

RAPPORTO DI PROVA

TEST REPORT

Rif. / Ref. n.	FCCTR_173377-0	Data / Date:	18/02/2019	Pagine / Pages:	32
Scopo delle prove Test object	Prove di tipo in accordo alla Norma Type test according to standards 47 CFR FCC part 15.231				
Richiedente Applicant	CDVI Wireless S.p.A. Via Piave 23 – 31020 S. Pietro di Feletto – Treviso – Italy Tel. +39 0438 450860				
Marchio commerciale Trade mark					
Fabbricante Manufacturer	CDVI Wireless S.p.A.				
Prodotto Product	Touch sensor transmitter				
Modello testato Testing model	TTH2641E1N				
Modello derivato Derived models	TTH2641E1B - TTH39E1N - TTH39E1B				
Identificativo FCC FCC ID	PWJTTH				
Data ricevimento campioni Date of test samples receipt	11/02/2019				
Campioni verificati No. of tested samples	1 – Sample by the applicant				
Data verifiche Testing date	14/02/2019				
Sito di prova Testing site	PRSLAB S.r.l. Unipersonale - Via Campagna 92 - 22020 Faloppio - Como - Italy				
Esito delle valutazioni Assessment results	CONFORME / COMPLIANT				
Verifiche effettuate da Verifications carried out by	Daniele AOSANI Tecnico laboratorio EMC & RADIO EMC & RADIO Test Engineer				
Approvato Approved by	Riccardo PFEIFFER Responsabile laboratori EMC & RADIO EMC & RADIO Laboratory manager				

I risultati delle prove riportati nel presente rapporto di prova si riferiscono solo ai campioni esaminati.

The test results reported in this test report shall refer only to the samples tested.

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0. RELEASE CONTROL RECORD

TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
FCCTR_173377-0	Original Release	18/02/2019

1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 EUT Identification

DESCRIPTION	Touch sensor transmitter
MODEL NAME	TTH2641E1N
FCC ID	PWJTTH
SERIAL NO.	Prototype
TRADEMARK	
MANUFACTURER	CDVI Wireless S.p.A.
COUNTRY OF MANUFACTURER	Italy
SINGLE UNIT OR SYSTEM	Single
POWER SOURCE	Internal battery AA (model ER14505 manufactured by EVE ENERGY CO., LTD.)
ELECTRICAL SYSTEM RATED VOLTAGE	3.6Vdc
NOMINAL CAPACITY	2.6Ah
MAX POWER or ABSORBED CURRENT	Stand-by: 2µA Transmission: 60mA
OPERATING TEMPERATURE	-20°C ÷ +80°C
DIMENSIONS	105 x 70 x 23.5mm
EUT STANDING	Wall

1.2 Derived models

Difference declared by manufacturer			Reference document provided by manufacturer
Basic model	TTH2641E1N	Security code type: Rolling code Enclosure color: black	IS-TTHERML.pdf
	TTH2641E1B	Security code type: Rolling code Enclosure color: white	IS-TTHERML.pdf
Derived models	TTH39E1N	Security code type: Fixed Enclosure color: black	IS-TTH39ERML.pdf
	TTH39E1B	Security code type: Fixed Enclosure color: white	IS-TTH39ERML.pdf

Note: The documents mentioned are provided by the manufacturer to highlight the differences between the models.

1.3 Radio module technical data

CHIP MANUFACTURER		
CHIP TYPE	TDK5110F	
WORKING FREQUENCY	433.92MHz	
NUMBER OF CHANNELS	1	
TYPE OF MODULATION	ASK	
DATA RATE	20kHz	
ANTENNA	Spiral antenna in phosphor bronze	
ANTENNA MANUFACTURER		

1.4 Ports identification

	PORT	DESCRIPTION	CONNECTION	NOTES
☒	Enclosure	Plastic	Snap	---
☐	AC Power input	Port not present	---	---
☐	DC Power input	Internal battery	---	---
☐	Signal/Control port	Port not present	---	---
☐	Telecomm. port	Port not present	---	---
☐	Antenna Port	Internal	---	---

Note:

During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

1.5 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test:

- None

1.6 Auxiliary equipment

- None

2. OPERATING MODES AND TEST CONDITIONS

In the following table there are the operating conditions adopted during tests identified by an indicator (#) at which has been referred the item "Operating condition of the equipment under test"

OPERATING CONDITION	DESCRIPTION
#1	Continuous transmission, modulated carrier (see note 1)
#2	Standard operating condition, manually operate (see note 1)

Note:

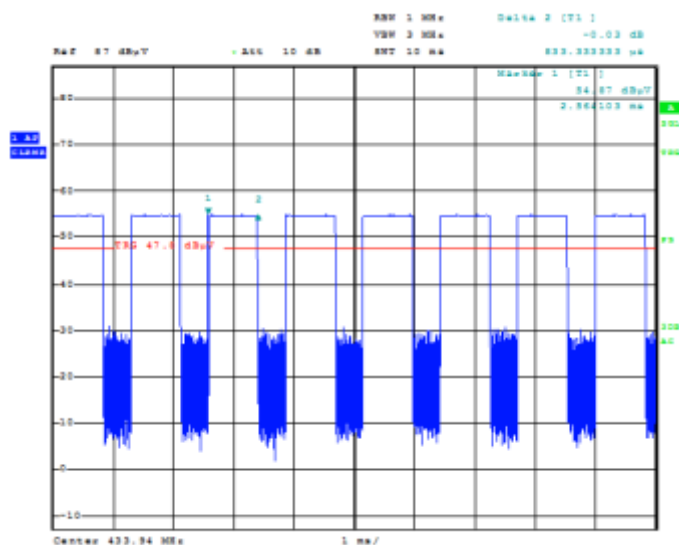
¹ The timing of the continuous transmission and the usual standard operating condition is the same and it is illustrated in the following measurement: According to CFR 47 Part 15.35 c) *Unless otherwise specified, e.g., §§15.255(b), and 15.256(l)(5), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.*

Starting from the measurement below the duty cycle used to calculate the correction factor for field strength measurements results:

DUTY CYCLE (DC): $(833.33\mu s * 8) / 10ms = 0.6664 = 66.64\%$

and so the correction factor results:

CORRECTION FACTOR: $20 * \log(1/DC) = 3.525dB$



Special Test Software: Special software by the Applicant to operate the EUT at each channel frequency continuously. For example, the transmitter will be operated at each of the lowest, middle and highest frequencies individually continuously during testing.

Special Hardware Used: None

Transmitter Test Antenna: The EUT has been tested with the antenna fitted in a manner typical of normal intended use as integral antenna equipment as described with the test results.

3. REFERENCE STANDARDS

REFERENCE STANDARD	
CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
ANSI C63.10:2013	American National Standard for Testing Unlicensed Wireless Devices

4. SUMMARY OF TEST RESULTS

EUT PORT	DESCRIPTION OF PHENOMENA	BASIC STANDARD	OPERATING CONDITION	RESULTS
Antenna port	Antenna requirement	FCC Part 15 §15.203	---	Compliant
	Conducted missions	FCC Part 15 §15.207	---	Not applicable The EUT is battery powered
	Periodic operation characteristics	FCC Part 15 §15.231 (a)	#2	Within the limits
	Field strength of fundamental and spurious emissions	FCC Part 15 §15. 231 (b)	#1	Within the limits
	20dB Bandwidth	FCC Part 15 §15. 231 (c)	#1	Within the limits

5. MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Frequency	±1kHz
All radiated emissions, in radio test area	±1dB
All radiated emissions, in semi anechoic chamber	±6dB
Temperature	±1°C
Humidity	±5%
DC Voltage	±3%
Time	±5%

6. LIST OF INSTRUMENTS USED

Instrument	Manufacturer	Model	Serial n°	Last Call	Call Due
Emi Receiver / analyzer	Rohde & Schwarz	ESU40	100111	04/2018	04/2019
Bi-log antenna	Chase	CBL6111A	1533	04/2017	04/2020
Horn antenna	Electro Metrics	EM-6961	100437	07/2017	07/2020
Loop antenna	Rohde & Schwarz	HFH 2-Z2		02/2017	02/2020
Power meter	Rohde & Schwarz	NRVD	841501/033	04/2018	04/2019
High pass filter	Wainwright	WHK 1,3/15G	9	04/2018	04/2020
Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	09/2018	09/2019

7. TEST RESULTS

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TEST 1.	ANTENNA REQUIREMENTS
REFERENCE DOCUMENT	According to §15.203 / 15.204 An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sec. 15.211, Sec. 15.213, Sec. 15.217, Sec. 15.219, or Sec. 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Sec. 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna Requirements
The TTH2641E1N have an integrated antenna
RESULT: COMPLIANT

TEST 2.

PERIODIC OPERATION CHARACTERISTICS

REFERENCE DOCUMENT

According to §15.231 (a)

The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation: (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation. (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour. (4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition. (5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

• TEST SETUP	Acc. to reference document
• TEST LOCATION	Radio test area
• TYPE OF MEASUREMENT	Radiated
• TEST METHOD	ANSI C63.10:2013
• TEST EQUIPMENT USED FOR TEST	Spectrum Analyser Rodhe & Schwarz mod. ESU40
• TEST PERFORMED BY	Daniele Aosani

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	23°C ± 5°C	24 °C
Ambient humidity	25 - 75%rH	45%
Pressure	85 - 106kPa (860mbar - 1060mbar)	960 mbar

OPERATING CONDITION: #2

RESULT: **COMPLIANT**

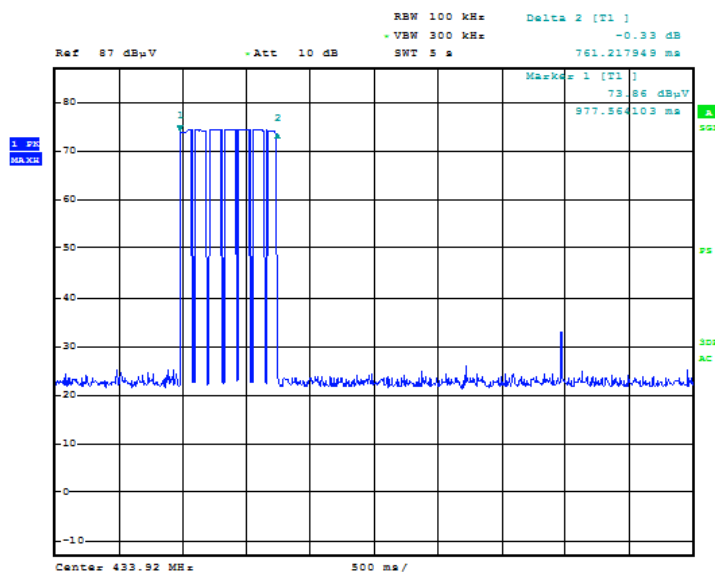
TEST RESULTS

15.231 (a) (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

COMPLIANT the EUT is immediately deactivated after the release of the push button

Marker 1: push button pressed (start of transmission)

Marker 2: push button released and transmitter deactivation



15.231 (a) (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

NOT APPLICABLE: The EUT is a manually operated transmitter

15.231 (a) (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

NOT APPLICABLE: The EUT is a manually operated transmitter

15.231 (a) (4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

NOT APPLICABLE: The EUT is not employed for radio control purposes during emergencies involving fire, security, and safety of life

TEST 3.	20dB BANDWIDTH
REFERENCE DOCUMENT	According to §15.231 (c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

• TEST SETUP	Acc. to reference document
• TEST LOCATION	Radio test area
• TYPE OF MEASUREMENT	Radiated
• TEST METHOD	ANSI C63.10:2013
• TEST EQUIPMENT USED FOR TEST	Spectrum Analyzer R&S mod. ESU40
• TEST PERFORMED BY	Daniele Aosani

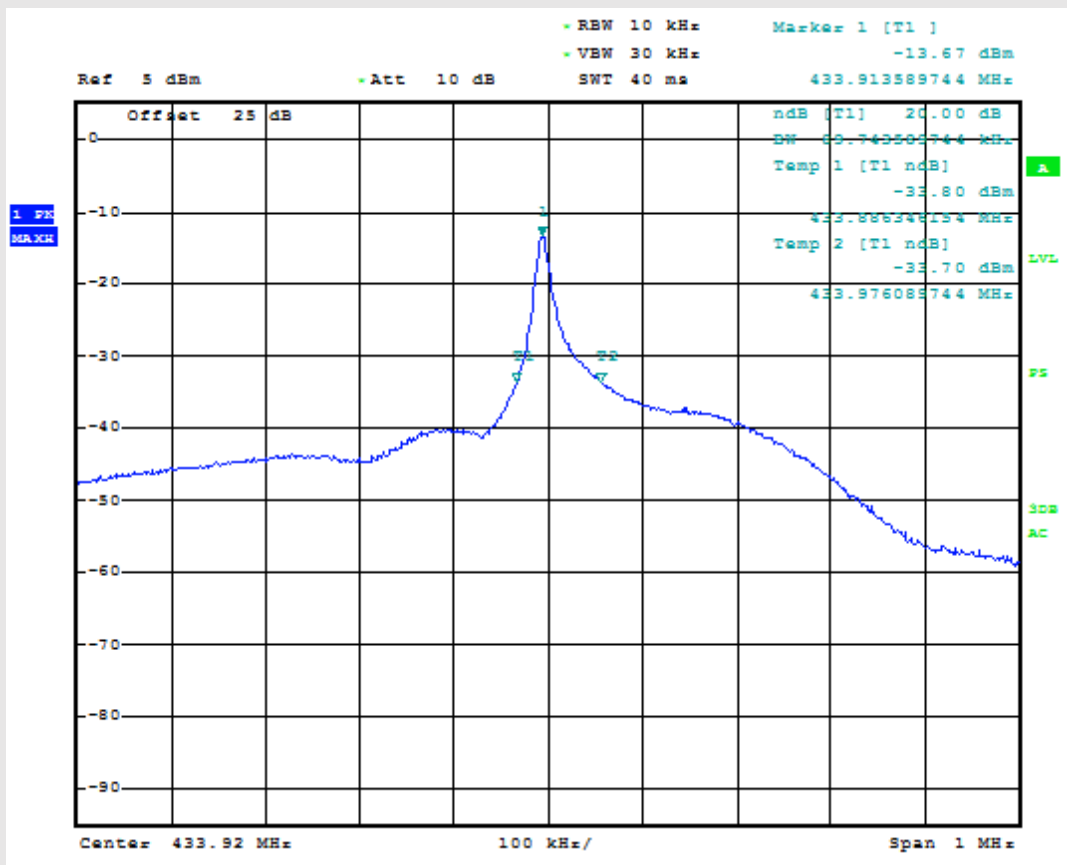
TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	23°C ± 5°C	24 °C
Ambient humidity	25 - 75%rH	45%
Pressure	85 - 106kPa (860mbar - 1060mbar)	960 mbar

OPERATING CONDITION: #1

RESULT: WITHIN THE LIMITS

Measurement Result

20dB BANDWIDTH



Channel	Frequency (MHz)	20dB Bandwidth (kHz)	Limit 0.0025*Frequency (kHz)	Results
---	433.92	89.74	1084.8	WITHIN THE LIMITS

Measurement Uncertainty : ± 1 KHz

TEST 4.

FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSIONS

REFERENCE DOCUMENT

According to §15,231 (b)

In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	11,250 to 3,750	1125 to 375
174-260	3,750	375
260-470	13,750 to 12,500	1375 to 1,250
Above 470	12,500	1,250

¹Linear interpolations.

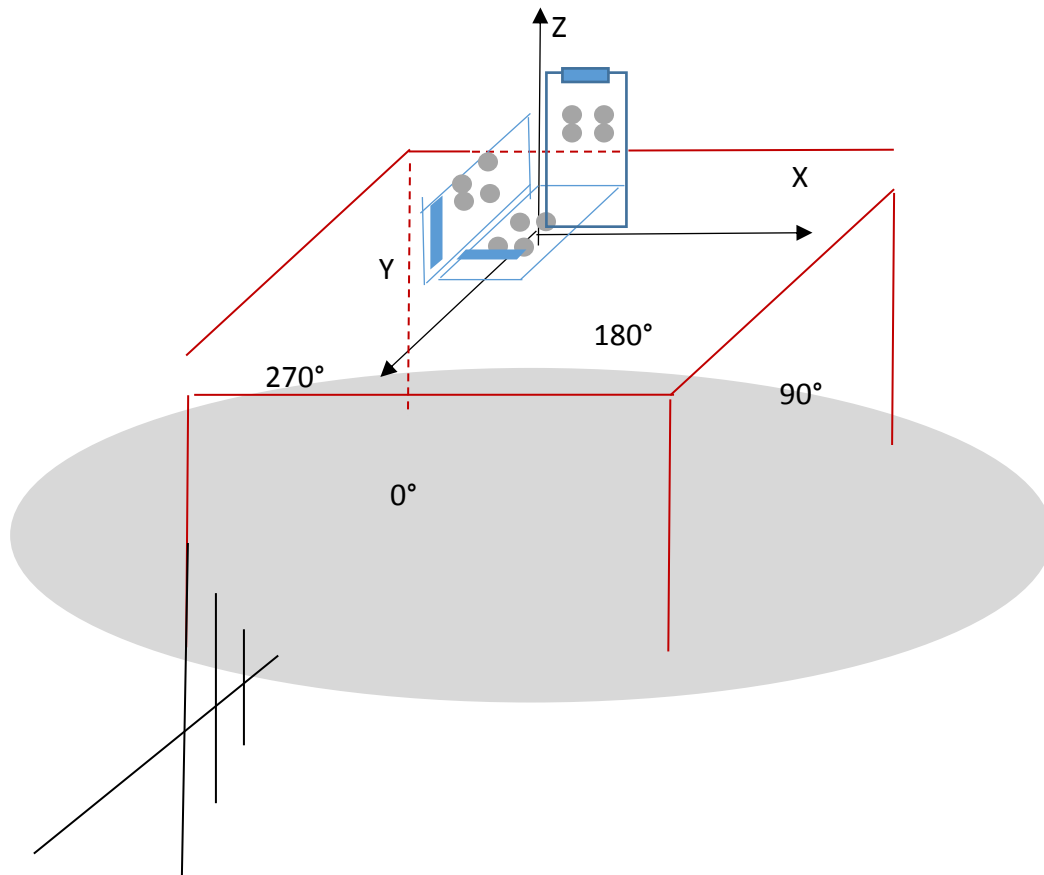
• TEST SETUP	Acc. to reference document
• TEST LOCATION	Semi anechoic chamber
• TYPE OF MEASUREMENT	Radiated
• TEST METHOD	ANSI C63.10:2013
• TEST EQUIPMENT USED FOR TEST	EMI Receiver Rodhe & Schwarz mod. ESU40 Loop Antenna Rohde & Schwarz mod. HFH 2-Z2 Bi-log antenna CHASE mod. CBL6111A Horn antenna Electro Metrics mod. EM-6961
• TEST PERFORMED BY	Daniele Aosani

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	23°C ± 5°C	24 °C
Ambient humidity	25 - 75%rH	45%
Pressure	85 - 106kPa (860mbar - 1060mbar)	960 mbar

OPERATING CONDITION :#1

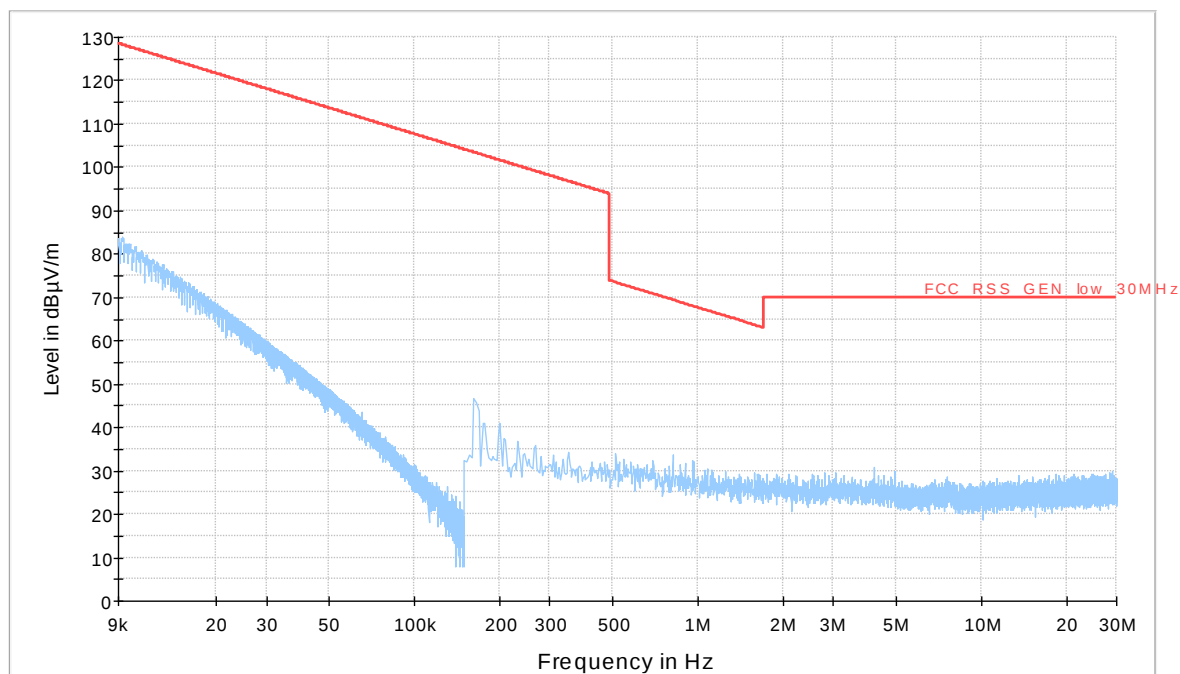
RESULT: **WITHIN THE LIMITS**

Field Strength of Fundamental and Spurious Emissions Setup



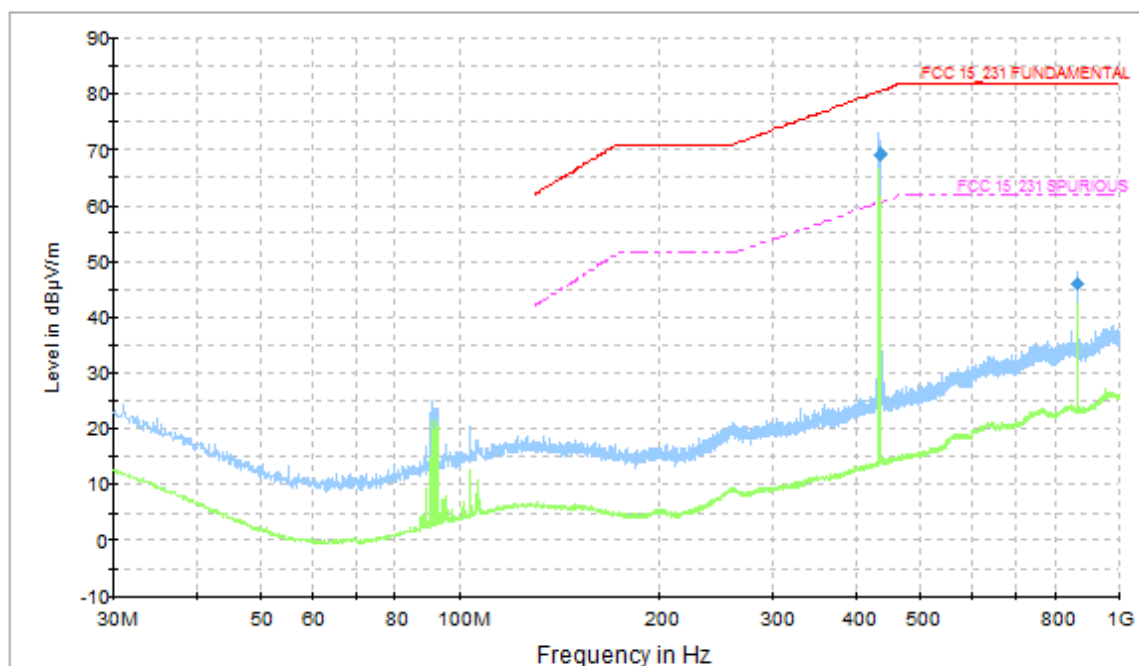
EUT POSITION	ZX plane
FREQUENCY RANGE	9kHz – 30MHz
POLARIZATION	VERTICAL

EMI_RAD_9k_30M_sweep_dBuVm



EUT POSITION	ZX plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL

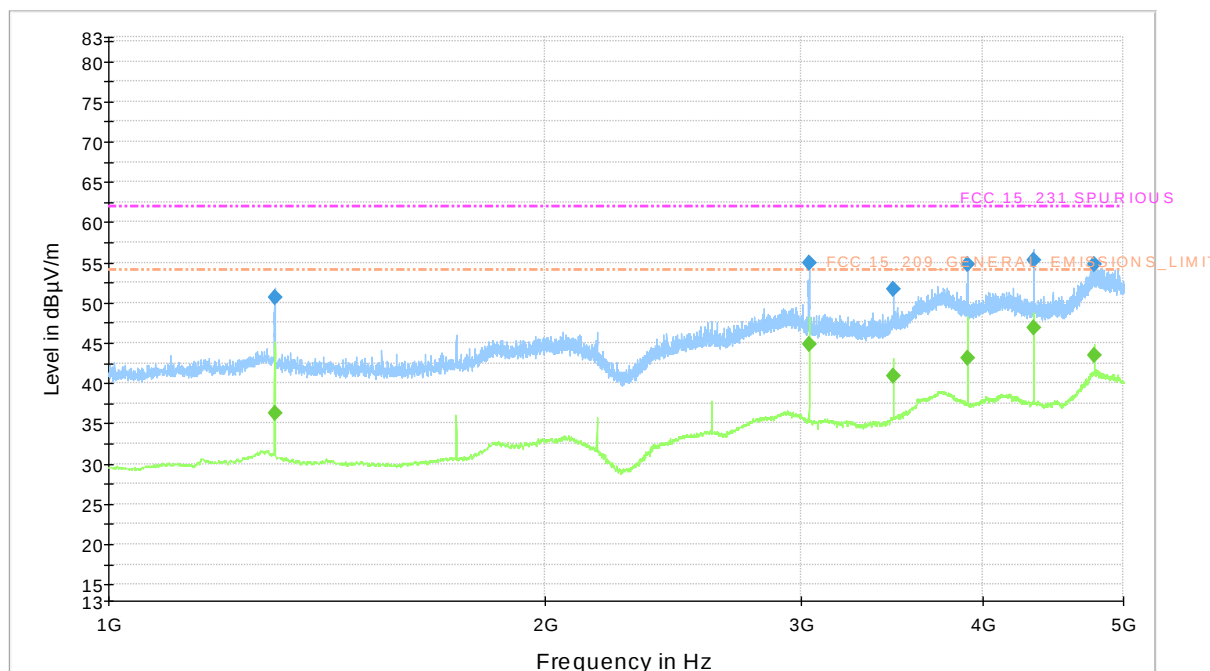


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
434.005000	69.3	255.0	V	270.0	-3.52	65.78	14.80	80.58
867.886000	46.0	255.0	V	270.0	-3.52	42.48	19.52	62.00

EUT POSITION	ZX plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL



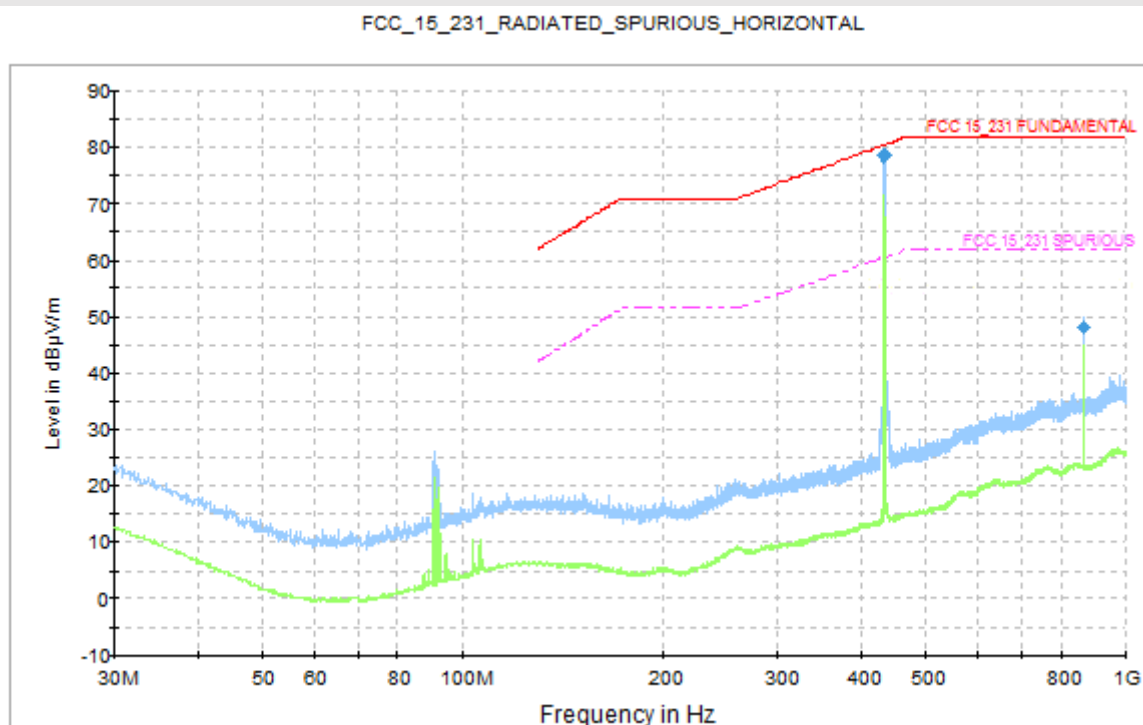
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1302.000000	50.7	106.8	V	0.0	-3.52	47.18	14.82	62.00
3037.600000	54.9	106.8	V	90.0	-3.52	51.38	10.62	62.00
3471.600000	51.6	106.8	V	0.0	-3.52	48.08	13.92	62.00
3905.600000	54.8	254.8	V	270.0	-3.52	51.28	10.72	62.00
4339.600000	55.2	254.8	V	270.0	-3.52	51.68	10.32	62.00
4773.600000	54.8	106.8	V	180.0	-3.52	51.28	10.72	62.00

Final Result

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.200000	36.4	106.8	V	0.0	-3.52	32.88	21.12	54.00
3037.600000	44.8	106.8	V	90.0	-3.52	41.28	12.72	54.00
3471.200000	40.9	106.8	V	0.0	-3.52	37.38	16.62	54.00
3905.600000	43.1	254.8	V	270.0	-3.52	39.58	14.42	54.00
4339.200000	46.9	254.8	V	270.0	-3.52	43.38	10.62	54.00
4773.200000	43.5	106.8	V	180.0	-3.52	39.98	14.02	54.00

EUT POSITION	ZX plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	HORIZONTAL

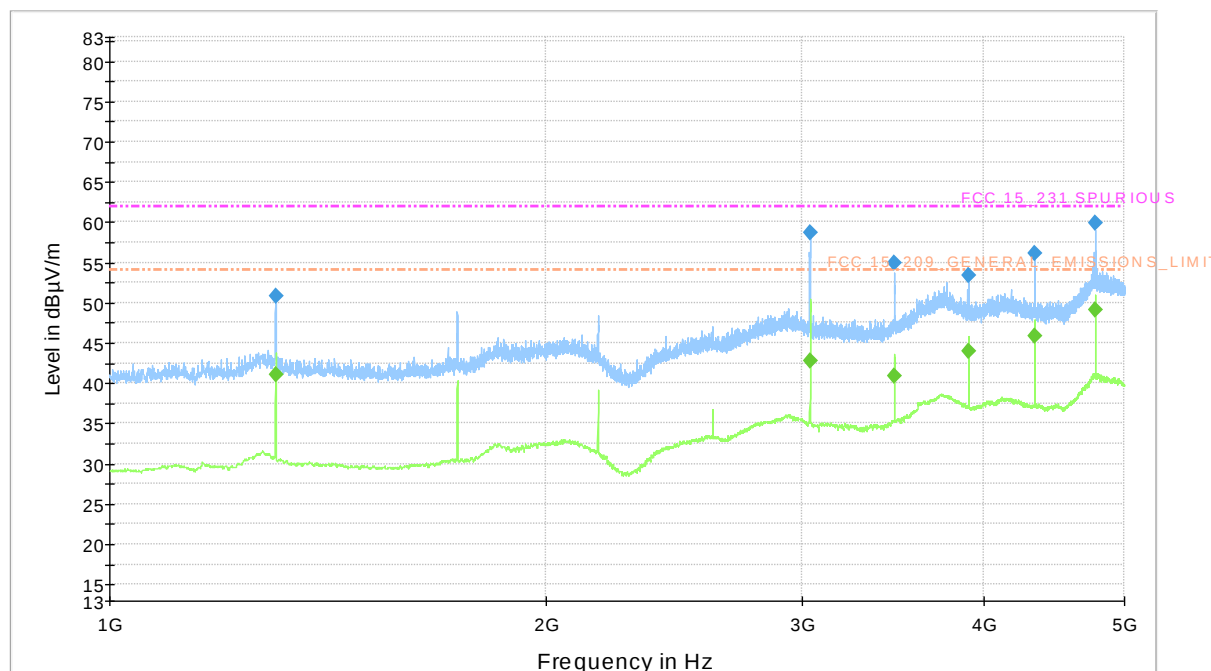


Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
433.908000	78.6	254.9	H	0.0	-3.52	75.08	5.50	80.58
867.789000	48.1	104.7	H	0.0	-3.52	44.58	17.42	62.00

EUT POSITION	ZX plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	HORIZONTAL

FCC_15_231_RADIATED_SPURIOUS_HORIZONTAL



Final Result

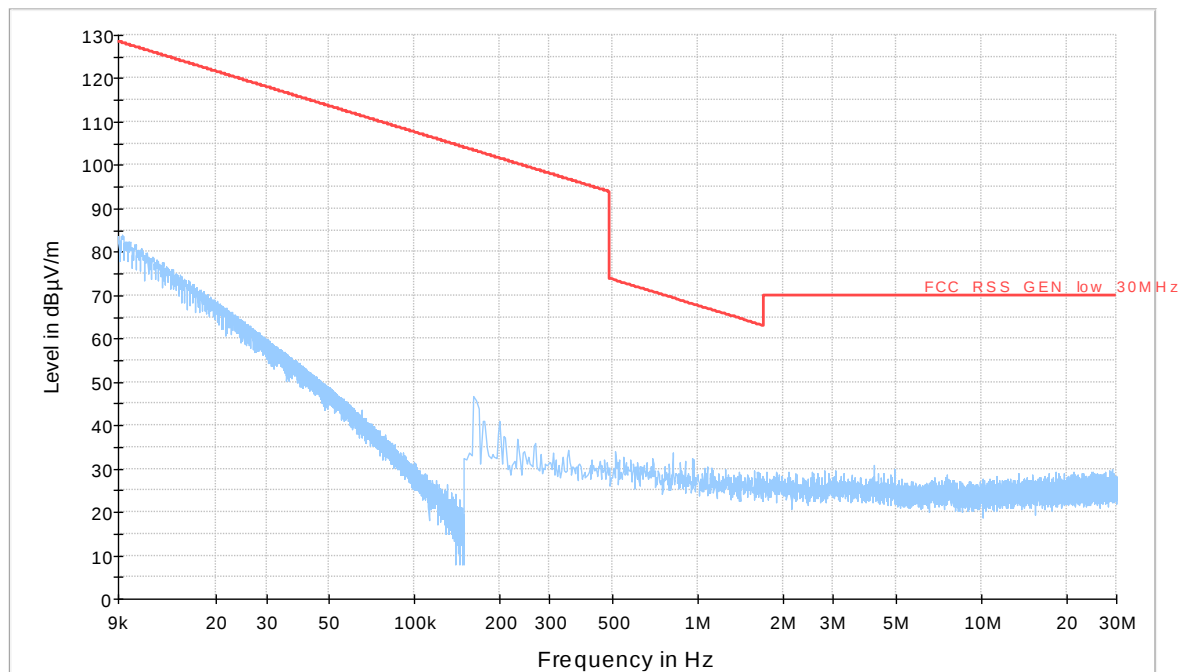
Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	50.8	106.9	H	180.0	-3.52	47.28	14.72	62.00
3037.600000	58.8	254.9	H	180.0	-3.52	55.28	6.72	62.00
3471.200000	54.9	107.0	H	0.0	-3.52	51.38	10.62	62.00
3905.600000	53.4	255.0	H	0.0	-3.52	49.88	12.12	62.00
4339.200000	56.1	106.9	H	180.0	-3.52	52.58	9.42	62.00
4773.200000	60.0	254.9	H	180.0	-3.52	56.48	5.52	62.00

Final Result

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	41.1	106.9	H	180.0	-3.52	37.58	16.42	54.00
3036.800000	42.7	254.9	H	180.0	-3.52	39.18	14.82	54.00
3471.600000	40.9	106.9	H	180.0	-3.52	37.38	16.62	54.00
3905.200000	44.0	255.0	H	0.0	-3.52	40.48	13.52	54.00
4339.200000	45.9	106.9	H	180.0	-3.52	42.38	11.62	54.00
4773.200000	49.1	254.9	H	180.0	-3.52	45.58	8.42	54.00

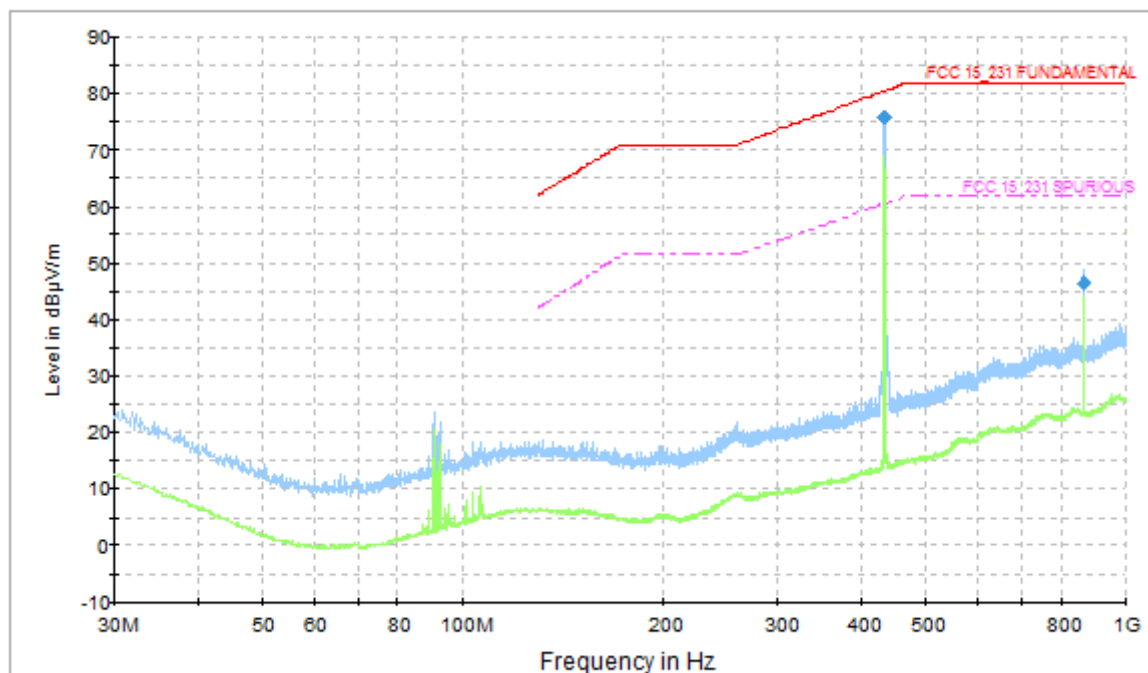
EUT POSITION	YZ plane
FREQUENCY RANGE	9kHz – 30MHz
POLARIZATION	VERTICAL

EMI_RAD_9k_30M_sweep_dBuVm



EUT POSITION	YZ plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL

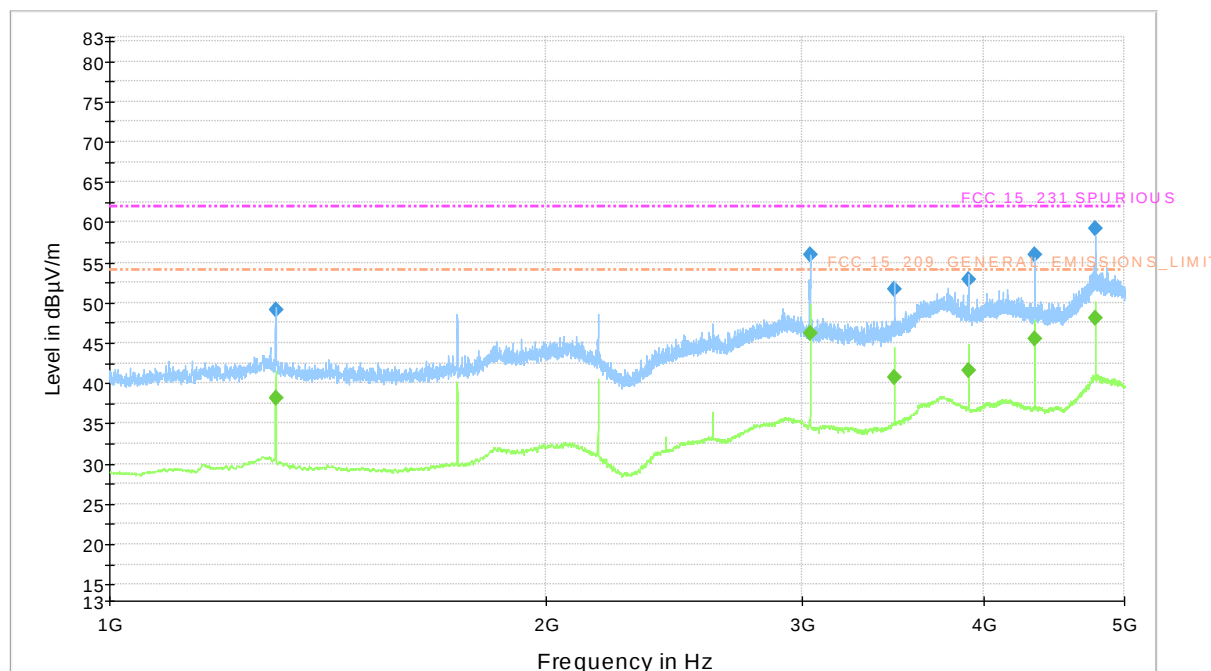


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
433.908000	75.8	104.7	V	0.0	-3.52	72.28	8.30	80.58
867.789000	46.5	255.0	V	180.0	-3.52	42.98	19.02	62.00

EUT POSITION	YZ plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL



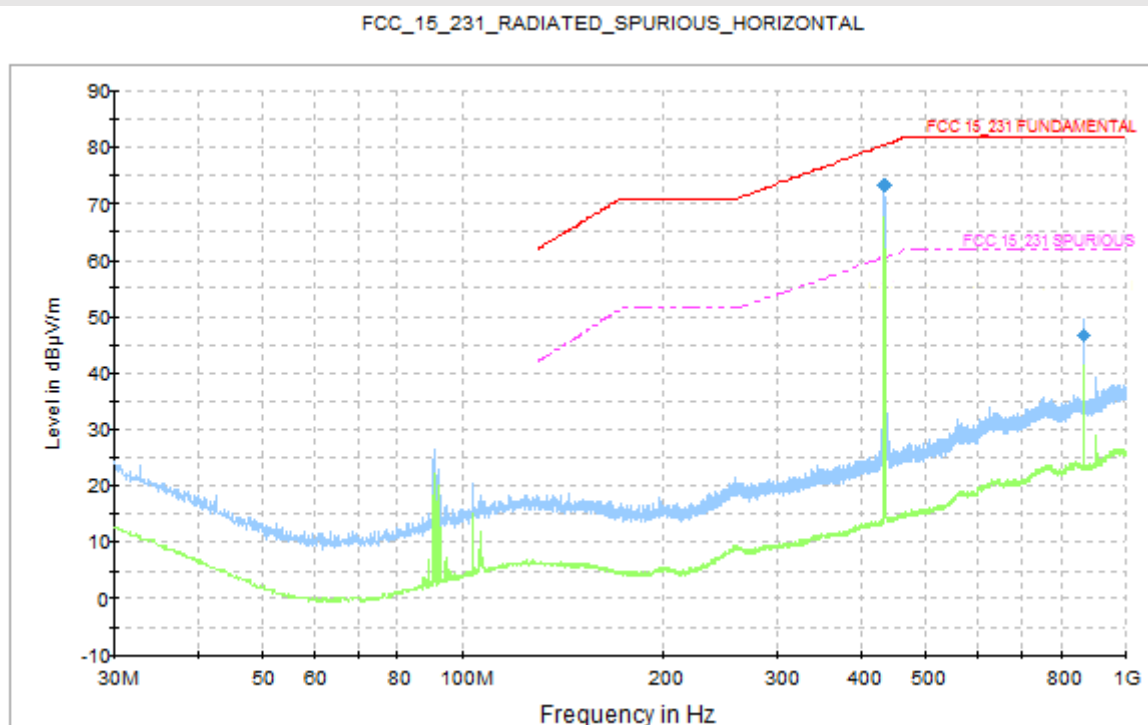
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
1301.600000	49.2	106.9	V	180.0	-3.52	45.68	16.32	62.00
3037.600000	55.9	106.8	V	0.0	-3.52	52.38	9.62	62.00
3471.600000	51.6	106.8	V	0.0	-3.52	48.08	13.92	62.00
3905.600000	52.9	254.9	V	0.0	-3.52	49.38	12.62	62.00
4339.200000	55.9	106.9	V	180.0	-3.52	52.38	9.62	62.00
4773.200000	59.2	255.1	V	180.0	-3.52	55.68	6.32	62.00

Final Result

Frequency (MHz)	Average (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
1302.000000	38.1	255.1	V	180.0	-3.52	34.58	19.42	54.00
3037.600000	46.2	106.8	V	0.0	-3.52	42.68	11.32	54.00
3471.600000	40.7	106.8	V	0.0	-3.52	37.18	16.82	54.00
3905.200000	41.7	106.8	V	0.0	-3.52	38.18	15.82	54.00
4339.200000	45.5	106.9	V	180.0	-3.52	41.98	12.02	54.00
4773.200000	48.2	255.1	V	180.0	-3.52	44.68	9.32	54.00

EUT POSITION	YZ plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	HORIZONTAL

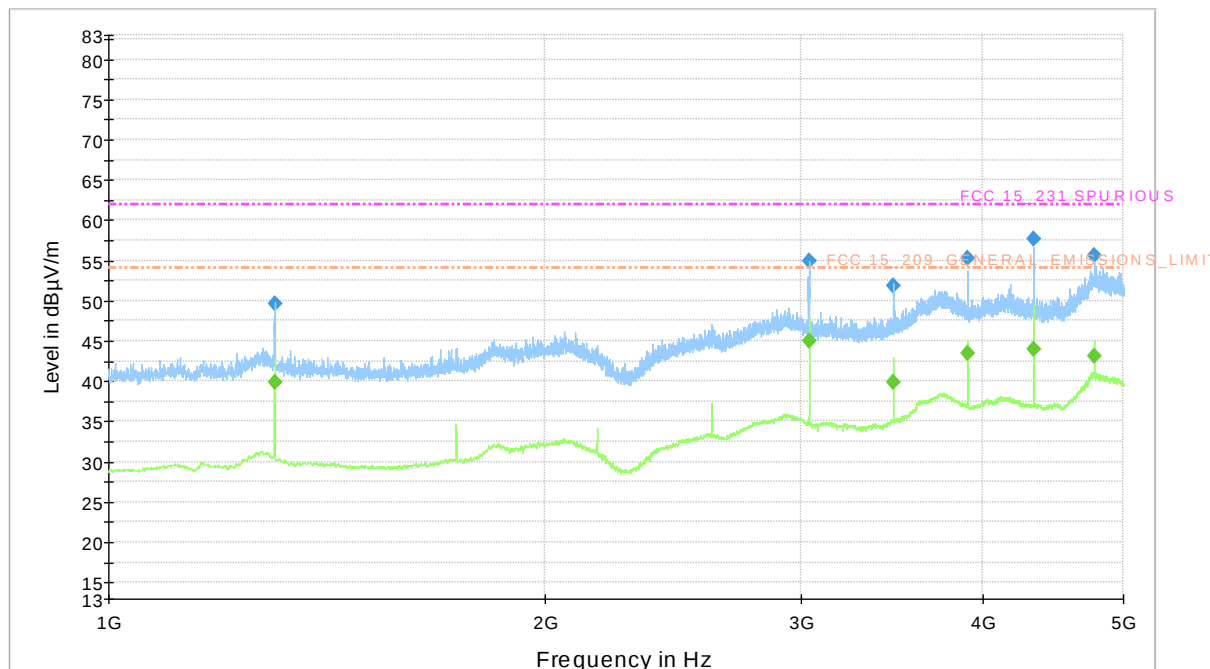


Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
433.908000	73.3	254.8	H	90.0	-3.52	69.78	10.80	80.58
867.789000	46.7	104.7	H	180.0	-3.52	43.18	18.82	62.00

EUT POSITION	YZ plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	HORIZONTAL

FCC_15_231_RADIATED_SPURIOUS_HORIZONTAL



Final Result

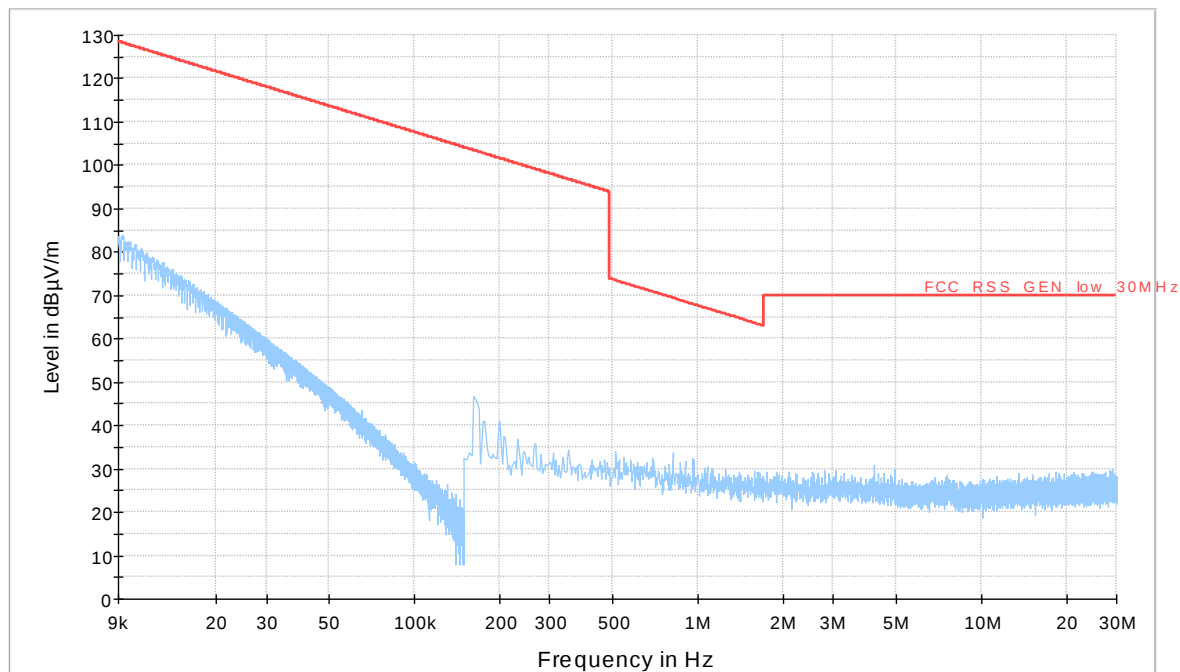
Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	49.6	255.0	H	0.0	-3.52	46.08	15.92	62.00
3037.200000	54.9	107.0	H	270.0	-3.52	51.38	10.62	62.00
3471.200000	51.9	255.0	H	0.0	-3.52	48.38	13.62	62.00
3905.200000	55.2	255.0	H	90.0	-3.52	51.68	10.32	62.00
4339.200000	57.6	255.0	H	0.0	-3.52	54.08	7.92	62.00
4773.200000	55.6	255.1	H	270.0	-3.52	52.08	9.92	62.00

Final Result

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	39.8	255.0	H	0.0	-3.52	36.28	17.72	54.00
3037.200000	45.0	107.0	H	270.0	-3.52	41.48	12.52	54.00
3471.600000	39.9	255.0	H	0.0	-3.52	36.38	17.62	54.00
3905.200000	43.4	255.0	H	90.0	-3.52	39.88	14.12	54.00
4339.600000	43.9	255.0	H	0.0	-3.52	40.38	13.62	54.00
4773.200000	43.1	255.1	H	270.0	-3.52	39.58	14.42	54.00

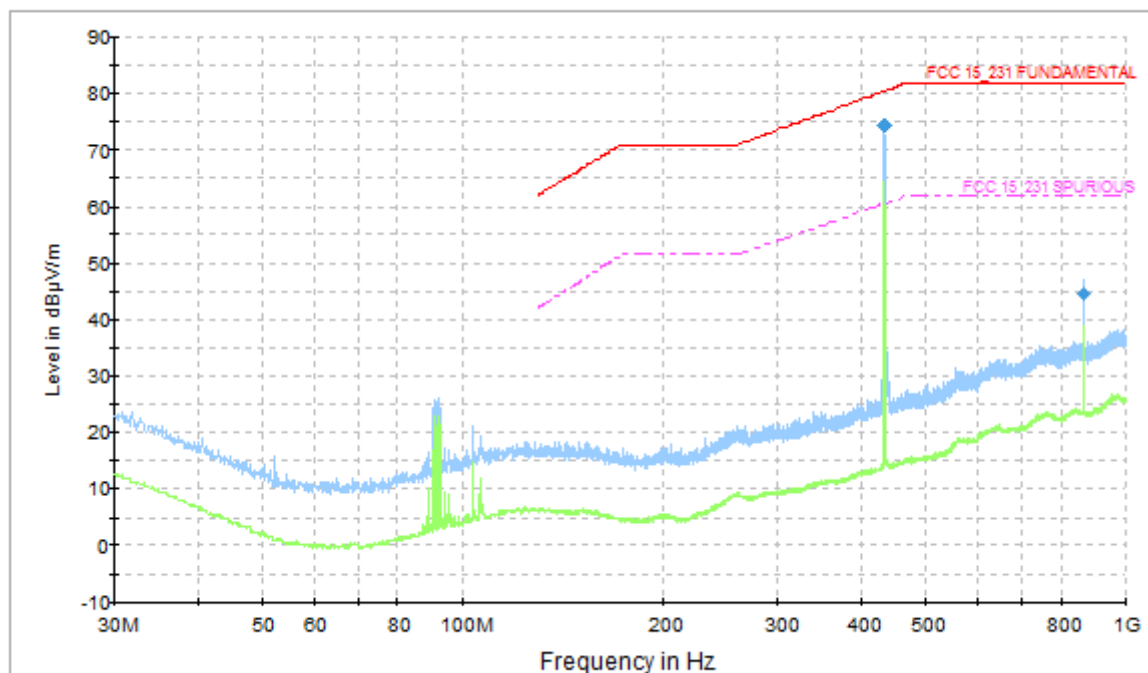
EUT POSITION	XY plane
FREQUENCY RANGE	9kHz – 30MHz
POLARIZATION	VERTICAL

EMI_RAD_9k_30M_sweep_dBuVm



EUT POSITION	XY plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL

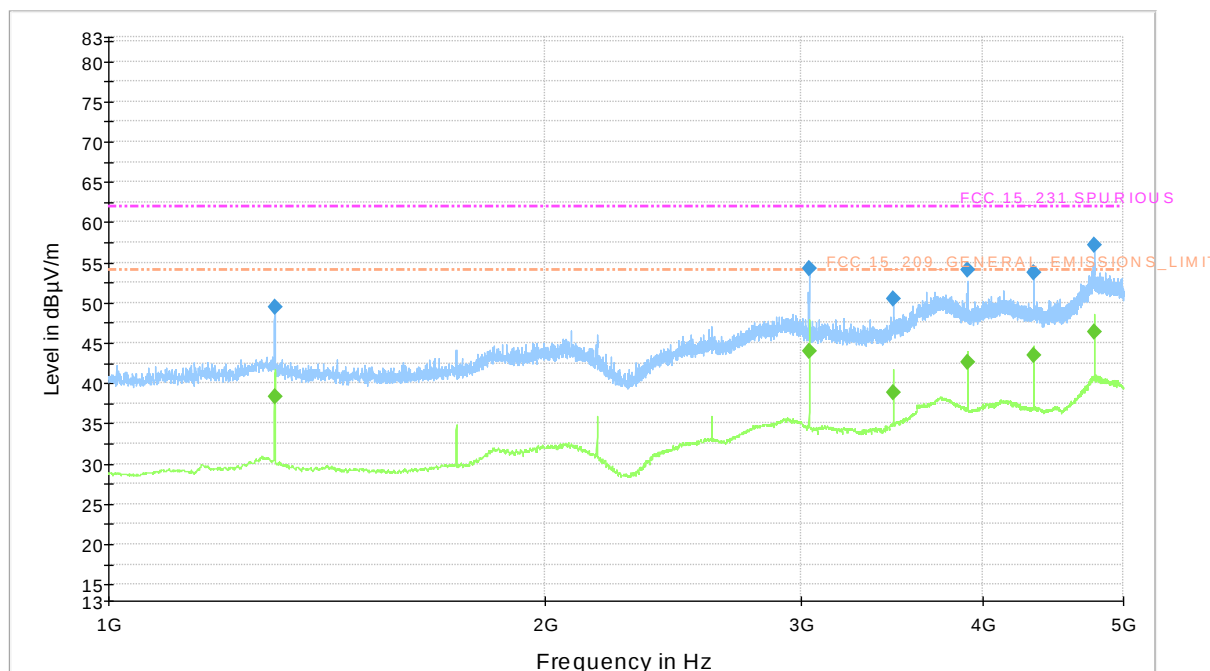


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
433.908000	74.4	104.7	V	270.0	-3.52	70.88	9.70	80.58
867.789000	44.5	104.7	V	270.0	-3.52	40.98	21.02	62.00

EUT POSITION	XY plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	VERTICAL

FCC_15_231_RADIATED_SPURIOUS_VERTICAL



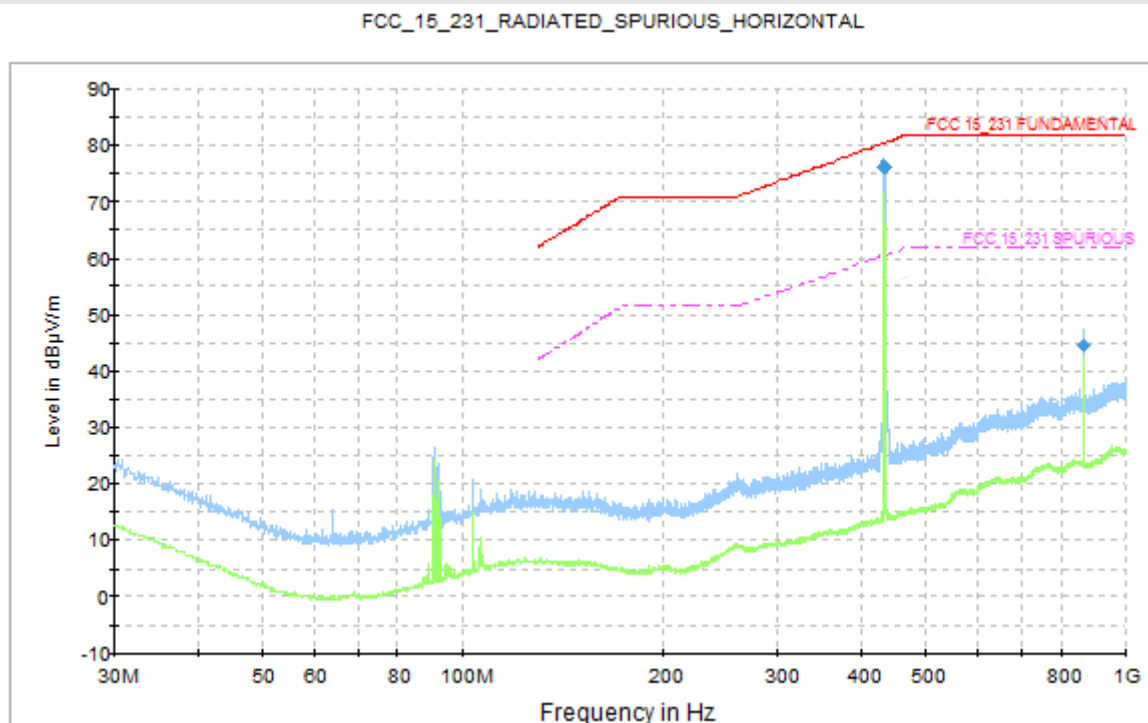
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
1301.600000	49.5	106.9	V	270.0	-3.52	45.98	16.02	62.00
3037.200000	54.3	254.8	V	0.0	-3.52	50.78	11.22	62.00
3471.600000	50.5	106.9	V	180.0	-3.52	46.98	15.02	62.00
3905.200000	54.1	106.9	V	180.0	-3.52	50.58	11.42	62.00
4339.600000	53.7	254.8	V	0.0	-3.52	50.18	11.82	62.00
4773.600000	57.1	254.9	V	270.0	-3.52	53.58	8.42	62.00

Final Result

Frequency (MHz)	Average (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBμV/m)	Margin (dB)	Limit (dBμV/m)
1302.000000	38.4	106.9	V	270.0	-3.52	34.88	19.12	54.00
3037.600000	44.0	106.8	V	0.0	-3.52	40.48	13.52	54.00
3471.600000	38.9	106.9	V	180.0	-3.52	35.38	18.62	54.00
3905.200000	42.6	106.9	V	180.0	-3.52	39.08	14.92	54.00
4339.200000	43.5	106.8	V	0.0	-3.52	39.98	14.02	54.00
4773.200000	46.4	254.8	V	90.0	-3.52	42.88	11.12	54.00

EUT POSITION	XY plane
FREQUENCY RANGE	30MHz – 1GHz
POLARIZATION	HORIZONTAL

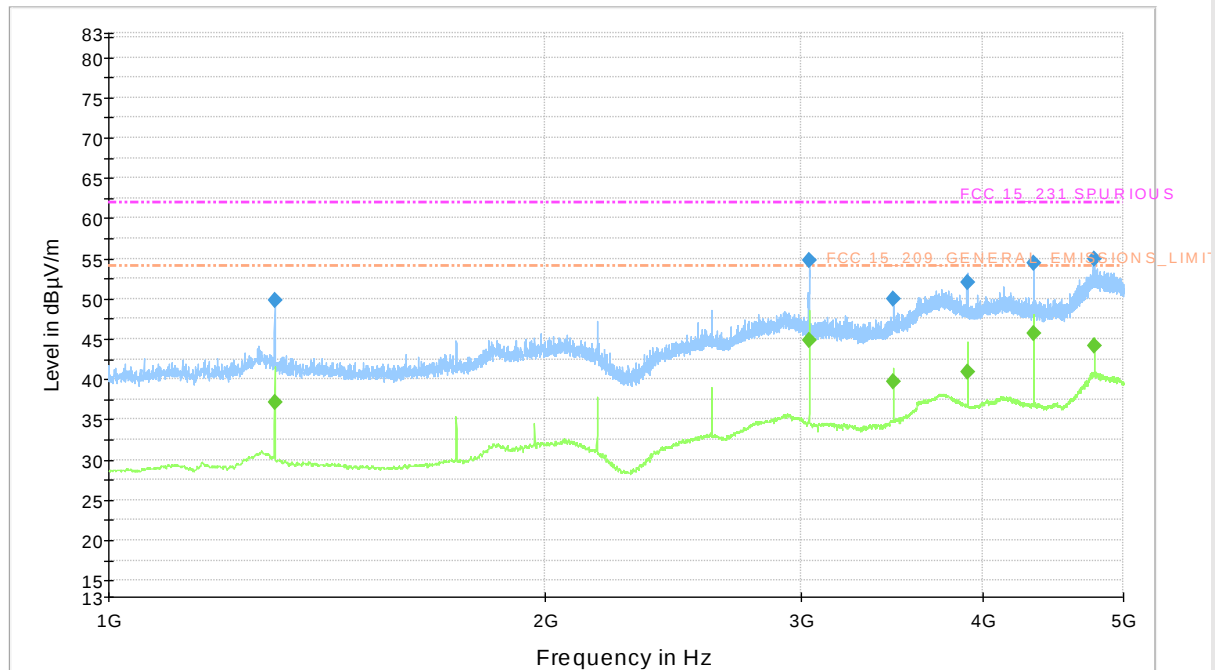


Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
433.908000	76.2	255.2	H	0.0	-3.52	72.68	7.90	80.58
867.886000	44.6	104.7	H	270.0	-3.52	41.08	20.92	62.00

EUT POSITION	XY plane
FREQUENCY RANGE	1GHz – 5GHz
POLARIZATION	HORIZONTAL

FCC_15_231_RADIATED_SPURIOUS_HORIZONTAL



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	49.7	106.9	H	90.0	-3.52	46.18	15.82	62.00
3037.600000	54.8	106.9	H	90.0	-3.52	51.28	10.72	62.00
3471.600000	49.9	254.8	H	180.0	-3.52	46.38	15.62	62.00
3906.000000	52.0	254.8	H	270.0	-3.52	48.48	13.52	62.00
4339.600000	54.4	254.8	H	270.0	-3.52	50.88	11.12	62.00
4773.600000	54.9	254.8	H	270.0	-3.52	51.38	10.62	62.00

Final Result

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Duty Cycle correction (dB)	Value with correction (dBµV/m)	Margin (dB)	Limit (dBµV/m)
1301.600000	37.1	107.0	H	270.0	-3.52	33.58	20.42	54.00
3037.600000	44.8	106.9	H	90.0	-3.52	41.28	12.72	54.00
3471.200000	39.8	254.8	H	270.0	-3.52	36.28	17.72	54.00
3905.600000	40.9	254.8	H	270.0	-3.52	37.38	16.62	54.00
4339.200000	45.7	254.8	H	270.0	-3.52	42.18	11.82	54.00
4773.200000	44.1	254.8	H	270.0	-3.52	40.58	13.42	54.00