





EMI -- TEST REPORT

- FCC Part 15.225 -

Test Report No. : T34322-00-01KG

03. August 2010

Date of issue

Type / Model Name : APEX-Reader

Product Description : Laboratory Equipment with RFID

Applicant: LRE Medical GmbH

Address : Frankfurter Ring 15

80807 München, GERMANY

Manufacturer : AspenBio Pharma, Inc.

Address : 1585 South Perry Street, Castle Rock

Colorado 80104-1931, USA

Licence holder : AspenBio Pharma, Inc.

Address : 1585 South Perry Street, Castle Rock

Colorado 80104-1931, USA

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

POSITIVE



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.



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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (October, 2009)

Part 15, Subpart A, Section 15.31 Measurement standards

Part 15, Subpart A, Section 15.33 Frequency range of radiated measurements

Part 15, Subpart A, Section 15.35 Measurement detector functions and bandwidths

Part 15, Subpart A, Section 15.38 Incorporation by reference

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (October, 2009)

Part 15, Subpart C, Section 15.203 Antenna requirement

Part 15, Subpart C, Section 15.204 External radio frequency power amplifiers and antenna modifications

Part 15, Subpart C, Section 15.205 Restricted bands of operation

Part 15, Subpart C, Section 15.207 Conducted limits

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

Part 15, Subpart C, Section 15.215 Additional provisions to the general radiated emission limitations

Part 15, Subpart C, Section 15.225 Operation within the band 13.110 - 14.010 MHz

FCC Rules and Regulations Part 1, Subpart I - Procedures Implementing the National Environmental Policy

Act of 1969

Part 1, Subpart I, Section 1.1310 Radiofrequency radiation exposure limits

Part 1, Subpart 2, Section 2.1093 Radiofrequency radiation exposure evaluation: portable device

OET Bulletin 65, 65A, 65B, 65C Edition 97-01, August 1997 – Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

ANSI C63.4: 2009 Methods of Measurement of Radio-Noise Emissions from Low-

Voltage Electrical and Electronic Equipment in the Range of 9 kHz

to 40 GHz.

ANSI C95.1:1992 IEEE Standard for Safety Levels with respect to Human Exposure

to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

CISPR 16-4-2: 2003 Uncertainty in EMC measurement

CISPR 22: 2005 Information technology equipment

EN 55022: 2006

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Rev. No. 1.1. 23.4.2009



2 SUMMARY

GENERAL REMARKS:

The EUT includes 2 RFID Modules with identical electronics. Only the form of the PCB and the location is different. The working frequency of the modules is 13.56 MHz.

This test report describes the assessment for one RFID Module only. The position of this module is under the key pad and is the "worst case" module. The position of the second module is on the bottom of the unit.

The EUT is equipped with an integral antenna.

The receiver is permanently co-located within the transmitter. Therefore the receive mode is to short and was tested together with the transmitter in operating mode. There is no standby mode.

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

FINAL ASSESSMENT:

Date of receipt of test sample : <u>acc. to storage records</u>

Testing commenced on : <u>5 June 2010</u>

Testing concluded on : <u>16 June 2010</u>

Checked by: Tested by:

Thomas Weise Dipl. Ing.(FH)

Klaus Gegenfurtner Dipl.-Ing.(FH)

Laboratory Manager



3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EUT – See attachment A

3.2	Power	supply	system	utilised
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Power supply voltage : Battery 6.1 to 8.4 VDC AC 115 V / 60 Hz / 16 3.3 Short description of the equipment under test (EUT) The ApexReader is a portable fluorescence instrument used to measure the results of tests by AspenBio Pharma. The reader is designed for use in a laboratory setting. Each test cartridge includes an RFID tag that identifies relevant parameter for evaluating the test results. Number of tested samples: Serial number: 136 **EUT** operation mode: The equipment under test was operated during the measurement under the following conditions: - TX CW modulated **EUT** configuration: (The CDF filled by the applicant can be viewed at the test laboratory.) The following peripheral devices and interface cables were connected during the measurements: Model: - None Model:

Model:



4 TEST ENVIRONMENT

4.1 Address of the test laboratory

mikes-testingpartners gmbh Ohmstrasse 2-4 94342 STRASSKIRCHEN GERMANY

4.2 Environmental conditions

Durin	g tne	measu	urement	tne e	environn	nentai	conditions	were	within	tne	ııstea	ranges	3:

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. The reader may notice that tolerances within the calibration of the equipment and facilities may cause additional uncertainty. The measurement uncertainty is calculated for all measurements listed in this test report acc. to CISPR 16-4-2 "Uncertainties, statistics and limit modelling — Uncertainty in EMC measurement" and documented in the mikes-testingpartners gmbh quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, mikes-testingpartners 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 diversity and modifications in production processes may result in additional deviation. If necessary, refer to the test lab for the actual measurement uncertainty for specific tests. The manufacturer has the sole responsibility of continued compliance of the EUT.

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4.1 Measurement Protocol for FCC, VCCI and AUSTEL

4.1.1 GENERAL INFORMATION

4.1.1.1 Test methodology

Conducted and radiated disturbance testing is performed according to the procedures set out by the International Special Committee on Radio Interference (CISPR) Publication 22, European Standard EN 55022 as shown under section 1 of this report.

4.1.1.2 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.

4.1.2 DETAILS OF TEST PROCEDURES

General Standard information

The test methods used comply with CISPR Publication 22, EN 55022 - "Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement" and with ANSI C63.4 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". 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 C63.4 and applying the CISPR 22 limits.



5 TEST CONDITIONS AND RESULTS

5.1 Conducted emissions

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

5.1.1 Description of the test location

Test location: Shielded Room S2

5.1.2 Photo documentation of the test set-up



5.1.3 Applicable standard

According to FCC Part 15, Section 15.107(a):

Except for Class A devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

5.1.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.4 described under item 4.4.3. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are remeasured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.



5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin 7.3 dB at 13.56 MHz

Limit according to FCC Part 15, Section 15.107(a):

Frequency of Emission	Conducted Limit (dBµV)				
(MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56 *	56 to 46 *			
0.5-5	56	46			
5-30	60	50			

^{*} Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.

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



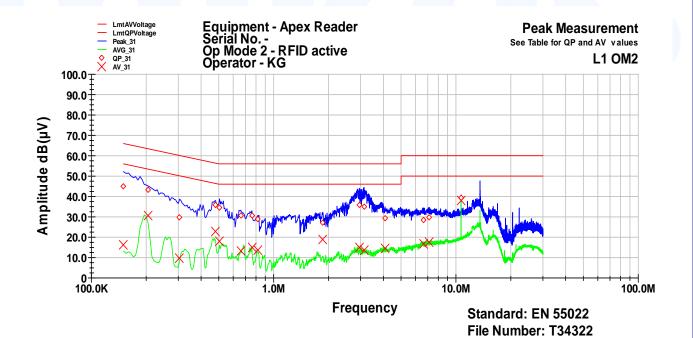
5.1.6 Test protocol

Test point L1 Result: passed

Operation mode: TX CW modulated

. Remarks:

Frequency	QP Level	QP Margin	QP Limit	AV Level	AV Margin	AV Limit
MHz	dB(μV)	dB	dB	dB(μV)	dB	dB
0.15	45.2	-20.8	66.0	16.2	-39.8	56.0
0.205	43.3	-20.2	63.4	30.6	-22.8	53.4
0.305	29.6	-30.5	60.1	9.6	-40.6	50.1
0.48	35.9	-20.5	56.3	22.6	-23.7	46.3
0.505	34.8	-21.2	56.0	17.8	-28.2	46.0
0.66	30.5	-25.5	56.0	13.2	-32.8	46.0
0.76	30.7	-25.3	56.0	15.1	-30.9	46.0
0.82	28.7	-27.3	56.0	13.7	-32.3	46.0
1.85	27.3	-28.7	56.0	18.7	-27.3	46.0
2.95	35.7	-20.3	56.0	14.8	-31.2	46.0
3.125	35.0	-21.0	56.0	13.6	-32.4	46.0
4.085	29.1	-26.9	56.0	14.7	-31.3	46.0
6.63	28.6	-31.4	60.0	16.7	-33.3	50.0
7.13	29.7	-30.3	60.0	17.4	-32.6	50.0
10.665	39.3	-20.7	60.0	38.0	-12.0	50.0



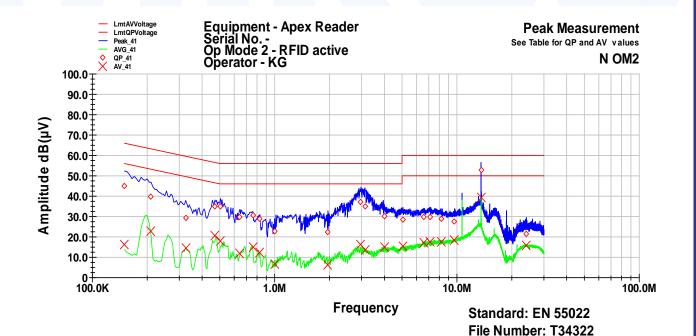


Test point: N Result: passed

Operation mode: TX CW modulated

. Remarks:

Frequency	QP Level	QP Margin	QP Limit	AV Level	AV Margin	AV Limit
MHz	dB(μV)	dB	dB	dB(μV)	dB	dB
•		•	•	•	•	
0.15	45.1	-20.9	66.0	16.1	-39.9	56.0
0.21	39.6	-23.6	63.2	22.8	-30.5	53.2
0.325	29.5	-30.1	59.6	14.5	-35.1	49.6
0.47	34.8	-21.7	56.5	20.6	-25.9	46.5
0.505	34.8	-21.2	56.0	17.8	-28.2	46.0
0.645	29.5	-26.5	56.0	12.0	-34.0	46.0
0.76	30.7	-25.3	56.0	14.9	-31.1	46.0
0.83	28.9	-27.1	56.0	12.3	-33.7	46.0
1	22.7	-33.3	56.0	6.6	-39.4	46.0
1.96	22.3	-33.7	56.0	6.4	-39.6	46.0
2.97	37.2	-18.8	56.0	16.2	-29.8	46.0
3.125	35.1	-20.9	56.0	13.7	-32.3	46.0
4.015	30.3	-25.8	56.0	14.9	-31.1	46.0
5.05	28.6	-31.4	60.0	15.4	-34.6	50.0
6.575	29.6	-30.4	60.0	17.3	-32.7	50.0
7.13	30.0	-30.0	60.0	17.5	-32.5	50.0
8.17	28.7	-31.3	60.0	17.6	-32.4	50.0
9.69	27.7	-32.3	60.0	18.5	-31.5	50.0
13.56	52.7	-7.3	60.0	39.2	-10.8	50.0
23.995	21.7	-38.3	60.0	15.9	-34.1	50.0





5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part CPR 1.

5.2.1 Description of the test location

Test location: OATS1

Test distance: 3 metres

5.2.2 Photo documentation of the test set-up





5.2.3 Applicable standard

According to FCC Part 15, Section 15.225(a):

The field strength of any emission within the band 13.553 – 13.567 MHz shall not exceed 15848 µV/m at 30 m.

5.2.4 Description of Measurement

The transmitted field strength of the EUT has to be measured at an open area test site using a tuned receiver and a shielded loop antenna. The set up of the equipment under test will be in accordance with ANSI C63.4. The measurement has been performed at 3 m. The results have been compared to the limits defined at 30 m distances according to FCC Part 15C, Section 15.31(f)(2) using an inverse linear distance extrapolation factor of 40 dB/decade. The final measurement has been performed with an EMI receiver using quasi peak detector and a resolution bandwidth of 9 kHz.

5.2.5 Test result

a) Result at a measurement distance of 3m

Frequency	Level	Ant. factor	Field strength
(MHz)	(dBµV)	(dB 1/m)	dB(µV/m)
13.56	37.3	20	57.3

b) Result extrapolated to a distance of 30 m

Frequency	Level	Ant. factor	Field strength	Limit	Delta
(MHz)	(dBµV)	(dB 1/m)	dB(µV/m)	dB(μV/m)	(dB)
13.56	-2.7	20	17.3	84	-66.7

Limit according to FCC Part 15, Section 15.225(a):

Frequency	Field strength of fu	undamental wave	Measurement distance
(MHz)	(µV/m)	dB(μV/m)	(metres)
13.553 - 13.567	15848	84	30

The requirement	s are FULFILLED .		
Remarks:			
_			



5.3 Spurious emissions

For test instruments and accessories used see section 6 Part SER 1, SER 2.

5.3.1 Description of the test location

Test location: OATS1

Test distance: 3 metres

5.3.2 Photo documentation of the test set-up







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5.3.3 Applicable standard

According to FCC Part 15C, Section 15.209:

The emissions from an intentional radiator shall not exceed the field strength levels specified in the table below.

Description of Measurement

The spurious emissions of the EUT have to be measured at an open area test site in the frequency range from 9 kHz to 1000 MHz using a tuned EMI receiver. The set up of the equipment under test will be in accordance with ANSI C63.4. The measurement has been performed at 3 m. The results have been compared to the limits defined at 30 m or 300 m distances according to FCC Part 15C, Section 15.31(f)(2) using an inverse linear distance extrapolation factor of 40 dB/decade. The final measurement has been performed with the EMI receiver using Quasi peak detector except for the frequency bands 9 kHz to 90 kHz and 110 to 490 kHz where an average detector will be used, according to Section 15.209(d).

The resolution bandwidth during the measurement is as follows:

9 kHz – 150 kHz: RBW: 200 Hz 150 kHz - 30 MHz: RBW: 9 kHz 30 MHz - 1000 MHz: RBW: 120 kHz

5.3.5 **Test result**

Results at a measurement distance of 3m

Frequency	Level AV	Level QP	Ant. factor	Field strength	Field strength	Limit	Delta
(MHz)	(dBµV)	(dBµV)	(dB)	QP dB(μV/m)	AV dB(μV/m)	dB(μV/m)	(dB)
0.009-0.090							
0.090-0.110							
0.110-0.490						7 (1)	
0.490 - 1.705							
1.705 - 30.0							
30 - 88							
88 - 216							

Limit according to FCC Part 15 Subpart 15.209(a):

Frequency	Field strength of sp	ourious 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 - 30.0	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

The requirements are **FULFILLED**.

Measurement has been performed up to the 10th harmonic (135 MHz). Remarks:

No undesired emissions occurred in the frequency range from 9 kHz up to 135 MHz

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5.4 Frequency tolerance

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

5.4.1 Description of the test location

Test location: AREA4 (Climatic Chamber)

5.4.2 Photo documentation of the test set-up



5.4.3 Applicable standard

According to FCC Part 15, Section 15.225(e):

The frequency tolerance of t he carrier signal shall be maintained within ± 0.01 % of the operating frequency over a temperature range of -20 °C to +50 °C at normal supply voltage and for a variation in the primary supply voltage from 85 % to 115 % of the rated supply voltage at a temperature of 20 °C. For battery operated equipment, the equipment shall be performed using a new battery.

5.4.4 Description of Measurement

The frequency tolerance has been measured radiated using a spectrum analyser. The center frequency of the spectrum analyser has been set to the fundamental frequency. This is an alternative test method because the EuT can not be operated in un-modulated mode. The limit line was set to 10 dB below the carrier. The frequencies of the upper (f_U) and lower (f_L) points, where the displayed power envelope of the modulation including frequency drift is equal to the appropriate level, have been recorded. The centre frequency is calculated as $f_C = (f_U + f_L)/2$. The measurement has been performed at normal and extreme test conditions from -20 °C to +50 °C in steps of 10 degrees (According to FCC Part 2.1055).



5.4.5 Test result

Test conditions		Test result	
1651 00	Frequency (MHz)		
<i>T_{min} (-20)</i> °C	V _{min} (5.1 V)	13.56234	
1 min (-20) C	V _{max} (6.9 V)	13.56234	
T (-10)°C	V _{min} (5.1 V)	13.56238	
7 (-10) C	V _{max} (6.9 V)	13.56238	
T (0)°C	V _{min} (5.1 V)	13.56238	
1 (0) C	V _{max} (6.9 V)	13.56238	
T (10)°C	V _{min} (5.1 V)	13.56236	
1 (10) C	V _{max} (6.9 V)	13.56236	
	V _{min} (5.1 V)	13.56234	
<i>T</i> _{nom} (20)°C	V _{nom} (6.0V)	13.56234	
	V _{max} (6.9 V)	13.56234	
T (30)°C	V _{min} (5.1 V)	13.56232	
7 (30) C	V _{max} (6.9 V)	13.56232	
<i>T (40)</i> °C	V _{min} (5.1 V)	13.56230	
7 (40) C	V _{max} (6.9 V)	13.56230	
T _{max} (50)°C	V _{min} (5.1 V)	13.56228	
	V _{max} (6.9 V)	13.56228	
Measureme	± 10 Hz		

Carrier frequency:	$f_{\rm c} = 13.56234 \text{MHz}$
Camer hennency	/ ₂ = 1.5 00/.54 IVID/

Max. tolerance: \pm 0.01 % of 13.56234 MHz = \pm 1.356 kHz

Lowest frequency: $f_i = 13.56228 \text{ MHz}$

Lowest tolerance: $f_l - f_c = -0.06 \text{ kHz}$ < - 1.356 kHz

Limit according to FCC Part 15, Section 15.225(e):

The frequency tolerance of the carrier signal shall be maintained within ±0.01 % of the operating frequency.

The requirements are **FULFILLED**.

Remarks:			
			_



5.5 20 dB Bandwidth

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

5.5.1 Description of the test location

Test location: AREA4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to FCC Part 15C, Section 15.215(c):

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in section 15.217 to 15.257, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed.

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5.5.4 Description of Measurement

The frequency range has been measured radiated using a test fixture and a spectrum analyser. The limit line is set to 20 dB below the carrier. The frequency of the upper (F_H) and lower (F_L) points, where the displayed power envelope of the modulation including frequency drift is equal to the appropriate level, is recorded as the modulation bandwidth. The measurement has been performed at normal and extreme test conditions in modulated transmitting mode.

Spectrum analyzer settings:

RBW: 1 kHz VBW: 3 kHz Detector Peak

5.5.5 Test result

Carrier Frequency	(F _L)	(F _H)	Bandwidth	Limit
(MHz)	(MHz)	(MHz)	(kHz)	(kHz)
13.56234	13.55954	13.56614	6.6	14.0

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

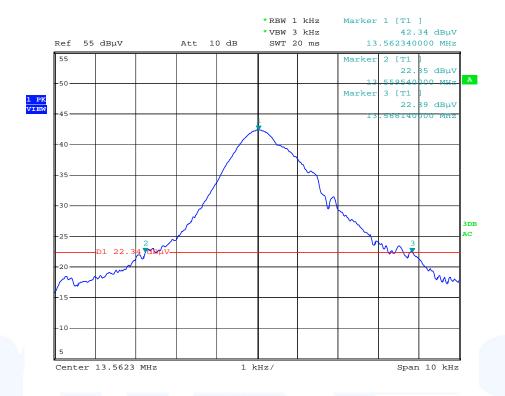
Frequency band	Limit 20 dB bandwidth
(MHz)	(kHz)
13.553 - 13.567	14.0

The requirements are **FULFILLED**.

Remarks: For detailed test result please refer to following test protocol.



5.5.6 Test protocol





5.6 Transmitter spectrum mask

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

5.6.1 Description of the test location

Test location: AREA4

5.6.2 Photo documentation of the test set-up





5.6.3 Applicable standard

According to FCC Part 15C, Section 15.225 (a-d):

The field strength of any emission shall not exceed the limits given in FCC Part 15C, Section 15.225 (a-d)

5.6.4 Description of Measurement

The spectrum mask is measured using a spectrum analyser. The profile of the spectrum mask is displayed on analyser and have to be adjusted to the reference level given as maximum output power measured in OATS. The marker is set up manually to the particular maximum level at the effective limit in the frequency range and recorded. The measurement was performed radiated.

5.6.5 Test result

Frequency band	Emission level	Limit
(MHz)	(dBµV/m)	(dBµV/m)
13.110 – 13.410	≤-10	40.5
13.410 - 13.553	7.1	50.5
13.553 - 13.567	17.3	84.0
13.567 – 13.710	7.1	50.5
13.710 – 14.010	≤-10	40.5
outside of 13.110 – 14.010	≤-10	29.5

Limits according to FCC Part 15C, Section 15.225(a-d):

The absolute levels of RF power at any frequency shall not exceed the limits defined in the following table:

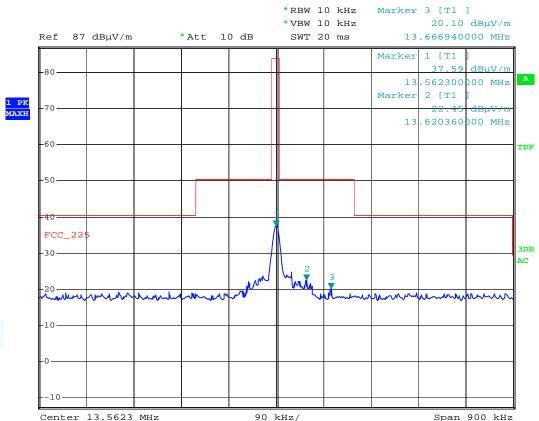
Frequency band	Emission level limit at 30 m
(MHz)	(μV/m)
13.110 – 13.410	106
13.410 - 13.553	334
13.553 - 13.567	15,848
13.567 – 13.710	334
13.710 – 14.010	106
outside of 13.110 – 14.010	30

The requirement	ts are FULFILLED .			
Remarks:				



5.6.6 Test protocol

Spectrum mask of modulated signal



The values of the plot are extrapolated to a measurement distance of 3 m.



5.7 Receiver radiated emissions

5.7.1 Description of the test location

Test location: None

5.7.2 Applicable standard

According to FCC Part 15, Section 15.109(a):

The emission of an unintentional radiator shall not exceed the specified field strength level at 3 m.

Remarks: This test is not applicable. The receive mode is too short to make an assessment.

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FCC ID: YMQ-8051000 S 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. Next Verif.
CPR 1	FMZB 1516 ESCI	Magnetic Field Antenna Schwarzbeck Mess-Elektronik 01-02/24-01-018 EMI Test Receiver Rohde & Schwarz München 02-02/03-05-004
FE	ESCI THS730A HZ-10 WK-340/40 9543A	Spectrum AnalyzerRohde & Schwarz München02-02/03-05-004Handheld ScopeTektronix GmbH02-02/13-05-001Magnetic Field AntennaRohde & Schwarz München02-02/24-05-012Climatic ChamberWeiss Umwelttechnik GmbH02-02/45-05-001Power SupplyHeinzinger electronic GmbH02-02/50-07-034
MB	ESCI HZ-10	Spectrum Analyzer Rohde & Schwarz München 02-02/03-05-004 Magnetic Field Antenna Rohde & Schwarz München 02-02/24-05-012
SER 1	FMZB 1516 ESCI	Magnetic Field Antenna Schwarzbeck Mess-Elektronik 01-02/24-01-018 EMI Test Receiver Rohde & Schwarz München 02-02/03-05-004
SER 2	ESVS 30 VULB 9168 S10162-B KK-EF393-21N-16	EMI Test Receiver Rohde & Schwarz München 02-02/03-05-006 Trilog Broad Band Antenna Schwarzbeck Mess-Elektronik 02-02/24-05-005 RF Cable 33 m Huber + Suhner 02-02/50-05-031
	NW-2000-NB	RF Cable 20 m Huber + Suhner 02-02/50-05-033 RF Cable Huber + Suhner 02-02/50-05-113
Test ID	Model Type	Equipment No. Next Calib. Last Calib. Next Verif. Last Verif.
CPR 1	FMZB 1516 ESCI	01-02/24-01-018 02-02/03-05-004 02/09/2011 02/09/2010 02/15/2011 02/15/2010
FE	ESCI THS730A HZ-10 WK-340/40	02-02/11-05-001 02/09/2011 02/09/2010 02-02/13-05-001 09/18/2010 09/18/2009 02-02/24-05-012 02-02/45-05-001 06/17/2014 06/17/2009 12/10/2010 12/10/2009
MB	LNG32-3 ESCI HZ-10	02-02/50-07-034 02-02/11-05-001 02/09/2011 02/09/2010 02-02/24-05-012
SER 1	FMZB 1516 ESCI	01-02/24-01-018 02-02/03-05-004 02/09/2011 02/09/2010 02/15/2011 02/15/2010
SER 2	ESVS 30 VULB 9168 S10162-B KK-EF393-21N-16 NW-2000-NB	02-02/03-05-006 06/11/2011 06/11/2010 02-02/24-05-005 05/06/2011 05/06/2008 10/01/2010 04/01/2010 02-02/50-05-031 02-02/50-05-033 02-02/50-05-113

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