

|                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                    |                                                                                                                                                                            |                    |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------|
| <b>Prüfbericht-Nr.:</b><br>Test Report No.:                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>50078183 001</b>                                                                                                                                | <b>Auftrags-Nr.:</b><br>Order No.:                                                                                                                                         | <b>114058234</b>   | <b>Seite 1 von 32</b><br>Page 1 of 32 |
| <b>Kunden-Referenz-Nr.:</b><br>Client Reference No.:                                                                                                                                                                                                                                                                                                                                                                                                        | <b>N/A</b>                                                                                                                                         | <b>Auftragsdatum:</b><br>Order date:                                                                                                                                       | <b>15-Nov-2016</b> |                                       |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>H2 Inc., 8F., No.32, Ln. 513, Ruiguang Rd., Neihu Dist., Taipei City Taiwan/<br/>英屬開曼群島商慧康生活科技股份有限公司, 台北市內湖區瑞光路 513 巷 32 號 8 樓</b>              |                                                                                                                                                                            |                    |                                       |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Health2Sync Bluetooth Dongle / 藍牙血糖數據傳輸配件</b>                                                                                                   |                                                                                                                                                                            |                    |                                       |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type No.:                                                                                                                                                                                                                                                                                                                                                                                                 | <b>HB-8201</b>                                                                                                                                     |                                                                                                                                                                            |                    |                                       |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>FCC Part15C / NCC LP0002 Test report (BLE)</b>                                                                                                  |                                                                                                                                                                            |                    |                                       |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                                | <b>NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2016)<br/>Section 3.10.1<br/>FCC 47CFR Part 15: Subpart C Section 15.247</b> |                                                                                                                                                                            |                    |                                       |
| <b>Wareneingangsdatum:</b><br>Date of receipt:                                                                                                                                                                                                                                                                                                                                                                                                              | <b>8-Feb-2017</b>                                                                                                                                  |                                                                                                                                                                            |                    |                                       |
| <b>Prüfmuster-Nr.:</b><br>Test sample No.:                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>A000496264-005<br/>A000496264-005</b>                                                                                                           |                                                                                                                                                                            |                    |                                       |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>27-Mar-2017 – 10-Apr-2017</b>                                                                                                                   |                                                                                                                                                                            |                    |                                       |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                                | <b>EMC/RF Laboratory Taipei</b>                                                                                                                    |                                                                                                                                                                            |                    |                                       |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                             | <b>TUV Rheinland Taiwan Ltd.</b>                                                                                                                   |                                                                                                                                                                            |                    |                                       |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Pass</b>                                                                                                                                        |                                                                                                                                                                            |                    |                                       |
| <b>Report Date / tested by:</b><br><br>2017-04-18 Amy S.R.Hsu /Engineer<br><b>Datum Name / Stellung Unterschrift</b><br><b>Date Name / Position Signature</b>                                                                                                                                                                                                                                                                                               |                                                                                                                                                    | <b>kontrolliert von / reviewed by:</b><br><br>2017-04-18 Arvin Ho/Department Manager<br><b>Datum Name / Stellung Unterschrift</b><br><b>Date Name / Position Signature</b> |                    |                                       |
| <b>Sonstiges / Other:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                    |                                                                                                                                                                            |                    |                                       |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                    | <b>Prüfmuster vollständig und unbeschädigt</b><br>Test item complete and undamaged                                                                                         |                    |                                       |
| <p>* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft<br/>P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet</p> <p>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor<br/>P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p>              |                                                                                                                                                    |                                                                                                                                                                            |                    |                                       |
| <p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br/>This test report only relates to the a. M. Test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</p> |                                                                                                                                                    |                                                                                                                                                                            |                    |                                       |

## TEST SUMMARY

### **5.1.1 ANTENNA REQUIREMENT**

RESULT: Passed

### **5.1.2 PEAK OUTPUT POWER**

RESULT: Passed

### **5.1.3 6dB BANDWIDTH 99% BANDWIDTH**

RESULT: Passed

### **5.1.4 POWER DENSITY**

RESULT: Passed

### **5.1.5 CONDUCTED SPURIOUS EMISSIONS AND FREQUENCY BAND EDGE MEASURED IN 100kHz BANDWIDTH**

RESULT: Passed

### **5.1.6 SPURIOUS EMISSION**

RESULT: Passed

### **6.1.1 ELECTROMAGNETIC FIELDS**

RESULT: Passed

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## 1. General Remarks

### 1.1 Complementary Materials

These attachments are integral parts of this test report:

**Appendix P: Photo Documentation internal view**  
(File Name: 50078183APPENDIX P)

**Appendix D: Test Result of Radiated Emissions**  
(File Name: 50078183APPENDIX D)

Test Specifications

The following standards were applied.

**Table 1: Applied Standard and Test Levels**

| Radio                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2016)(100 年 8 月 23 日)<br>FCC CFR47 Part 15: Subpart C Section 15.247<br>ANSI C63.10:2013<br>KDB558074 D01 DTS Meas Guidance v03r05 |

## 2. Test Sites

### 2.1 Test Facility

TUV Rheinland Taiwan Ltd.  
Taipei Office

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

FCC RegistrationNo.: 365730  
IC Canada Registration No.: 9465A-1  
TAF Accredited NCC Test Lab. No.:0759  
TAF ISO17025 Certification effective periods: 2016-Jul-1<sup>st</sup> to 2019-Jun-30<sup>th</sup>



**Testing Laboratory**  
**0759**

## 2.2 List of Test and Measurement Instruments

**Table 2: List of Test and Measurement Equipment**

| Kind of Equipment             | Manu-facturer  | Type         | S/N         | Last Calibration | Next Calibration |
|-------------------------------|----------------|--------------|-------------|------------------|------------------|
| Test Software                 | Farad          | EZ_EMCC      | Ver. TUV3A1 | N/A              | N/A              |
| EMI Test Receiver             | R&S            | ESR7         | 101062      | 2016/09/12       | 2017/09/12       |
| Spectrum Analyzer             | R&S            | FSV 40       | 100921      | 2016/04/21       | 2017/04/21       |
| Spectrum Analyzer             | Agilent        | N9010A       | MY53470241  | 2016/04/25       | 2017/04/24       |
| Preamplifier (30MHz -1GHz)    | HP             | 8447F        | 2805A03335  | 2016/07/29       | 2017/07/29       |
| Preamplifier (18 GHz -40 GHz) | COM-POWER      | PAM-840      | 461257      | 2016/12/01       | 2017/12/01       |
| Pre-Amplifier (1GHz~18GHz)    | EM Electronics | EM01G18G     | 060558      | 2016/11/17       | 2017/11/17       |
| Bilog Antenna                 | TESEQ          | CBL6111D     | 29804       | 2016/06/23       | 2017/06/23       |
| Horn Antenna                  | ETS-Lindgren   | 3117         | 138160      | 2016/05/03       | 2017/05/03       |
| Horn Antenna (18GHz~40GHz)    | COM-POWER      | AH840        | 101029      | 2016/10/11       | 2017/10/11       |
| Loop Antenna                  | Schwarzbeck    | FMZB 1513    | 1513-076    | 2016/05/11       | 2017/05/11       |
| EMI Test Receiver             | R&S            | ESCI7        | 100797      | 2016/12/30       | 2017/12/30       |
| Spectrum Analyzer             | R&S            | FSL3         | 101943      | 2015/09/07       | 2017/09/07       |
| Temp. & Humid. Chamber        | Giant Force    | GCT-099-40-S | MAF0103-007 | 2015/07/13       | 2017/07/12       |
| LISN (1 phase)                | R&S            | ENV216       | 101243      | 2016/06/02       | 2017/06/02       |
| LISN                          | R&S            | ENV216       | 101262      | 2016/06/16       | 2017/06/16       |
| Test Software                 | Audix          | e3           | Ver. 9      | N/A              | N/A              |
| Power sensor                  | Agilent        | U2021XA      | MY54020001  | 2017/01/08       | 2018/01/07       |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular schedule using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements .

**Table 3: Emission Measurement Uncertainty**

| Parameter                     | Uncertainty            |
|-------------------------------|------------------------|
| Radio Frequency               | $\pm 1 \times 10^{-7}$ |
| RF power, conducted           | $\pm 1.5$ dB           |
| RF power density, conducted   | $\pm 3$ dB             |
| spurious emissions, conducted | $\pm 3$ dB             |
| all emissions, radiated       | $\pm 6$ dB             |
| Temperature                   | $\pm 1$ °C             |
| Humidity                      | $\pm 5$ %              |
| DC and low frequency voltages | $\pm 3$ %              |

## 3. General Product Information

### 3.1 Product Function and Intended Use

The EUT is a Bluetooth blood glucose data transmission accessories. It contains a Bluetooth BLE compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

### 3.2 System Details and Ratings

**Table 4: Basic Information of EUT**

| Item              | EUT information                           |
|-------------------|-------------------------------------------|
| Kind of Equipment | Health2Sync Bluetooth Dongle / 藍牙血糖數據傳輸配件 |
| Type Designation  | HB-8201                                   |
| FCC ID            | 2ALJWHB8201                               |
| Brand name        | Health2Sync                               |

**Table 5: Technical Specification of EUT**

| Technical Specification | Value         |
|-------------------------|---------------|
| Operating Frequencies   | 2402~2480 MHz |
| Channel Spacing         | 2 MHz         |
| Channel number          | 40            |
| Operation Voltage       | 3Vdc          |
| Modulation              | GFSK          |
| Antenna gain            | -2.82 dBi     |

### **3.3 Independent Operation Modes**

Basic operation modes are:

- A. Transmitting
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- B. Receiving
- C. Standby
- D. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.5 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Setup for testing: Test samples are provided with a test mode firmware which makes it possible to transmit signal when switched on the power

It was used to enable the operation modes listed in section 3.3 as appropriate.

The samples were used as follows:

Conducted: **A000496264-005**

Radiation: **A000496264-005**

Full test was applied on all test modes, but only worst case was shown

### 4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

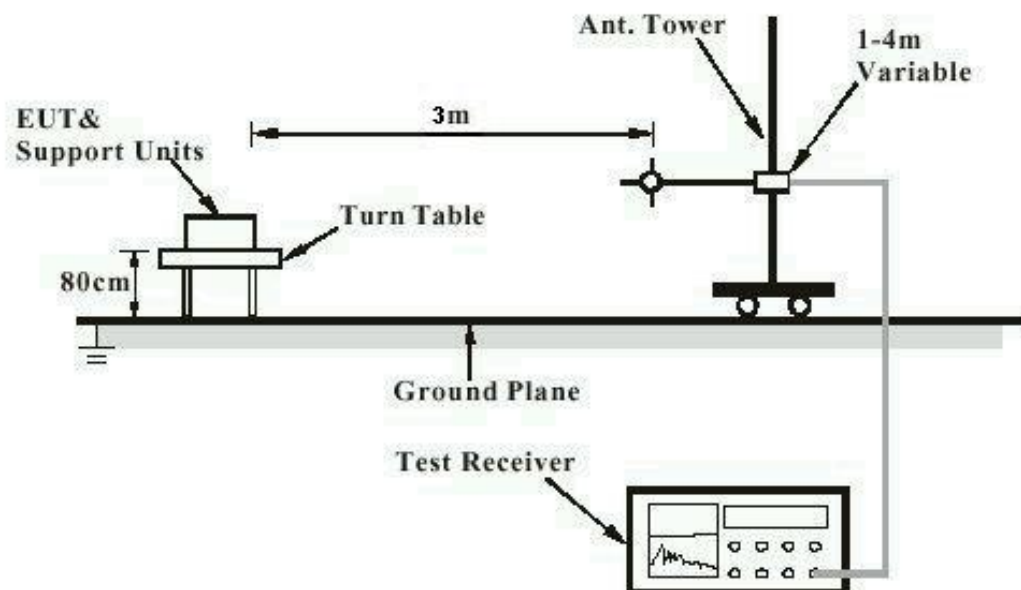
N/A

## 4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

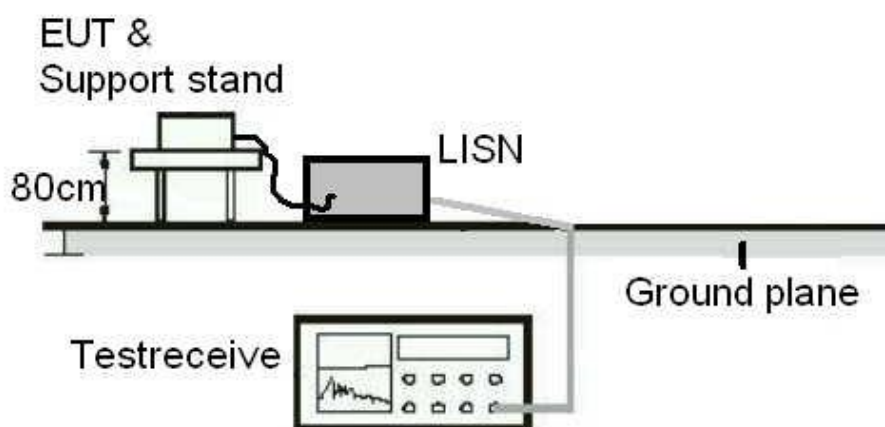
## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

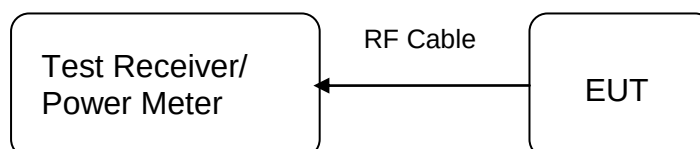


Note: Measurements above 1 GHz are done with a table height of 1.5m

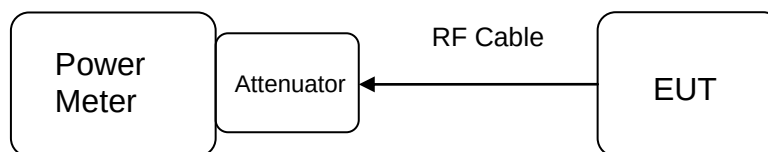
**Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)**



**Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement**



**Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement (Power meter)**



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:****Passed**

|               |   |                                                                                          |
|---------------|---|------------------------------------------------------------------------------------------|
| Test standard | : | LP0002(2016): 2.2, 3.10.1, (3)<br>FCC Part 15.247(b)(4), Part 15.203 and RSS-<br>Gen 8.3 |
| Requirement   | : | use of approved antennas only with directional gains that<br>do not exceed 6 dBi         |

According to the manufacturer declaration, the EUT has an antenna with a directional gain of -2.82 dBi. The antenna is a PCB Antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.

## 5.1.2 Peak Output Power

**RESULT:**
**Passed**

Test standard : LP0002(2016): 3.10.1, (2)  
 FCC Part 15.247(b)(3), RSS-247 5.4(4)  
 Basic standard : ANSI C63.10:2013, KDB558074  
 Limit : 1 Watt  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
  
 Ambient temperature : 20-24 °C  
 Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 6: Test result of Peak Output Power**

| Channel        | Channel Frequency (MHz) | Output Power |         | Limit |
|----------------|-------------------------|--------------|---------|-------|
|                |                         | (dBm)        | (W)     | (W)   |
| Low Channel    | 2402                    | -2.16        | 0.00061 | 1     |
| Middle Channel | 2440                    | -2.78        | 0.00053 | 1     |
| High Channel   | 2480                    | -5.07        | 0.00031 | 1     |

Pmax: 0.61 mW

**5.1.3 6dB Bandwidth 99% Bandwidth****RESULT:****Passed**

Test standard : LP0002(2016): 3.10.1, (5)  
FCC Part 15.247(a)(2), RSS-247 5.2(1)  
Basic standard : ANSI C63.10:2013, KDB558074  
Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A

Ambient temperature : 20-24°C  
Relative humidity : 50-65%  
Atmospheric pressure : 100-103 kPa

**Table 7: Test result of 6dB Bandwidth**

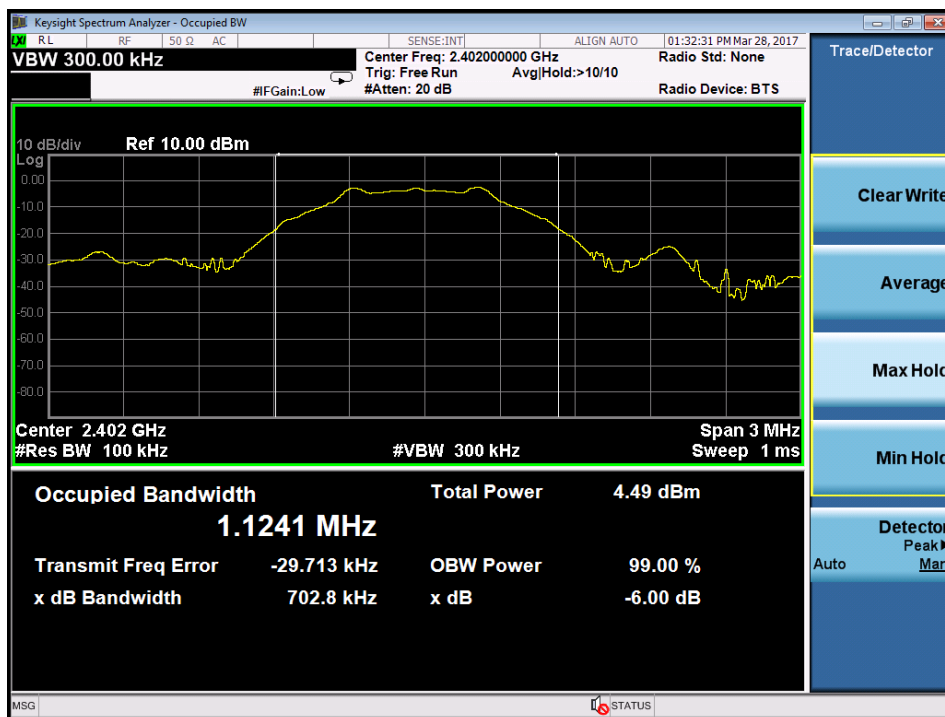
| Channel      | Channel Frequency (MHz) | 6dB Bandwidth (kHz) | Limit (kHz) | Result |
|--------------|-------------------------|---------------------|-------------|--------|
| Low Channel  | 2402                    | 702.8               | >500        | Pass   |
| Mid Channel  | 2440                    | 686.4               | >500        | Pass   |
| High Channel | 2480                    | 688.5               | >500        | Pass   |

**Table 8: Test result of 99% Bandwidth,**

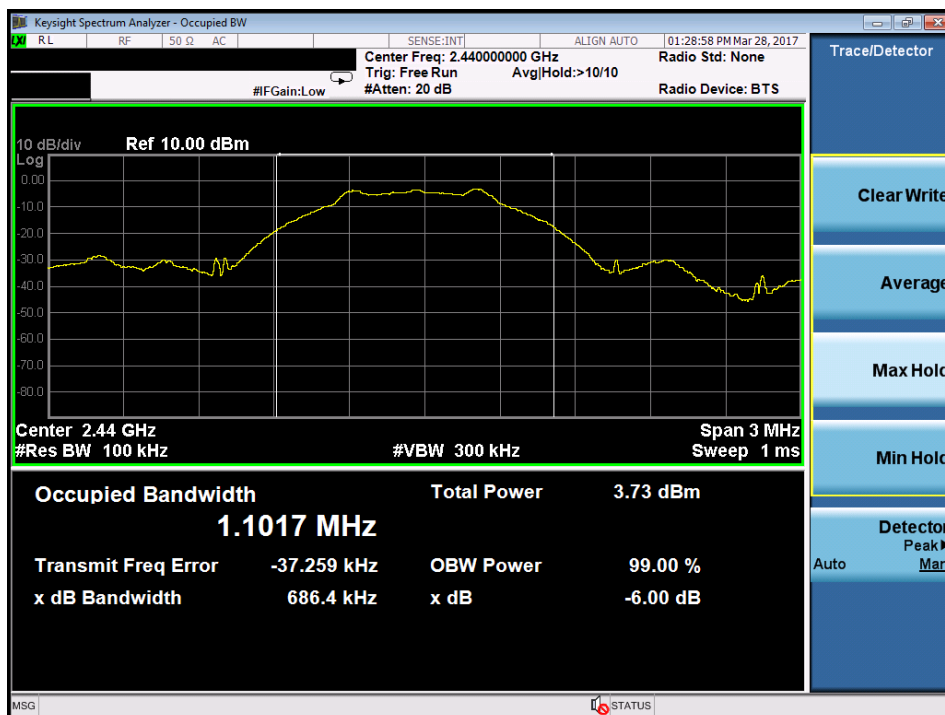
| Channel     | Channel Frequency (MHz) | 99% Bandwidth (MHz) |
|-------------|-------------------------|---------------------|
| Mid Channel | 2440                    | 1.0756              |

## Test Plot of 6dB Bandwidth

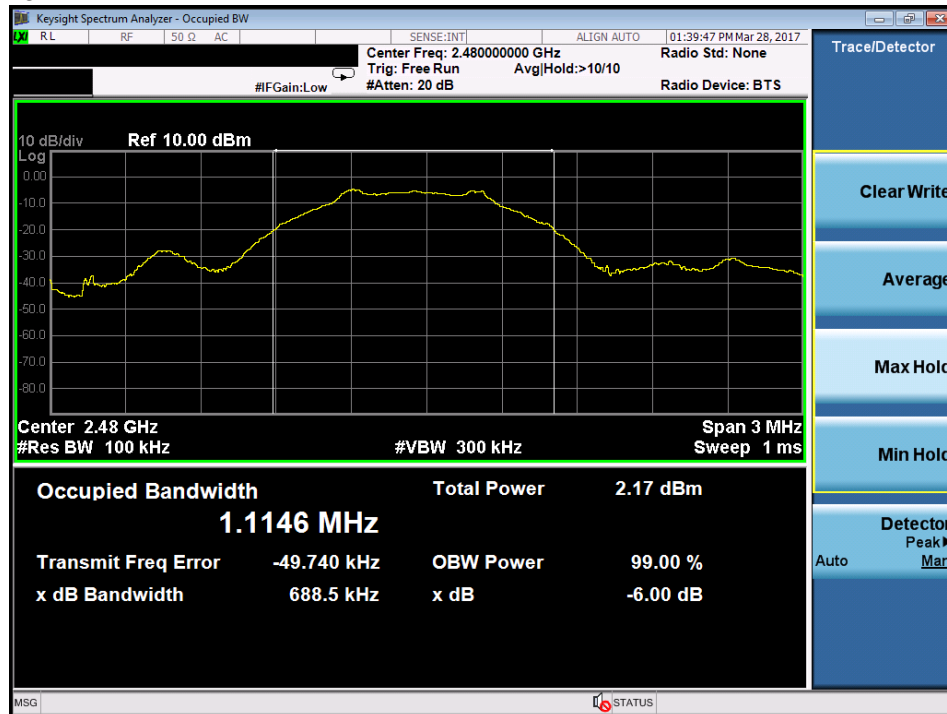
### Low Channel



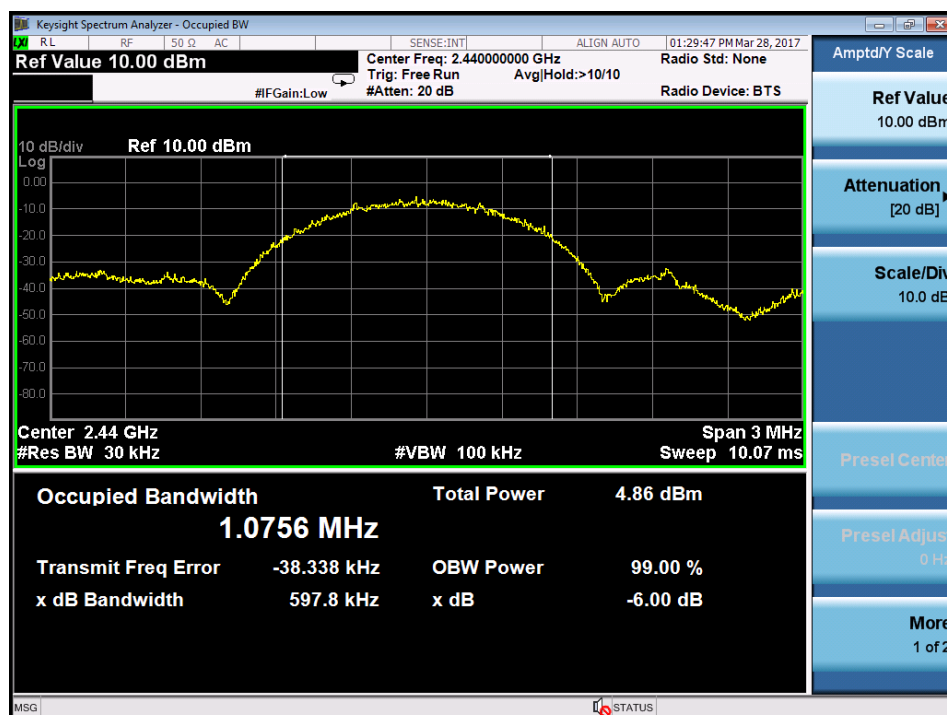
### Middle Channel



## High Channel



## Test Plot of 99% Bandwidth



### 5.1.4 Power Density

**RESULT:****Passed**

Test standard : LP0002(2016): 3.10.1, (6.2.2)  
FCC Part 15.247(e) , RSS-247 5.2(2)  
Basic standard : ANSI C63.10:2013, KDB558074  
Kind of test site : Shielded room

**Test setup**

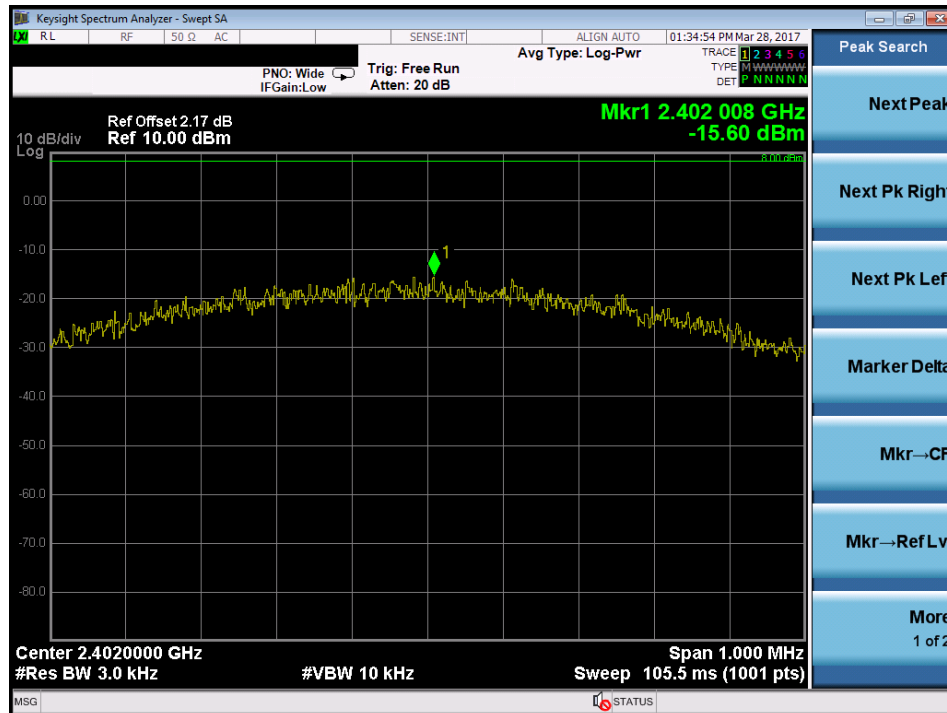
Test Channel : Low/ Middle/ High  
Operation Mode : A  
Ambient temperature : 20-24°C  
Relative humidity : 50-65%  
Atmospheric pressure : 100-103 kPa

**Table 9: Test result of Power Density**

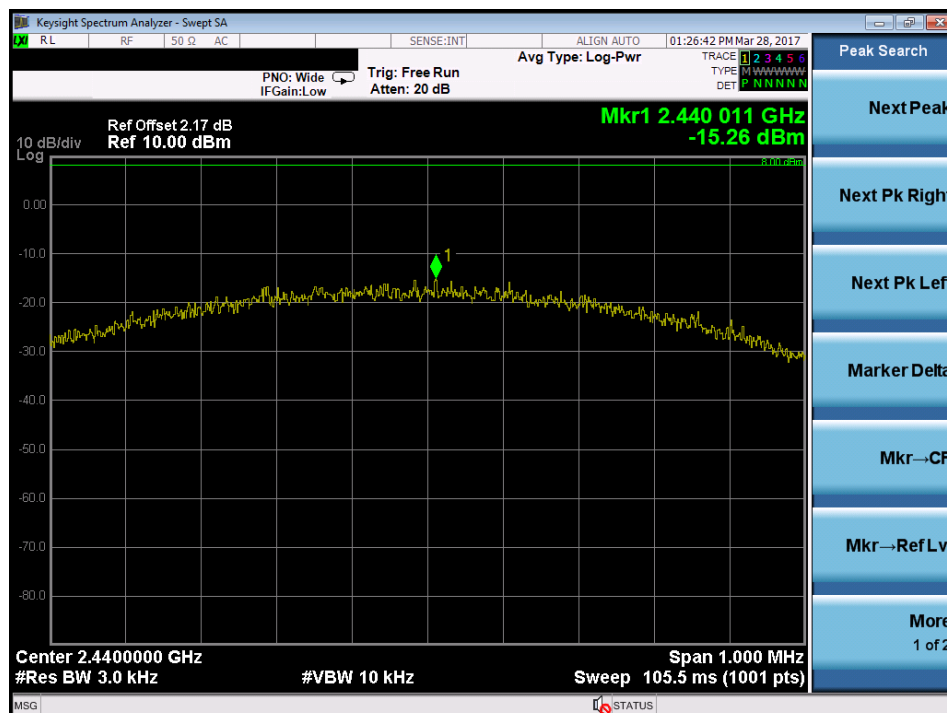
| Channel        | Channel Frequency (MHz) | Power Density | Limit |
|----------------|-------------------------|---------------|-------|
|                |                         | (dBm)         | (dBm) |
| Low Channel    | 2402                    | -15.6         | 8     |
| Middle Channel | 2440                    | -15.26        | 8     |
| High Channel   | 2480                    | -17.93        | 8     |

## Test Plot of Power Density

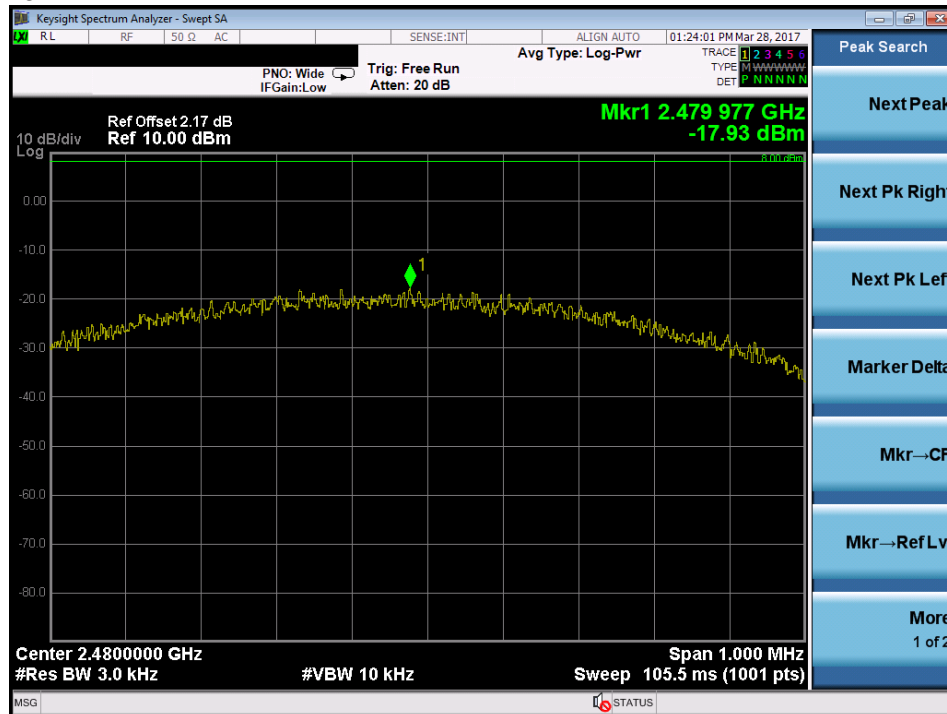
### Low Channel



### Middle Channel



## High Channel



### 5.1.5 Conducted spurious emissions and Frequency Band Edge measured in 100kHz Bandwidth

**RESULT:****Passed**

|                   |   |                                                                                                                   |
|-------------------|---|-------------------------------------------------------------------------------------------------------------------|
| Test standard     | : | LP0002(2016): 3.10.1, (5)<br>FCC part 15.247(d), RSS-247 5.5                                                      |
| Basic standard    | : | ANSI C63.10:2013, KDB558074                                                                                       |
| Limit             | : | 20dB (below that in the 100kHz bandwidth within the<br>band that contains the highest level of the desired power) |
| Kind of test site | : | Shielded room                                                                                                     |

**Test setup**

|                      |   |             |
|----------------------|---|-------------|
| Test Channel         | : | Low/ High   |
| Operation mode       | : | A           |
| Ambient temperature  | : | 20-24°C     |
| Relative humidity    | : | 50-65%      |
| Atmospheric pressure | : | 100-103 kPa |

All emissions are more than 20dB below fundamental, details refer to following test plot, and compliance is achieved as well.

Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.



## High Channel

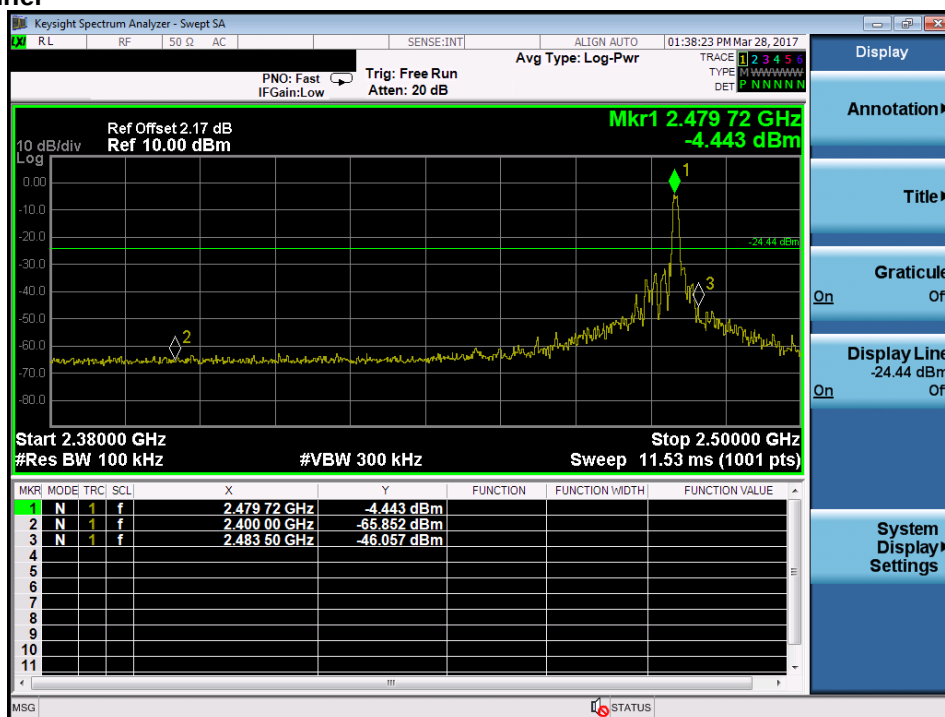


## Test Plot 100kHz RBW of Band Edge

### Low Channel



### High Channel



### 5.1.6 Spurious Emission

**RESULT:****Passed**

|                   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test standard     | : | FCC part 15.247(d), FCC 15.205, FCC 15.209, RSS-210 2.2, RSS-247 5.5 and RSS-Gen 8.9<br>LP0002(2016): 3.10.1, (5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Basic standard    | : | ANSI C63.10: 2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Limits            | : | Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) and RSS-Gen i4, 8.9 (Table 6), must comply with the radiated emission limits specified in FCC 15.209(a) and RSS-Gen i4, 8.9 (Table 4 and 5).<br>Radiated emissions which fall in the restricted bands, as defined in LP0002(2016): 2.7 , must comply with the radiated emission limits specified in LP0002(2016): 2.8<br>Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in FCC 15.209(a) and FCC 15.249(a), RSS-Gen i4, 8.9 (Table 4 and 5) and RSS-210 A2.9(a).<br>Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in LP0002(2016): 2.8 |
| Kind of test site | : | 3m Semi-Anechoic Chamber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Test setup**

|                |   |                   |
|----------------|---|-------------------|
| Test Channel   | : | Low/ Middle/ High |
| Operation mode | : | A, B              |

Remark: Testing was carried out within frequency range 30MHz to the tenth harmonic.

For details refer to Appendix D.

Testing was carried out within frequency range 30MHz to the tenth harmonic. For details refer to Appendix D. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report. Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

## 6. Safety Human exposure

### 6.1 Radio Frequency Exposure Compliance

#### 6.1.1 Electromagnetic Fields

**RESULT:****Passed**

Test standard : FCC KDB Publication 447498 D01 v06  
RSS--102

FCC:

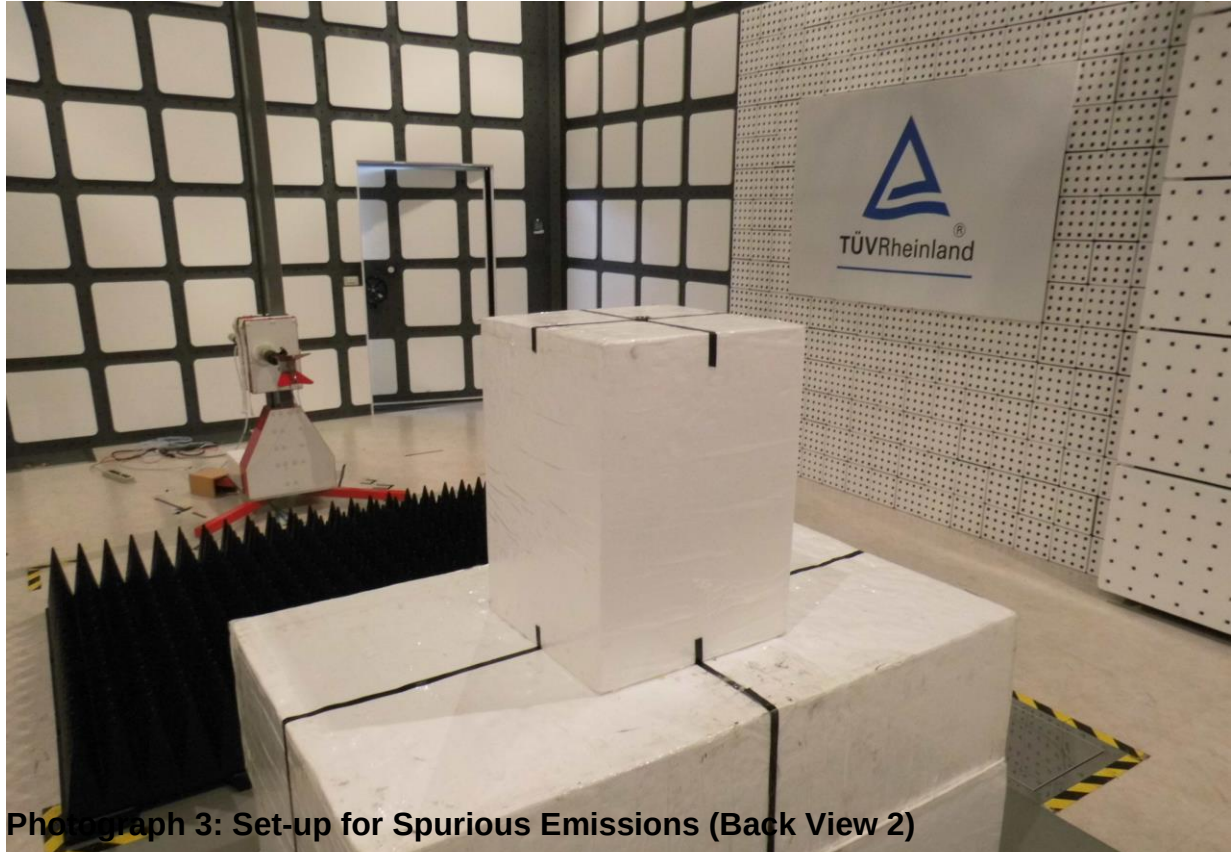
Since maximum peak output power of the transmitter is  $0.61\text{mW} < 10\text{mW}$ , hence the EUT is excluded from SAR evaluation according to FCC KDB publication 447498 D01 v05: Mobile Portable RF Exposure

## 7. Photographs of the Test Set-Up

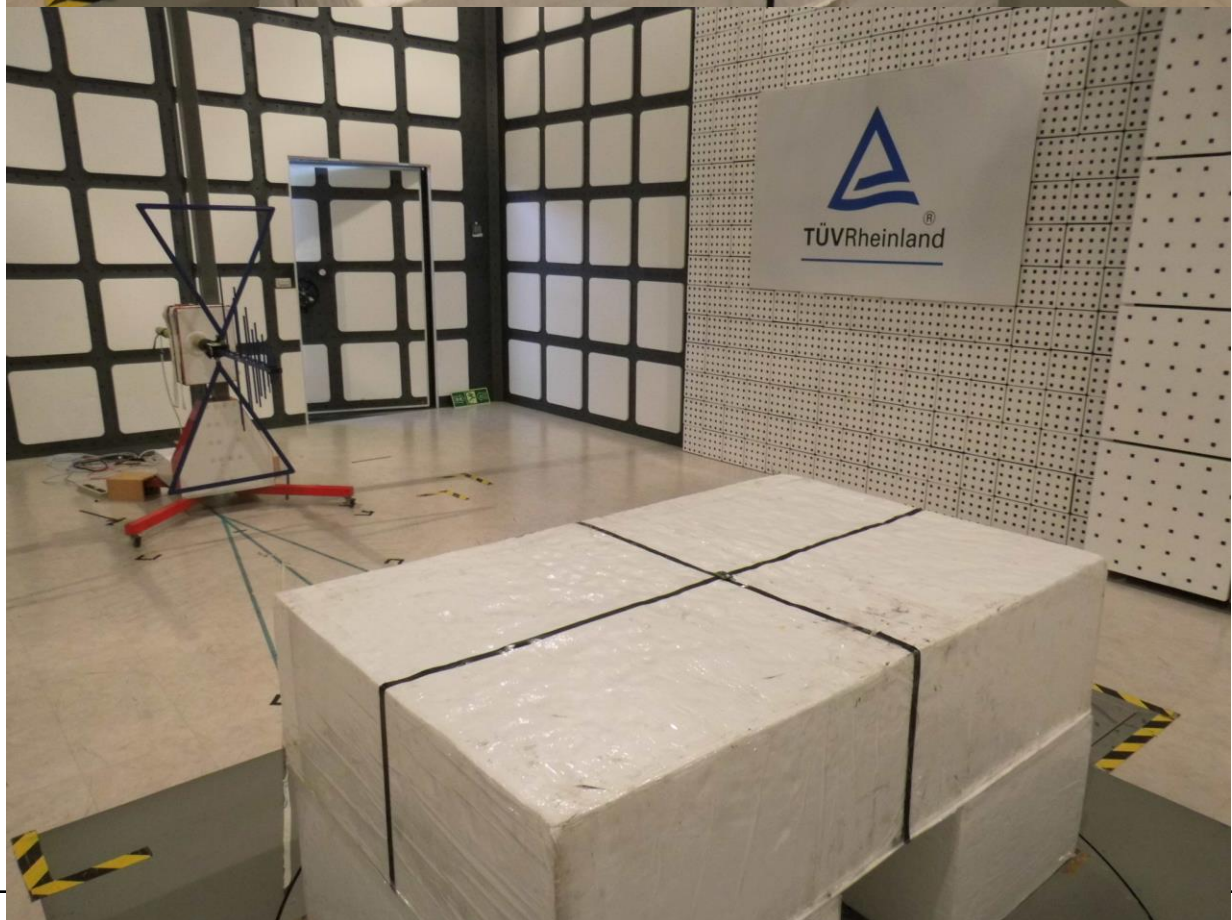
**Photograph 1: Set-up for Spurious Emissions (Front View)**



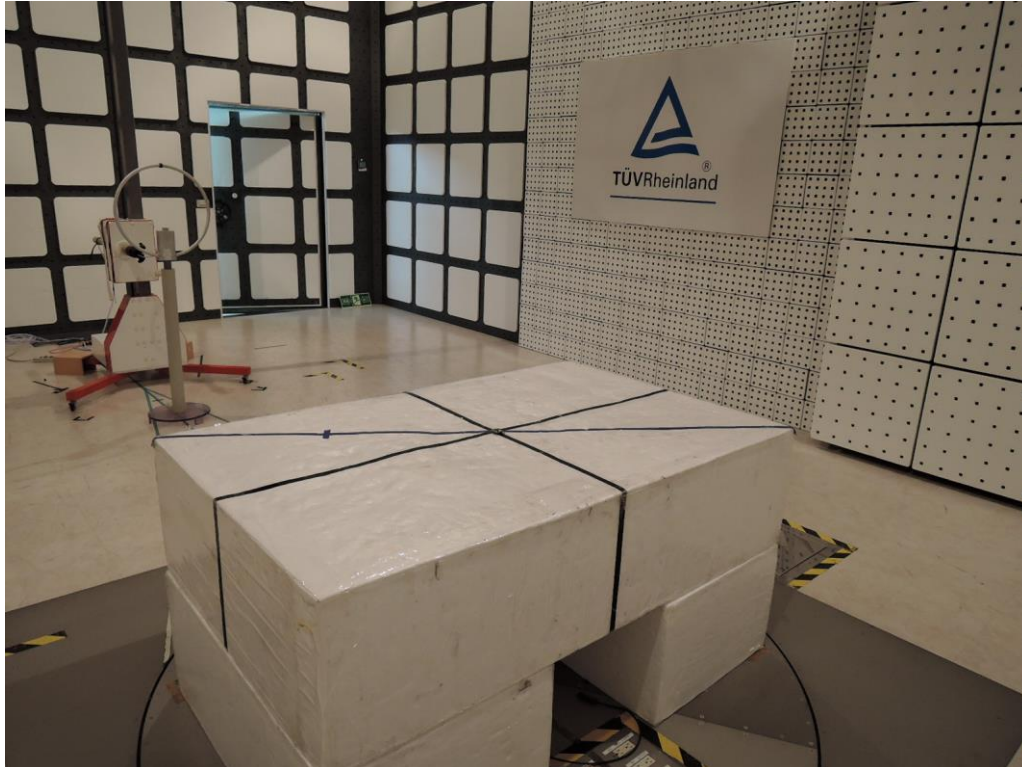
**Photograph 2: Set-up for Spurious Emissions (Back View 1)**



**Photograph 3: Set-up for Spurious Emissions (Back View 2)**



**Photograph 4: Set-up for Spurious Emissions (Back View 3) 9k-30M**



**Photograph 5: Set-up for Conducted testing**



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