



## EMI - T E S T R E P O R T

- FCC Part 15.249, RSS210 -

Type / Model Name : B6R-HAT (Handset unit)

Product Description : Handset unit for gas burning appliances (room heaters)

Applicant : Plättner Elektronik GmbH

Address : Lerchenbreite 8  
38889 BLANKENBURG, GERMANY

Manufacturer : Mertik Maxitrol GmbH & Co.KG

Address : Warnstedter Str.3  
06502 THALE, GERMANY

**Test Result** according to the standards listed in clause 1 test standards:

**POSITIVE**

**Test Report No. :**

**T40604-02-00KJ**

24. January 2019

Date of issue



Deutsche  
Akkreditierungsstelle  
D-PL-12030-01-01  
D-PL-12030-01-02

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

## Contents

<b>1 TEST STANDARDS</b>	<b>3</b>
<b>2 EQUIPMENT UNDER TEST</b>	<b>4</b>
2.1 Photo documentation of the EUT	4
2.2 Short description of the equipment under test (EUT)	4
2.3 Variants of the EUT	4
2.4 Operation frequency and channel plan	4
2.5 Antenna	5
2.6 Power supply system utilised	5
2.7 Peripheral devices and interface cables	5
2.8 Determination of worst case conditions for final measurement	5
2.9 Test jig	5
2.10 Test software	5
<b>3 TEST RESULT SUMMARY</b>	<b>6</b>
3.1 Final assessment	6
<b>4 TEST ENVIRONMENT</b>	<b>7</b>
4.1 Address of the test laboratory	7
4.2 Environmental conditions	7
4.3 Statement of the measurement uncertainty	7
4.4 Measurement protocol for FCC and ISED	8
<b>5 TEST CONDITIONS AND RESULTS</b>	<b>10</b>
5.1 AC power line conducted emissions	10
5.2 Field strength of fundamental	11
5.3 Correction for pulsed operation (duty cycle)	12
5.4 Out-of-band emission, radiated	15
5.5 EBW and OBW	18
5.6 Frequency stability	20
<b>6 USED TEST EQUIPMENT AND ACCESSORIES</b>	<b>21</b>
<b>ATTACHMENT (PHOTO DOCUMENTATION OF THE TEST SET-UP)</b>	<b>A</b>
<b>ATTACHMENT (EXTERNAL PHOTOS OF THE EUT)</b>	<b>B</b>
<b>ATTACHMENT (INTERNAL PHOTOS OF THE EUT)</b>	<b>C</b>

Attachment A, B and C as separately supplement

## 1 TEST STANDARDS

The tests were performed according to following standards:

**FCC Rules and Regulations Part 15, Subpart A - General (May, 2018)**

**FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (May, 2018)**

Part 15, Subpart C, Section 15.209 Radiated emission limits, general requirements

Part 15, Subpart C, Section 15.249 Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz

**RSS-Gen Issue 5, April 2018** General Requirements for Compliance of Radio Apparatus

**RSS-210 Issue 9, August 2016** Licence-Exempt Radio Apparatus: Category I Equipment

ANSI C63.10: 2013 Testing Unlicensed Wireless Devices

CISPR 16-4-2: 2013 Uncertainty in EMC measurement

## **2 EQUIPMENT UNDER TEST**

### **2.1 Photo documentation of the EUT**

Detailed photos see T40604-02-00KJ attachment B and T40604-02-00KJ attachment C.

### **2.2 Short description of the equipment under test (EUT)**

The EuT is an electronic remote ignition and control system for gas appliances with pilot burners and ODS system. All tests were carried out with the test sample "B6R-RATV4PBD".

<b>Used test sample</b>	
<b>Setup for testing</b>	Radiated test sample
<b>Operating frequency</b>	918.0 MHz
<b>Frequency range</b>	902 MHz – 928 MHz
<b>Test signals</b>	cont. modulated & normal operation mode
<b>Serial numer</b>	Cont. CW unmod.: 3518724944 (with temporary SMA antenna connector) Cont. CW mod.: 3518724942 Normal operation mode: 3518724947
<b>Firmware</b>	1.111.x.x.x
<b>Modulation</b>	GFSK
<b>Data rate</b>	32000 bps (bps = bits per second)
<b>Voltage range</b>	2.8 V <sub>nom</sub>
	2.3 V <sub>min</sub>
	3.3 V <sub>max</sub>
<b>Temprature range</b>	20 °C <sub>nom</sub>
	-20 °C <sub>min</sub>
	50 °C <sub>max</sub>

### **2.3 Variants of the EUT**

<b>Transmitter B6R-H (FOIL)</b>						
<b>B6R-H</b>	<b>Frequency</b>		<b>Handset</b>		<b>Color</b>	
	<b>A</b>	US (918 MHz)	<b>T5P</b>	Thermostat (CSA only)	<b>BD</b>	Black tactile
			<b>TL3P</b>	Thermostat,2nd burner (8-button)	<b>WD</b>	White tactile
			<b>TL20P</b>	Thermostat, 2nd burner, 1 hour shut off (CSA only ) (8-button)		
			<b>TV4P</b>	Thermostat, Fan, Dimmer, 2nd burner (10-button)		
			<b>TV7P</b>	Thermostat, Fan, ON/OFF light, 2nd burner (10-button)		
			<b>TV19P</b>	Thermostat, Fan, Dimmer, 2nd burner, 1 hour shut off (CSA only ) (10-button)		
			<b>TV21P</b>	Therm., Fan w/o level "0", Dimmer (OFF in Pilot),2nd burner (10-button)		

### **2.4 Operation frequency and channel plan**

The EuT works on just one frequency.

## 2.5 Antenna

The following antennas shall be used with the EUT:

Number	Characteristic	Model number	Plug	Frequency range (MHz)	Gain (dBi)	Cable loss (dB)
1	Miniature Helical PCB Antenna	Antenna 868/915/918 MHz TI Designote DN038	without plug	868/918	-10	without cable

## 2.6 Power supply system utilised

Power supply voltage,  $V_{\text{nom}}$  : 2x 1.5 V Battery powered

## 2.7 Peripheral devices and interface cables

The following peripheral devices and interface cables are connected during the measurements:

- \_\_\_\_\_ Model : \_\_\_\_\_
- \_\_\_\_\_ Model : \_\_\_\_\_
- \_\_\_\_\_ Model : \_\_\_\_\_

## 2.8 Determination of worst case conditions for final measurement

Measurements have been made in all three orthogonal axes and the settings of the EUT were changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the further measurement the EUT is set in horizontal position.

## 2.9 Test jig

No Test jig was used.

## 2.10 Test software

No test software was used.

### **3 TEST RESULT SUMMARY**

Operating in the 902 MHz – 928 MHz band:

FCC Rule Part	RSS Rule Part	Description	Result
15.207(a)	RSS Gen, 8.8	AC power line conducted emissions	not applicable <sup>1)</sup>
15.249(a)	RSS-210, B10(a)	Field strength of fundamental	passed
15.35(c)	RSS-Gen, 8.2	Pulsed operation	passed
15.249(d)	RSS-210, B10(b)	Out-of-band emission, radiated	passed
15.215(c)	-	Emission bandwidth	passed
-	RSS-Gen, 6.7 RSS-210, A.1.3	Occupied bandwidth	passed
15.215(c)	RSS-Gen, 6.11	Transmitter frequency stability	passed

**Note:** 1) Not applicable, because the system is battery powered.

#### **3.1 Final assessment**

The equipment under test fulfills the EMI requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 08 November 2018

Testing concluded on : 14 November 2018

Checked by: Tested by:

---

Klaus Gegenfurtner  
Teamleader Radio

---

Josef Knab  
Radio Team

## 4 TEST ENVIRONMENT

### 4.1 Address of the test laboratory

**CSA Group Bayern GmbH**  
**Ohmstrasse 1-4**  
**94342 STRASSKIRCHEN**  
**GERMANY**

### 4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	86-106 kPa

### 4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor  $k = 2$ . The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 11.2003 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Measurement Type	Range	Confidence Level	Calculated Uncertainty
AC power line conducted emissions	0.15 MHz to 30 MHz	95%	$\pm 3.29$ dB
EBW and OBW	2400 MHz to 3000 MHz	95%	$\pm 2.5 \times 10^{-7}$
Maximum peak conducted output power	2400 MHz to 3000 MHz	95%	$\pm 0.62$ dB
Power spectral density	2400 MHz to 3000 MHz	95%	$\pm 0.62$ dB
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	$\pm 2.15$ dB
Conducted Spurious Emissions	10000 MHz to 40000 MHz	95%	$\pm 3.47$ dB
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	$\pm 3.53$ dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	$\pm 3.71$ dB
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	$\pm 2.34$ dB
Field strength of the fundamental	100 kHz to 100 MHz	95%	$\pm 3.53$ dB

## 4.4 Measurement protocol for FCC and ISED

### 4.4.1 Test methodology

The Open Area test site is a listed Open Site under the Canadian Test-Sites File-No:

**IC 3009A-1**

The Anechoic chamber is a listed test site under the Canadian Test-Sites File-No:

**IC 3009A-2**

In compliance with RSS 210 testing for RSS compliance may be achieved by following the procedures set out in ANSI C63.10.

### 4.4.2 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral using the appropriate impedance characteristic or left unterminated. Where appropriate, cables are manually manipulated with respect to each other thus obtaining maximum disturbances from the unit.

### 4.4.3 General Standard information

In compliance with 47 CFR Part 15 Subpart A, Section 15.38 testing for FCC compliance may be achieved by following the procedures set out in ANSI C63.10 and applying the CISPR 22 limits.

#### 4.4.3.1.1 Radiated emission (electrical field 30 MHz - 1 GHz)

##### Description of measurement:

Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The setup of the equipment under test is established in accordance with ANSI C63.10. The interface cables that are closer than 40 centimetres to the ground plane are bundled in the center in a serpentine fashion so that they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees.

The final level in dB $\mu$ V/m is calculated by taking the reading from the EMI receiver (Level dB $\mu$ V) and adding the correction factors and cable loss factor (dB). The FCC or CISPR limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

30 MHz – 1000 MHz:                    RBW: 120 kHz

Example:

Frequency Delta (MHz)	Level (dB $\mu$ V)	+	Factor (dB)	=	Level (dB $\mu$ V/m)	-	CISPR Limit (dB $\mu$ V/m)	=	(dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

**4.4.3.1.2 Radiated emission (electrical field 1 GHz - 40 GHz)****Description of measurement:**

Radiated emissions from the EUT are measured in the frequency range 1 GHz up to the maximum frequency as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a 1.0 X 1.5 metre non-conducting table, 1.5 metre above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The setup of the equipment under test is following set out in ANSI C63.10. The interface cables that are closer than 40 centimetres to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. Measurements are made in both the horizontal and vertical polarization planes in a fully anechoic room using a spectrum analyzer set to max peak detector function and a resolution 1 MHz and video bandwidth 3 MHz for peak measurement. The conditions determined as worst case will then be used for the final measurements. When the EUT is larger than the beam width of the measuring antenna it will be moved over the surface for the four sides of the equipment. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty and are calculated at the specified test distance.

## 5 TEST CONDITIONS AND RESULTS

### 5.1 AC power line conducted emissions

For test instruments and accessories used see section 6 Part A 4.

#### 5.1.1 Description of the test location

Test location:                   NONE

#### 5.1.2 Applicable standard

FCC Part 15, Section 15.207 and RSS-Gen 8.8:

#### 5.1.3 Test result

**Remarks:**        This test is not applicable, because the system is battery powered.

---

## 5.2 Field strength of fundamental

For test instruments and accessories used see section 6 Part **CPR 2**.

### 5.2.1 Description of the test location

Test location: OATS 1

Test distance: 3 m

### 5.2.2 Photo documentation of the test set-up

For test setup photos see T40604-02-00KJ ATTACHMENT A

### 5.2.3 Applicable standard

FCC Part 15, Section 15.249(a), RSS-210 B10(a):

### 5.2.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10.

EMI test receiver settings:

30 MHz – 1000 MHz: RBW: 120 kHz

### 5.2.5 Test result

Frequency (MHz)	Level QP (dB $\mu$ V)	Bandwidth (kHz)	Correct. factor (dB)	Corrected level dB( $\mu$ V/m)	Limit dB( $\mu$ V/m)	Delta (dB)
918.0	61.6	120	29.2	90.8	94.0	-3.2

**Note:** The correction factor includes cable loss and antenna factor.

Limit according to FCC Part 15, Section 15.249(a), RSS-210 B10(a):

Frequency (MHz)	Field strength of fundamental	
	(mV/m)	dB( $\mu$ V/m)
902 - 928	50	94

The requirements are **FULFILLED**.

**Remarks:**

### 5.3 Correction for pulsed operation (duty cycle)

For test instruments and accessories used see section 6 Part DC.

#### 5.3.1 Description of the test location

Test location: Shielded Room S4

#### 5.3.2 Photo documentation of the test set-up

For test setup photos see T40604-02-00KJ ATTACHMENT A

#### 5.3.3 Applicable standard

FCC Part 15, Section 15.35(c), RSS-GEN 8.2:

#### 5.3.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10.

Spectrum analyser settings: refer to attached plots

The duty cycle factor is calculated from the sum of the individual ON times, per equation:

$$\delta(\text{dB}) = 20\log \left[ \sum (t_1 + t_2 + \dots) / T \right]$$

$\delta$  is the duty cycle correction factor

$t_1$  is the duration of pulse 1

$t_2$  is the duration of pulse 2

$T$  is the period of the pulse train, or 100 ms if the pulse train length is greater than 100 ms

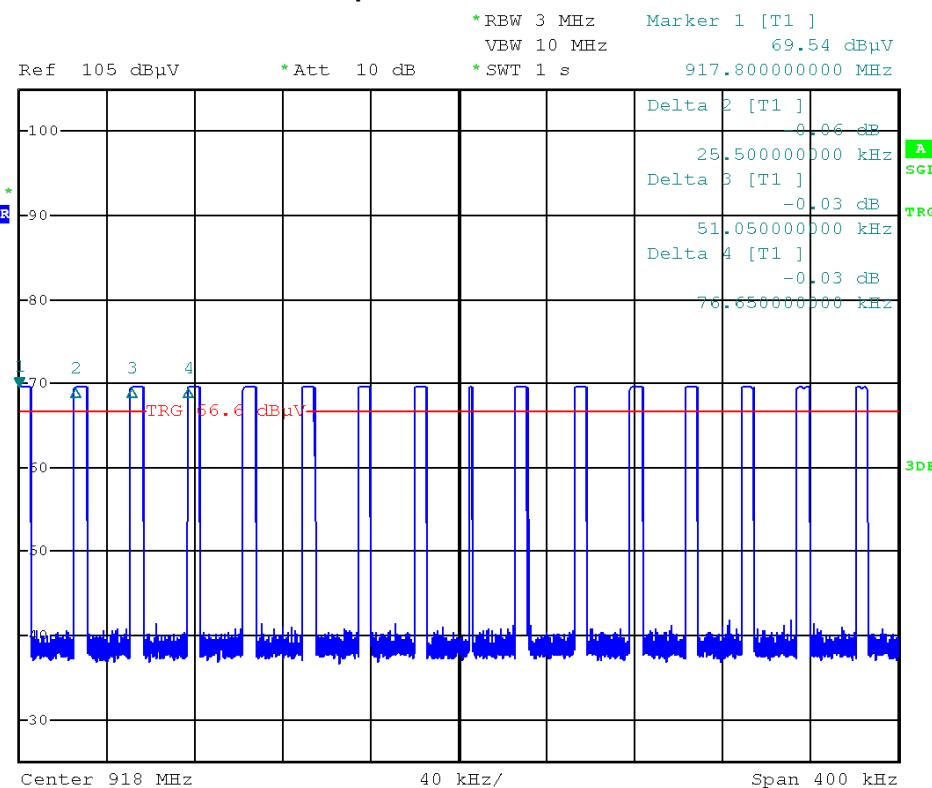
#### 5.3.5 Test result

$t_1$ (ms)	$t_2$ (ms)	$t_3$ (ms)	$t_4$ (ms)	$\sum t$ (ms)	$\delta$ (dB)
14.35	14.43	-	-	28.78	-10.8

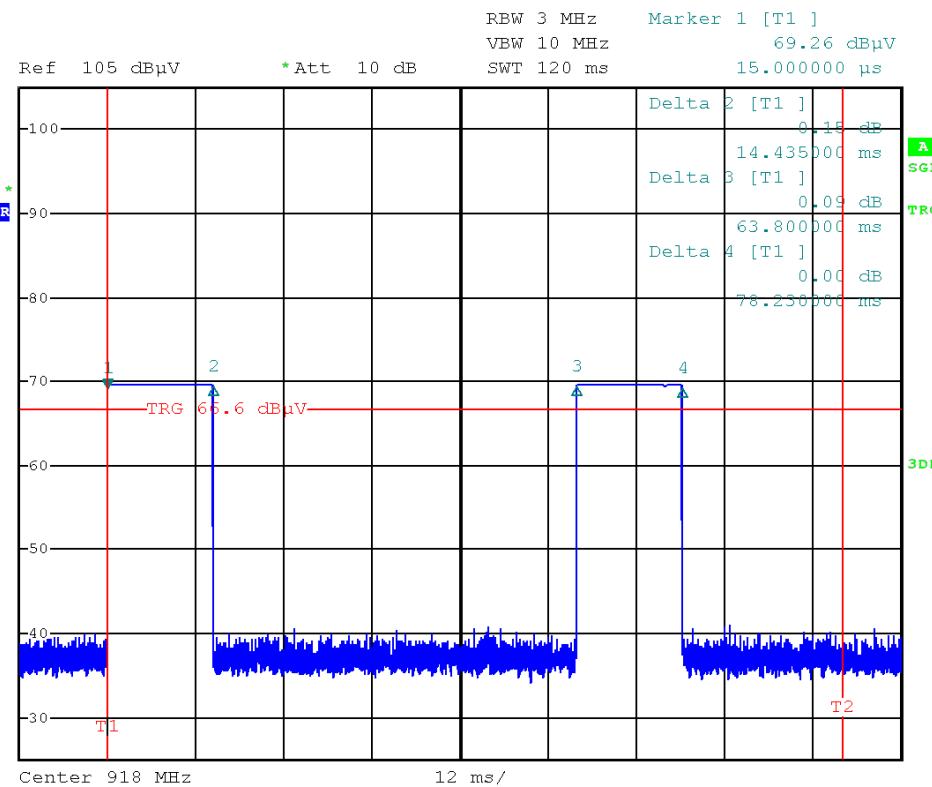
**Remarks:** The pulse train ( $T$ ) exceeds 100 ms, therefore the duty cycle have been calculated by averaging the sum of the pulse widths over the 100 ms with the highest average value.  
The length of the signal is dependent of the button which is pressed (automatically switch off after 20.43 s). The shortest TX on time is 274.75 ms.  
For detailed results, please see the test protocol below.

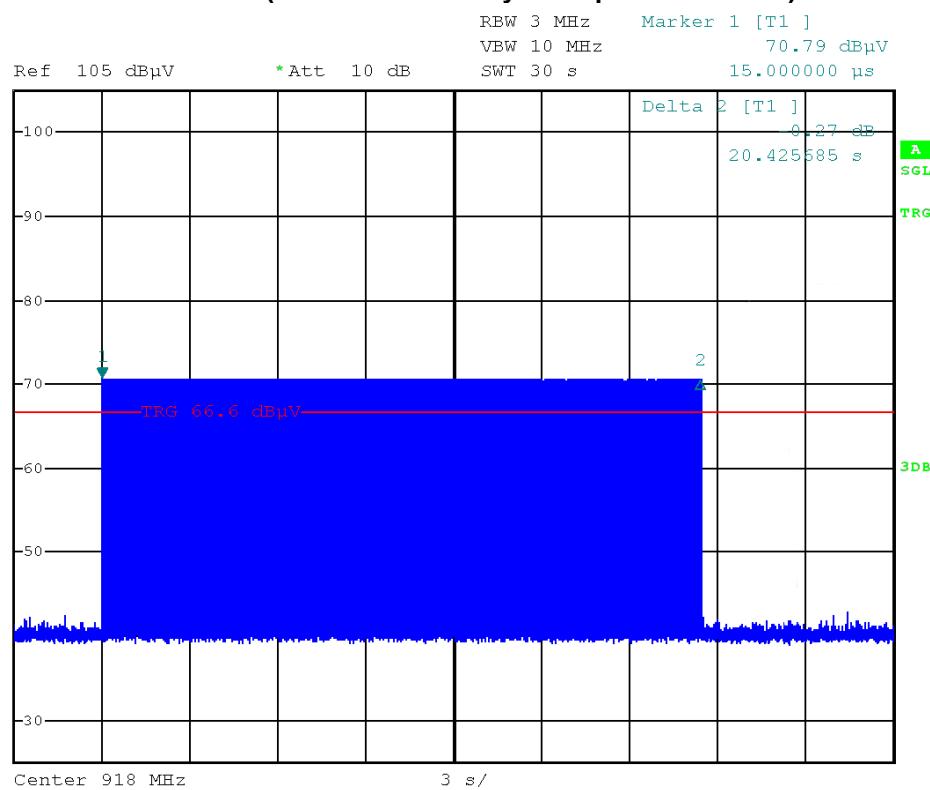
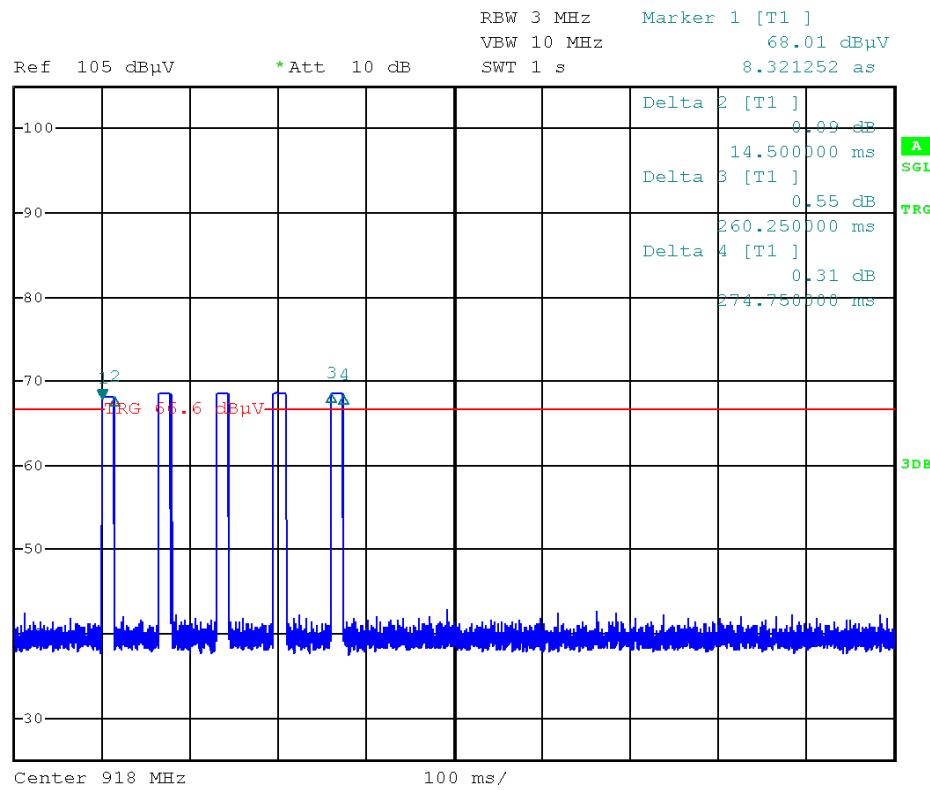
### 5.3.6 Test protocols

#### Max. pulse train >100 ms



#### Pulses within 100 ms (T1 = 0 ms & T2 = 100 ms)



**Auto shutdown (max. TX on time by cont. pressed button)**

**Short key operation (min. TX on time by single activation)**


## 5.4 Out-of-band emission, radiated

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

### 5.4.1 Description of the test location

Test location: OATS 1 / Anechoic chamber 1

Test distance: 3 m

### 5.4.2 Photo documentation of the test set-up

For test setup photos see T40604-02-00KJ ATTACHMENT A

### 5.4.3 Applicable standard

FCC Part 15, Section 15.249(d), RSS-210 B10(b):

### 5.4.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10.

Instrument settings:

9 kHz – 150 kHz	RBW:	200 Hz
150 kHz – 30 MHz	RBW:	9 kHz
30 MHz – 1000 MHz:	RBW:	120 kHz
1000 MHz – 10 GHz	RBW:	1 MHz

### 5.4.5 Test result 9 kHz to 30 MHz

FCC Part 15C, Section 15.209

Frequency (MHz)	Reading QP dB( $\mu$ V/m)	D factor (dB)	Level QP dB( $\mu$ V/m)	Limit QP dB( $\mu$ V/m)	Delta (dB)
0.1	33	-80	-47	27.6	-74.6
1	31	-40	-9	27.6	-36.6
15	21.2	-40	-18.8	29.5	-48.3
20	30.2	-40	-9.8	29.5	-39.3
25	29.1	-40	-10.9	29.5	-40.4

RSS-GEN 8.9

Frequency (MHz)	Reading QP dB( $\mu$ A/m)	D factor (dB)	Level QP dB( $\mu$ A/m)	Limit QP dB( $\mu$ A/m)	Delta (dB)
0.1	-18.5	-80	-98.5	-23.9	-74.6
1	-20.5	-40	-60.5	-23.9	-36.6
15	-30.3	-40	-70.3	-21.9	-48.4
20	-21.3	-40	-61.3	-21.9	-39.4
25	-22.4	-40	-62.4	-21.9	-40.5

**Note:** In the frequency range 9 kHz to 30 MHz no emission could be detected. The frequencies mention the noise level. The measurement results from distance 3 m are extrapolated (D factor) to the specified distance. The measured dB $\mu$ V/m readings, are reduced by 51.5 dB to be converted to dB $\mu$ A/m for RSS-GEN 8.9.

**5.4.6 Test result 30 MHz to 1 GHz**

Frequency (MHz)	Level QP (dB $\mu$ V)	Bandwidth (kHz)	Correct. Factor (dB)	Corrected level QP dB( $\mu$ V/m)	Limit QP dB( $\mu$ V/m)	Delta (dB)
30	6.3	120.0	12.9	19.2	40.0	-20.8
200	3.8	120.0	10.3	14.1	43.5	-29.4
400	0.4	120.0	18.9	19.3	46.0	-26.7
600	-0.3	120.0	24.3	24.0	46.0	-22.0
800	-0.1	120.0	27.7	27.6	46.0	-18.4
1000	-0.4	120.0	30.2	29.8	54.0	-24.2

**Note:** The correction factor includes cable loss and antenna factor. The measurement results are from distance of 3 m. In the frequency range 30 MHz to 1000 MHz no emission could be detected. This frequencies mention the noise level.

**5.4.7 Test result 1 GHz to 10 GHz**

Frequency (MHz)	Level PK (dB $\mu$ V)	Duty Cycle correction (dB)	Level AV (dB $\mu$ V)	Correct. factor (dB)	Corrected level PK (dB $\mu$ V/m)	Corrected level AV (dB $\mu$ V/m)	Limit PK (dB $\mu$ V/m)	Limit AV (dB $\mu$ V/m)	Delta (dB)
1835.9	52.6	-10.8	41.8	-8.2	44.4	33.6	74.0	54.0	-20.4
4589.76	54.5	-10.8	43.7	-4.8	49.7	38.9	74.0	54.0	-15.1
5507.71	59.3	-10.8	48.5	-3.8	55.5	44.7	74.0	54.0	-9.3
6425.67	51.8	-10.8	41.0	-2.2	49.6	38.8	74.0	54.0	-15.2
7343.62	49.9	-10.8	39.1	-1.6	48.3	37.5	74.0	54.0	-16.5

**Note:** The correction factor includes cable loss and antenna factor. In the frequency range 1 GHz to 10 GHz no emission above 4 GHz could be detected. The measurement results are from distance of 3 m. Average values were calculated from the subtraction of peak values minus correction duty cycle factor.

Limit according to FCC Part 15C, Section 15.209:

Frequency (MHz)	Field strength ( $\mu$ V/m)	Measurement distance (m)
0.009 - -0.49	2400/F (F in kHz)	300
0.49 - 1.705	24000/F (F in kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Limit according to RSS-GEN 8.9:

Table 5 – General field strength limits at frequencies above 30 MHz

Frequency (MHz)	Field strength ( $\mu$ V/m)	Measurement distance (m)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

**FCC ID: RTD-B6RHAT**
**IC: 4943A-B6RHAT**
**Table 6 – General field strength limits at frequencies below 30 MHz**

Frequency (MHz)	Magnetic field strength ( $\mu$ A/m)	Measurement distance (m)
0.009 - 0.49	6.37/F (F in kHz)	300
0.49 – 1.705	63.7/F (F in kHz)	30
1.705 – 30.0	0.09	30

**Average limit according to FCC Part 15, Section 15.249(d), RSS-210 B10(b):**

Fundamental frequency (MHz)	Field strength of harmonics ( $\mu$ V/m)	dB( $\mu$ V/m)
902 - 928	500	54

**The requirements are **FULFILLED**.**
**Remarks:** The measurement was performed up to the 10<sup>th</sup> harmonic (10000 MHz).

## 5.5 EBW and OBW

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

### 5.5.1 Description of the test location

Test location: Shielded Room S4

### 5.5.2 Photo documentation of the test set-up

For test setup photos see T40604-02-00KJ ATTACHMENT A

### 5.5.3 Applicable standard

FCC Part 15, Section 15.215(c), RSS-GEN 6.7 and RSS-210 A.1.3:

### 5.5.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10.

Spectrum analyser settings: refer to attached plots

### 5.5.5 Test result

FCC Part 15C, Section 15.215(c)

20dB bandwidth

Operating frequency (MHz)	$f_{low}$ (MHz)	$f_{high}$ (MHz)	Bandwidth (kHz)	Frequencys between (MHz)	Result
918.0	917.94965	918.05800	108.35	902 to 928	PASS

RSS-GEN 6.7 and RSS-210 A.1.3

99% bandwidth

Operating frequency (MHz)	$f_{low}$ (MHz)	$f_{high}$ (MHz)	Bandwidth (kHz)	limit (kHz)	Result
918.0	917.94935	918.05420	104.85	4590	PASS

Limit according to FCC Part 15, Section 15.215(c):

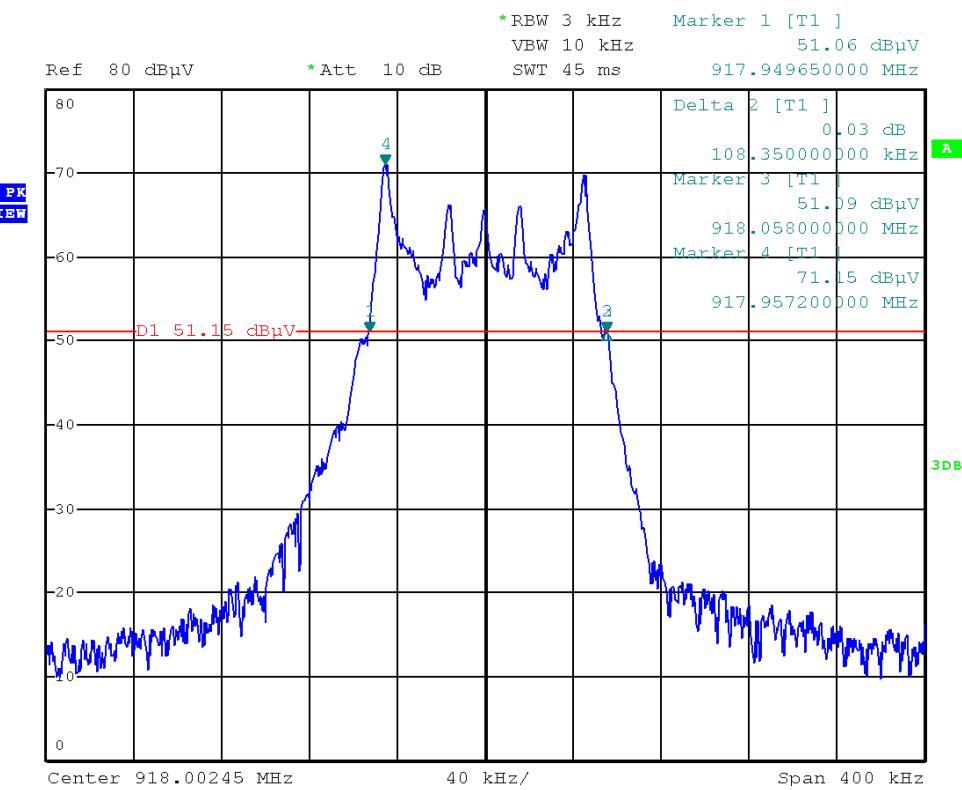
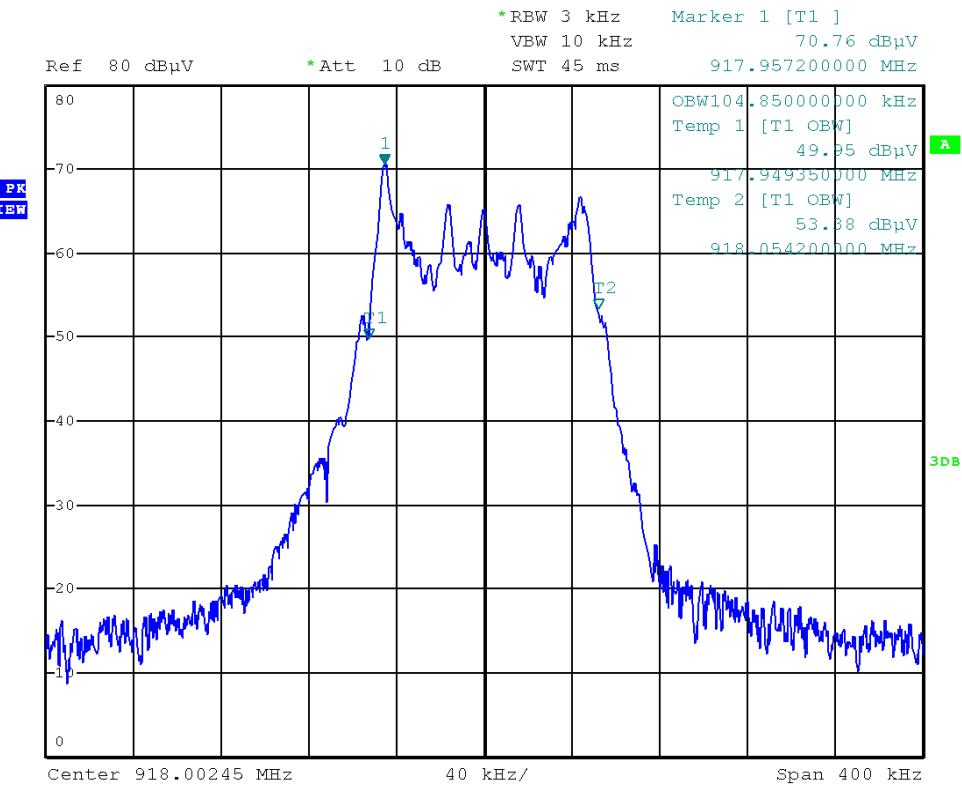
Frequency band (MHz)	Emission bandwidth
902 to 928	Within the designated frequency band

Limit according to RSS-210 A.1.3:

Operating frequency (MHz)	Bandwidth of momentary signals (kHz)
> 900	$\leq 0.5\%$ of the center frequency.

The requirements are **FULFILLED**.

**Remarks:** For detailed test result please refer to following test protocols.

**5.5.6 Test protocols – 20 dB bandwidth**

**5.5.7 Test protocols – 99% bandwidth**


## 5.6 Frequency stability

For test instruments and accessories used see section 6 Part FS.

### 5.6.1 Description of the test location

Test location: AREA4

### 5.6.2 Photo documentation of the test set-up

For test setup photos see T40604-02-00KJ ATTACHMENT A

### 5.6.3 Applicable standard

FCC Part 15, Section 15.215(c), RSS-GEN 6.11:

### 5.6.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10.

Spectrum analyser settings:

RBW	VBW	Span	Trace mode	Detector
100 Hz	300 Hz	3 kHz	max. hold	max. peak

### 5.6.5 Test result

Tempreature (C°)	Voltage (V)	Measured frequency at startup (MHz)	Measured frequency at 2 minutes (MHz)	Measured frequency at 5 minutes (MHz)	Measured frequency at 10 minutes (MHz)	Limit between (MHz)	Result
50	2.8	917.993696	917.993684	917.993684	917.993688	904.6 - 925.4	PASS
40	2.8	917.995090	917.995073	917.995069	917.995065	904.6 - 925.4	PASS
30	2.8	917.997369	917.997331	917.997336	917.997336	904.6 - 925.4	PASS
20	2.3	917.999700	917.999683	917.999679	917.999675	904.6 - 925.4	PASS
20	2.8	917.999696	917.999670	917.999666	917.999662	904.6 - 925.4	PASS
20	3.3	917.999674	917.999653	917.999649	917.999646	904.6 - 925.4	PASS
10	2.8	918.001595	918.001583	918.001574	918.001574	904.6 - 925.4	PASS
0	2.8	918.002570	918.002570	918.002566	918.002562	904.6 - 925.4	PASS
-10	2.8	918.002250	918.002284	918.002270	918.002267	904.6 - 925.4	PASS
-20	2.8	918.000169	918.000207	918.000223	918.000211	904.6 - 925.4	PASS

Limit according to FCC Part 15, Section 15.215(c) and RSS-210 A.1.3:

Frequency band (MHz)	Frequency stability
902 to 928	Within 80% of the permitted frequency band

Remarks:

---



---



---

## **6 USED TEST EQUIPMENT AND ACCESSORIES**

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

<b>Test ID</b>	<b>Model Type</b>	<b>Equipment No.</b>	<b>Next Calib.</b>	<b>Last Calib.</b>	<b>Next Verif.</b>	<b>Last Verif.</b>
CPR 2	ESVS 30	02-02/03-05-006	06/06/2019	06/06/2018		
	VULB 9168	02-02/24-05-005	18/04/2019	18/04/2018		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
DC	FSP 30	02-02/11-05-001	09/10/2019	09/10/2018		
	RF Antenna	02-02/24-05-032				
FS	FSP 30	02-02/11-05-001	09/10/2019	09/10/2018		
	METRAHIT WORLD	02-02/32-15-001	13/12/2018	13/12/2017		
	WK-340/40	02-02/45-05-001	06/04/2019	06/04/2018		
	6543A	02-02/50-05-157				
MB	FSP 30	02-02/11-05-001	09/10/2019	09/10/2018		
	RF Antenna	02-02/24-05-032				
SER 1	ESCI	02-02/03-05-005	14/12/2018	14/12/2017		
	HFH 2 - Z 2	02-02/24-15-001	22/03/2019	22/03/2018		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
	ANT1010A	02-02/50-16-035				
SER 2	ESVS 30	02-02/03-05-006	06/06/2019	06/06/2018		
	VULB 9168	02-02/24-05-005	18/04/2019	18/04/2018		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
SER 3	ESW26	02-02/03-17-002	08/12/2018	08/12/2017		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-05-009	08/05/2019	08/05/2018		
	WHJS 1000-10EE	02-02/50-05-070				
	18N-20	02-02/50-17-003				
	NMS111-GL200SC01-NMS1102-02/50-17-012					
	BAM 4.5-P	02-02/50-17-024				
	NCD	02-02/50-17-025				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				