

Prüfbericht-Nr.: <i>Test report no.:</i>	60393820-004	Auftrags-Nr.: <i>Order no.:</i>	23870383 030	Seite 1 von 95 <i>Page 1 of 95</i>	
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	1288980	Auftragsdatum: <i>Order date:</i>	2020.04.15		
Auftraggeber: <i>Client:</i>	Cochlear Bone Anchored Solutions AB				
Prüfgegenstand: <i>Test item:</i>	Bone anchored sound processor				
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	Baha 6 Max FCC ID: QZ3BAHA6MAX				
Auftrags-Inhalt: <i>Order content:</i>	FCC Compliance testing				
Prüfgrundlage: <i>Test specification:</i>	FCC 47 CFR Part 15.247 with parts 15.207 & 15.209 ANSI C63.10: 2013				
Wareneingangsdatum: <i>Date of sample receipt:</i>	2020.05.27				
Prüfmuster-Nr.: <i>Test sample no.:</i>	See 2.3				
Prüfzeitraum: <i>Testing period:</i>	2020.06.02 - 2020.06.26				
Ort der Prüfung: <i>Place of testing:</i>	Lund, Sweden				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland Sweden				
Prüfergebnis*: <i>Test result*:</i>	Pass				
überprüft von: <i>reviewed by:</i>	genehmigt von: <i>authorized by:</i>				
Datum: 2020.12.17 <i>Date:</i>	Datum: 2020.12.17 <i>Date:</i>				
Stellung / Position:	Senior Technical Expert	Stellung / Position:	Lab Manager		
Sonstiges / Other:					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>					
Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>					
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable	5 = poor 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. <i>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.</i>					

Revision History60393820-00460393820-004

REVISION	DATE	REMARKS	AUTHOR
001	2020.07.14	First release	Fariborz Abasi
002	2020.07.15	Corrected FCC ID in pages 1 & 5	Fariborz Abasi
003	2020.12.08	Updated conducted results and tables	Niall Forrester
004	2020.12.17	Corrected table and plot for Band Edge	Niall Forrester
Note: Latest revision report will replace all previous reports			
This report based on FCC Part 15.247 Template version 1.1			

Summary of Test Results

FCC 47 CFR Rule Part	Test Description	Applicability	Report Section	RESULT	REMARKS
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	NO	4.1	N/A	
15.209	Radiated Emissions (Intentional Radiators)	YES	4.2	PASS	
15.247 (d)	Out of Band Emissions	YES	4.3	PASS	
15.247 (d)	Band Edge Compliance (Authorized Band)	YES	4.4	PASS	
15.247 (d)	Band Edge Compliance (Restricted Band)	YES	4.5	PASS	
15.247 (a)(1)	20dB Bandwidth	NO	4.6	N/A	
15.247 (a)(1)	Carrier (Hopping Channel) Separation	NO	4.7	N/A	
15.247 (a)(1)	Number of Hopping Channels	NO	4.8	N/A	
15.247 (a)(1)	Time of Occupancy (Dwell Time)	NO	4.9	N/A	
15.247 (a)(2)	6dB Bandwidth	YES	4.10	PASS	
15.247 (b)	Peak Conducted Output Power	YES	4.11	PASS	
15.247 (e)	Power Spectral Density	YES	4.12	PASS	

Possible test case verdicts:

- | | |
|--|-----------------------|
| - Test case does not apply to the test object: | N/A |
| - Test object complies with the requirement: | PASS or COMPLIANT |
| - Test object does not meet the requirement: | FAIL or NOT COMPLIANT |
| - Test case not performed on the test object: | N.P. |

Table of Contents

1. GENERAL INFORMATION	4
1.1 Test Site.....	4
1.2 Client Information	4
2. PRODUCT INFORMATION.....	5
2.1 General Description.....	5
2.2 Device Characteristics.....	5
2.3 Test Samples	5
2.4 Wireless Technologies and Bands Supported by the EUT.....	5
2.5 Antenna Information.....	6
2.6 Wireless Technology Details	6
2.7 Ancillary Equipment.....	6
2.8 EUT Diagrams.....	6
3. TEST METHODS	7
3.1 Test Standards.....	7
3.2 Additional references.....	7
3.3 Limits	8
3.4 Description of Test Methods and Equipment Setup	9
3.5 EUT Configuration During Test.....	14
3.6 EUT Operation Modes.....	14
3.7 Deviations from the Test Standard	14
3.8 Environmental Conditions.....	15
4. TEST RESULTS	16
4.1 Test Results – AC Power Line Conducted Emissions (Intentional Transmitter).....	16
4.2 Test Results – Radiated Emissions (Intentional Transmitter)	17
4.3 Test Results – Out of Band Emissions	72
4.4 Test Results – Band Edge Compliance (Authorized Band)	74
4.5 Test Results – Band Edge Compliance (Restricted Band).....	77
4.6 Test Results – 20dB Bandwidth.....	82
4.7 Test Results – Carrier (Hopping Channel) Separation	82
4.8 Test Results – Number of Hopping Channels.....	82
4.9 Test Results – Time of Occupancy (Dwell Time)	82
4.10 Test Results – 6dB Bandwidth.....	83
4.11 Test Results – Peak Conducted Output Power	86
4.12 Test Results – Power Spectral Density.....	89
5. TEST EQUIPMENT STATUS.....	92
5.1 List of Hardware with Calibration Dates	92
5.2 Software / Firmware Versions.....	93
6. MEASUREMENT UNCERTAINTY	94
6.1 Measurement Uncertainty for CTE	94
6.2 Measurement Uncertainty for Conducted Emissions	94
6.3 Measurement Uncertainty for SAC 5 (Radiated Emissions & Band Edge)	94
7. PHOTOGRAPHS.....	95
7.1 Photographs of the EUT	95
7.2 Photographs of the Test Setup	95

1. GENERAL INFORMATION

1.1 Test Site

Test Facility:	TÜV Rheinland Sweden AB
Address:	Mobilvägen 10
	223 62 Lund
	Sweden
Swedac Registration Number:	10325
FCC Test Firm Registration Number:	517458
ISED Test Site Registration Number:	24753

1.2 Client Information

Company Name:	Cochlear Bone Anchored Solutions AB
Address:	Konstruktionsvägen 14
	43533 Mölnlycke
	Sweden
Contact Person:	Kristina Olsson
Contact e-Mail / Telephone	krolsson@cochlear.com / +46 766 498688

2. PRODUCT INFORMATION

2.1 General Description

Model name:	Baha 6 Max
Manufacturer:	Cochlear Bone Anchored Solutions AB
Model number / Marketing name:	Baha 6 Max Sound Processor
FCC ID:	QZ3BAHA6MAX
Description:	Bone anchored sound processor
Ancillary Equipment:	See section 2.7

2.2 Device Characteristics

Device Class for 47 CFR Part 15 B	B
Type of Power Supply	DC
Nominal Supply Voltage	1.45 V
Supply Voltage Range	1.1 V – 1.45 V
Operating Temperature Range	+5 to +40°C
Operating Air Humidity Range	10% to 90% RH
Highest Internal Frequency Source	32 MHz

2.3 Test Samples

EUT #	EUT ID	Description	Used For:
1	A002835296-001	-	Radiated Emissions
2	A002835296-002	-	Radiated Emissions
3	A002835296-004	-	Conducted RF

2.4 Wireless Technologies and Bands Supported by the EUT

Technology	Band	Frequency Range (Tx)	Evaluation Performed*
Bluetooth LE	2.4 GHz ISM	2402-2480 MHz	YES
Proprietary protocol	2.4 GHz ISM	2402-2480 MHz	YES

*This statement refers only to this report. Other wireless technologies may be covered by other reports.

2.5 Antenna Information

Technology	Band	Number of Antennas	Antenna Type(s)	Gain
Bluetooth LE, Proprietary protocol	2.4 GHz ISM	1	Foil	-6.71 dBi

2.6 Wireless Technology Details

Technology	Band	Modulation Type(s)	No. of Channels	Channel Spacing	Adaptivity
Bluetooth LE	2.4 GHz ISM	GFSK	40	2 MHz	N/A
Proprietary protocol	2.4 GHz ISM	GFSK	16	5 MHz	N/A

2.7 Ancillary Equipment

ID	Description	Manufacturer / Model	Hardware & Software Versions
A002835296-007	Programming Laptop	Lenovo - ThinkPad	N/A
A002835296-012	Programming unit	NoahLink Wireless	N/A

2.8 EUT Diagrams

N/A

3. TEST METHODS

3.1 Test Standards

Testing was performed according to the following standards / references

Standard	Version	Description
FCC 47 CFR 15.247	-	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
FCC 47 CFR 15.207	-	Conducted limits
FCC 47 CFR 15.209	-	Radiated emission limits; general requirements

3.2 Additional references

The following standards / references were also considered for the testing

Standard	Version	Description
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.3 Limits

FCC 47 CFR Rule Part	Test Description	Limit Reference (FCC 47 CFR Reference)
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	15.207 (a)
15.209	Radiated Emissions (Intentional Radiators)	15.209 (a) *See Note 1
15.247 (d)	Out of Band Emissions	15.247 (d)
15.247 (d)	Band Edge Compliance (Authorized Band)	15.247 (d)
15.247 (d)	Band Edge Compliance (Restricted Band)	15.247 (d)
15.247 (a)(1)	20dB Bandwidth	15.247 (a)(1)
15.247 (a)(1)	Carrier (Hopping Channel) Separation	15.247 (a)(1)
15.247 (a)(1)	Number of Hopping Channels	15.247 (a)(1)
15.247 (a)(1)	Time of Occupancy (Dwell Time)	15.247 (a)(1)
15.247 (a)(2)	6dB Bandwidth	15.247 (a)(2)
15.247 (b)	Peak Conducted Output Power	15.247 (b)(3) [Non-Hopping]
15.247 (e)	Power Spectral Density	15.247 (e)

Note 1

Radiated Emissions limits in the tables from 47 CFR sections 15.109 & 15.209 are presented in $\mu\text{V/m}$. Measurements on the test system are made in $\text{dB}\mu\text{V/m}$. To convert between these, the following adjustment is used:

$$\text{New Limit} = 20 \log \left(\frac{\text{Original Limit}}{10^6} \right) + 120$$

Example: from 15.209(a) the limit for 30MHz – 88MHz is $100\mu\text{V/m}$ at 3m. This gives:

$$\text{New Limit} = 20 \log \left(\frac{100}{10^6} \right) + 120 = 40\text{dB}\mu\text{V/m at 3m}$$

Additionally, in some cases testing has been performed at distances other than those specified in the tables. When this has occurred, the limits have been adjusted in accordance with the requirements in 47 CFR 15.31, using an extrapolation factor of 40dB/decade at frequencies below 30MHz and 20dB/decade at or above 30MHz

Example: from 15.209(a) the limit for 1.705MHz – 30MHz is $30\mu\text{V/m}$ (=29.54 $\text{dB}\mu\text{V/m}$) at 30m

$$\text{Limit@3m} = \text{Limit@30m} + 40 \log \left(\frac{30}{3} \right) = 29.54 + 40.00 = 69.54 \text{ dB}\mu\text{V/m at 3m}$$

Example: from 15.209(a) the limit for 1GHz – 18GHz is $500\mu\text{V/m}$ (=53.98 $\text{dB}\mu\text{V/m}$) at 3m

$$\text{Limit@1m} = \text{Limit@3m} + 20 \log \left(\frac{3}{1} \right) = 53.98 + 9.54 = 63.52 \text{ dB}\mu\text{V/m at 1m}$$

3.4 Description of Test Methods and Equipment Setup

3.4.1 General Description

Testing was performed in accordance with the various requirements of ANSI C63.4 and ANSI C63.10. Any deviations from the test methods are described in section 3.7

Where different arrangements of equipment were used for different types of measurements, these are tabulated in section 3.4.2 and details of each arrangement are included in subsequent sections

3.4.2 Test Equipment Setup Used by Test Type

FCC 47 CFR Rule Part	Test Description	Test Equipment Used
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	N/A
15.209	Radiated Emissions (Intentional Radiators)	SAC5
15.247 (d)	Out of Band Emissions	CTE
15.247 (d)	Band Edge Compliance (Authorized band)	CTE
15.247 (d)	Band Edge Compliance (Restricted band)	SAC 5
15.247 (a)(1)	20dB Bandwidth	CTE
15.247 (a)(1)	Carrier (Hopping Channel) Separation	CTE
15.247 (a)(1)	Number of Hopping Channels	CTE
15.247 (a)(1)	Time of Occupancy (Dwell Time)	CTE
15.247 (a)(2)	6dB Bandwidth	CTE
15.247 (b)	Peak Conducted Output Power	CTE
15.247 (e)	Power Spectral Density	CTE

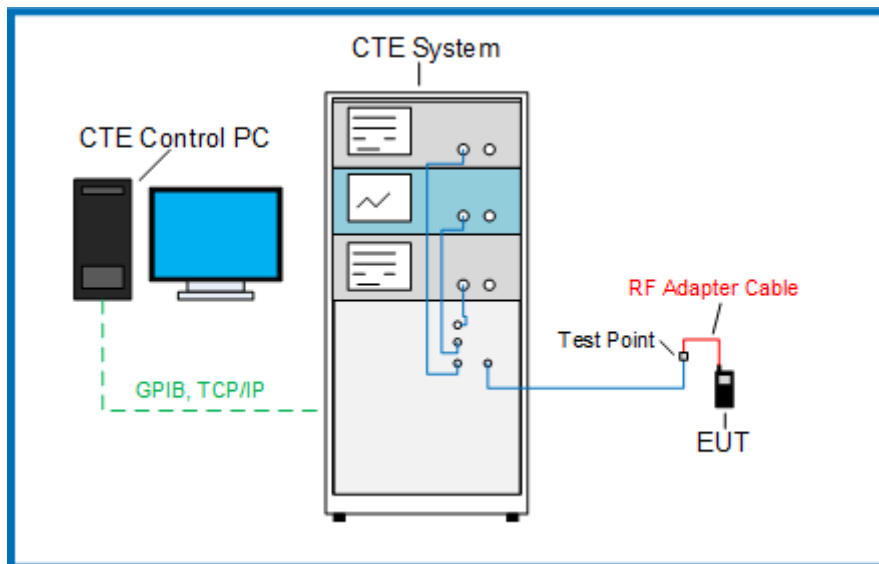
3.4.3 Test Equipment Setup – CTE System

The Comprehensive Test Environment (CTE) system consists of a number of instruments (see section 5.1.1) mounted in a rack together with automated relays and interconnecting hardware. The instruments and other equipment are controlled from a standard PC running software provided by the manufacturer. The RF output of the EUT is connected to the test system via a coaxial cable.

Tests are in the form of pre-defined scripts that can be loaded on the PC. The scripts, as well as the hardware setup, have been verified for conformance with the relevant test specifications.

Losses in the cables and interconnects have been measured using the system's own automated routines and are compensated for automatically. Any additional loss in RF adapter cables supplied together with the EUT can be compensated for using the known characteristics of that adapter.

CTE Block Diagram



3.4.4 Test Equipment Setup – Conducted Emissions

Not applicable activity to this product

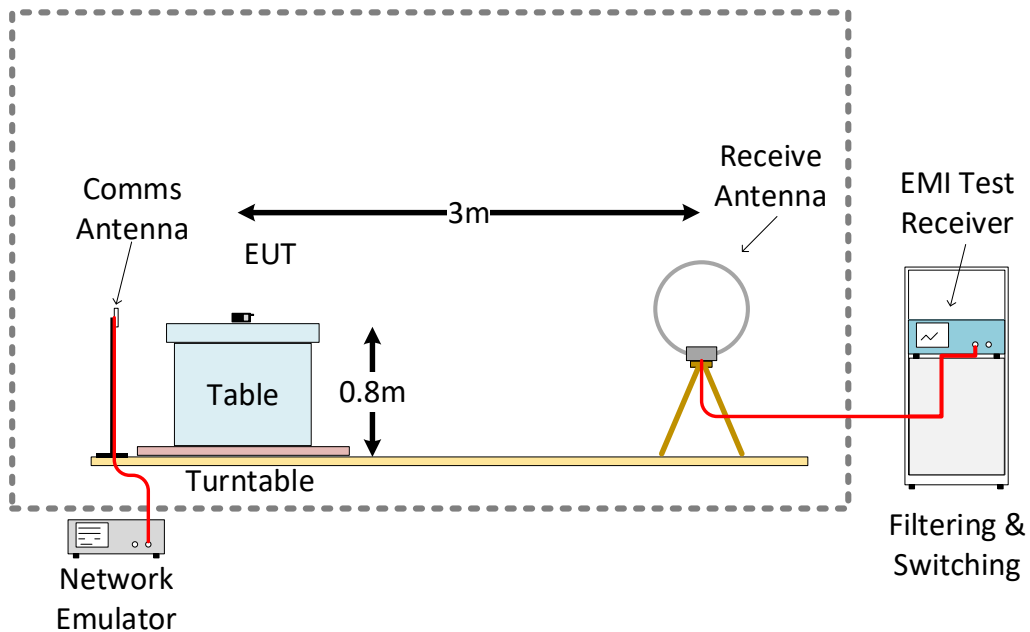
3.4.5 Test Equipment Setup – SAC 5 (Radiated Emissions and Restricted Band Edge)

The SAC 5 System consists of a Semi-Anechoic Chamber fulfilling the requirements of CISPR 16-1-4, together with measurement antennas, a measurement instrument and interconnecting switches, filters and amplifiers in a rack outside the chamber. A turntable is provided to allow for rotation of the equipment under test (EUT) and the measurement antennas can be positioned automatically as required. The system is controlled by a personal computer which allows for automation of the hardware and measuring equipment. Losses in the various paths between the measuring antenna and measuring instrument have been assessed and are compensated for automatically, together with the losses due to the distance between the equipment under test and the measuring antenna.

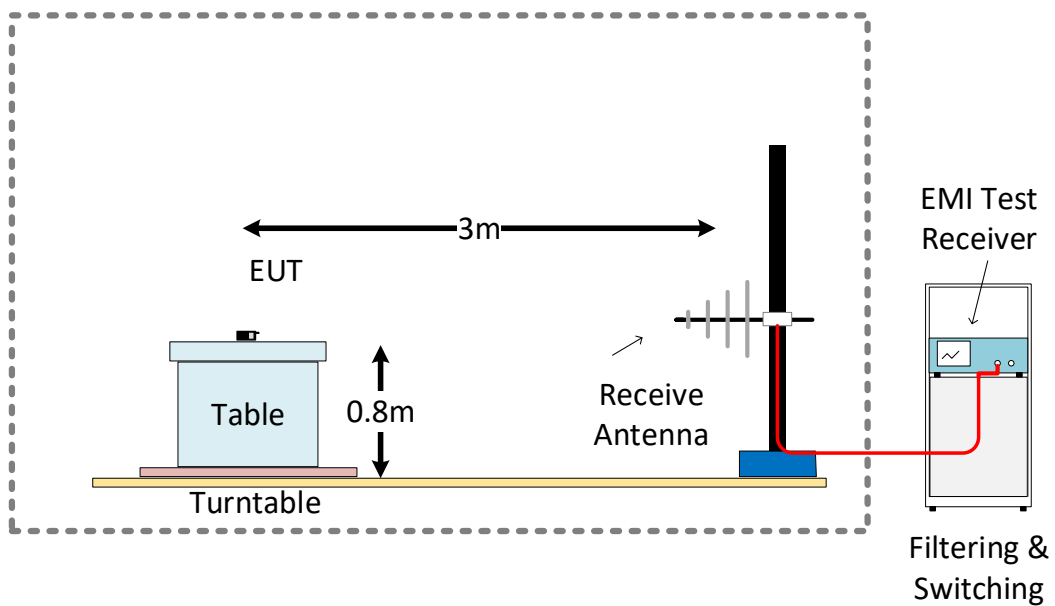
Additional equipment is available to allow for correct placement of the EUT, for example to raise the EUT to an appropriate height above the floor or to allow for additional rotation of the EUT in another axis. Further instruments can be connected to enable the correct wireless operation or monitoring of the EUT. Where required, filtered connectors and optical converters are provided to allow for connections through the wall of the chamber without compromising its performance. Air temperature and humidity are monitored using calibrated instruments.

- For measurements between 9 kHz and 30 MHz, the device is placed on a table at a height of 80cm from the floor with the radiating structure located above the center of the turntable. A magnetic loop antenna is placed with its reference point at a fixed height of 100cm from the floor and at a distance of 3m from the center of the turntable. The output of the antenna is connected to the external rack to allow for appropriate amplification and filtering where required. Testing is repeated for three different polarization positions for the loop antenna: 1) Loop of antenna parallel to the axis through antenna and turntable. 2) Loop of antenna perpendicular to the axis through the antenna and turntable. 3) Loop of antenna parallel to the floor. The EUT is rotated using the turntable to determine the position with maximum emissions.
- For frequency range 30MHz-1GHz Log-Periodic Antenna was used. Antenna elevated from 100 cm from floor to 400 cm from floor, and was placed at 3 m from center of turntable in tilted position. The equipment under test (EUT) was placed at the middle of the turntable at 80 cm height from floor. The antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.
- For frequency range 1GHz-18GHz horn Antenna was used. Antenna elevated from 100 cm from floor to 200 cm from floor, and was placed at 3 m from center of turntable. The equipment under test (EUT) was placed at the middle of the turntable at 150 cm height from floor. The antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.
- For frequency range 18GHz-40GHz double horn Antenna was used. Antenna's height was adjusted to 150 cm from floor, and 1 m distance to center of turntable. The equipment under test (EUT) was placed at the middle of the turntable on at 150 cm height from floor.
- For all frequency ranges the turntable was rotated 360° for obtaining the maximum emission.

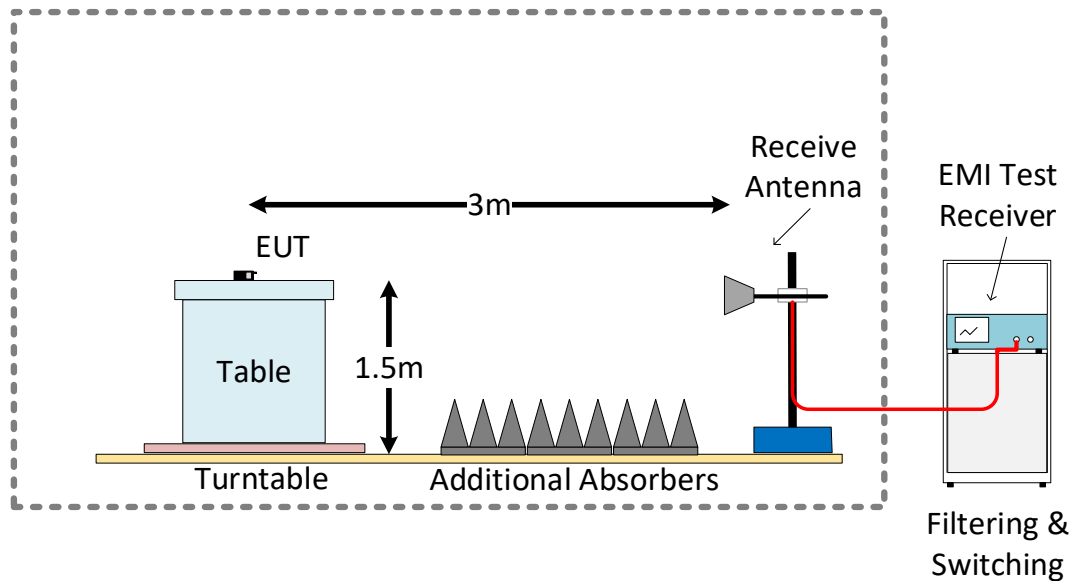
SAC 5 Test Setup Configuration 9 kHz – 30 MHz



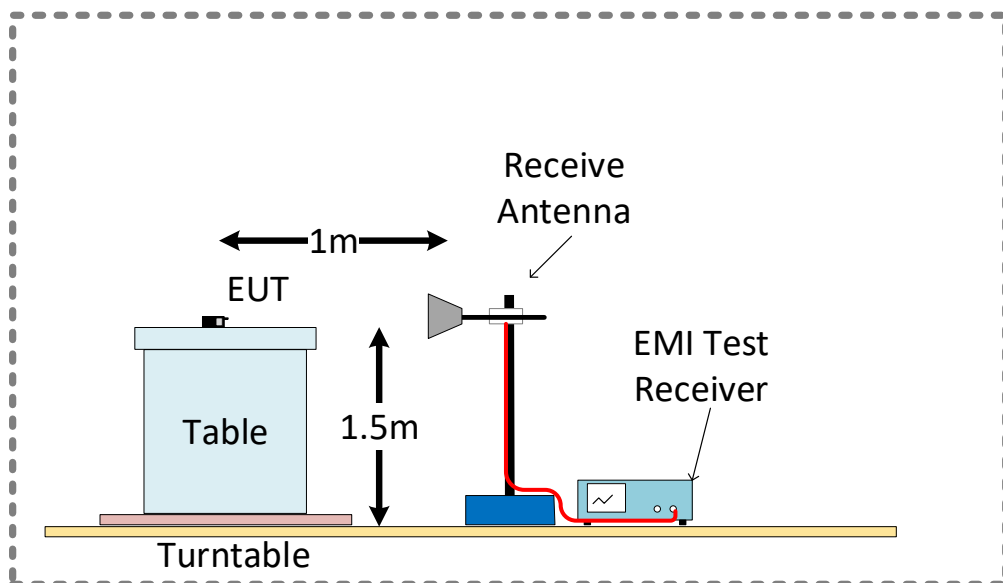
SAC 5 Test Setup Configuration 30MHz – 1GHz



SAC 5 Test Setup Configuration 1GHz – 18GHz



SAC 5 Test Setup Configuration 18GHz – 40GHz



3.5 EUT Configuration During Test

Stand-alone according to setup pictures. See appendix

3.6 EUT Operation Modes

Operation mode	Description
#1	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)
#2	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)
#3	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)
#4	BLE 2 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)
#5	BLE 2 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)
#6	BLE 2 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)
#7	Proprietary radio 2400 MHz Traffic Mode - Low Channel (Channel 2 – 2402 MHz)
#8	Proprietary radio 2400 MHz Traffic Mode - Mid Channel (Channel 40 – 2440 MHz)
#9	Proprietary radio 2400 MHz Traffic Mode - High Channel (Channel 80 – 2480 MHz)

3.7 Deviations from the Test Standard

None

3.8 Environmental Conditions

3.8.1 Environmental Conditions – CTE System

Date	Time	Temperature (°C)	Relative Humidity (%)
2020.06.01	8:30	22.3	44.6

3.8.2 Environmental Conditions – Conducted Emissions System

N/A

3.8.3 Environmental Conditions – SAC5 (Radiated Emissions)

Date	Time	Temperature (°C)	Relative Humidity (%)
2020.06.02	8:30	19.8	47.4
2020.06.03	8:30	21.1	40.5
2020.06.04	8:30	20.6	39.3
2020.06.05	8:30	21,4	42,3
2020.06.07	8:30	19,6	42,3
2020.06.08	8:30	20,6	42,4
2020.06.09	8:30	22,9	40,0
2020.06.10	8:30	19,6	46,0
2020.06.11	8:30	21,7	41,8
2020.06.12	8:30	18.6	53.7
2020.06.25	8:30	21.9	53.1
2020.06.26	8:30	22.9	49.3

4. TEST RESULTS

4.1 Test Results – AC Power Line Conducted Emissions (Intentional Transmitter)

4.1.1 AC Power Line Conducted Emissions (Intentional) – Test Summary

Not applicable activity to this product

4.1.2 AC Power Line Conducted Emissions (Intentional) – Test Details

Not applicable activity to this product

4.2 Test Results – Radiated Emissions (Intentional Transmitter)

4.2.1 Radiated Emissions (Intentional) – Test Summary

Test Specification		FCC 47 CFR 15.209 (Part 15 Subpart C)	
Test Engineer & Date		Sam Ebadeh Joel Efraimsson Fariborz Abasi Niall Forrester	2020.06.02 - 2020.06.26
EUT and Ancillary Equipment IDs		A002835296-001 A002835296-002	A002835296-007 Laptop A002835296-012 Programming unit
EUT Operation Mode(s)		#1 - #2 - #3 - #7 - #8 - #9	
EUT Wireless Configuration(s)		See below	
EUT Hardware Configuration(s)		-	
Overall Result		Pass	

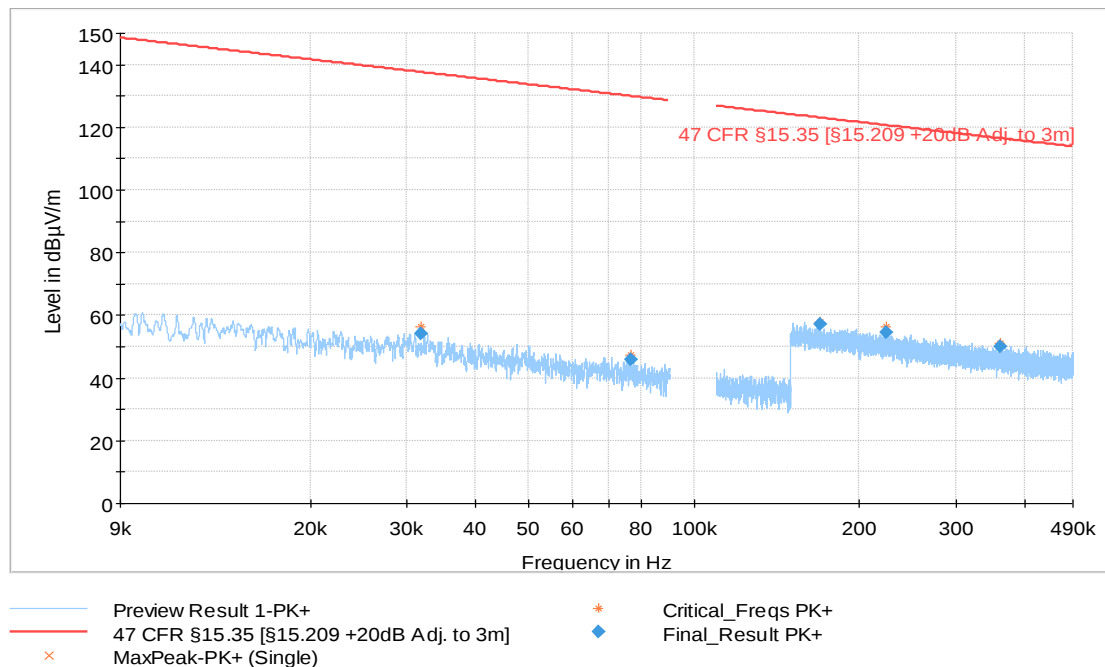
Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	#1 - #2 - #3	9 kHz – 30 MHz	Pass
Radiated Emissions	#1 - #2 - #3	30 MHz – 1 GHz	Pass
Radiated Emissions	#1 - #2 - #3	1 GHz – 18 GHz	Pass
Radiated Emissions	#1 - #2 - #3	18 GHz – 40 GHz	Pass
Radiated Emissions	#7 - #8 - #9	9 kHz – 30 MHz	Pass
Radiated Emissions	#7 - #8 - #9	30 MHz – 1 GHz	Pass
Radiated Emissions	#7 - #8 - #9	1 GHz – 18 GHz	Pass
Radiated Emissions	#7 - #8 - #9	18 GHz – 40 GHz	Pass

4.2.2 Radiated Emissions (Intentional) – Test Details

4.2.2.1 Bluetooth Low Energy 1 Mb/s – Low channel (Channel 37 – 2402 MHz)

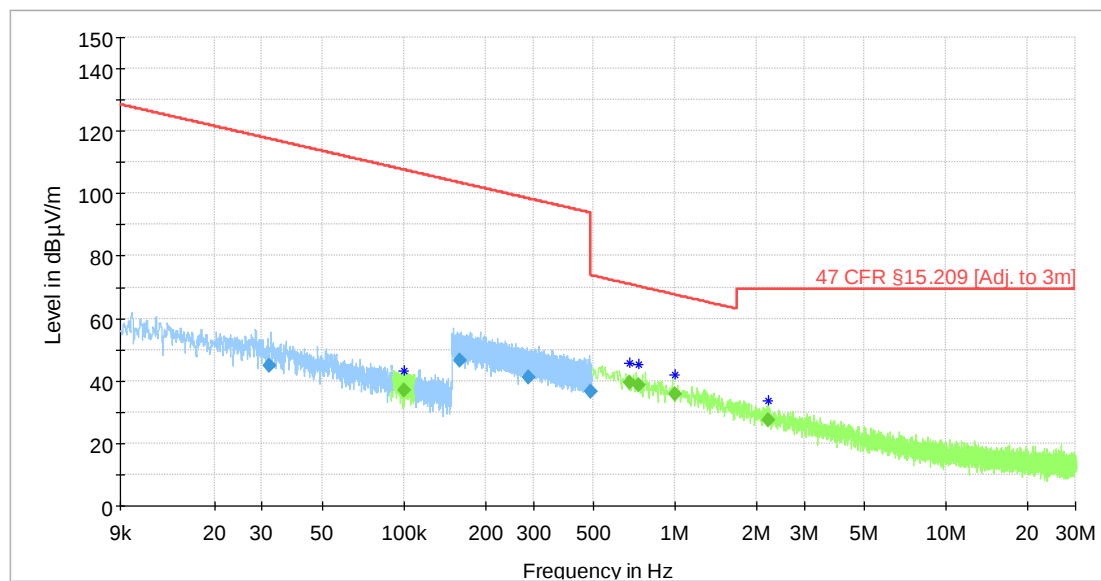
9 kHz – 30 MHz

Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.031720	54.05	137.58	83.53	1000.0	0.200	100.0	157.0	0.031720
0.076732	45.92	129.91	83.98	1000.0	0.200	100.0	70.0	0.076732
0.169224	57.01	123.04	66.03	1000.0	9.000	100.0	293.0	0.169224
0.223614	54.56	120.61	66.06	1000.0	9.000	100.0	115.0	0.223614
0.360716	49.94	116.46	66.53	1000.0	9.000	100.0	22.0	0.360716

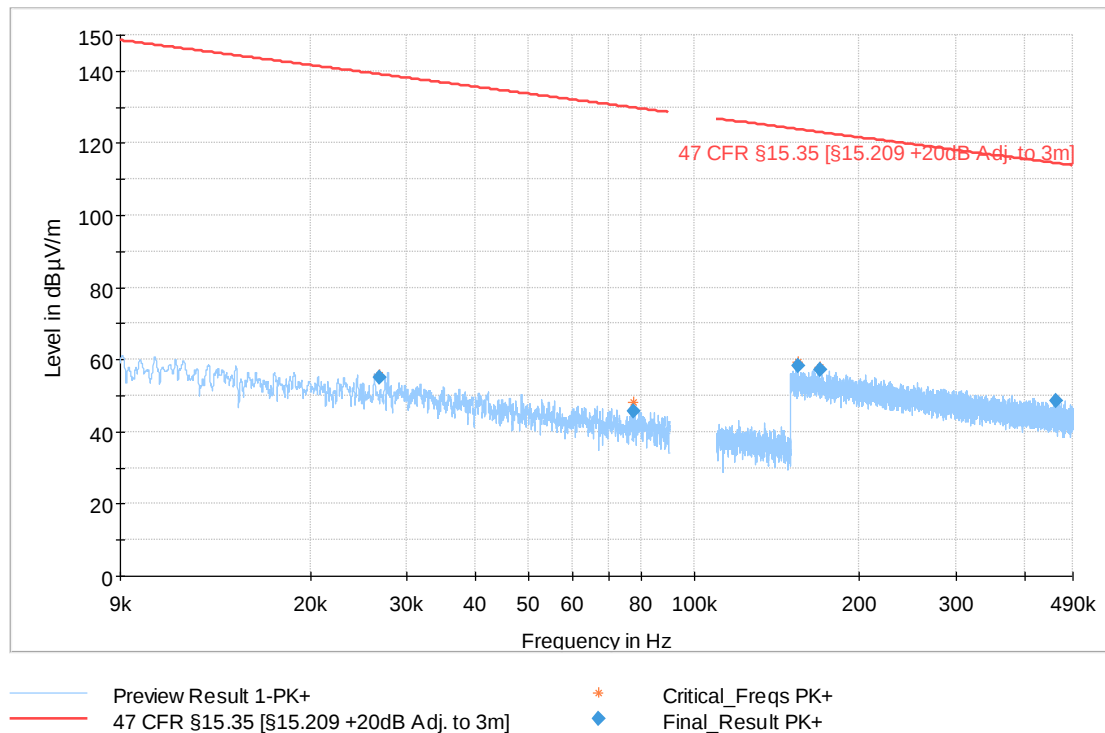
Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.09
Environmental conditions	Temperature: 22,9 °C	Humidity: 40,0 %
Chamber details	Chamber: SAC 5	



— Preview Result 2-PK+
— Preview Result 1-AVG
* Critical_Freqs PK+
* Critical_Freqs AVG
♦ Final_Result QPK
♦ Final_Result AVG
x MaxPeak-PK+ (Single)

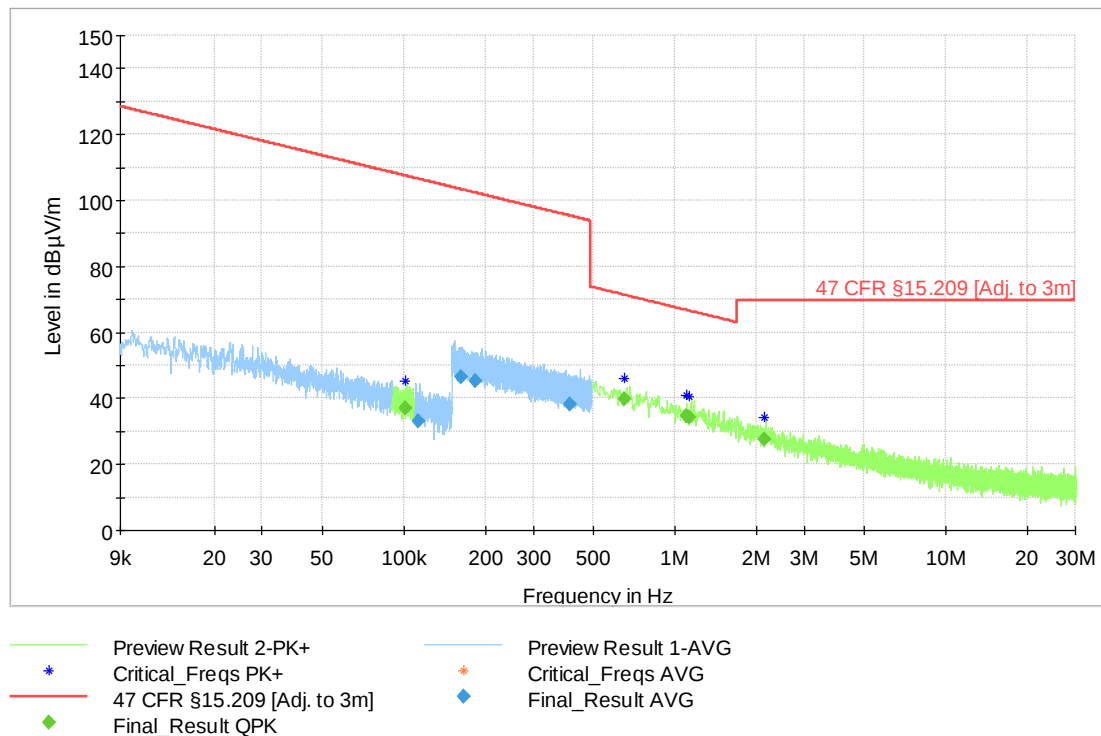
Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.161704	46.5	---	103.43	56.93	1000	9	100	293	10.9
0.287803	41.15	---	98.42	57.28	1000	9	100	-6	10.5
0.680281	---	39.31	70.95	31.64	1000	9	100	70	10.7
0.732228	---	38.72	70.31	31.59	1000	9	100	264	10.7
0.998074	---	35.9	67.62	31.72	1000	9	100	202	10.8
2.215989	---	27.41	69.54	42.13	1000	9	100	247	10.9

Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



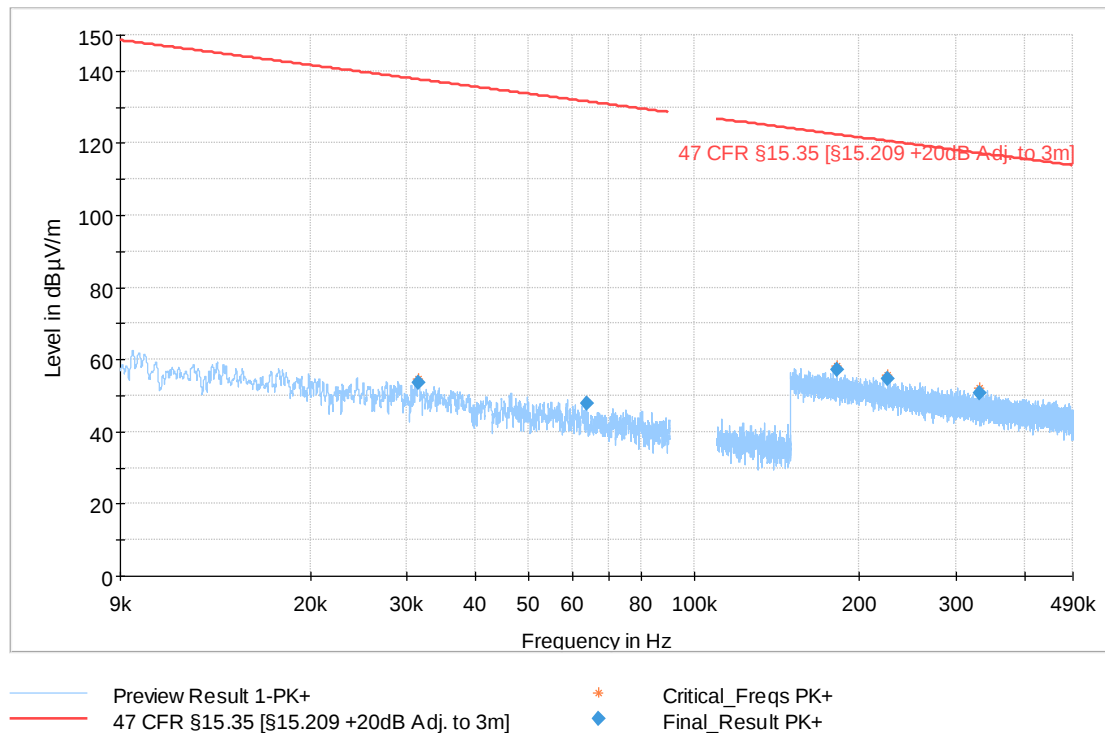
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.026718	54.97	139.07	84.09	1000.0	0.200	100.0	157.0	15.1
0.077599	45.70	129.81	84.11	1000.0	0.200	100.0	-23.0	11.7
0.154892	58.25	123.80	65.55	1000.0	9.000	100.0	338.0	10.9
0.169263	57.23	123.03	65.81	1000.0	9.000	100.0	184.0	10.8
0.456667	48.67	114.41	65.74	1000.0	9.000	100.0	157.0	10.5

Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



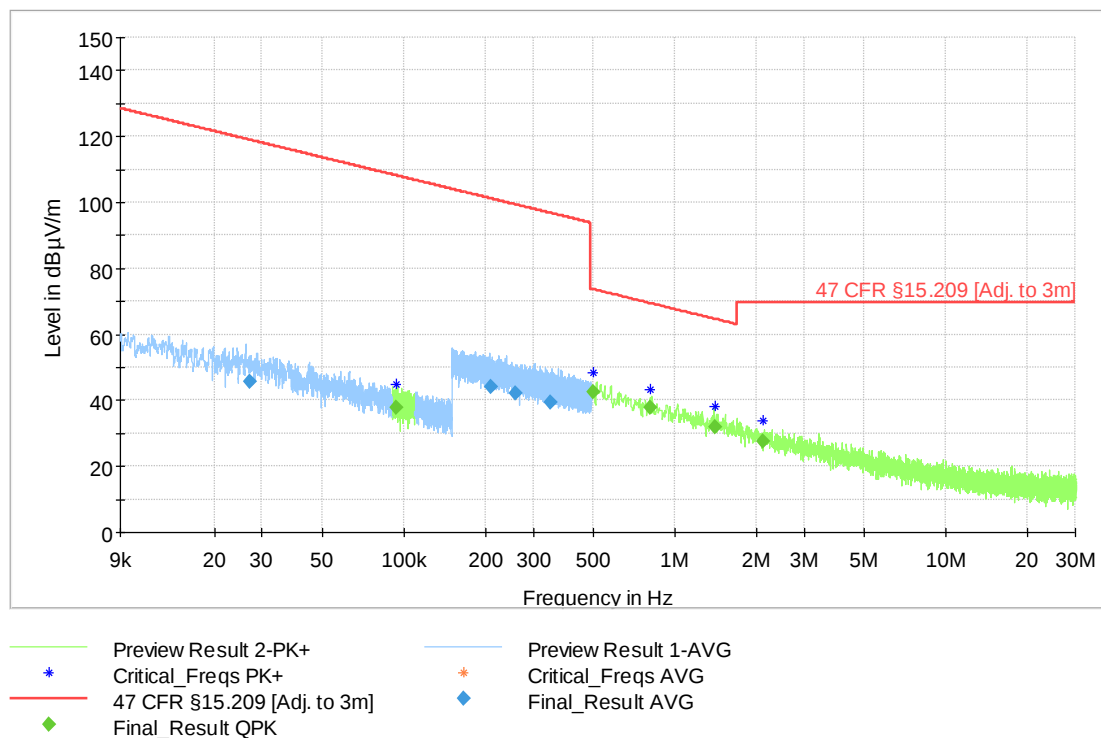
Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.163352	46.55	---	103.34	56.79	1000	9	100	157	10.9
0.183454	45.43	---	102.33	56.9	1000	9	100	331	10.8
0.648983	---	39.89	71.36	31.47	1000	9	100	338	10.6
1.108383	---	34.6	66.71	32.11	1000	9	100	185	10.8
1.131045	---	34.31	66.54	32.22	1000	9	100	338	10.8
2.137028	---	27.56	69.54	41.98	1000	9	100	70	10.9

Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.031432	53.64	137.66	84.02	1000.0	0.200	100.0	H	240.0
0.063607	47.98	131.53	83.55	1000.0	0.200	100.0	H	240.0
0.181680	57.10	122.42	65.32	1000.0	9.000	100.0	H	25.0
0.225203	54.52	120.55	66.03	1000.0	9.000	100.0	H	157.0
0.331892	50.76	117.18	66.43	1000.0	9.000	100.0	H	338.0

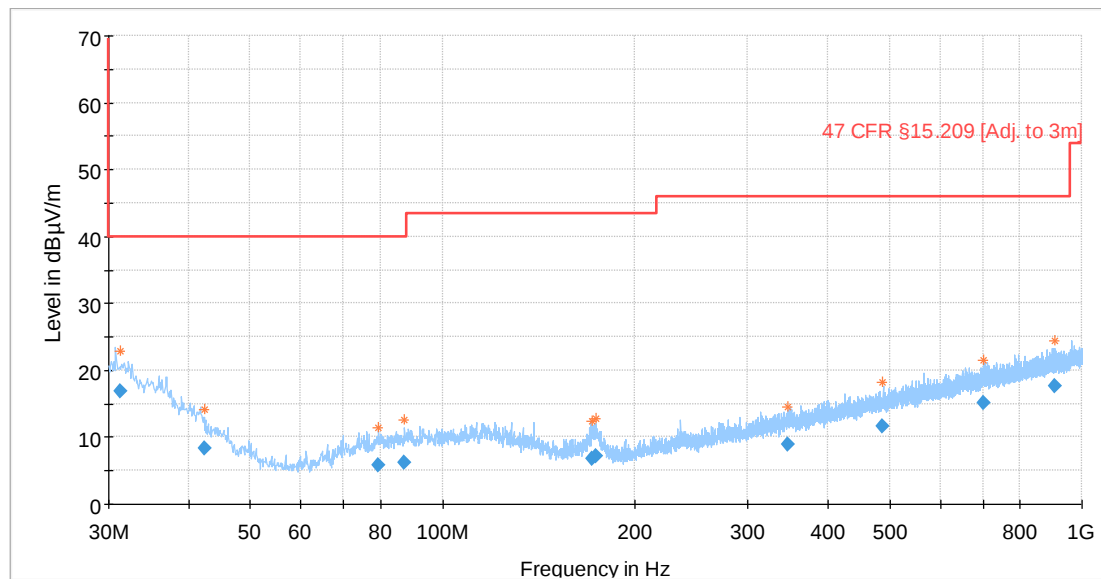
Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.11
Environmental conditions	Temperature: 21,7 °C	Humidity: 41,8 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.027047	45.84	---	118.96	73.12	1000	0.2	100	196	15.1
0.21016	44.11	---	101.15	57.04	1000	9	100	185	10.6
0.498487	---	42.33	73.65	31.33	1000	9	100	25	10.6
0.808523	---	37.61	69.45	31.84	1000	9	100	67	10.7
1.399523	---	31.96	64.69	32.73	1000	9	100	338	10.9
2.122285	---	27.69	69.54	41.85	1000	9	100	129	10.9

30 MHz – 1 GHz

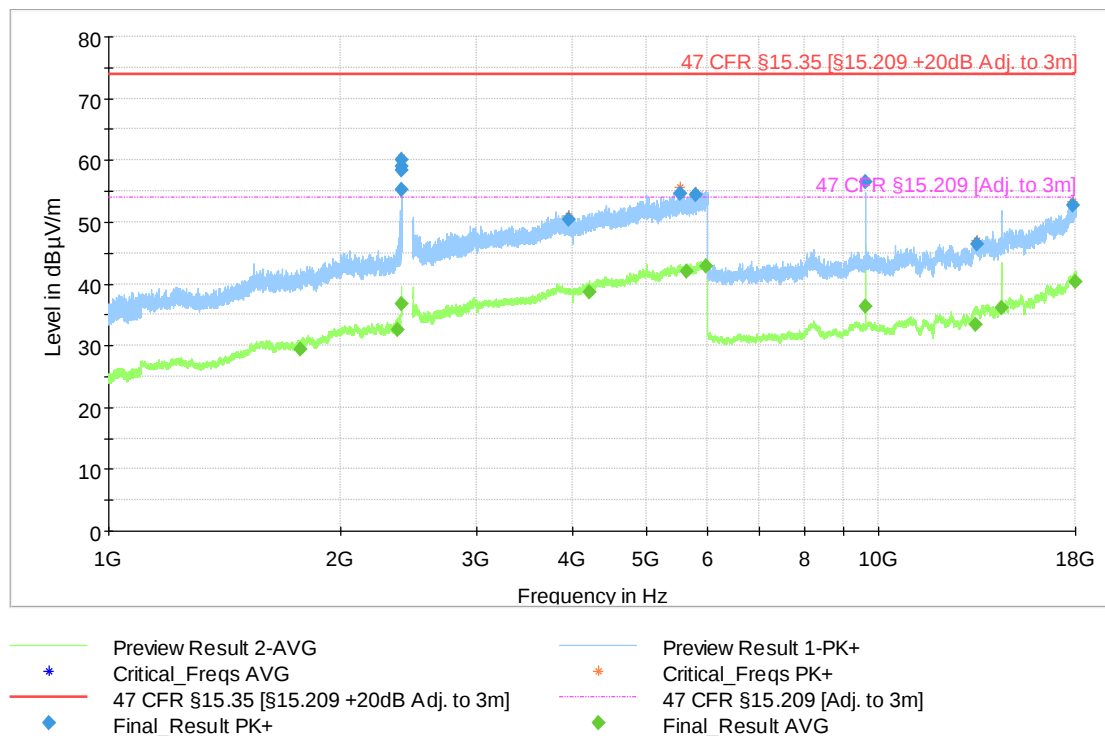
Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	30 MHz-1 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-001	
Ancillary Equipment	None	
Test Engineer	Fariborz Abasi	Date: 2020.06.03
Environmental conditions	Temperature: 21.1 °C	Humidity: 40.5 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.24208	16.86	---	40	23.14	1000	120	325	V	202
42.38476	8.29	---	40	31.71	1000	120	375	H	8
79.33088	5.73	---	40	34.27	1000	120	375	H	296
87.18076	6.18	---	40	33.82	1000	120	167	V	111
700.60588	15.15	---	46.02	30.87	1000	120	275	V	188
907.76752	17.57	---	46.02	28.45	1000	120	225	H	283

1 GHz – 18 GHz

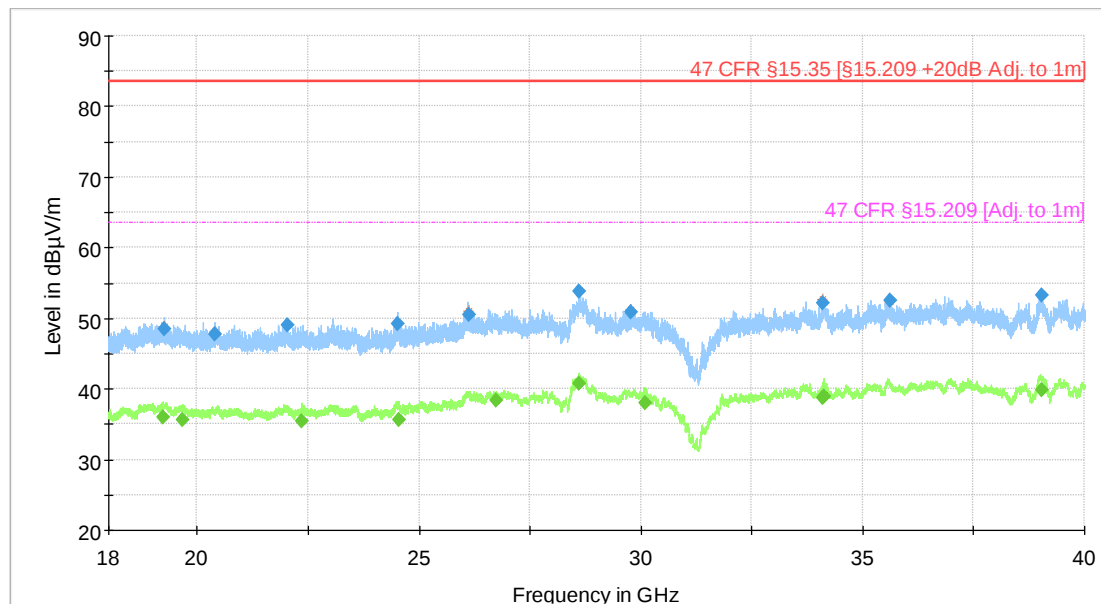
Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	1 GHz-18 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.07
Environmental conditions	Temperature: 19,6 °C	Humidity: 42,3 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.794	59.01	---	73.98	14.97	1000	1000	100	H	85
2399.9244	59.96	---	73.98	14.02	1000	1000	175	H	247
4216.944	---	38.72	53.98	15.26	1000	1000	125	V	202
5636.812	---	41.9	53.98	12.07	1000	1000	175	V	-5
5975.623	---	42.93	53.98	11.05	1000	1000	175	H	293
17978.759	---	40.32	53.98	13.66	1000	1000	175	H	218

18 GHz – 40 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - Low Channel (Channel 37 – 2402 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	18 GHz-40 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-001	
Ancillary Equipment	None	
Test Engineer	Niall Forrester	Date: 2020.06.12
Environmental conditions	Temperature: 18.6 °C	Humidity: 53.7 %
Chamber details	Chamber: SAC 5	



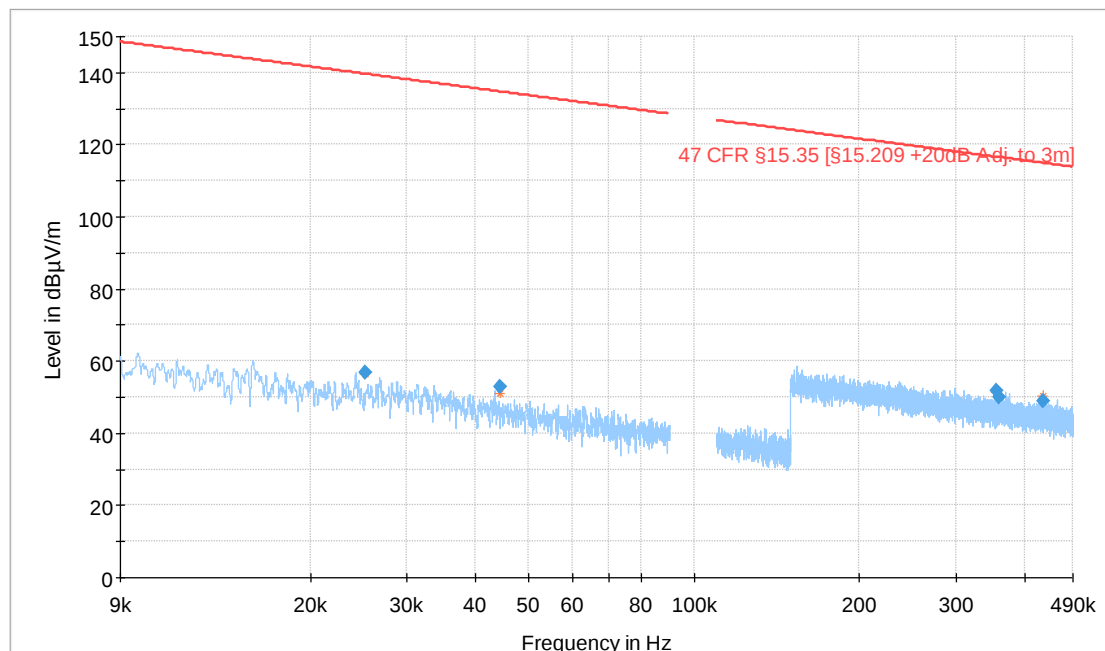
— Preview Result 2-AVG
— Preview Result 1-PK+
— 47 CFR §15.35 [Adj. to 1m]
— 47 CFR §15.209 [Adj. to 1m]
♦ Final_Result PK+
♦ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
26727.388	---	38.34	63.52	25.18	1000	1000	155	V	35
28600.109	---	40.8	63.52	22.72	1000	1000	155	V	10
30086.675	---	38.07	63.52	25.45	1000	1000	155	V	262
34089.779	---	38.66	63.52	24.86	1000	1000	155	H	310
34121.056	---	38.92	63.52	24.6	1000	1000	155	V	307
39022.075	---	39.88	63.52	23.64	1000	1000	155	H	7

4.2.2.2 Bluetooth Low Energy 1 Mb/s – Mid channel (Channel 20 – 2446 MHz)

9 kHz – 30 MHz

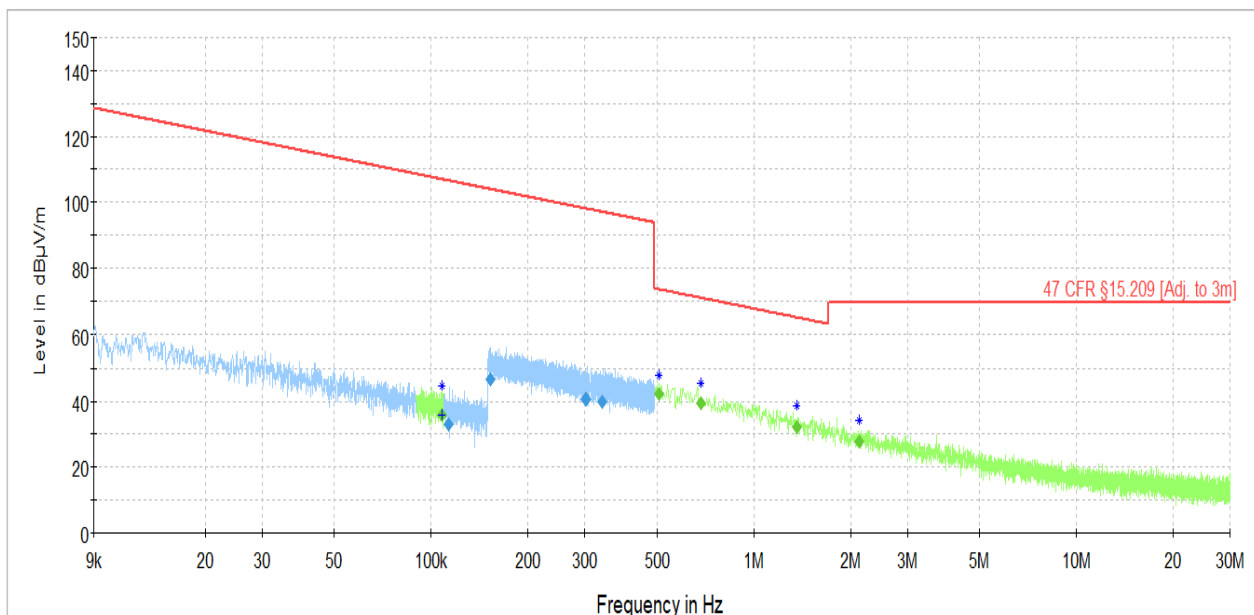
Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



— Preview Result 1-PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
◆ Final_Result PK+
★ Critical_Freqs PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.025158	56.68	139.59	82.91	1000.0	0.200	100.0	H	157.0
0.044260	52.82	134.68	81.86	1000.0	0.200	100.0	H	338.0
0.356251	51.73	116.57	64.83	1000.0	9.000	100.0	H	-23.0
0.359510	50.11	116.49	66.38	1000.0	9.000	100.0	H	60.0
0.431264	49.08	114.91	65.83	1000.0	9.000	100.0	H	49.0

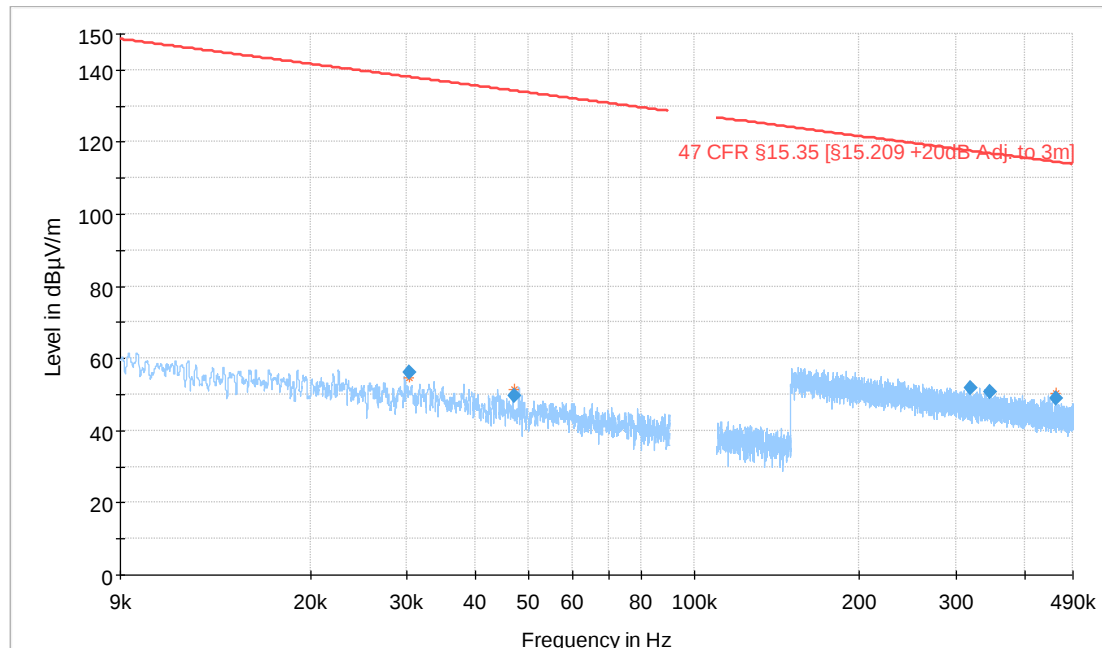
Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.09
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Preview Result 2-PK+ (green line)
 47 CFR §15.209 [Adj. to 3m] (red line)
 QuasiPeak-QPK (Single) (blue plus)
 Preview Result 1-AVG (blue line)
 Final Result AVG (blue diamond)
 Average-AVG (Single) (green cross)
 Critical_Freqs PK+ (blue plus)
 Final Result QPK (green diamond)
 Critical_Freqs AVG (orange plus)
 MaxPeak-PK+ (Single) (orange cross)

Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.153395	46.77	---	103.89	57.12	1000	9	100	H	338
0.339199	39.62	---	97	57.37	1000	9	100	H	338
0.506561	---	42.3	73.51	31.21	1000	9	100	H	106
0.685204	---	39.43	70.89	31.46	1000	9	100	H	22
1.36342	---	32.33	64.91	32.59	1000	9	100	H	22
2.129112	---	27.74	69.54	41.8	1000	9	100	H	112

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	

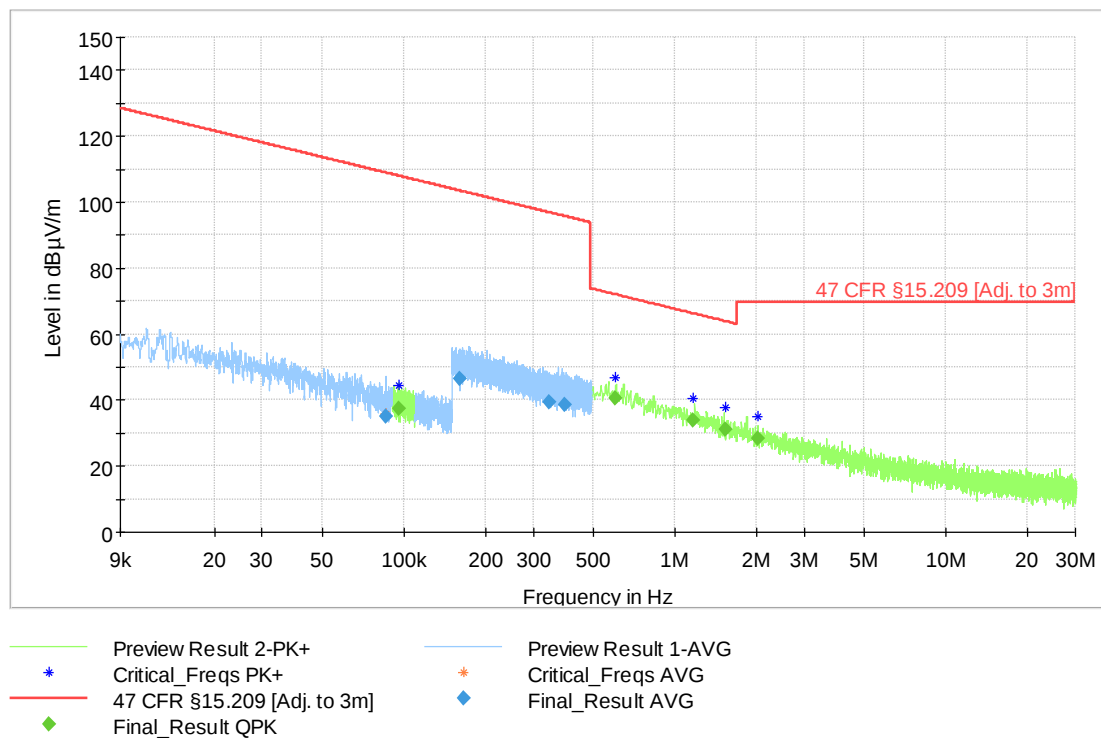


— Preview Result 1-PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]

◆ Critical_Freqs PK+
◆ Final_Result PK+

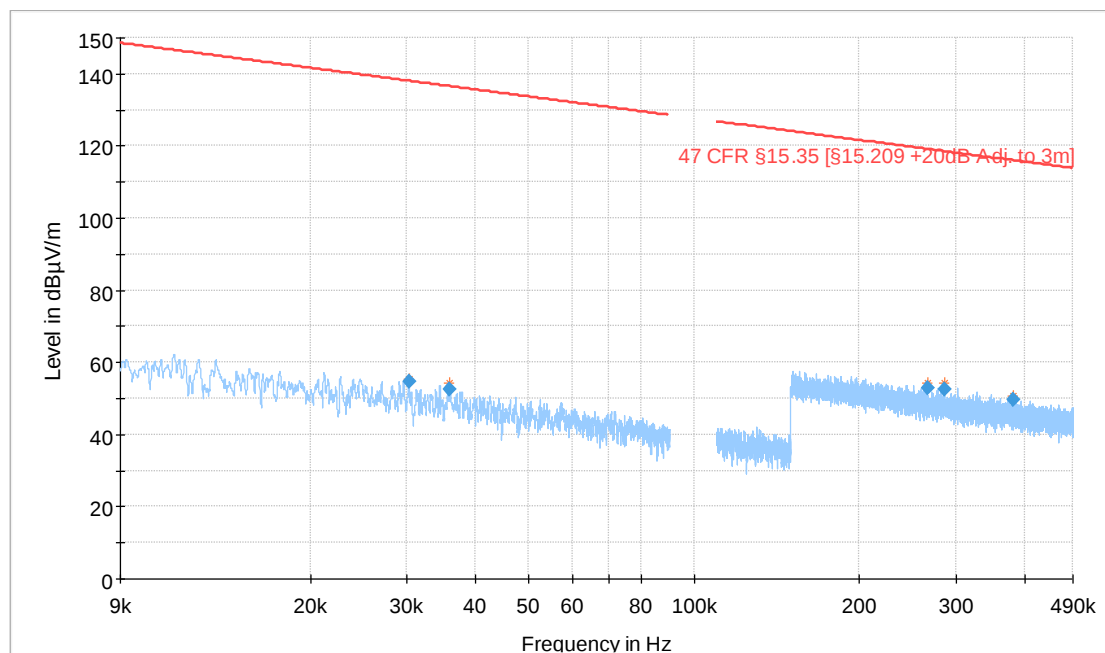
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.030193	55.94	138.01	82.07	1000.0	0.200	100.0	276.0	14.8
0.047119	49.80	134.14	84.34	1000.0	0.200	100.0	94.0	12.8
0.319619	51.91	117.51	65.60	1000.0	9.000	100.0	263.0	10.4
0.345997	50.76	116.82	66.06	1000.0	9.000	100.0	157.0	10.4
0.457547	49.09	114.40	65.31	1000.0	9.000	100.0	295.0	10.5

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.161708	46.49	---	103.43	56.94	1000	9	100	140	10.9
0.390694	38.43	---	95.77	57.34	1000	9	100	202	10.4
0.605255	---	40.46	71.97	31.5	1000	9	100	331	10.6
1.16662	---	33.92	66.27	32.34	1000	9	100	160	10.8
1.528916	---	31.09	63.92	32.82	1000	9	100	174	10.9
2.030028	---	28.26	69.54	41.28	1000	9	100	292	10.9

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	

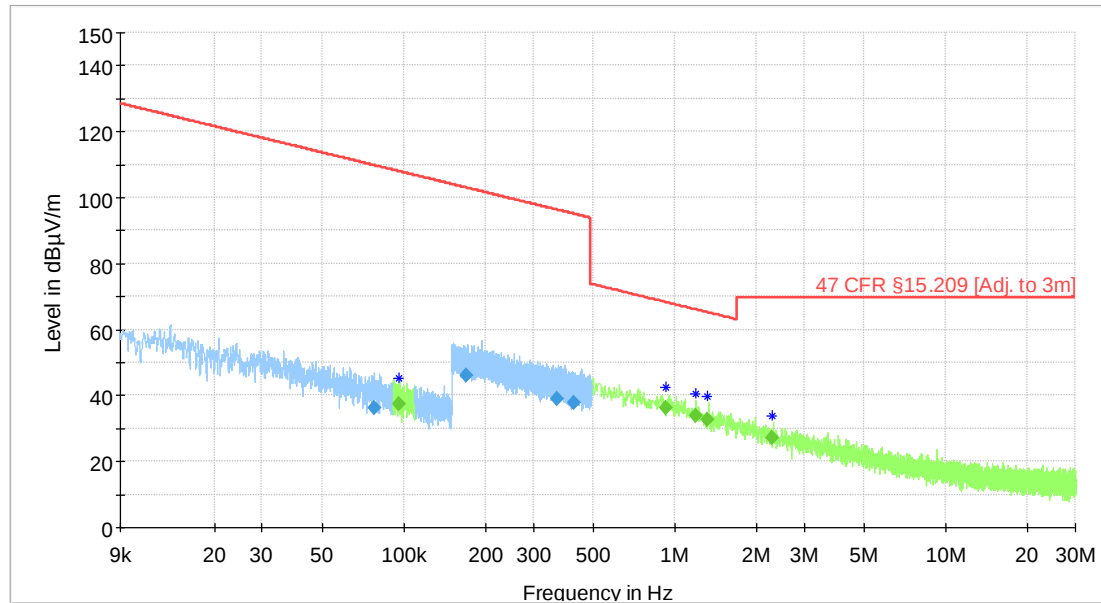


— Preview Result 1-PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]

* Critical_Freqs PK+
◆ Final_Result PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.030203	54.76	138.00	83.25	1000.0	0.200	100.0	H	85.0
0.035863	52.45	136.51	84.06	1000.0	0.200	100.0	H	250.0
0.266340	53.02	119.10	66.07	1000.0	9.000	100.0	H	157.0
0.285798	52.34	118.48	66.14	1000.0	9.000	100.0	H	15.0
0.382293	49.55	115.96	66.40	1000.0	9.000	100.0	H	113.0

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2440 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %

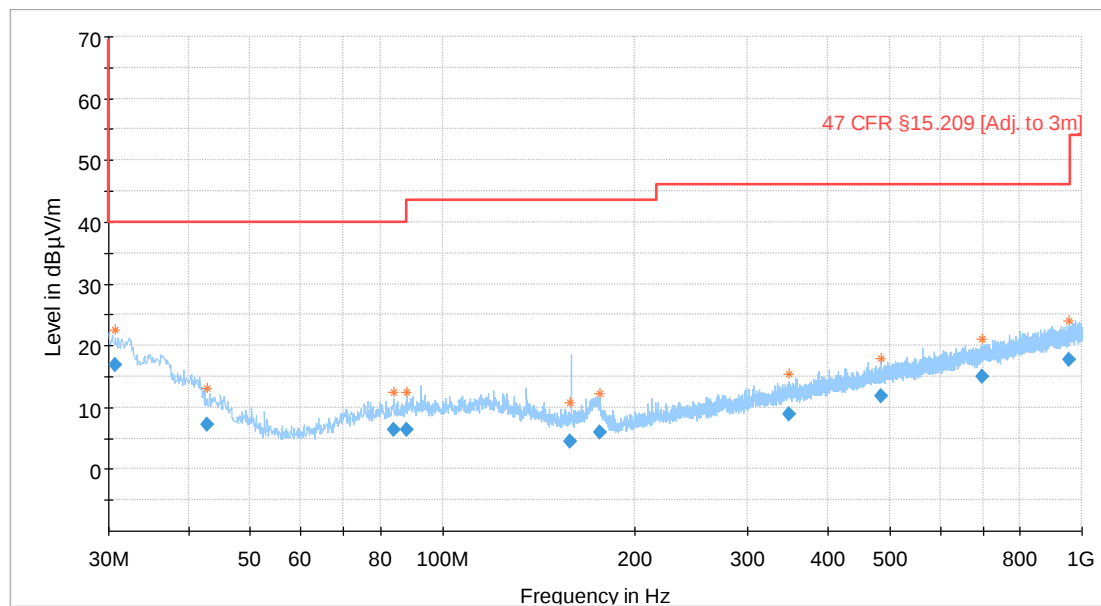


— Preview Result 2-PK+
— Preview Result 1-AVG
* Critical_Freqs PK+
* Critical_Freqs AVG
— 47 CFR §15.209 [Adj. to 3m]
♦ Final_Result QPK
♦ Final_Result AVG

Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.170715	45.89	---	102.96	57.07	1000	9	100	H	247
0.42277	37.79	---	95.08	57.29	1000	9	100	H	68
0.925003	---	36.33	68.28	31.95	1000	9	100	H	-23
1.188901	---	33.95	66.1	32.15	1000	9	100	H	293
1.317732	---	32.77	65.21	32.44	1000	9	100	H	292
2.289176	---	27.03	69.54	42.51	1000	9	100	H	95

30 MHz – 1 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	30 MHz-1 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-001	
Ancillary Equipment	None	
Test Engineer	Fariborz Abasi	Date: 2020.06.03
Environmental conditions	Temperature: 21.1 °C	Humidity: 40.5 %
Chamber details	Chamber: SAC 5	



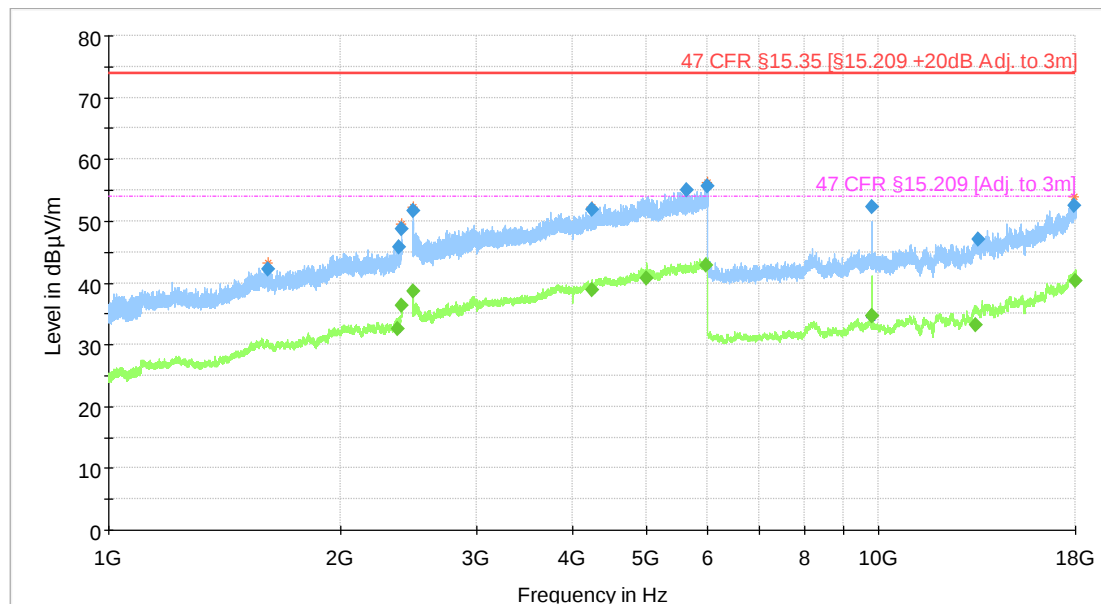
— Preview Result 2-AVG
* Critical_Freqs AVG
— 47 CFR §15.209 [Adj. to 3m]
◆ Final_Result AVG

— Preview Result 1-PK+
* Critical_Freqs PK+
◆ Final_Result QPK

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
30.766886	16.92	---	40	23.08	1000	120	317	V	62
42.78096	7.19	---	40	32.81	1000	120	225	H	129
83.7932	6.33	---	40	33.67	1000	120	170	H	-5
87.97772	6.45	---	40	33.55	1000	120	225	H	40
697.59028	14.96	---	46.02	31.06	1000	120	375	H	18
955.71972	17.82	---	46.02	28.2	1000	120	175	V	188

1 GHz – 18 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	1 GHz-18 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.07
Environmental conditions	Temperature: 19,6 °C	Humidity: 42,3 %
Chamber details	Chamber: SAC 5	

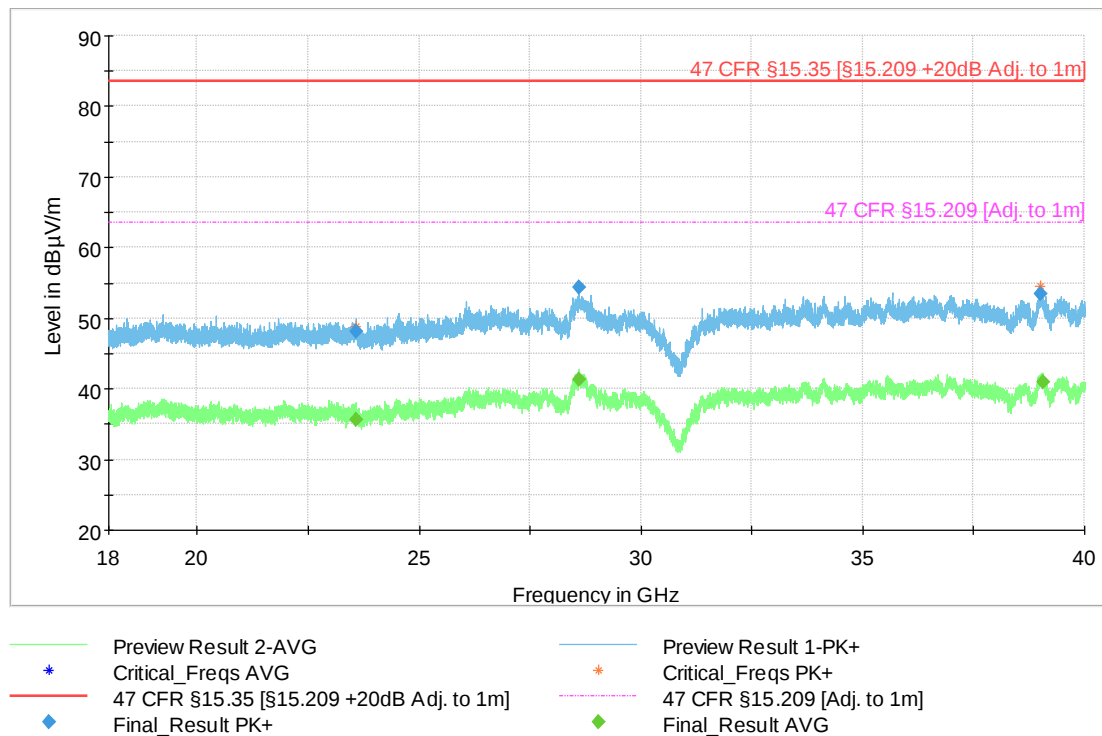


- Preview Result 2-AVG
- * Critical_Freqs AVG
- 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
- ◆ Final_Result PK+
- Preview Result 1-PK+
- * Critical_Freqs PK+
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.9733	---	36.28	53.98	17.7	1000	1000	125	H	293
2483.5495	---	38.65	53.98	15.33	1000	1000	125	V	205
4239.936	---	38.83	53.98	15.15	1000	1000	125	H	157
4999.978	---	40.84	53.98	13.14	1000	1000	102	H	320
5976.383	---	42.92	53.98	11.06	1000	1000	100	V	113
17992.173	---	40.3	53.98	13.68	1000	1000	100	V	175

18 GHz – 40 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - Mid Channel (Channel 20 – 2446 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	18 GHz-40 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Niall Forrester	Date: 2020.06.12
Environmental conditions	Temperature: 21.9 °C	Humidity: 53.1 %
Chamber details	Chamber: SAC 5	

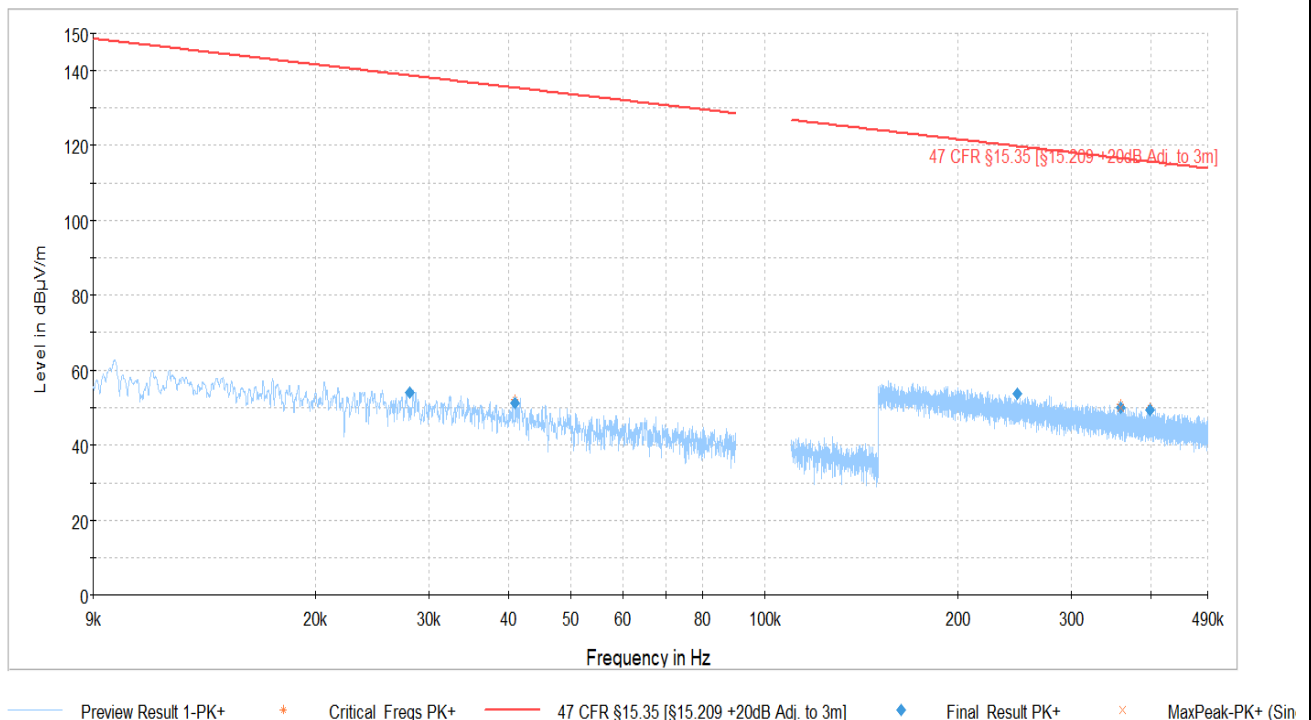


Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
23576.567000	---	35.68	63.52	27.84	1000.0	1000.000	155.0	H	322.0
23578.719000	48.18	---	83.52	35.34	1000.0	1000.000	155.0	H	334.0
28598.284000	54.43	---	83.52	29.10	1000.0	1000.000	155.0	H	202.0
28602.101000	---	41.30	63.52	22.23	1000.0	1000.000	155.0	H	262.0
38998.681000	53.43	---	83.52	30.09	1000.0	1000.000	155.0	H	157.0
39054.178000	---	40.97	63.52	22.55	1000.0	1000.000	155.0	V	337.0

4.2.2.3 Bluetooth Low Energy 1 Mb/s – High channel (Channel 39 – 2480 MHz)

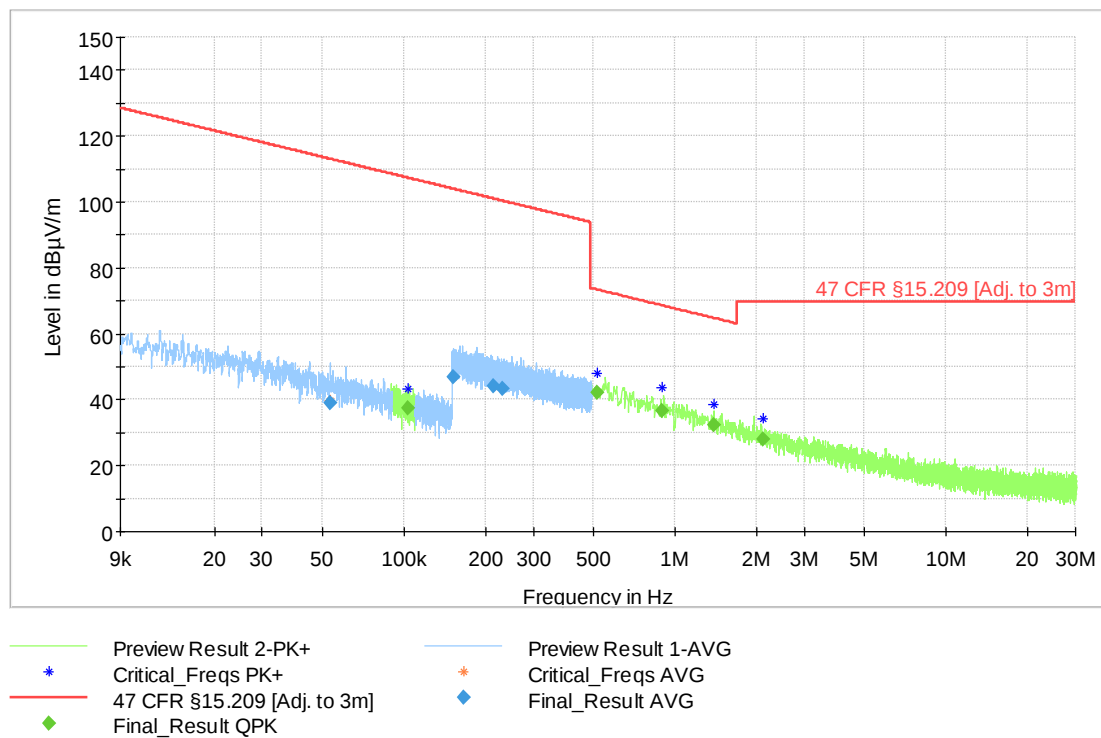
9 kHz – 30 MHz

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



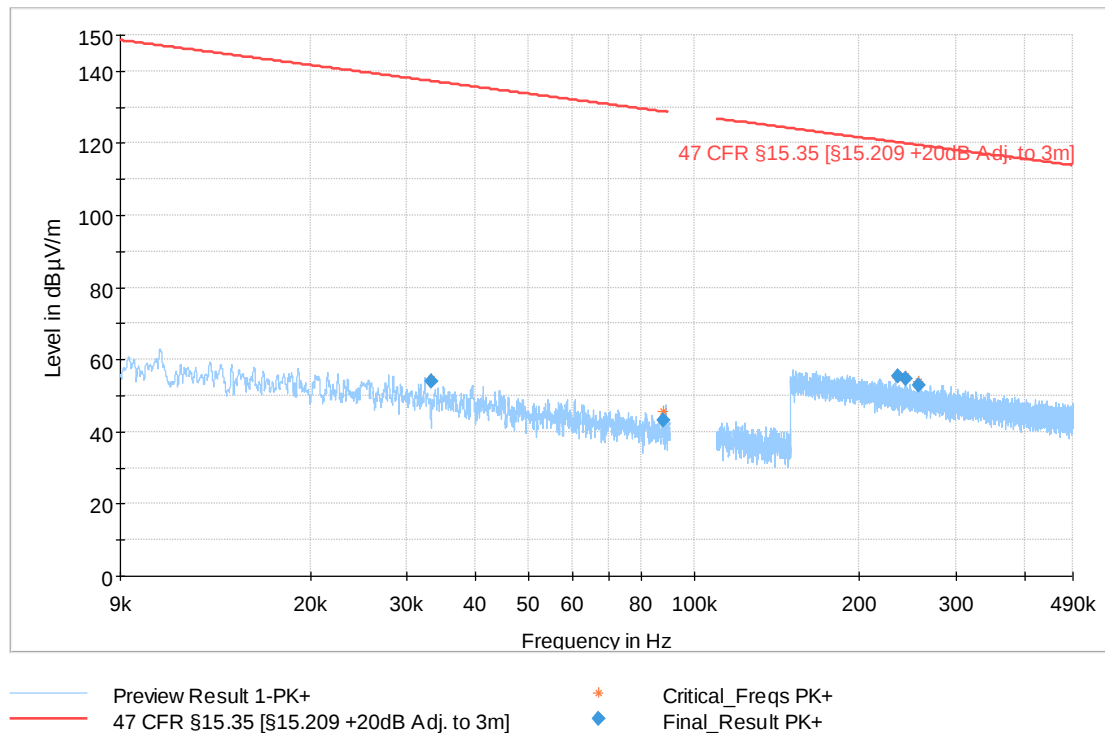
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.028043	54.19	138.65	84.46	1000.0	0.200	100.0	1.0	15.0
0.040960	51.38	135.36	83.98	1000.0	0.200	100.0	293.0	13.4
0.247194	53.94	119.74	65.81	1000.0	9.000	100.0	247.0	10.6
0.358908	49.95	116.51	66.56	1000.0	9.000	100.0	293.0	10.4
0.398431	49.42	115.60	66.18	1000.0	9.000	100.0	218.0	10.4

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



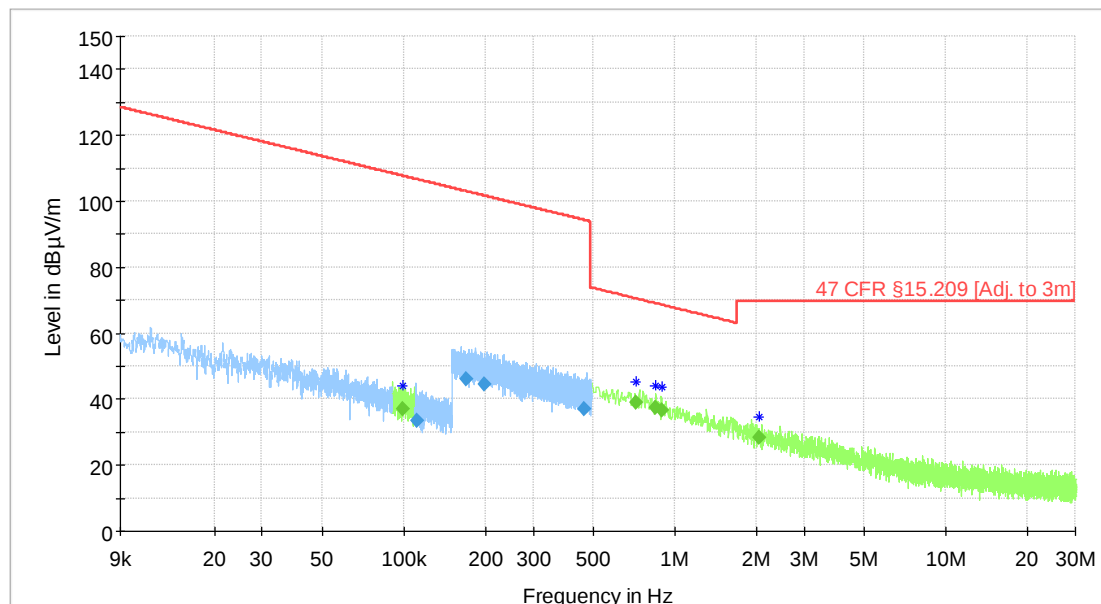
Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.15151	46.88	---	104	57.11	1000	9	100	H	-7
0.213894	43.97	---	101	57.03	1000	9	100	H	22
0.515286	---	42.05	73.36	31.31	1000	9	100	H	115
0.891987	---	36.78	68.6	31.82	1000	9	100	H	70
1.397299	---	32.09	64.7	32.61	1000	9	100	H	157
2.106213	---	27.89	69.54	41.65	1000	9	100	H	174

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.033228	54.10	137.17	83.07	1000.0	0.200	100.0	243.0	14.4
0.087793	43.27	128.74	85.47	1000.0	0.200	100.0	-23.0	11.6
0.235279	55.34	120.17	64.83	1000.0	9.000	100.0	1.0	10.6
0.242730	54.77	119.90	65.13	1000.0	9.000	100.0	202.0	10.6
0.255845	52.93	119.45	66.51	1000.0	9.000	100.0	338.0	10.5

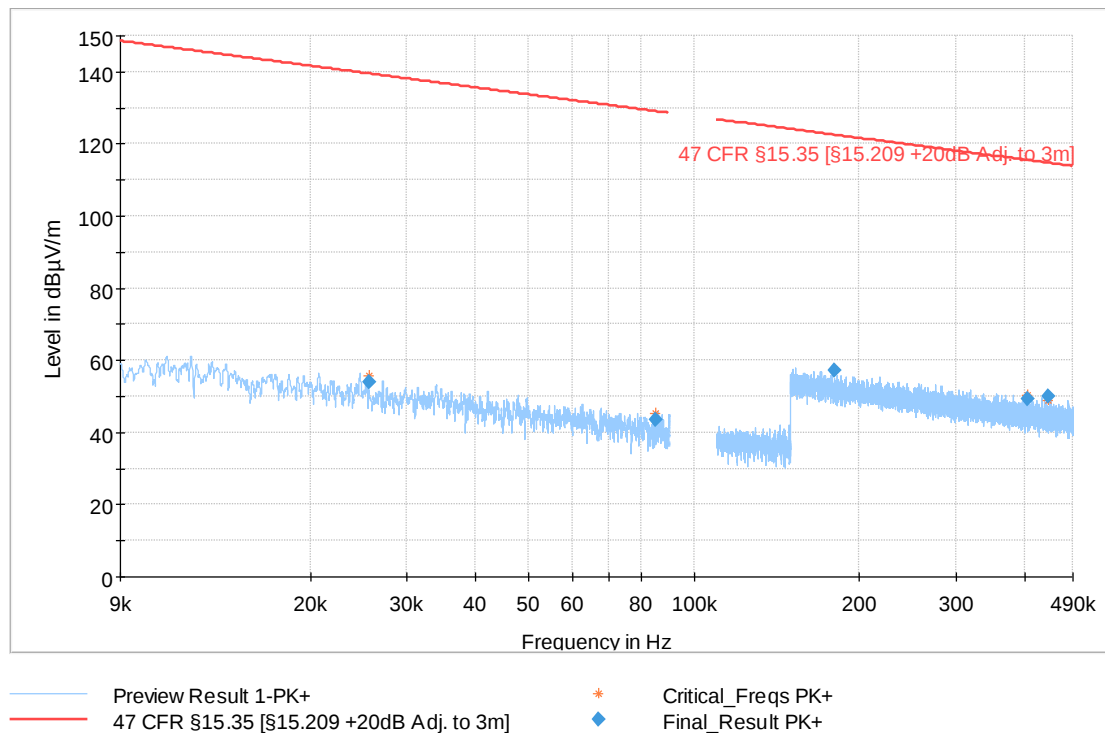
Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Parallel to Floor	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



- Preview Result 2-PK+
- Critical_Freqs PK+
- 47 CFR §15.209 [Adj. to 3m]
- Final_Result QPK
- Preview Result 1-AVG
- Critical_Freqs AVG
- Final_Result AVG

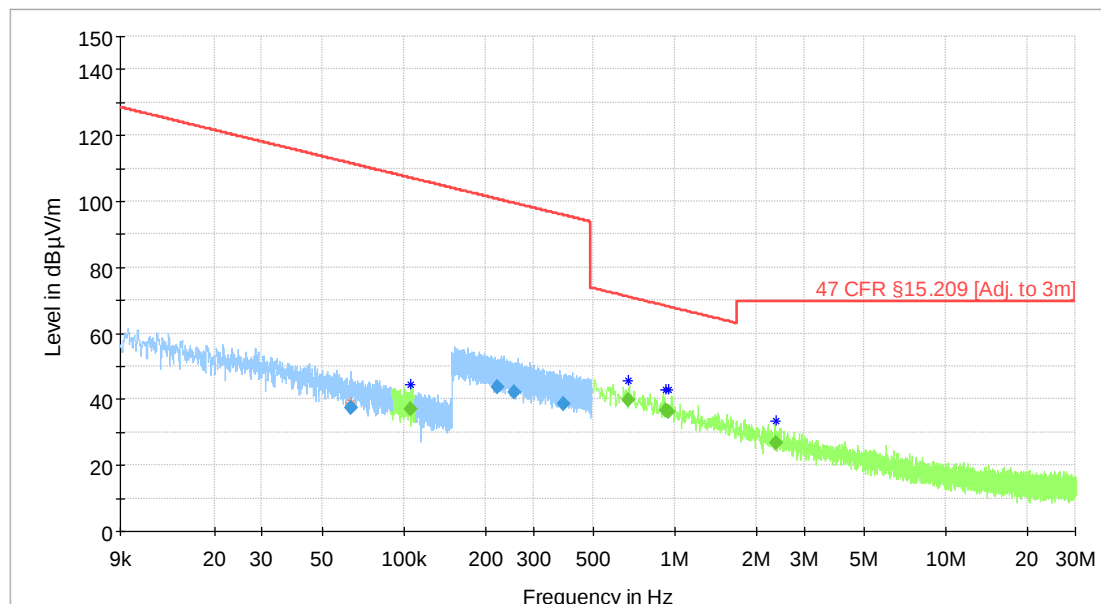
Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.169567	46.06	---	103.02	56.95	1000	9	100	205	10.8
0.198769	44.67	---	101.64	56.97	1000	9	100	50	10.7
0.71876	---	38.86	70.47	31.61	1000	9	100	22	10.7
0.846377	---	37.38	69.05	31.67	1000	9	100	158	10.7
0.893569	---	36.67	68.58	31.91	1000	9	100	68	10.7
2.046729	---	28.17	69.54	41.37	1000	9	100	286	10.9

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.025518	54.01	139.47	85.46	1000.0	0.200	100.0	H	70.0
0.085211	43.60	128.99	85.40	1000.0	0.200	100.0	H	38.0
0.180426	57.28	122.48	65.20	1000.0	9.000	100.0	H	68.0
0.404805	49.19	115.46	66.27	1000.0	9.000	100.0	H	83.0
0.440862	50.12	114.72	64.60	1000.0	9.000	100.0	H	139.0

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.10
Environmental conditions	Temperature: 19,6 °C	Humidity: 46,0 %
Chamber details	Chamber: SAC 5	

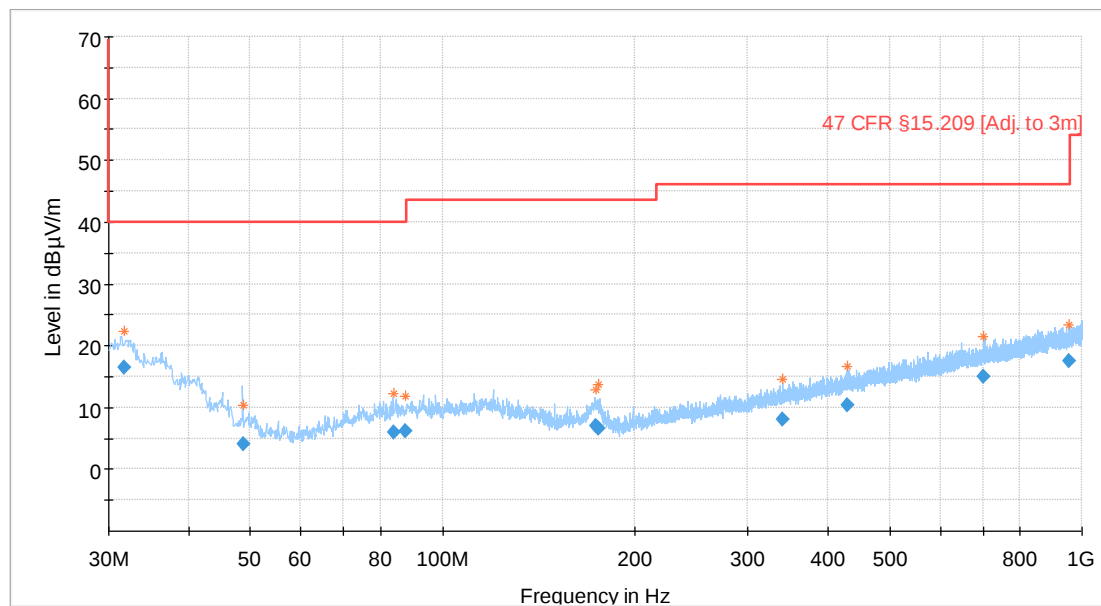


— Preview Result 2-PK+
— Preview Result 1-AVG
— 47 CFR §15.209 [Adj. to 3m]
◆ Final_Result QPK
◆ Final_Result AVG

Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.222362	43.67	---	100.66	56.99	1000	9	100	H	241
0.254543	42.24	---	99.49	57.25	1000	9	100	H	264
0.671412	---	39.6	71.06	31.46	1000	9	100	H	202
0.925361	---	36.43	68.28	31.85	1000	9	100	H	293
0.944517	---	36.17	68.1	31.93	1000	9	100	H	113
2.353268	---	26.71	69.54	42.83	1000	9	100	H	61

30 MHz – 1 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	30 MHz-1 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-001	
Ancillary Equipment	None	
Test Engineer	Fariborz Abasi	Date: 2020.06.04
Environmental conditions	Temperature: 20.6 °C	Humidity: 39.3 %
Chamber details	Chamber: SAC 5	

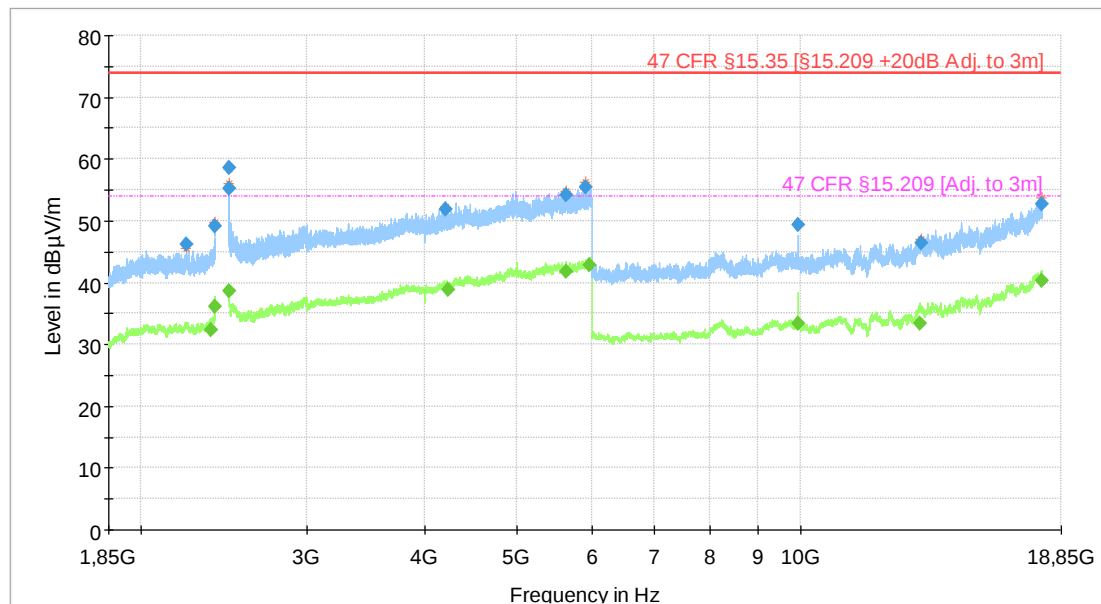


Preview Result 2-AVG	Preview Result 1-PK+
Critical_Freqs AVG	Critical_Freqs PK+
47 CFR §15.209 [Adj. to 3m]	Final_Result QPK
Final_Result AVG	

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.66292	16.52	---	40	23.48	1000	120	280	H	-20
83.6604	5.95	---	40	34.05	1000	120	264	V	184
87.38772	6.06	---	40	33.94	1000	120	225	H	151
428.92244	10.44	---	46.02	35.58	1000	120	100	H	292
701.25108	15.03	---	46.02	30.99	1000	120	229	H	67
956.282	17.56	---	46.02	28.46	1000	120	175	V	247

1 GHz – 18 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	1 GHz-18 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Sam Ebadeh	Date: 2020.06.07
Environmental conditions	Temperature: 19,6 °C	Humidity: 42,3 %
Chamber details	Chamber: SAC 5	

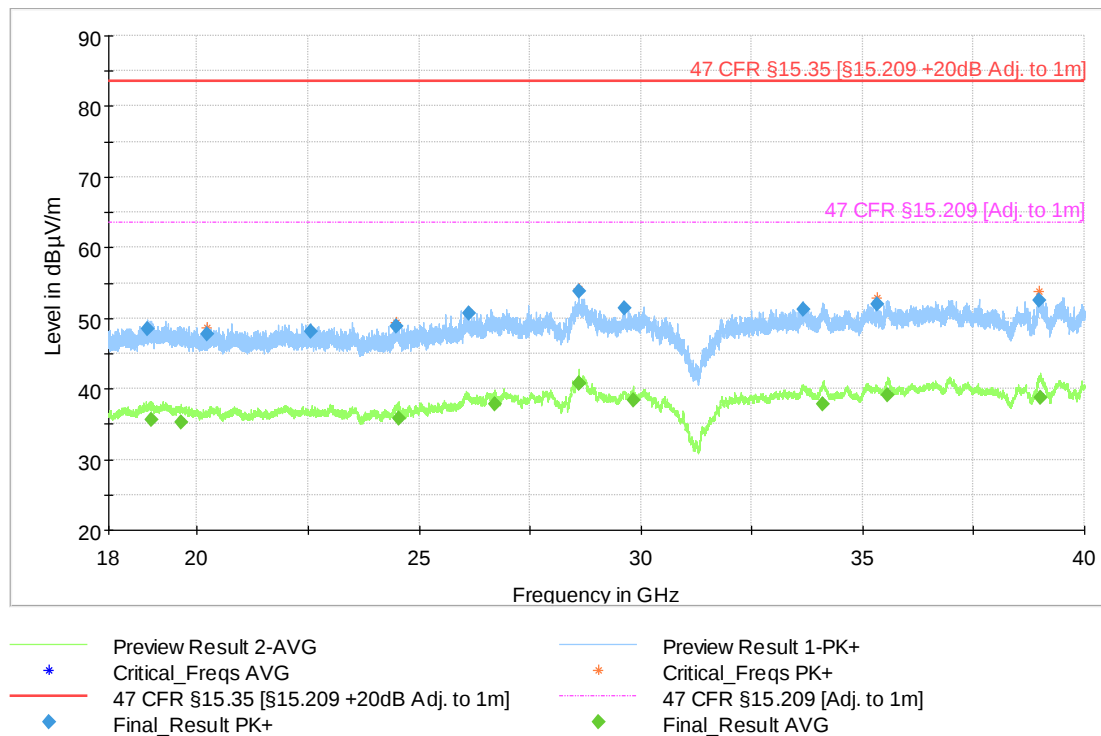


- Preview Result 2-AVG
- Critical_Freqs AVG
- 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
- Final_Result PK+
- Preview Result 1-PK+
- Critical_Freqs PK+
- 47 CFR §15.209 [Adj. to 3m]
- Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2483.5672	---	38.69	53.98	15.29	1000	1000	113	V	293
2483.855	58.49	---	73.98	15.49	1000	1000	125	H	50
4226.842	---	38.75	53.98	15.23	1000	1000	121	H	160
5635.285	---	41.86	53.98	12.12	1000	1000	125	V	50
5977.604	---	42.92	53.98	11.06	1000	1000	125	V	-20
17993.532	---	40.27	53.98	13.71	1000	1000	100	V	262

18 GHz – 40 GHz

Test mode condition	BLE 1 Mbs Traffic Mode - High Channel (Channel 39 – 2480 MHz)	
Antenna orientation	Horizontal and vertical	
Sweep frequency	18 GHz-40 GHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Niall Forrester	Date: 2020.06.12
Environmental conditions	Temperature: 18.6 °C	Humidity: 53.7 %
Chamber details	Chamber: SAC 5	

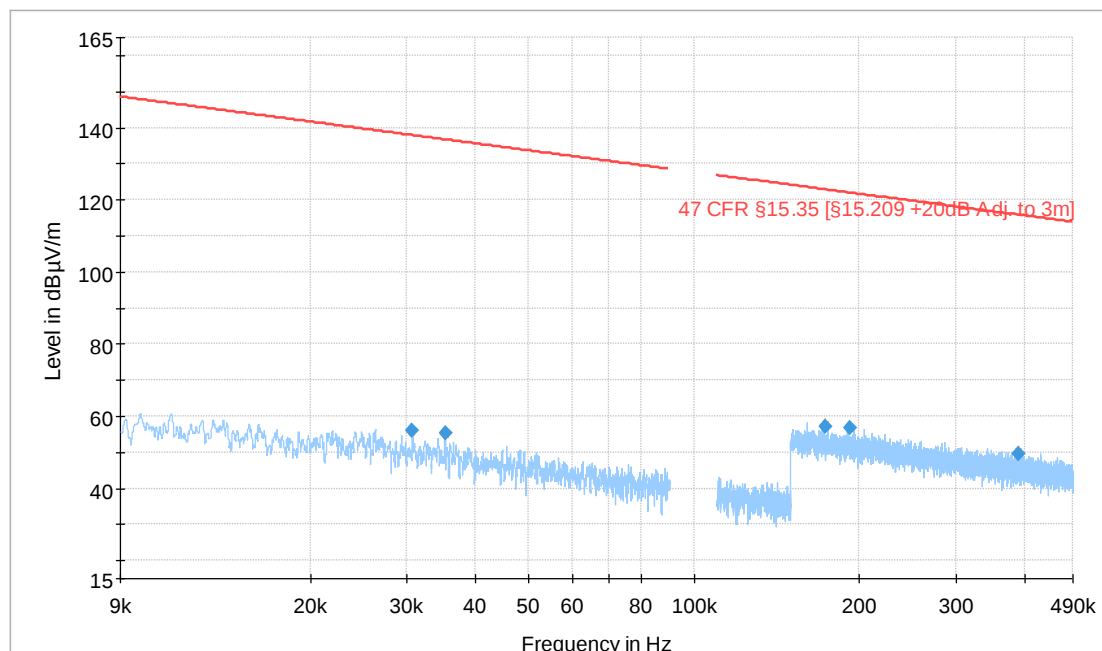


Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
26706.394	---	37.9	63.52	25.62	1000	1000	155	H	307
28604.509	---	40.79	63.52	22.73	1000	1000	155	V	115
28604.724	---	40.76	63.52	22.76	1000	1000	155	V	124
29836.072	---	38.3	63.52	25.22	1000	1000	155	V	142
35573.667	---	39.07	63.52	24.46	1000	1000	155	H	277
39000.308	---	38.83	63.52	24.7	1000	1000	155	H	307

4.2.2.4 Proprietary radio 2400 MHz – Low channel (Channel 2 – 2402 MHz)

9 kHz – 30 MHz

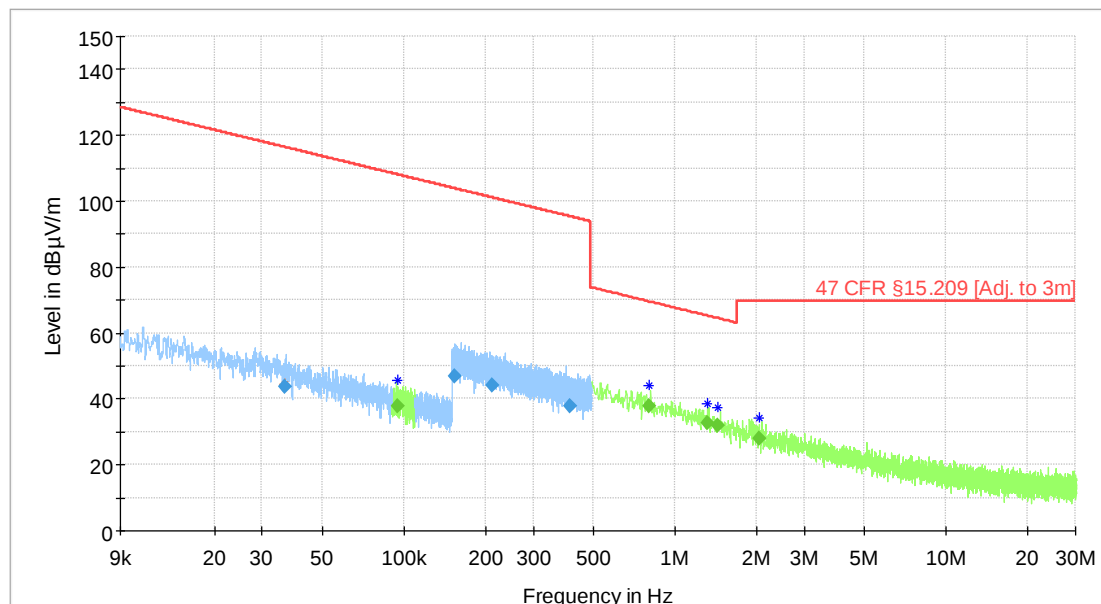
Test mode condition	Proprietary radio 2400 MHz Traffic Mode - Low Channel (Channel 2 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.08
Environmental conditions	Temperature: 20,6 °C	Humidity: 42,4 %
Chamber details	Chamber: SAC 5	



— Preview Result 1-PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
◆ Critical_Freqs PK+ Final_Result PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.030551	55.87	137.90	82.03	1000.0	0.200	100.0	H	70.0
0.035183	55.27	136.68	81.41	1000.0	0.200	100.0	H	157.0
0.173203	56.95	122.83	65.88	1000.0	9.000	100.0	H	115.0
0.192089	56.89	121.93	65.05	1000.0	9.000	100.0	H	293.0
0.389288	49.55	115.80	66.24	1000.0	9.000	100.0	H	202.0

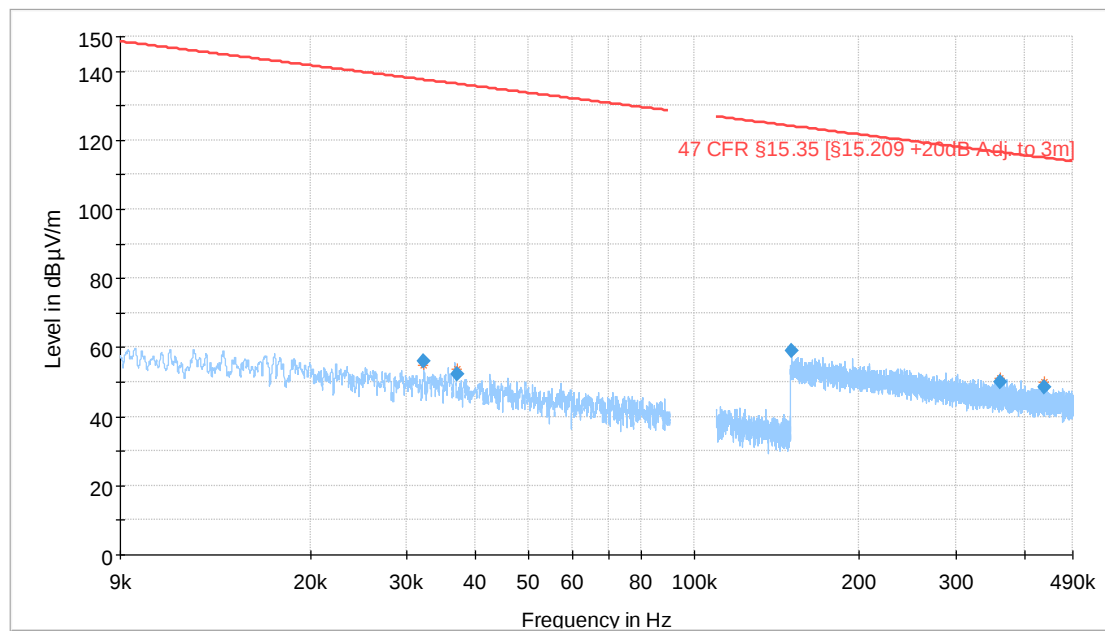
Test mode condition	Proprietary radio 2400 MHz Traffic Mode - Low Channel (Channel 2 – 2402 MHz)	
Antenna orientation	Loop Antenna Parallel to Axis	
Detector	Quasi-Peak & Average	
Sweep frequency	9 kHz-30 MHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.08
Environmental conditions	Temperature: 20,6 °C	Humidity: 42,4 %
Chamber details	Chamber: SAC 5	



Preview Result 2-PK+	Preview Result 1-AVG
Critical_Freqs PK+	Critical_Freqs AVG
47 CFR §15.209 [Adj. to 3m]	Final_Result AVG
Final_Result QPK	

Frequency (MHz)	Average (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (s)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.153638	46.87	---	103.87	57	1000	9	100	H	85
0.211808	44.09	---	101.09	56.99	1000	9	100	H	174
0.798672	---	37.81	69.56	31.75	1000	9	100	H	68
1.312026	---	32.55	65.25	32.69	1000	9	100	H	22
1.445422	---	31.76	64.4	32.64	1000	9	100	H	233
2.05221	---	28.13	69.54	41.42	1000	9	100	H	241

Test mode condition	Proprietary radio 2400 MHz Traffic Mode - Low Channel (Channel 2 – 2402 MHz)	
Antenna orientation	Loop Antenna Perpendicular to Axis	
Detector	Peak	
Sweep frequency	9 kHz-490 kHz	
Standard	47 CFR Part 15 subpart C	
EUT	A002835296-002	
Ancillary Equipment	None	
Test Engineer	Joel Efraimsson	Date: 2020.06.08
Environmental conditions	Temperature: 20,6 °C	Humidity: 42,4 %
Chamber details	Chamber: SAC 5	



— Preview Result 1-PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
x MaxPeak-PK+ (Single)
 ♦ Critical_Freqs PK+
♦ Final_Result PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.032129	55.90	137.47	81.57	1000.0	0.200	100.0	160.0	14.6
0.037071	52.37	136.22	83.86	1000.0	0.200	100.0	22.0	13.9
0.150816	58.95	124.04	65.08	1000.0	9.000	100.0	68.0	10.9
0.361063	49.98	116.45	66.47	1000.0	9.000	100.0	115.0	10.4
0.435208	48.48	114.83	66.35	1000.0	9.000	100.0	202.0	10.5