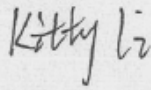
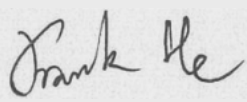
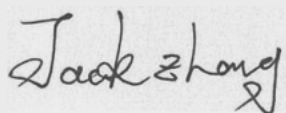




Test report No:  
20B0790R-RF-US-P06V01

## TEST REPORT

### FCC Rules&Regulations 47 CFR Chapter I - Part 15C

|                                             |                                                                                                                          |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Product Name                                | Smart Key                                                                                                                |
| Trademark                                   |                                        |
| Model and /or type reference                | BC30                                                                                                                     |
| FCC ID                                      | 2AYARBC30                                                                                                                |
| Applicant's name / address                  | Kostal (Shanghai) Management Co., Ltd.<br>Room 201-202 3# Building, 77 Yuan Gao Road, Jiading District<br>Shanghai China |
| Test method requested, standard             | FCC CFR Title 47 Part 15 Subpart C                                                                                       |
| Verdict Summary                             | IN COMPLIANCE                                                                                                            |
| Documented by (name / position & signature) | Kitty Li/Project Assistant<br>        |
| Reviewed by (name / position & signature)   | Frank He/ Technical Supervisor<br>    |
| Approved by (name / position & signature)   | Jack Zhang/ Supervisor<br>           |
| Date of issue                               | 2020-12-29                                                                                                               |
| Report template No                          | Template_FCC Part 15C-RF-V1.0                                                                                            |

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## COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

**IMPORTANT:** No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

## GENERAL CONDITIONS

|                      |                                                                        |
|----------------------|------------------------------------------------------------------------|
| Test Location        | No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China |
| Date(receive sample) | Nov. 23, 2020                                                          |
| Date (start test)    | Nov. 23, 2020                                                          |
| Date (finish test)   | Dec. 16, 2020                                                          |

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

## ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

|                       |               |
|-----------------------|---------------|
| Ambient temperature   | 15 °C – 35 °C |
| Relative Humidity air | 30% - 60%     |

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

## POSSIBLE TEST CASE VERDICTS

|                                         |                 |
|-----------------------------------------|-----------------|
| Test case does not apply to test object | N/A             |
| Test object does meet requirement       | P (Pass) / PASS |
| Test object does not meet requirement   | F (Fail) / FAIL |
| Not measured                            | N/M             |

## ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

|       |                               |
|-------|-------------------------------|
| EUT   | : Equipment Under Test        |
| QP    | : Quasi-Peak                  |
| CAV   | : CISPR Average               |
| AV    | : Average                     |
| CDN   | : Coupling Decoupling Network |
| SAC   | : Semi-Anechoic Chamber       |
| OATS  | : Open Area Test Site         |
| BW    | : Bandwidth                   |
| AM    | : Amplitude Modulation        |
| PM    | : Pulse Modulation            |
| HCP   | : Horizontal Coupling Plane   |
| VCP   | : Vertical Coupling Plane     |
| $U_N$ | : Nominal voltage             |
| $T_x$ | : Transmitter                 |
| $R_x$ | : Receiver                    |
| N/A   | : Not Applicable              |
| N/M   | : Not Measured                |

## DOCUMENT HISTORY

| Report No.            | Version | Description                                                                                                                                                                                                 | Issued Date |
|-----------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 20B0790R-RF-US-P06V01 | V1.0    | Initial issue of report.                                                                                                                                                                                    | 2020-12-17  |
| 20B0790R-RF-US-P06V01 | V1.1    | Page 7: Remote equipment for AC-Line conducted emission;<br>Page 14: Update the description of testing process;<br>Page 22: Add chapter 4.2.4 EUT test Axis definition;<br>Chapter 4.2.5: Update test data. | 2020-12-29  |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |
|                       |         |                                                                                                                                                                                                             |             |

## REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
  - Chapter 1.1 General Description of the Item(s);
  - Chapter 1.2 Antenna information.

## USED EQUIPMENT

| Emission in non-restricted frequency bands / TR-8                                                                                        |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2020.08.15 | 2021.08.14    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2020.04.17 | 2021.04.16    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2020.08.15 | 2021.08.14    |
| Temperature/Humidity Meter                                                                                                               | Zhichen      | ZC1-2    | TR8-TH     | 2020.08.19 | 2021.08.18    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

| Radiated Emission(Below 1GHz) / AC-3                                                                                                     |              |              |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No.     | Serial No. | Cal. Date  | Cal. Due Date |
| EMI Test Receiver                                                                                                                        | R&S          | ESCI         | 100176     | 2020.08.15 | 2021.08.14    |
| Loop Antenna                                                                                                                             | R&S          | HFH2-Z2      | 833799/003 | 2020.02.17 | 2021.02.16    |
| Bilog Antenna                                                                                                                            | Teseq GmbH   | CBL6112D     | 27613      | 2020.08.19 | 2021.08.18    |
| Coaxial Cable                                                                                                                            | Huber+Suhner | SUCOFLEX 106 | AC3-C      | 2020.04.13 | 2021.04.12    |
| Temperature/Humidity Meter                                                                                                               | RTS          | RTS-8S       | AC3-TH     | 2020.08.19 | 2021.08.18    |
| Quietek EMI V3(test software)                                                                                                            | Quietek      | N/A          | N/A        | N/A        | N/A           |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |              |            |            |               |

| Radiated Emission / AC5(1GHz-40GHz)(Chamber details) |              |              |            |            |                |
|------------------------------------------------------|--------------|--------------|------------|------------|----------------|
| Instrument                                           | Manufacturer | Model No.    | Serial No. | Cal. Date  | Next Cal. Date |
| EMI Receiver                                         | Agilent      | N9038A       | MY51210196 | 2020.04.18 | 2021.04.17     |
| DRG Horn                                             | ETS-Lindgren | 3117         | 00123988   | 2020.09.21 | 2021.09.20     |
| Broad-Band Horn Antenna                              | Schwarzbeck  | BBHA9170D    | 750        | 2019.01.05 | 2021.01.04     |
| Pre-Amplifier                                        | Schwarzbeck  | BBV 9721     | 9721-024   | 2019.07.17 | 2021.07.16     |
| Temperature/Humidity Meter                           | RTS          | RTS-8S       | AC5-TH     | 2020.08.13 | 2021.08.12     |
| Coaxial Cable                                        | Huber+Suhner | SUCOFLEX 106 | AC5-C2     | 2020.04.05 | 2021.04.04     |
| DEKRA test software                                  | N/A          | N/A          | N/A        | N/A        | N/A            |

## UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%. The Uncertainties is comply with standard required as below.

| Test item                        | Uncertainty   |
|----------------------------------|---------------|
| AC Power Line Conducted Emission | $\pm 2.02$ dB |
| Peak Power Output                | $\pm 1.27$ dB |
| Radiated Emission(30MHz~1GHz)    | $\pm 3.80$ dB |
| RF antenna conducted test        | $\pm 1.27$ dB |
| DTS Bandwidth                    | $\pm 1$ kHz   |
| Occupied Bandwidth               | $\pm 1$ kHz   |
| Power Density                    | $\pm 1.27$ dB |
| Frequency Stability              | $\pm 100$ Hz  |

## 1 GENERAL INFORMATION

### 1.1 General Description of the Item(s)

|                            |                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------|
| Product Name .....         | Smart Key                                                                                        |
| Model No.....              | BC30                                                                                             |
| Trademark.....             | <b>KOSTAL</b>  |
| FCC ID .....               | 2AYARBC30                                                                                        |
| Manufacturer.....          | Kostal (Shanghai) Management Co., Ltd.                                                           |
| Manufacturer Address ..... | Room 201-202 3# Building, 77 Yuan Gao Road, Jiading District<br>Shanghai China                   |

|                              |            |
|------------------------------|------------|
| Wireless specification ..... | N/A        |
| Operating frequency(s) ..... | 433.92 MHz |
| Type of modulation .....     | ASK        |
| Number of channel .....      | 1          |

|                          |                                     |                                |
|--------------------------|-------------------------------------|--------------------------------|
| Rated power supply ..... | Voltage and Frequency               |                                |
|                          | <input type="checkbox"/>            | AC: 220 – 240 V, 50/60 Hz      |
|                          | <input type="checkbox"/>            | AC: 100 – 240 V, 50/60 Hz      |
|                          | <input type="checkbox"/>            | DC: 12 V                       |
|                          | <input checked="" type="checkbox"/> | Battery: 3V                    |
| Mounting position.....   | <input type="checkbox"/>            | Table top equipment            |
|                          | <input type="checkbox"/>            | Wall/Ceiling mounted equipment |
|                          | <input type="checkbox"/>            | Floor standing equipment       |
|                          | <input checked="" type="checkbox"/> | Hand-held equipment            |
|                          | <input type="checkbox"/>            | Other: .....                   |

## 1.2 Antenna Information

|                                   |                                     |              |                                         |
|-----------------------------------|-------------------------------------|--------------|-----------------------------------------|
| Antenna model / type number ..... | N/A                                 |              |                                         |
| Antenna serial number.....        | N/A                                 |              |                                         |
| Antenna Delivery .....            | <input checked="" type="checkbox"/> | 1TX + 1RX    |                                         |
|                                   | <input type="checkbox"/>            | 2TX + 2RX    |                                         |
|                                   | <input type="checkbox"/>            | Others:..... |                                         |
| Antenna technology .....          | <input checked="" type="checkbox"/> | SISO         |                                         |
|                                   | <input type="checkbox"/>            | MIMO         | <input type="checkbox"/> CDD            |
|                                   |                                     |              | <input type="checkbox"/> Beam-forming   |
| Antenna Type .....                | <input type="checkbox"/>            | External     | <input type="checkbox"/> Dipole         |
|                                   |                                     |              | <input type="checkbox"/> Sectorized     |
|                                   | <input checked="" type="checkbox"/> | Internal     | <input type="checkbox"/> Monopole       |
|                                   |                                     |              | <input checked="" type="checkbox"/> PCB |
|                                   |                                     |              | <input type="checkbox"/> Metal          |
|                                   |                                     |              | <input type="checkbox"/> PIFA           |
|                                   |                                     |              | <input type="checkbox"/> Others:.....   |
| Antenna Gain .....                | N/A                                 |              |                                         |

Note: The General Description of the Item and antenna information in clause 1 are provided and confirmed by the client.

## 2 DESCRIPTION OF TEST SETUP

### 2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

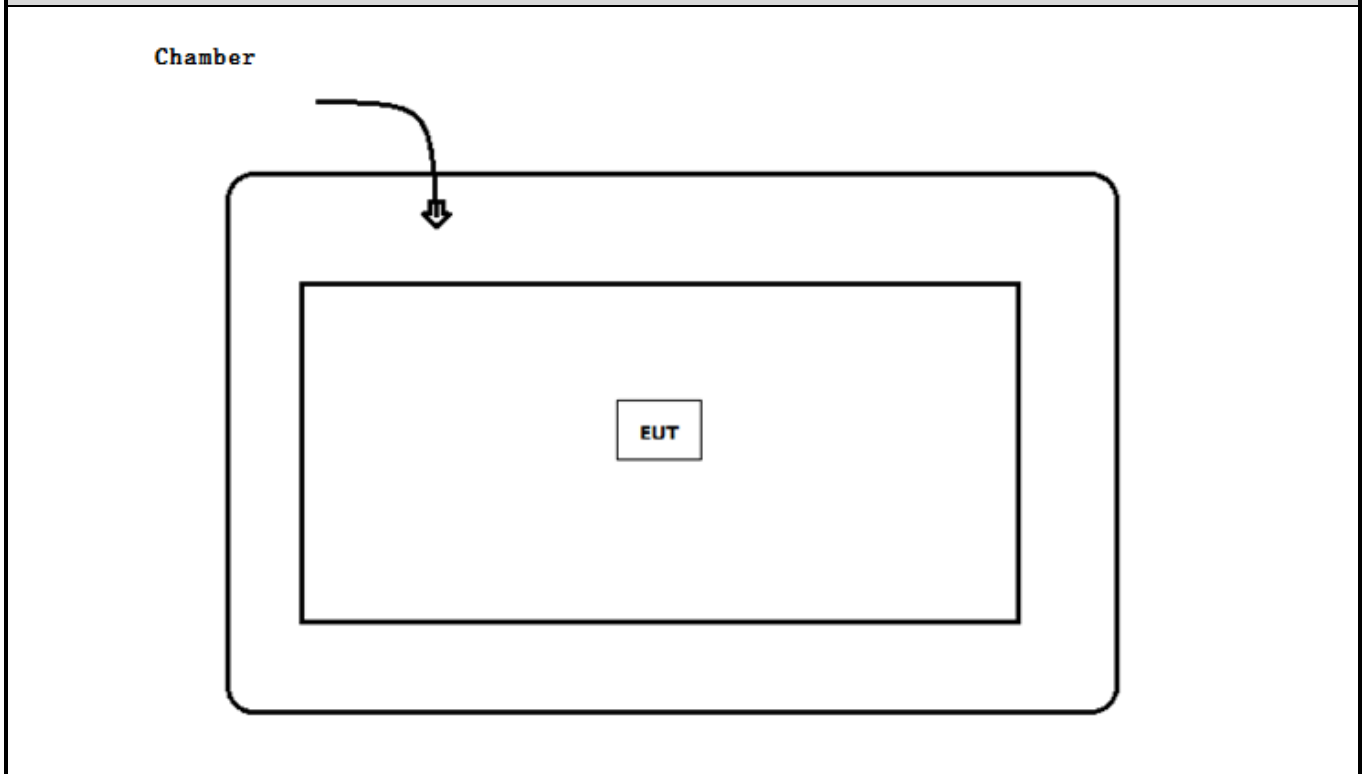
|           |                  |
|-----------|------------------|
| Test Mode | Mode 1: Transmit |
|-----------|------------------|

### 2.2 Support / Auxiliary equipment / unit / Test software for the EUT

|                     |                |              |             |
|---------------------|----------------|--------------|-------------|
| Auxiliary equipment | Type / Version | Manufacturer | Supplied by |
| N/A                 | N/A            | N/A          | N/A         |
| software            | Type / Version | Manufacturer | Supplied by |
| N/A                 | N/A            | N/A          | N/A         |

## 2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- Radiated Emission



## 2.4 Testing process

|   |                                                                                                                |
|---|----------------------------------------------------------------------------------------------------------------|
| 1 | Setup the EUT as shown in Section 2.3.                                                                         |
| 2 | Press the  button on the EUT. |
| 3 | Verify that the EUT works properly.                                                                            |

### 3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

#### 3.1 Standards

| Standard                           | Year | Description           |
|------------------------------------|------|-----------------------|
| FCC CFR Title 47 Part 15 Subpart C | 2020 | Intentional Radiators |
|                                    |      |                       |

#### 3.2 Overview of results

| Requirement – Test case           | Basic standard(s)                                       | Verdict | Remark |
|-----------------------------------|---------------------------------------------------------|---------|--------|
| Conducted Emission                | FCC CFR Title 47 Part 15 Subpart C<br>Section 15.207    | N/A     | ---    |
| Field Strength of Spurious        | FCC CFR Title 47 Part 15 Subpart C<br>Section 15.209    | PASS    | ---    |
| Channel Bandwidth                 | FCC CFR Title 47 Part 15 Subpart C<br>Section 15.231(c) | PASS    | ---    |
| Antenna Requirement               | FCC CFR Title 47 Part 15 Subpart C<br>Section 15.203    | PASS    | ---    |
| <u>Supplementary information:</u> |                                                         |         |        |

### 3.3 Test Facility

|        |   |                                |
|--------|---|--------------------------------|
| USA    | : | FCC Designation Number: CN1199 |
| Canada | : | CAB identifier Number: CN0040  |

## 4 TEST RESULTS

|                                             |                     |
|---------------------------------------------|---------------------|
| <b>4.1 AC Power Line Conducted Emission</b> | <b>VERDICT: N/A</b> |
|---------------------------------------------|---------------------|

### 4.1.1 Limit

| Standard              | FCC Part 15 Subpart E Paragraph 15.207 |                                   |
|-----------------------|----------------------------------------|-----------------------------------|
| Frequency range [MHz] | Limit: QP [dB(μV) <sup>1)</sup> ]      | Limit: AV [dB(μV) <sup>1)</sup> ] |
| 0,15 - 0,50           | 66 - 56 <sup>2)</sup>                  | 56 - 46 <sup>2)</sup>             |
| 0,50 - 5,0            | 56                                     | 46                                |
| 5,0 - 30              | 60                                     | 50                                |

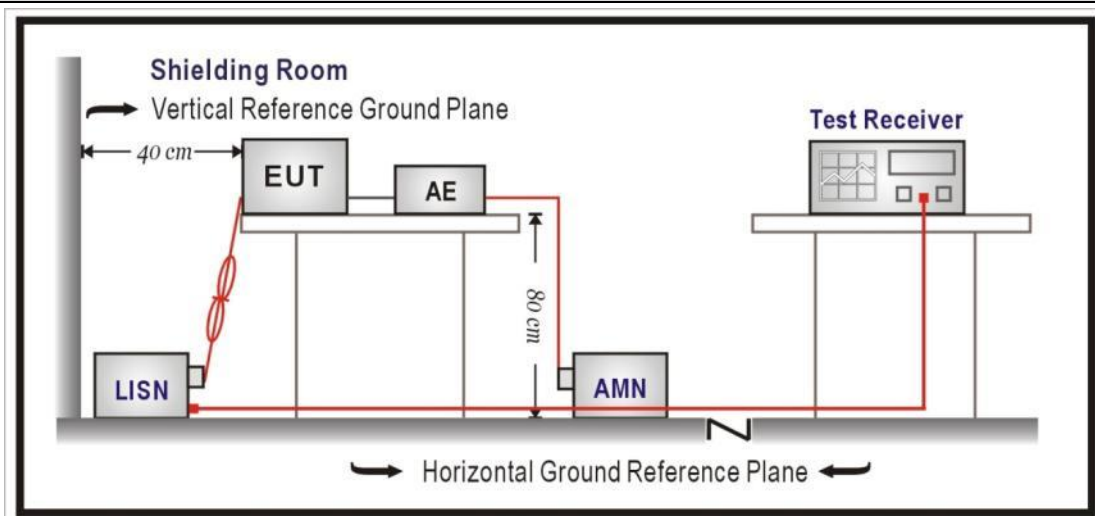
<sup>1)</sup> At the transition frequency, the lower limit applies.

<sup>2)</sup> The limit decreases linearly with the logarithm of the frequency.

**NOTE 1:** The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.

**NOTE 2:** Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

### 4.1.2 Test Setup



### 4.1.3 Test Procedure

|                                     | References Rule  | Chapter | Item                                                                                        |
|-------------------------------------|------------------|---------|---------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | ANSI C63.10-2013 | 6.2     | Standard test method for ac power-line conducted emissions from unlicensed wireless devices |

#### 4.1.4 Test Data

N/A: The sample is supply by DC .

**4.2 Radiated Emissions****VERDICT: PASS****4.2.1 Limit****Standard**

FCC Part 15 Subpart C Paragraph 15. 209

## Restricted Band Emissions Limit

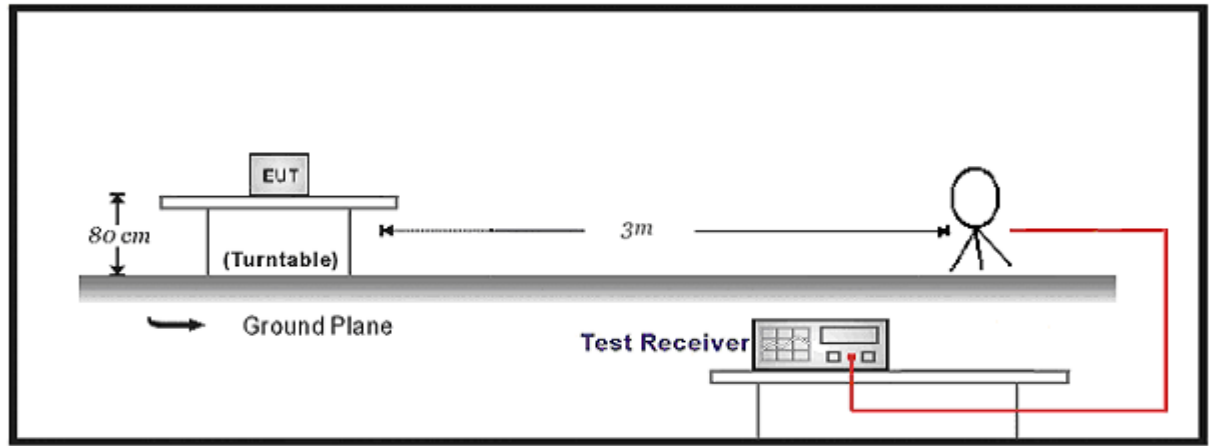
| Frequency (MHz) | Field strength (μV/m) | Field strength (dBμV/m) | Measurement distance (m) |
|-----------------|-----------------------|-------------------------|--------------------------|
| 0.009 - 0.49    | 2400/F(kHz)           | 48.5 – 13.8             | 300 <sub>(Note 1)</sub>  |
| 0.49 - 1.705    | 24000/F(kHz)          | 33.8 - 23               | 30 <sub>(Note 1)</sub>   |
| 1.705 - 30      | 30                    | 29.5                    | 30 <sub>(Note 1)</sub>   |
| 30 - 88         | 100                   | 40                      | 3 <sub>(Note 2)</sub>    |
| 88 - 216        | 150                   | 43.5                    | 3 <sub>(Note 2)</sub>    |
| 216 - 960       | 200                   | 46                      | 3 <sub>(Note 2)</sub>    |
| Above 960       | 500                   | 54                      | 3 <sub>(Note 2)</sub>    |

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

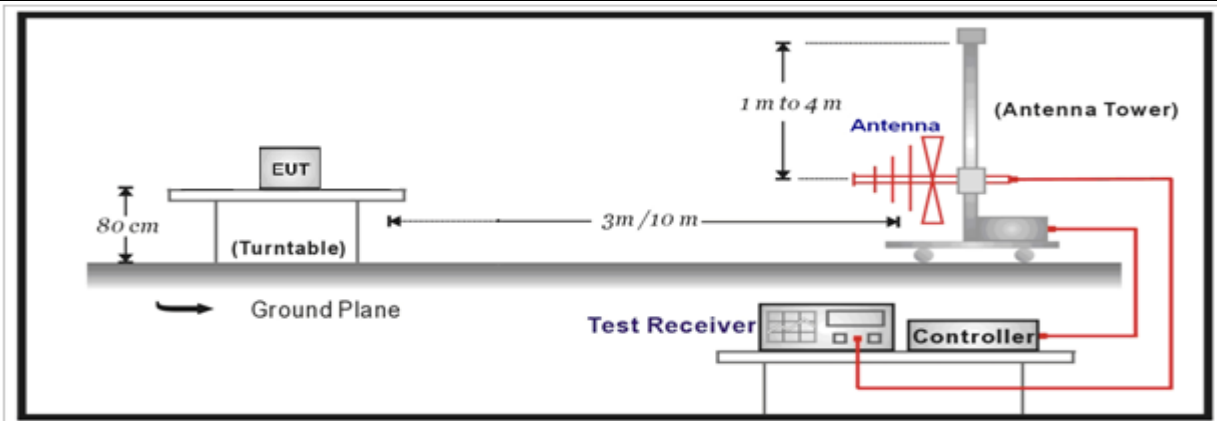
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

## 4.2.2 Test Setup

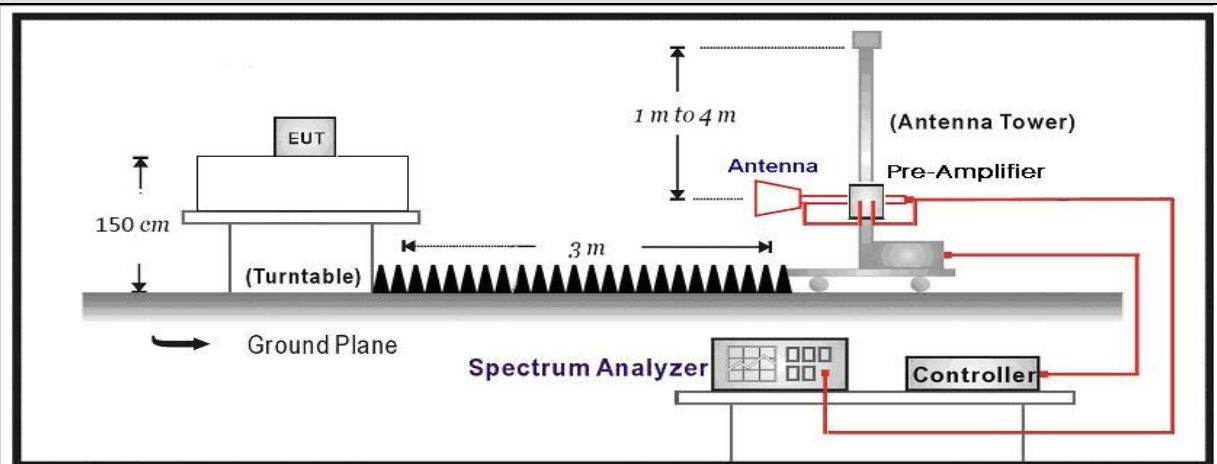
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



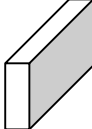
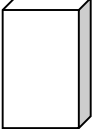
Above 1GHz Test Setup:



#### 4.2.3 Test Procedure

|                                     | References Rule | Chapter | Description                                                                                      |
|-------------------------------------|-----------------|---------|--------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.4     | Radiated emissions from unlicensed wireless devices below 30 MHz                                 |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.5     | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.6     | Radiated emissions from unlicensed wireless devices above 1 GHz                                  |

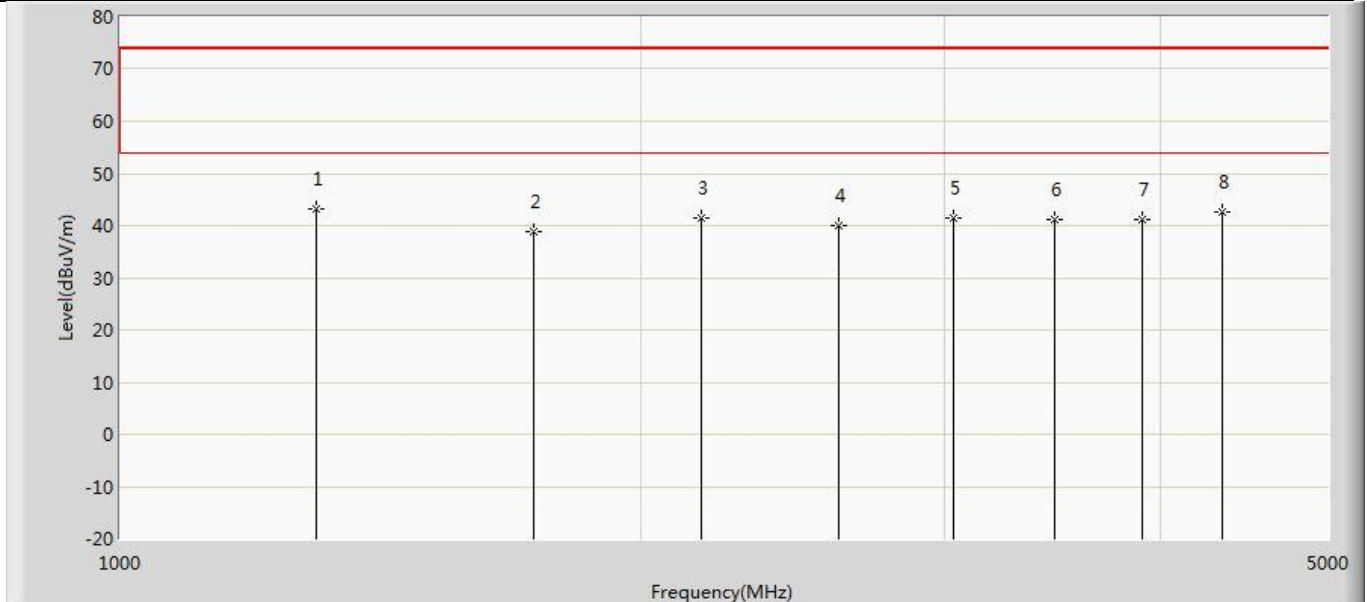
## 4.2.4 EUT test Axis definition

| Item            | Emissions in restricted frequency bands                                              |                                                                                      |                                                                                     |                                                                                     |
|-----------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Device Category | <input type="checkbox"/>                                                             | Fixed point-to-point                                                                 |                                                                                     |                                                                                     |
|                 | <input type="checkbox"/>                                                             | Emit multiple directional beams, simultaneously or sequentially                      |                                                                                     |                                                                                     |
|                 | <input checked="" type="checkbox"/>                                                  | Other cases                                                                          |                                                                                     |                                                                                     |
| Test mode       | Mode 1                                                                               |                                                                                      |                                                                                     |                                                                                     |
| Test method     | <input checked="" type="checkbox"/>                                                  | Radiated                                                                             |                                                                                     |                                                                                     |
|                 |                                                                                      | X Axis                                                                               | Y Axis                                                                              | Z Axis                                                                              |
|                 |                                                                                      |     |  |  |
|                 |                                                                                      | Worst Axis <input checked="" type="checkbox"/>                                       | Worst Axis <input type="checkbox"/>                                                 | Worst Axis <input type="checkbox"/>                                                 |
|                 | <input type="checkbox"/>                                                             | Conducted                                                                            |                                                                                     |                                                                                     |
|                 | <input type="checkbox"/>                                                             | Chain 1                                                                              |                                                                                     |                                                                                     |
|                 |                                                                                      |  |                                                                                     |                                                                                     |
|                 | <input type="checkbox"/>                                                             | Chain 1                                                                              | Chain 2                                                                             |                                                                                     |
|                 |                                                                                      |  |                                                                                     |                                                                                     |
|                 | <input type="checkbox"/>                                                             | Chain 1                                                                              | Chain 2                                                                             | Chain 3                                                                             |
|                 |  |                                                                                      |                                                                                     |                                                                                     |

#### 4.2.5 Test Data

| Fundamental Frequency (MHz) | Field Strength of fundamental (dBuV/m) (Peak) | Field Strength of fundamental (dBuV/m) (AV) | Limit (dBuV/m) (Peak) | Limit (dBuV/m) (AV) | Result |
|-----------------------------|-----------------------------------------------|---------------------------------------------|-----------------------|---------------------|--------|
| 433.92                      | 86.565                                        | 79.318                                      | 100.08                | 80.08               | Pass   |

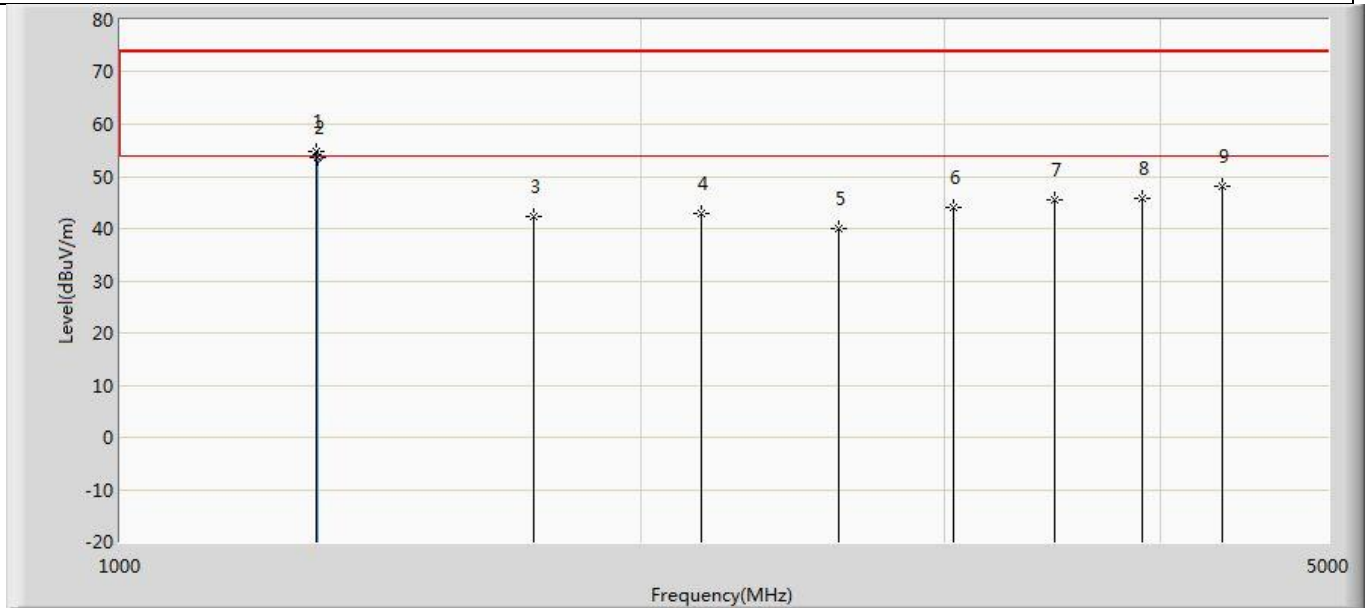
|                                    |                          |
|------------------------------------|--------------------------|
| Profile: 20B0790R                  | Page No.: 7              |
| Engineer: Pawn                     |                          |
| Site: AC5                          | Time: 2020/11/26 - 20:34 |
| Limit: FCC_Part15.209_RE(3m)       | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical       |
| EUT: Smart Key BC30                | Power: Battery           |
| Note: Mode 1: Transmit             |                          |



| N o | Mar k | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|-----|-------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1   | *     | 1300.000        | 43.106                 | 56.700               | -30.894         | 74.000         | -13.594     | PK   |
| 2   |       | 1735.680        | 38.762                 | 50.930               | -41.318         | 80.080         | -12.168     | PK   |
| 3   |       | 2169.600        | 41.369                 | 51.382               | -32.631         | 74.000         | -10.013     | PK   |
| 4   |       | 2603.520        | 39.984                 | 49.669               | -40.096         | 80.080         | -9.686      | PK   |
| 5   |       | 3037.440        | 41.581                 | 50.595               | -38.499         | 80.080         | -9.014      | PK   |
| 6   |       | 3471.360        | 41.041                 | 48.139               | -39.039         | 80.080         | -7.098      | PK   |
| 7   |       | 3905.280        | 41.112                 | 47.523               | -32.888         | 74.000         | -6.410      | PK   |
| 8   |       | 4339.200        | 42.590                 | 47.668               | -31.410         | 74.000         | -5.078      | PK   |

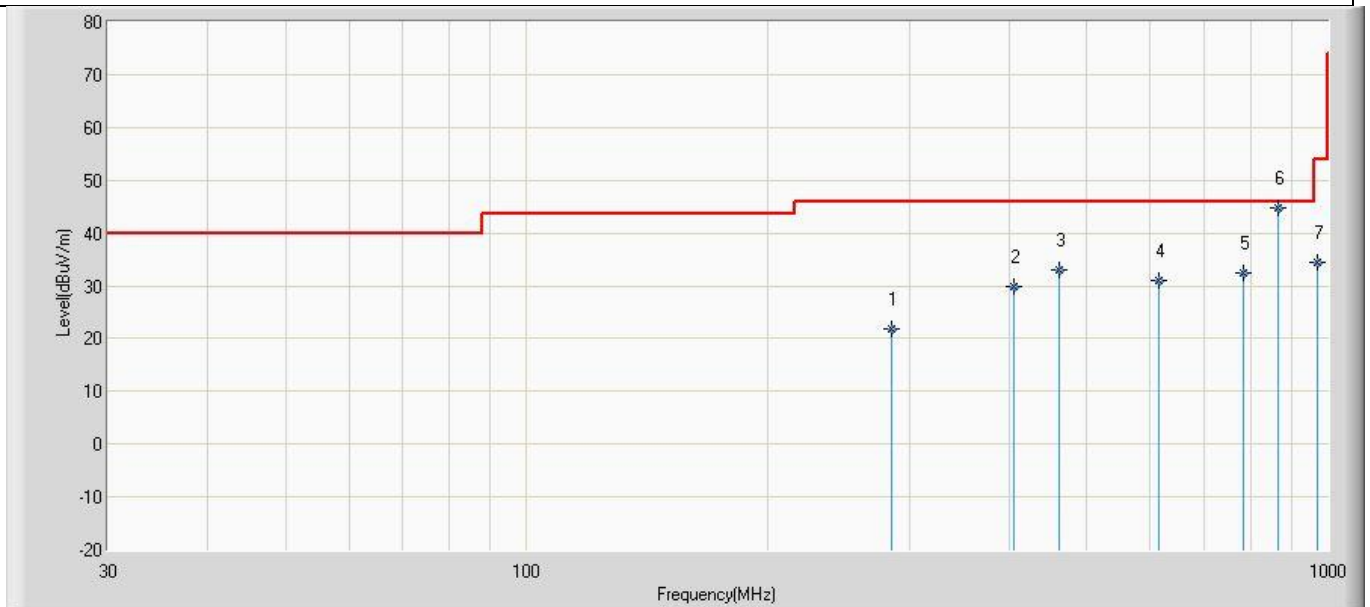
Note: 1.Measure level =Reading Level + Factor

|                                    |                          |
|------------------------------------|--------------------------|
| Profile: 20B0790R                  | Page No.: 8              |
| Engineer: Pawn                     |                          |
| Site: AC5                          | Time: 2020/11/26 - 20:34 |
| Limit: FCC_Part15.209_RE(3m)       | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal     |
| EUT: Smart Key BC30                | Power: Battery           |
| Note: Mode 1: Transmit             |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 1300.000        | 54.790                 | 68.384               | -19.210         | 74.000         | -13.594     | PK   |
| 2  | *    | 1301.790        | 53.720                 | 67.254               | -0.280          | 54.000         | -13.534     | AV   |
| 3  |      | 1736.000        | 42.231                 | 54.397               | -37.849         | 80.080         | -12.166     | PK   |
| 4  |      | 2168.000        | 42.864                 | 52.963               | -37.216         | 80.080         | -10.100     | PK   |
| 5  |      | 2603.520        | 40.011                 | 49.696               | -40.069         | 80.080         | -9.686      | PK   |
| 6  |      | 3036.000        | 44.173                 | 53.183               | -35.907         | 80.080         | -9.010      | PK   |
| 7  |      | 3472.000        | 45.489                 | 52.638               | -34.591         | 80.080         | -7.149      | PK   |
| 8  |      | 3904.000        | 45.758                 | 52.083               | -28.242         | 74.000         | -6.325      | PK   |
| 9  |      | 4340.000        | 48.214                 | 53.336               | -25.786         | 74.000         | -5.121      | PK   |

|                                     |                          |
|-------------------------------------|--------------------------|
| Profile: 20B0790R                   | Page No.: 9              |
| Engineer: Pawn                      |                          |
| Site: AC3                           | Time: 2020/12/15 - 20:50 |
| Limit: FCC_Part15.109_RE(3m)_ClassB | Margin: 0                |
| Probe: AC3_3m (30-1000MHz)          | Polarity: Horizontal     |
| EUT: Smart Key BC30                 | Power: Battery           |
| Note: Mode 1: Transmit              |                          |

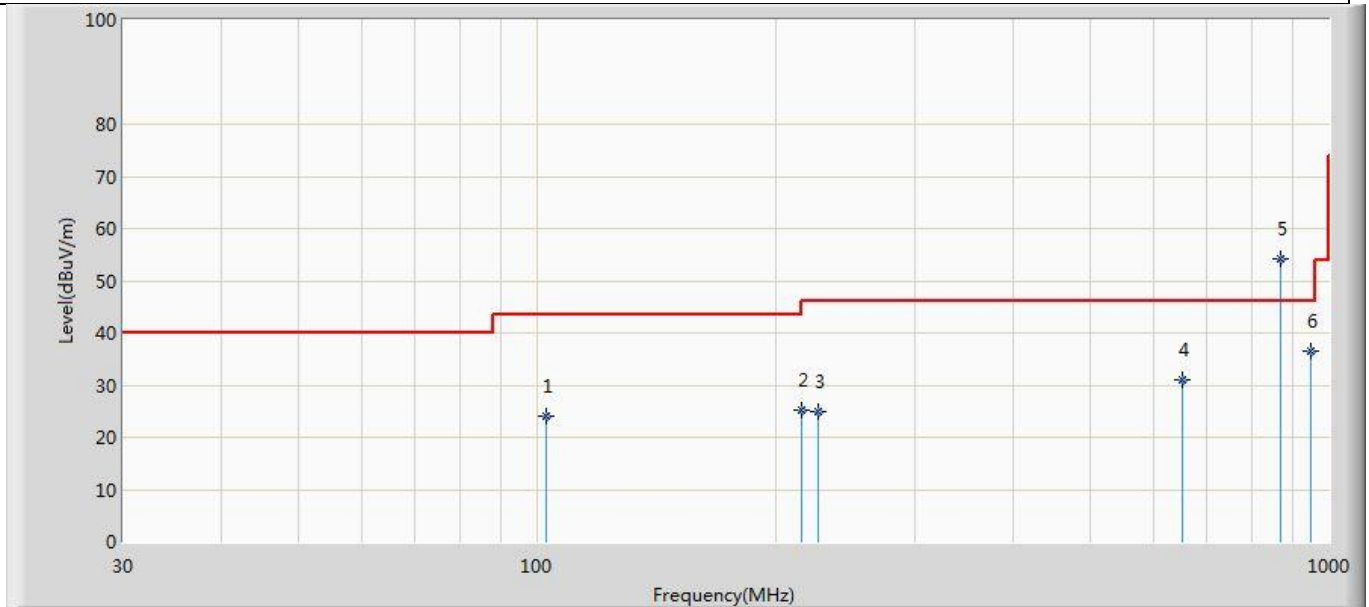


| N o | Mar k | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|-----|-------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1   |       | 285.231         | 21.770                 | 0.764                | -24.230         | 46.000         | 21.006      | QP   |
| 2   |       | 406.239         | 29.728                 | 4.449                | -16.272         | 46.000         | 25.280      | QP   |
| 3   |       | 461.529         | 32.915                 | 6.343                | -13.085         | 46.000         | 26.572      | QP   |
| 4   |       | 615.880         | 30.918                 | 2.079                | -15.082         | 46.000         | 28.839      | QP   |
| 5   |       | 785.388         | 32.417                 | 2.492                | -13.583         | 46.000         | 29.925      | QP   |
| 6   | *     | 867.838         | 44.785                 | 13.027               | -35.295         | 80.080         | 31.758      | PK   |
| 7   |       | 971.749         | 34.323                 | 1.910                | -19.677         | 54.000         | 32.412      | QP   |

Note: 1. Measure level = Reading Level + Factor

2. Mark 6 is 2th harmonic.

|                                     |                          |
|-------------------------------------|--------------------------|
| Profile: 20B0790R                   | Page No.: 10             |
| Engineer: Pawn                      |                          |
| Site: AC3                           | Time: 2020/12/15 - 20:51 |
| Limit: FCC_Part15.109_RE(3m)_ClassB | Margin: 0                |
| Probe: AC3_3m (30-1000MHz)          | Polarity: Vertical       |
| EUT: Smart Key BC30                 | Power: Battery           |
| Note: Mode 1: Transmit              |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 102.750         | 24.070                 | 2.089                | -19.430         | 43.500         | 21.981      | QP   |
| 2  |      | 215.512         | 25.110                 | 2.387                | -18.390         | 43.500         | 22.723      | QP   |
| 3  |      | 226.910         | 24.827                 | 2.860                | -21.173         | 46.000         | 21.967      | QP   |
| 4  |      | 652.376         | 30.905                 | 3.311                | -15.095         | 46.000         | 27.594      | QP   |
| 5  |      | 867.838         | 54.087                 | 21.401               | -25.993         | 80.080         | 32.686      | PK   |
| 6  | *    | 948.590         | 36.505                 | 1.554                | -9.495          | 46.000         | 34.951      | QP   |

Note: 1.Measure level =Reading Level + Factor

2. Mark 5 is 2th harmonic.

### 4.3 Emission bandwidth

**VERDICT: PASS**

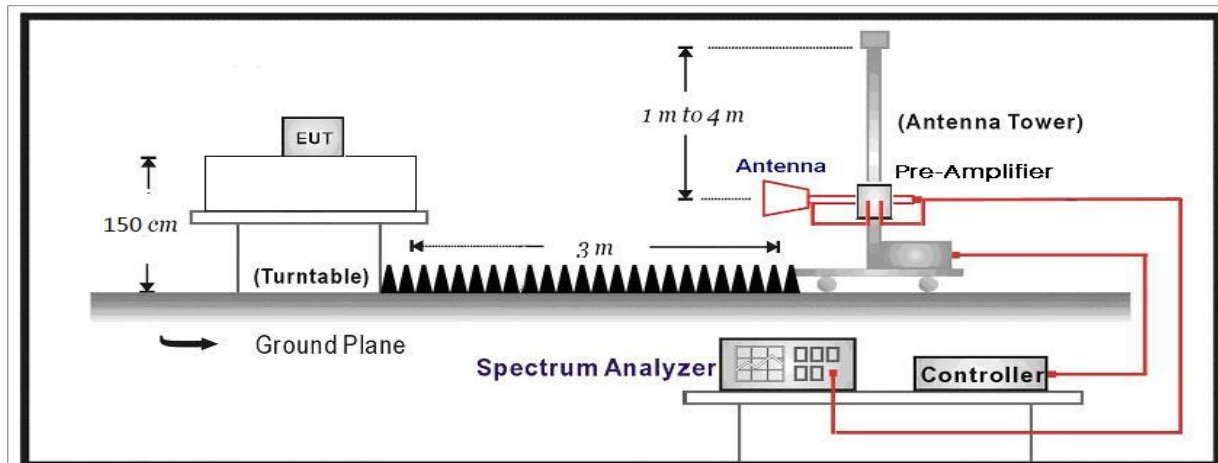
#### 4.3.1 Limit

**Standard**

FCC Part 15 Subpart C Paragraph 15.215

Within the band.

#### 4.3.2 Test Setup



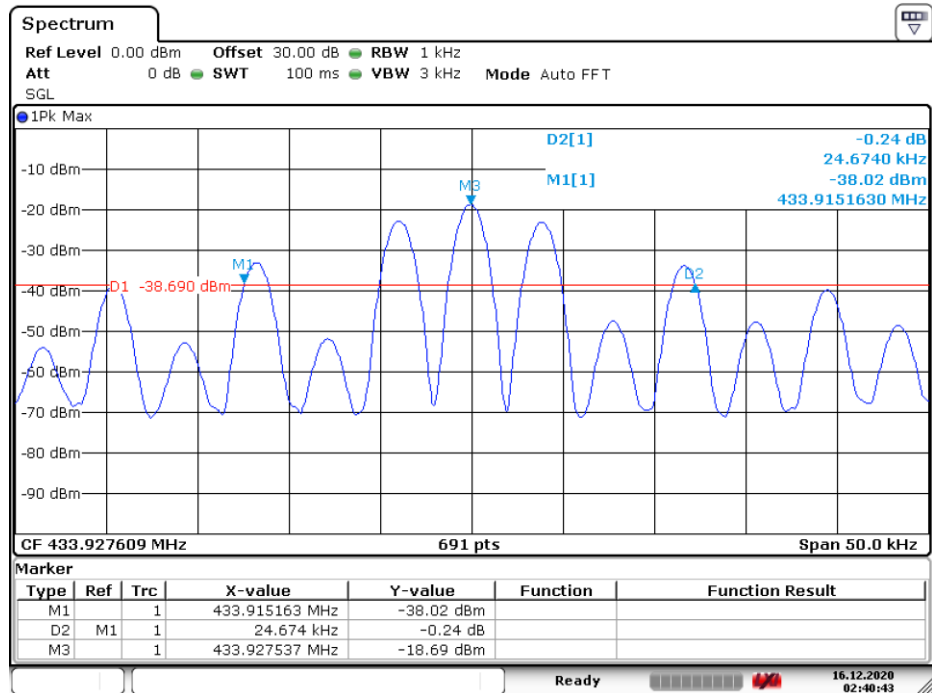
#### 4.3.3 Test Procedure

|                                     | Reference Rule | Chapter | Description                                       |
|-------------------------------------|----------------|---------|---------------------------------------------------|
| <input checked="" type="checkbox"/> | ANSI C63.10    | 6.9.2   | Occupied bandwidth—relative measurement procedure |

## 4.3.4 Test Data

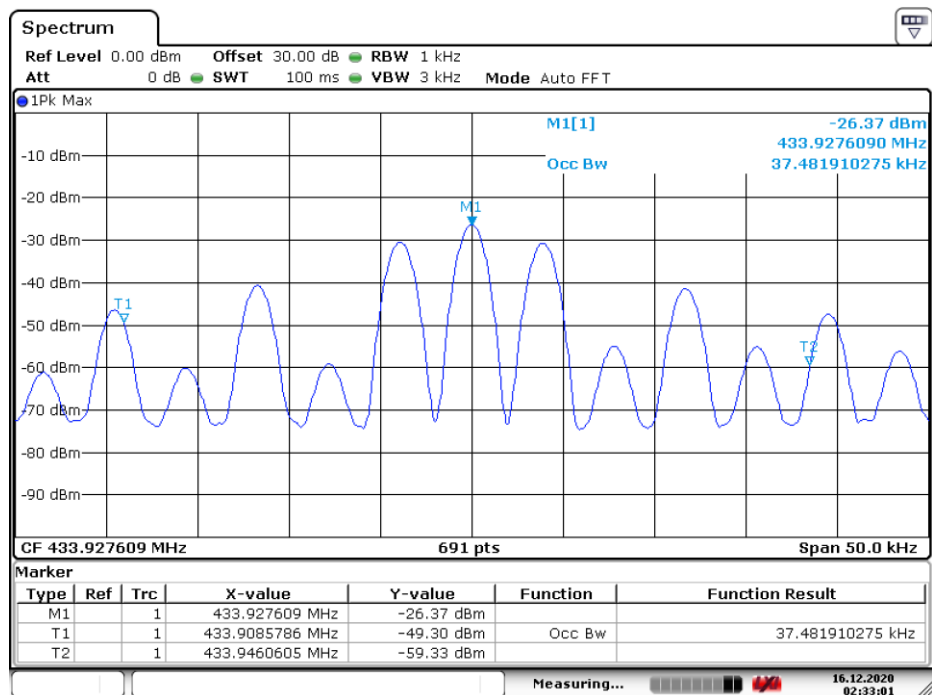
| Frequency (MHz) | 20dB bandwidth (kHz) | 99% bandwidth (kHz) | Result |
|-----------------|----------------------|---------------------|--------|
| 433.92          | 24.67                | 37.48               | Pass   |

## 20dB bandwidth



Date: 16.DEC.2020 02:40:44

## 99% bandwidth



Date: 16.DEC.2020 02:33:02

## 4.4 Duration Time

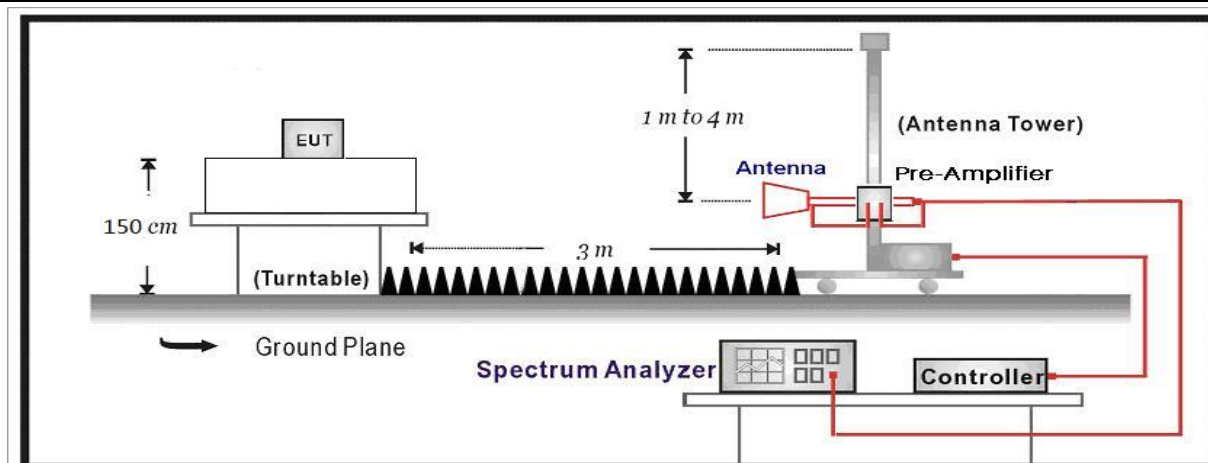
**VERDICT: PASS**

### 4.4.1 Limit

|                 |                                           |
|-----------------|-------------------------------------------|
| <b>Standard</b> | FCC Part 15 Subpart C Paragraph 15.221(a) |
|-----------------|-------------------------------------------|

A transmitter activated automatically shall cease transmission within 5 seconds after activation.

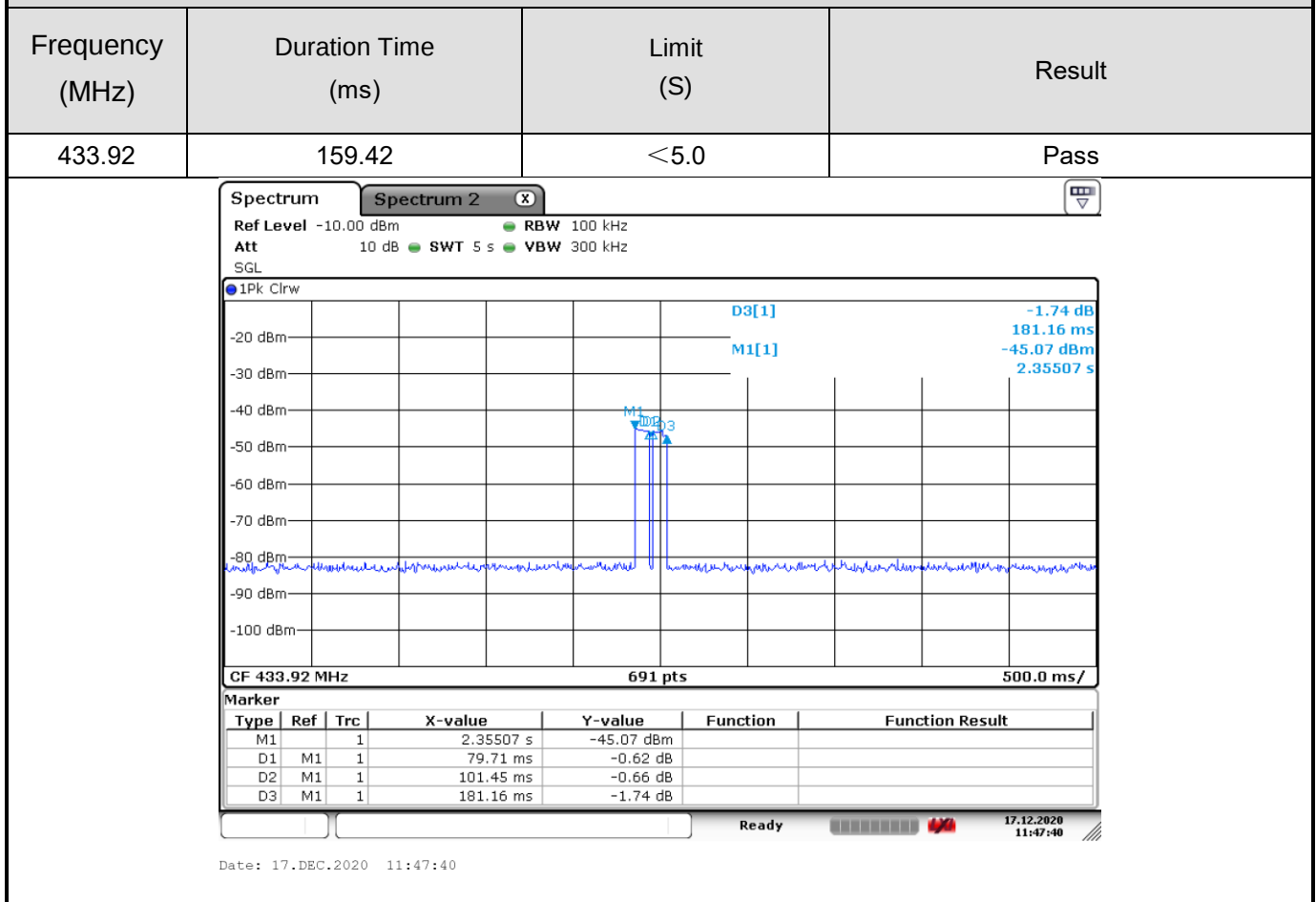
### 4.4.2 Test Setup



### 4.4.3 Test Procedure

|                                                                                                               | Reference Rule | Chapter | Description                                                      |
|---------------------------------------------------------------------------------------------------------------|----------------|---------|------------------------------------------------------------------|
| <input checked="" type="checkbox"/>                                                                           | CFR 47         | 15.231  | Periodic operation in the band 40.66-40.70 MHz and above 70 MHz. |
| 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. |                |         |                                                                  |
| 2. Set the EUT to proper test channel.                                                                        |                |         |                                                                  |
| 3. Single scan the transmission, and read the transmission time.                                              |                |         |                                                                  |

## 4.4.4 Test Data



**4.5 Antenna Requirement****VERDICT: PASS****4.5.1 Limit:****Standard**

FCC Part 15 Subpart E Paragraph 15.203

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

**4.5.2 Antenna Connector Construction:**

The use of a permanently attached antenna



The antenna use of a unique coupling to the intentional radiator



The use of a nonstandard antenna jack or electrical connector

Please refer to the attached document "Internal Photograph" to show the antenna connector.

|                                     |                  |
|-------------------------------------|------------------|
| 5    TEST SETUP PHOTO AND EUT PHOTO | VERDICT:    PASS |
|-------------------------------------|------------------|

Remark: The test setup photo and EUT Photo please see appendix.

\_\_\_\_\_ The End \_\_\_\_\_