

# FCC Test Report

**Equipment** : 7777-01YY  
**Brand Name** : Orderman  
**Model No.** : 7777-01YY  
**Marketing Name** : NCR Orderman7 MSR,NCR Orderman7 SC  
**FCC ID** : JEH-7777-01YY  
**Standard** : 47 CFR FCC Part 15.249  
**Operating Band** : 902 MHz – 928 MHz  
**FCC Classification** : DXX  
**Applicant** : NCR Corporation  
**Address** : 2651 Satellite Blvd. Duluth, GA 30096 USA  
**Manufacturer** : Universal Global Scientific Industrial Co., Ltd.  
**Address** : 141, Lane 351, Sec.1, Taiping Road,  
Tsaotuen, Nantou 54261, Taiwan

The product sample received on Nov. 5, 2014 and completely tested on Dec. 1, 2014. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

  
Vic Hsiao / Supervisor

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## Summary of Test Result

| Conformance Test Specifications |                  |                                         |                                                                                        |                                                                                                              |          |
|---------------------------------|------------------|-----------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------|
| Report Clause                   | Ref. Std. Clause | Description                             | Measured                                                                               | Limit                                                                                                        | Result   |
| 0                               | 15.203           | Antenna Requirement                     | Antenna connector mechanism complied                                                   | FCC 15.203                                                                                                   | Complied |
| 3.1                             | 15.207           | AC Power-line Conducted Emissions       | [dBuV]: 0.4040020MHz<br>42.01 (Margin 15.76dB) - QP<br>37.02 (Margin 10.75dB) - AV     | FCC 15.207                                                                                                   | Complied |
| 3.2                             | 15.215(c)        | Emission Bandwidth                      | 0.072 MHz; fall in band                                                                | Information only                                                                                             | Complied |
| 3.3                             | 15.249(a)        | Fundamental Emissions                   | [dBuV/m at 3m]:<br>92.71 (Margin 1.29dB)<br>quasi peak                                 | [dBuV/m at 3m]:<br>quasi peak: 94                                                                            | Complied |
| 3.4                             | 15.249 (a)/(d)   | Transmitter Radiated Unwanted Emissions | [dBuV/m at 3m]:1855.20MHz<br>51.09 (Margin 2.91dB) - AV<br>52.84 (Margin 21.16dB) - PK | Harmonics:<br>54 dBuV/m@3m<br>Other band:<br>50 dB or<br>FCC 15.209,<br>whichever is the lesser attenuation. | Complied |



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FAX : 886-3-327-0973

# 1 General Description

## 1.1 Information

### 1.2 NCR Orderman7 Handheld Features

| Feature                     | NCR Orderman7 <sup>MSR</sup> | NCR Orderman7 <sup>SC</sup> |
|-----------------------------|------------------------------|-----------------------------|
| Orderman radio network      | ✓                            | ✓                           |
| Bluetooth                   | ✓                            | ✓                           |
| Wireless LAN                | ✓                            | ✓                           |
| NFC                         | ✓                            | ✓                           |
| 125kHz RFID reader          | ✓                            | ✓                           |
| Magnetic strip reader (MSR) | ✓                            | ✓                           |
| Barcode reader              | -                            | ✓                           |
| Camera                      | ✓                            | ✓                           |
| Ambient light sensor        | ✓                            | ✓                           |
| Hardware buttons            | ✓                            | ✓                           |
| Capacitive home buttons     | ✓                            | ✓                           |
| Ambient light sensor        | ✓                            | ✓                           |
| Vibration                   | ✓                            | ✓                           |
| LEDs                        | ✓                            | ✓                           |
| Intercom                    | ✓                            | ✓                           |
| Real time clock             | ✓                            | ✓                           |
| Flashlight                  | ✓                            | ✓                           |

#### 1.2.1 RF General Information

| RF General Information                                                                                                                                                                                                                                                                                       |                  |                       |                |                                     |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------|----------------|-------------------------------------|-------------|
| Frequency Range (MHz)                                                                                                                                                                                                                                                                                        | Modulation       | Ch. Frequency (MHz)   | Channel Number | Fundamental Field Strength (dBuV/m) | Co-location |
| 902-928                                                                                                                                                                                                                                                                                                      | 2GFSK for Legacy | 902.35, 903.7, 905.45 | 3              | 92.22                               | Yes         |
|                                                                                                                                                                                                                                                                                                              | 4GFSK for OSR    | 902.4, 915, 927.6     | 3              | 92.71                               | Yes         |
| Note 1: Field strength performed quasi peak level at 3m.<br>Note 2: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating NFC+OSR+RFID+Wi-Fi and NFC+OSR+RFID+BT) |                  |                       |                |                                     |             |

**1.2.2 Antenna Information**

| Antenna Category                    |                                                 |
|-------------------------------------|-------------------------------------------------|
| <input type="checkbox"/>            | Equipment placed on the market without antennas |
| <input checked="" type="checkbox"/> | Integral antenna (antenna permanently attached) |
| <input type="checkbox"/>            | External antenna (dedicated antennas)           |

**1.2.3 Type of EUT**

| Identify EUT                        |                                                                                                                                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| EUT Serial Number                   | N/A                                                                                                                               |
| Presentation of Equipment           | <input checked="" type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype     |
| Type of EUT                         |                                                                                                                                   |
| <input checked="" type="checkbox"/> | Stand-alone                                                                                                                       |
| <input type="checkbox"/>            | Combined (EUT where the radio part is fully integrated within another device)<br>Combined Equipment - Brand Name / Model No.: ... |
| <input type="checkbox"/>            | Plug-in radio (EUT intended for a variety of host systems)<br>Host System - Brand Name / Model No.: ...                           |
| <input type="checkbox"/>            | Other:                                                                                                                            |

**1.2.4 Test Signal Duty Cycle**

| Operated Mode for Worst Duty Cycle                                          |                                                |
|-----------------------------------------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Operated normally mode for worst duty cycle        |                                                |
| <input checked="" type="checkbox"/> Operated test mode for worst duty cycle |                                                |
| Test Signal Duty Cycle (x)                                                  | Duty Cycle Correction Factor [dB] – (20 log x) |
| <input checked="" type="checkbox"/> 100%                                    | 0                                              |
| If worst duty < 100%, average emission = peak emission + 20 log x           |                                                |

**1.2.5 EUT Operational Condition**

|                          |                                             |                                                                 |                                                         |
|--------------------------|---------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|
| <b>Supply Voltage</b>    | <input type="checkbox"/> AC mains           | <input checked="" type="checkbox"/> DC                          | -                                                       |
| <b>Type of DC Source</b> | <input type="checkbox"/> Internal DC supply | <input checked="" type="checkbox"/> External DC Service Station | <input checked="" type="checkbox"/> From Li-ion Battery |

### 1.3 Accessories and Support Equipment

| Accessories Information |              |                                                                                                |            |                |
|-------------------------|--------------|------------------------------------------------------------------------------------------------|------------|----------------|
| Li-ion Battery          | Brand Name   | NCR                                                                                            | Model Name | 7777-0105-8801 |
|                         | Power Rating | 3.7V  3150mAh |            |                |
| LCD Panel               | Brand Name   | LG Display                                                                                     | Model Name | LH500WX1-SD03  |
| Camera                  | Brand Name   | Ability                                                                                        | Model Name | BD56A555       |
| WiFi Module             | Brand Name   | USI                                                                                            | Model Name | WM-BAN-BM-07_S |
| OSR Module              | Brand Name   | TI                                                                                             | Model Name | CC1125         |
| RFID Module             | Brand Name   | Melexis                                                                                        | Model Name | MLX90109       |
| NFC Module              | Brand Name   | NXP                                                                                            | Model Name | PN547          |

Reminder: Regarding to more detail and other information, please refer to user manual.

| Support Equipment |                                          |            |                |        |
|-------------------|------------------------------------------|------------|----------------|--------|
| No.               | Equipment                                | Brand Name | Model Name     | FCC ID |
| 1                 | Service Station<br>(Provide by customer) | Orderman   | 7779-0201-8801 | -      |
| 2                 | Debug Board<br>(Provide by customer)     | -          | -              | -      |
| 3                 | Adapter                                  | Meanwell   | GSM36U12-P5L   | -      |

### 1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2009

### 1.5 Testing Location Information

| Testing Location                          |        |               |   |                                                                                                              |     |                  |
|-------------------------------------------|--------|---------------|---|--------------------------------------------------------------------------------------------------------------|-----|------------------|
| <input checked="" type="checkbox"/>       | HWA YA | ADD           | : | No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. |     |                  |
|                                           |        | TEL           | : | 886-3-327-3456                                                                                               | FAX | : 886-3-327-0973 |
| Test Site Registration Number: FCC 636805 |        |               |   |                                                                                                              |     |                  |
| Test Condition                            |        | Test Site No. |   | Test Engineer                                                                                                |     | Test Environment |
| AC Conduction                             |        | CO04-HY       |   | Zeus                                                                                                         |     | 22°C / 52%       |
| RF Conducted                              |        | TH01-HY       |   | Ian                                                                                                          |     | 22.1°C / 61%     |
| Radiated Emission                         |        | 03CH03-HY     |   | Allen                                                                                                        |     | 24°C / 57%       |

## 1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Measurement Uncertainty            |               |             |
|------------------------------------|---------------|-------------|
| Test Item                          |               | Uncertainty |
| AC power-line conducted emissions  |               | ±2.2 dB     |
| Emission bandwidth, 20dB bandwidth |               | ±1.4 %      |
| RF output power, conducted         |               | ±0.6 dB     |
| All emissions, radiated            | 9 – 150 kHz   | ±2.4 dB     |
|                                    | 0.15 – 30 MHz | ±2.2 dB     |
|                                    | 30 – 1000 MHz | ±2.5 dB     |
|                                    | 1 – 18 GHz    | ±3.5 dB     |
|                                    | 18 – 40 GHz   | ±3.8 dB     |
|                                    | 40 – 200 GHz  | N/A         |
| Temperature                        |               | ±0.8 °C     |
| Humidity                           |               | ±3 %        |
| DC and low frequency voltages      |               | ±3 %        |
| Time                               |               | ±1.4 %      |
| Duty Cycle                         |               | ±1.4 %      |

## 2 Test Configuration of EUT

### 2.1 The Worst Case Modulation Configuration

| Modulation Used for Conformance Testing |                                |
|-----------------------------------------|--------------------------------|
| Test Mode                               | Field Strength (dBuV/m at 3 m) |
| Legacy-Transmit                         | 92.22                          |
| OSR-Transmit                            | 92.71                          |

### 2.2 Test Channel Frequencies Configuration

| Test Channel Frequencies Configuration |                                |
|----------------------------------------|--------------------------------|
| Test Mode                              | Test Channel Frequencies (MHz) |
| Legacy-Transmit                        | 902.35, 903.7, 905.45          |
| OSR-Transmit                           | 902.4, 915, 927.6              |

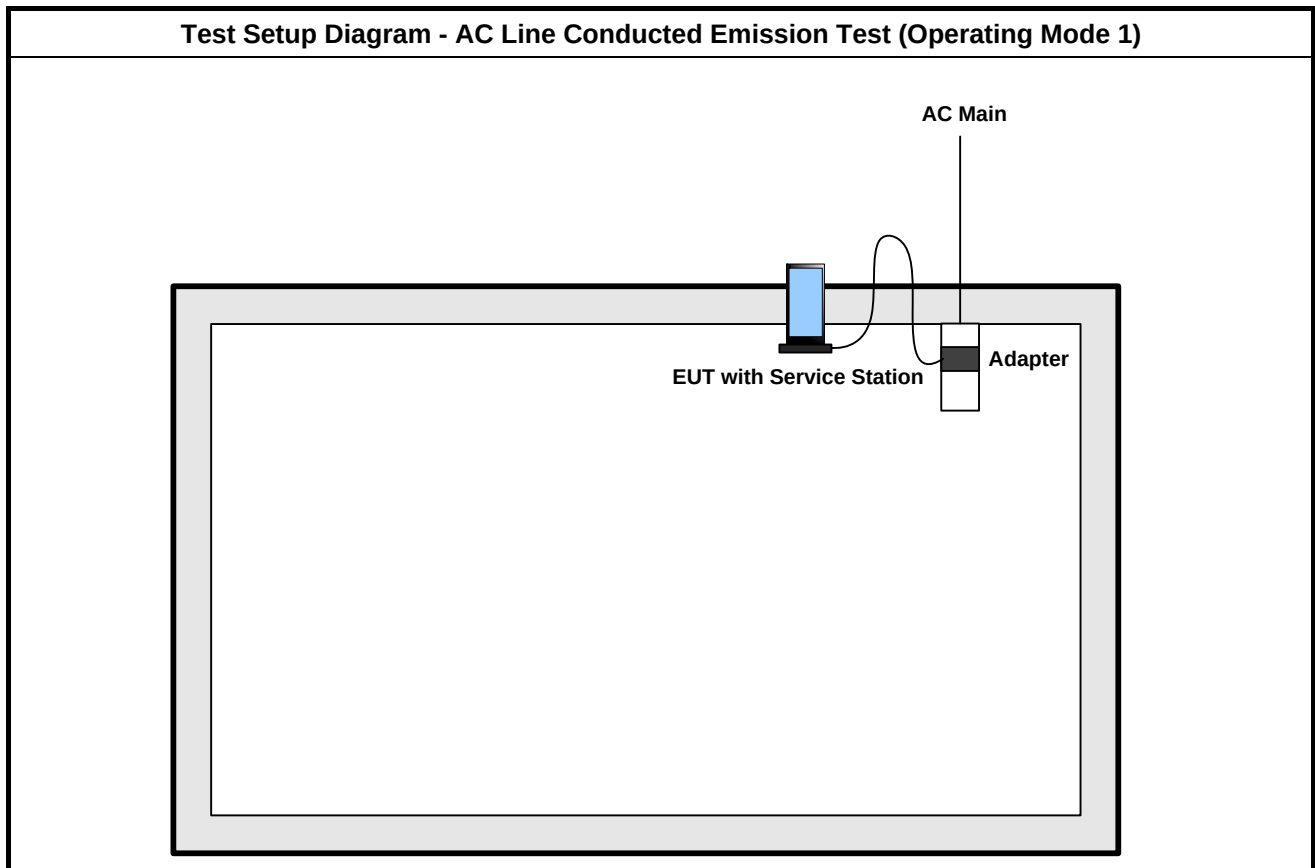
### 2.3 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests |                                                                                         |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------|
| Tests Item                                          | AC power-line conducted emissions                                                       |
| Condition                                           | AC power-line conducted measurement for line and neutral<br>Test Voltage: 120Vac / 60Hz |
| Operating Mode                                      | Operating Mode Description                                                              |
|                                                     | Operating Mode Description                                                              |
|                                                     | 1. EUT with Service Station Charge Mode                                                 |

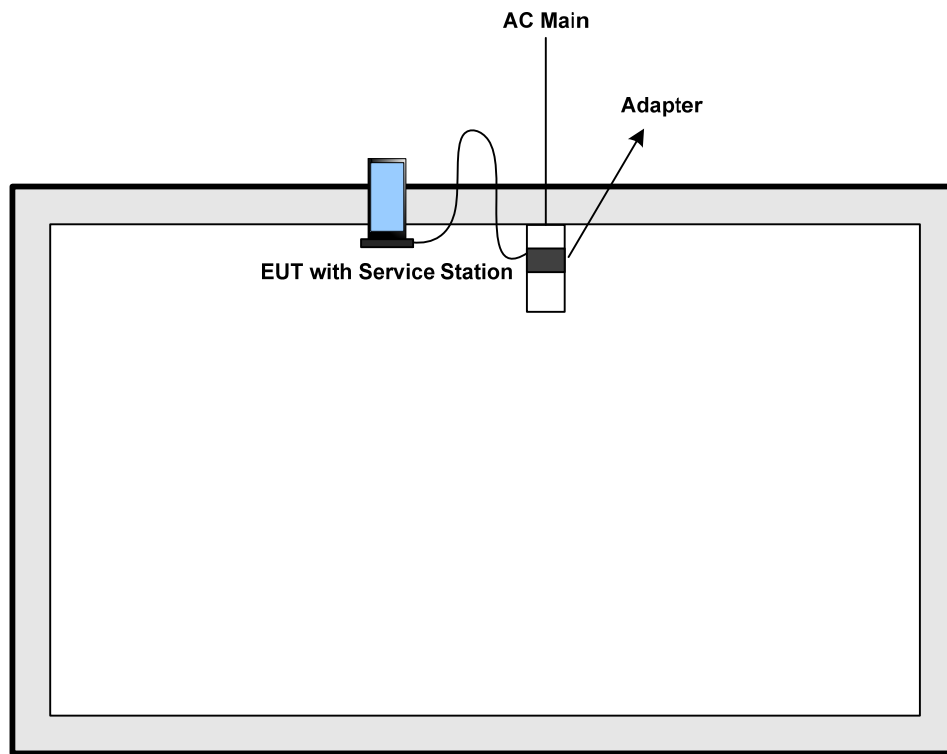
| The Worst Case Mode for Following Conformance Tests                                 |                                                                                     |                                                                                     |                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tests Item                                                                          |                                                                                     | Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions              |                                                                                                                                                                                                           |
| Test Condition                                                                      |                                                                                     | Radiated measurement                                                                |                                                                                                                                                                                                           |
| User Position                                                                       |                                                                                     | <input type="checkbox"/> EUT will be placed in fixed position.                      |                                                                                                                                                                                                           |
| X Plane                                                                             | Y Plane                                                                             | Z Plane                                                                             | <input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions.                                                                                                          |
|  |  |  | <input checked="" type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes. The worst planes is Y. |
| Operating Mode<br>(Below 1GHz)                                                      |                                                                                     | Operating Mode Description                                                          |                                                                                                                                                                                                           |
|                                                                                     |                                                                                     | 1. EUT with Service Station Charge Mode                                             |                                                                                                                                                                                                           |
|                                                                                     |                                                                                     | 2. EUT with AC power via Debug Board Transmitter                                    |                                                                                                                                                                                                           |
| Operating Mode<br>(Above 1GHz)                                                      |                                                                                     | 2. EUT with AC power via Debug Board Transmitter                                    |                                                                                                                                                                                                           |
| Modulation Mode                                                                     |                                                                                     | Legacy-Transmit / OSR-Transmit                                                      |                                                                                                                                                                                                           |

Note: The RF Function will be off when the EUT charge with Service Station.

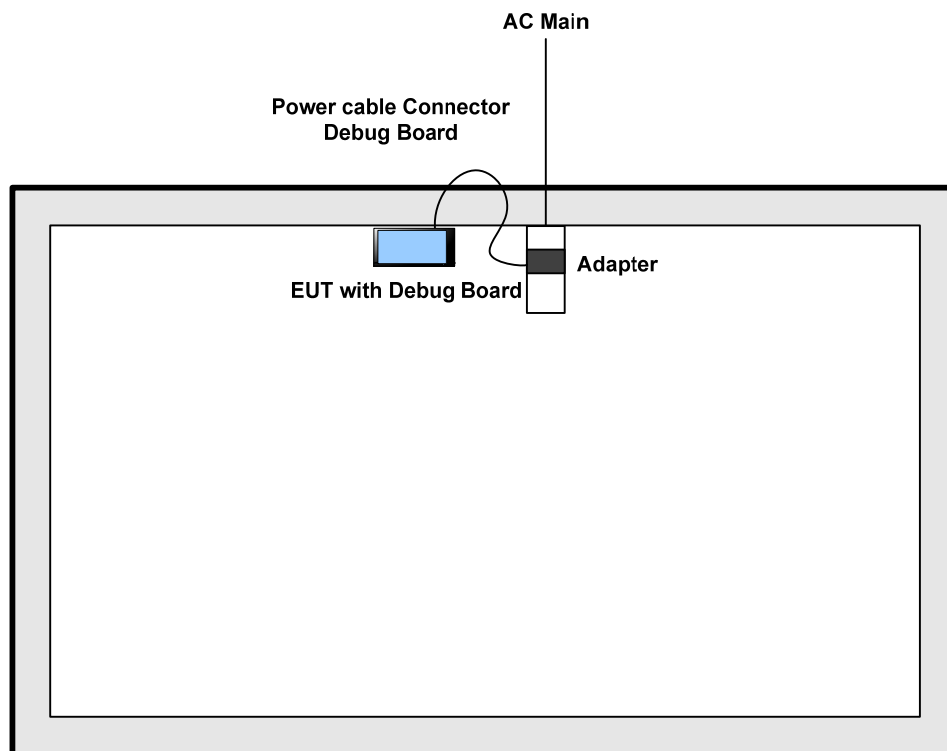
## 2.4 Test Setup Diagram



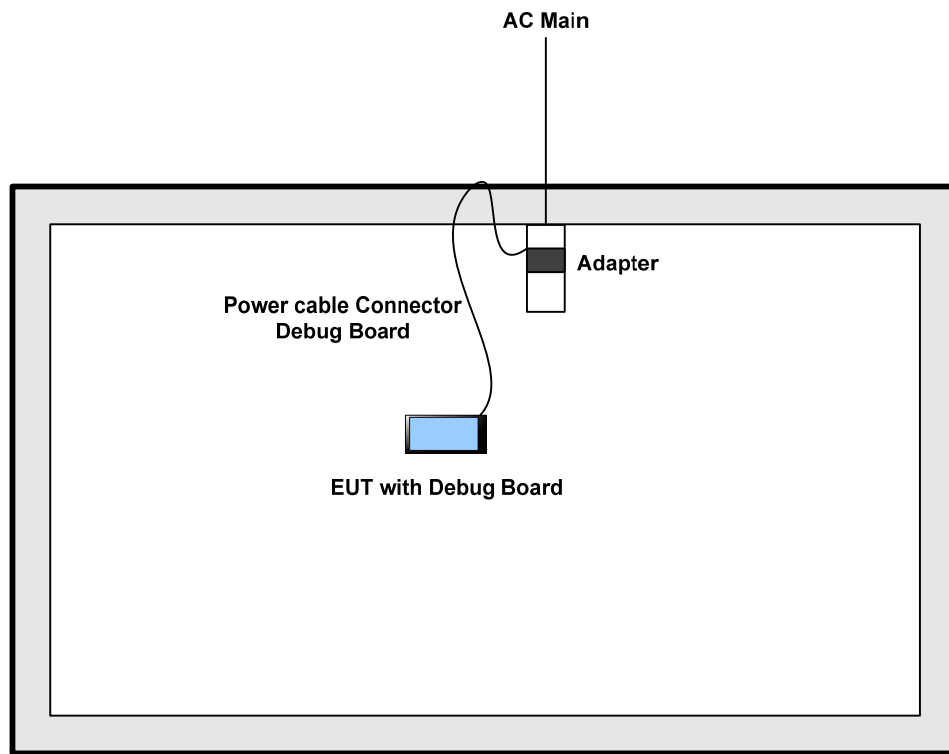
**Test Setup Diagram - Radiated Test Below 1GHz (Operating Mode 1)**



**Test Setup Diagram - Radiated Test Below 1GHz (Operating Mode 2)**



**Test Setup Diagram - Radiated Test Above 1GHz (Operating Mode 2)**



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit |            |           |
|-----------------------------------------|------------|-----------|
| Frequency Emission (MHz)                | Quasi-Peak | Average   |
| 0.15-0.5                                | 66 - 56 *  | 56 - 46 * |
| 0.5-5                                   | 56         | 46        |
| 5-30                                    | 60         | 50        |

Note 1: \* Decreases with the logarithm of the frequency.

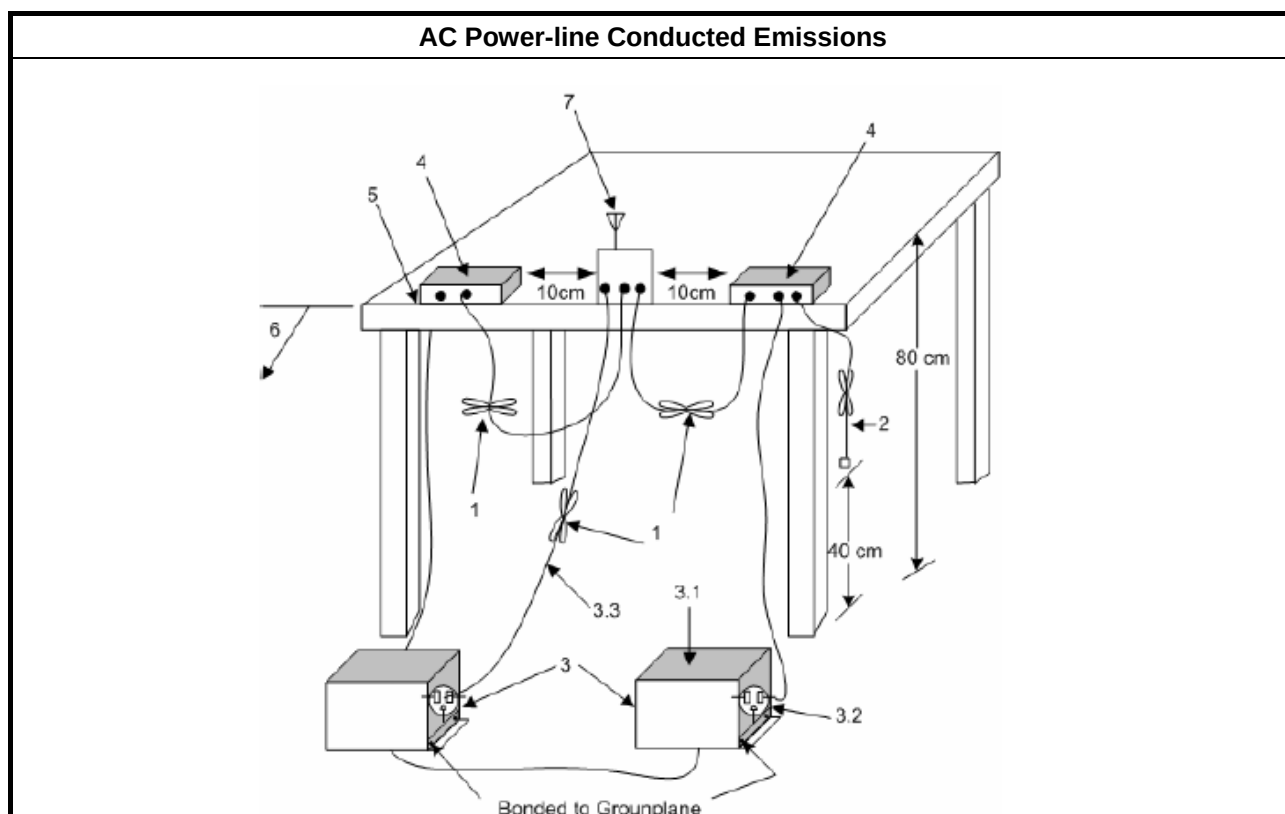
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

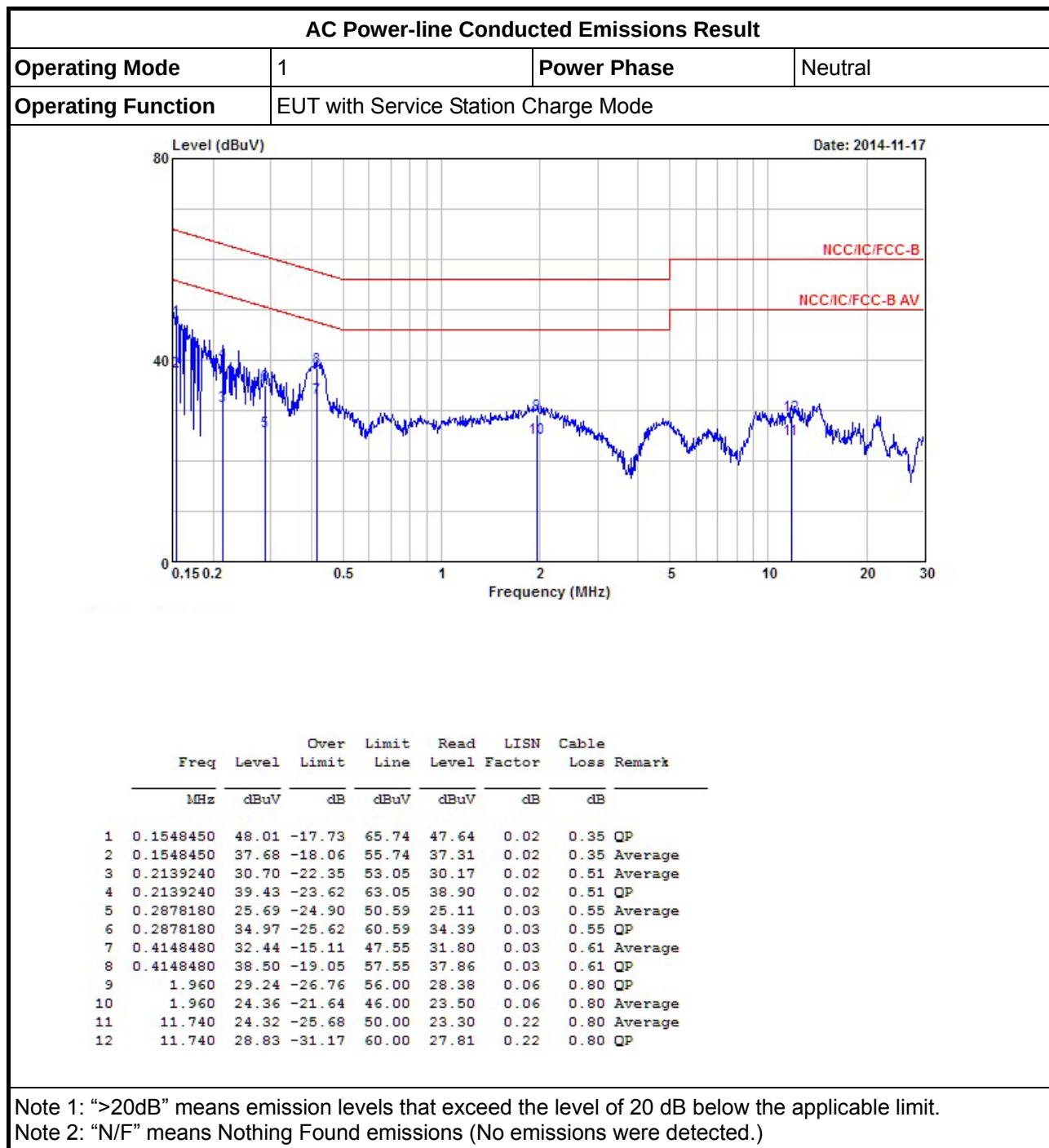
##### 3.1.3 Test Procedures

| Test Method                                                                                                      |
|------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions. |

##### 3.1.4 Test Setup

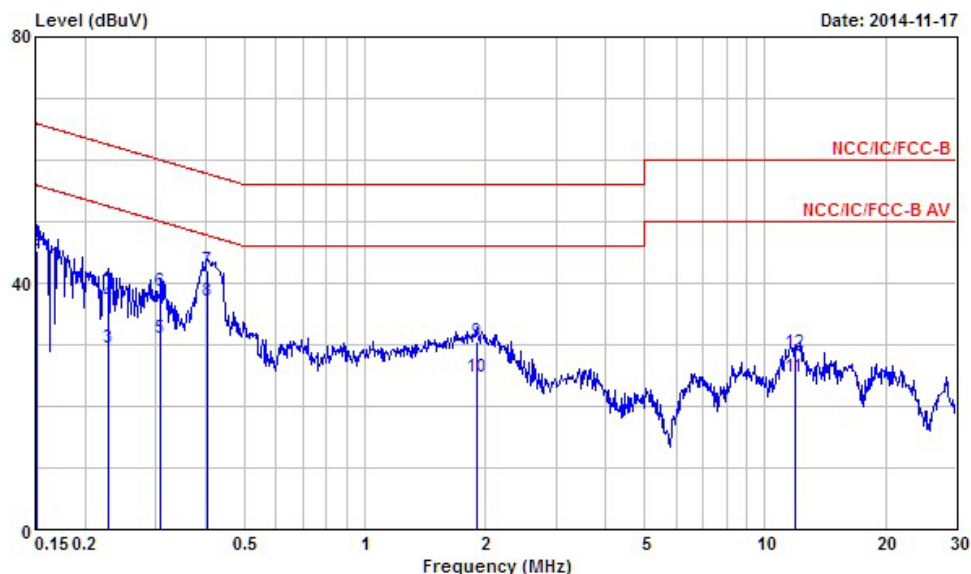


### 3.1.5 Test Result of AC Power-line Conducted Emissions



**AC Power-line Conducted Emissions Result**

|                    |                                      |             |      |
|--------------------|--------------------------------------|-------------|------|
| Operating Mode     | 1                                    | Power Phase | Line |
| Operating Function | EUT with Service Station Charge Mode |             |      |



|    | Freq      | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|-----------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz       | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |           |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.1515980 | 34.40 | -21.51 | 55.91 | 34.03 | 0.03   | 0.34  | Average |
| 2  | 0.1515980 | 45.23 | -20.68 | 65.91 | 44.86 | 0.03   | 0.34  | QP      |
| 3  | 0.2279670 | 29.58 | -22.94 | 52.52 | 29.03 | 0.03   | 0.52  | Average |
| 4  | 0.2279670 | 36.95 | -25.57 | 62.52 | 36.40 | 0.03   | 0.52  | QP      |
| 5  | 0.3083410 | 30.93 | -19.09 | 50.02 | 30.34 | 0.03   | 0.56  | Average |
| 6  | 0.3083410 | 38.55 | -21.47 | 60.02 | 37.96 | 0.03   | 0.56  | QP      |
| 7  | 0.4040020 | 42.01 | -15.76 | 57.77 | 41.38 | 0.03   | 0.60  | QP      |
| 8  | 0.4040020 | 37.02 | -10.75 | 47.77 | 36.39 | 0.03   | 0.60  | Average |
| 9  | 1.900     | 30.65 | -25.35 | 56.00 | 29.78 | 0.07   | 0.80  | QP      |
| 10 | 1.900     | 24.61 | -21.39 | 46.00 | 23.74 | 0.07   | 0.80  | Average |
| 11 | 11.870    | 24.65 | -25.35 | 50.00 | 23.63 | 0.22   | 0.80  | Average |
| 12 | 11.870    | 28.81 | -31.19 | 60.00 | 27.79 | 0.22   | 0.80  | QP      |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

## 3.2 Emission Bandwidth

### 3.2.1 Emission Bandwidth Limit

| Emission Bandwidth Limit            |                                                             |
|-------------------------------------|-------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Emission bandwidth falls completely within authorized band. |

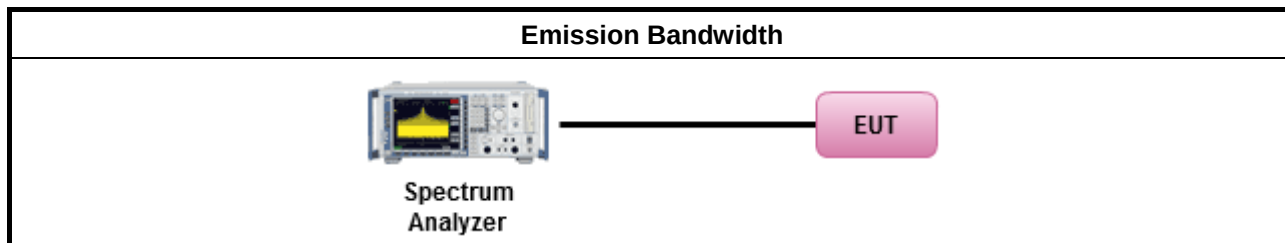
### 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.2.3 Test Procedures

| Test Method                         |                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.1 for 20 dB emission bandwidth and 99% occupied bandwidth measurement. |

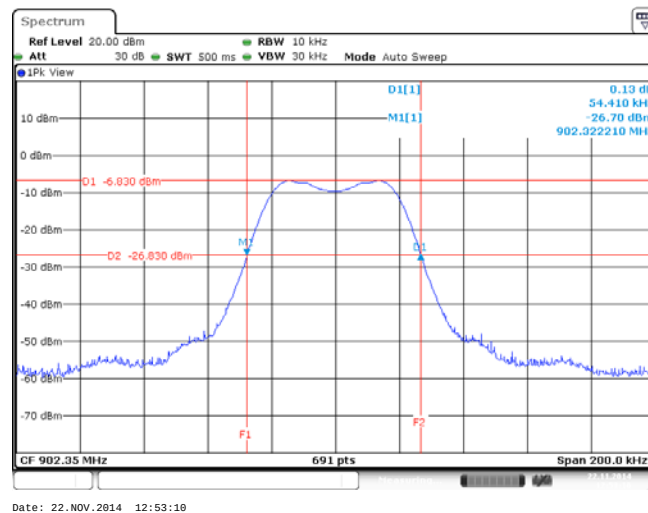
### 3.2.4 Test Setup



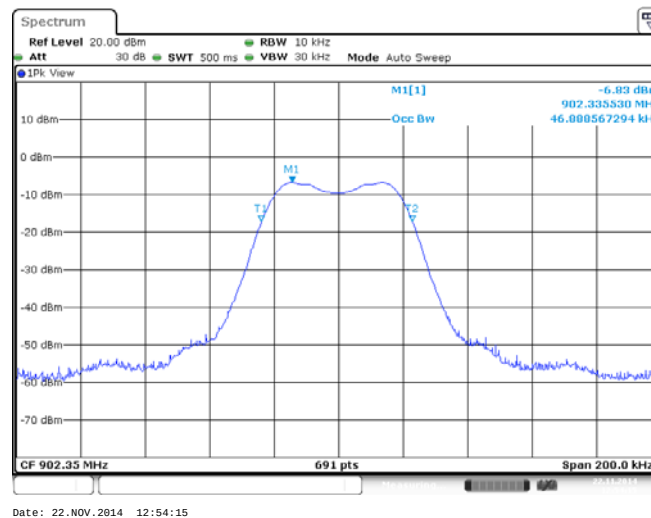
### 3.2.5 Test Result of Emission Bandwidth

| Occupied Channel Bandwidth Result |                 |                      |                                 |                                 |                     |
|-----------------------------------|-----------------|----------------------|---------------------------------|---------------------------------|---------------------|
| Modulation Mode                   | Frequency (MHz) | 20dB Bandwidth (kHz) | F <sub>L</sub> at 20dB BW (MHz) | F <sub>H</sub> at 20dB BW (MHz) | 99% Bandwidth (kHz) |
| Legacy-Transmit                   | 902.35          | 0.0544               | 902.3222                        | -                               | 0.4688              |
| Legacy-Transmit                   | 903.70          | 0.0544               | -                               | -                               | 0.4688              |
| Legacy-Transmit                   | 905.45          | 0.0541               | -                               | 905.7463                        | 0.4688              |
| Limit                             |                 | N/A                  | 902                             | 928                             | N/A                 |
| Result                            |                 | Complied             |                                 |                                 |                     |

**Worst Emission 20dB Bandwidth Plots**

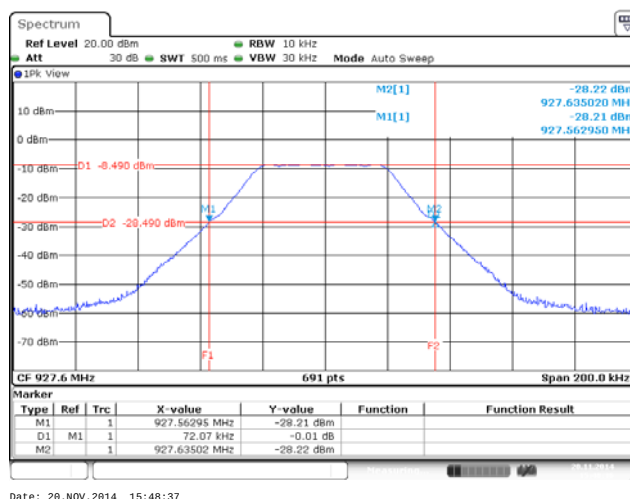


**Worst Emission 99% Bandwidth Plots**

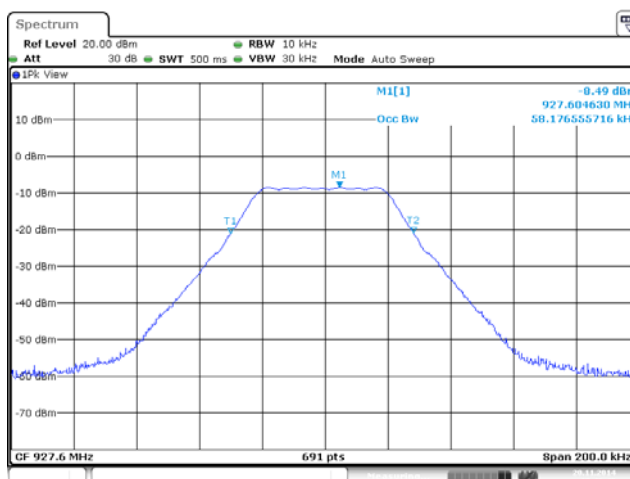


**Occupied Channel Bandwidth Result**

| Modulation Mode | Frequency (MHz) | 20dB Bandwidth (kHz) | F <sub>L</sub> at 20dB BW (MHz) | F <sub>H</sub> at 20dB BW (MHz) | 99% Bandwidth (kHz) |
|-----------------|-----------------|----------------------|---------------------------------|---------------------------------|---------------------|
| OSR-Transmit    | 902.4           | 0.072                | 902.3632                        | -                               | 0.5788              |
| OSR-Transmit    | 915.0           | 0.072                | -                               | -                               | 0.5788              |
| OSR-Transmit    | 927.6           | 0.072                | -                               | 927.6350                        | 0.5817              |
| <b>Limit</b>    |                 | <b>N/A</b>           | <b>902</b>                      | <b>928</b>                      | <b>N/A</b>          |
| <b>Result</b>   |                 | <b>Complied</b>      |                                 |                                 |                     |

**Worst Emission 20dB Bandwidth Plots**


Date: 28.NOV.2014 15:48:37

**Worst Emission 99% Bandwidth Plots**


Date: 28.NOV.2014 15:46:43

### 3.3 Fundamental Emissions

#### 3.3.1 Fundamental Emissions Limit

| Fundamental Emissions E-Field Strength Limit (3m) |                                           |
|---------------------------------------------------|-------------------------------------------|
| <input checked="" type="checkbox"/>               | 902-928 MHz Band: 94 dBuV/m (quasi peak)  |
| <input type="checkbox"/>                          | 2400-2483.5 MHz Band: 94 dBuV/m (average) |
| <input type="checkbox"/>                          | 5725-5785 MHz Band: 94 dBuV/m (average)   |

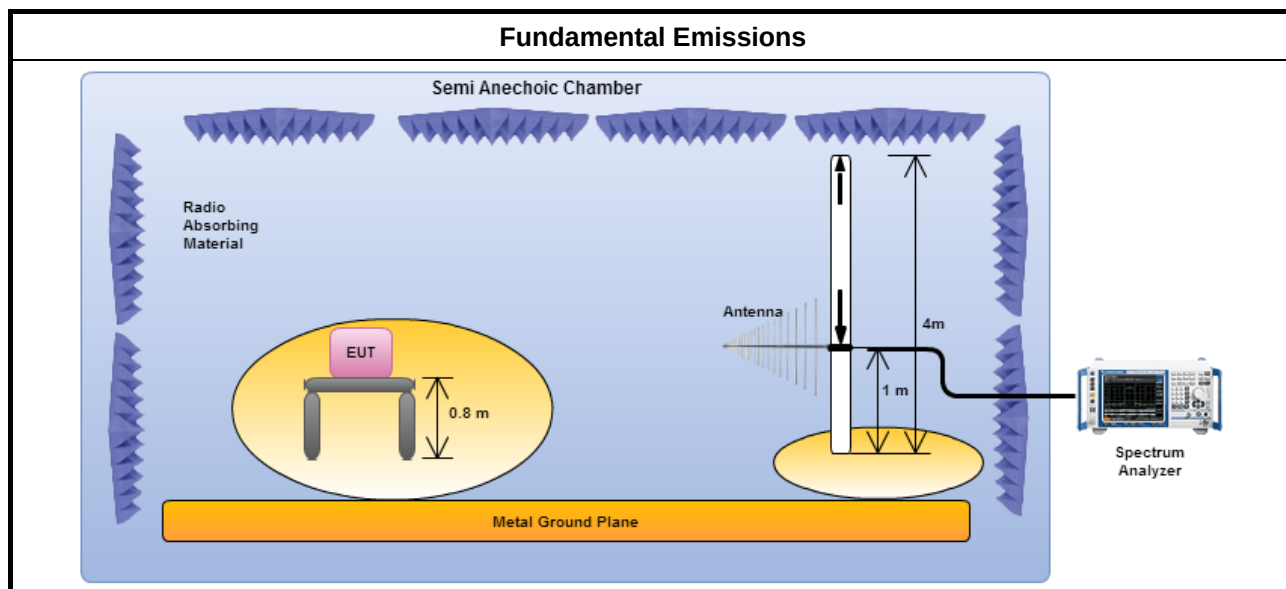
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

|                                     |                                                                                                                                                                                                                                           |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | The average emission levels shall be measured in [duty cycle $\geq 100$ or by duty cycle correction factor].                                                                                                                              |
| <input checked="" type="checkbox"/> | For the transmitter emissions shall be measured using following options below:                                                                                                                                                            |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle $\geq 100\%$ .                                                                                                                                                          |
| <input type="checkbox"/>            | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$ . Average emission = peak emission + 20 log (duty cycle). |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.                                                                                                                                                                  |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.5 for radiated emissions and test distance is 3m.                                                                                                                                                          |

#### 3.3.4 Test Setup



### 3.3.5 Test Result of Fundamental Emissions

| Field Strength of Fundamental Emissions Result                                  |                 |                         |             |                   |      |
|---------------------------------------------------------------------------------|-----------------|-------------------------|-------------|-------------------|------|
| Modulation Mode                                                                 | Frequency (MHz) | Fundamental (dBuV/m)@3m | Margin (dB) | Limit (dBuV/m)@3m | Type |
| Legacy-Transmit                                                                 | 902.35          | 91.70                   | 2.30        | 94                | QP   |
| Legacy-Transmit                                                                 | 905.45          | 92.22                   | 1.78        | 94                | QP   |
| Result                                                                          |                 | Complied                |             |                   |      |
| Note 1: Measurement worst emissions of receive antenna polarization: Horizontal |                 |                         |             |                   |      |

| Field Strength of Fundamental Emissions Result                                  |                 |                         |             |                   |      |
|---------------------------------------------------------------------------------|-----------------|-------------------------|-------------|-------------------|------|
| Modulation Mode                                                                 | Frequency (MHz) | Fundamental (dBuV/m)@3m | Margin (dB) | Limit (dBuV/m)@3m | Type |
| OSR-Transmit                                                                    | 902.4           | 90.75                   | 3.25        | 94                | QP   |
| OSR-Transmit                                                                    | 915.0           | 92.71                   | 1.29        | 94                | QP   |
| OSR-Transmit                                                                    | 927.6           | 91.35                   | 2.65        | 94                | QP   |
| Result                                                                          |                 | Complied                |             |                   |      |
| Note 1: Measurement worst emissions of receive antenna polarization: Horizontal |                 |                         |             |                   |      |

### 3.4 Transmitter Radiated Unwanted Emissions

#### 3.4.1 Transmitter Radiated Unwanted Emissions Limit

| Transmitter Radiated Unwanted Emissions Limit |                                                                                              |
|-----------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Harmonics:</b>                             |                                                                                              |
| <input checked="" type="checkbox"/>           | 54 dBuV/m (average)                                                                          |
| <b>Other Unwanted Emissions:</b>              |                                                                                              |
| <input checked="" type="checkbox"/>           | 50 dB below the level of the fundamental or FCC 15.209, whichever is the lesser attenuation. |

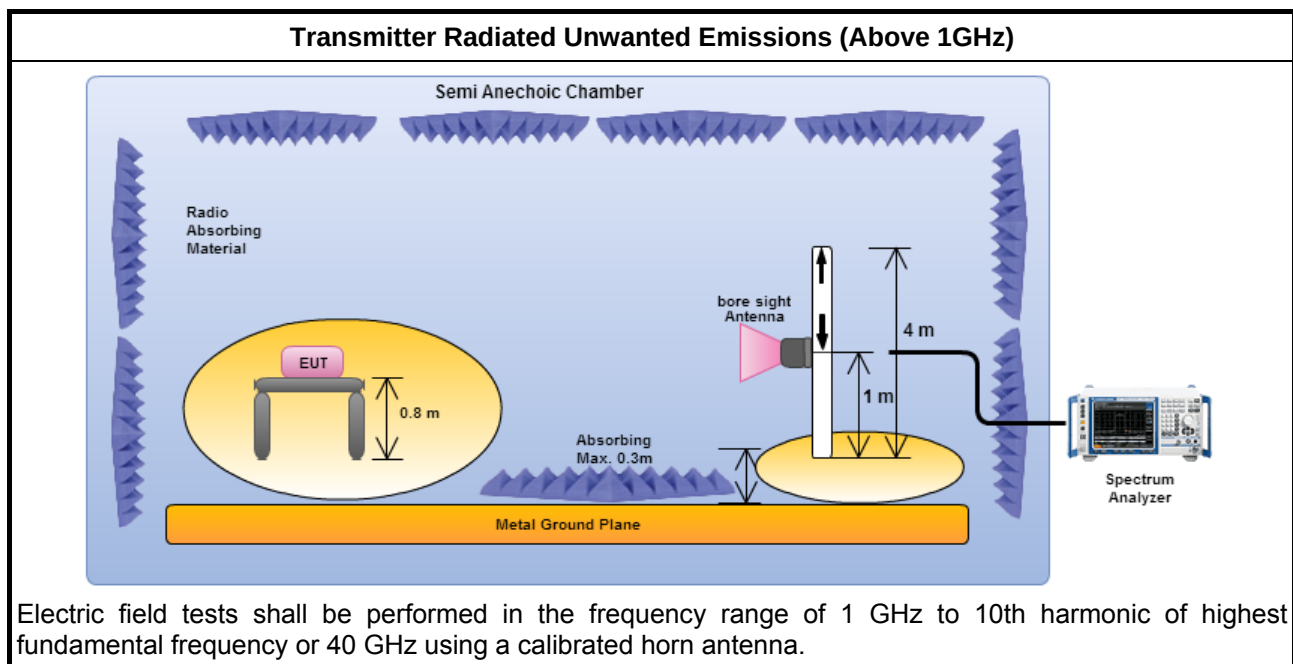
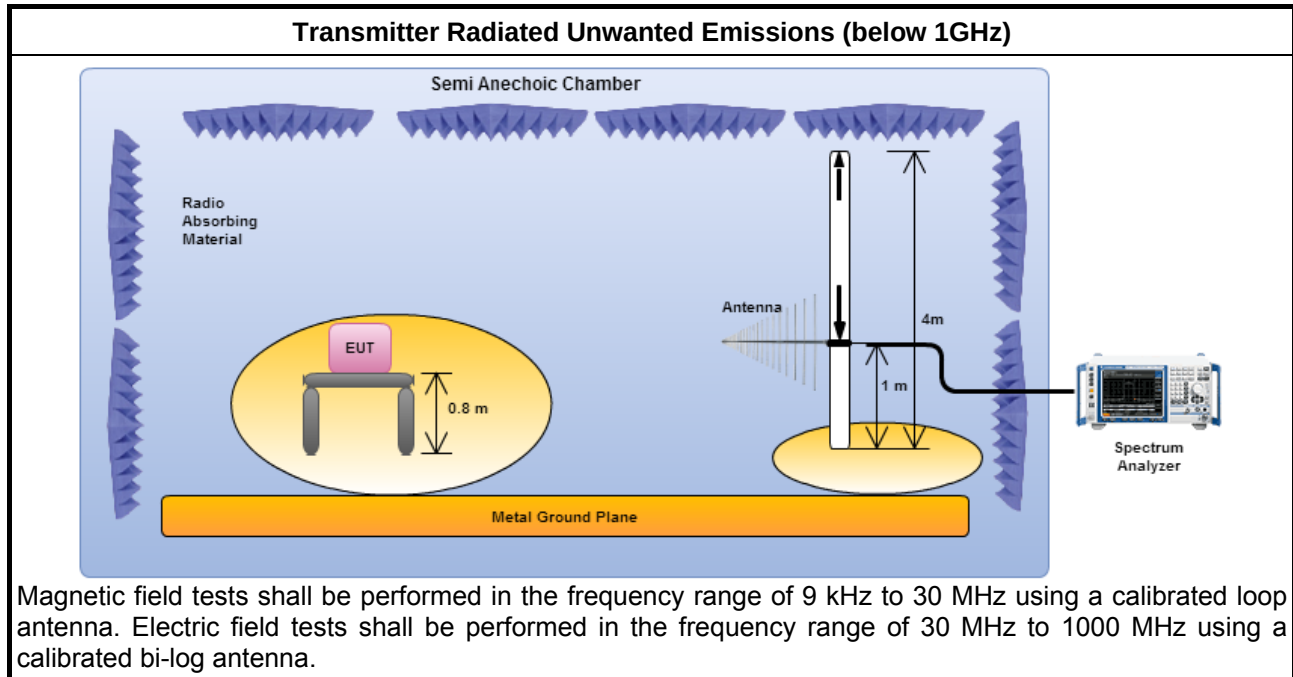
#### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

| Test Method – General Information   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. 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 of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). |
| <input checked="" type="checkbox"/> | The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.                                                                                                                                                                                                                                                                                                                                                   |
| <input checked="" type="checkbox"/> | For the transmitter unwanted emissions shall be measured using following options below:                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle $\geq$ 100%.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <input type="checkbox"/>            | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$ . Average emission = peak emission + 20 log (duty cycle).                                                                                                                                                                                                                                                                                   |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <input checked="" type="checkbox"/> | For the transmitter bandedge emissions shall be measured using following options below:                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>            | Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <input checked="" type="checkbox"/> | For radiated measurement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <input checked="" type="checkbox"/> | The any unwanted emissions level shall not exceed the fundamental emission level.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <input checked="" type="checkbox"/> | All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.                                                                                                                                                                                                                                                                                                                                                                                          |

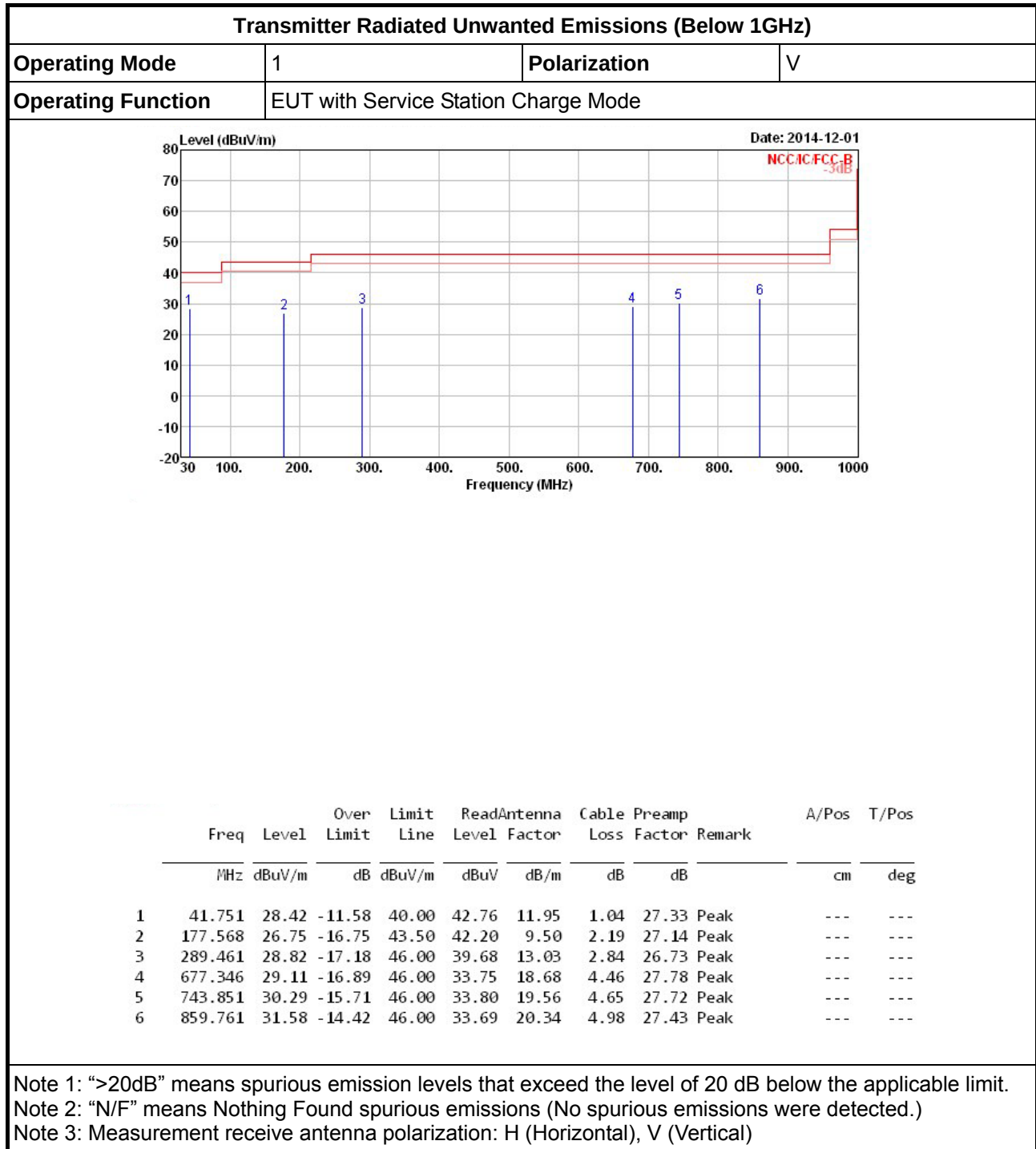
### 3.4.4 Test Setup



### 3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

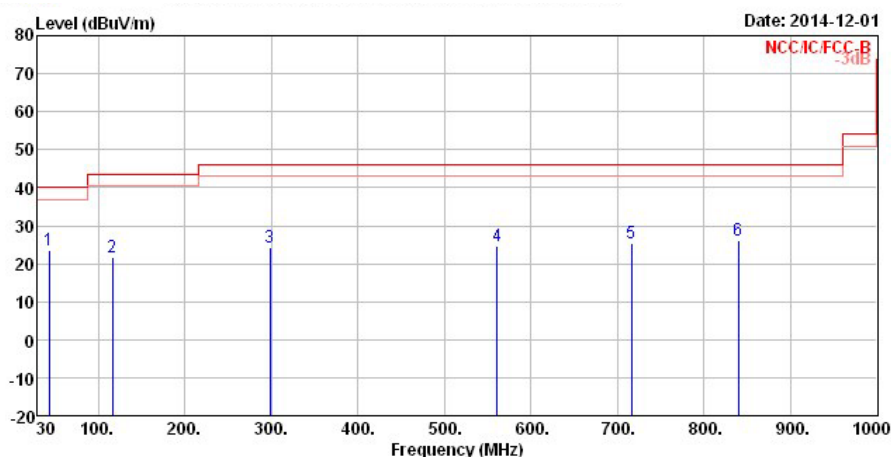
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

### 3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)



**Transmitter Radiated Unwanted Emissions (Below 1GHz)**

|                    |                                      |              |   |
|--------------------|--------------------------------------|--------------|---|
| Operating Mode     | 1                                    | Polarization | H |
| Operating Function | EUT with Service Station Charge Mode |              |   |



|   | Freq    | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamplifier Loss | Remark     | A/Pos | T/Pos |
|---|---------|--------|------------|------------|-------------------|--------------|-------------------|------------|-------|-------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB                | dB         | cm    | deg   |
| 1 | 43.421  | 23.62  | -16.38     | 40.00      | 39.08             | 10.82        | 1.06              | 27.34 Peak | ---   | ---   |
| 2 | 116.253 | 21.69  | -21.81     | 43.50      | 34.97             | 12.15        | 1.75              | 27.18 Peak | ---   | ---   |
| 3 | 298.150 | 24.26  | -21.74     | 46.00      | 34.87             | 13.19        | 2.89              | 26.69 Peak | ---   | ---   |
| 4 | 561.238 | 24.75  | -21.25     | 46.00      | 30.31             | 18.31        | 3.97              | 27.84 Peak | ---   | ---   |
| 5 | 715.853 | 25.37  | -20.63     | 46.00      | 29.44             | 19.10        | 4.59              | 27.76 Peak | ---   | ---   |
| 6 | 839.457 | 26.12  | -19.88     | 46.00      | 28.49             | 20.19        | 4.93              | 27.49 Peak | ---   | ---   |

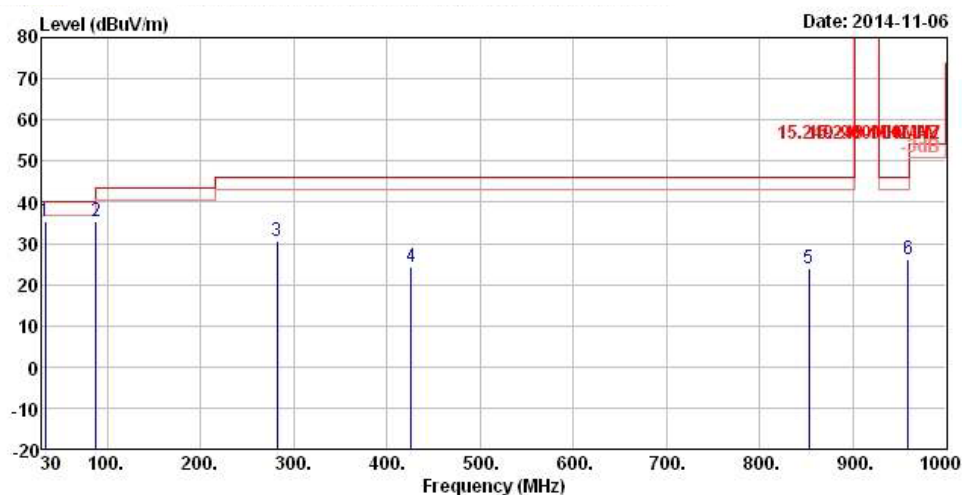
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Unwanted Emissions (Below 1GHz)**

|                    |                                                        |              |   |
|--------------------|--------------------------------------------------------|--------------|---|
| Operating Mode     | 2                                                      | Polarization | V |
| Operating Function | EUT with AC power via Debug Board Transmitter (Legacy) |              |   |



|   | Freq    | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | A/Pos | T/Pos |
|---|---------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|-------|-------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm    | deg   |
| 1 | 33.880  | 35.41  | -4.59      | 40.00      | 45.10             | 16.67          | 0.92       | 27.28         | QP     | ---   | ---   |
| 2 | 88.200  | 35.29  | -8.21      | 43.50      | 52.41             | 8.58           | 1.53       | 27.23         | Peak   | ---   | ---   |
| 3 | 282.200 | 30.38  | -15.62     | 46.00      | 41.49             | 12.85          | 2.80       | 26.76         | Peak   | ---   | ---   |
| 4 | 425.760 | 24.15  | -21.85     | 46.00      | 31.82             | 16.39          | 3.42       | 27.48         | Peak   | ---   | ---   |
| 5 | 852.560 | 23.78  | -22.22     | 46.00      | 25.98             | 20.30          | 4.95       | 27.45         | Peak   | ---   | ---   |
| 6 | 959.260 | 26.21  | -19.79     | 46.00      | 26.98             | 21.24          | 5.36       | 27.37         | Peak   | ---   | ---   |

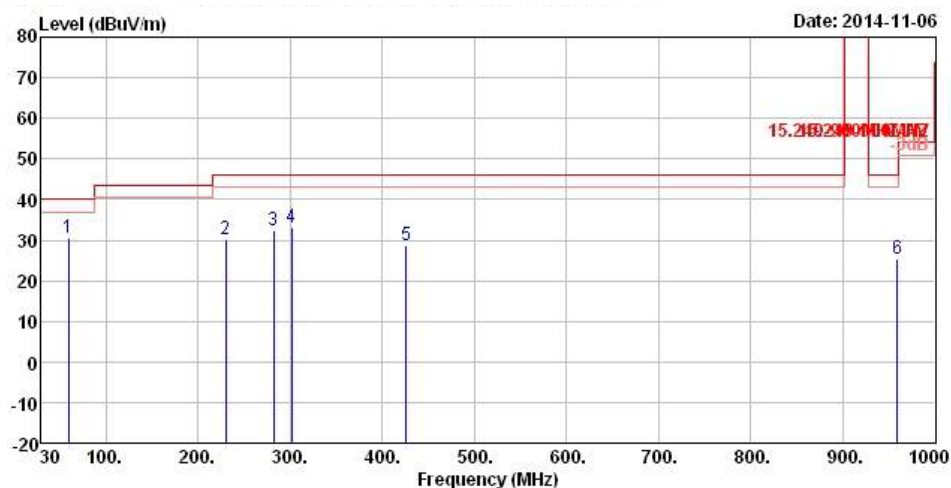
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

### Transmitter Radiated Unwanted Emissions (Below 1GHz)

|                           |                                                        |                     |   |
|---------------------------|--------------------------------------------------------|---------------------|---|
| <b>Operating Mode</b>     | 2                                                      | <b>Polarization</b> | H |
| <b>Operating Function</b> | EUT with AC power via Debug Board Transmitter (Legacy) |                     |   |



|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | A/Pos | T/Pos |
|---|---------|--------|------------|------------|------------|----------------|------------|---------------|--------|-------|-------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |        | cm    | deg   |
| 1 | 59.100  | 30.52  | -9.48      | 40.00      | 49.79      | 6.93           | 1.24       | 27.44         | Peak   | ---   | ---   |
| 2 | 229.820 | 30.28  | -15.72     | 46.00      | 44.30      | 10.48          | 2.50       | 27.00         | Peak   | ---   | ---   |
| 3 | 282.200 | 32.55  | -13.45     | 46.00      | 43.66      | 12.85          | 2.80       | 26.76         | Peak   | ---   | ---   |
| 4 | 301.600 | 33.28  | -12.72     | 46.00      | 43.79      | 13.27          | 2.91       | 26.69         | Peak   | ---   | ---   |
| 5 | 425.760 | 28.82  | -17.18     | 46.00      | 36.49      | 16.39          | 3.42       | 27.48         | Peak   | ---   | ---   |
| 6 | 959.260 | 25.32  | -20.68     | 46.00      | 26.09      | 21.24          | 5.36       | 27.37         | Peak   | ---   | ---   |

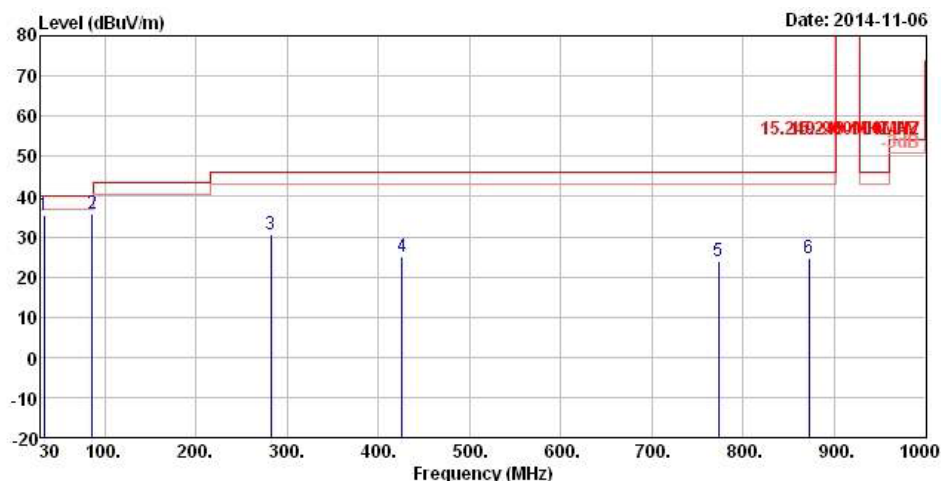
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

### Transmitter Radiated Unwanted Emissions (Below 1GHz)

|                           |                                                     |                     |   |
|---------------------------|-----------------------------------------------------|---------------------|---|
| <b>Operating Mode</b>     | 2                                                   | <b>Polarization</b> | V |
| <b>Operating Function</b> | EUT with AC power via Debug Board Transmitter (OSR) |                     |   |



|   | Freq    | Level  | Over Limit | Limit Line | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Remark | A/Pos | T/Pos |
|---|---------|--------|------------|------------|-------------------|--------|------------|---------------|--------|-------|-------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m   | dB         | dB            |        | cm    | deg   |
| 1 | 33.880  | 35.48  | -4.52      | 40.00      | 45.17             | 16.67  | 0.92       | 27.28         | QP     | ---   | ---   |
| 2 | 86.260  | 35.62  | -4.38      | 40.00      | 53.23             | 8.17   | 1.52       | 27.30         | Peak   | ---   | ---   |
| 3 | 282.200 | 30.65  | -15.35     | 46.00      | 41.76             | 12.85  | 2.80       | 26.76         | Peak   | ---   | ---   |
| 4 | 425.760 | 25.09  | -20.91     | 46.00      | 32.76             | 16.39  | 3.42       | 27.48         | Peak   | ---   | ---   |
| 5 | 773.020 | 24.02  | -21.98     | 46.00      | 27.16             | 19.75  | 4.78       | 27.67         | Peak   | ---   | ---   |
| 6 | 871.960 | 24.50  | -21.50     | 46.00      | 26.30             | 20.54  | 5.04       | 27.38         | Peak   | ---   | ---   |

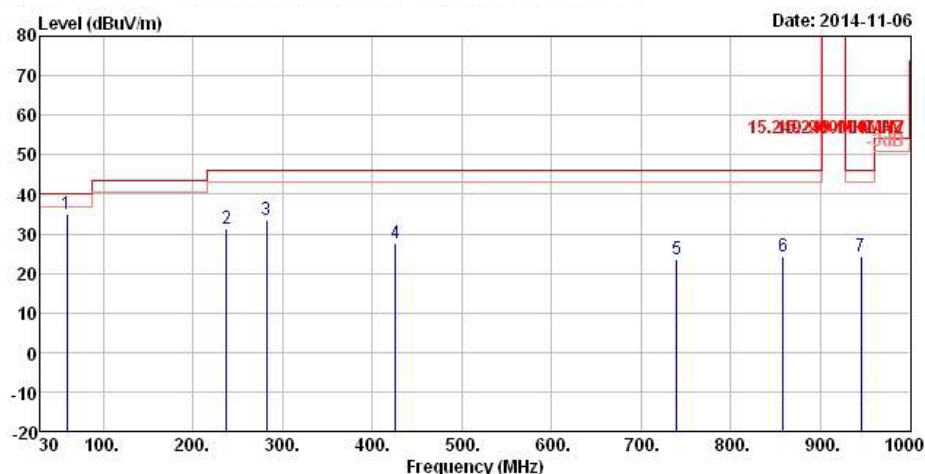
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Unwanted Emissions (Below 1GHz)**

|                    |                                                     |              |   |
|--------------------|-----------------------------------------------------|--------------|---|
| Operating Mode     | 2                                                   | Polarization | H |
| Operating Function | EUT with AC power via Debug Board Transmitter (OSR) |              |   |



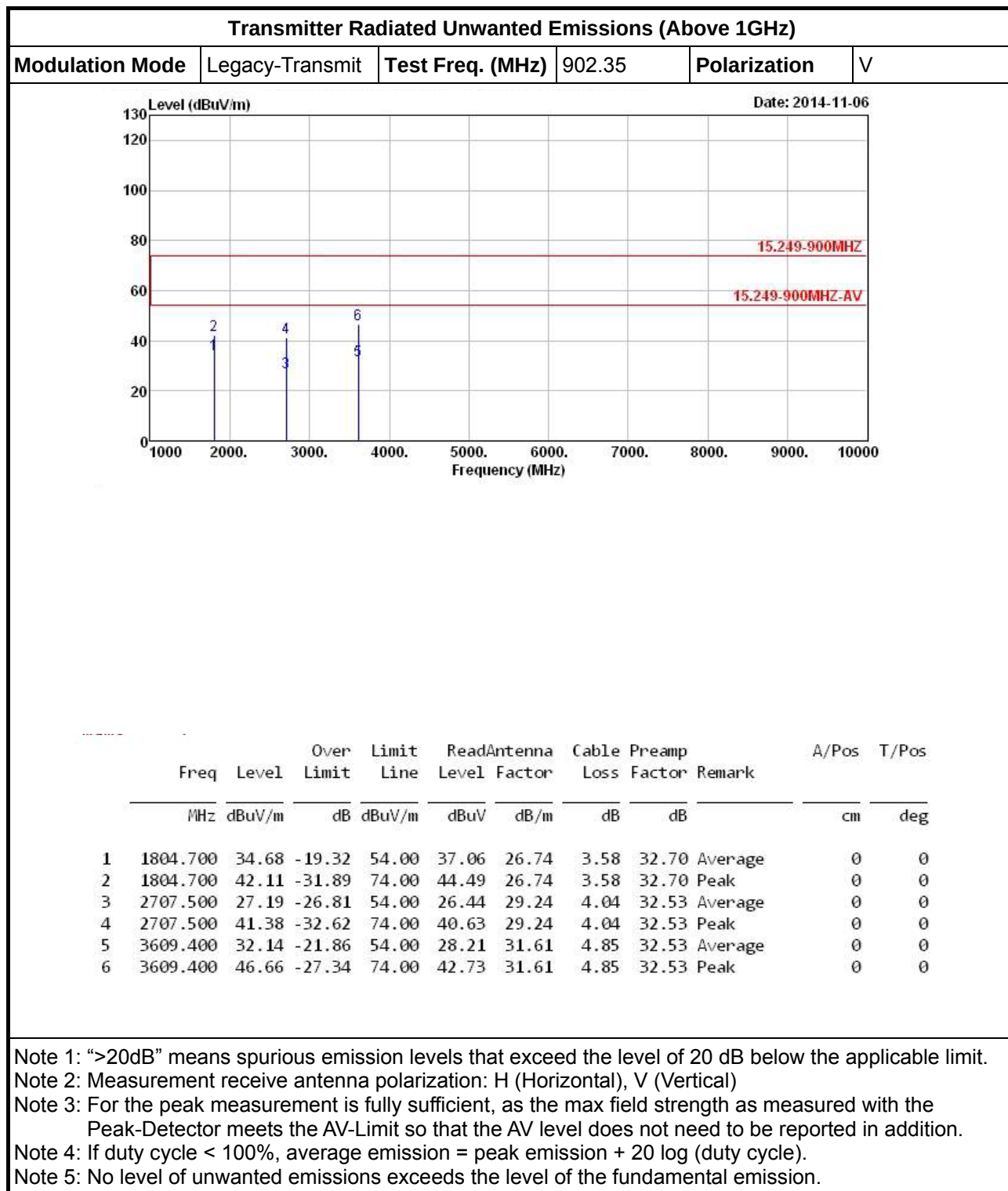
|   | Freq    | Level  | Over<br>Limit | Limit<br>Line | ReadAntenna<br>Level | Cable<br>Factor | Preamp<br>Loss | Preamp<br>Factor | Remark | A/Pos | T/Pos |
|---|---------|--------|---------------|---------------|----------------------|-----------------|----------------|------------------|--------|-------|-------|
|   | MHz     | dBuV/m | dB            | dBuV/m        | dBuV                 | dB/m            | dB             | dB               |        | cm    | deg   |
| 1 | 59.100  | 34.83  | -5.17         | 40.00         | 54.10                | 6.93            | 1.24           | 27.44            | Peak   | ---   | ---   |
| 2 | 237.580 | 31.46  | -14.54        | 46.00         | 44.40                | 11.48           | 2.54           | 26.96            | Peak   | ---   | ---   |
| 3 | 282.200 | 33.63  | -12.37        | 46.00         | 44.74                | 12.85           | 2.80           | 26.76            | Peak   | ---   | ---   |
| 4 | 425.760 | 27.52  | -18.48        | 46.00         | 35.19                | 16.39           | 3.42           | 27.48            | Peak   | ---   | ---   |
| 5 | 740.040 | 23.49  | -22.51        | 46.00         | 27.01                | 19.57           | 4.64           | 27.73            | Peak   | ---   | ---   |
| 6 | 858.380 | 24.18  | -21.82        | 46.00         | 26.30                | 20.34           | 4.97           | 27.43            | Peak   | ---   | ---   |
| 7 | 945.680 | 24.35  | -21.65        | 46.00         | 25.56                | 20.82           | 5.32           | 27.35            | Peak   | ---   | ---   |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

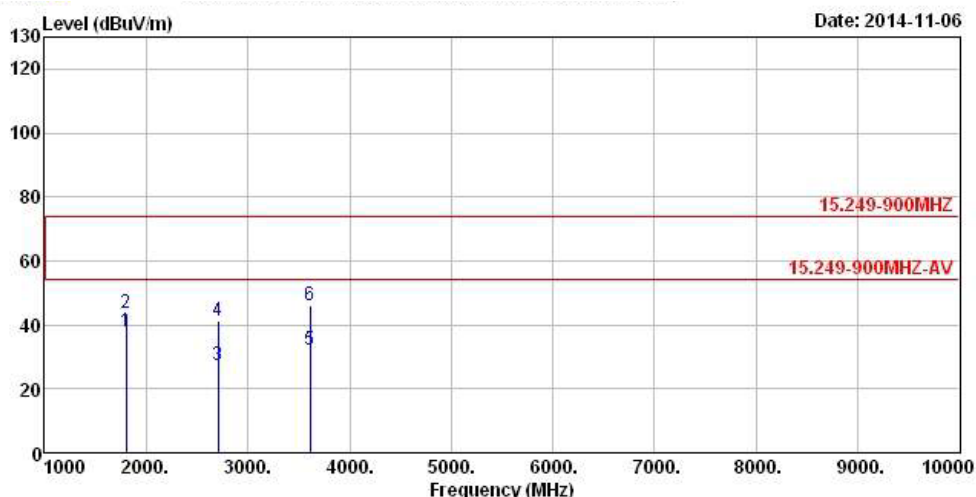
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

### 3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)



**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |                 |                         |        |                     |   |
|------------------------|-----------------|-------------------------|--------|---------------------|---|
| <b>Modulation Mode</b> | Legacy-Transmit | <b>Test Freq. (MHz)</b> | 902.35 | <b>Polarization</b> | H |
|------------------------|-----------------|-------------------------|--------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamplifier Loss | Remark        | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|--------------|-------------------|---------------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB                | dB            | cm    | deg   |
| 1 | 1804.700 | 37.71  | -16.29     | 54.00      | 40.09             | 26.74        | 3.58              | 32.70 Average | 0     | 0     |
| 2 | 1804.700 | 43.69  | -30.31     | 74.00      | 46.07             | 26.74        | 3.58              | 32.70 Peak    | 0     | 0     |
| 3 | 2707.500 | 27.21  | -26.79     | 54.00      | 26.46             | 29.24        | 4.04              | 32.53 Average | 0     | 0     |
| 4 | 2707.500 | 41.04  | -32.96     | 74.00      | 40.29             | 29.24        | 4.04              | 32.53 Peak    | 0     | 0     |
| 5 | 3609.400 | 32.02  | -21.98     | 54.00      | 28.09             | 31.61        | 4.85              | 32.53 Average | 0     | 0     |
| 6 | 3609.400 | 46.22  | -27.78     | 74.00      | 42.29             | 31.61        | 4.85              | 32.53 Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

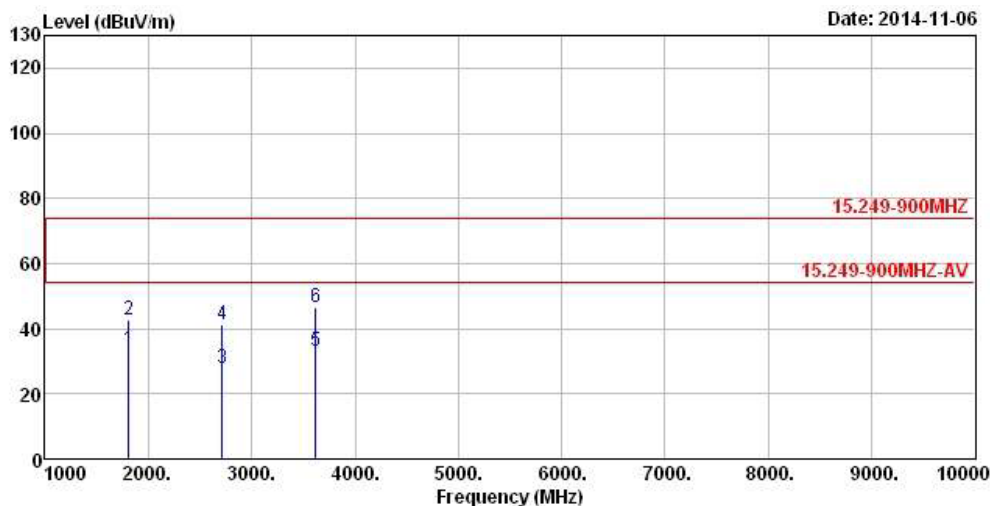
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |                 |                         |        |                     |   |
|------------------------|-----------------|-------------------------|--------|---------------------|---|
| <b>Modulation Mode</b> | Legacy-Transmit | <b>Test Freq. (MHz)</b> | 905.45 | <b>Polarization</b> | V |
|------------------------|-----------------|-------------------------|--------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Loss | Preamplifier Factor | Remark        | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|------------|---------------------|---------------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m       | dB                  | dB            | cm    | deg   |
| 1 | 1810.900 | 33.57  | -20.43     | 54.00      | 35.87             | 26.82      | 3.58                | 32.70 Average | 0     | 0     |
| 2 | 1810.900 | 42.54  | -31.46     | 74.00      | 44.84             | 26.82      | 3.58                | 32.70 Peak    | 0     | 0     |
| 3 | 2716.350 | 27.71  | -26.29     | 54.00      | 26.90             | 29.29      | 4.04                | 32.52 Average | 0     | 0     |
| 4 | 2716.350 | 41.37  | -32.63     | 74.00      | 40.56             | 29.29      | 4.04                | 32.52 Peak    | 0     | 0     |
| 5 | 3621.800 | 33.00  | -21.00     | 54.00      | 29.02             | 31.66      | 4.85                | 32.53 Average | 0     | 0     |
| 6 | 3621.800 | 46.60  | -27.40     | 74.00      | 42.62             | 31.66      | 4.85                | 32.53 Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

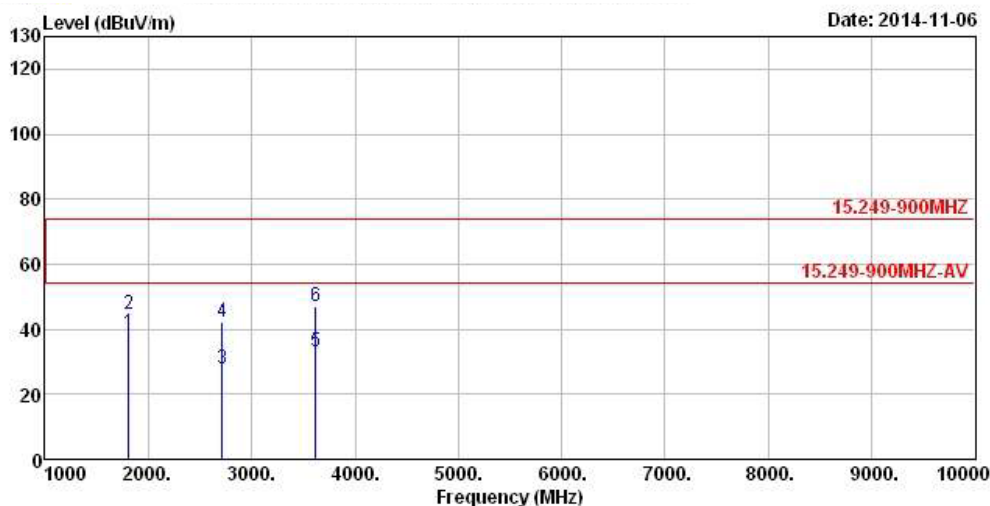
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |                 |                         |        |                     |   |
|------------------------|-----------------|-------------------------|--------|---------------------|---|
| <b>Modulation Mode</b> | Legacy-Transmit | <b>Test Freq. (MHz)</b> | 905.45 | <b>Polarization</b> | H |
|------------------------|-----------------|-------------------------|--------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier Factor | Remark  | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|----------------|------------|---------------------|---------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB                  |         | cm    | deg   |
| 1 | 1810.900 | 38.85  | -15.15     | 54.00      | 41.15             | 26.82          | 3.58       | 32.70               | Average | 0     | 0     |
| 2 | 1810.900 | 44.42  | -29.58     | 74.00      | 46.72             | 26.82          | 3.58       | 32.70               | Peak    | 0     | 0     |
| 3 | 2716.350 | 27.75  | -26.25     | 54.00      | 26.94             | 29.29          | 4.04       | 32.52               | Average | 0     | 0     |
| 4 | 2716.350 | 42.07  | -31.93     | 74.00      | 41.26             | 29.29          | 4.04       | 32.52               | Peak    | 0     | 0     |
| 5 | 3621.800 | 33.10  | -20.90     | 54.00      | 29.12             | 31.66          | 4.85       | 32.53               | Average | 0     | 0     |
| 6 | 3621.800 | 47.10  | -26.90     | 74.00      | 43.12             | 31.66          | 4.85       | 32.53               | Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

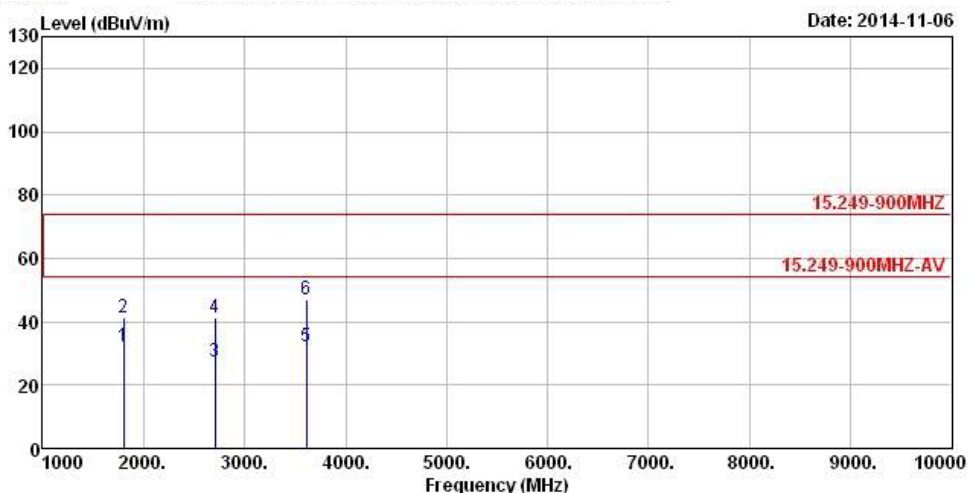
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |       |                     |   |
|------------------------|--------------|-------------------------|-------|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 902.4 | <b>Polarization</b> | V |
|------------------------|--------------|-------------------------|-------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Loss | Preamp Factor | Remark        | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|------------|---------------|---------------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m       | dB            | dB            | cm    | deg   |
| 1 | 1804.800 | 31.93  | -22.07     | 54.00      | 34.31             | 26.74      | 3.58          | 32.70 Average | 0     | 0     |
| 2 | 1804.800 | 41.38  | -32.62     | 74.00      | 43.76             | 26.74      | 3.58          | 32.70 Peak    | 0     | 0     |
| 3 | 2707.200 | 27.30  | -26.70     | 54.00      | 26.55             | 29.24      | 4.04          | 32.53 Average | 0     | 0     |
| 4 | 2707.200 | 41.21  | -32.79     | 74.00      | 40.46             | 29.24      | 4.04          | 32.53 Peak    | 0     | 0     |
| 5 | 3609.600 | 32.12  | -21.88     | 54.00      | 28.14             | 31.66      | 4.85          | 32.53 Average | 0     | 0     |
| 6 | 3609.600 | 46.87  | -27.13     | 74.00      | 42.89             | 31.66      | 4.85          | 32.53 Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

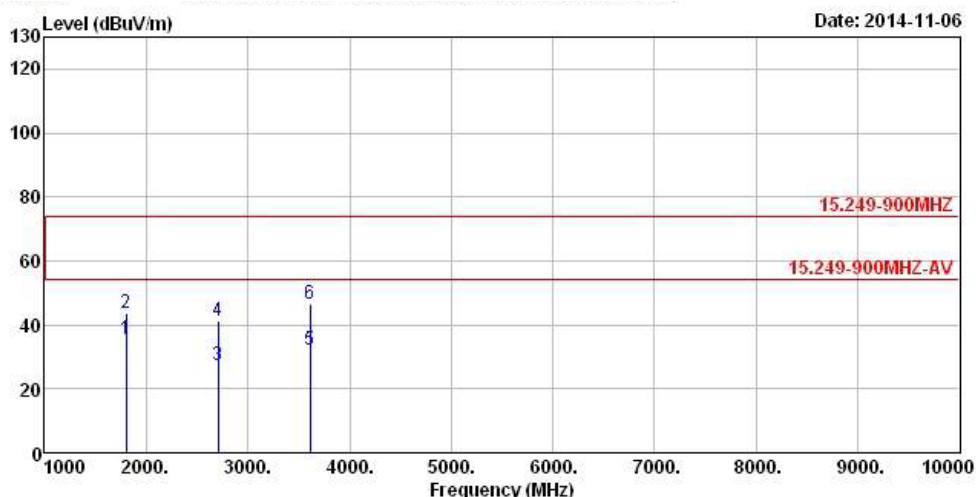
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |       |                     |   |
|------------------------|--------------|-------------------------|-------|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 902.4 | <b>Polarization</b> | H |
|------------------------|--------------|-------------------------|-------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamplifier Loss | Remark        | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|--------------|-------------------|---------------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB                | dB            | cm    | deg   |
| 1 | 1804.800 | 35.64  | -18.36     | 54.00      | 38.02             | 26.74        | 3.58              | 32.70 Average | 0     | 0     |
| 2 | 1804.800 | 43.70  | -30.30     | 74.00      | 46.08             | 26.74        | 3.58              | 32.70 Peak    | 0     | 0     |
| 3 | 2707.200 | 27.32  | -26.68     | 54.00      | 26.57             | 29.24        | 4.04              | 32.53 Average | 0     | 0     |
| 4 | 2707.200 | 41.46  | -32.54     | 74.00      | 40.71             | 29.24        | 4.04              | 32.53 Peak    | 0     | 0     |
| 5 | 3609.600 | 32.11  | -21.89     | 54.00      | 28.13             | 31.66        | 4.85              | 32.53 Average | 0     | 0     |
| 6 | 3609.600 | 46.37  | -27.63     | 74.00      | 42.39             | 31.66        | 4.85              | 32.53 Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

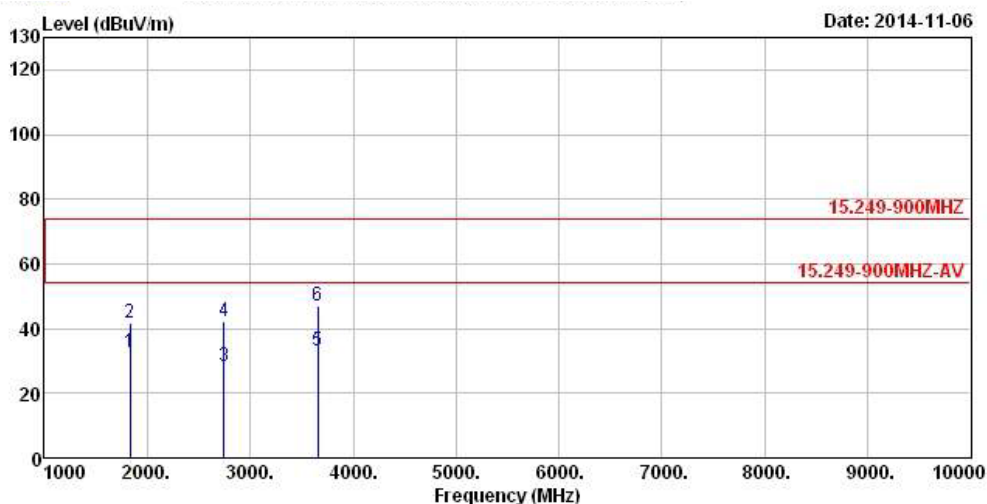
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |     |                     |   |
|------------------------|--------------|-------------------------|-----|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 915 | <b>Polarization</b> | V |
|------------------------|--------------|-------------------------|-----|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamp Factor | Remark        | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|--------------|---------------|---------------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB            | dB            | cm    | deg   |
| 1 | 1830.000 | 32.38  | -21.62     | 54.00      | 34.59             | 26.90        | 3.58          | 32.69 Average | 0     | 0     |
| 2 | 1830.000 | 41.66  | -32.34     | 74.00      | 43.87             | 26.90        | 3.58          | 32.69 Peak    | 0     | 0     |
| 3 | 2745.000 | 28.21  | -25.79     | 54.00      | 27.28             | 29.40        | 4.05          | 32.52 Average | 0     | 0     |
| 4 | 2745.000 | 42.40  | -31.60     | 74.00      | 41.47             | 29.40        | 4.05          | 32.52 Peak    | 0     | 0     |
| 5 | 3660.000 | 33.16  | -20.84     | 54.00      | 29.08             | 31.77        | 4.84          | 32.53 Average | 0     | 0     |
| 6 | 3660.000 | 47.23  | -26.77     | 74.00      | 43.15             | 31.77        | 4.84          | 32.53 Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

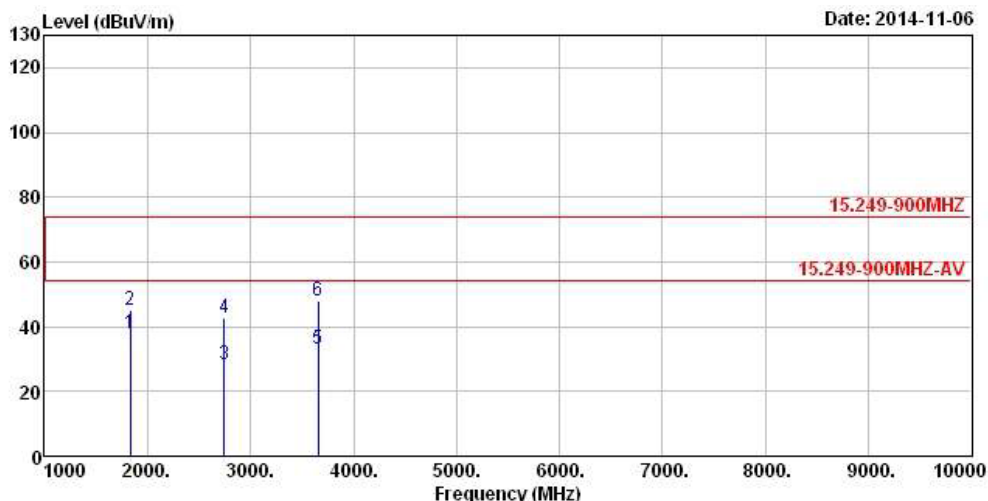
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |     |                     |   |
|------------------------|--------------|-------------------------|-----|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 915 | <b>Polarization</b> | H |
|------------------------|--------------|-------------------------|-----|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier Factor | Remark  | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|----------------|------------|---------------------|---------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB                  |         | cm    | deg   |
| 1 | 1830.000 | 37.70  | -16.30     | 54.00      | 39.91             | 26.90          | 3.58       | 32.69               | Average | 0     | 0     |
| 2 | 1830.000 | 44.89  | -29.11     | 74.00      | 47.10             | 26.90          | 3.58       | 32.69               | Peak    | 0     | 0     |
| 3 | 2745.000 | 28.27  | -25.73     | 54.00      | 27.34             | 29.40          | 4.05       | 32.52               | Average | 0     | 0     |
| 4 | 2745.000 | 42.90  | -31.10     | 74.00      | 41.97             | 29.40          | 4.05       | 32.52               | Peak    | 0     | 0     |
| 5 | 3660.000 | 33.31  | -20.69     | 54.00      | 29.23             | 31.77          | 4.84       | 32.53               | Average | 0     | 0     |
| 6 | 3660.000 | 47.76  | -26.24     | 74.00      | 43.68             | 31.77          | 4.84       | 32.53               | Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

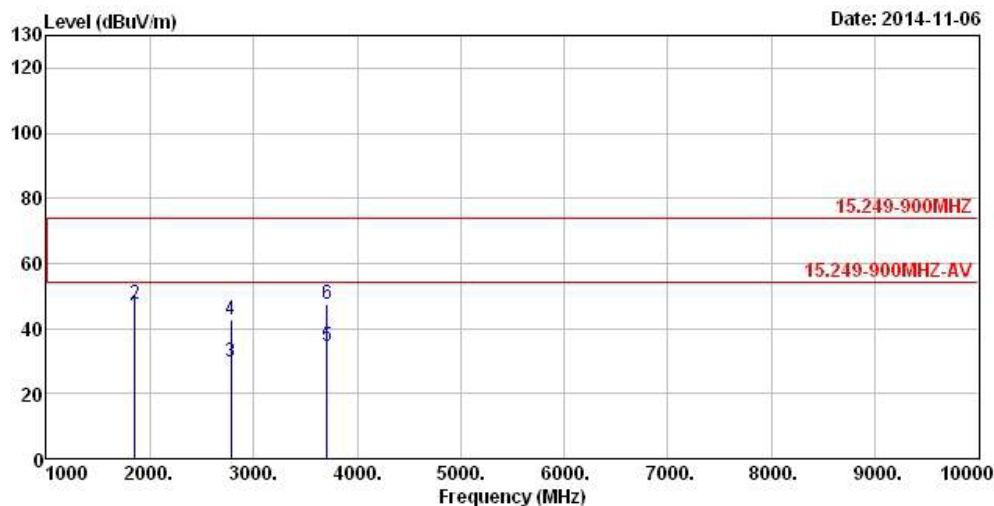
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |       |                     |   |
|------------------------|--------------|-------------------------|-------|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 927.6 | <b>Polarization</b> | V |
|------------------------|--------------|-------------------------|-------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier Factor | Remark  | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|----------------|------------|---------------------|---------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB                  |         | cm    | deg   |
| 1 | 1855.200 | 44.22  | -9.78      | 54.00      | 46.27             | 26.98          | 3.64       | 32.67               | Average | 0     | 0     |
| 2 | 1855.200 | 47.47  | -26.53     | 74.00      | 49.52             | 26.98          | 3.64       | 32.67               | Peak    | 0     | 0     |
| 3 | 2782.800 | 29.58  | -24.42     | 54.00      | 28.52             | 29.51          | 4.07       | 32.52               | Average | 0     | 0     |
| 4 | 2782.800 | 42.81  | -31.19     | 74.00      | 41.75             | 29.51          | 4.07       | 32.52               | Peak    | 0     | 0     |
| 5 | 3710.400 | 34.50  | -19.50     | 54.00      | 30.29             | 31.92          | 4.83       | 32.54               | Average | 0     | 0     |
| 6 | 3710.400 | 47.37  | -26.63     | 74.00      | 43.16             | 31.92          | 4.83       | 32.54               | Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

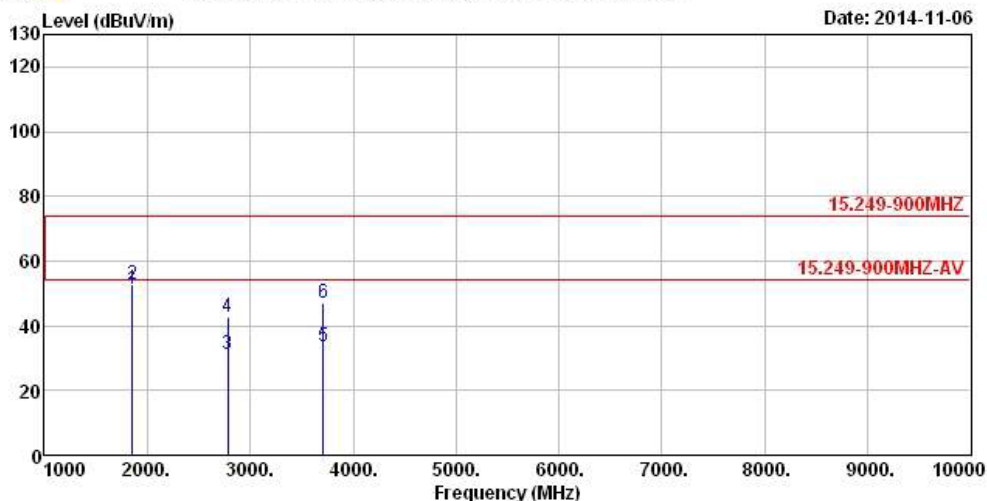
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**

|                        |              |                         |       |                     |   |
|------------------------|--------------|-------------------------|-------|---------------------|---|
| <b>Modulation Mode</b> | OSR-Transmit | <b>Test Freq. (MHz)</b> | 927.6 | <b>Polarization</b> | H |
|------------------------|--------------|-------------------------|-------|---------------------|---|



|   | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier Factor | Remark  | A/Pos | T/Pos |
|---|----------|--------|------------|------------|-------------------|----------------|------------|---------------------|---------|-------|-------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB                  |         | cm    | deg   |
| 1 | 1855.200 | 51.09  | -2.91      | 54.00      | 53.14             | 26.98          | 3.64       | 32.67               | Average | 0     | 0     |
| 2 | 1855.200 | 52.84  | -21.16     | 74.00      | 54.89             | 26.98          | 3.64       | 32.67               | Peak    | 0     | 0     |
| 3 | 2782.800 | 31.32  | -22.68     | 54.00      | 30.26             | 29.51          | 4.07       | 32.52               | Average | 0     | 0     |
| 4 | 2782.800 | 42.82  | -31.18     | 74.00      | 41.76             | 29.51          | 4.07       | 32.52               | Peak    | 0     | 0     |
| 5 | 3710.400 | 33.40  | -20.60     | 54.00      | 29.19             | 31.92          | 4.83       | 32.54               | Average | 0     | 0     |
| 6 | 3710.400 | 47.13  | -26.87     | 74.00      | 42.92             | 31.92          | 4.83       | 32.54               | Peak    | 0     | 0     |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

### 3.4.8 Transmitter Radiated Bandedge Emissions

| 902-928 MHz Transmitter Radiated Bandedge Emissions                  |                  |                      |                |                   |                    |                |                   |                   |      |
|----------------------------------------------------------------------|------------------|----------------------|----------------|-------------------|--------------------|----------------|-------------------|-------------------|------|
| Modulation Mode                                                      | Test Freq. (MHz) | Measure Distance (m) | Freq. (MHz) PK | Level (dBuV/m) PK | Limit (dBuV/m) QPK | Freq. (MHz) AV | Level (dBuV/m) AV | Limit (dBuV/m) AV | Pol. |
| Legacy-Transmit                                                      | 902.35           | 3                    | 901.99         | 42.61             | 46                 | -              | -                 | -                 | H    |
| Legacy-Transmit                                                      | 905.45           | 3                    | 928.48         | 37.79             | 46                 | -              | -                 | -                 | H    |
| OSR-Transmit                                                         | 902.4            | 3                    | 901.97         | 40.53             | 46                 | -              | -                 | -                 | H    |
| OSR-Transmit                                                         | 915.0            | 3                    | 937.36         | 37.18             | 46                 | -              | -                 | -                 | H    |
| OSR-Transmit                                                         | 927.6            | 3                    | 928.01         | 40.51             | 46                 | -              | -                 | -                 | H    |
| Note 1: Measurement worst emissions of receive antenna polarization. |                  |                      |                |                   |                    |                |                   |                   |      |

## 4 Test Equipment and Calibration Data

| Instrument   | Manufacturer                   | Model No. | Serial No.     | Characteristics | Calibration Date | Remark        |
|--------------|--------------------------------|-----------|----------------|-----------------|------------------|---------------|
| EMC Receiver | R&S                            | ESCS 30   | 100174         | 9kHz ~ 2.75GHz  | Apr. 14, 2014    | AC Conduction |
| LISN         | SCHWARZBECK<br>MESS-ELEKTRONIK | NSLK 8127 | 8127-477       | 9kHz ~ 30MHz    | Jan. 22, 2014    | AC Conduction |
| RF Cable-CON | HUBER+SUHNER                   | RG213/U   | 07611832020001 | 9kHz ~ 30MHz    | Oct. 31, 2014    | AC Conduction |
| EMI Filter   | LINDGREN                       | LRE-2030  | 2651           | < 450 Hz        | N/A              | AC Conduction |

Note: Calibration Interval of instruments listed above is one year.

| Instrument        | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark       |
|-------------------|--------------|-----------|------------|-----------------|------------------|--------------|
| Spectrum Analyzer | R&S          | FSV 40    | 101013     | 9KHz~40GHz      | Jan. 25, 2014    | RF Conducted |
| AC Power Source   | G.W          | APS-9102  | EL920581   | AC 0V ~ 300V    | Jul. 15, 2014    | RF Conducted |

Note: Calibration Interval of instruments listed above is one year.

| Instrument               | Manufacturer   | Model No.      | Serial No.  | Characteristics    | Calibration Date                           | Remark    |
|--------------------------|----------------|----------------|-------------|--------------------|--------------------------------------------|-----------|
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M         | 03CH03-HY   | 30MHz ~ 1GHz<br>3m | Nov. 30, 2013<br>Nov. 29, 2014<br>(Update) | Radiation |
| Amplifier                | HP             | 8447D          | 2944A08033  | 10kHz ~ 1.3GHz     | May 05, 2014                               | Radiation |
| Amplifier                | Agilent        | 8449B          | 3008A02120  | 1GHz ~ 26.5GHz     | Sep. 01, 2014                              | Radiation |
| Spectrum                 | R&S            | FSP40          | 100004      | 9kHz ~ 40GHz       | Mar. 27, 2014                              | Radiation |
| Bilog Antenna            | SCHAFFNER      | CBL 6112D      | 22237       | 30MHz ~ 1GHz       | Sep. 20, 2014                              | Radiation |
| Horn Antenna             | ETS · LINDGREN | 3115           | 6741        | 1GHz ~ 18GHz       | Jun. 11, 2014                              | Radiation |
| Horn Antenna             | SCHWARZBECK    | BBHA9170       | BBHA9170154 | 15GHz ~ 40GHz      | Jan. 10, 2014                              | Radiation |
| RF Cable-R03m            | Jye Bao        | RG142          | CB021       | 9kHz ~ 1GHz        | Nov. 16, 2013                              | Radiation |
| RF Cable-high            | SUHNER         | SUCOFLEX 106   | 03CH03-HY   | 1GHz ~ 40GHz       | Dec. 11, 2013                              | Radiation |
| Turn Table               | EM Electronics | EM Electronics | 060615      | 0 ~ 360 degree     | N/A                                        | Radiation |
| Antenna Mast             | MF             | MF-7802        | MF780208179 | 1 ~ 4 m            | N/A                                        | Radiation |

Note: Calibration Interval of instruments listed above is one year.

| Instrument   | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark    |
|--------------|--------------|-----------|------------|-----------------|------------------|-----------|
| Loop Antenna | TESEQ        | HLA 6120  | 31244      | 9kHz ~ 30MHz    | Dec. 02, 2012    | Radiation |

Note: Calibration Interval of instruments listed above is two year.