

## 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

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Report Number : ATE20190377  
Date of Test : March 15-March 19, 2019  
Date of Report : March 22, 2019

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## 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

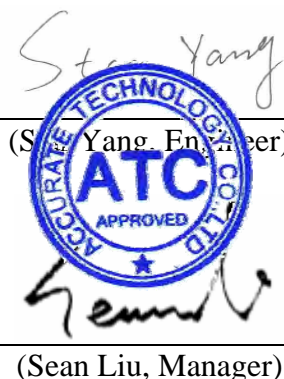
The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 limits. The measurement results are contained in this test report and 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 :   
(Steven Yang, Engineer)

Approved & Authorized Signer :   
(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 EMC 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

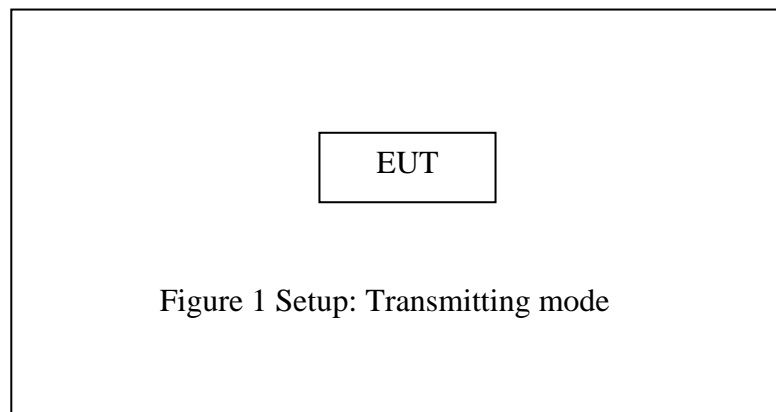


Figure 1 Setup: Transmitting mode

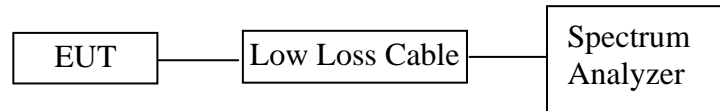
#### 4. TEST PROCEDURES AND RESULTS

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.

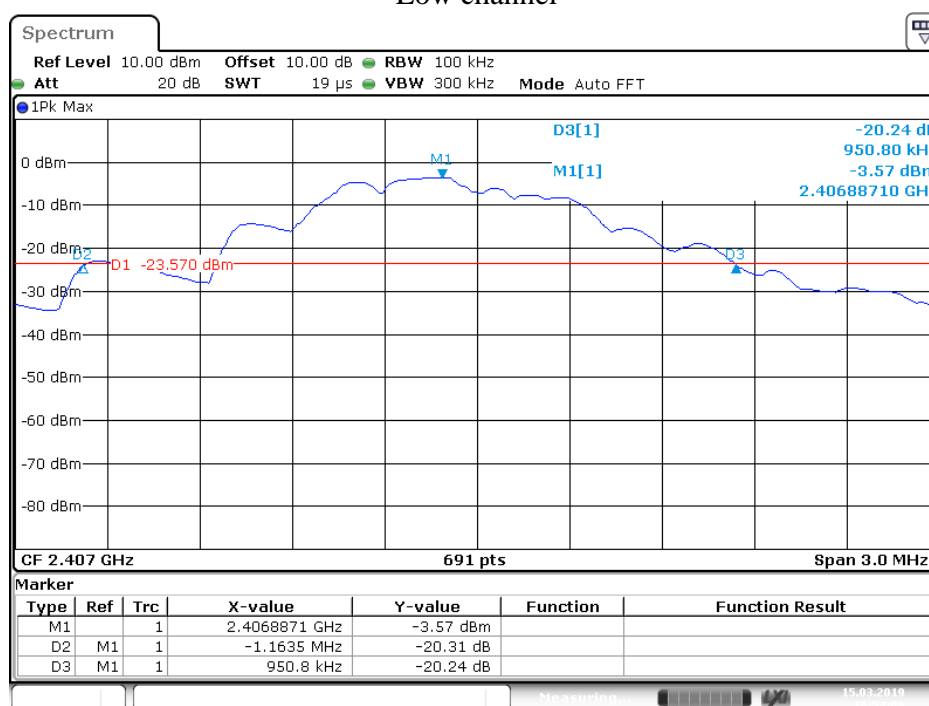
5.4.4. Set the measured low, middle and high frequency and test 20dB bandwidth with spectrum analyzer.

## 5.5. Test Results

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

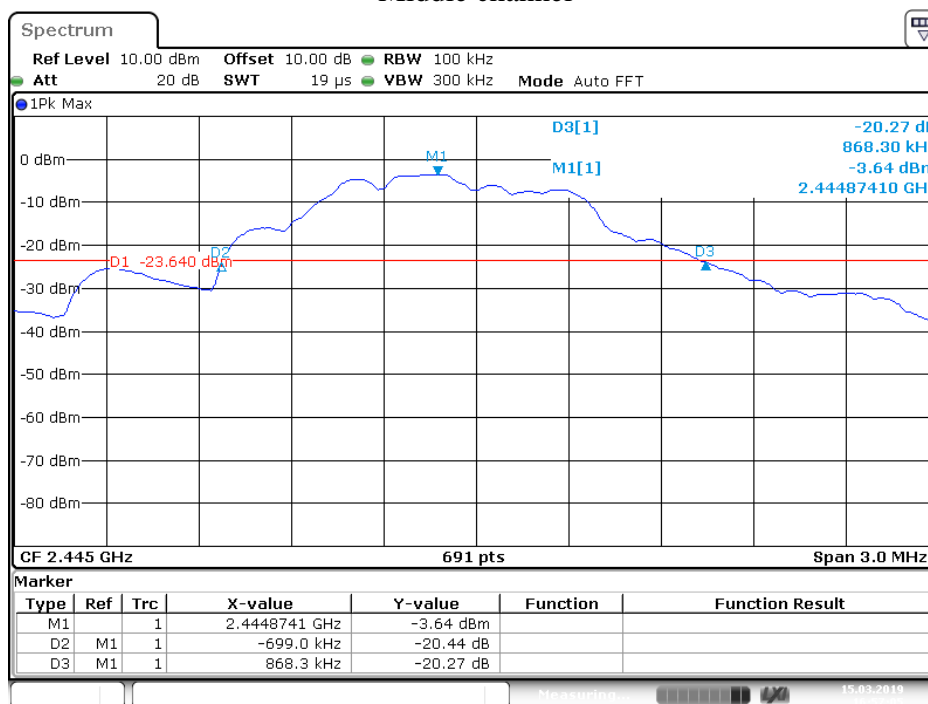
The spectrum analyzer plots are attached as below.

Low channel



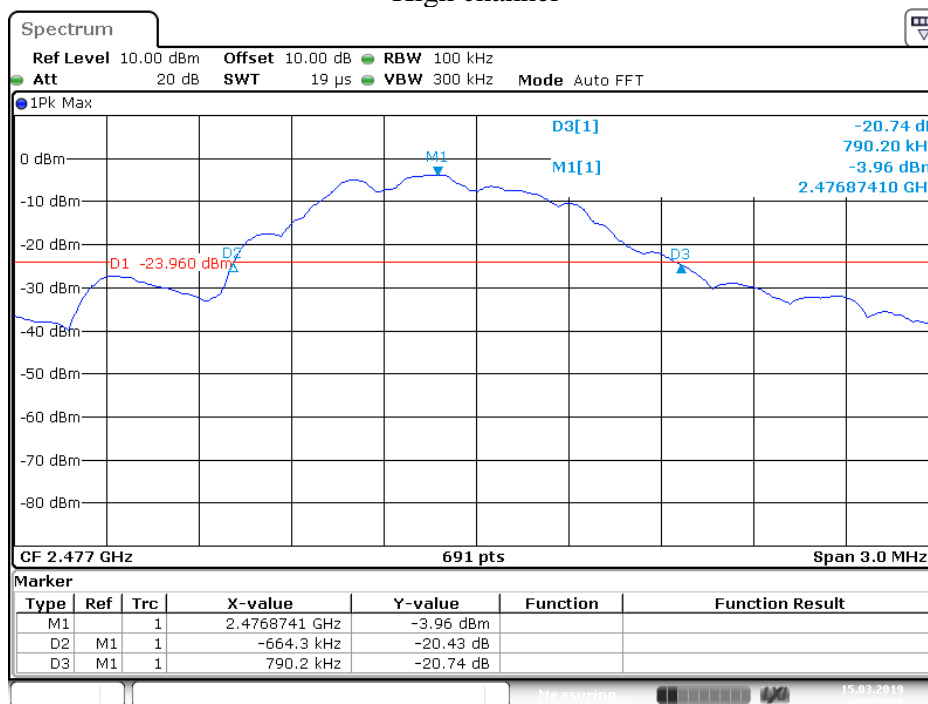
Date: 15.MAR.2019 16:54:06

## Middle channel



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

## High channel

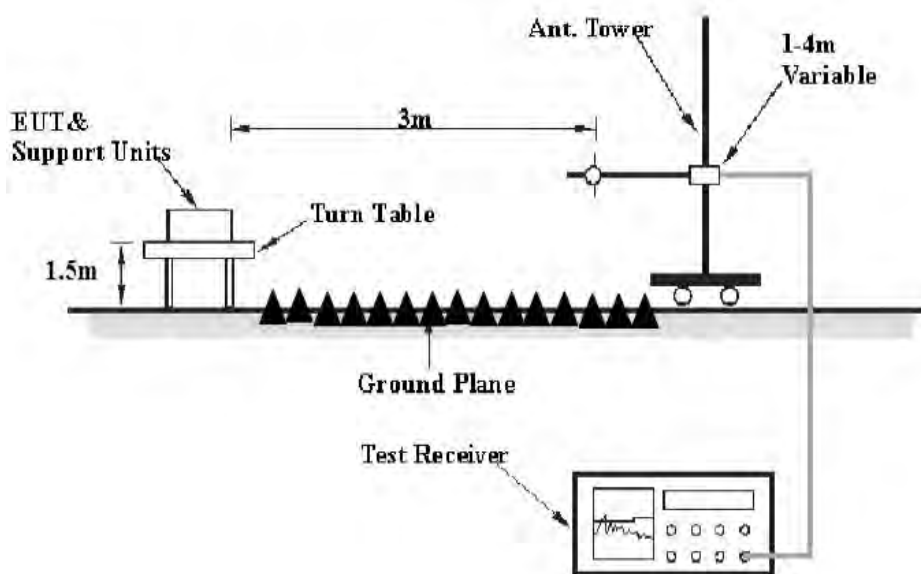


Date: 15.MAR.2019 16:55:29

## 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

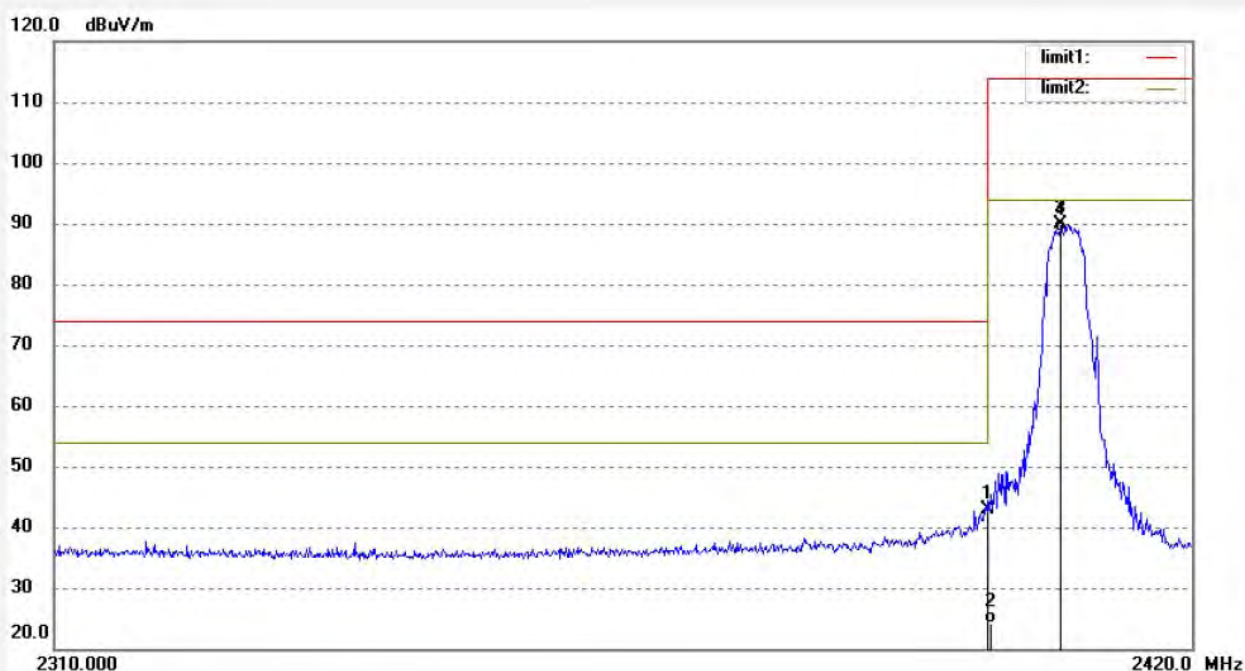
3. Display the measurement of peak values.
4. The average measurement was not performed when peak measured data under the limit of average detection.

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:



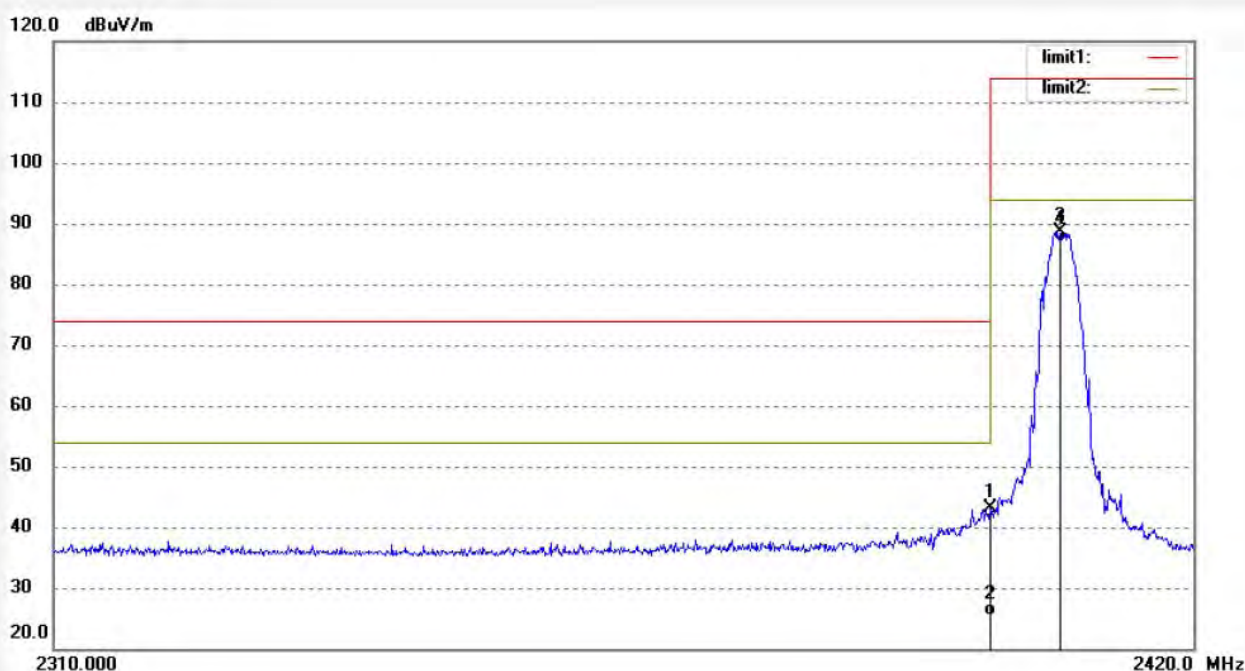
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	42.10	0.88	42.98	74.00	-31.02	peak			
2	2400.000	23.32	0.88	24.20	54.00	-29.80	AVG			
3	2407.000	89.02	0.91	89.93	114.00	-24.07	peak			
4	2407.000	87.72	0.91	88.63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

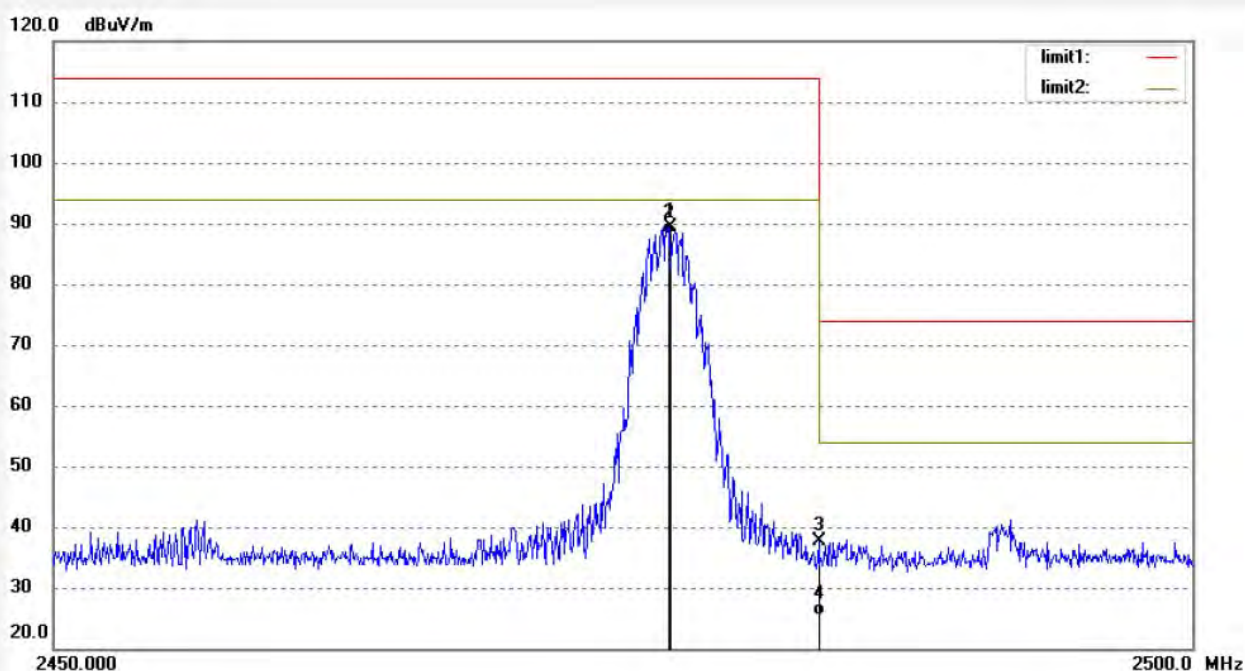


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	42.16	0.88	43.04	74.00	-30.96	peak			
2	2400.000	24.54	0.88	25.42	54.00	-28.58	AVG			
3	2407.000	87.63	0.91	88.54	114.00	-25.46	peak			
4	2407.000	86.33	0.91	87.24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



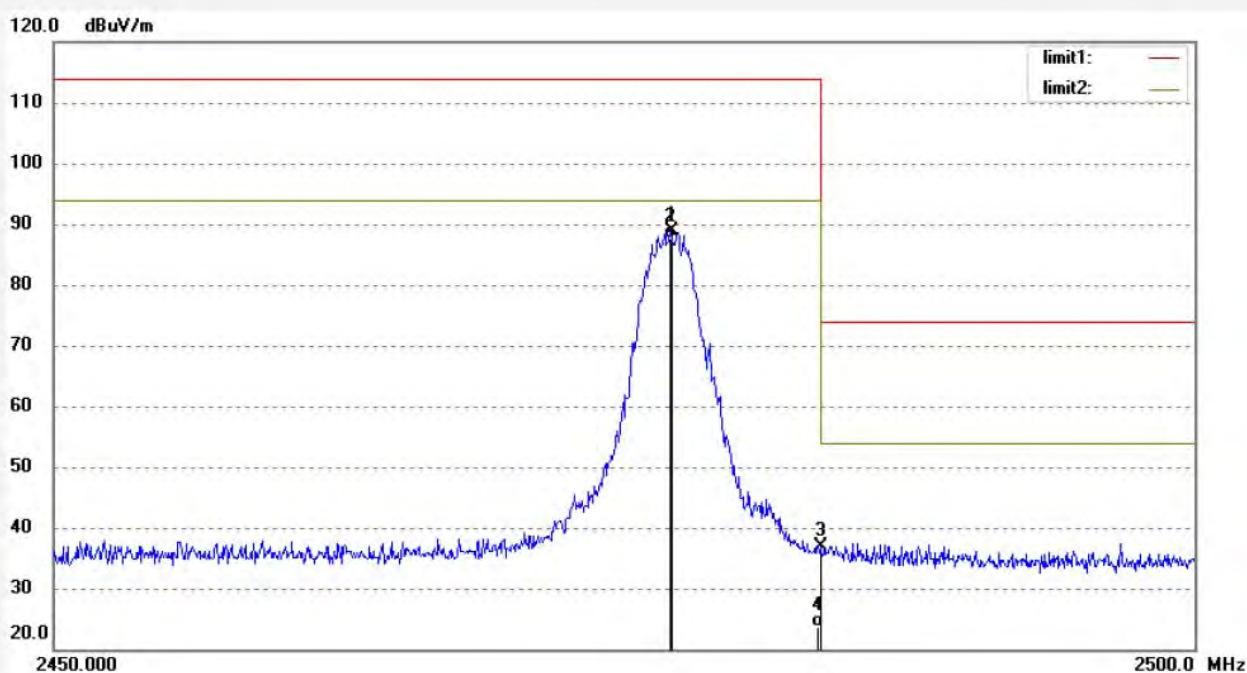
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2477.000	88.39	1.09	89.48	114.00	-24.52	peak			
2	2477.000	87.09	1.09	88.18	94.00	-5.82	AVG			
3	2483.500	36.60	1.10	37.70	74.00	-36.30	peak			
4	2483.500	24.25	1.10	25.35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

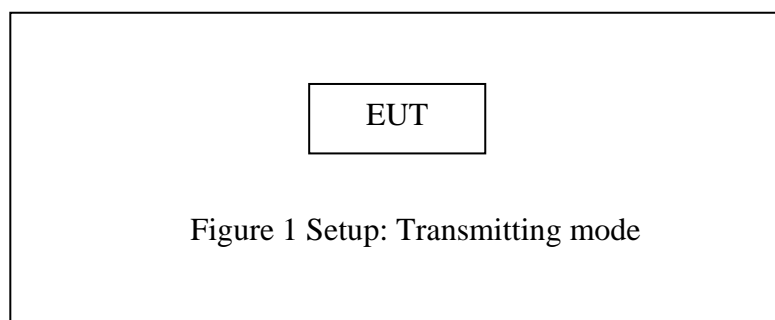


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2477.000	87.75	1.09	88.84	114.00	-25.16	peak			
2	2477.000	86.45	1.09	87.54	94.00	-6.46	AVG			
3	2483.500	35.81	1.10	36.91	74.00	-37.09	peak			
4	2483.500	22.47	1.10	23.57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

## 7. RADIATED SPURIOUS EMISSION TEST

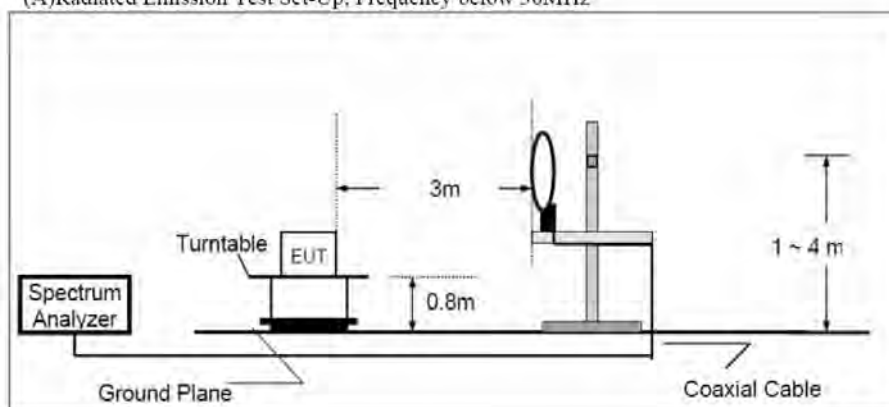
### 7.1. Block Diagram of Test Setup

#### 7.1.1. Block diagram of connection between the EUT and peripherals

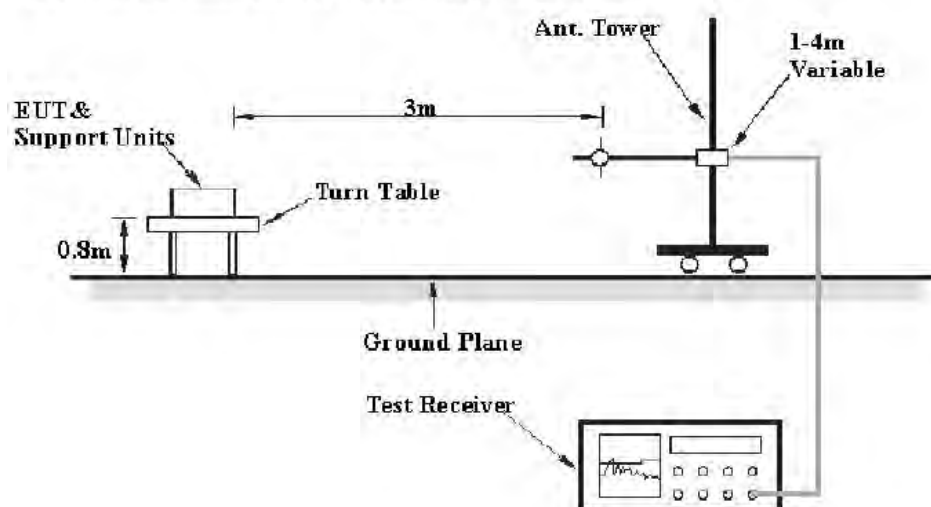


#### 7.1.2. Semi-Anechoic Chamber Test Setup Diagram

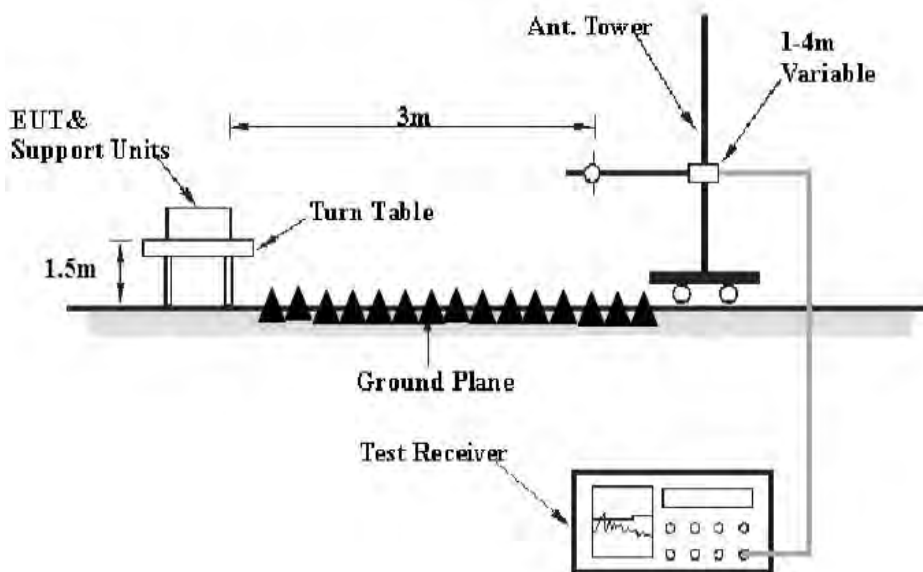
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(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
<sup>1</sup> 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	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>Above 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 $\mu$ v)	Factor (dB/m)	Result (dB $\mu$ v/m)	Limit (dB $\mu$ 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 $\mu$ v) = Uncorrected Analyzer/Receiver reading

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

Result(dB $\mu$ v/m) = Reading(dB $\mu$ v) + Factor(dB/m)

Limit (dB $\mu$ v/m) = Limit stated in standard

Margin (dB) = Result(dB $\mu$ v/m) - Limit (dB $\mu$ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB $\mu$ V/m)–Limit(dB $\mu$ V/m)

Result(dB $\mu$ V/m)= Reading(dB $\mu$ 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

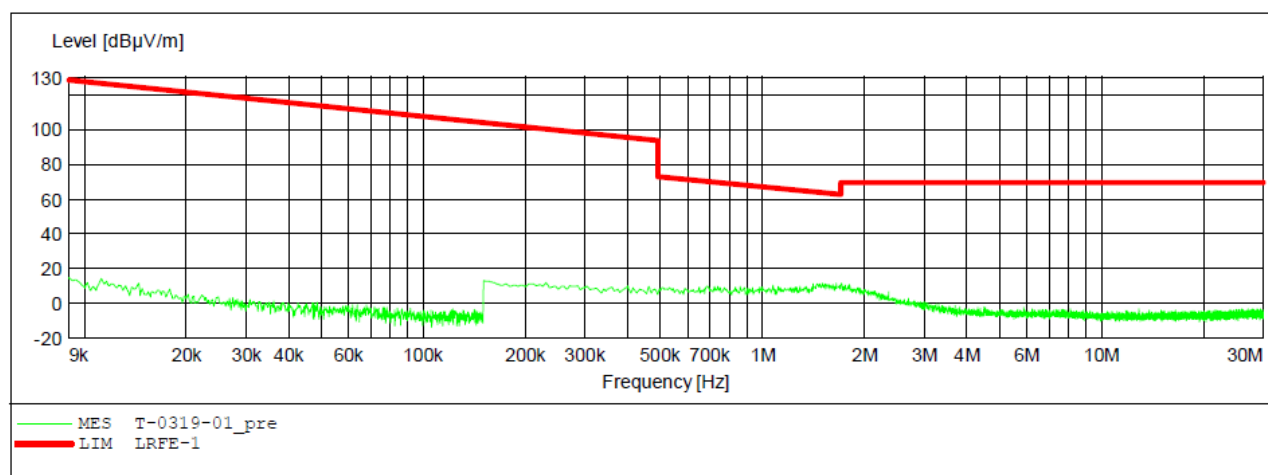
**ACCURATE TECHNOLOGY CO., LTD**

### 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





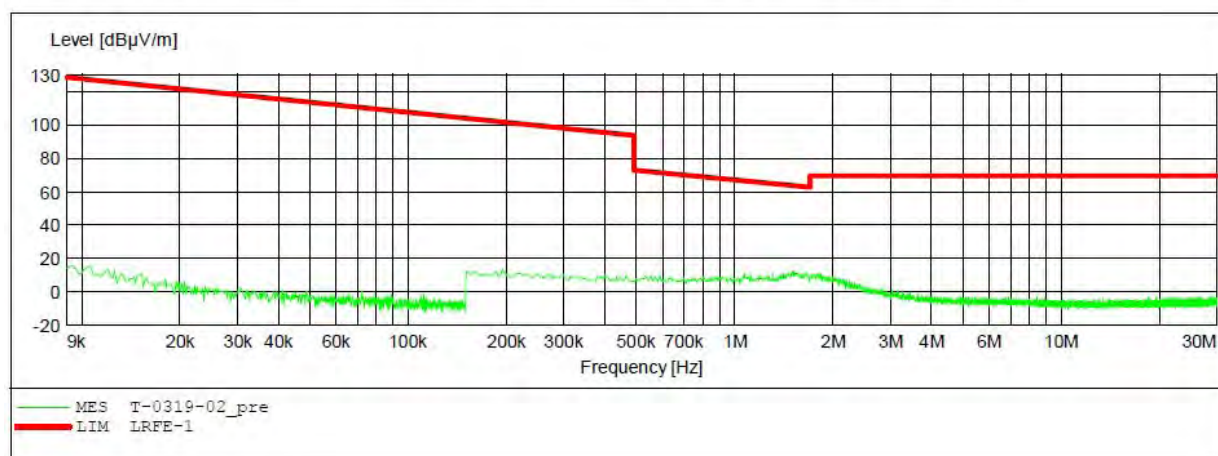
## ACCURATE TECHNOLOGY CO., LTD

### 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





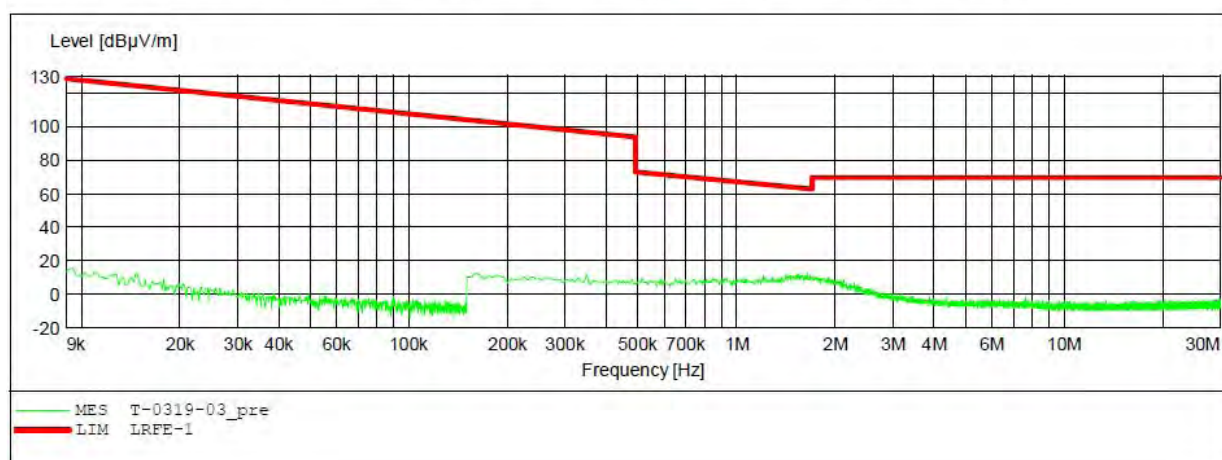
## ACCURATE TECHNOLOGY CO., LTD

### 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



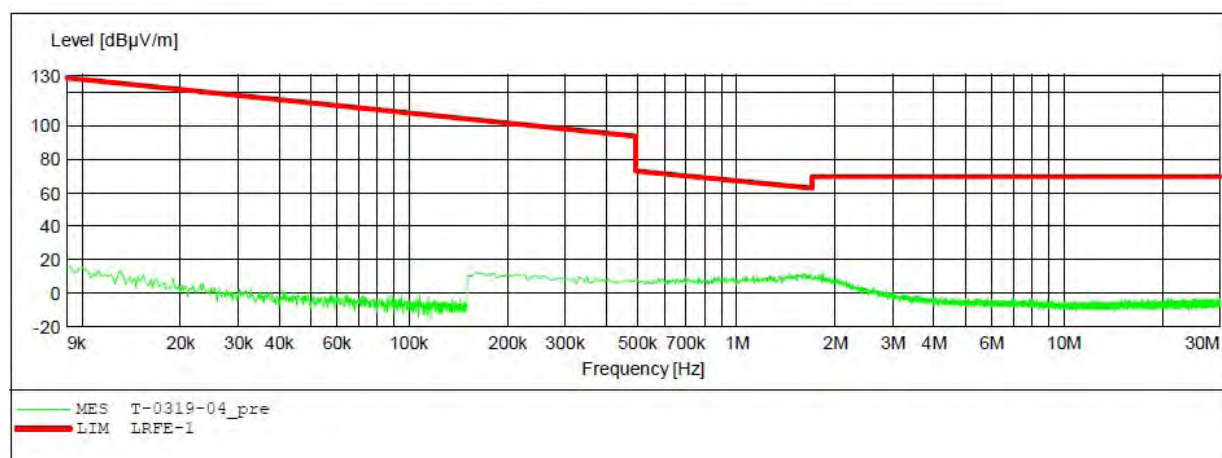
## ACCURATE TECHNOLOGY CO., LTD

### 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



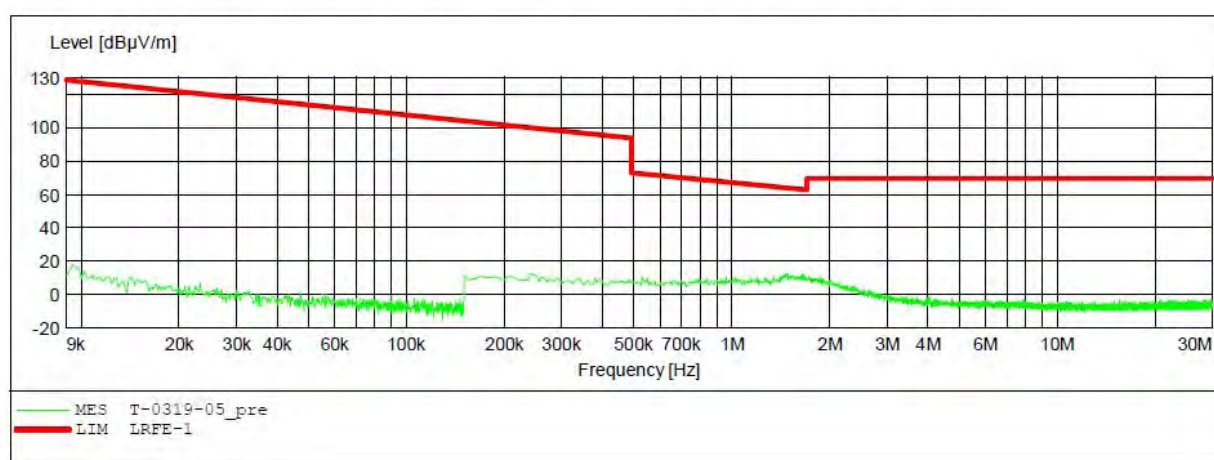
## ACCURATE TECHNOLOGY CO., LTD

### 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



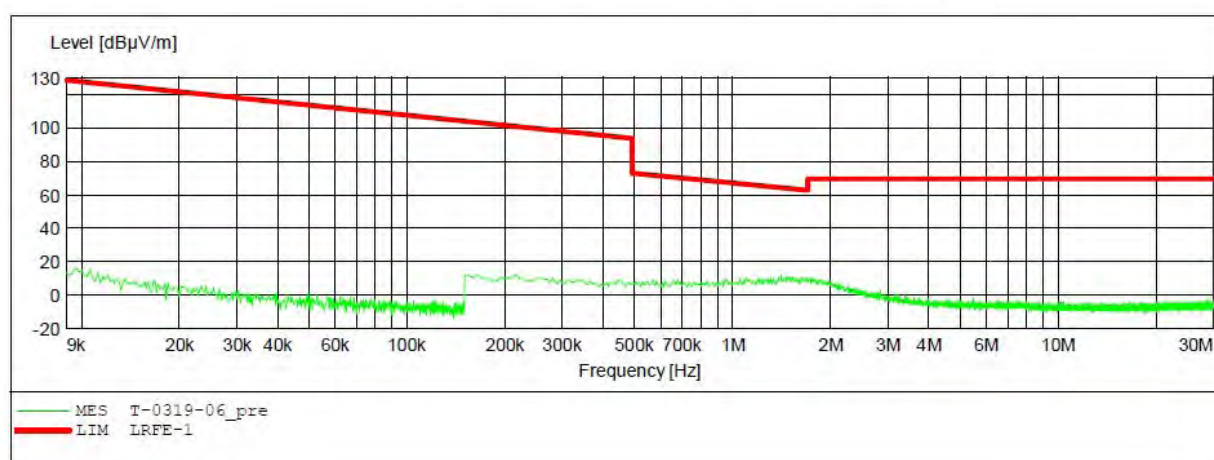
## ACCURATE TECHNOLOGY CO., LTD

### 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





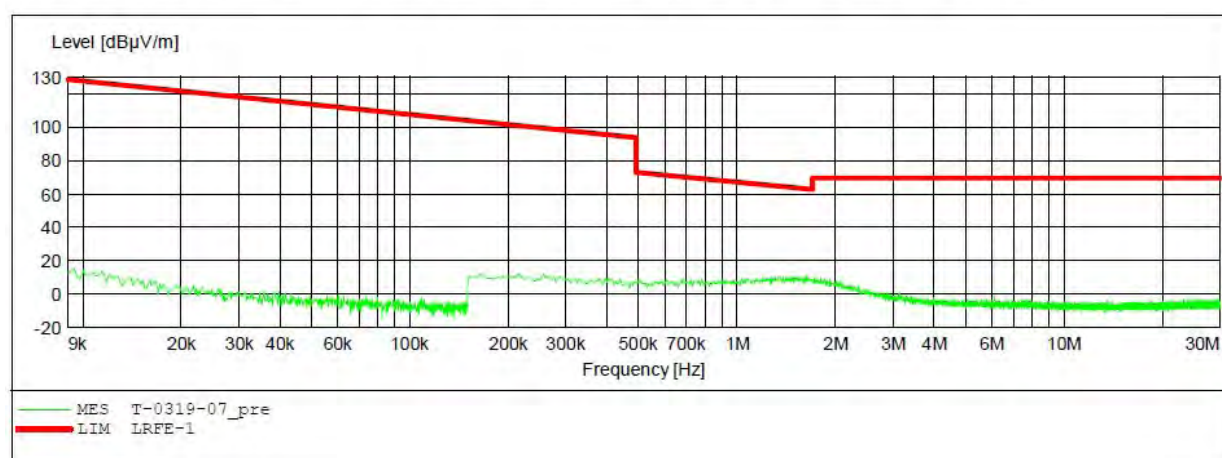
## ACCURATE TECHNOLOGY CO.,LTD

### 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"

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	



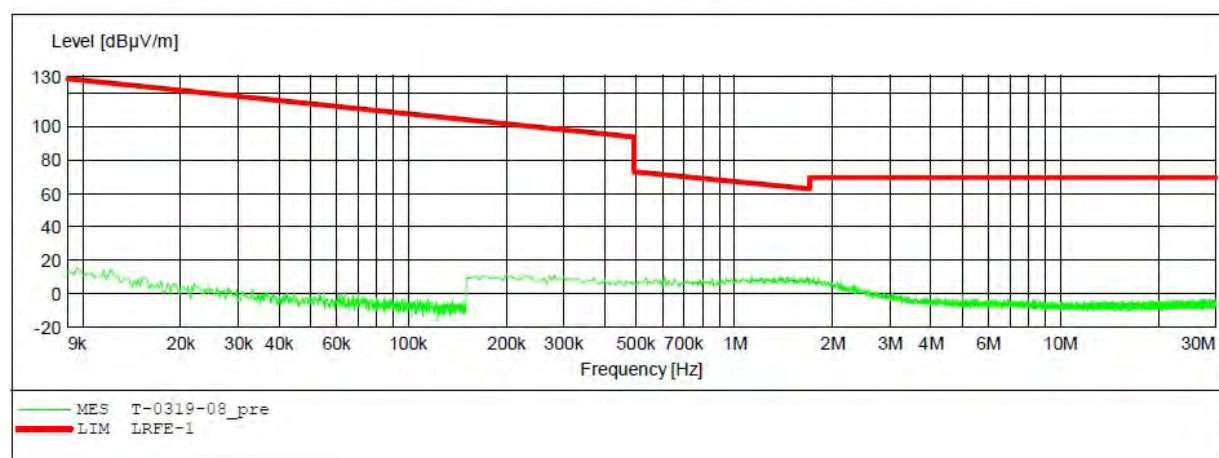
## ACCURATE TECHNOLOGY CO.,LTD

### 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: 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



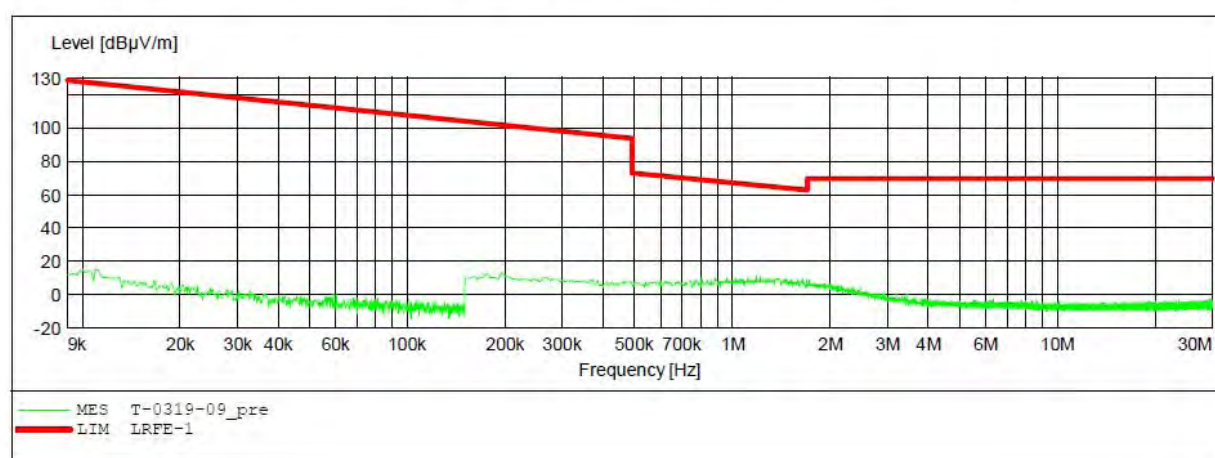
## ACCURATE TECHNOLOGY CO.,LTD

### FCC Part 15C 3M Radiated

EUT: Smart Helmet M/N:SP-106  
 Manufacturer: SPEQ GmbH  
 Operating Condition: TX 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

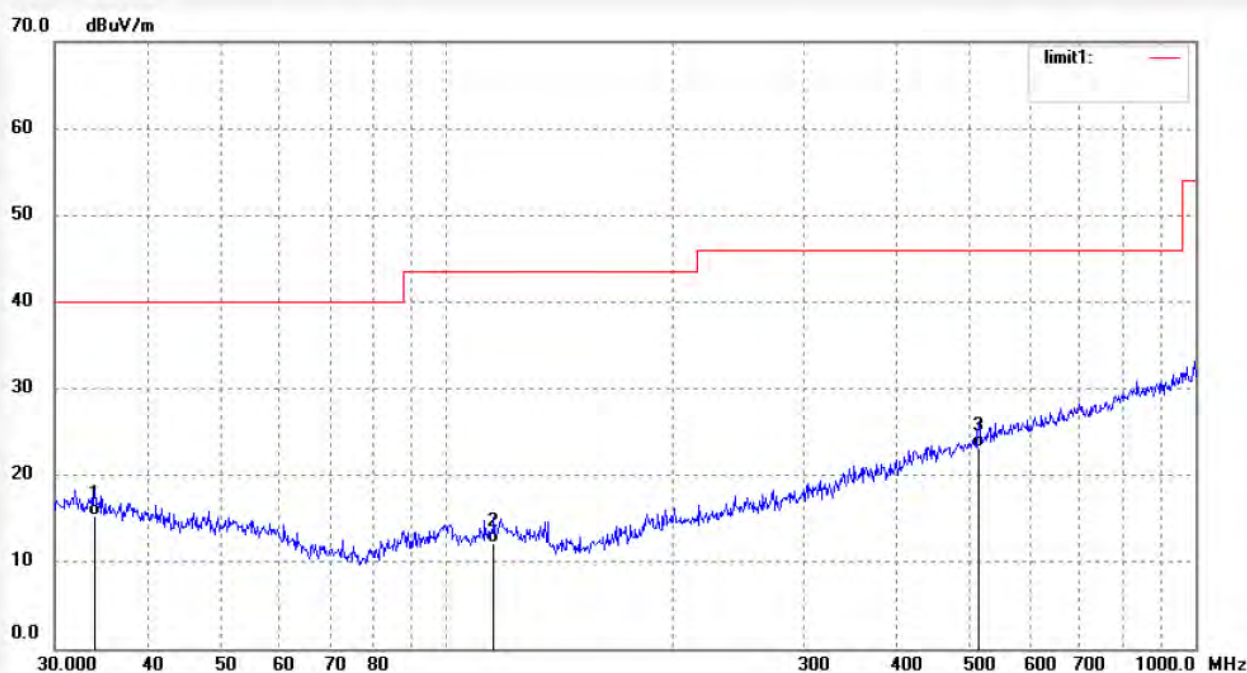
Tel:+86-0755-26503290

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

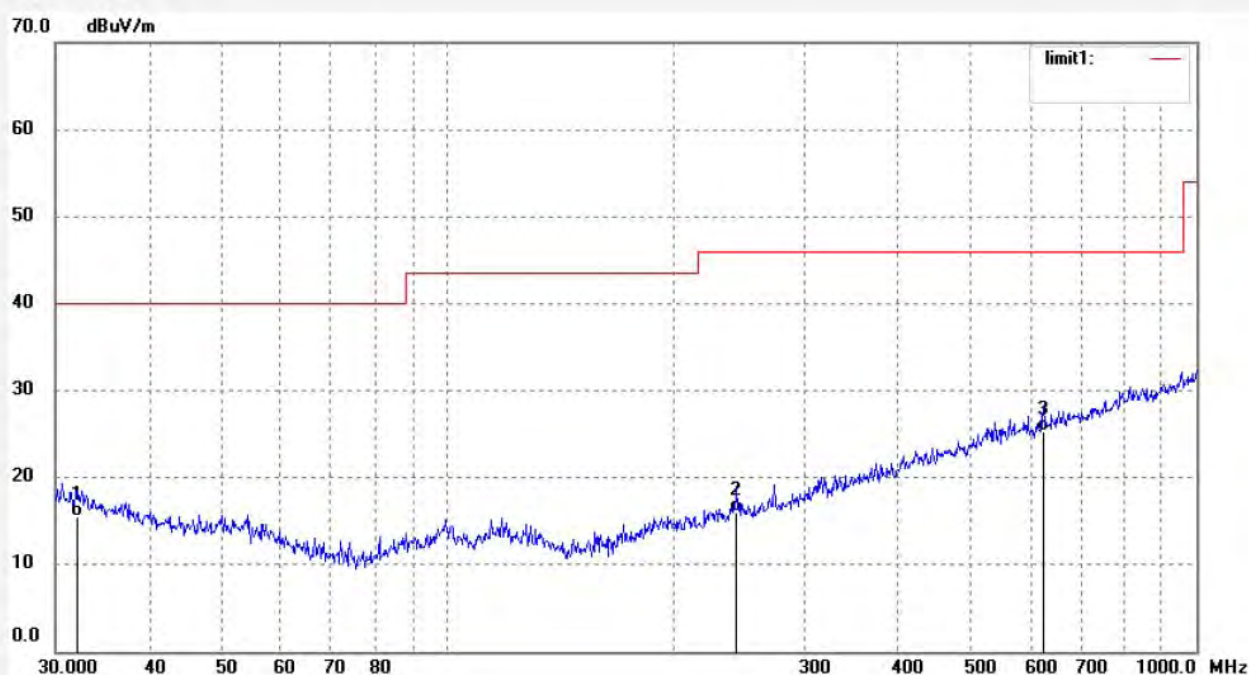
Date: 19/03/18/

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			

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

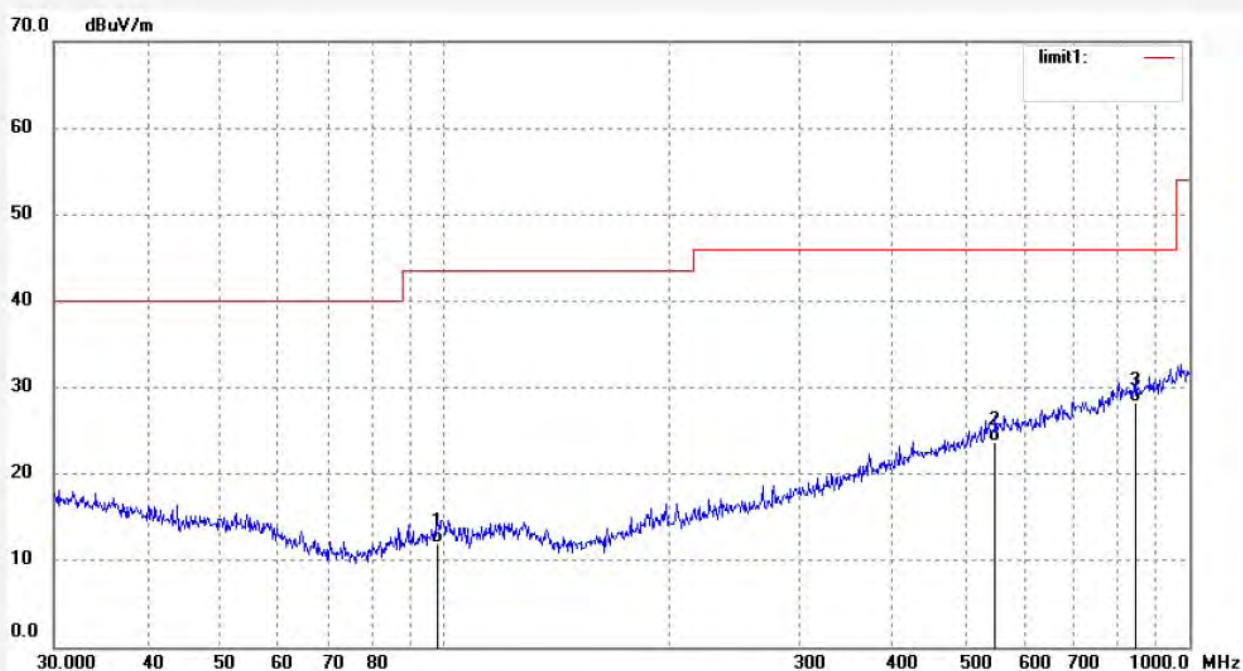
Date: 19/03/18/

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

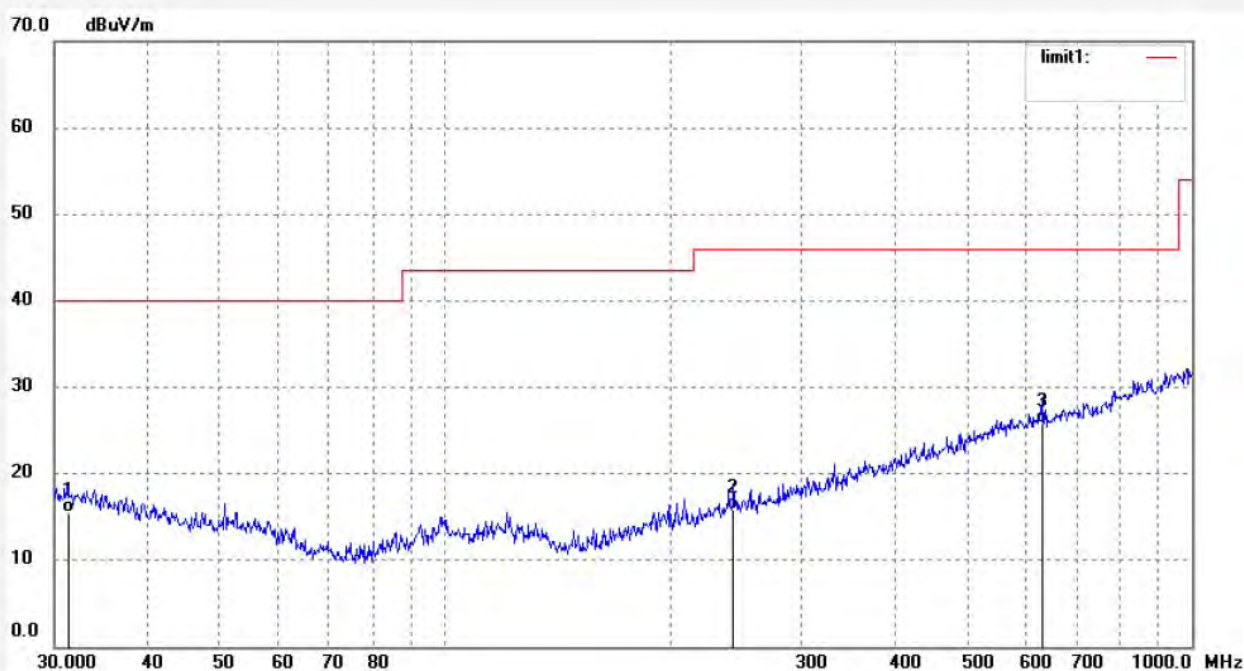
Date: 19/03/18/

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

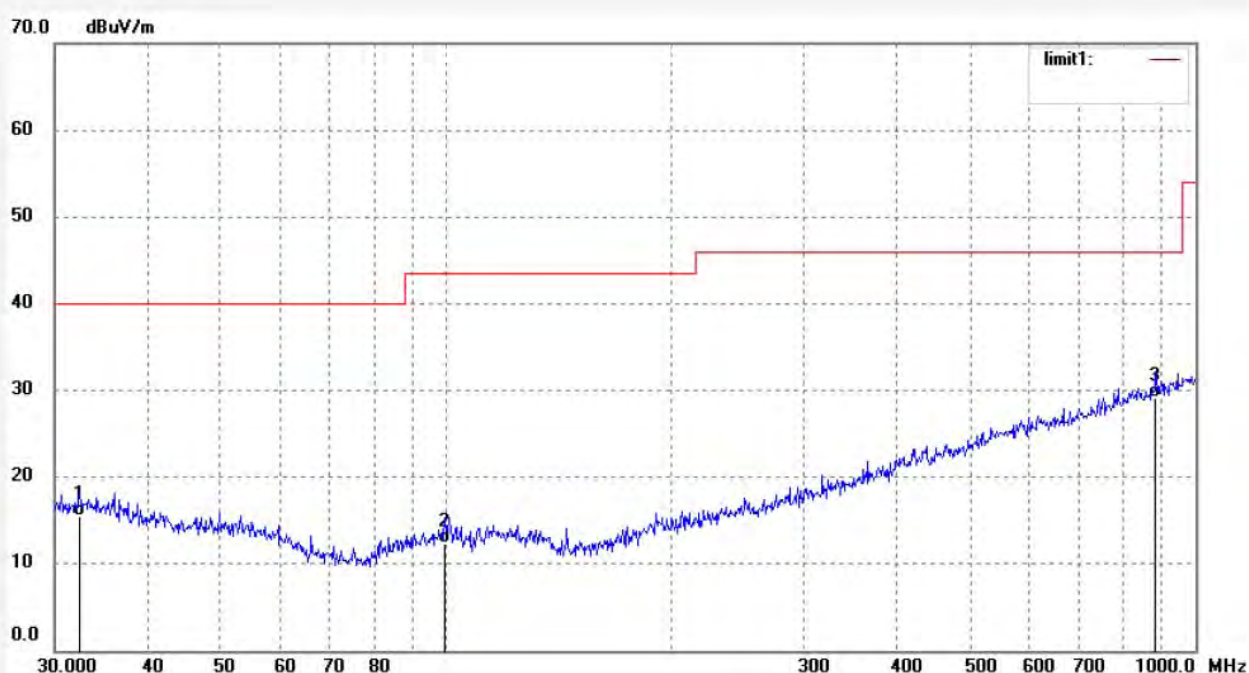
Date: 19/03/18/

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			





## 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 #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

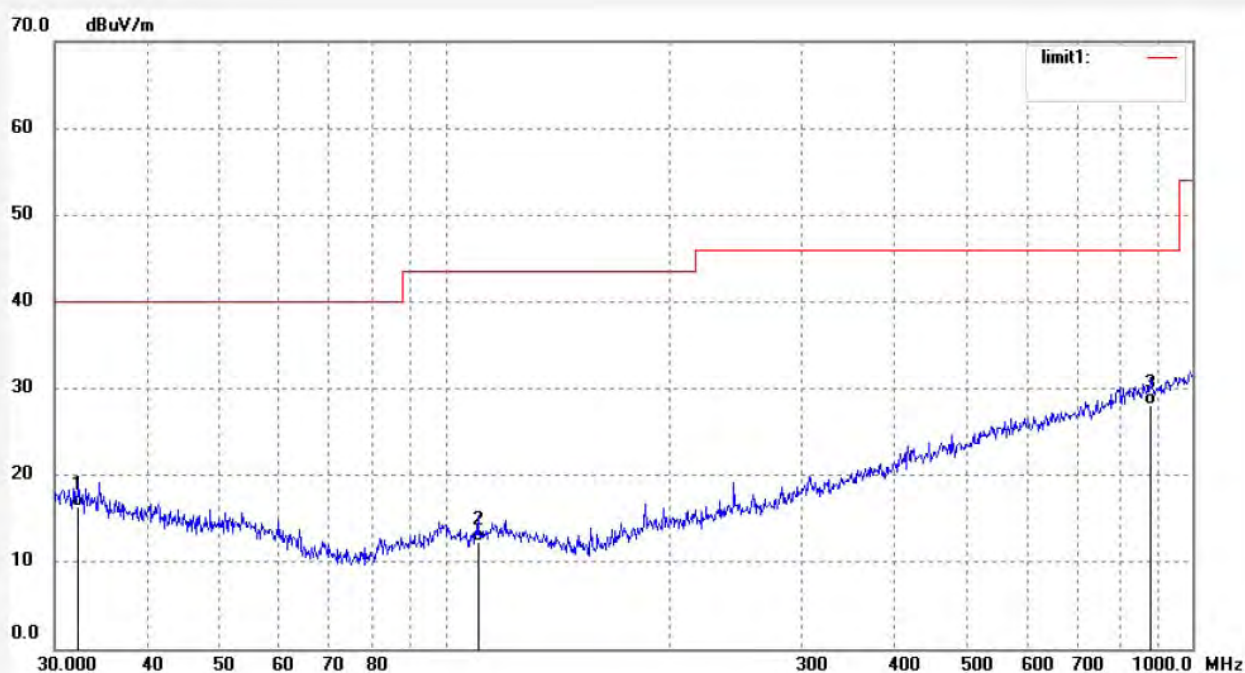
Date: 19/03/18/

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			



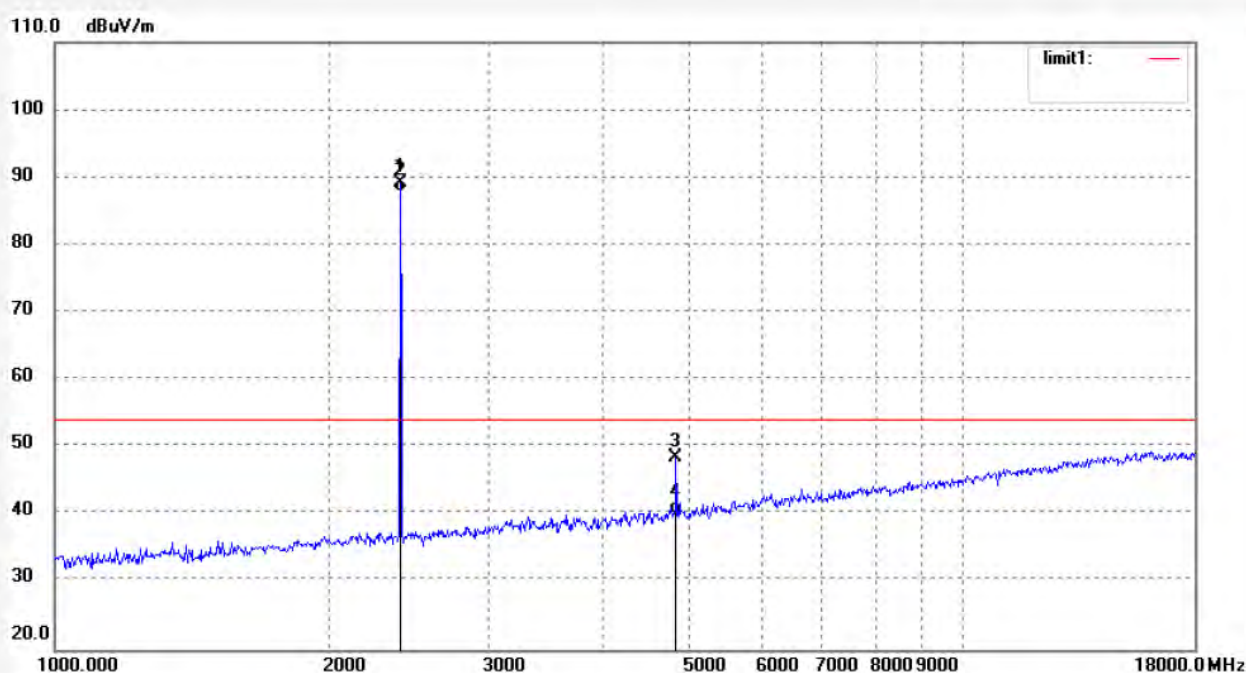
**1GHz to 18GHz Test data**  
**ACCURATE TECHNOLOGY CO., LTD.**  
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: LGW2019 #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			





## 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 #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

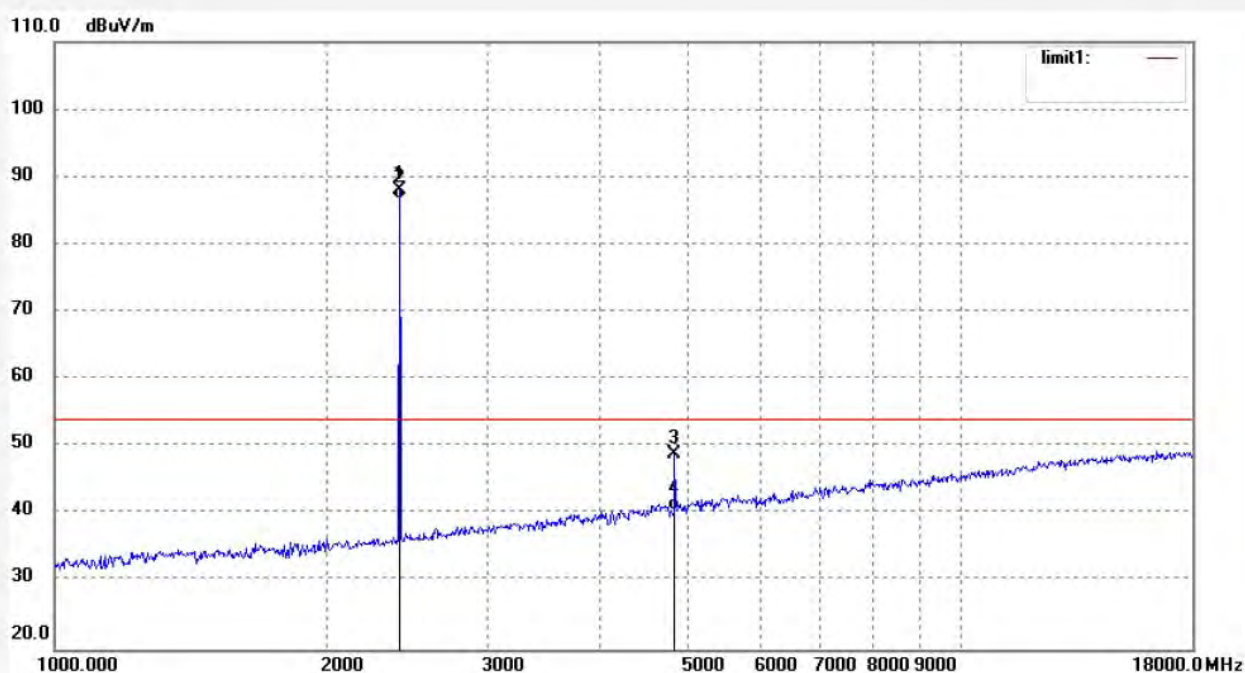
Date: 19/03/18/

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			



## 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 #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

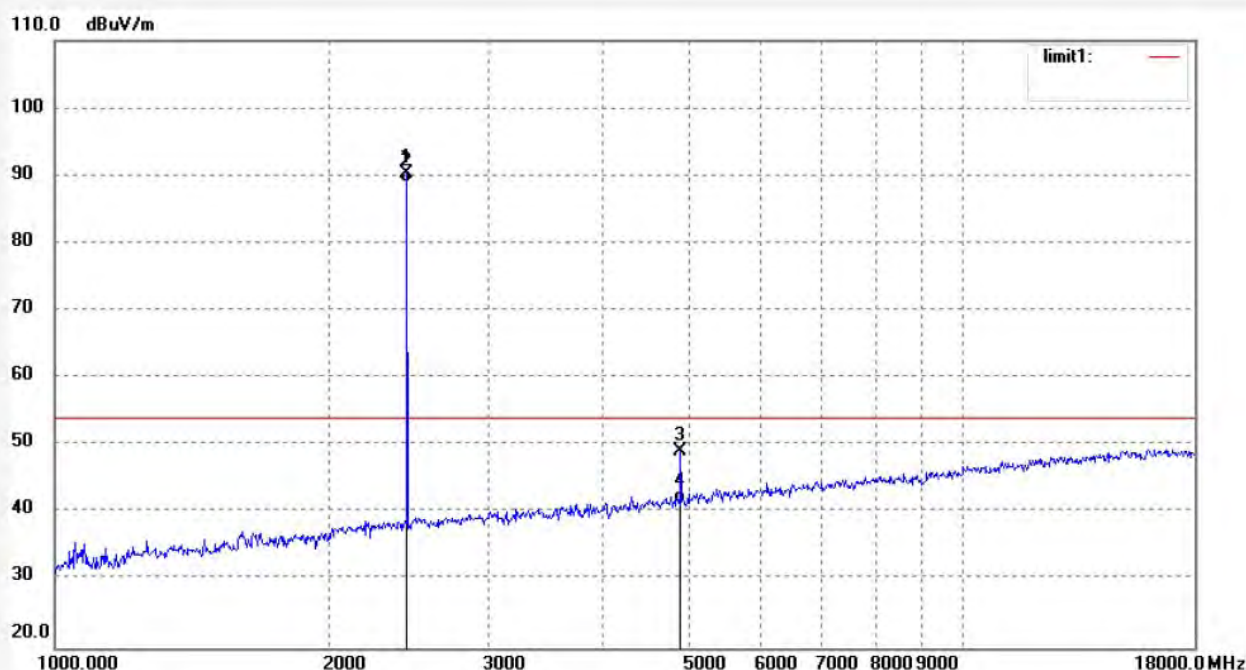
Date: 19/03/18/

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

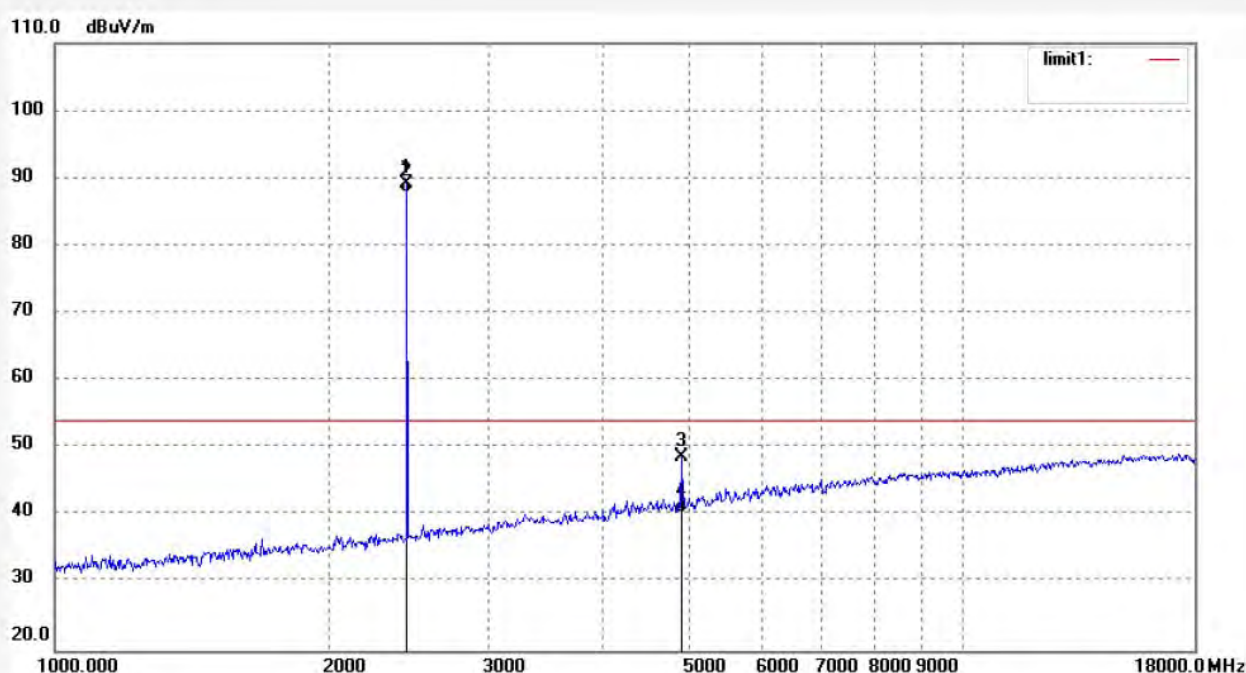
Date: 19/03/18/

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

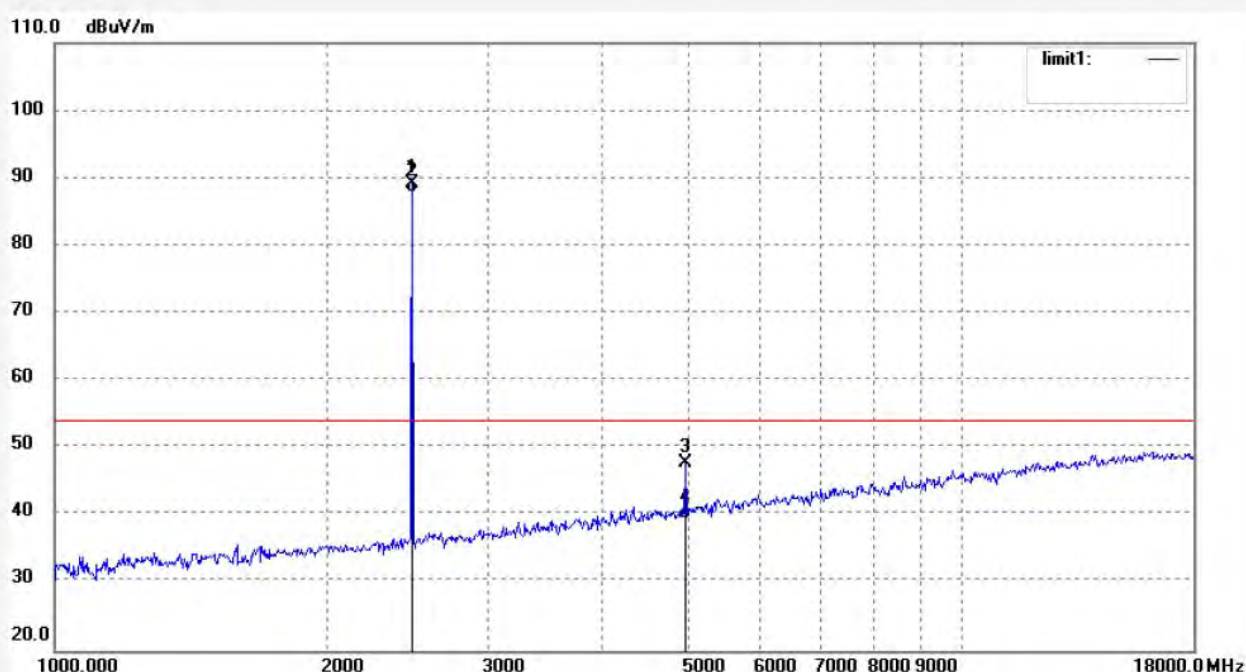
Date: 19/03/18/

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			



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

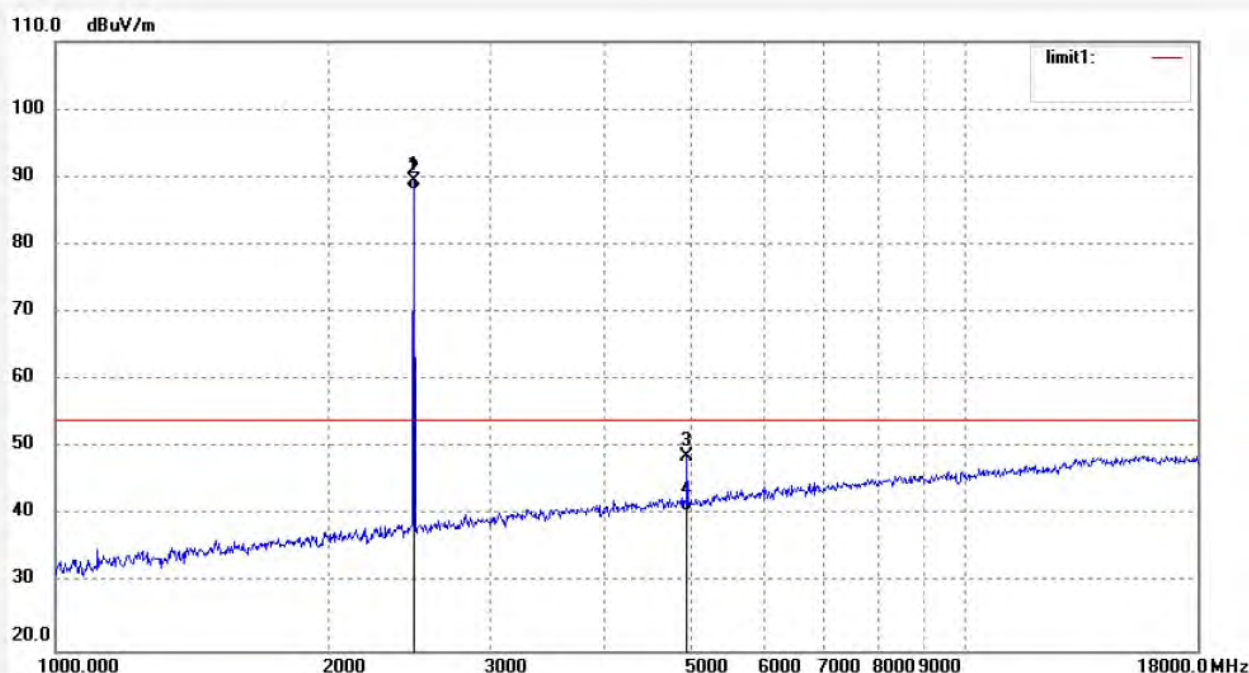
Date: 19/03/18/

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

### 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 #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

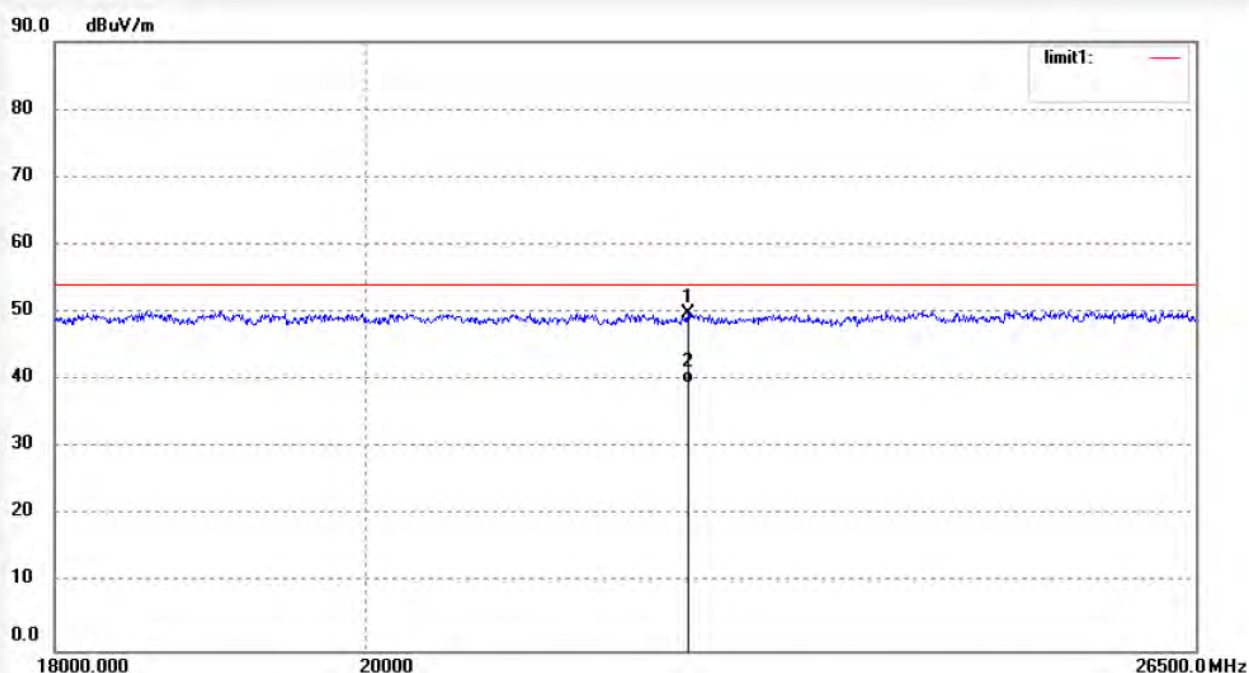
Date: 19/03/18/

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

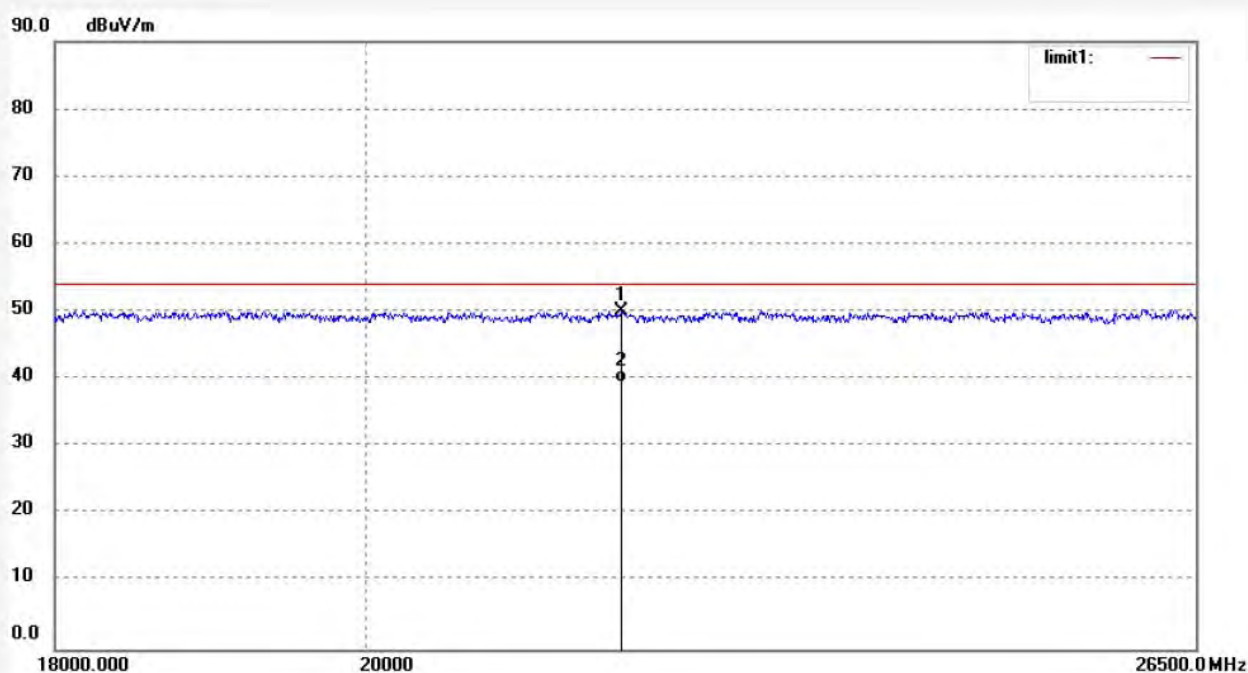
Date: 19/03/18/

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			





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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

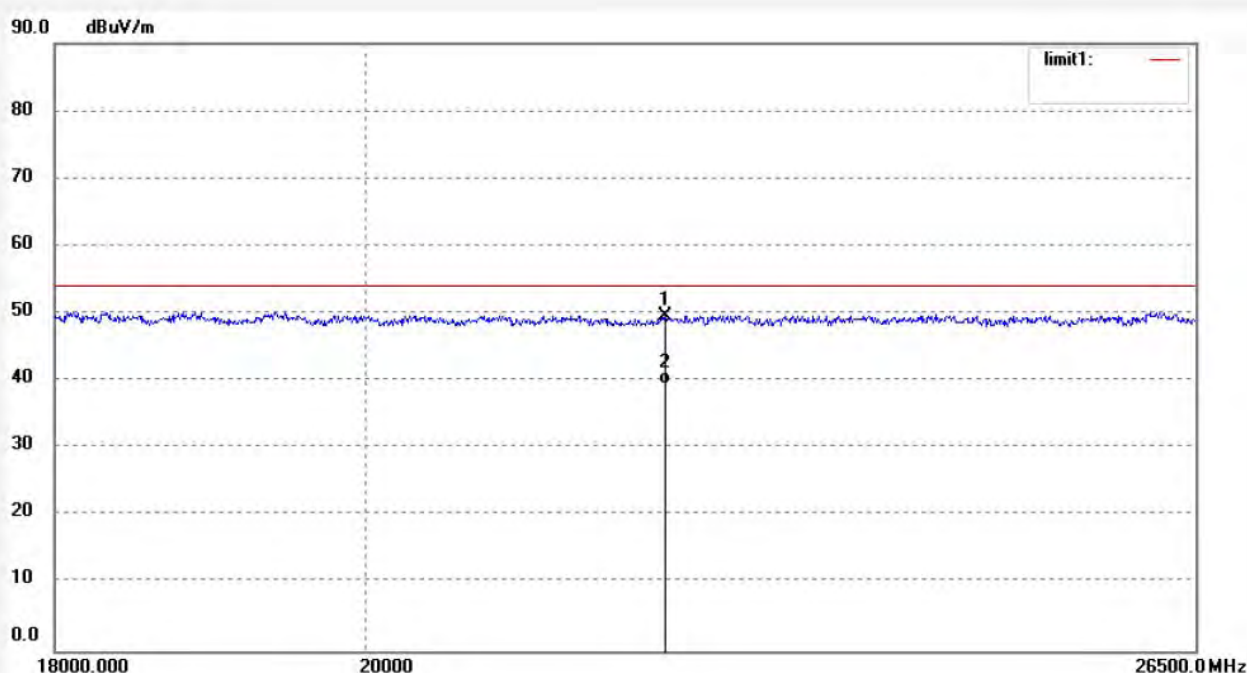
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Time:

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			



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

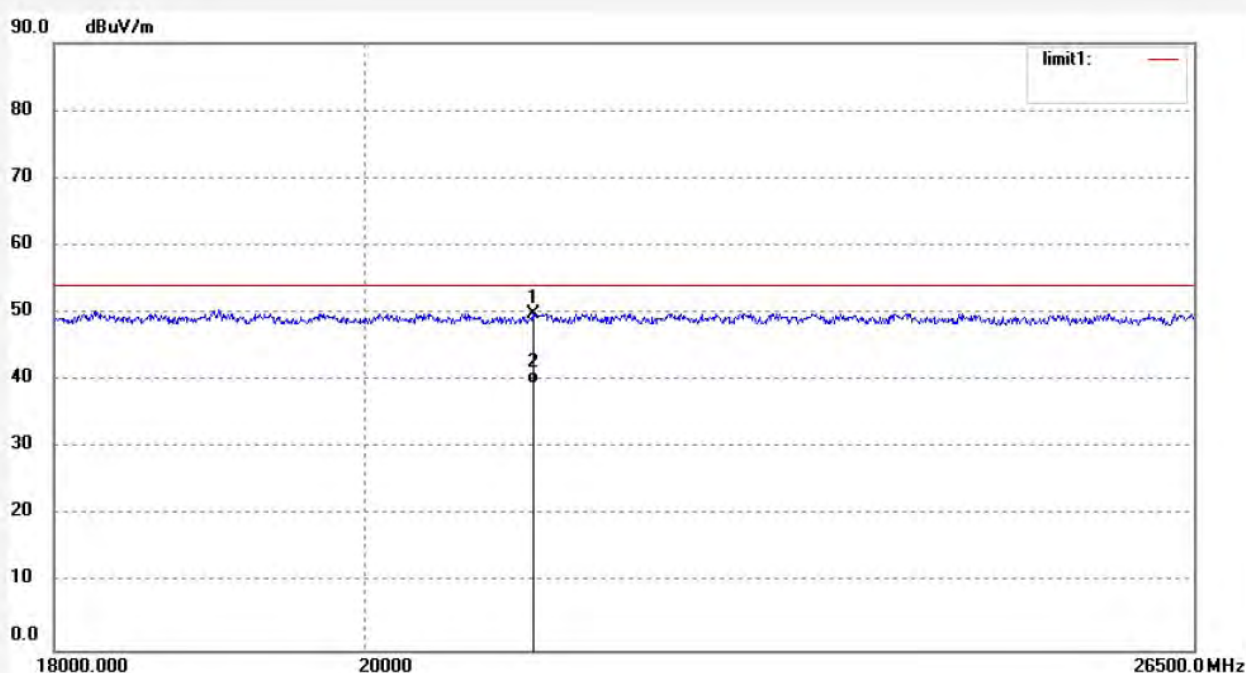
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Time:

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

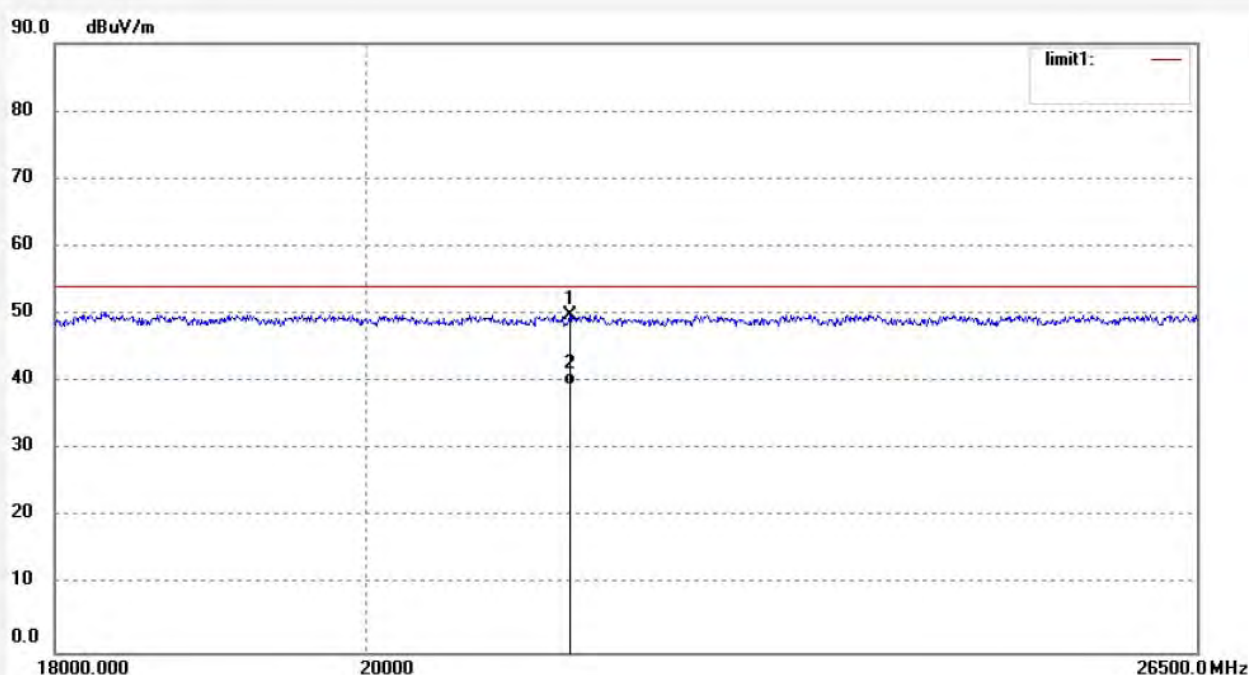
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Time:

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			



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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

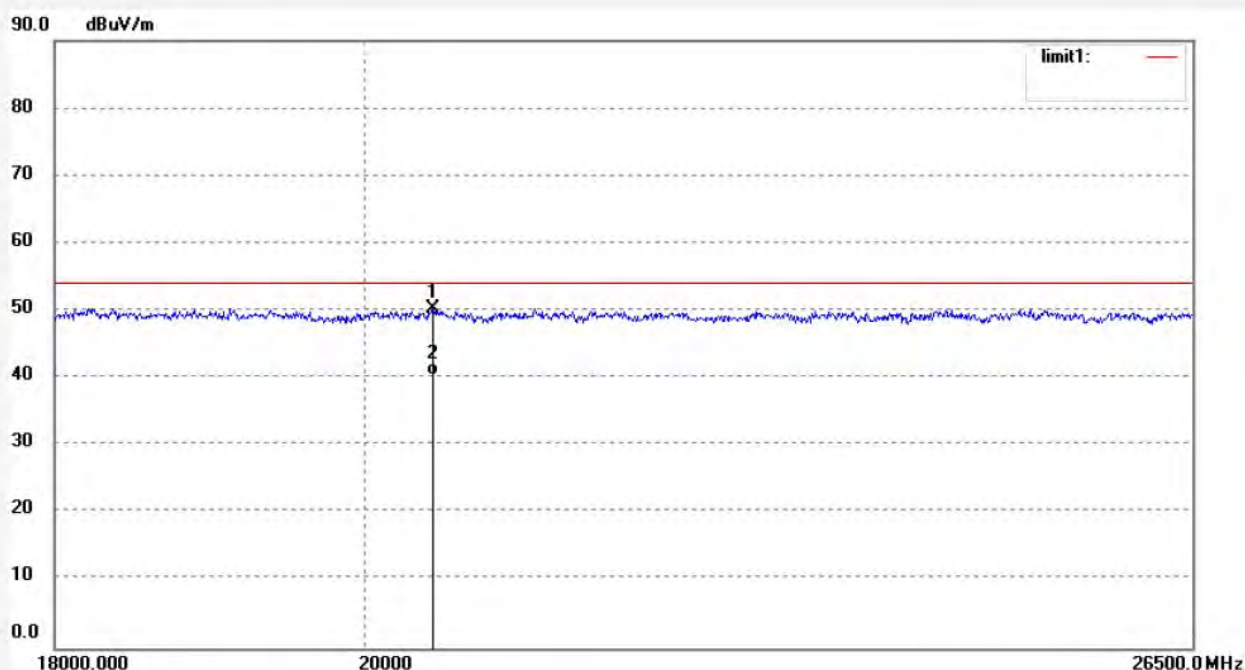
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Time:

Engineer Signature: WADE

Distance: 3m

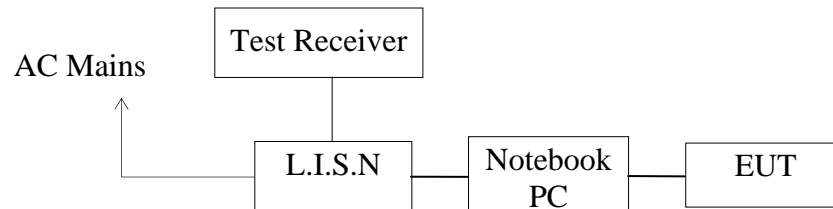
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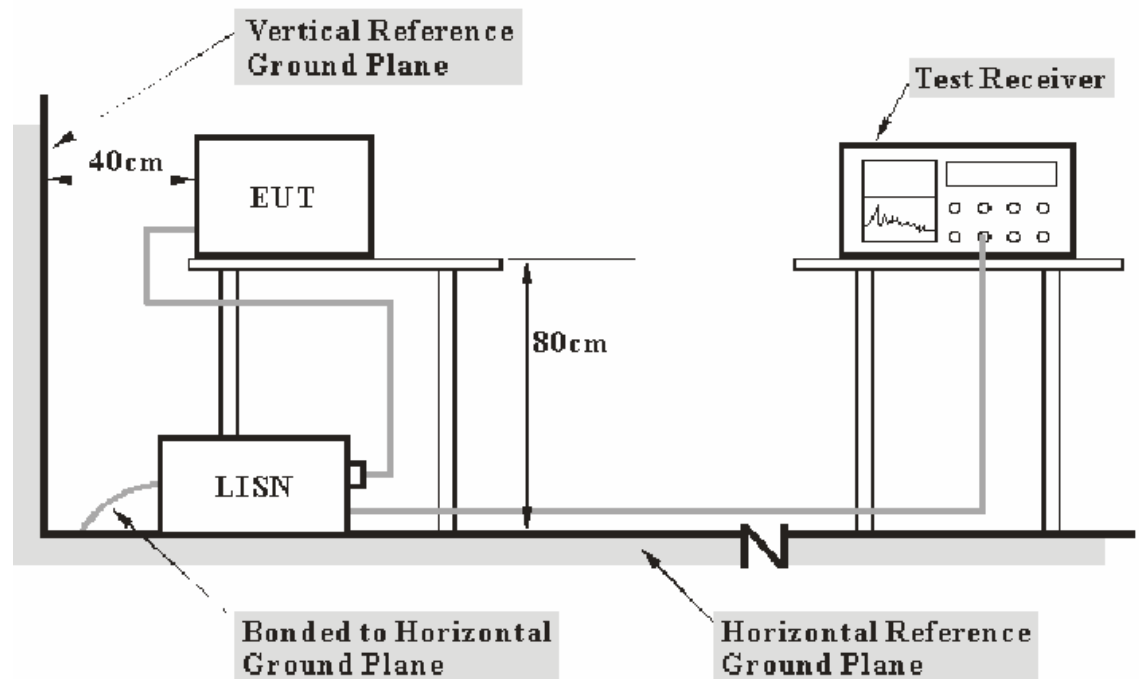
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	20466.315	11.95	38.31	50.26	74.00	-23.74	peak			
2	20466.315	2.06	38.31	40.37	54.00	-13.63	AVG			

## 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( $\mu$ V)	
	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.



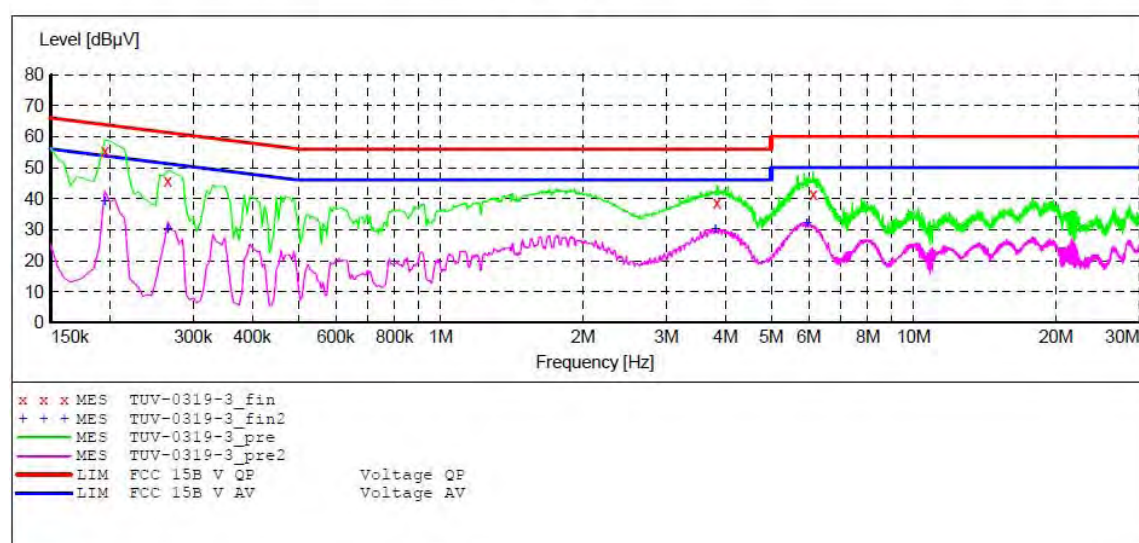
## ACCURATE TECHNOLOGY CO.,LTD

### 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"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008  
 Average  
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



### 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

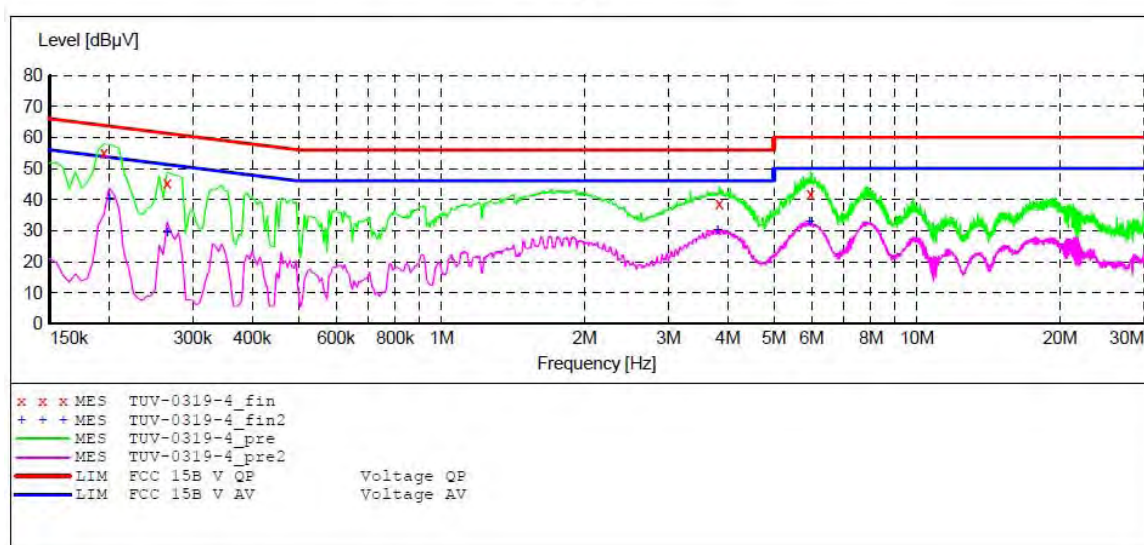
ACCURATE TECHNOLOGY CO.,LTD

## 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"

Short Description: SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008  
 Average  
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



### 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 \*\*\*\*\***