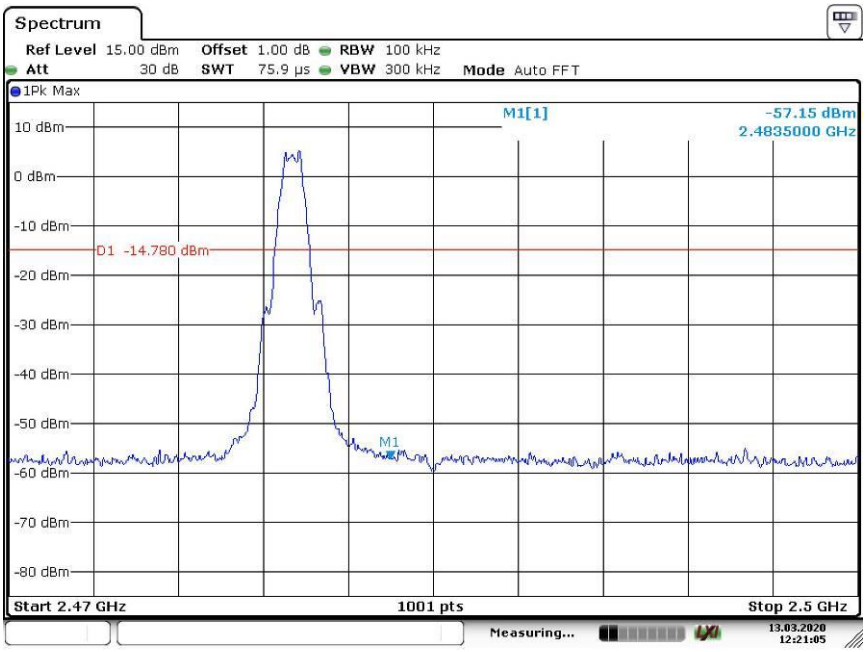
Date: 13.MAR.2020 12:26:21

Band Edge, Low Channel



Date: 13.MAR.2020 12:19:31

Band Edge, High Channel



Date: 13.MAR.2020 12:21:05

Appendix A.5: Test Results of Radiated Spurious Emissions

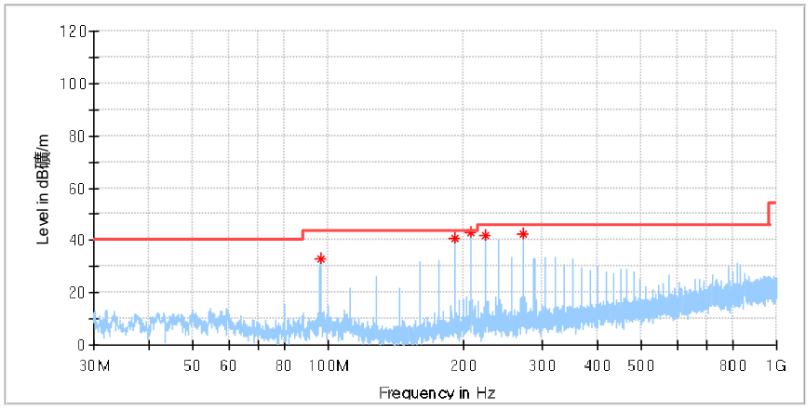
30 MHz to 1GHz

Test 1 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
95.960000	32.94	---	43.50	10.56	100.0	H	45.0	-19.9
191.990000	40.47	---	43.50	3.03	100.0	H	6.0	-19.7
207.946500	41.17	---	43.50	2.33	100.0	H	14.0	-19.2
224.000000	41.73	---	46.00	4.27	100.0	H	33.0	-18.7
271.966500	42.15	---	46.00	3.85	100.0	H	43.0	-17.2

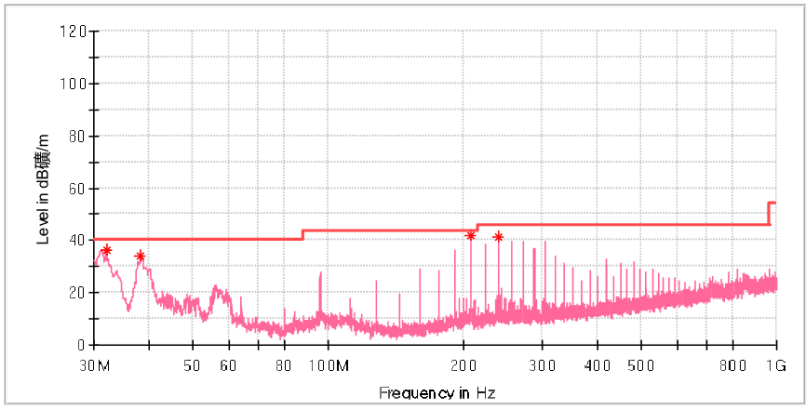
6/3/2020 5:25:45 PM

Test 2 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

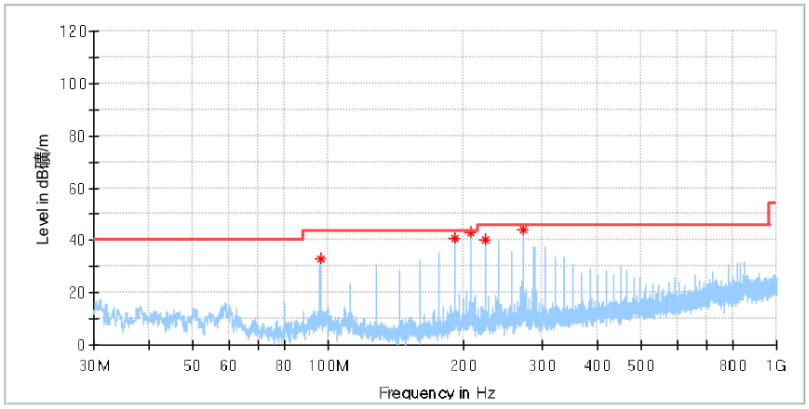
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.988500	36.38	---	40.00	3.62	100.0	V	103.0	-23.0
38.245000	33.95	---	40.00	6.05	100.0	V	41.0	-21.0
207.995000	41.10	---	43.50	2.40	100.0	V	145.0	-19.2
240.005000	41.34	---	46.00	4.66	100.0	V	184.0	-18.0

Test 3 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Mid channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

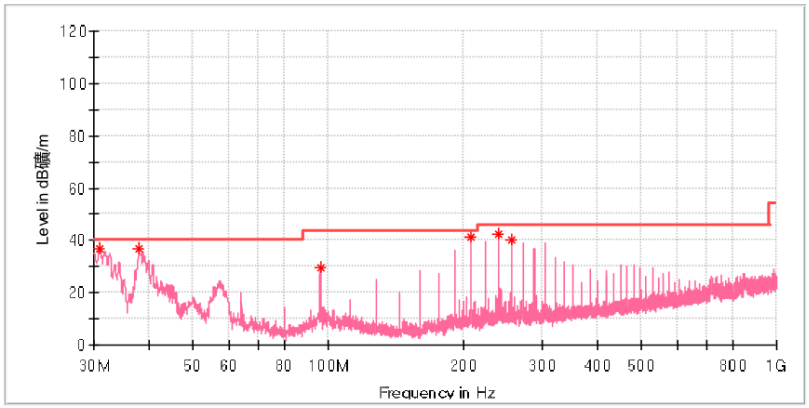
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
95.960000	33.09	---	43.50	10.41	200.0	H	61.0	-19.9
191.990000	40.48	---	43.50	3.02	200.0	H	0.0	-19.7
207.995000	41.32	---	43.50	2.18	200.0	H	7.0	-19.2
224.000000	40.06	---	46.00	5.94	200.0	H	43.0	-18.7
271.966500	43.32	---	46.00	2.68	200.0	H	90.0	-17.2

Test 4 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Mid channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

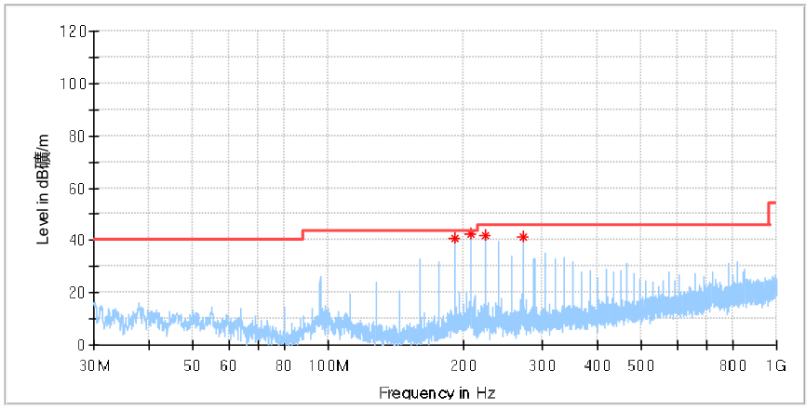
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.873000	36.85	---	40.00	3.15	100.0	V	90.0	-23.2
37.857000	36.70	---	40.00	3.30	100.0	V	1.0	-21.1
95.960000	29.83	---	43.50	13.67	100.0	V	123.0	-19.9
207.995000	41.25	---	43.50	2.25	100.0	V	123.0	-19.2
240.005000	42.36	---	46.00	3.64	100.0	V	162.0	-18.0
256.010000	40.31	---	46.00	5.69	100.0	V	171.0	-17.6

Test 5 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

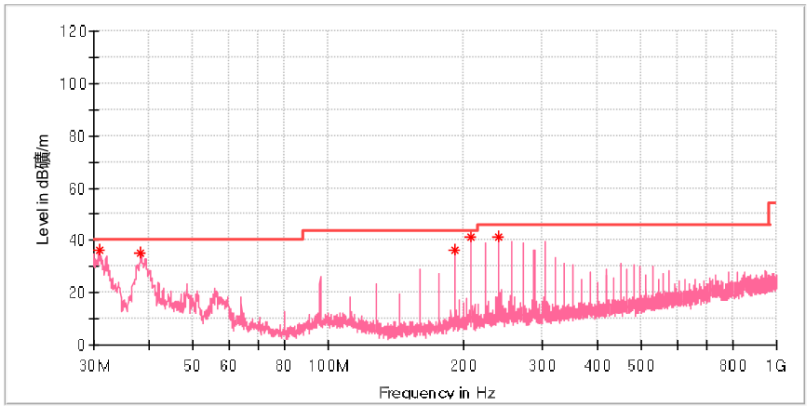
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
191.990000	40.64	---	43.50	2.86	100.0	H	16.0	-19.7
207.946500	41.36	---	43.50	2.14	100.0	H	45.0	-19.2
224.000000	41.93	---	46.00	4.07	100.0	H	34.0	-18.7
271.966500	41.25	---	46.00	4.75	100.0	H	45.0	-17.2

Test 6 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 24 Humi:45%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.873000	36.55	---	40.00	3.45	100.0	V	200.0	-23.2
38.245000	35.00	---	40.00	5.00	100.0	V	271.0	-21.0
191.990000	36.56	---	43.50	6.94	100.0	V	131.0	-19.7
207.995000	41.15	---	43.50	2.35	100.0	V	131.0	-19.2
240.005000	41.14	---	46.00	4.86	100.0	V	155.0	-18.0

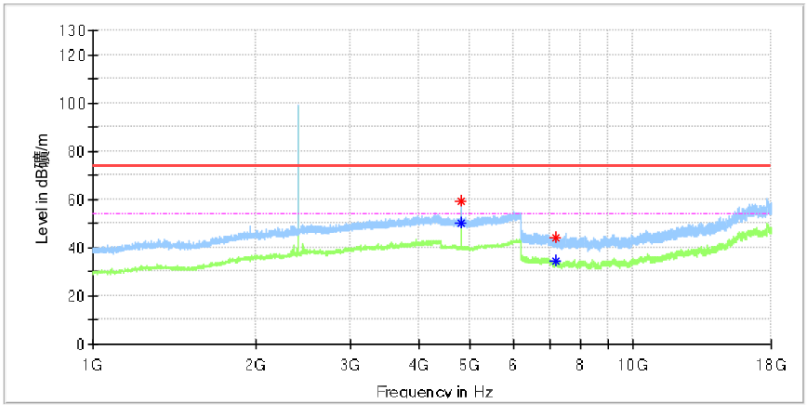
Above 1GHz

Test 1 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.000000	---	50.23	54.00	3.77	100.0	H	124.0	13.6
4803.500000	59.40	---	74.00	14.60	100.0	H	124.0	13.6
7203.491667	---	34.60	54.00	19.40	100.0	H	329.0	8.8
7204.966667	43.90	---	74.00	30.10	100.0	H	358.0	8.8

23/2/2020 3:30:40 PM

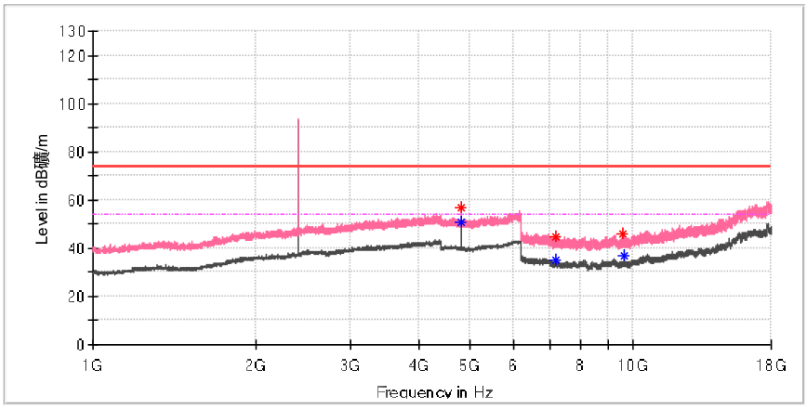
Note: The highest waveform in the figure is Bluetooth Fundamental.

Test 2 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

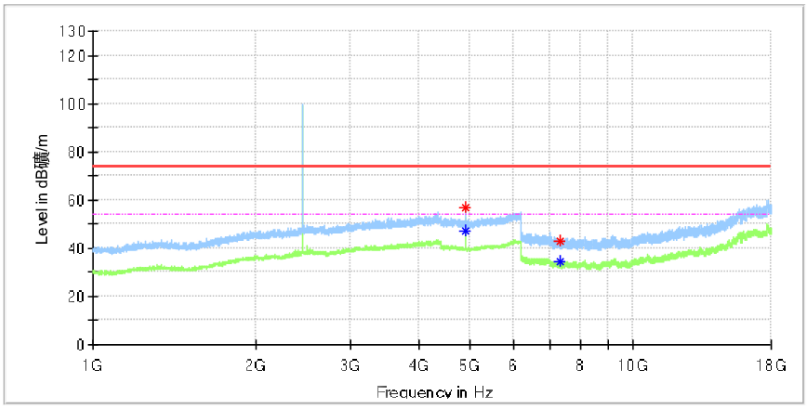
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4804.000000	---	50.92	54.00	3.08	100.0	V	109.0	13.6
4804.000000	56.78	---	74.00	17.22	100.0	V	109.0	13.6
7206.441667	---	35.07	54.00	18.93	100.0	V	294.0	8.8
7207.425000	45.00	---	74.00	29.00	100.0	V	17.0	8.8
9582.175000	46.02	---	74.00	27.98	100.0	V	136.0	10.3
9607.250000	---	36.72	54.00	17.29	100.0	V	75.0	10.4

Test 3 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Mid channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

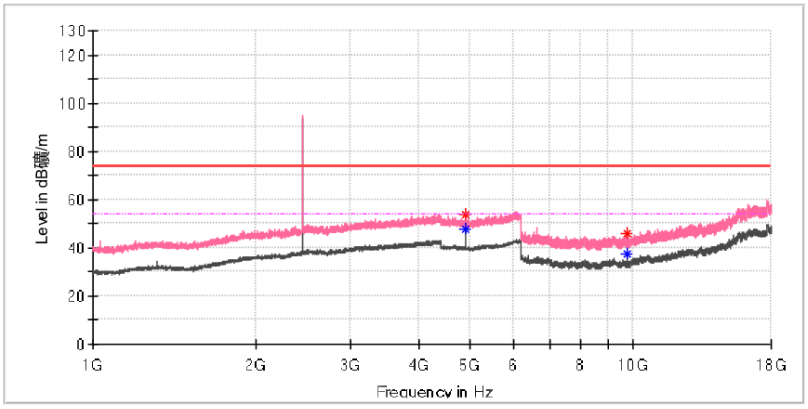
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4881.000000	---	47.26	54.00	6.74	100.0	H	160.0	13.4
4881.500000	56.59	---	74.00	17.41	100.0	H	123.0	13.4
7320.508333	---	34.36	54.00	19.64	100.0	H	190.0	8.2
7322.966667	43.06	---	74.00	30.94	100.0	H	190.0	8.2

Test 4 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Mid channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

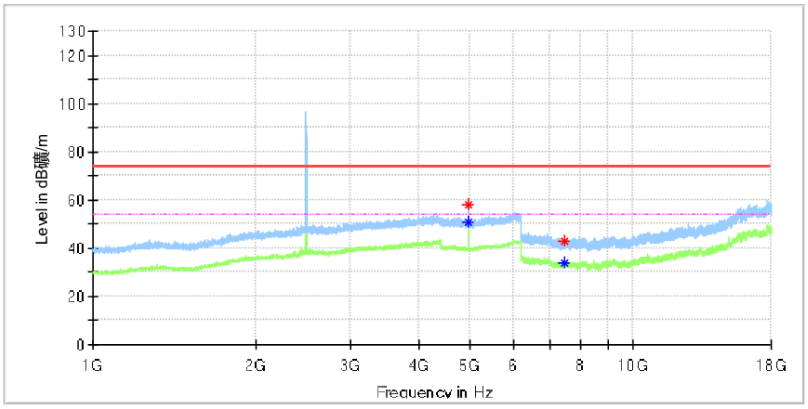
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4881.500000	---	48.00	54.00	6.00	100.0	V	105.0	13.4
4881.500000	54.10	---	74.00	19.90	100.0	V	105.0	13.4
9764.583333	---	37.33	54.00	16.67	100.0	V	22.0	10.4
9764.583333	45.70	---	74.00	28.30	100.0	V	22.0	10.4

Test 5 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

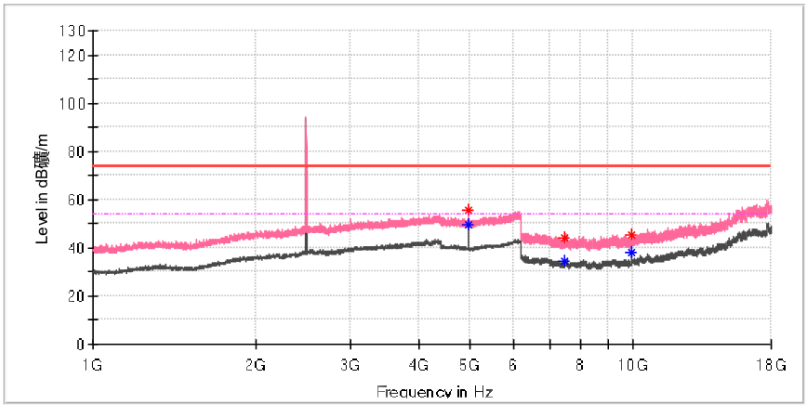
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4960.000000	57.98	---	74.00	16.02	100.0	H	128.0	13.2
4960.500000	---	50.67	54.00	3.33	100.0	H	128.0	13.2
7437.525000	43.15	---	74.00	30.85	100.0	H	4.0	8.4
7442.441667	---	34.11	54.00	19.89	100.0	H	284.0	8.4

Test 6 / 6

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4960.000000	---	49.35	54.00	4.65	100.0	V	124.0	13.2
4960.500000	55.70	---	74.00	18.30	100.0	V	114.0	13.2
7439.491667	---	34.45	54.00	19.55	100.0	V	294.0	8.4
7445.391667	43.84	---	74.00	30.16	100.0	V	31.0	8.5
9920.441667	---	37.91	54.00	16.09	100.0	V	50.0	10.8
9921.425000	45.10	---	74.00	28.90	100.0	V	50.0	10.8

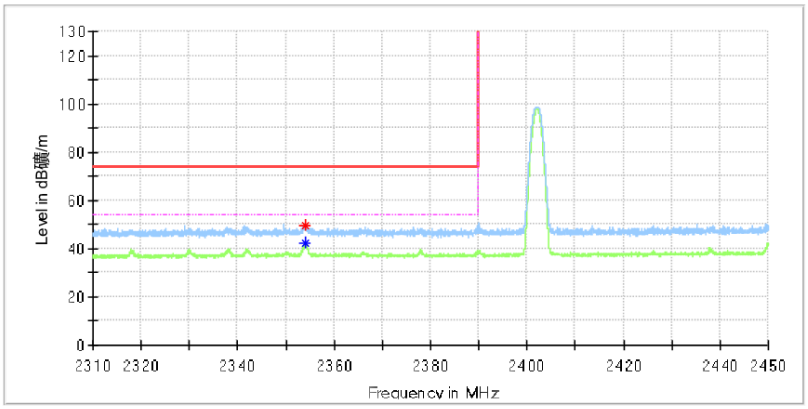
Appendix A.6: Test Results of Radiated Emissions in Restricted Bands

Test 1 / 4

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

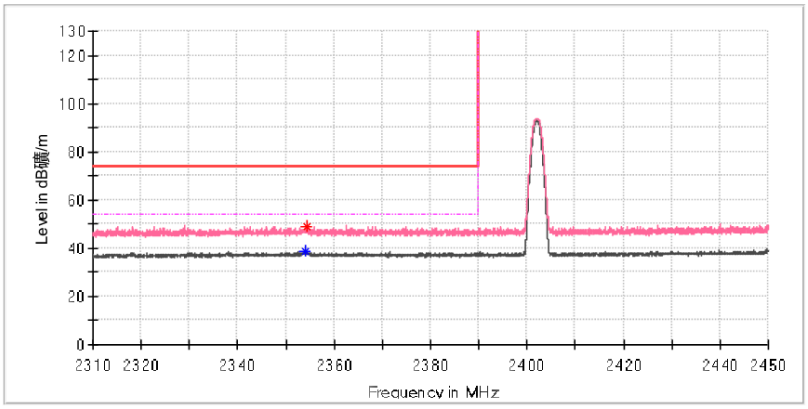
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2353.935294	49.28	---	74.00	24.72	100.0	H	22.0	6.9
2353.935294	---	42.51	54.00	11.49	100.0	H	22.0	6.9

Test 2 / 4

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_Low channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

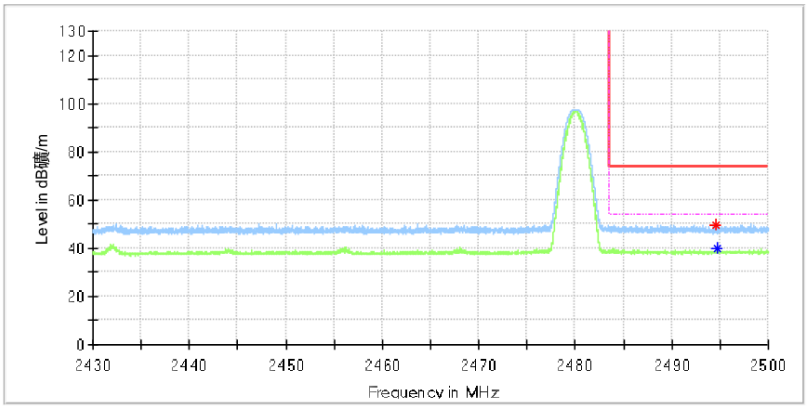
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2354.038235	---	38.98	54.00	15.02	100.0	V	117.0	6.9
2354.244118	49.24	---	74.00	24.76	100.0	V	359.0	6.9

Test 3 / 4

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

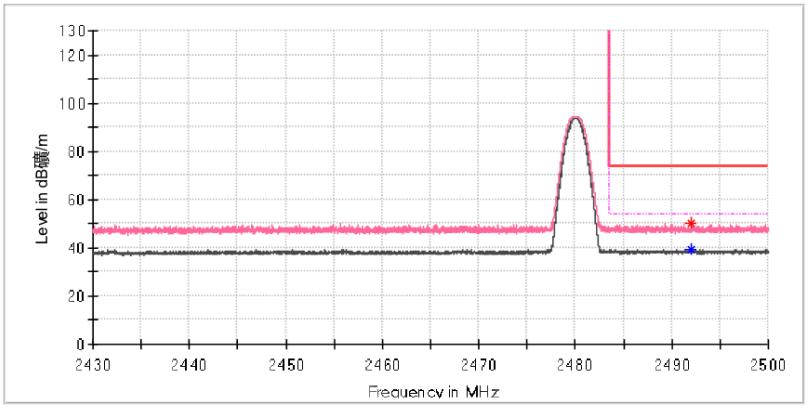
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2494.626471	49.53	---	74.00	24.47	100.0	H	194.0	7.4
2494.688235	---	39.62	54.00	14.38	100.0	H	166.0	7.4

Test 4 / 4

Test Report

EUT Information

EUT Name:	BLE Power bar
Model:	APS811
Test Mode:	BLE_TX_High channel
Test Voltage::	AC120V/60Hz
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2491.939706	50.06	---	74.00	23.94	100.0	V	0.0	7.4
2492.011765	---	39.15	54.00	14.85	100.0	V	276.0	7.4

Appendix A.7: Test Results of Conducted Emission on AC Mains

Full Load

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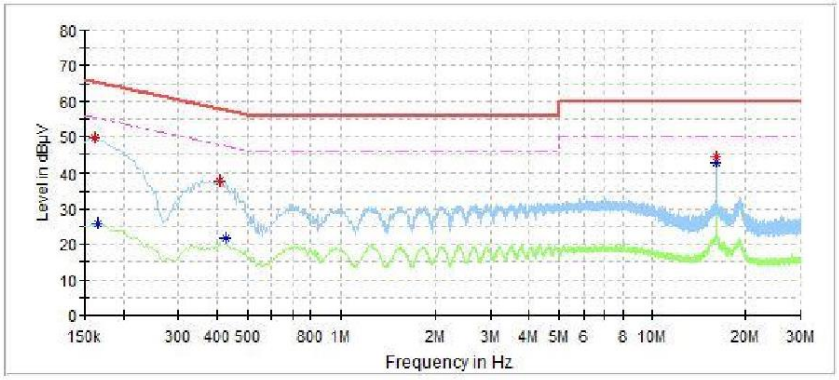
Test Report

EUT Information

EUT Name:	Smart Power Surge Protector
Model:	APS811
Order No.:	168148803
Test Mode:	Full Load
Test Voltage:	AC 120V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.162000	49.66	---	65.36	15.70	---	---	L1	9.6
0.166000	---	25.71	55.16	29.45	---	---	L1	9.6
0.410000	37.77	---	57.65	19.88	---	---	L1	9.7
0.426000	---	21.79	47.33	25.54	---	---	L1	9.7
16.000000	44.44	---	60.00	15.56	---	---	L1	10.3
16.000000	---	42.60	50.00	7.40	---	---	L1	10.3

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

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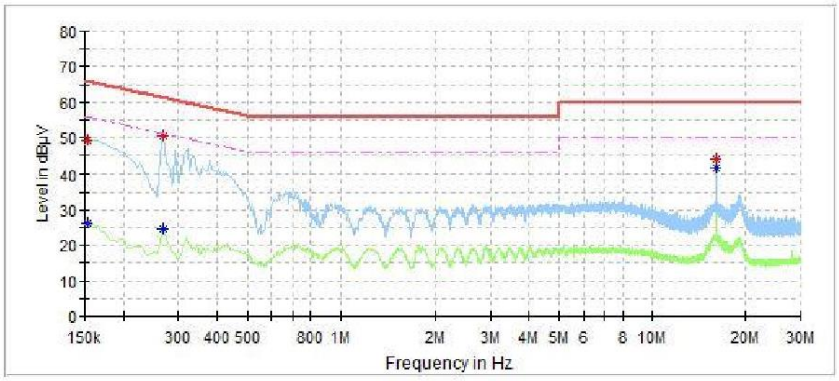
Test Report

EUT Information

EUT Name:	Smart Power Surge Protector
Model:	APS811
Order No.:	168148803
Test Mode:	Full Load
Test Voltage:	AC 120V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154000	---	26.06	55.78	29.72	---	---	N	9.6
0.154000	49.27	---	65.78	16.51	---	---	N	9.6
0.270000	50.64	---	61.12	10.48	---	---	N	9.6
0.270000	---	24.65	51.12	26.47	---	---	N	9.6
16.000000	43.82	---	60.00	16.18	---	---	N	10.4
16.000000	---	41.30	50.00	8.70	---	---	N	10.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

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