FCC CERTIFICATION TEST REPORT

Applicant:	SOUND AROUND INC.
Address:	1600 63 RD STREET BROOKLYN,NEW YORK,USA
Manufacturer:	Guangzhou Yuandong Smart Sports Technology Co, Ltd.
Address:	No.192, Kezhu Road, Huangpu District, Guangzhou,China
Product Description:	Travel APButton
Brand Name:	SQUATZ
Tested Model:	Travel APOLLO Button
FCC ID:	2A5X5-APTRVLBTN22
Report No.:	JCF230725201-004
Received Date:	Jul. 25, 2023
Tested Date:	Jul. 25, 2023 - Sep. 04, 2023
Issued Date:	Sep. 04, 2023
Test Standards:	FCC Rules and Regulations Part 15 Subpart C
Test Procedure：	ANSI C63.10:2013
Test Result:	Pass

Prepared By:

Roger Li/Engineer **Date:** Sep. 04, 2023

Reviewed By:

Kennys Zhang/Engineer **Date:** Sep. 04, 2023

Approved By:

Talent Zhang/Engineer **Date:** Sep. 04, 2023

Note: The test results in this report apply exclusively to the tested model / sample. Without written approval of Guangzhou Jingce Testing Technology Co., Ltd. the test report shall not be reproduced except in full.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 04, 2023	Original Report	/

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1. Test Report Declare

Applicant:	SOUND AROUND INC.
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Manufacturer:	Guangzhou Yuandong Smart Sports Technology Co, Ltd.
Address:	No.192, Kezhu Road, Huangpu District, Guangzhou,China
Product Name：	Travel APButton
Brand Name:	SQUATZ
Model Name：	Travel APOLLO Button
Difference Description:	N/A

We Declare:

The equipment described above is tested by Guangzhou Jingce Testing Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangzhou Jingce Testing Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

2. Summary of Test Results

Summary of Test Results			
Clause	**Test Items**	**FCC/ISED Rules**	**Test Results**
1	6 dB Bandwidth and 99 % Occupied Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207	N/A
7	Antenna Requirement	FCC Part 15.203	Pass

3. Test Laboratory

Guangzhou Jingce Testing Technology Co., Ltd.

Add.: No.192, Kezhu Road, Huangpu District, Guangzhou, Guangdong, China

Association for Laboratory Accreditation(A2LA). Certificate Number: 6594.01

FCC Designation Number: CN1331. Test Firm Registration Number: 360543

IC Test Firm Registration Number: 28796

Conformity Assessment Body identifier: CN0138

4. Equipment Under Test

4.1. Description of EUT

EUT Name:	Travel APButton
Model Number:	Travel APOLLO Button
EUT Function Description:	Please reference user's manual
Power Supply:	DC 3.3V
Hardware Version:	YD.SWITCH.2
Software Version:	TX_BK2535_a97730
Radio Specification:	Non-specific short range devices
Operation Frequency:	2405MHz
Modulation:	GFSK
Data Rate:	250kbps
Antenna Type:	PCB Antenna, MAX. Gain: -3.81 dBi

Note 1: EUT is the ab. of equipment under test.

Note 2: The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.

4.2. Channel List

Mode	Transmit Chains	Test Channel and Frequency (MHz)
GFSK	1	2405

4.3. Test Channel Configuration

Mode	Worst Data Rate	Test Channel and Frequency (MHz)
GFSK	250kpbs	2405

4.4. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25 ℃
Humidity range:	40-75%
Pressure range:	86-106 kPa

4.5. The Worse Case Power Setting Parameter

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band		
Test Software		N/A
Modulation Type	Transmit Antenna Number	Test Software Setting Value
		2405
GFSK	1	Default

4.6. Description of Available Antennas

Test Mode	Transmit and Receive Mode	Description
GFSK	☒ 1TX	Antenna 1 can be used as transmitting.

5. Description of Test Setup

5.1. Accessory

Description of Accessories	Manufacturer	Model Number	Description	Remark
N/A	N/A	N/A	N/A	N/A

5.2. Support Equipment

Equipment	Brand Name	Model Name	P/N
N/A	N/A	N/A	N/A

5.3. Test Setup

The EUT can work in engineering mode.

5.4. Setup Diagram for Tests

6. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
AC Power Conduction emission	1.37 dB
All Radiated emissions	5.4dB
Conducted emissions	3.09 dB
Occupied Channel Bandwidth	1.1%
Conducted Output power	0.82dB
Power Spectral Density	0.82dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k = 2.	

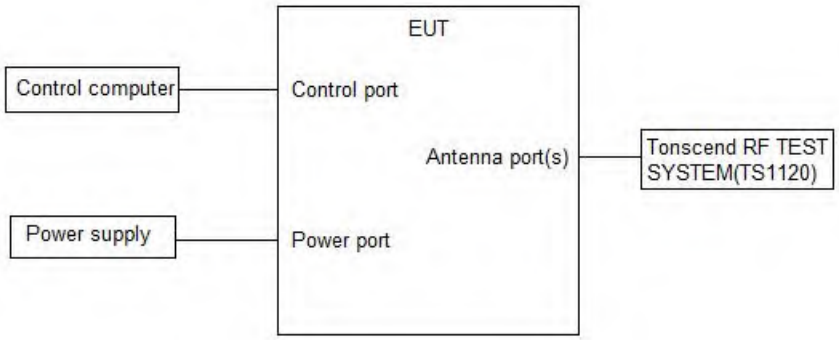
7. Measuring Instrument and Software Used

TS Test System						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	Spectrum Analyzer	Keysight	N9030B	MY56320512	Jul. 10, 2023	Jul. 09, 2024
☑	Vector Signal Generator	Keysight	N5182B	MY57300334	Nov. 24, 2022	Nov. 23, 2023
☑	Signal Generator	Keysight	N5171B	MY57280639	Nov. 24, 2022	Nov. 23, 2023
☑	DC POWER	Keysight	E342A	MY59020356	Jul. 14, 2023	Jul. 13, 2024
☑	Incubator thermometer	GWS	EL-02JA	21107288	Nov. 03, 2022	Nov. 02, 2023
☑	Control unit(Power sensor)	Tonscend	JS0806-2	/	Jul. 10, 2023	Jul. 09, 2024
☑	Wideband radio communication tester	R&S	CMW500	163478	Jul. 11, 2023	Jul. 10, 2024
☑	Spectrum Analyzer	Keysight	N9020B	MY60112206	Nov. 24, 2022	Nov. 23, 2023
☑	Control unit(Power sensor)	Tonscend	JS0806-2	21H8060465	Nov. 25, 2022	Nov. 24, 2023
Software						
Used	Description	Manufacturer	Name		Version	
☑	Test software	TS+	JS1120-3		V3.3.10	
RSE Test System						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	EMI Receiver	R&S	ESW	101685	Jul. 12, 2023	Jul. 11, 2024
☑	Bilog Antenna	Schwarzbeck	VULB 9163	01416	Mar. 21, 2023	Mar. 20, 2024
☑	Horn Antenna 1	Schwarzbeck	BBHA 9120 D	01673	Nov. 23, 2022	Nov. 22, 2023
☑	Horn Antenna 2	ETS	3116C	00217677	Sep. 19, 2022	Sep. 18, 2023
☑	Signal Pre-Amplifier	Tonscend	TAP01018050	AP21C806122	Jul. 10, 2023	Jul. 09, 2024
☑	Signal Pre-Amplifier	Tonscend	TAP9K3G32	AP20K806104	Jul. 10, 2023	Jul. 09, 2024

☑	Signal Pre-Amplifier	ETS	3116C-PA	00217677	Sep. 02, 2022	Sep. 01, 2023
☑	3m Fully-anechoic Chamber	ETS	RFD-100	/	Apr. 24, 2021	Apr. 23, 2024
Software						
Used	Description	Manufacturer	Name		Version	
☑	Test software	TS+	TS+		V3.0.0.4	
Conducted Emission Test For AC Power Port						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	LISN	R&S	ENV216	102154	Jul. 10, 2023	Jul. 09, 2024
☑	EMI Receiver	R&S	ESR3	102509	Jul. 12, 2023	Jul. 11, 2024
Software						
Used	Description	Manufacturer	Name		Version	
☑	Test software	EZ	EZ-EMC		EMEC-3A1	
Other Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	Temperature & Humidity	Temperature	HTC-1	/	Nov. 25, 2022	Nov. 24, 2023

8. On Time and Duty Cycle

8.1. Block diagram of test setup



8.2. Limits

None; for reporting purposes only

8.3. Procedure

KDB 558074 Zero-Span Spectrum Analyzer Method

8.4. Results

Test Mode	Ant.	Freq. [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2405	0.42	1.23	34.15	4.67

Note: Duty Cycle Correction Factor = 10log(1/x).

Where: x is Duty Cycle(Linear)

Where: T is On Time (transmit duration)

If that calculated VBW is not available on the analyzer, then the next higher value should be used.

8.5. Original test data

BLE_1M_Ant1_2405

9. 6 dB DTS Bandwidth

9.1. Block diagram of test setup

Same as section 8.1

9.2. Limits

CFR 47FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2)	6 dB Bandwidth	>= 500 kHz	2400-2483.5

9.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth :100 kHz
VBW	For 6 dB Bandwidth : ≥3 × RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB/99 % relative to the maximum level measured in the fundamental emission.

9.4. Results

Test Mode	Ant.	Freq. [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2405	0.628	2404.616	2405.244	0.5	PASS

9.5. Original test data

6 dB bandwidth:

BLE_1M_Ant1_2405


10. Peak Conducted Output Power

10.1. Block diagram of test setup

Same as section 8.1

10.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	Peak Output Power	1 watt or 30 dBm	2400 - 2483.5

10.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Measure the maximum output power of EUT by spectrum analyzer with PK detector and RBW=2 MHz (above 20 dB bandwidth of measured signal), VBW=6 MHz

Note: The attenuator loss was inputted into spectrum analyzer as amplitude offset.

10.4. Results

Test Mode	Ant.	Freq [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2405	3.68	≤30	PASS

10.5. Original test data

BLE_1M_Ant1_2405


11. Power Spectral Density

11.1. Block diagram of test setup

Same as section 8.1

11.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e)	Power Spectral Density	8 dBm in any 3 kHz band	2400 - 2483.5

11.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW ≤ 100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

11.4. Results

Test Mode	Ant.	Freq. [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2405	-4.6	≤8.00	PASS

11.5. Original test data

BLE_1M_Ant1_2405

12. Conducted Bandedge and Spurious Emissions

12.1. Block diagram of test setup

Same as section 8.1

12.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	Conducted Band edge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

12.3. Test Procedure

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	≥ 3 × RBW
Span	≥ 1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple

Connect the UUT to the spectrum analyzer and use the following settings:

Use the peak marker function to determine the maximum peak power level to establish the reference level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	≥ 3 × RBW
measurement points	≥ span/RBW
Trace	Max hold
Sweep time	Auto couple

Use the peak marker function to determine the maximum amplitude level.

12.4. Results

Band edge

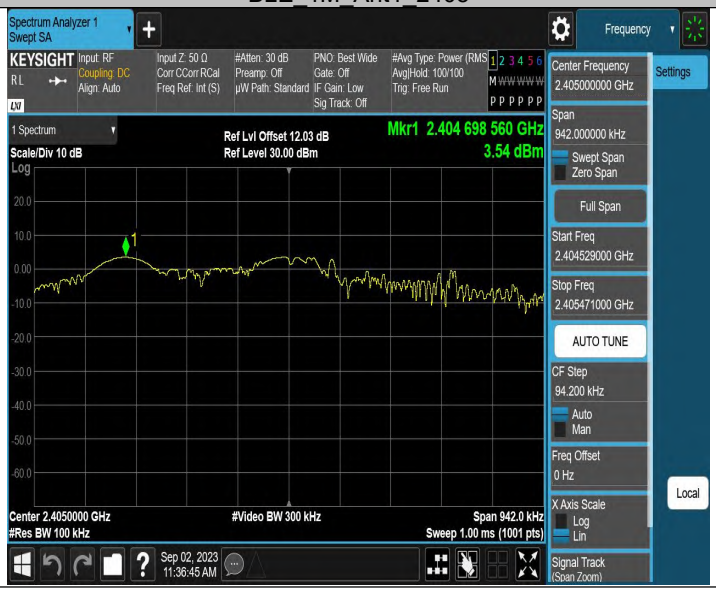
Test Mode	Ant.	Ch Name	Freq. [MHz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2405	3.54	-42.15	≤-16.46	PASS

Spurious Emissions

Test Mode	Ant.	Freq. [MHz]	Freq Range [MHz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	2405	30~1000	3.54	-23.93	≤-16.46	PASS
			1000~26500	3.54	-24.74	≤-16.46	PASS

12.5. Original test data

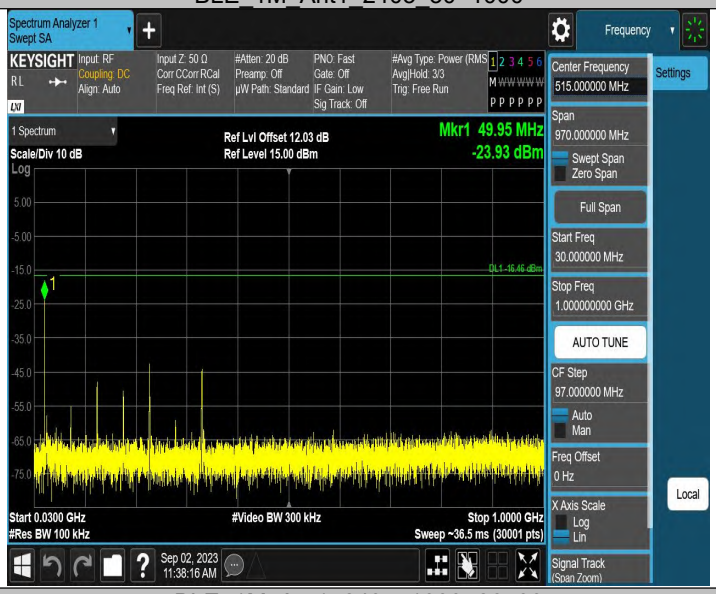
Reference level

BLE_1M_Ant1_2405


Band edge:

BLE_1M_Ant1_Low_2405

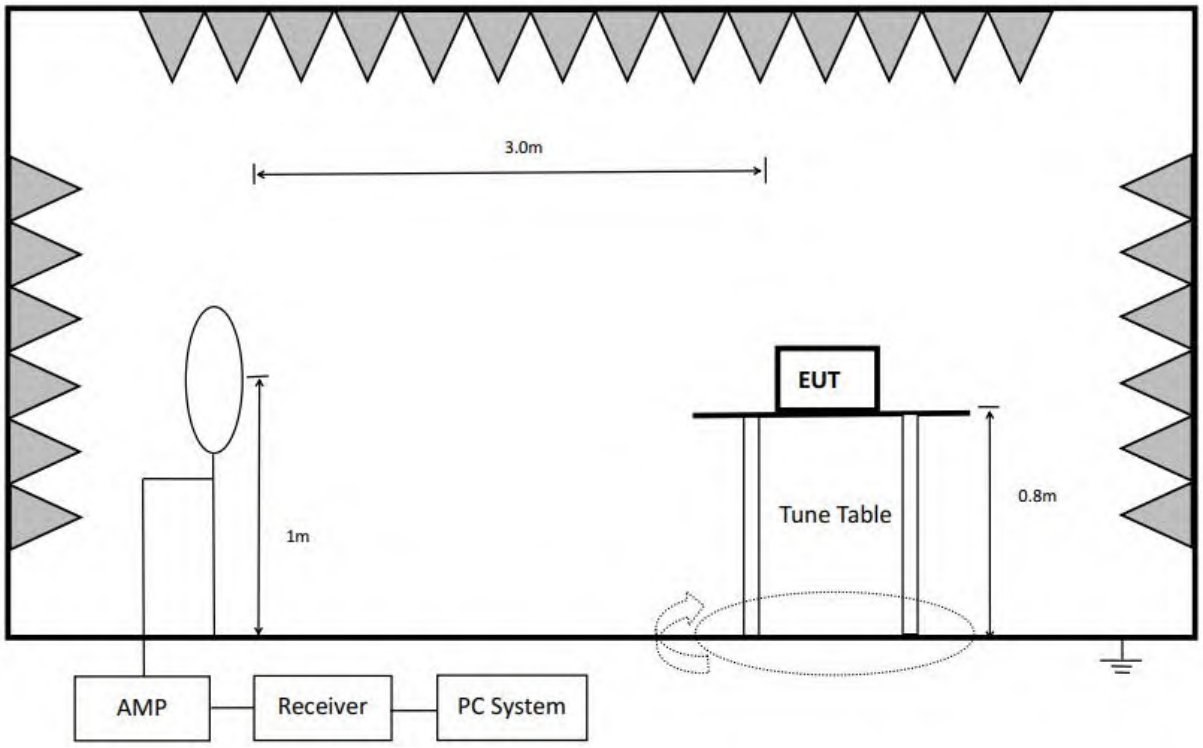

Spurious Emissions：

BLE_1M_Ant1_2405_30~1000

BLE_1M_Ant1_2405_1000~26500

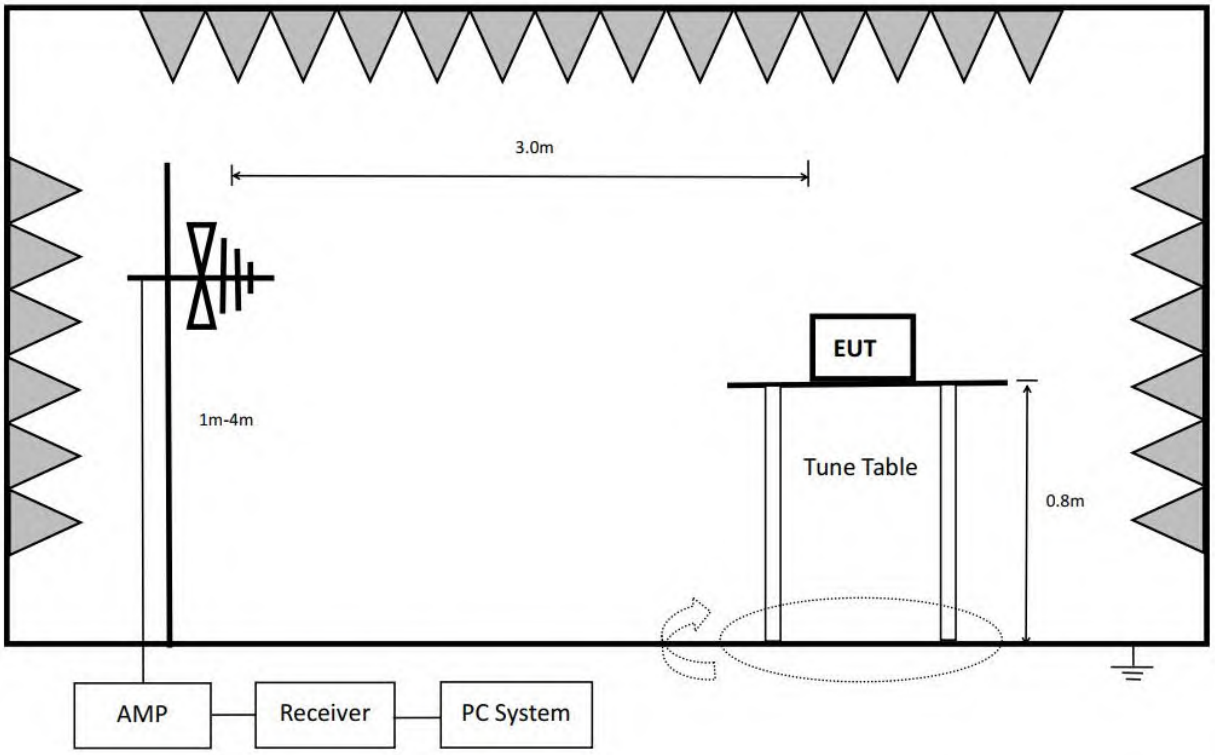

13. Radiated Emission

13.1. Block diagram of test setup

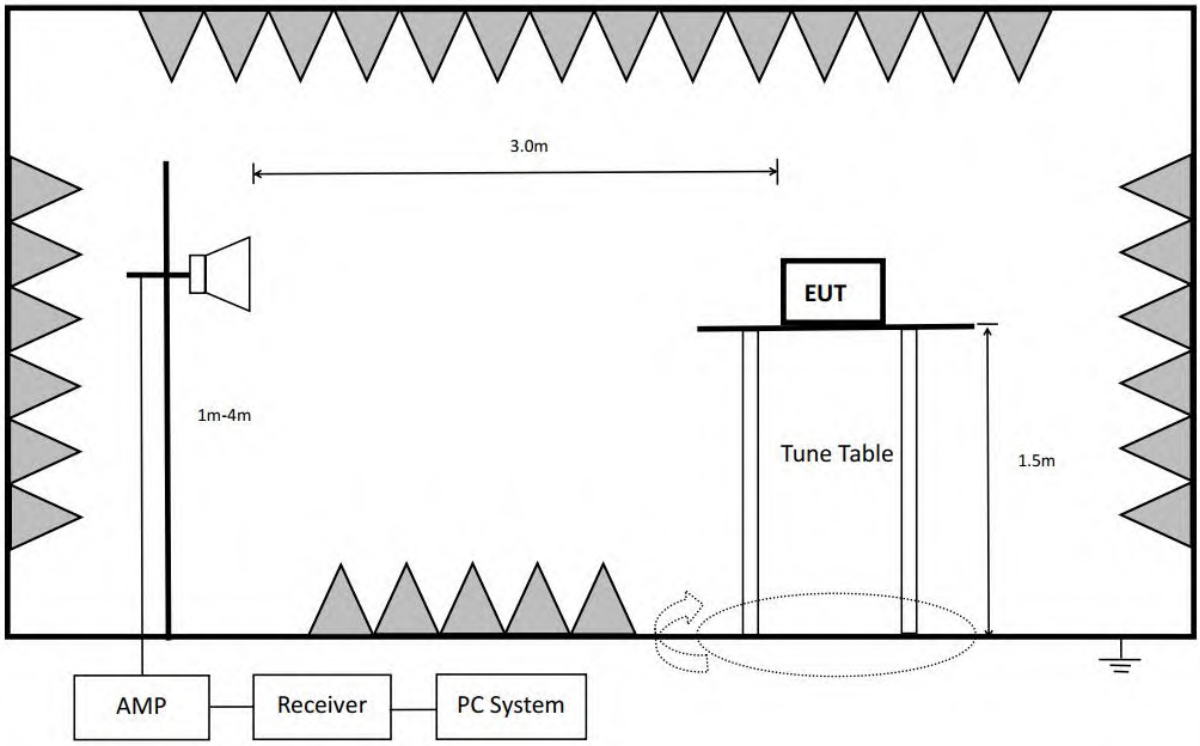
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

13.2. Limit

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2]Above 38.6

(2) FCC 15.209 Limit.

Frequency MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

About Restricted bands of operation please refer to FCC § 15.205(a),

13.3. Test Procedure

Below 30 MHz：

The setting of the spectrum Analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of 1 meter height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz：

The setting of the spectrum Analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz：

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for AVG measurements. For the Duty Cycle please refer to clause 8.1.ON TIME AND DUTY CYCLE.

7. Restriction band: Investigated frequency range from 2310 MHz to 2410 MHz and 2470MHz to 2500 MHz.

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT does not support simultaneous transmission.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

13.4. Results

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz, so the final test was performed with frequency range from 30 MHz to 26 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK, Tx 2405 MHz mode.

Note3: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

13.5. Original test data

Below 1 GHz and above 30 MHz test data Refer to appendix A

Above 1 GHz test data Refer to appendix B

14. Antenna Requirements

14.1. Limits

Please refer to FCC § 15.203

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.

Please refer to FCC § 15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2. Result

The antenna used for this product is PCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 3.81 dBi

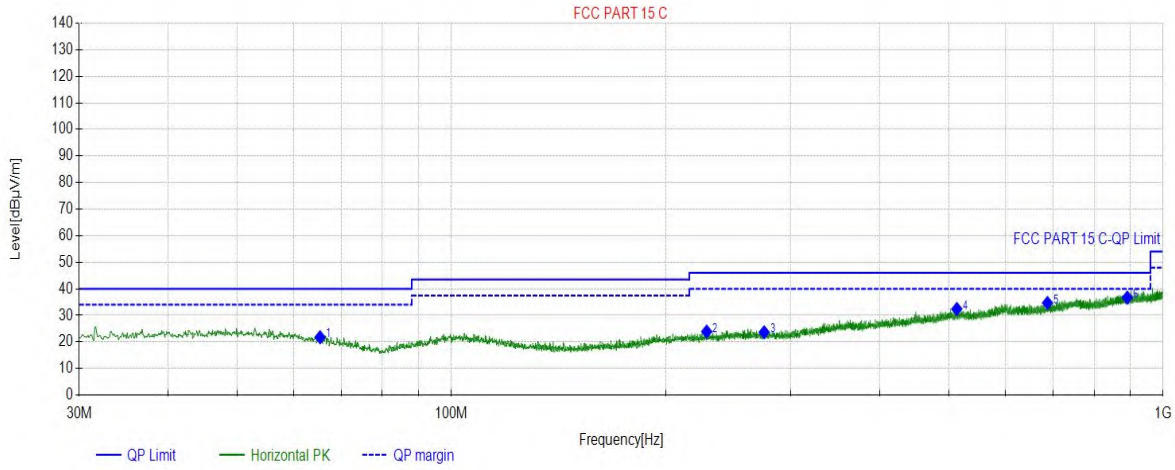
APPENDIX A – Radiated Emission Below 1GHz Test Data

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC 3.3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 17:17:10

Test Graph



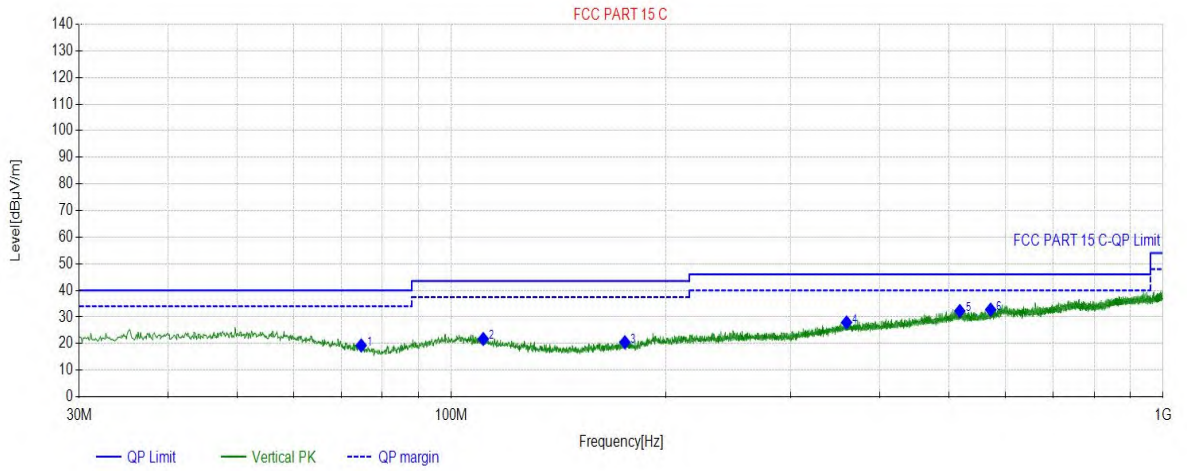
Final Data List								
NO.	Freq. (MHz)	Factor (dB)	QP Value (dBµV/m)	QP Limit (dBµV/m)	QP Margin (dB)	Height (cm)	Angle (°)	Polarity
1	65.4085	19.65	21.78	40.00	18.22	100	358	Horizontal
2	228.4818	21.02	23.90	46.00	22.10	100	159	Horizontal
3	275.1435	21.69	23.65	46.00	22.35	100	338	Horizontal
4	513.2053	27.93	32.43	46.00	13.57	100	164	Horizontal
5	688.1138	30.76	34.68	46.00	11.32	100	267	Horizontal
6	890.8641	34.25	36.72	46.00	9.28	100	27	Horizontal

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC 3.3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 17:17:54

Test Graph



Final Data List								
NO.	Freq. (MHz)	Factor (dB)	QP Value (dBµV/m)	QP Limit (dBµV/m)	QP Margin (dB)	Height (cm)	Angle (°)	Polarity
1	74.7215	17.07	19.31	40.00	20.69	100	259	Vertical
2	110.9061	20.04	21.76	43.50	21.74	100	166	Vertical
3	175.3205	18.19	20.53	43.50	22.97	100	120	Vertical
4	359.2509	24.75	27.98	46.00	18.02	100	310	Vertical
5	518.1528	28.01	32.27	46.00	13.73	100	333	Vertical
6	572.4782	29.30	32.79	46.00	13.21	100	170	Vertical

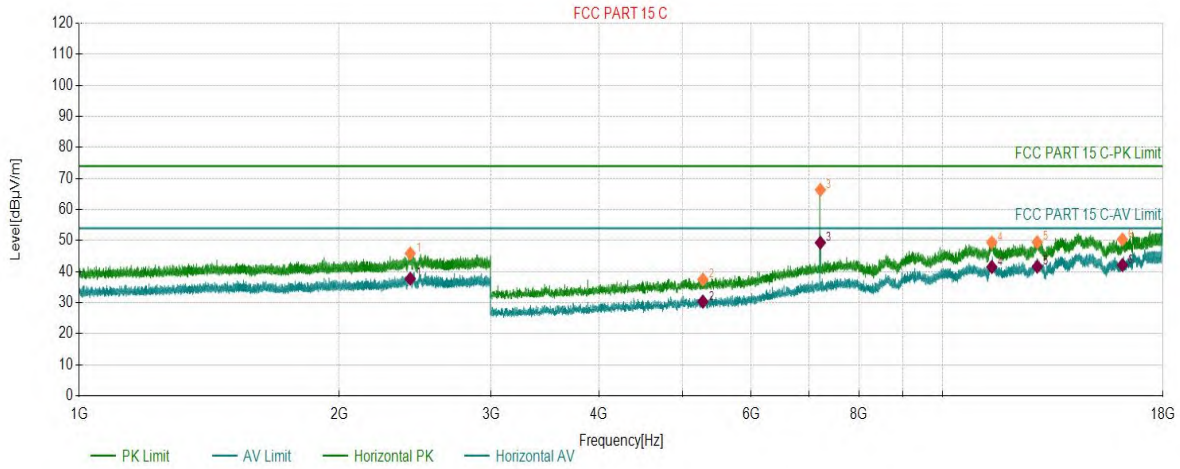
APPENDIX B – Radiated Emission Above 1GHz Test Data

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 16:48:10

Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2417.8709	7.17	45.85	74.00	28.15	150	306	Horizontal
2	5276.3638	-9.65	37.48	74.00	36.52	150	200	Horizontal
3	7218.2109	-2.66	66.34	74.00	7.66	150	211	Horizontal
4	11401.1701	7.14	49.43	74.00	24.57	150	352	Horizontal
5	12870.4935	8.60	49.50	74.00	24.50	150	352	Horizontal
6	16154.1577	10.72	50.38	74.00	23.62	150	133	Horizontal

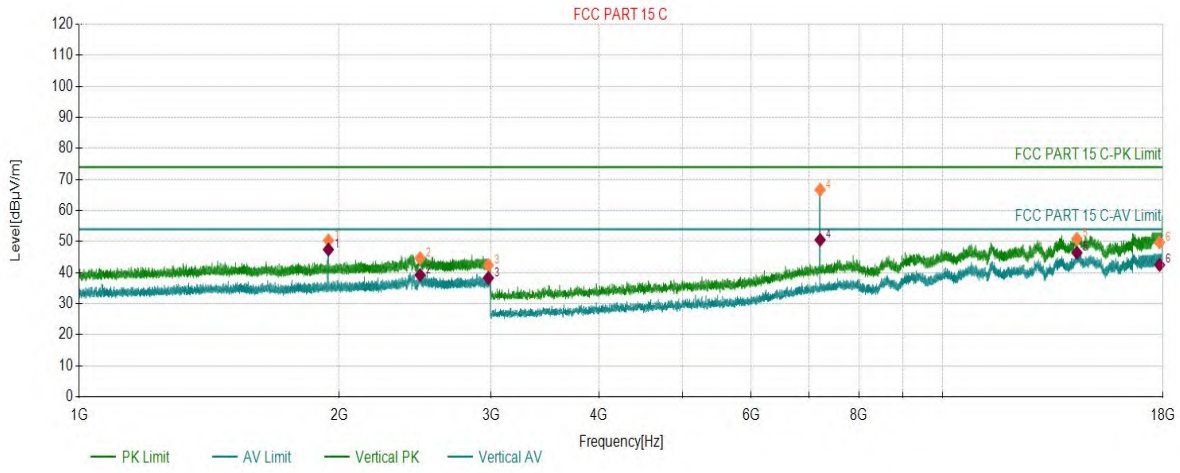
AV Final Data List								
NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2417.8709	7.17	37.72	54.00	16.28	150	306	Horizontal
2	5276.3638	-9.65	30.35	54.00	23.65	150	200	Horizontal
3	7218.2109	-2.66	49.34	54.00	4.66	150	211	Horizontal
4	11401.1701	7.14	41.48	54.00	12.52	150	352	Horizontal
5	12870.4935	8.60	41.59	54.00	12.41	150	352	Horizontal
6	16154.1577	10.72	42.15	54.00	11.85	150	133	Horizontal

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 16:49:41

Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1944.0472	4.67	50.40	74.00	23.60	150	10	Vertical
2	2482.3741	7.44	44.68	74.00	29.32	150	339	Vertical
3	2977.8989	7.81	42.43	74.00	31.57	150	250	Vertical
4	7213.7107	-2.70	66.69	74.00	7.31	150	2	Vertical
5	14306.8153	12.66	50.90	74.00	23.10	150	330	Vertical
6	17834.9918	21.09	49.74	74.00	24.26	150	198	Vertical

AV Final Data List								
NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1944.0472	4.67	47.44	54.00	6.56	150	10	Vertical
2	2482.3741	7.44	39.23	54.00	14.77	150	339	Vertical
3	2977.8989	7.81	38.29	54.00	15.71	150	250	Vertical
4	7213.7107	-2.70	50.56	54.00	3.44	150	2	Vertical
5	14306.8153	12.66	46.43	54.00	7.57	150	330	Vertical
6	17834.9918	21.09	42.50	54.00	11.50	150	198	Vertical

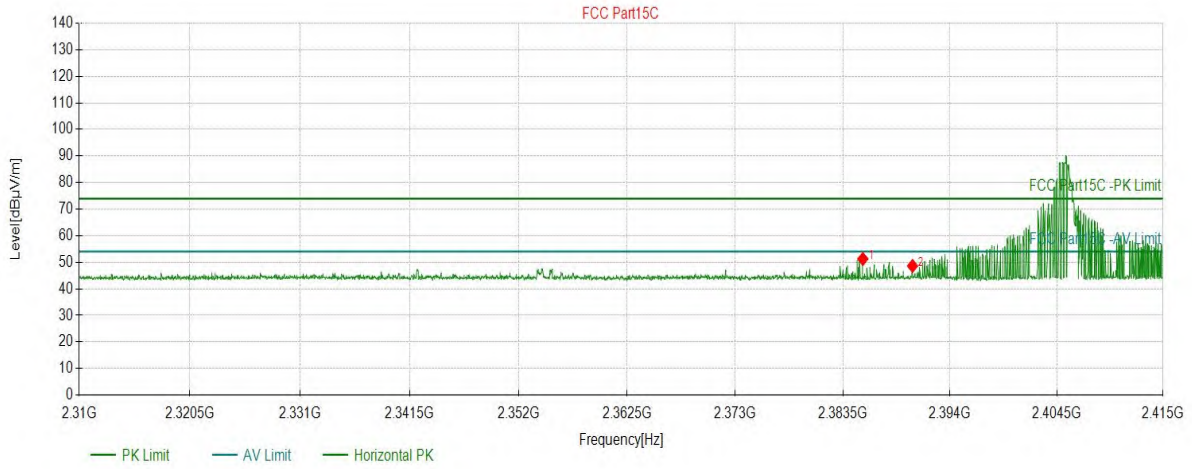
Restriction Band Emission

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 16:43:16

Test Graph



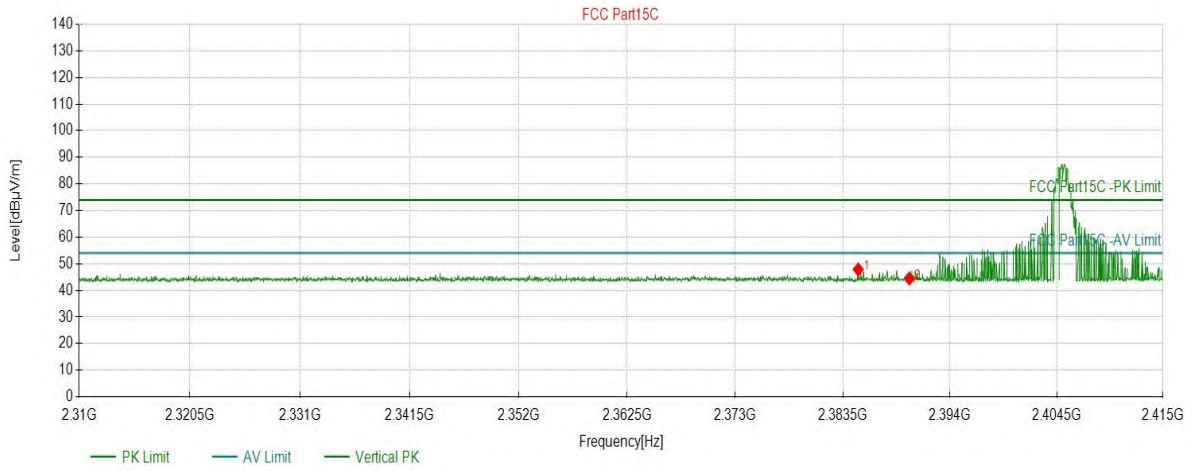
Suspected Data List									
NO.	Freq. (MHz)	Level (dBµV/m)	Factor (dB)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2385.4502	51.27	5.60	74.00	22.73	150	0	PK	Horizont
2	2390.3168	48.63	5.61	74.00	25.37	150	0	PK	Horizont

Test Report

Project Information			
EUT:	TravelARButton	Environment:	23℃ 56%
Model:	TravelAPOLLO Buttonu	SN:	
Mode:	SRD_2405	Voltage:	DC3V
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-08-30 16:45:50

Test Graph



Suspected Data List									
NO.	Freq. (MHz)	Level (dBµV/m)	Factor (dB)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2384.9950	47.90	5.60	74.00	26.10	150	5	PK	Vertical
2	2390.0017	44.46	5.61	74.00	29.54	150	5	PK	Vertical

END OF REPORT