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## Test – Results

Order-No.:

**T38836-02-00GK**

|                      |                                                   |                                                              |
|----------------------|---------------------------------------------------|--------------------------------------------------------------|
| Client               | Lifescan Scotland Ltd.                            |                                                              |
| Manufacturer         | Lifescan, Division of Cilag GmbH International    |                                                              |
| Product Description  | Blood glucose meter with Bluetooth 4.0 Low Energy |                                                              |
| Type / Model Name    | One Touch Verio Element                           |                                                              |
| Testing commenced on | 2015-04-28                                        | <b>Re-test</b><br>are made according to<br><b>FCC 15.247</b> |
| Testing concluded on | 2015-04-28                                        |                                                              |
| Serial - No.         | ZAHBV0XB                                          |                                                              |

| Type of test                           | Limits      |                  | Test Results                        |                          |               |
|----------------------------------------|-------------|------------------|-------------------------------------|--------------------------|---------------|
| Emission                               | Margin (dB) | exceeded by (dB) | ok                                  | not ok                   | meet criteria |
| Maximum peak radiated output power     | -44.8       |                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | -             |
| Radiated emissions in restricted bands | -5.2        |                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | -             |
| Spurious emissions radiated            | -18.4       |                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | -             |

### Remarks: The reason for re-measurement is the change of the following 4 items:

- Meter housing colour changed from white to blue.
- Meter branding changed (details not yet finalized).
- SPC changed to switch position of the long and short contacts.  
(except for SPC – Strip Port Connector)
- Keypad colour changed to match blue housing.

**Note:** • RF part is identical for both Models

- The limits are met.

Photo documentation of the EUT you can see in Attachment B

This test result consists of 16 page(s). The test result only corresponds to the tested sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

| Date       | Checked by | Tested by | Result                                            |
|------------|------------|-----------|---------------------------------------------------|
| 2015-04-30 |            |           | <input checked="" type="checkbox"/> <b>passed</b> |
|            |            |           | <input type="checkbox"/> <b>not passed</b>        |

## Test conditions and results

### 1. Maximum peak radiated output power

For test instruments and accessories used see section 6 Part **CPR 3**.

#### Description of the test location

Test location: Anechoic chamber 1

#### Photo documentation of the test setup

Note: Photo documentation of the test setup can be viewed in Attachment A

#### Applicable standard

According to FCC Part 15, Section 15.247(b)(3):

For systems using digital modulation in the 2400-2483.5 MHz and 5725 – 5850 MHz bands, the maximum peak output power of the transmitter shall not exceed 1 Watt. The limit is based on transmitting antennas of directional gain that do not exceed 6 dBi.

#### Description of Measurement

The maximum peak radiated output power is measured using a spectrum analyser with the function “integrated bandpower measurement” following the procedure set out in KDB 558074, item 9.1.1. The EUT is set in TX continuous advertising mode while measuring. The radiated measurement was performed in a fieldstrength measurement. Therefore the formula set out in KDB 558074, item 12.2.2 e) is changed into the following term:

$$E = \text{EIRP} - (20 \cdot \log_{10} 3) + 104.8$$

## Test result

| 802.15.1, 1000 kbps, TX |           | Test results radiated             |               |                     |                |
|-------------------------|-----------|-----------------------------------|---------------|---------------------|----------------|
|                         |           | Fieldstrength E<br>(dB $\mu$ V/m) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) | Margin<br>(dB) |
| Lowest frequency: CH37  |           |                                   |               |                     |                |
| $T_{nom}$               | $V_{nom}$ | 86.5                              | -8.8          | 36.0                | -44.8          |
| Middle frequency: CH38  |           |                                   |               |                     |                |
| $T_{nom}$               | $V_{nom}$ | 84.8                              | -10.5         | 36.0                | -46.5          |
| Highest frequency: CH39 |           |                                   |               |                     |                |
| $T_{nom}$               | $V_{nom}$ | 80.8                              | -14.4         | 36.0                | -50.4          |

Peak Power Limit according to FCC Part 15, Section 15.247(b)(3):

| Frequency<br>(MHz) | Peak Power Limit |            |
|--------------------|------------------|------------|
|                    | (dBm)            | (Watt)     |
| 902-928            | 36               | 4.0        |
| <b>2400-2483.5</b> | <b>36</b>        | <b>4.0</b> |
| 5725-5850          | 36               | 4.0        |

The requirements are **FULFILLED**.

Remarks: N/A

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## 1.1 Radiated emissions in restricted bands

For test instruments and accessories used see section 6 Part **SER 2, SER 3**.

### 1.1.1 Description of the test location

Test location: OATS 1  
Test location: Anechoic Chamber 1  
  
Test distance: 3 m

### 1.1.2 Photo documentation of the test setup

Note: Photo documentation of the test setup can be viewed in Attachment A

According to FCC Part 15, Section 15.205(a):

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a).

### 1.1.3 Description of Measurement

The restricted bands are measured radiated. The span of the spectrum analyser is set wide enough to capture the restricted band and measure the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The restricted bands are measured falling emissions into it and the nearest restricted band are checked for emissions also the restricted band for the harmonics of the carrier. To show compliance the FCC Part 15, section 15.35(c) was used. The correction factor being calculated in section 5.9 was taken into account for pulsed emissions and is shown in a separate table.

Test receiver settings for SER2:

RBW: 120 MHz, Detector: Quasi peak, Meas. Time: 1 s,

Spectrum analyser settings for SER3:

RBW: 1 MHz, VBW: 3 MHz, Detector: Max. peak, Trace: Max. hold, Sweep: Auto

Spectrum analyser settings for SER3 re-measurements:

RBW: 1 MHz, VBW: 3 MHz, Detector: RMS, Trace: Max. hold, Sweep: Auto

### 1.1.1 Test result

#### Standard 802.15.1

Emissions 30 MHz – 1000 MHz, SER2

| Advertising mode with CH37, CH38, CH39 |               |       |                  |          |          |        |          |
|----------------------------------------|---------------|-------|------------------|----------|----------|--------|----------|
| Test conditions: TX, P2, 1000 kbps     |               |       |                  |          |          |        |          |
|                                        |               |       | Test results     |          |          |        |          |
| Start <i>f</i>                         | Stop <i>f</i> | RBW   | Maximum emission |          | Limit    | Margin | Detector |
| (MHz)                                  | (MHz)         | (kHz) | (MHz)            | (dBμV/m) | (dBμV/m) | (dB)   |          |
| 30                                     | 1000          | 120   | 205.53           | 9.6      | 43.5     | -33.9  | QP       |
| 30                                     | 1000          | 120   | 349.63           | 16.7     | 46.0     | -29.3  | QP       |
| 30                                     | 1000          | 120   | 458.03           | 19.6     | 46.0     | -26.4  | QP       |
| 30                                     | 1000          | 120   | 548.43           | 22.3     | 46.0     | -23.7  | QP       |
| 30                                     | 1000          | 120   | 734.73           | 30.0     | 46.0     | -16.0  | QP       |
| 30                                     | 1000          | 120   | 975.03           | 31.3     | 54.0     | -22.7  | QP       |
| Measurement uncertainty                |               |       |                  | ±6 dB    |          |        |          |

Note: Only ambient noise could be detected.

Emissions 1 GHz – 25 GHz

| Advertising mode with CH37, CH38, CH39 |               |       |                  |          |          |        |          |
|----------------------------------------|---------------|-------|------------------|----------|----------|--------|----------|
| Test conditions: TX, P2, 1000 kbps     |               |       |                  |          |          |        |          |
| Peak pre-scan                          |               |       | Test results     |          |          |        |          |
| Start <i>f</i>                         | Stop <i>f</i> | RBW   | Maximum emission |          | AVLimit  | Margin | Detector |
| (MHz)                                  | (MHz)         | (kHz) | (MHz)            | (dBμV/m) | (dBμV/m) | (dB)   |          |
| 1000                                   | 2400          | 1000  | 1212.80          | 43.9     | 54.0     | -10.2  | Pk       |
| 1000                                   | 2400          | 1000  | 2336.30          | 50.6     | 54.0     | -3.4   | Pk       |
| 1000                                   | 2400          | 1000  | 2400.00          | 60.6     | 54.0     | 6.6    | Pk       |
| 2483.5                                 | 4000          | 1000  | 3926.40          | 41.8     | 54.0     | -12.2  | Pk       |
| 4000                                   | 8000          | 1000  | 4960.50          | 50.9     | 54.0     | -3.2   | Pk       |
| 8000                                   | 12000         | 1000  | 11963.00         | 52.2     | 54.0     | -1.8   | Pk       |
| 12000                                  | 18000         | 1000  | 12006.00         | 57.5     | 54.0     | 3.5    | Pk       |
| 12000                                  | 18000         | 1000  | 17039.25         | 57.1     | 54.0     | 3.1    | Pk       |
| 18000                                  | 25000         | 1000  | 24825.00         | 54.9     | 54.0     | 0.9    | Pk       |
| Measurement uncertainty                |               |       |                  | ±6 dB    |          |        |          |

Note: The value at 2400 Mhz will be regarded in part "Spurious emissions radiated"

## Re-measurement for wideband emissions

| Advertising mode with CH37, CH38, CH39 |        |       |                  |          |          |        |          |
|----------------------------------------|--------|-------|------------------|----------|----------|--------|----------|
| Test conditions: TX, P2, 1000 kbps     |        |       |                  |          |          |        |          |
| AV re-measurement                      |        |       | Test results     |          |          |        |          |
| Start f                                | Stop f | RBW   | Maximum emission |          | AVLimit  | Margin | Detector |
| (MHz)                                  | (MHz)  | (kHz) | (MHz)            | (dBµV/m) | (dBµV/m) | (dB)   |          |
| 12000                                  | 18000  | 1000  | 12006.00         | 48.8     | 54.0     | -5.2   | RMS      |
| 12000                                  | 18000  | 1000  | 17039.25         | 47.1     | 54.0     | -6.9   | RMS      |
| 18000                                  | 25000  | 1000  | 24825.00         | 44.1     | 54.0     | -9.9   | RMS      |
| Measurement uncertainty                |        |       |                  | ±6 dB    |          |        |          |

Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

| Frequency   | Field strength of spurious emissions |          | Measurement distance |
|-------------|--------------------------------------|----------|----------------------|
| (MHz)       | (µV/m)                               | dB(µV/m) | (metres)             |
| 0.009-0.490 | 2400/F (kHz)                         |          | 300                  |
| 0.490-1.705 | 24000/F (kHz)                        |          | 30                   |
| 1.705-30    | 30                                   | 29.5     | 30                   |
| 30-88       | 100                                  | 40       | 3                    |
| 88-216      | 150                                  | 43.5     | 3                    |
| 216-960     | 200                                  | 46       | 3                    |
| Above 960   | 500                                  | 54       | 3                    |

### Restricted bands of operation:

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209

| MHz                 | MHz                   | MHz             | GHz           |
|---------------------|-----------------------|-----------------|---------------|
| 0.090 – 0.110       | 16.42 – 16.423        | 399.9 – 410     | 4.5 – 5.15    |
| 0.495 – 0.505       | 16.69475 – 16.69525   | 608 – 614       | 5.35 – 5.46   |
| 2.1735 – 2.1905     | 16.80425 – 16.80475   | 960 – 1240      | 7.25 – 7.75   |
| 4.125 – 4.128       | 25.5 – 25.67          | 1300 – 1427     | 8.025 – 8.5   |
| 4.17725 – 4.17775   | 37.5 – 38.25          | 1435 – 1626.5   | 9.0 – 9.2     |
| 4.20725 – 4.20775   | 73 – 74.6             | 1645.5 – 1646.5 | 9.3 – 9.5     |
| 6.215 – 6.218       | 74.8 – 75.2           | 1660 – 1710     | 10.6 – 12.7   |
| 6.26775 – 6.26825   | 108 – 121.94          | 1718.8 – 1722.2 | 13.25 – 13.4  |
| 6.31175 – 6.31225   | 123 – 138             | 2200 – 2300     | 14.47 – 14.5  |
| 8.291 – 8.294       | 149.9 – 150.05        | 2310 – 2390     | 15.35 – 16.2  |
| 8.362 – 8.366       | 156.52475 – 156.52525 | 2483.5 – 2500   | 17.7 – 21.4   |
| 8.37625 – 8.38675   | 156.7 – 156.9         | 2690 – 2900     | 22.01 – 23.12 |
| 8.41425 – 8.41475   | 162.0125 – 167.17     | 3260 – 3267     | 23.6 – 24.0   |
| 12.29 – 12.293      | 167.72 – 173.2        | 3332 – 3339     | 31.2 – 31.8   |
| 12.51975 – 12.52025 | 240 – 285             | 3345.8 – 3358   | 36.43 – 36.5  |
| 12.57675 – 12.57725 | 322 – 335.4           | 3600 – 4400     | Above 38.6    |

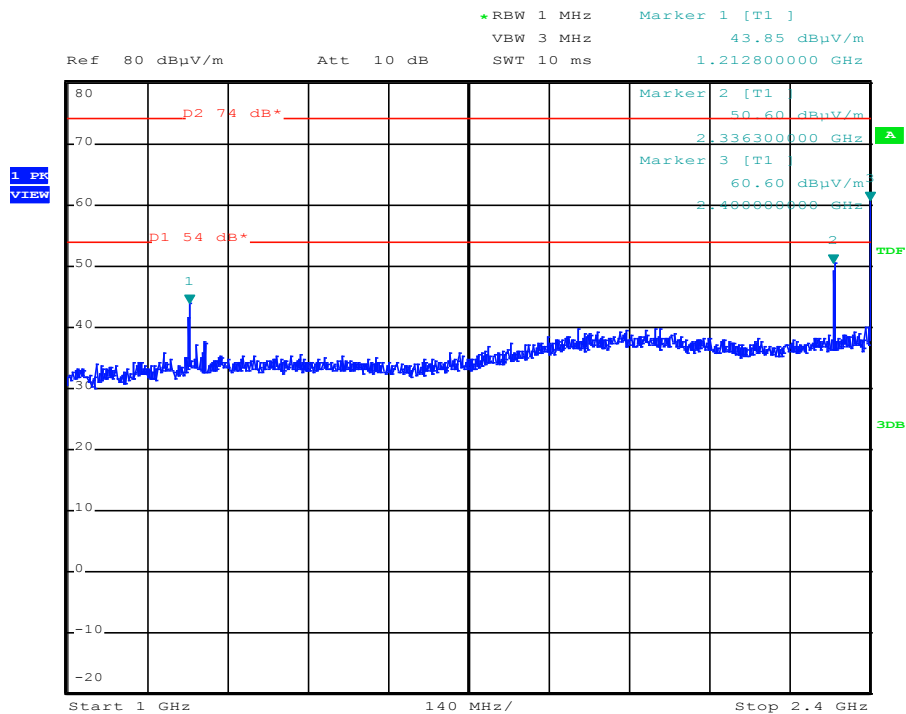
The requirements are **FULFILLED**.

**Remarks:** The measurement was performed up to the 10<sup>th</sup> harmonic. All emissions not reported in this test report are more than 20 dB below the specified limit. For detailed test results please see the following test protocols.

## 1.1.2 Test protocols radiated emissions SER3

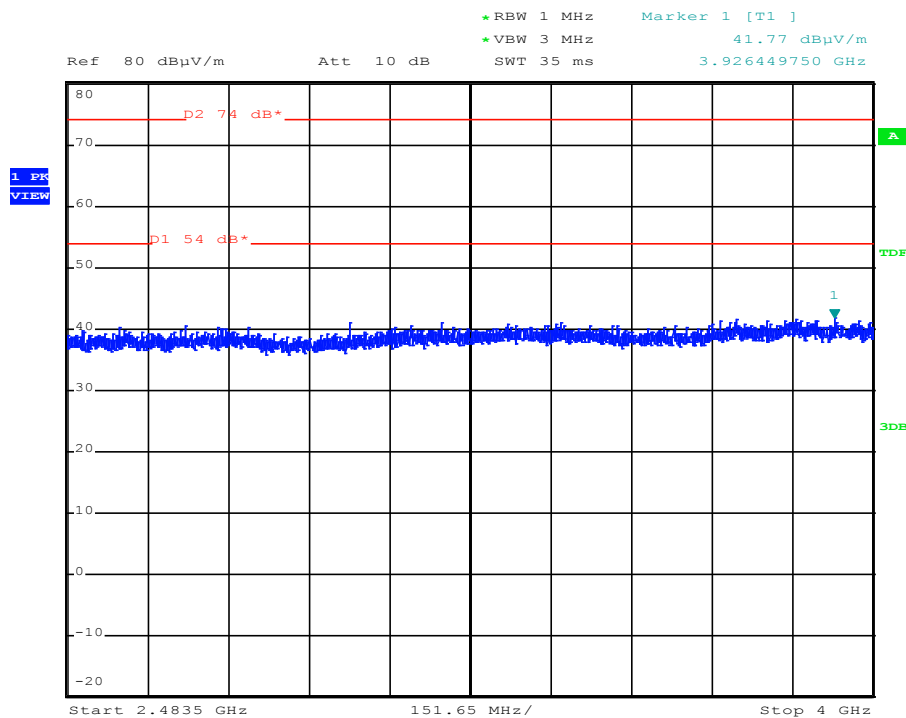
### 802.15.1, Channel 37, 38, 39 (Advertising mode)

1000-2400 MHz, Detector: Peak

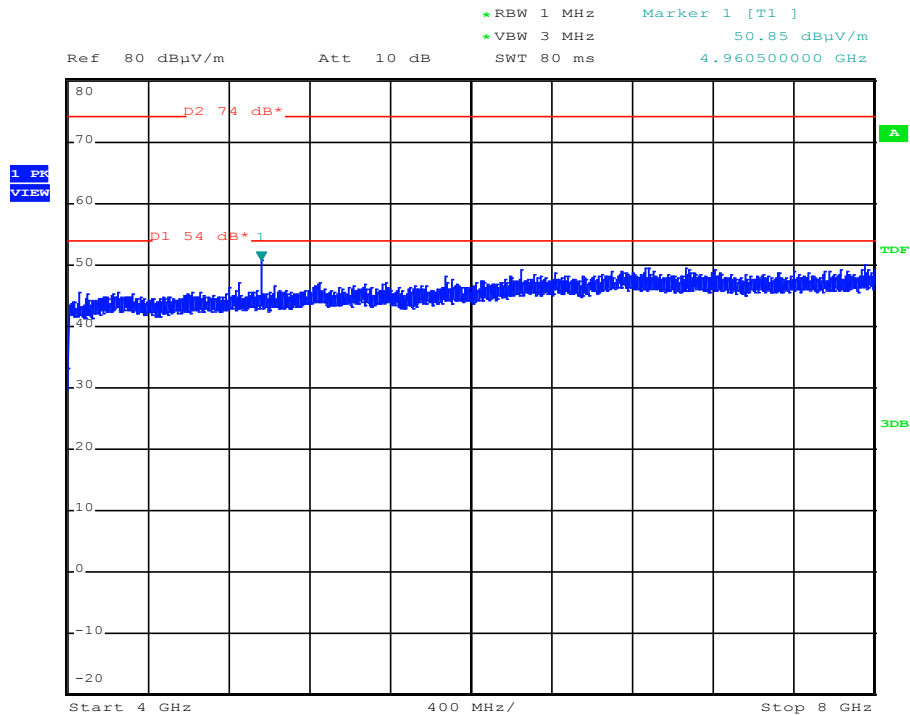


Note: The value at 2400 MHz will be regarded in part "Spurious emissions radiated"

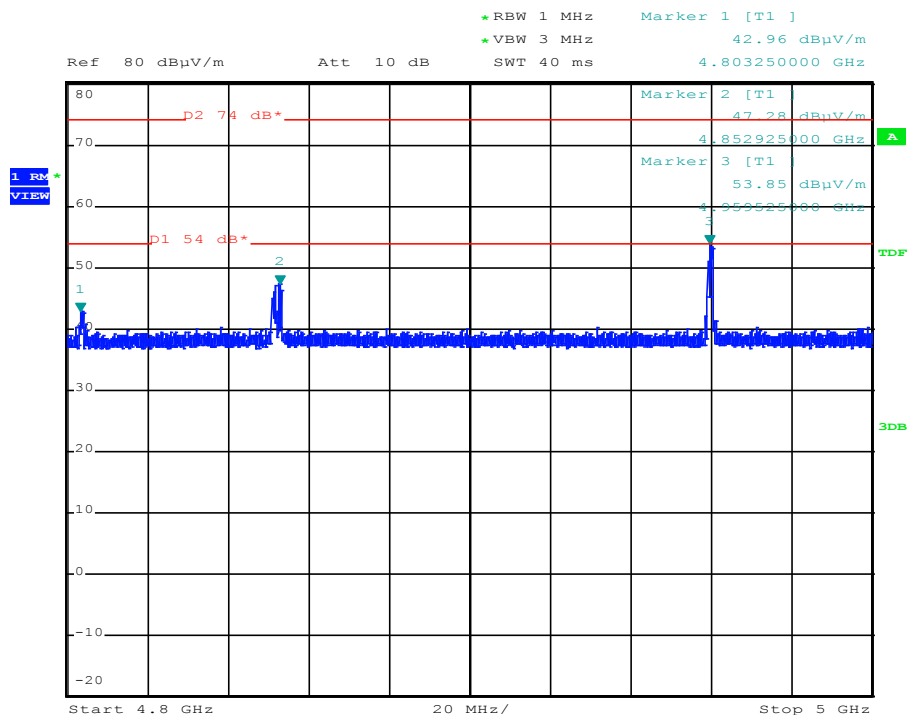
2483.5-4000 MHz, Detector: Peak



## 4000-8000 MHz, Detector: Peak

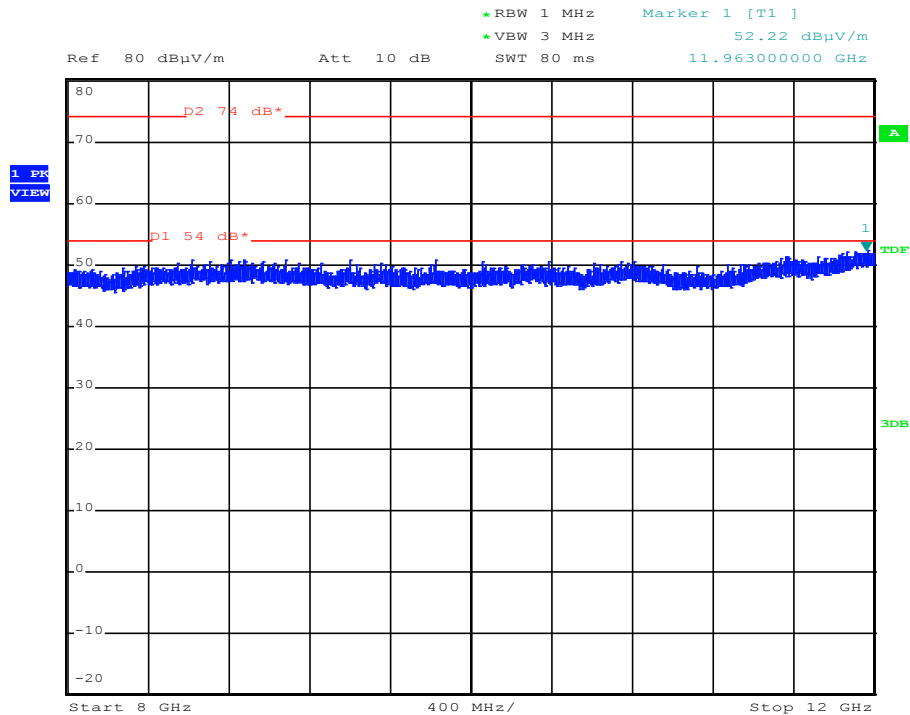


## 4800-5000 MHz, Detector: RMS

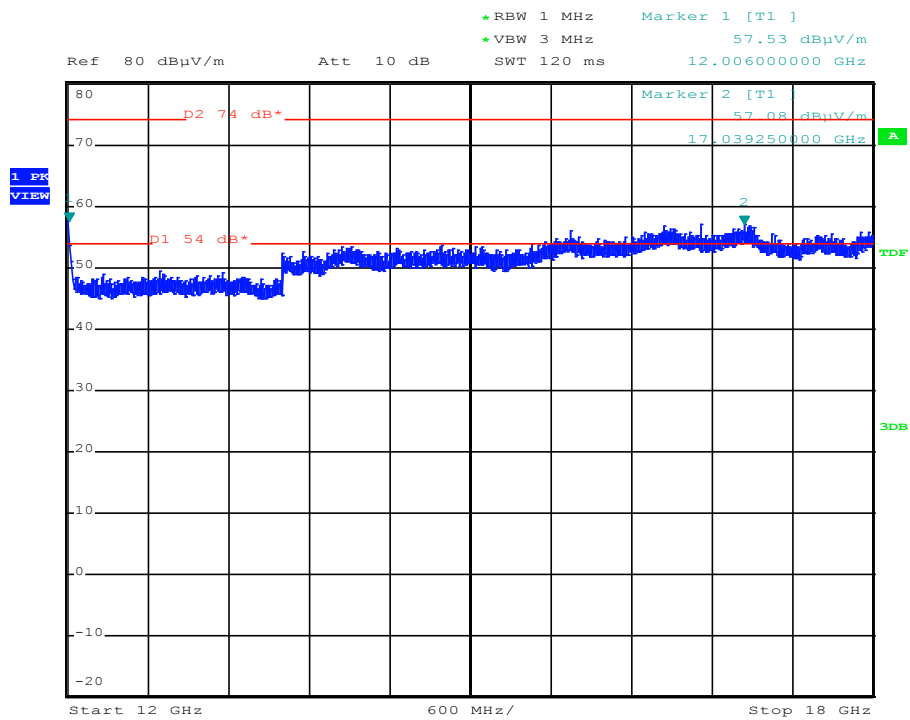




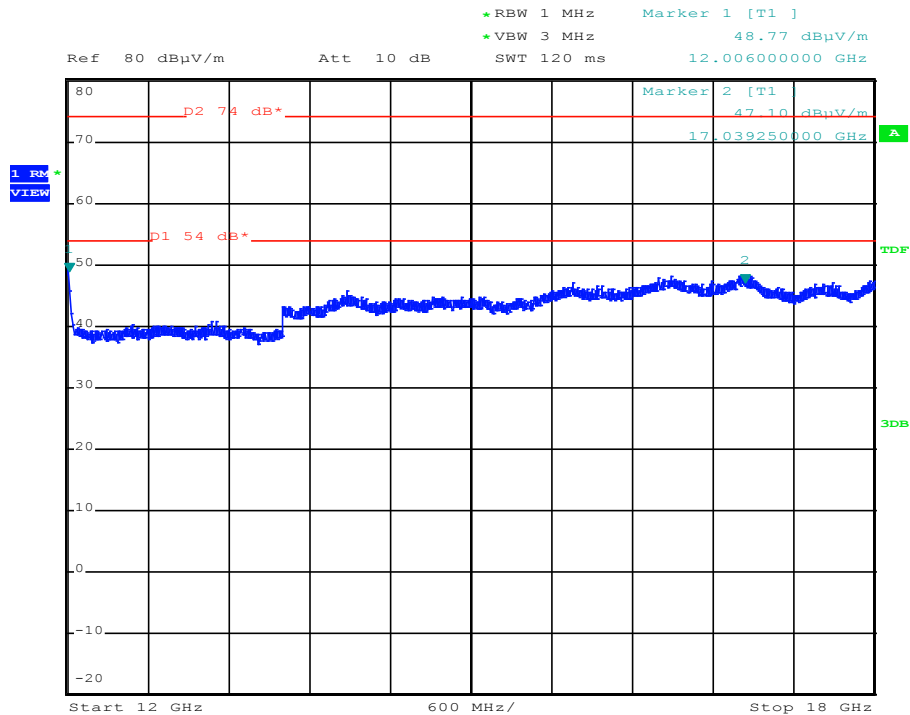
## 8000-12000 MHz, Detector: Peak



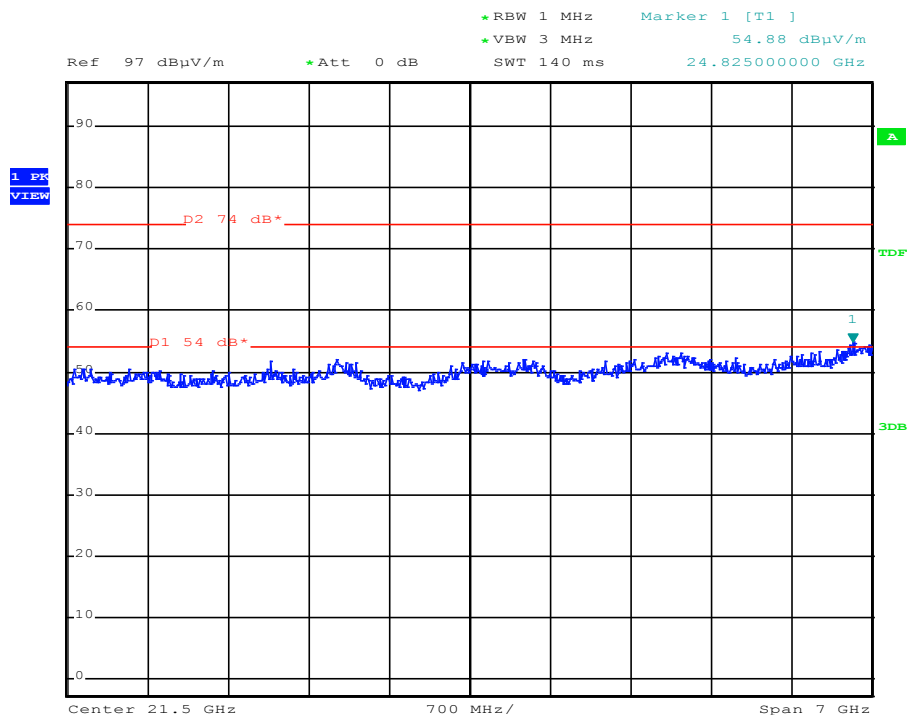
## 12000-18000 MHz, Detector: Peak



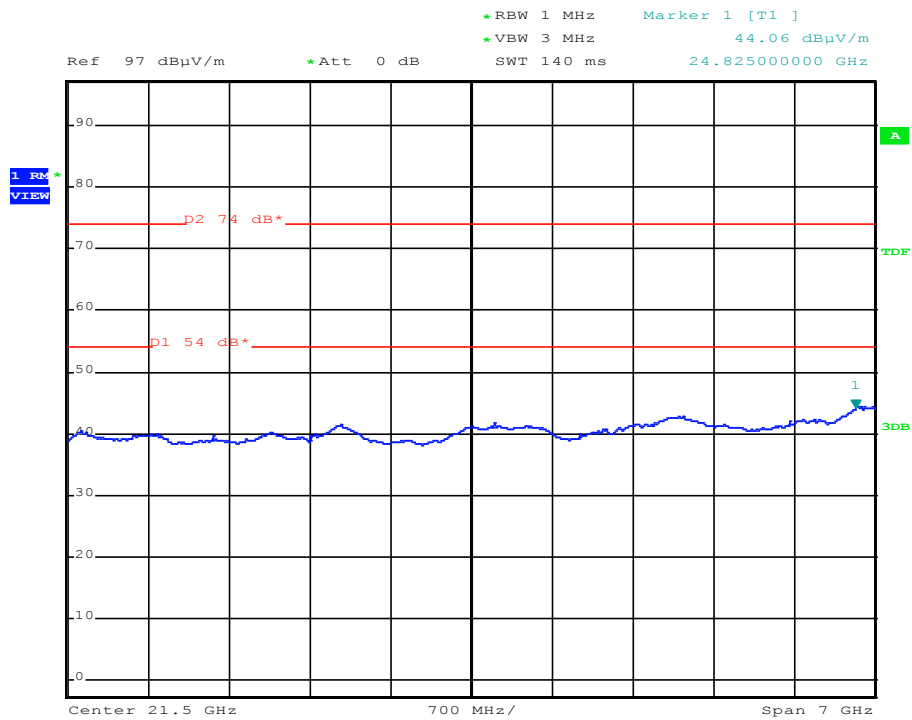
## 12000-18000 MHz, Detector: RMS



## 18000-25000 MHz, Detector: Peak



18000-25000 MHz, Detector: RMS



## 1.2 Spurious emissions radiated

For test instruments and accessories used see section 6 Part **SER1, SER 2, SER 3**.

### 1.2.1 Description of the test location

Test location: Anechoic chamber 1

Test distance: 3 m

Note: Photo documentation of the test setup can be viewed in Attachment A

### 1.2.2 Applicable standard

According to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

### 1.2.3 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.4. If the emission level of the EUT in peak mode complies with the average limit is 20 dB lower, then testing will be stopped and peak values of the EUT will be reported, otherwise the emission will be measured in average mode again and reported.

Spectrum analyser settings for SER3:

RBW: 100 kHz, VBW: 300 kHz, Detector: Max. peak, Trace: Max. hold, Sweep: Auto

## 1.2.4 Test result

| Advertising mode with CH37, CH38, CH39 |               |       |                  |          |            |        |          |
|----------------------------------------|---------------|-------|------------------|----------|------------|--------|----------|
| Test conditions: TX, P2, 1000 kbps     |               |       |                  |          |            |        |          |
|                                        |               |       | Test results     |          |            |        |          |
| Start <i>f</i>                         | Stop <i>f</i> | RBW   | Maximum emission |          | Peak Limit | Margin | Detector |
| (MHz)                                  | (MHz)         | (kHz) | (MHz)            | (dBμV/m) | (dBμV/m)   | (dB)   |          |
| 2390                                   | 2400          | 100   | 2391.20          | 44.0     | 62.3       | -18.4  | Peak     |
| 2390                                   | 2400          | 100   | 2396.86          | 37.3     | 62.3       | -25.0  | Peak     |
| 2390                                   | 2400          | 100   | 2400.00          | 33.7     | 62.3       | -28.6  | Peak     |
| Measurement uncertainty                |               |       |                  | ±6 dB    |            |        |          |

### Note:

Measurements were performed in the frequency range from 1 GHz up to 25 GHz with the analyser settings for restricted band measurements to show compliance for emissions falling into restricted bands, else the band edge compliance is fulfilled. In the frequency ranges from 9 kHz up to 30 MHz and from 18 GHz up to 25 GHz no emission can be detected.

According to FCC Part 15, Section 15.205(a):

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a).

Limit according to FCC Part 15, Section 15.247(d) for emissions falling not in restricted bands:

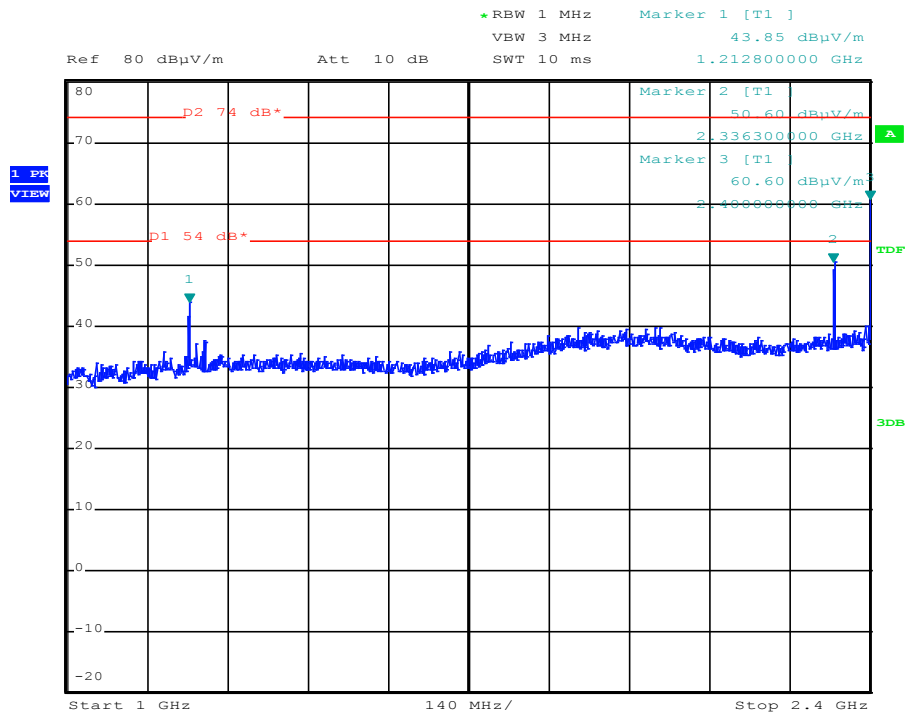
In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.

| Frequency<br>(MHz) | Spurious emission limit                            |
|--------------------|----------------------------------------------------|
| Below 1000         | 20 dB below the highest level of the desired power |
| Above 1000         | 20 dB below the highest level of the desired power |

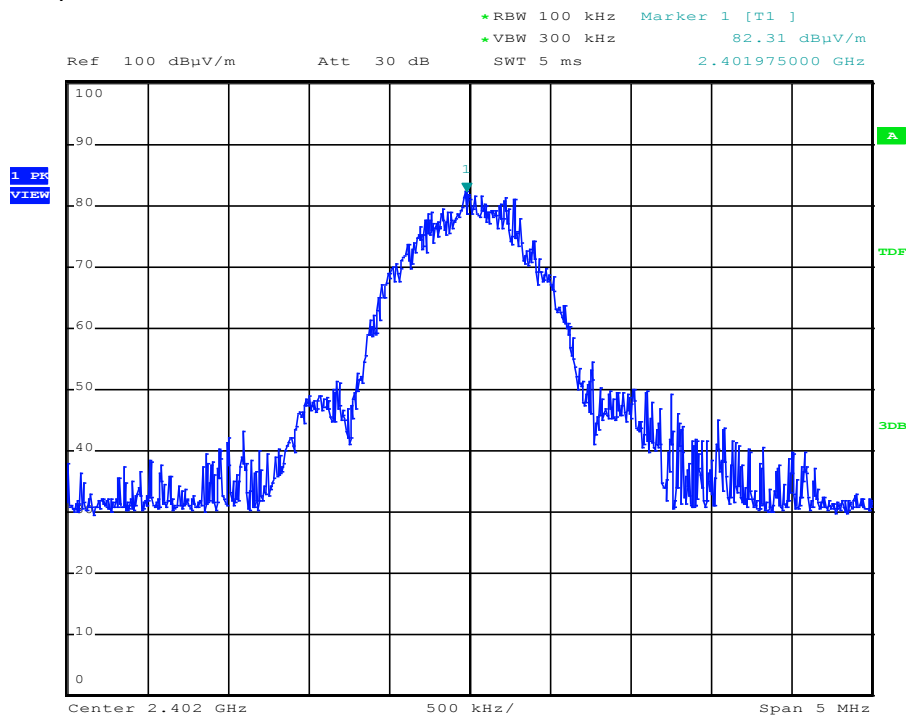
The requirements are **FULFILLED**.

**Remarks:** Only the value at 2400 MHz is regarded. For detailed information see following plots.

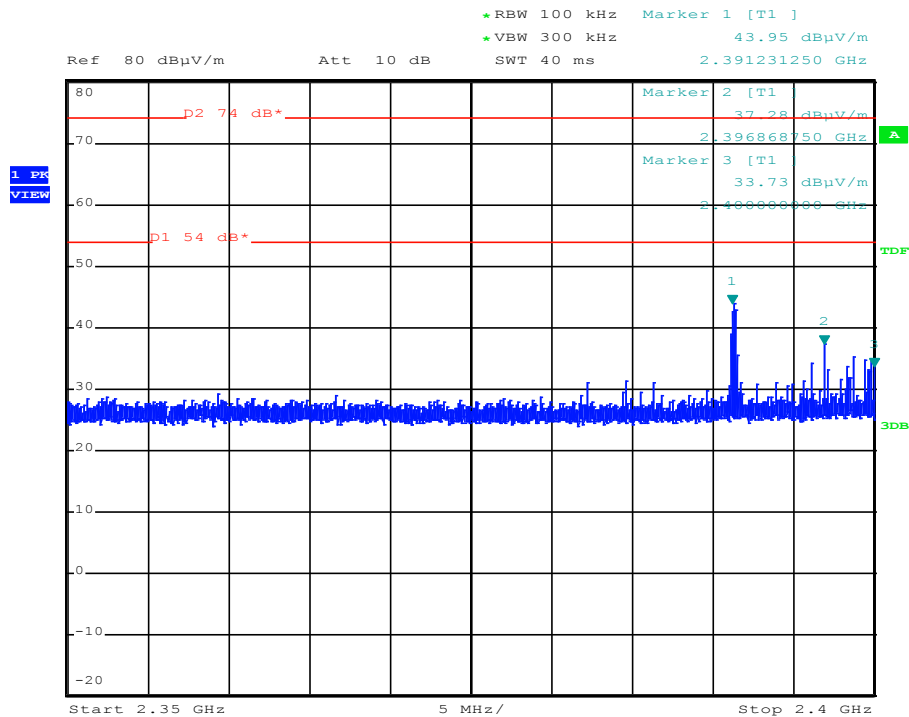
## 1000-2400 MHz, Detector: Peak



## Peak measurement in operation band at 2402 MHz, RBW: 100 kHz



# Peak measurement in the frequency range 2350-2400 MHz, RBW: 100 kHz



Note: The delta between the peak in the operation band and the peak outside the operation band is more than 20 dB.

## 2. USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

| Test ID | Model Type             | Equipment No.   | Next Calib. | Last Calib. | Next Verif. | Last Verif. |
|---------|------------------------|-----------------|-------------|-------------|-------------|-------------|
| CPR 3   | FSP 40                 | 02-02/11-11-001 | 02/10/2015  | 02/10/2014  |             |             |
|         | AFS5-12001800-18-10P-6 | 02-02/17-06-002 |             |             |             |             |
|         | AFS4-01000400-10-10P-4 | 02-02/17-13-002 |             |             |             |             |
|         | AMF-4F-04001200-15-10P | 02-02/17-13-003 |             |             |             |             |
|         | 3117                   | 02-02/24-05-009 | 07/05/2015  | 07/05/2014  |             |             |
|         | Sucoflex N-2000-SMA    | 02-02/50-05-075 |             |             |             |             |
|         | SF104/11N/11N/1500MM   | 02-02/50-13-015 |             |             |             |             |
| SER 2   | ESVS 30                | 02-02/03-05-006 | 03/07/2015  | 03/07/2014  |             |             |
|         | VULB 9168              | 02-02/24-05-005 | 17/04/2016  | 17/04/2015  | 17/10/2015  | 17/04/2015  |
|         | S10162-B               | 02-02/50-05-032 |             |             |             |             |
|         | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |
|         | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |
| SER 3   | FSP 40                 | 02-02/11-11-001 | 02/10/2015  | 02/10/2014  |             |             |
|         | JS4-18004000-30-5A     | 02-02/17-05-017 |             |             |             |             |
|         | AFS5-12001800-18-10P-6 | 02-02/17-06-002 |             |             |             |             |
|         | AFS4-01000400-10-10P-4 | 02-02/17-13-002 |             |             |             |             |
|         | AMF-4F-04001200-15-10P | 02-02/17-13-003 |             |             |             |             |
|         | 3117                   | 02-02/24-05-009 | 07/05/2015  | 07/05/2014  |             |             |
|         | BBHA 9170              | 02-02/24-05-014 |             |             |             |             |
|         | Sucoflex N-2000-SMA    | 02-02/50-05-075 |             |             |             |             |
|         | KMS102-0.2 m           | 02-02/50-11-020 |             |             |             |             |
|         | SF104/11N/11N/1500MM   | 02-02/50-13-015 |             |             |             |             |