

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
SPEQ GmbH

Remote control
Model No.: SP-11

FCC ID: 2ASRSSP106

Prepared for : SPEQ GmbH
Address : Tannbachstraße 10-73635 Steinenberg, Germany

Prepared by : Shenzhen Accurate Technology Co., Ltd.
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Report Number : ATE20190377
Date of Test : March 15-March 19, 2019
Date of Report : March 22, 2019

TABLE OF CONTENTS

| Description | Page |
|---|-----------|
| Test Report Certification | |
| 1. GENERAL INFORMATION | 4 |
| 1.1. Description of Device (EUT)..... | 4 |
| 1.2. Special Accessory and Auxiliary Equipment | 4 |
| 1.3. Description of Test Facility | 5 |
| 1.4. Measurement Uncertainty | 5 |
| 2. MEASURING DEVICE AND TEST EQUIPMENT | 6 |
| 3. OPERATION OF EUT DURING TESTING | 7 |
| 3.1. Operating Mode | 7 |
| 3.2. Configuration and peripherals | 7 |
| 4. TEST PROCEDURES AND RESULTS | 8 |
| 5. 20DB BANDWIDTH TEST | 9 |
| 5.1. Block Diagram of Test Setup..... | 9 |
| 5.2. The Requirement For Section 15.215(c)..... | 9 |
| 5.3. Operating Condition of EUT | 9 |
| 5.4. Test Procedure | 9 |
| 5.5. Test Results..... | 10 |
| 6. BAND EDGE COMPLIANCE TEST | 12 |
| 6.1. Block Diagram of Test Setup..... | 12 |
| 6.2. The Requirement For Section 15.249 | 12 |
| 6.3. EUT Configuration on Measurement | 12 |
| 6.4. Operating Condition of EUT | 13 |
| 6.5. Test Procedure | 13 |
| 6.6. Test Results..... | 13 |
| 7. RADIATED SPURIOUS EMISSION TEST | 18 |
| 7.1. Block Diagram of Test Setup..... | 18 |
| 7.2. The Limit For Section 15.249..... | 19 |
| 7.3. Restricted bands of operation | 20 |
| 7.4. Configuration of EUT on Measurement | 20 |
| 7.5. Operating Condition of EUT | 21 |
| 7.6. Test Procedure | 21 |
| 7.7. Data Sample..... | 22 |
| 7.8. Test Results..... | 22 |
| 8. AC POWER LINE CONDUCTED EMISSION TEST | 50 |
| 8.1. Block Diagram of Test Setup..... | 50 |
| 8.2. Test System Setup..... | 50 |
| 8.3. Test Limits | 51 |
| 8.4. Configuration of EUT on Measurement | 51 |
| 8.5. Operating Condition of EUT | 51 |
| 8.6. Test Procedure | 51 |
| 8.7. Data Sample..... | 52 |
| 8.8. Test Results..... | 52 |
| 9. ANTENNA REQUIREMENT..... | 55 |
| 9.1. The Requirement | 55 |
| 9.2. Antenna Construction | 55 |

Test Report Certification

Applicant : SPEQ GmbH
Address : Tannbachstraße 10-73635 Steinenberg, Germany
Factory : ZhaoQing Bohan Sports Co.,ltd
Address : Da Wang Industrial Zhaoqing, Gunagdong Province Guangdong, 526238, China
Product : Remote control
Model No. : SP-11

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249 ANSI C63.10: 2013

The EUT was tested according to FCC 47CFR 15.249 for compliance to FCC 47CFR 15.249 requirements

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 limits. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : March 15-March 19, 2019
Date of Report : March 22, 2019

Prepared by : Sten Yang
(Sten Yang, Engineer)

Approved & Authorized Signer : Sean Liu
(Sean Liu, Manager)



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

| | | |
|--------------------|---|---------------------------|
| EUT | : | Remote control |
| Model Number | : | SP-11 |
| Frequency Range | : | 2407MHz, 2455MHz, 2477MHz |
| Number of Channels | : | 3 |
| Modulation mode | : | GFSK |
| Antenna Gain | : | 0dBi |
| Antenna type | : | PCB Layout Antenna |
| Power Supply | : | DC 3.7V |
| Trade Mark | : | Crivit |

1.2. Special Accessory and Auxiliary Equipment

N/A

1.3. Description of Test Facility

| | | |
|---------------|---|--|
| EMC Lab | : | Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 |
| | | Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2 |
| | | Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 |
| | | Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01 |
| Name of Firm | : | Shenzhen Accurate Technology Co., Ltd. |
| Site Location | : | 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China |

1.4. Measurement Uncertainty

| | | |
|---|---|-------------|
| Conducted Emission Expanded Uncertainty | = | 2.23dB, k=2 |
| Radiated emission expanded uncertainty (9kHz-30MHz) | = | 3.08dB, k=2 |
| Radiated emission expanded uncertainty (30MHz-1000MHz) | = | 4.42dB, k=2 |
| Radiated emission expanded uncertainty (Above 1GHz) | = | 4.06dB, k=2 |

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

| Kind of equipment | Manufacturer | Type | S/N | Calibrated dates | Cal. Interval |
|---|---------------------------|---|-----------|------------------|---------------|
| EMI Test Receiver | Rohde&Schwarz | ESCS30 | 100307 | Jan. 05, 2019 | One Year |
| EMI Test Receiver | Rohde&Schwarz | ESR | 101817 | Jan. 05, 2019 | One Year |
| Spectrum Analyzer | Rohde&Schwarz | FSV-40 | 101495 | Jan. 05, 2019 | One Year |
| Pre-Amplifier | Rohde&Schwarz | CBLU118354 0-01 | 3791 | Jan. 05, 2019 | One Year |
| Loop Antenna | Schwarzbeck | FMZB1516 | 1516131 | Jan. 05, 2019 | One Year |
| Bilog Antenna | Schwarzbeck | VULB9163 | 9163-323 | Jan. 05, 2019 | One Year |
| Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-655 | Jan. 05, 2019 | One Year |
| Horn Antenna | Schwarzbeck | BBHA9170 | 9170-359 | Jan. 05, 2019 | One Year |
| LISN | Schwarzbeck | NSLK8126 | 8126431 | Jan. 05, 2019 | One Year |
| Highpass Filter | Wainwright Instruments | WHKX3.6/18 G-10SS | N/A | Jan. 05, 2019 | One Year |
| Band Reject Filter | Wainwright Instruments | WRCG2400/2 485-2375/2510 -60/11SS | N/A | Jan. 05, 2019 | One Year |
| Conducted Emission Measurement Software: ES-K1 V1.71 | | | | | |
| Radiated Emission Measurement Software: EZ_EMV V1.1.4.2 | | | | | |

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

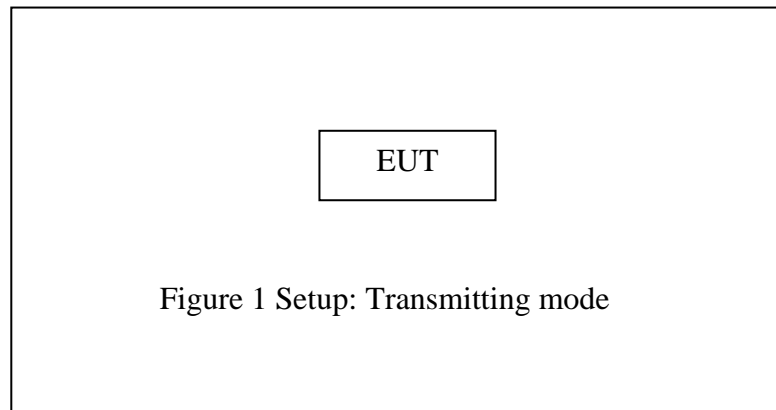
The mode is used: **Transmitting mode**

Low Channel: 2407MHz

Middle Channel: 2445MHz

High Channel: 2477MHz

3.2. Configuration and peripherals

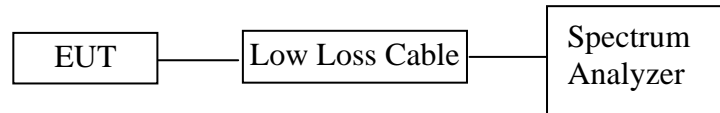


4. TEST PROCEDURES AND RESULTS

| FCC Rules | Description of Test | Result |
|--|---------------------------------------|---------------|
| Section 15.215(c) | 20dB Bandwidth | Compliant |
| Section 15.249(d) | Band Edge Compliance Test | Compliant |
| Section 15.205(a), Section 15.209(a), Section 15.249, Section 15.35 | Radiated Spurious Emission Test | Compliant |
| Section 15.207 | AC Power Line Conducted Emission Test | Compliant |
| Section 15.203 | Antenna Requirement | Compliant |

5. 20DB BANDWIDTH TEST

5.1. Block Diagram of Test Setup



5.2. The Requirement For Section 15.215(c)

Must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.3. Operating Condition of EUT

5.3.1. Setup the EUT and simulator as shown as Section 5.1.

5.3.2. Turn on the power of all equipment.

5.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2407, 2445, 2477MHz.

5.4. Test Procedure

5.4.1. Place the EUT on the table and set it in transmitting mode.

5.4.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

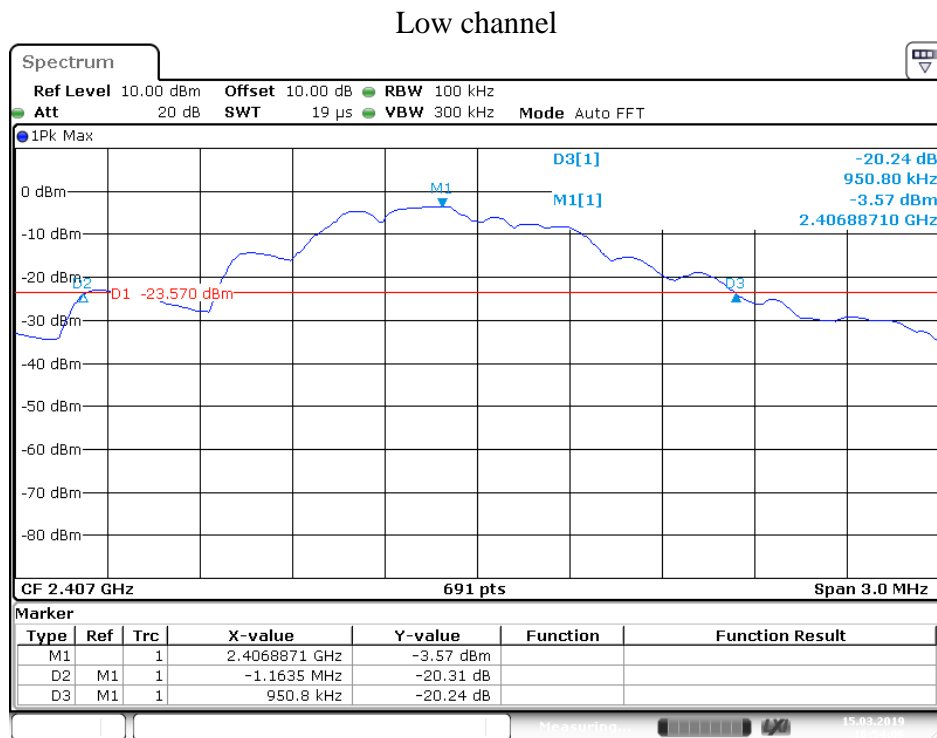
5.4.3. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz, Detector function=peak, Trace=max hold, Sweep=auto.

5.4.4. Set the measured low, middle and high frequency and test 20dB bandwidth with spectrum analyzer.

5.5. Test Results

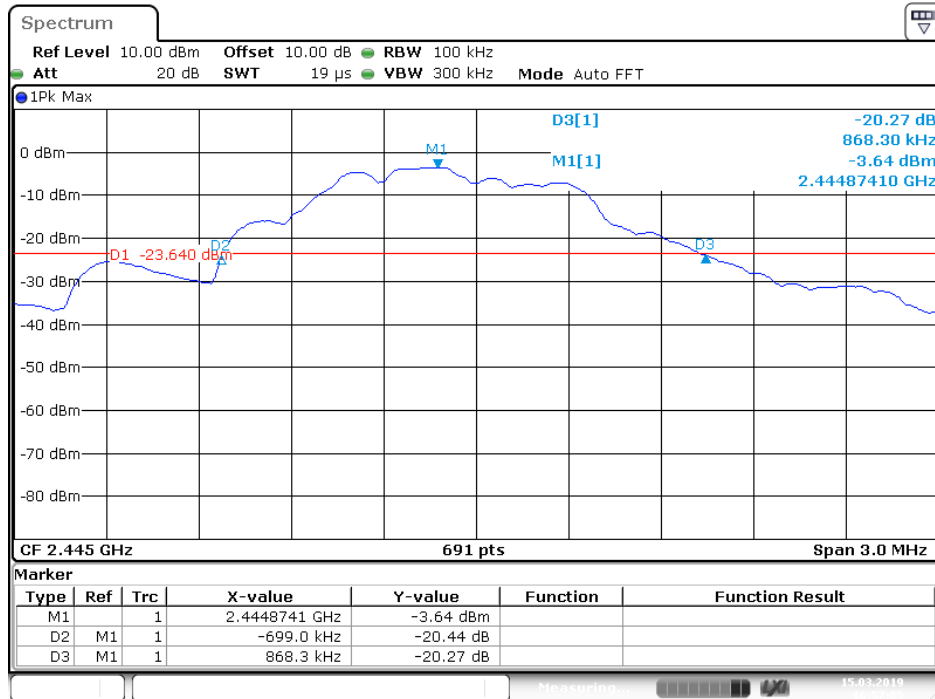
| Channel | Frequency (MHz) | 20 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Low | 2407 | 2.114 |
| Middle | 2445 | 1.567 |
| High | 2477 | 1.455 |

The spectrum analyzer plots are attached as below.



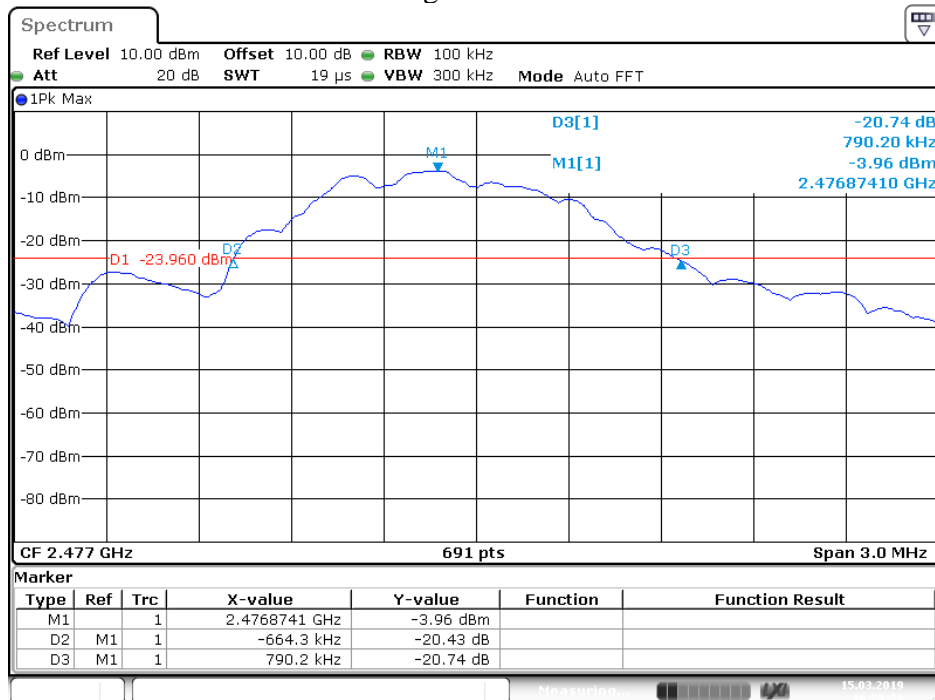
Date: 15.MAR.2019 16:54:06

Middle channel



Date: 15.MAR.2019 16:57:06

High channel

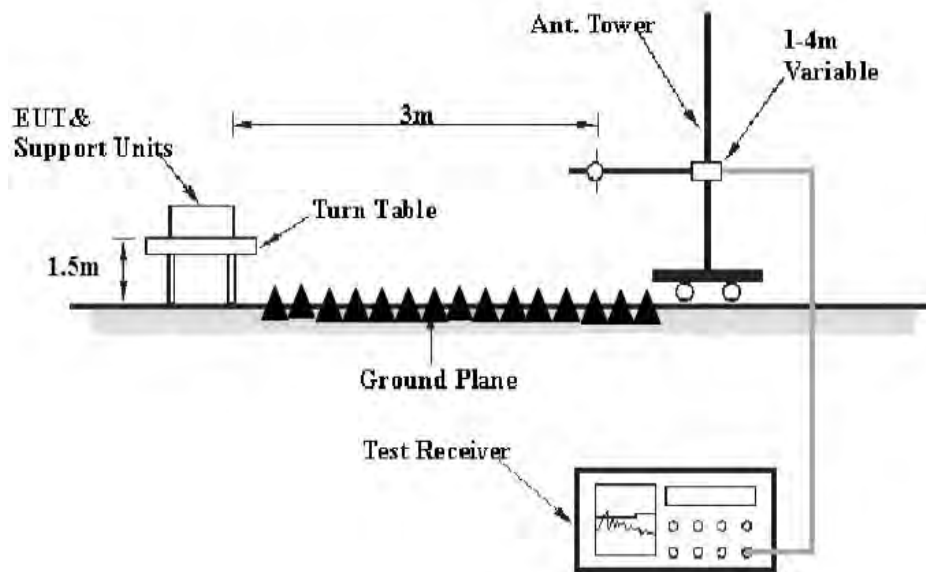


Date: 15.MAR.2019 16:55:29

6. BAND EDGE COMPLIANCE TEST

6.1. Block Diagram of Test Setup

(C) Radiated Emission Test Set-Up. Frequency above 1GHz



6.2. The Requirement For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

6.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2407, 2477MHz.

6.5. Test Procedure

Radiate Band Edge:

6.5.1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

6.5.2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

6.5.3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

6.5.4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

6.5.5. The band edges was measured and recorded.

6.6. Test Results

Pass.

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

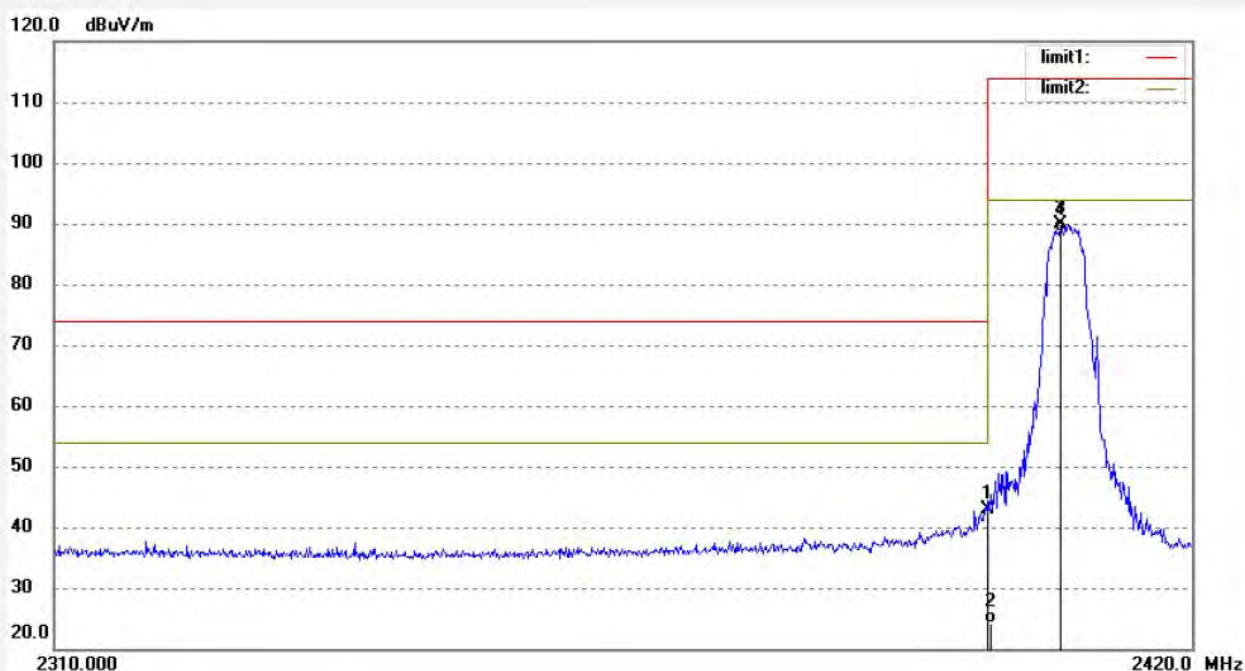
3. Display the measurement of peak values.
4. The average measurement was not performed when peak measured data under the limit of average detection.

The spectrum analyzer plots are attached as below.

Job No.: LGW2019 #639
 Standard: FCC (Band Edge)
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2407MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

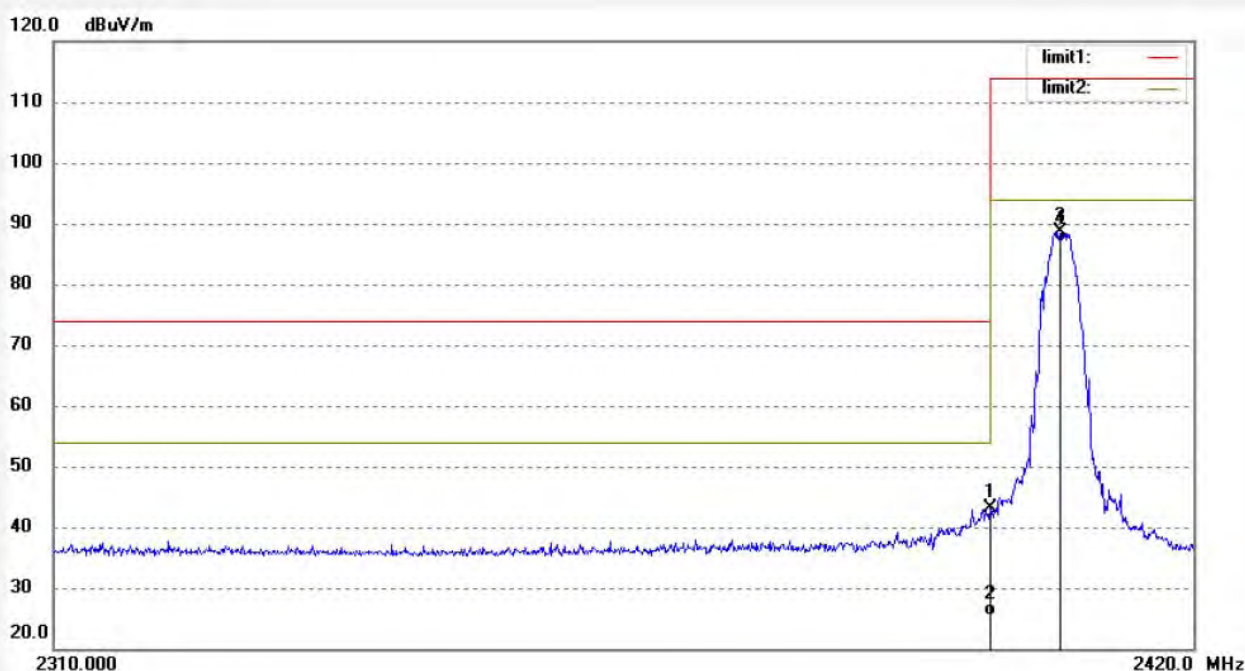


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2400.000 | 42.10 | 0.88 | 42.98 | 74.00 | -31.02 | peak | | | |
| 2 | 2400.000 | 23.32 | 0.88 | 24.20 | 54.00 | -29.80 | AVG | | | |
| 3 | 2407.000 | 89.02 | 0.91 | 89.93 | 114.00 | -24.07 | peak | | | |
| 4 | 2407.000 | 87.72 | 0.91 | 88.63 | 94.00 | -5.37 | AVG | | | |

Job No.: LGW2019 #638
 Standard: FCC (Band Edge)
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2407MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Vertical
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

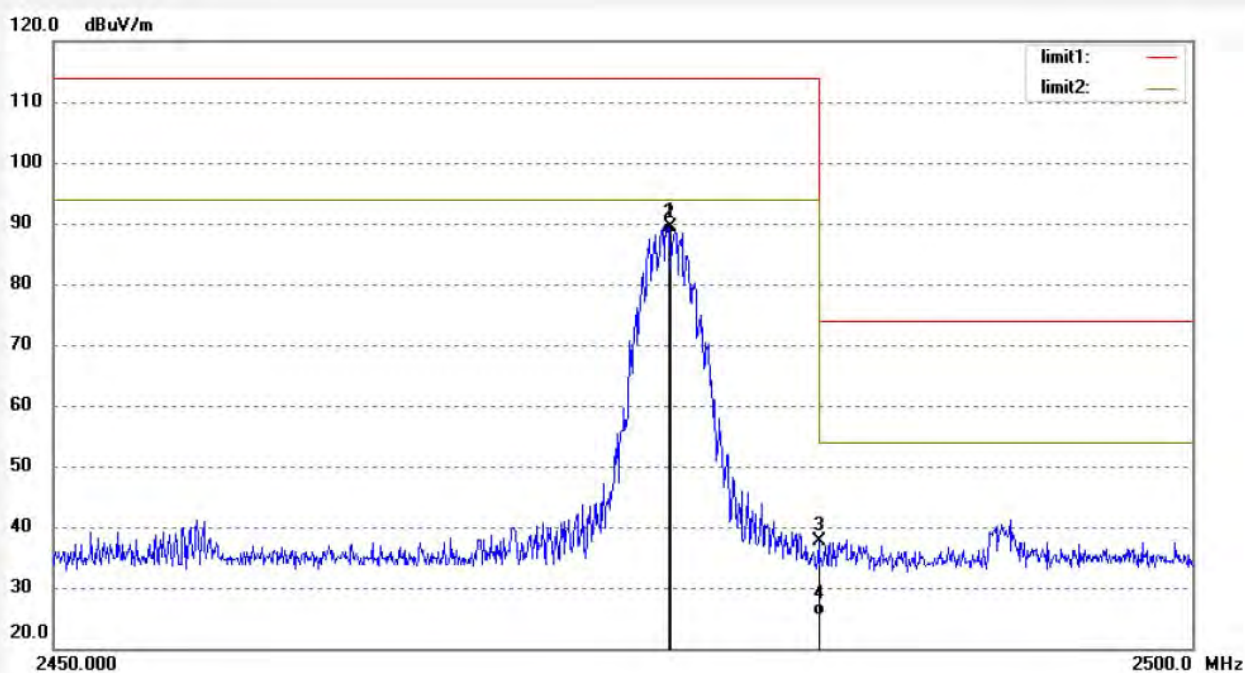


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2400.000 | 42.16 | 0.88 | 43.04 | 74.00 | -30.96 | peak | | | |
| 2 | 2400.000 | 24.54 | 0.88 | 25.42 | 54.00 | -28.58 | AVG | | | |
| 3 | 2407.000 | 87.63 | 0.91 | 88.54 | 114.00 | -25.46 | peak | | | |
| 4 | 2407.000 | 86.33 | 0.91 | 87.24 | 94.00 | -6.76 | AVG | | | |

Job No.: LGW2019 #644
 Standard: FCC (Band Edge)
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2477MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

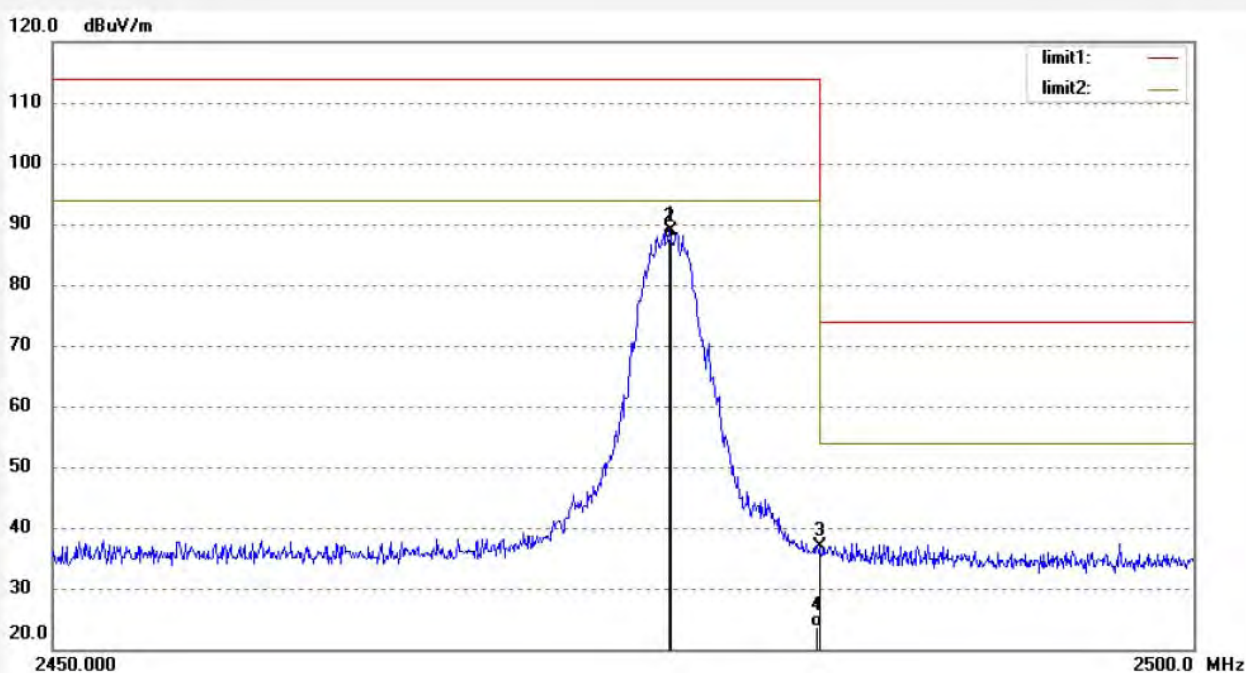


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2477.000 | 88.39 | 1.09 | 89.48 | 114.00 | -24.52 | peak | | | |
| 2 | 2477.000 | 87.09 | 1.09 | 88.18 | 94.00 | -5.82 | AVG | | | |
| 3 | 2483.500 | 36.60 | 1.10 | 37.70 | 74.00 | -36.30 | peak | | | |
| 4 | 2483.500 | 24.25 | 1.10 | 25.35 | 54.00 | -28.65 | AVG | | | |

Job No.: LGW2019 #645
 Standard: FCC (Band Edge)
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2477MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Vertical
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

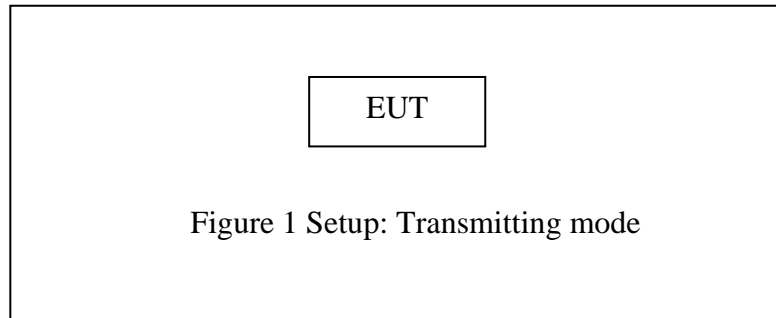


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2477.000 | 87.75 | 1.09 | 88.84 | 114.00 | -25.16 | peak | | | |
| 2 | 2477.000 | 86.45 | 1.09 | 87.54 | 94.00 | -6.46 | AVG | | | |
| 3 | 2483.500 | 35.81 | 1.10 | 36.91 | 74.00 | -37.09 | peak | | | |
| 4 | 2483.500 | 22.47 | 1.10 | 23.57 | 54.00 | -30.43 | AVG | | | |

7. RADIATED SPURIOUS EMISSION TEST

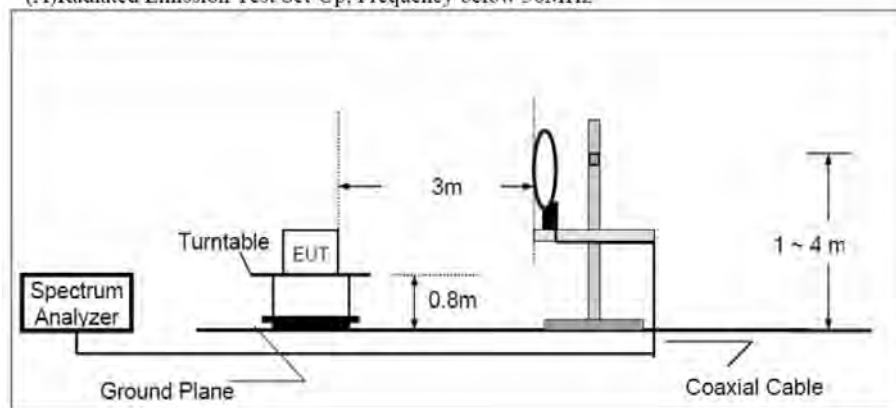
7.1. Block Diagram of Test Setup

7.1.1. Block diagram of connection between the EUT and peripherals

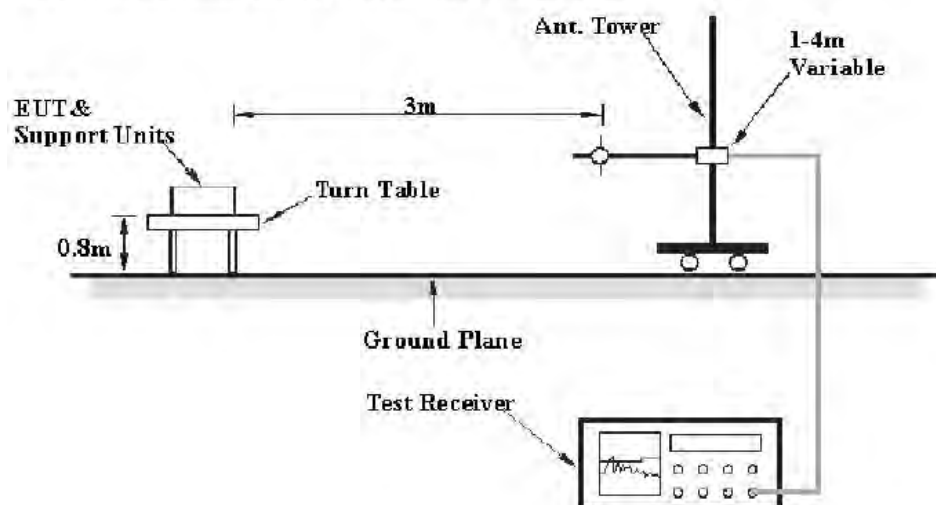


7.1.2. Semi-Anechoic Chamber Test Setup Diagram

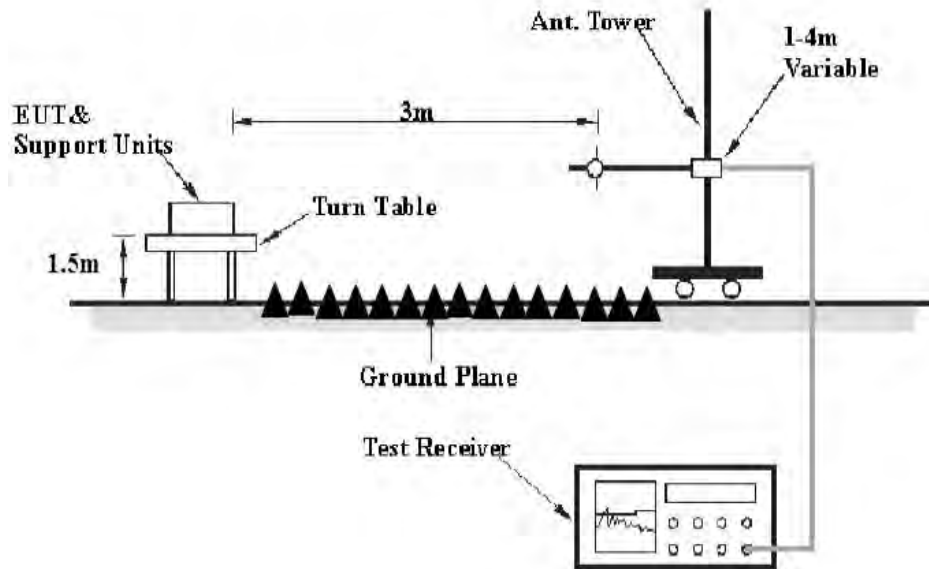
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30MHz-1GHz



(C) Radiated Emission Test Set-Up. Frequency above 1GHz



7.2. The Limit For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

7.3. Restricted bands of operation

7.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

| 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 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 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 | | | |

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

7.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.5. Operating Condition of EUT

7.5.1. Setup the EUT and simulator as shown as Section 7.1.

7.5.2. Turn on the power of all equipment.

7.5.3. Let the EUT work in TX modes and measure it. The transmit frequency are 2407, 2445, 2477MHz.

7.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8m(Below 1GHz) and 1.5m(above 1GHz) high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 26.5GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz

Peak detector above 1GHz

RBW (1 MHz), VBW (3MHz) for Peak measurement

RBW (1 MHz), VBW (10Hz) for AV measurement

7.7. Data Sample

| Frequency (MHz) | Reading (dB μ v) | Factor (dB/m) | Result (dB μ v/m) | Limit (dB μ v/m) | Margin (dB) | Remark |
|-----------------|----------------------|---------------|-----------------------|----------------------|-------------|--------|
| X.XX | 48.69 | -13.35 | 35.34 | 46 | -10.66 | QP |

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ v) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB μ v/m) = Reading(dB μ v) + Factor(dB/m)

Limit (dB μ v/m) = Limit stated in standard

Margin (dB) = Result(dB μ v/m) - Limit (dB μ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

7.8. Test Results

Pass.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The EUT is tested radiation emission in three axes. The worst emissions are reported in all channels.

The spectrum analyzer plots are attached as below.

9KHz to 30MHz Test data

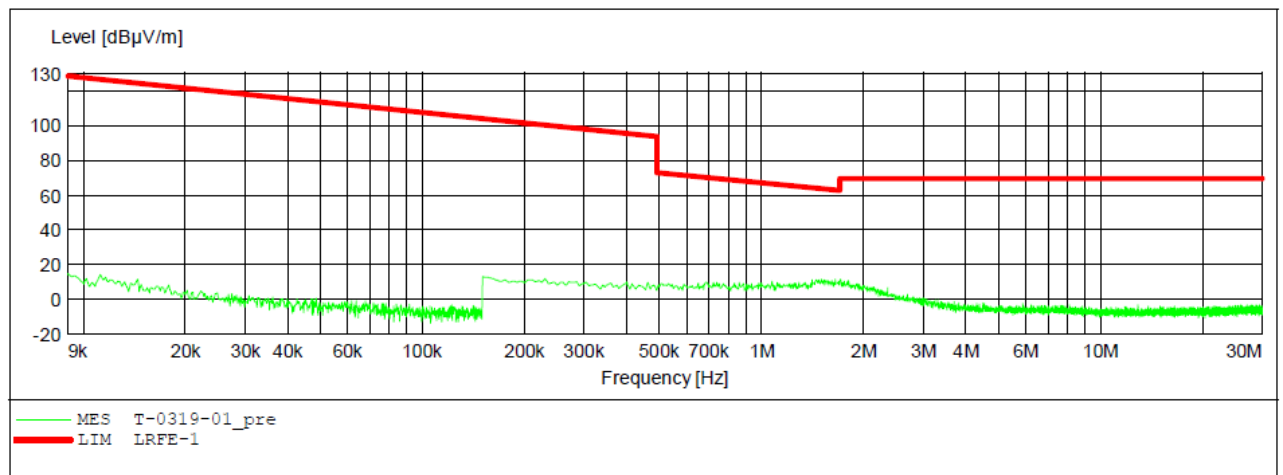
ACCURATE TECHNOLOGY CO.,LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2407MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: X
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
|-----------|-----------|----------|-----------|------------|-----------|------------|
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



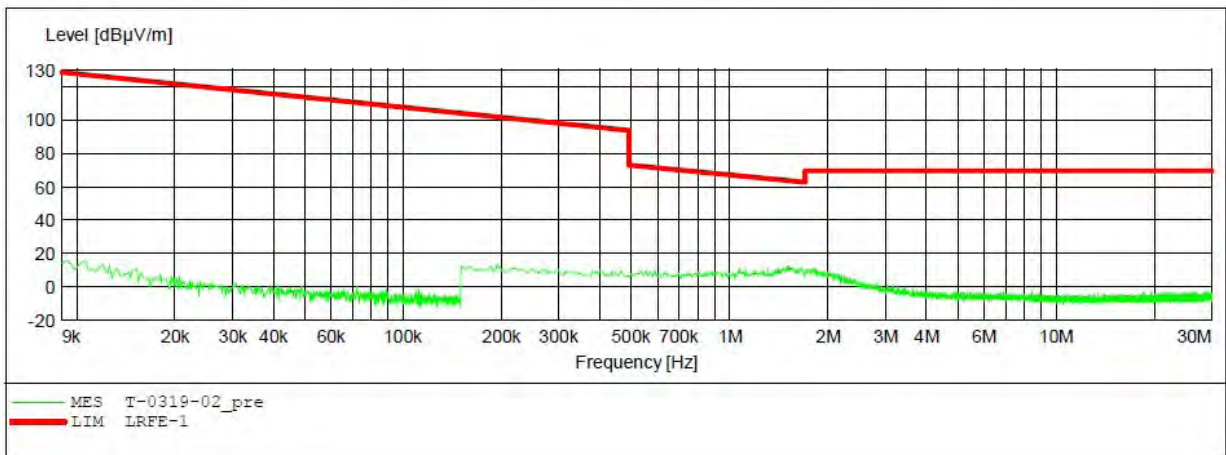
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2407MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Y
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | _SUB_STD_VTERM2 1.70 | | | |
|--------------------|-----------|----------|----------------------|------------|-----------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



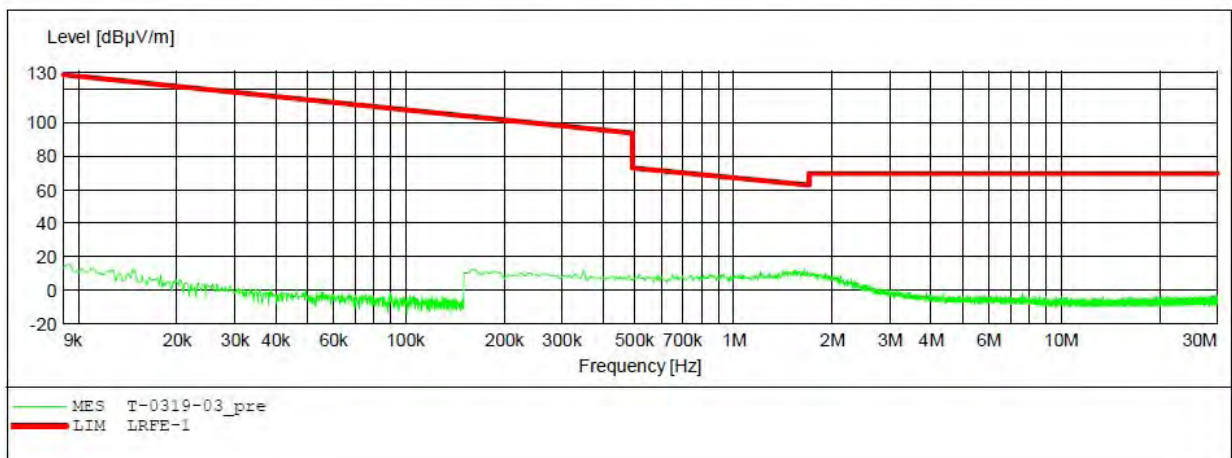
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2407MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Z
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | _SUB_STD_VTERM2 1.70 | | | | |
|--------------------|-----------|----------|----------------------|------------|-----------|------------|--|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer | |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M | |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M | |



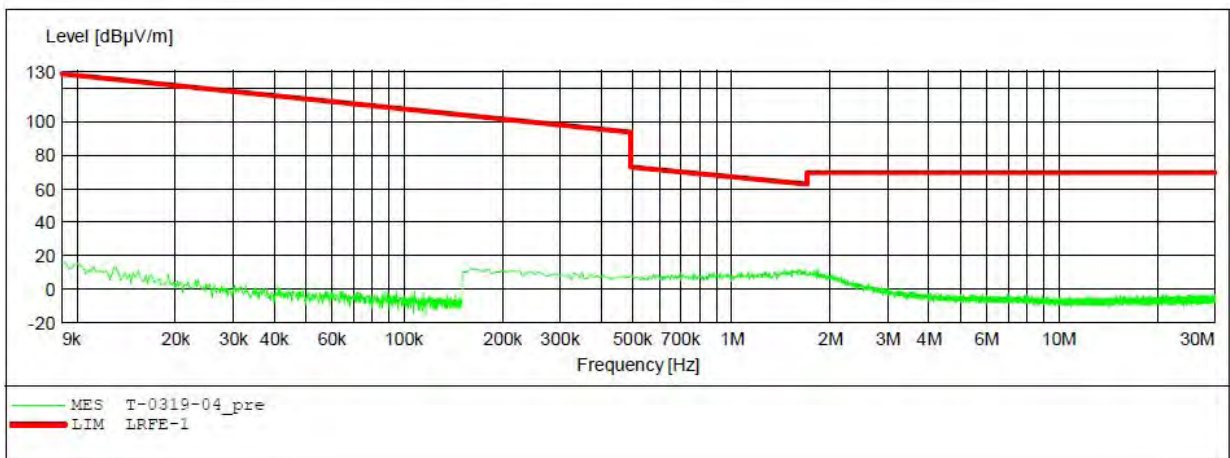
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2445MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: X
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | _SUB_STD_VTERM2 1.70 | | | | |
|--------------------|-----------|----------|----------------------|------------|-----------|------------|--|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer | |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M | |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M | |



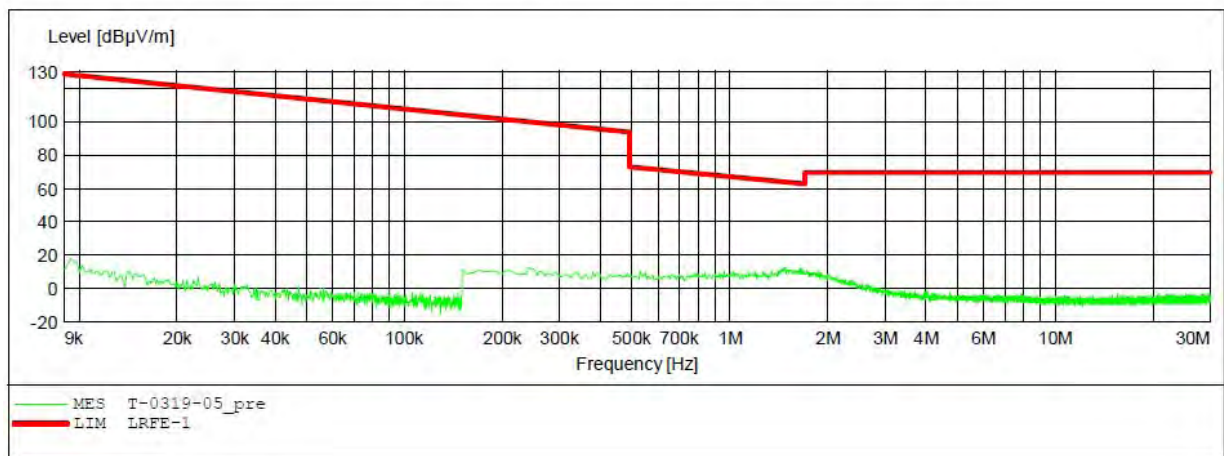
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2445MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Y
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | SUB_STD_VTERM2 1.70 | | | |
|--------------------|-----------|----------|---------------------|------------|-----------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



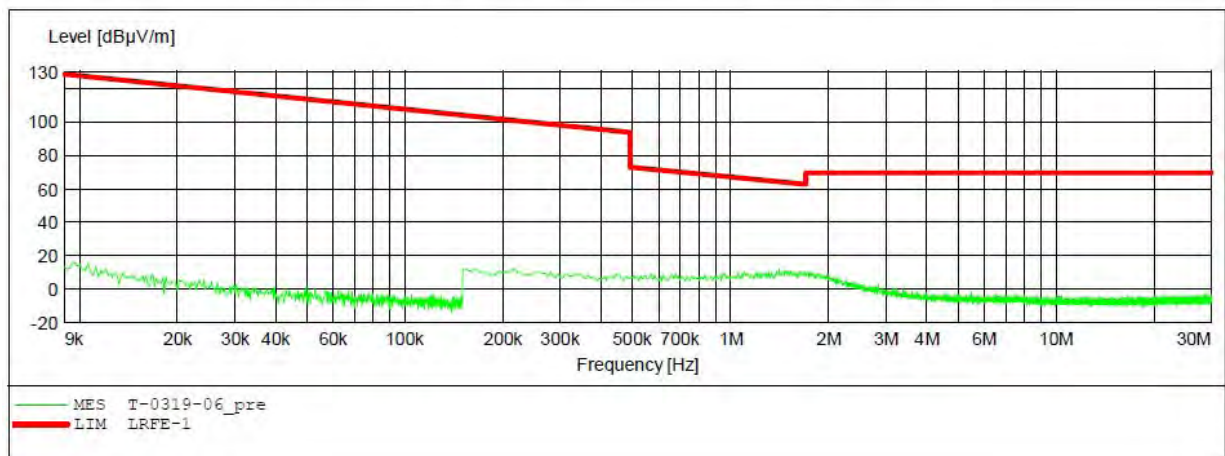
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2445MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Z
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | _SUB_STD_VTERM2 1.70 | | | |
|--------------------|-----------|----------|----------------------|------------|-----------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



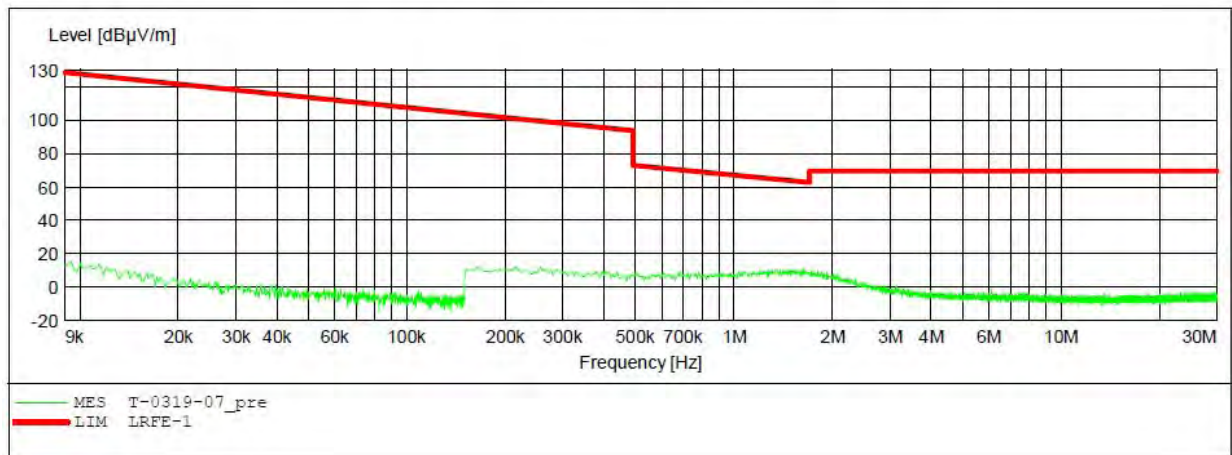
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2477MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: X
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
|-----------|-----------|----------|-----------|------------|-----------|------------|
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



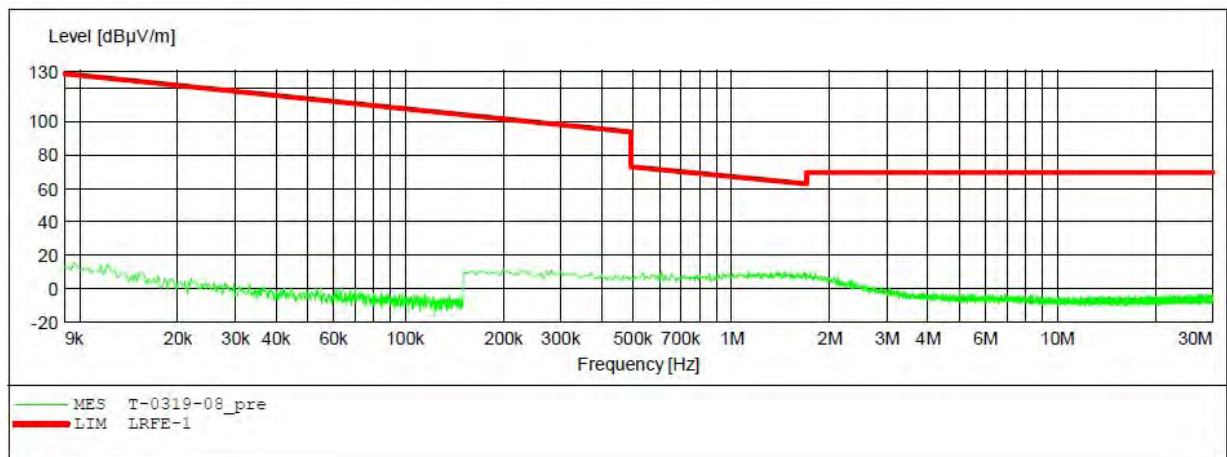
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2477MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Y
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
|-----------|-----------|----------|-----------|------------|-----------|------------|
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |



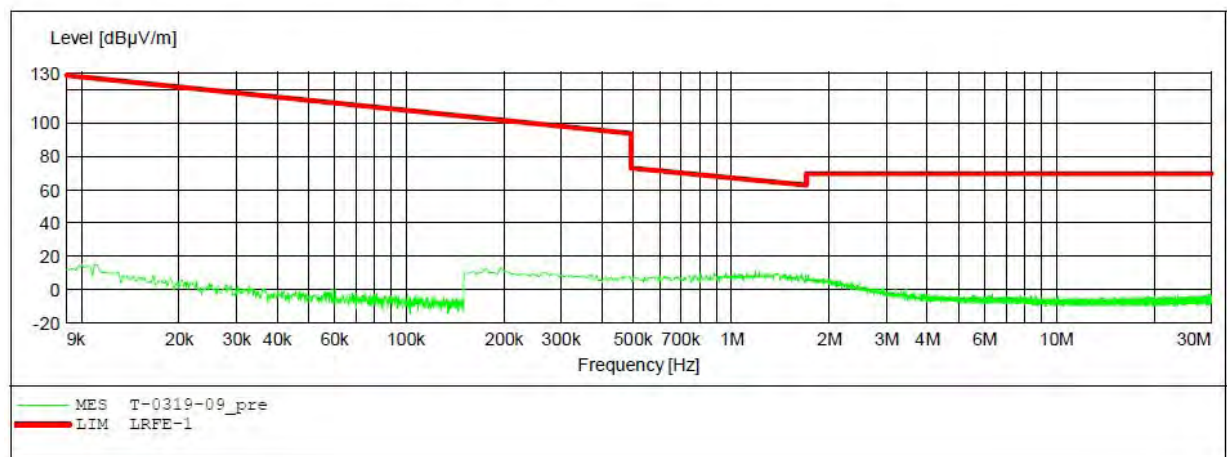
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: TX 2477MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Z
 Start of Test: 2019-3-19 /

SCAN TABLE: "LFRE Fin"

| Short Description: | | | _SUB_STD_VTERM2 1.70 | | | |
|--------------------|-----------|----------|----------------------|------------|-----------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | 1516M |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | 1516M |





30MHz to 1GHz Test data

ACCURATE TECHNOLOGY CO., LTD.

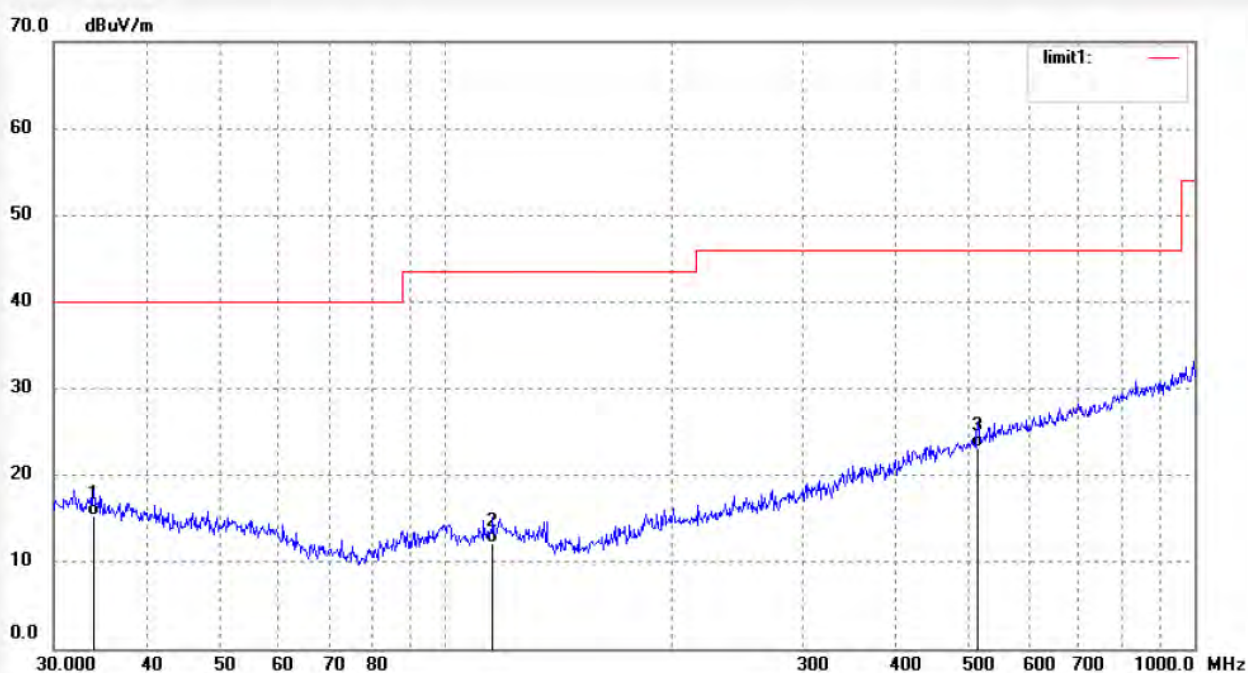
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #652
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2407MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Horizontal
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

Note:

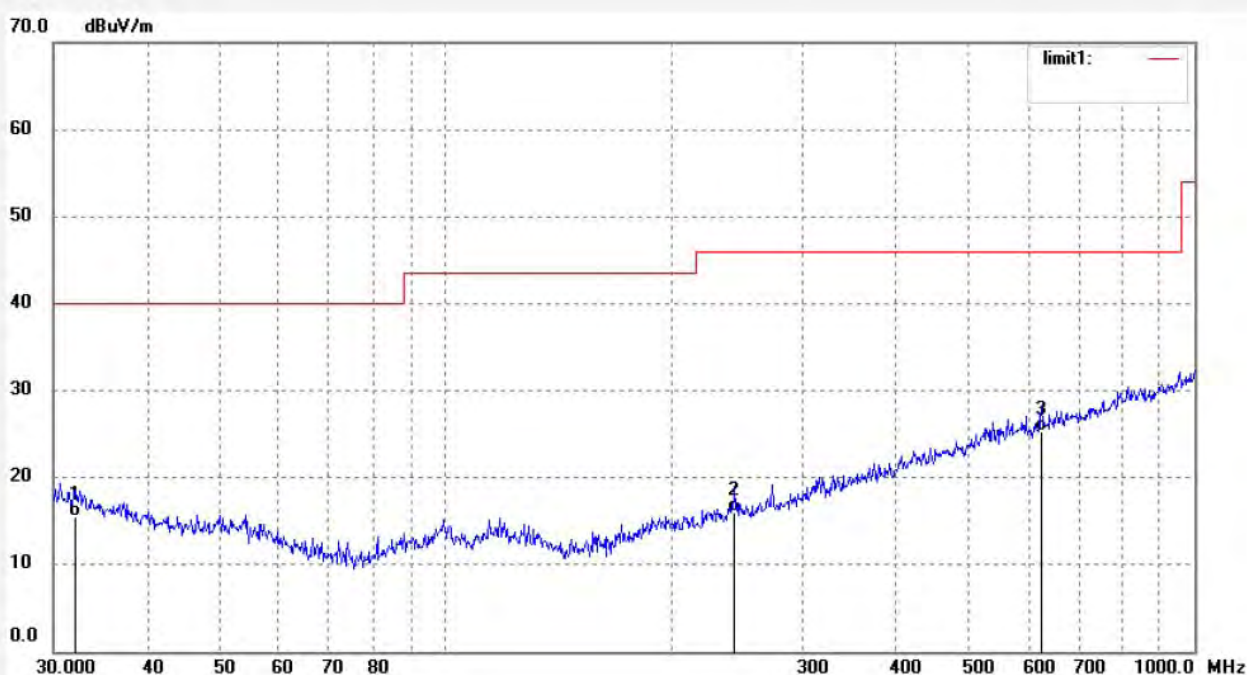


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 33.9174 | 25.68 | -10.31 | 15.37 | 40.00 | -24.63 | QP | | | |
| 2 | 115.7256 | 25.19 | -13.06 | 12.13 | 43.50 | -31.37 | QP | | | |
| 3 | 513.6331 | 27.26 | -4.01 | 23.25 | 46.00 | -22.75 | QP | | | |

Job No.: LGW2019 #653
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2407MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Vertical
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 32.0667 | 25.11 | -9.54 | 15.57 | 40.00 | -24.43 | QP | | | |
| 2 | 243.3771 | 26.62 | -10.60 | 16.02 | 46.00 | -29.98 | QP | | | |
| 3 | 625.0779 | 27.24 | -2.00 | 25.24 | 46.00 | -20.76 | QP | | | |



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Site: 2# Chamber

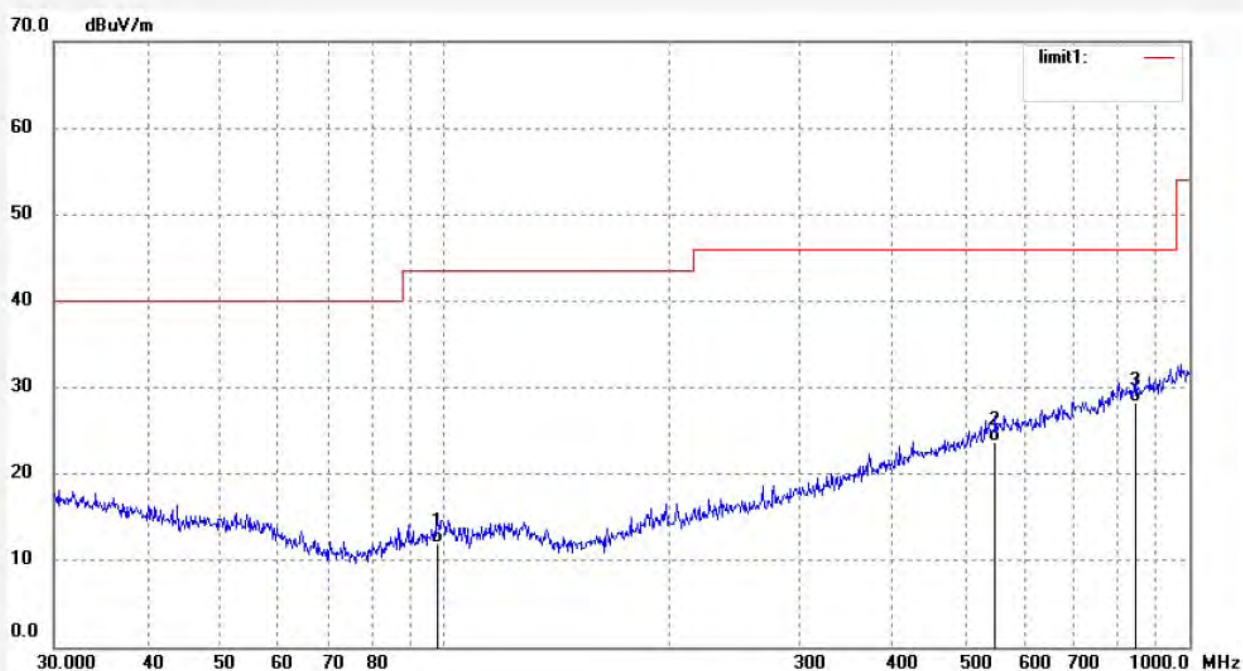
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #655
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2445MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Horizontal
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 98.1419 | 25.62 | -13.68 | 11.94 | 43.50 | -31.56 | QP | | | |
| 2 | 549.0193 | 26.86 | -3.11 | 23.75 | 46.00 | -22.25 | QP | | | |
| 3 | 845.0878 | 26.65 | 1.53 | 28.18 | 46.00 | -17.82 | QP | | | |

Job No.: LGW2019 #654

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Smart Helmet

Mode: TX 2445MHz

Model: SP-106

Manufacturer: SPEQ GmbH

Polarization: Vertical

Power Source: DC 3.7V

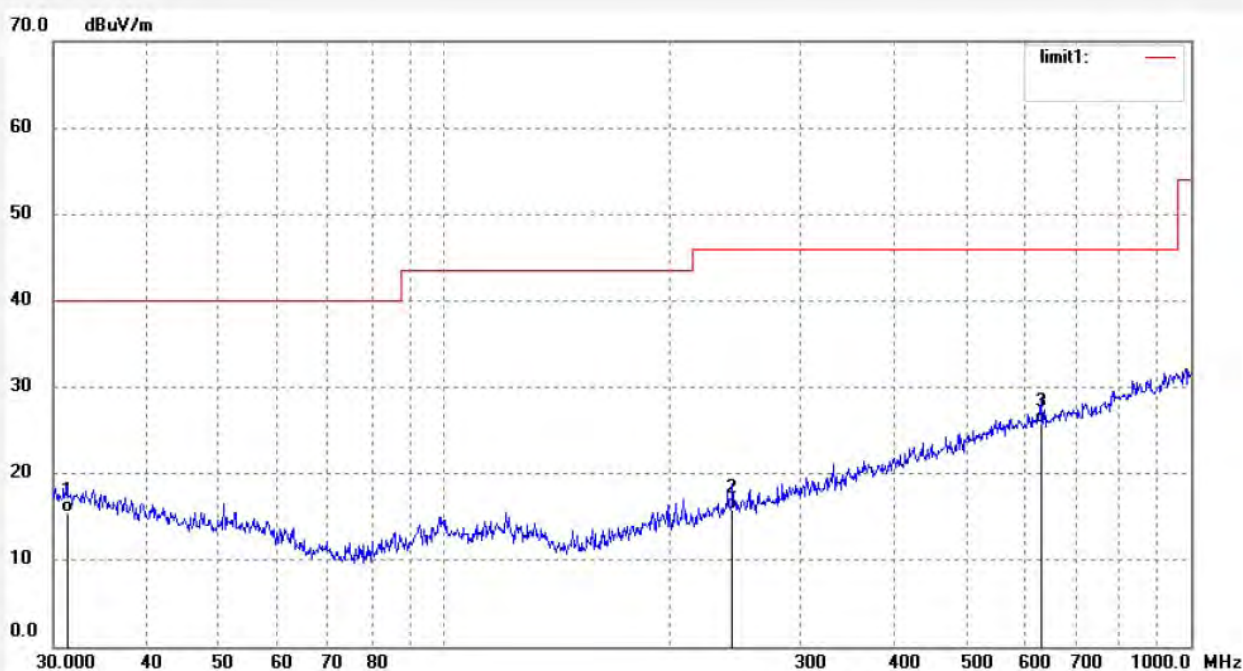
Date: 19/03/18/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

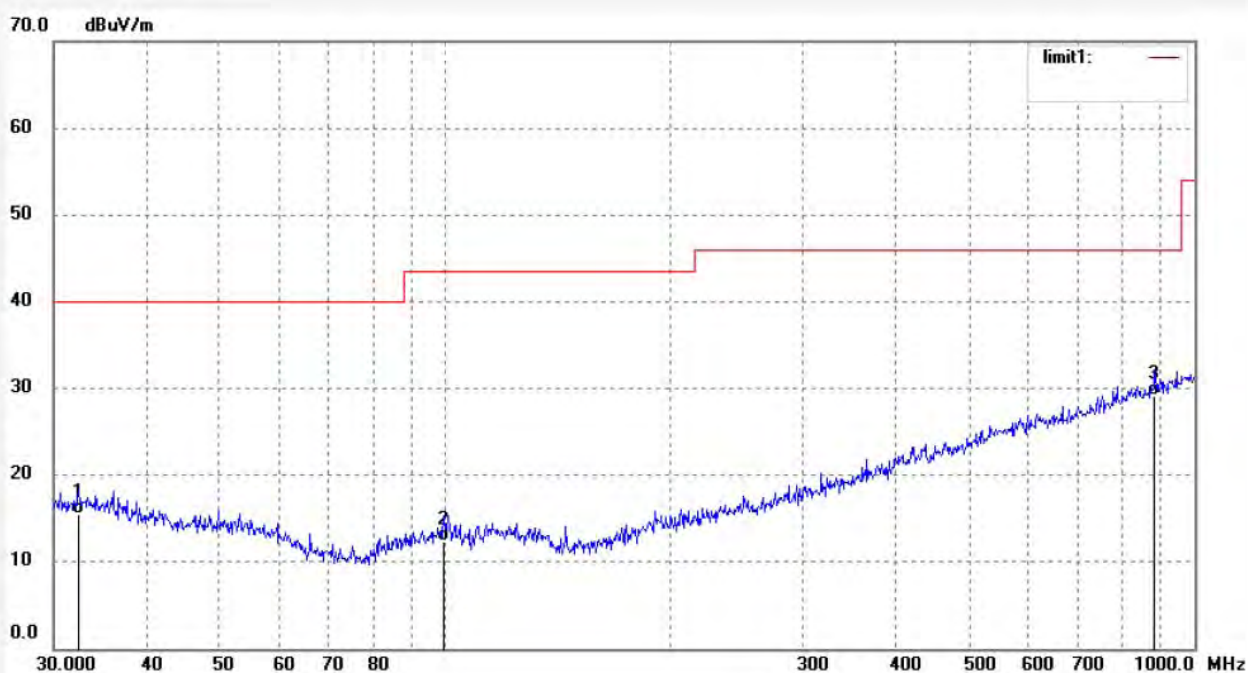


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 31.2893 | 24.87 | -9.31 | 15.56 | 40.00 | -24.44 | QP | | | |
| 2 | 243.3771 | 26.44 | -10.60 | 15.84 | 46.00 | -30.16 | QP | | | |
| 3 | 629.4772 | 27.72 | -1.97 | 25.75 | 46.00 | -20.25 | QP | | | |

Job No.: LGW2019 #656
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2477MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 32.4059 | 25.66 | -10.17 | 15.49 | 40.00 | -24.51 | QP | | | |
| 2 | 99.5279 | 25.61 | -13.21 | 12.40 | 43.50 | -31.10 | QP | | | |
| 3 | 884.5027 | 27.04 | 2.08 | 29.12 | 46.00 | -16.88 | QP | | | |


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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

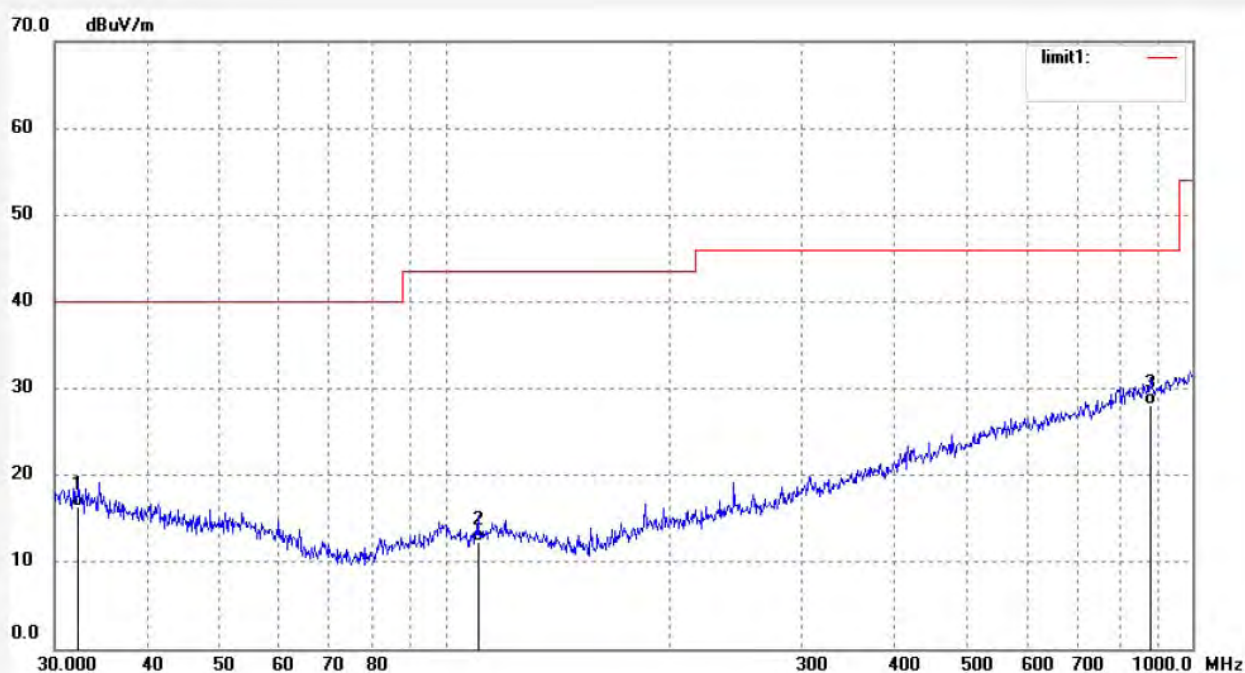
Tel:+86-0755-26503290

Fax:+86-0755-26503396

 Job No.: LGW2019 #657
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2477MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

 Polarization: Vertical
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 32.2924 | 25.97 | -9.61 | 16.36 | 40.00 | -23.64 | QP | | | |
| 2 | 110.5687 | 26.08 | -13.72 | 12.36 | 43.50 | -31.14 | QP | | | |
| 3 | 878.3214 | 26.15 | 2.00 | 28.15 | 46.00 | -17.85 | QP | | | |

1GHz to 18GHz Test data


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Site: 2# Chamber

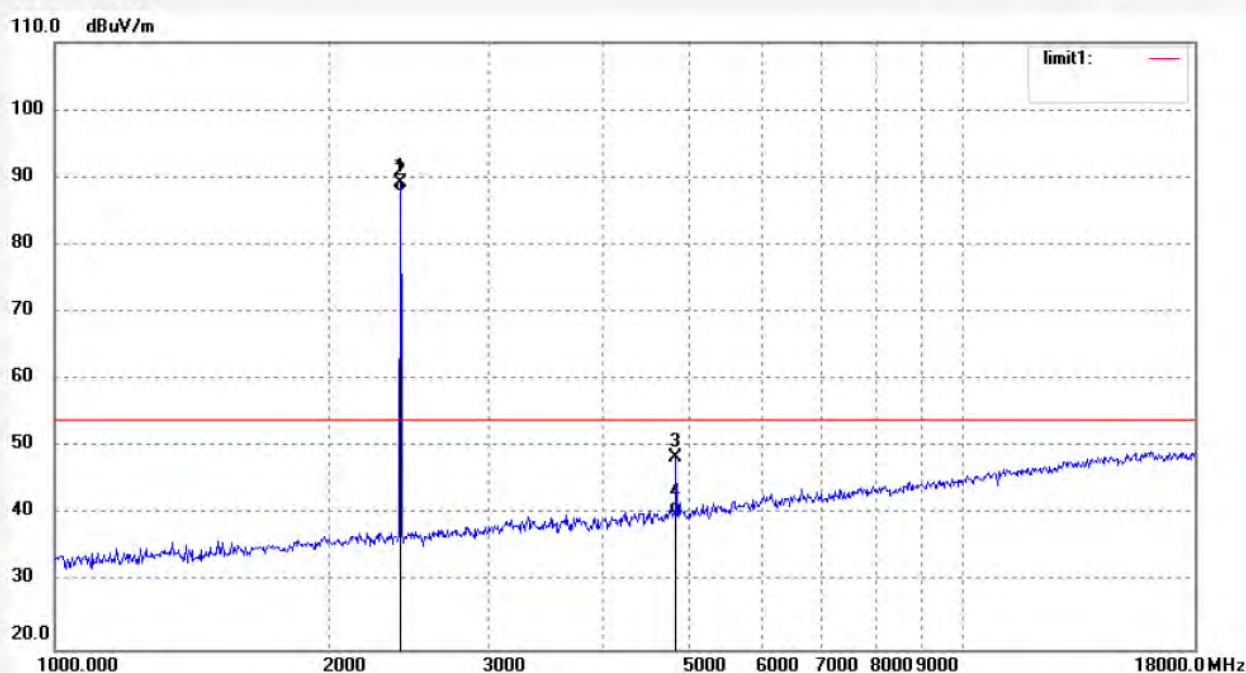
Tel:+86-0755-26503290

Fax:+86-0755-26503396

 Job No.: LGW2019 #636
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2407MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

 Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

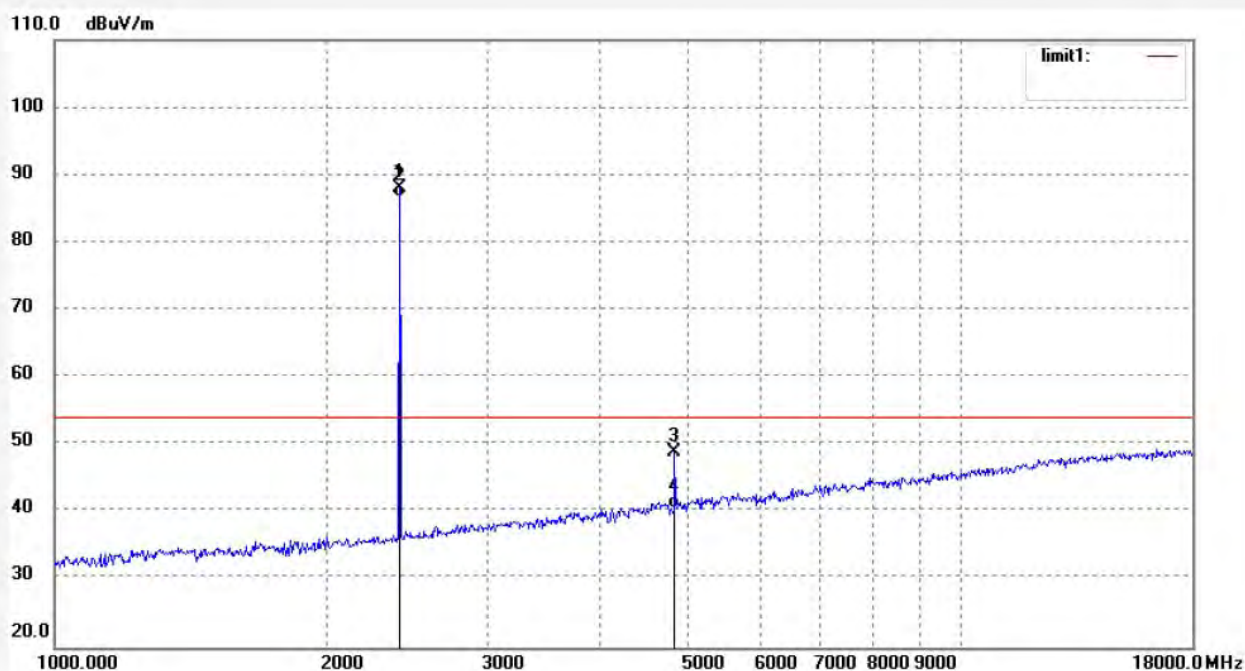


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2407.000 | 88.17 | 0.91 | 89.08 | 114.00 | -24.92 | peak | | | |
| 2 | 2407.000 | 86.87 | 0.91 | 87.78 | 94.00 | -6.22 | AVG | | | |
| 3 | 4814.026 | 40.92 | 7.49 | 48.41 | 74.00 | -25.59 | peak | | | |
| 4 | 4814.026 | 32.76 | 7.49 | 40.25 | 54.00 | -13.75 | AVG | | | |

Job No.: LGW2019 #637
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2407MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Vertical
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:

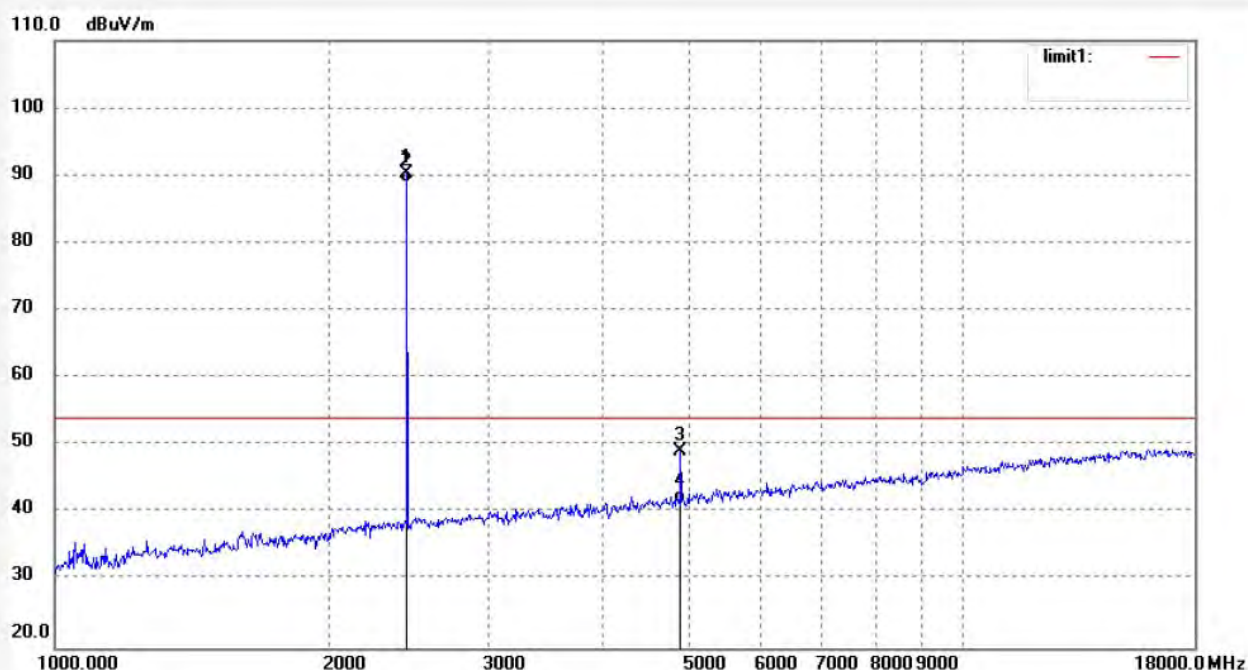


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2407.000 | 87.16 | 0.91 | 88.07 | 114.00 | -25.93 | peak | | | |
| 2 | 2407.000 | 85.86 | 0.91 | 86.77 | 94.00 | -7.23 | AVG | | | |
| 3 | 4814.028 | 41.46 | 7.49 | 48.95 | 74.00 | -25.05 | peak | | | |
| 4 | 4814.028 | 33.18 | 7.49 | 40.67 | 54.00 | -13.33 | AVG | | | |

Job No.: LGW2019 #640
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2445MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2445.000 | 89.19 | 1.07 | 90.26 | 114.00 | -23.74 | peak | | | |
| 2 | 2445.000 | 87.99 | 1.07 | 89.06 | 94.00 | -4.94 | AVG | | | |
| 3 | 4890.032 | 40.96 | 8.18 | 49.14 | 74.00 | -24.86 | peak | | | |
| 4 | 4890.032 | 33.38 | 8.18 | 41.56 | 54.00 | -12.44 | AVG | | | |

Job No.: LGW2019 #641

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Smart Helmet

Mode: TX 2445MHz

Model: SP-106

Manufacturer: SPEQ GmbH

Polarization: Vertical

Power Source: DC 3.7V

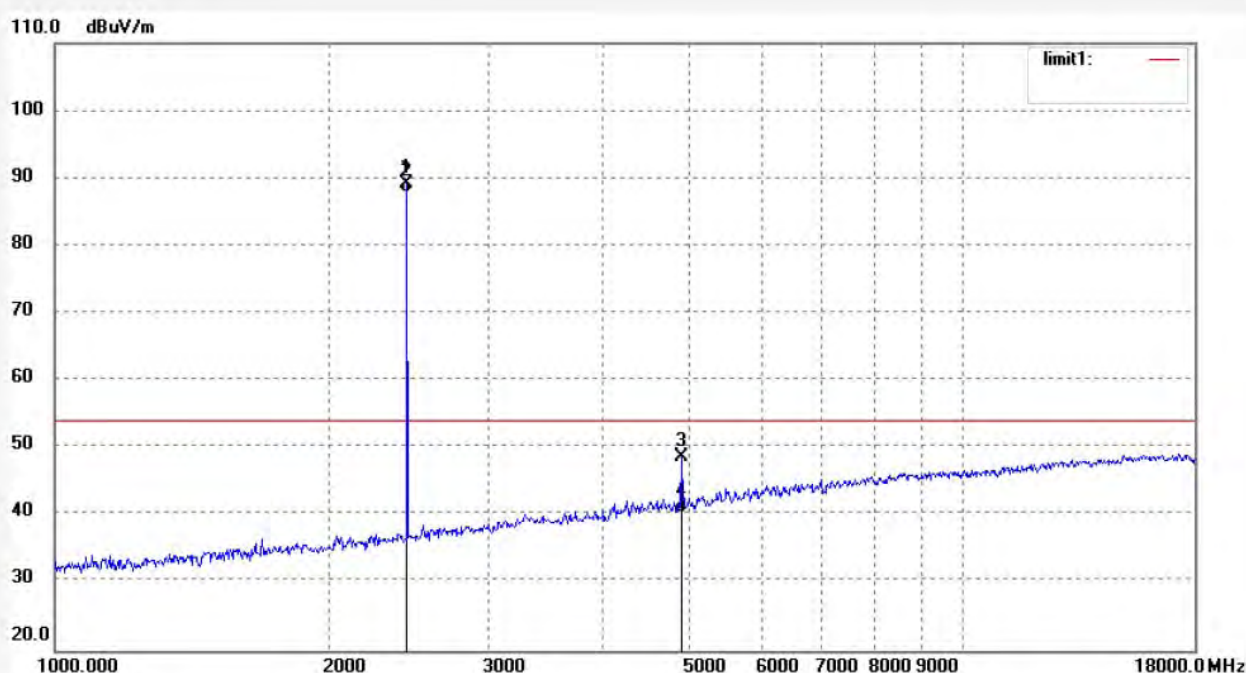
Date: 19/03/18/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2445.000 | 88.05 | 1.07 | 89.12 | 114.00 | -24.88 | peak | | | |
| 2 | 2445.000 | 86.85 | 1.07 | 87.92 | 94.00 | -6.08 | AVG | | | |
| 3 | 4890.031 | 40.57 | 8.18 | 48.75 | 74.00 | -25.25 | peak | | | |
| 4 | 4890.031 | 32.19 | 8.18 | 40.37 | 54.00 | -13.63 | AVG | | | |

Job No.: LGW2019 #643

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Smart Helmet

Mode: TX 2477MHz

Model: SP-106

Manufacturer: SPEQ GmbH

Polarization: Horizontal

Power Source: DC 3.7V

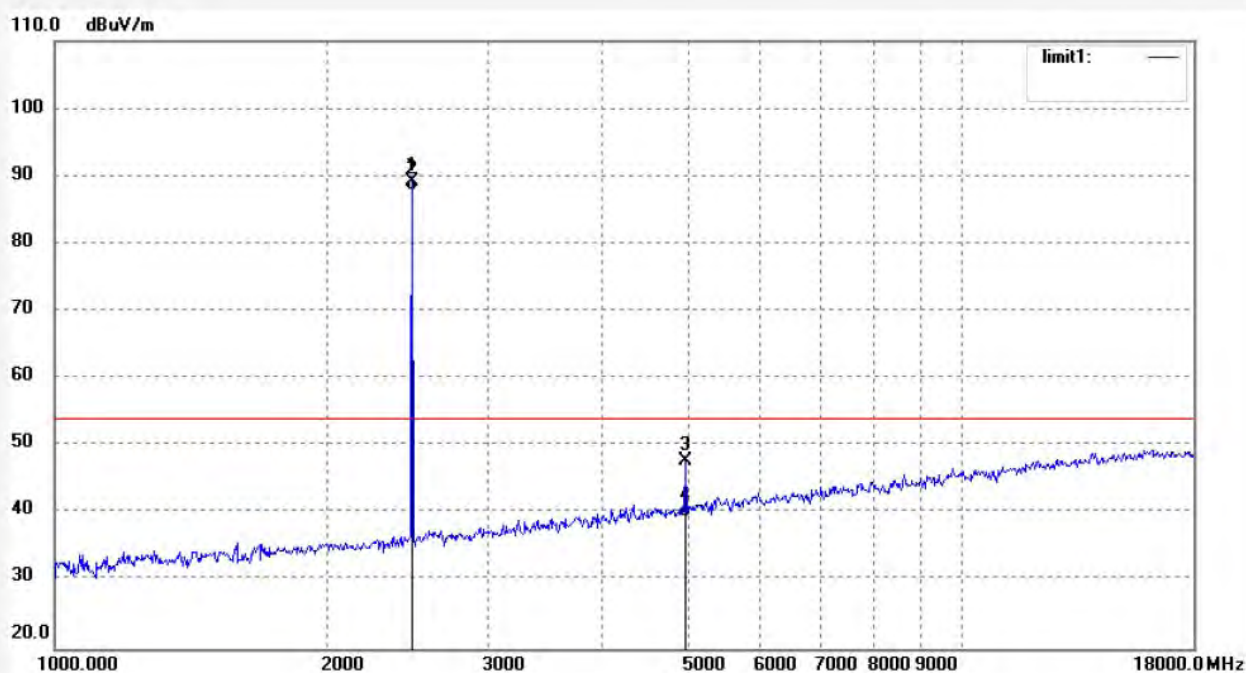
Date: 19/03/18/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2477.000 | 88.16 | 1.09 | 89.25 | 114.00 | -24.75 | peak | | | |
| 2 | 2477.000 | 86.86 | 1.09 | 87.95 | 94.00 | -6.05 | AVG | | | |
| 3 | 4954.033 | 39.19 | 8.56 | 47.75 | 74.00 | -26.25 | peak | | | |
| 4 | 4954.033 | 30.89 | 8.56 | 39.45 | 54.00 | -14.55 | AVG | | | |



ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

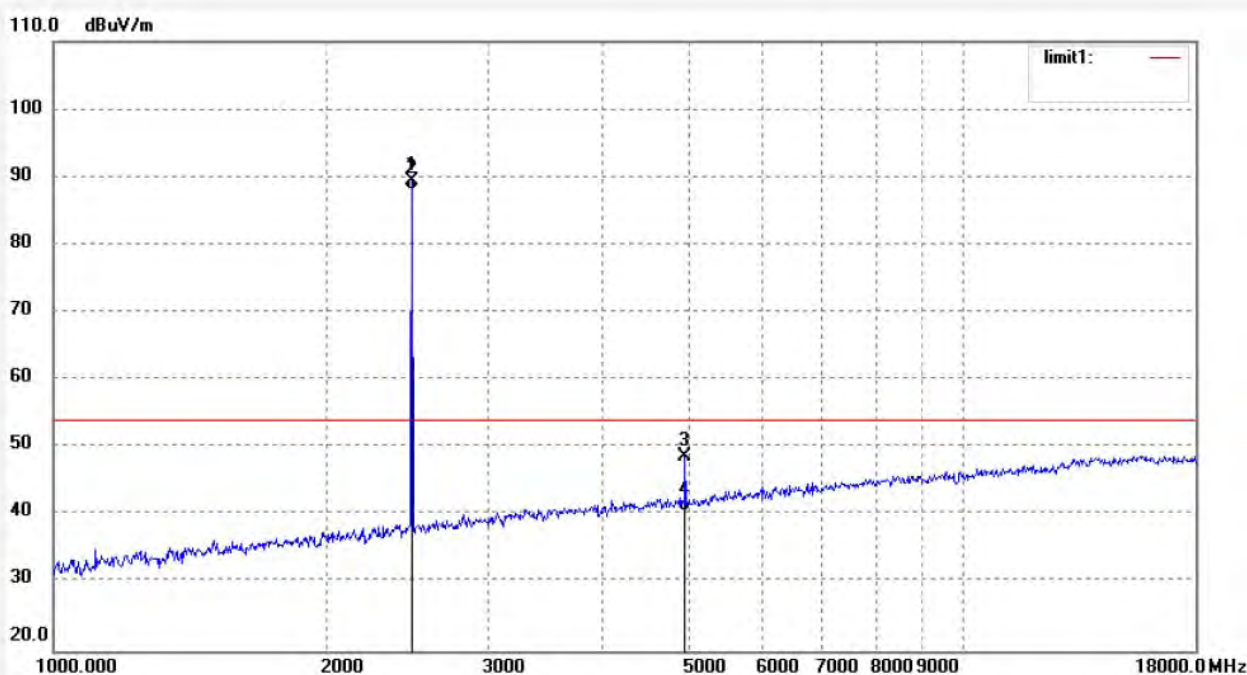
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #642
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2477MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Vertical
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 2477.000 | 88.26 | 1.09 | 89.35 | 114.00 | -24.65 | peak | | | |
| 2 | 2477.000 | 86.96 | 1.09 | 88.05 | 94.00 | -5.95 | AVG | | | |
| 3 | 4954.029 | 40.13 | 8.56 | 48.69 | 74.00 | -25.31 | peak | | | |
| 4 | 4954.029 | 32.03 | 8.56 | 40.59 | 54.00 | -13.41 | AVG | | | |



18GHz to 26.5GHz Test data

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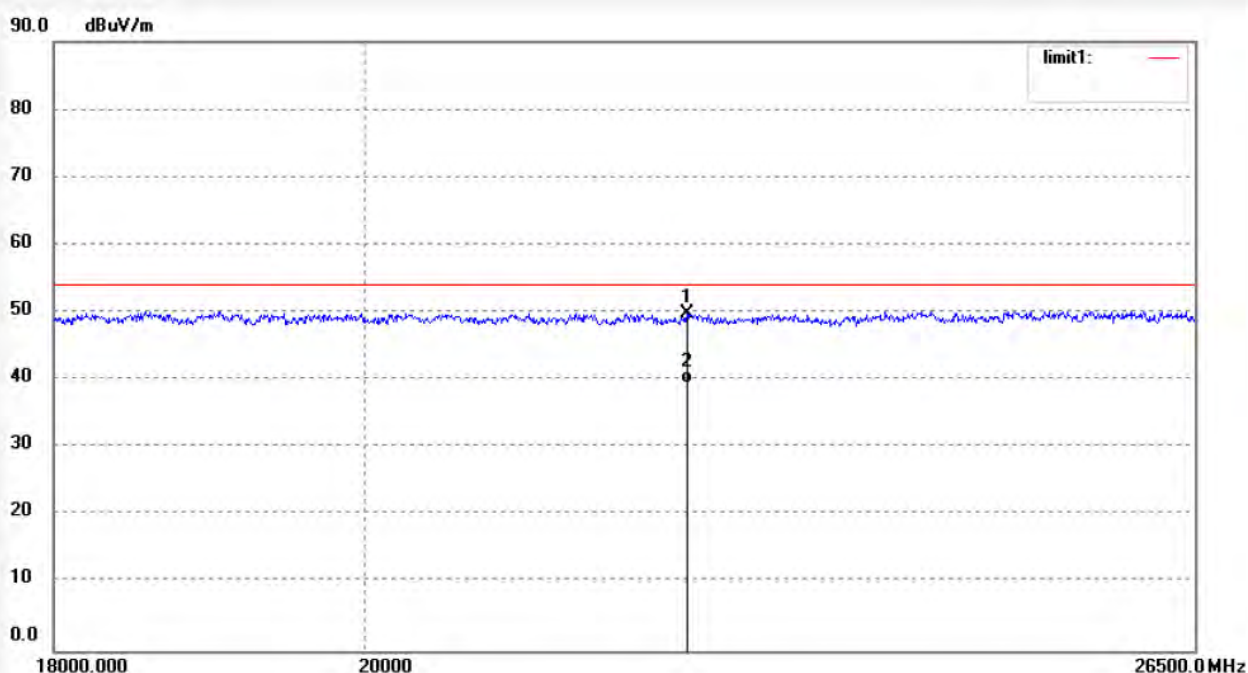
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #647
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2407MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Horizontal
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 22309.905 | 10.06 | 39.67 | 49.73 | 74.00 | -24.27 | peak | | | |
| 2 | 22309.905 | -0.22 | 39.67 | 39.45 | 54.00 | -14.55 | AVG | | | |

Job No.: LGW2019 #646

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Smart Helmet

Mode: TX 2407MHz

Model: SP-106

Manufacturer: SPEQ GmbH

Polarization: Vertical

Power Source: DC 3.7V

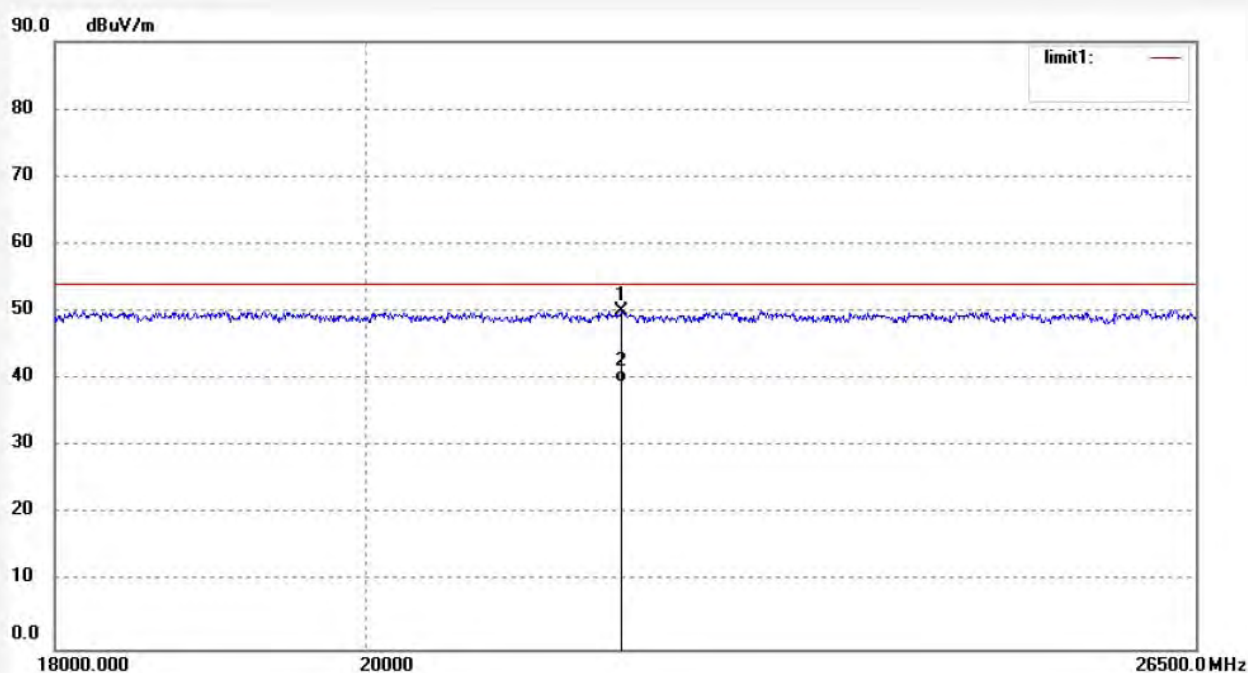
Date: 19/03/18/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

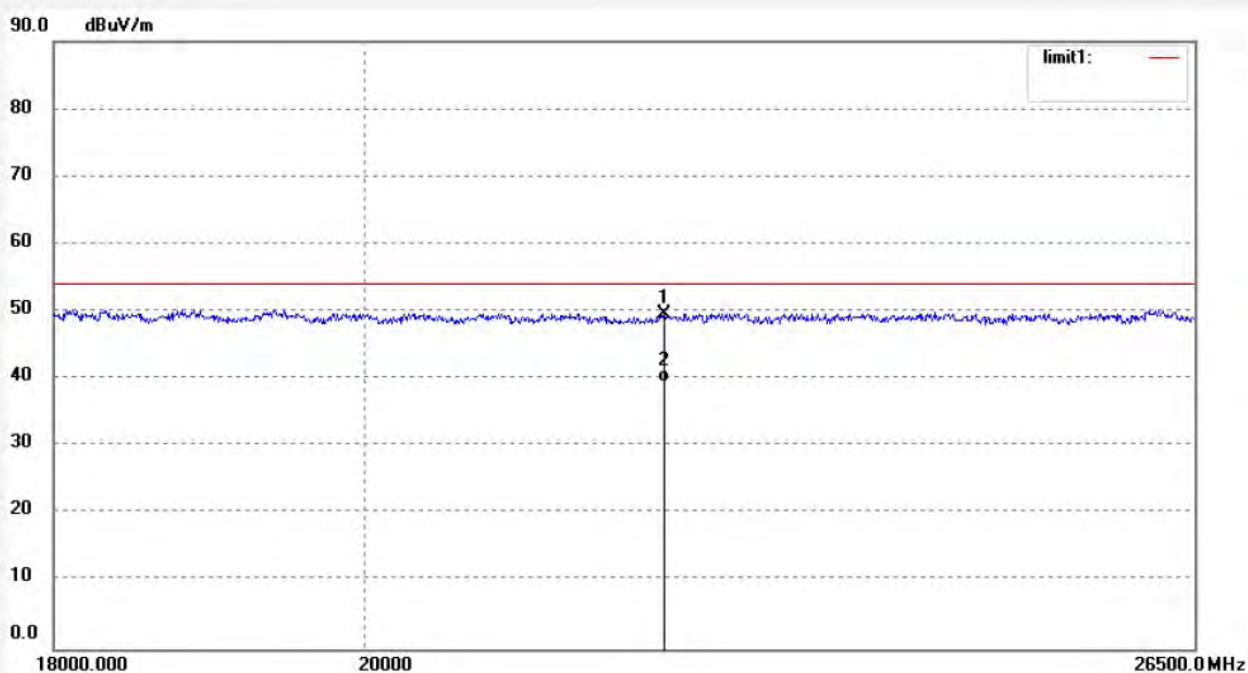


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 21806.567 | 10.73 | 39.24 | 49.97 | 74.00 | -24.03 | peak | | | |
| 2 | 21806.567 | 0.17 | 39.24 | 39.41 | 54.00 | -14.59 | AVG | | | |

Job No.: LGW2019 #648
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2445MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 22137.994 | 10.06 | 39.52 | 49.58 | 74.00 | -24.42 | peak | | | |
| 2 | 22137.994 | -0.07 | 39.52 | 39.45 | 54.00 | -14.55 | AVG | | | |



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Site: 2# Chamber

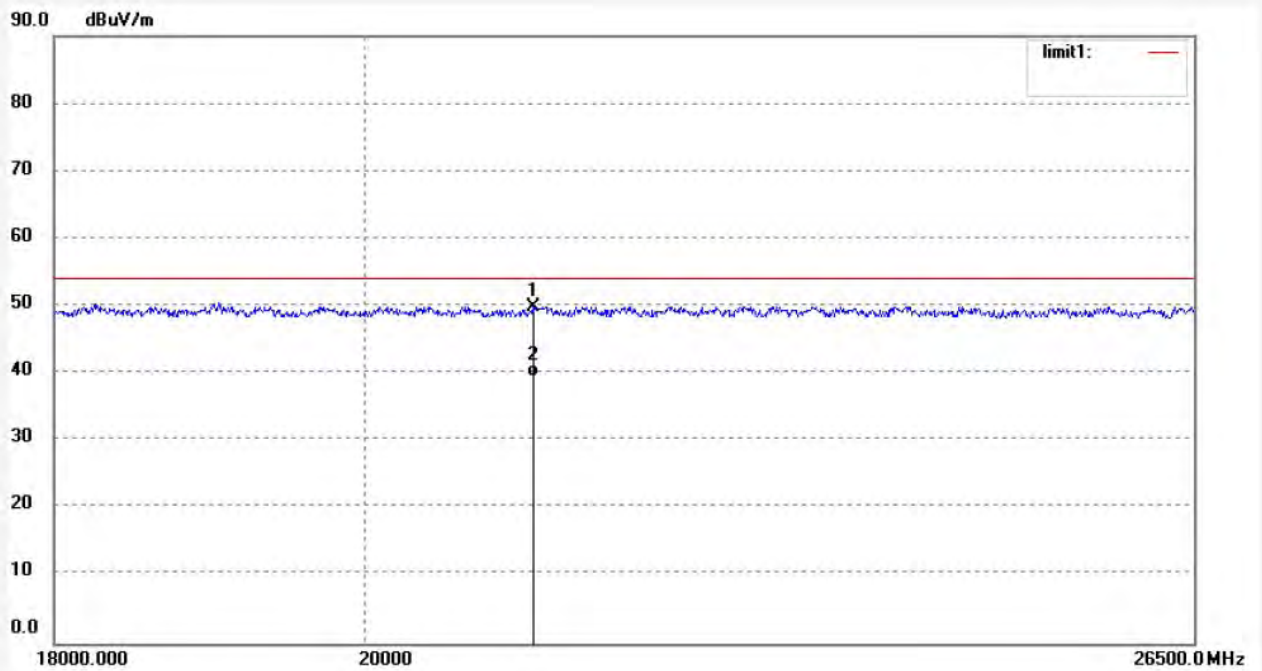
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #649
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2445MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Vertical
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

Note:

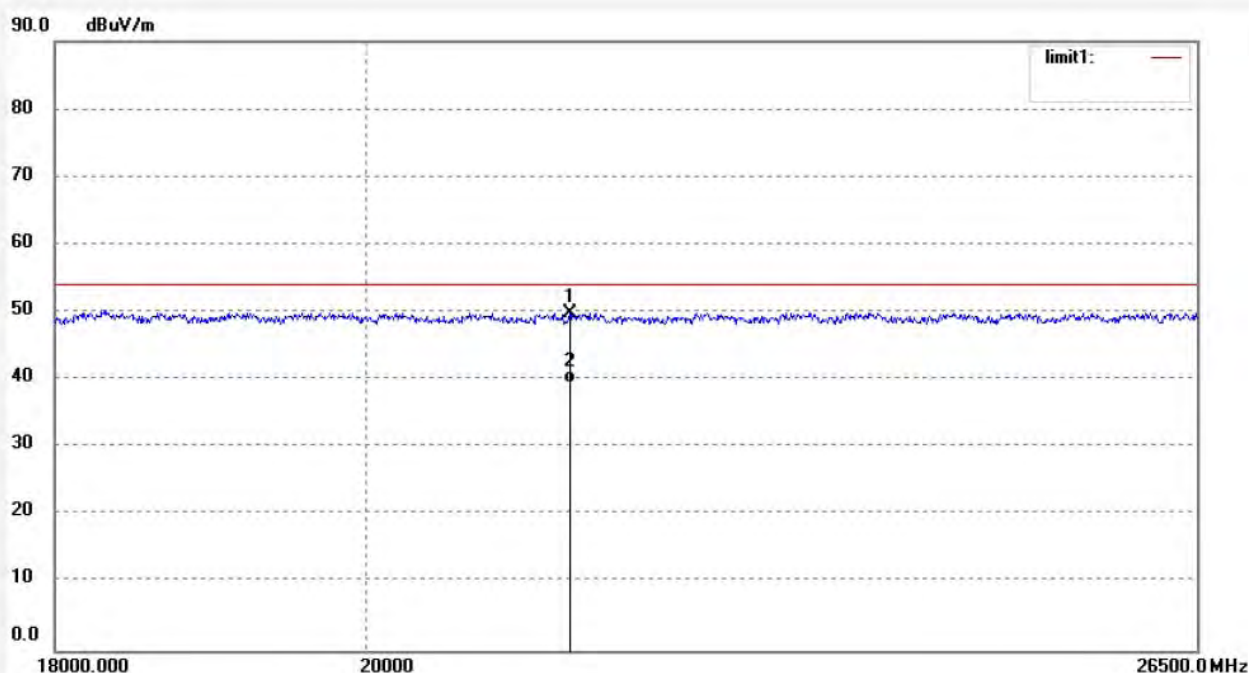


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 21174.898 | 10.56 | 39.36 | 49.92 | 74.00 | -24.08 | peak | | | |
| 2 | 21174.898 | 0.10 | 39.36 | 39.46 | 54.00 | -14.54 | AVG | | | |

Job No.: LGW2019 #651
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: Smart Helmet
 Mode: TX 2477MHz
 Model: SP-106
 Manufacturer: SPEQ GmbH

Polarization: Horizontal
 Power Source: DC 3.7V
 Date: 19/03/18/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 21430.312 | 11.26 | 38.50 | 49.76 | 74.00 | -24.24 | peak | | | |
| 2 | 21430.312 | 0.95 | 38.50 | 39.45 | 54.00 | -14.55 | AVG | | | |



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

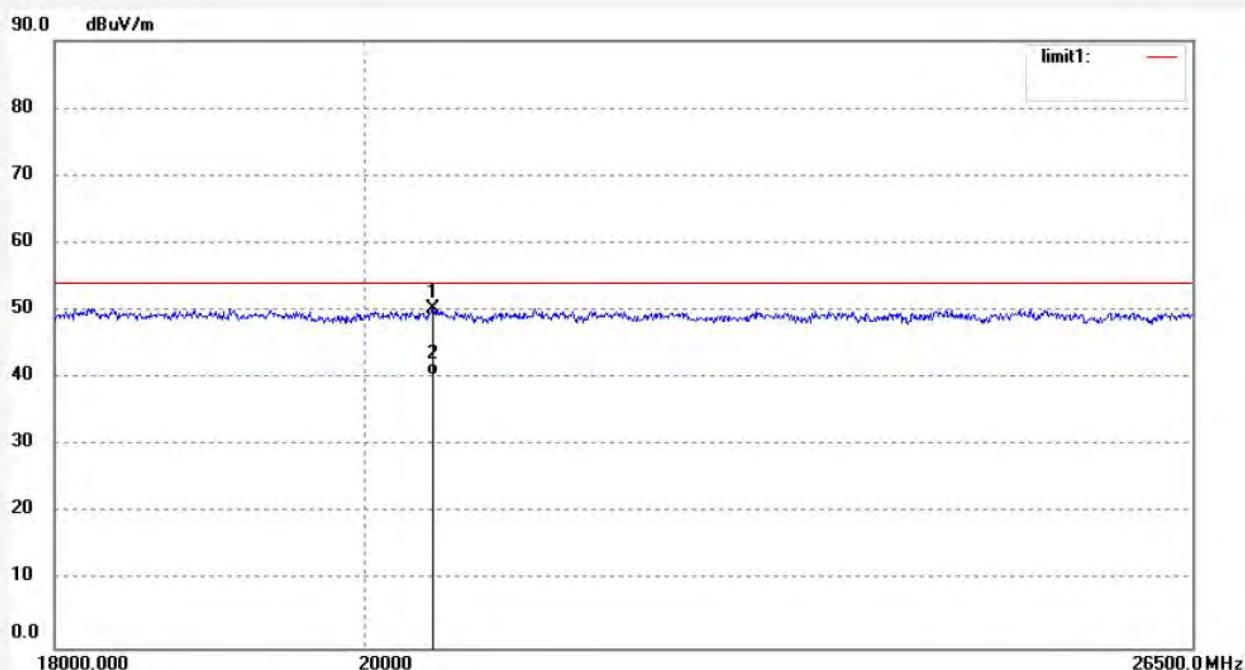
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #650
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Smart Helmet
Mode: TX 2477MHz
Model: SP-106
Manufacturer: SPEQ GmbH

Polarization: Vertical
Power Source: DC 3.7V
Date: 19/03/18/
Time:
Engineer Signature: WADE
Distance: 3m

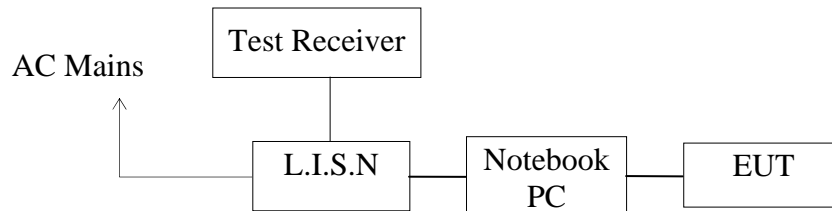
Note:



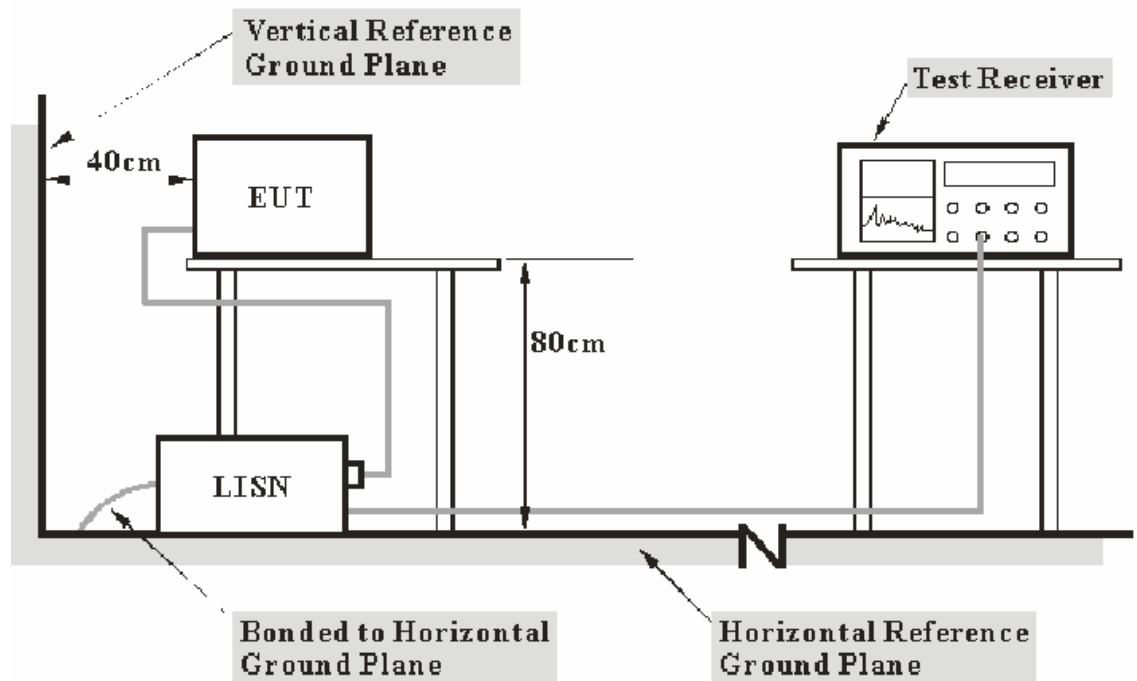
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 20466.315 | 11.95 | 38.31 | 50.26 | 74.00 | -23.74 | peak | | | |
| 2 | 20466.315 | 2.06 | 38.31 | 40.37 | 54.00 | -13.63 | AVG | | | |

8. AC POWER LINE CONDUCTED EMISSION TEST

8.1. Block Diagram of Test Setup



8.2. Test System Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

8.3. Test Limits

| Frequency (MHz) | Limit dB(μV) | |
|-----------------|------------------|---------------|
| | Quasi-peak Level | Average Level |
| 0.15 - 0.50 | 66.0 – 56.0 * | 56.0 – 46.0 * |
| 0.50 - 5.00 | 56.0 | 46.0 |
| 5.00 - 30.00 | 60.0 | 50.0 |

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

8.4. Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

8.5. Operating Condition of EUT

8.5.1. Setup the EUT and simulator as shown as Section 8.1.

8.5.2. Turn on the power of all equipment.

8.5.3. Let the EUT work in test mode and measure it.

8.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

8.7.Data Sample

| Frequency (MHz) | Transducer value (dB) | QuasiPeak Level (dBμV) | Average Level (dBμV) | QuasiPeak Limit (dBμV) | Average Limit (dBμV) | QuasiPeak Margin (dB) | Average Margin (dB) | Remark (Pass/Fail) |
|-----------------|-----------------------|------------------------|----------------------|------------------------|----------------------|-----------------------|---------------------|--------------------|
| X.XX | 10.5 | 51.1 | 34.2 | 56.0 | 46.0 | 4.9 | 11.8 | Pass |

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dBμV) = Limit stated in standard

Calculation Formula:

Margin = Limit (dBμV) - Level (dBμV)

8.8.Test Results

Pass.

The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

The spectral diagrams are attached as below.

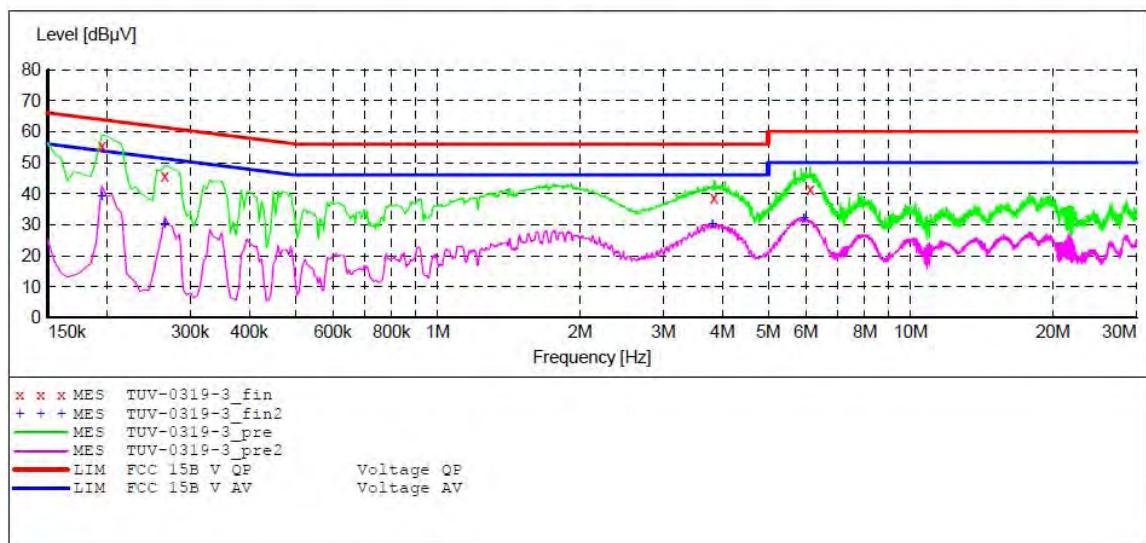
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: Communication
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: L 120V/60Hz
 Comment: Mains Port
 Start of Test: 3/19/2019 /

SCAN TABLE: "V 9K-30MHz fin"

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|-----------------|----------------|------------|-----------|------------|-----------|---------------|
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | NSLK8126 2008 |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | NSLK8126 2008 |



MEASUREMENT RESULT: "TUV-0319-3_fin"

3/19/2019

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.195000 | 55.50 | 10.5 | 64 | 8.3 | QP | L1 | GND |
| 0.265000 | 45.80 | 10.6 | 61 | 15.5 | QP | L1 | GND |
| 3.840000 | 38.70 | 11.1 | 56 | 17.3 | QP | L1 | GND |
| 6.130000 | 41.30 | 11.2 | 60 | 18.7 | QP | L1 | GND |

MEASUREMENT RESULT: "TUV-0319-3_fin2"

3/19/2019

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.195000 | 38.90 | 10.5 | 54 | 14.9 | AV | L1 | GND |
| 0.265000 | 30.00 | 10.6 | 51 | 21.3 | AV | L1 | GND |
| 3.810000 | 29.90 | 11.1 | 46 | 16.1 | AV | L1 | GND |
| 5.950000 | 31.90 | 11.2 | 50 | 18.1 | AV | L1 | GND |

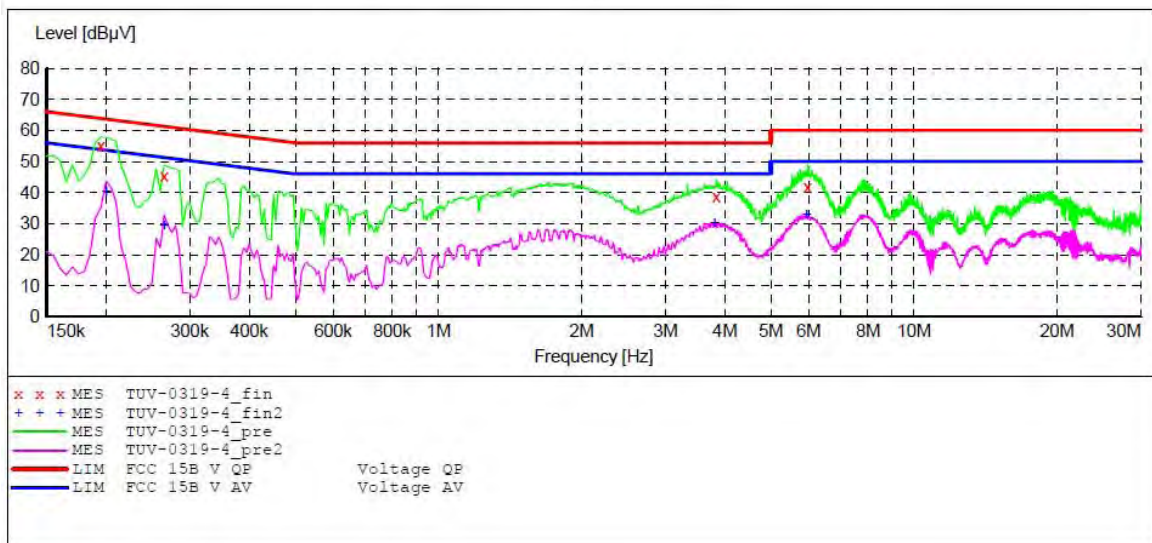
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: Smart Helmet M/N:SP-106
 Manufacturer: SPEQ GmbH
 Operating Condition: Communication
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: N 120V/60Hz
 Comment: Mains Port
 Start of Test: 3/19/2019 /

SCAN TABLE: "V 9K-30MHz fin"

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|-----------------|----------------|------------|-----------|------------|-----------|---------------|
| 9.0 kHz | 150.0 kHz | 100.0 Hz | QuasiPeak | 1.0 s | 200 Hz | NSLK8126 2008 |
| 150.0 kHz | 30.0 MHz | 5.0 kHz | QuasiPeak | 1.0 s | 9 kHz | NSLK8126 2008 |



MEASUREMENT RESULT: "TUV-0319-4_fin"

3/19/2019

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.195000 | 54.90 | 10.5 | 64 | 8.9 | QP | N | GND |
| 0.265000 | 45.30 | 10.6 | 61 | 16.0 | QP | N | GND |
| 3.840000 | 38.80 | 11.1 | 56 | 17.2 | QP | N | GND |
| 5.970000 | 41.80 | 11.2 | 60 | 18.2 | QP | N | GND |

MEASUREMENT RESULT: "TUV-0319-4_fin2"

3/19/2019

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.200000 | 40.10 | 10.5 | 54 | 13.5 | AV | N | GND |
| 0.265000 | 29.40 | 10.6 | 51 | 21.9 | AV | N | GND |
| 3.810000 | 30.00 | 11.1 | 46 | 16.0 | AV | N | GND |
| 5.950000 | 32.80 | 11.2 | 50 | 17.2 | AV | N | GND |

9. ANTENNA REQUIREMENT

9.1.The Requirement

According to Section 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.

9.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

******* End of Test Report *******