Test report

RTE33_01

EUT:	RFID Reader / Short range device
Trade name:	Legic advant
Tested type:	Legic advant
FCC Identifier:	Pending
Production level:	08/2008
S/N:	xx
Responsible party:	B. REXROTH the identity company GmbH Im Gründchen 14 63856 Bessenbach / Germany
Test remit:	FCC Rules 47 CFR Part 15 – Subpart C Section 15.209
The standards were:	☒ kept* ☐ not kept*
***Remark:**	☒ Validation covered by the accredited scope ☐ Validation not covered by the accredited scope according:_____
Applicant:	B. REXROTH the identity company GmbH Im Gründchen 14 63856 Bessenbach / Germany
EUT-	
Date of arrival:	08/07/2008
Test ID:	PRE32_06
Date(s) of test:	08/11/2008

Burgrieden, 08/13/2008

Released by:

Deputy – Dipl. Ing. (FH) Erik Felser

Test laboratory:	☒ EMCE GmbH Ingenieurbüro für EMV-Prüfungen und Schaltungsentwicklung Untere Wiesen 1 / 88483 Burgrieden DAR-Registration No.: DAT-P-153/98-01 CAB-Registration No.: BnetzA-CAB-02/21-01/1 FCC-Registration No.: 90568 ☐ Hochschule Ulm Eberhard-Finckh-Str. 11 / 89075 Ulm The susceptibility test according EN 61000-4-3 carried out in the EMC-testing laboratory of the Hochschule Ulm
Responsible inspector:	Mr. Hauser EMCE GmbH Ingenieurbüro für EMV-Prüfungen und Schaltungsentwicklung
Contact person:	Mr. Sauer
EUT-	
Description:	RFID Card Reader
Voltage supply:	115V / 60Hz
Frequency list:	RFID frequency 13.559 MHz
Temperature range:	xx
Size:	Approximately 80x80x35 mm (LxWxH)

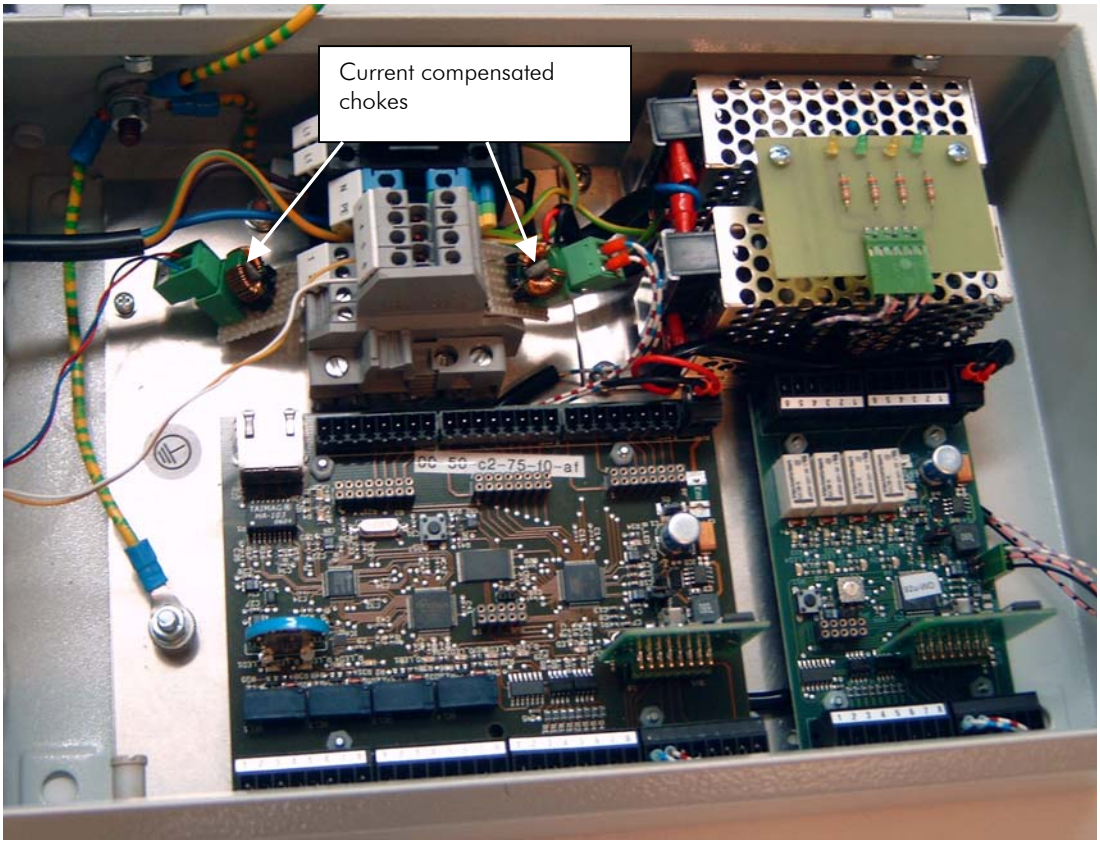
Supplied /
used equipment:

Designation	S/N	FCC-ID	Manufacturer
MultiController RMC/a	xx	xx	B. Rexroth GmbH

Configuration: ☒ As-delivered condition
☐ Modified

-Current compensated chokes are used in the DC-lead and in the Data-lead from the MultiController (see images below)

-The duty cycle of the RF-Field was ~0.4%



Cable designation	Type	Length	Remarks
Data and DC Power lead	Shielded	10m	xx
AC power cord	3-wire	1m	xx

Remarks: xx

State of revision:

Source document	New Document	Date / Reviser	Modifications

Test equipment list of EMCE GmbH:

Inv.-No.	Designation	Type	Manufacturer	S/N	Calibration: Interval /valid until
001	Test receiver	ESS 5Hz - 1000 MHz	Rohde & Schwarz	833776/008	1 Year(s)/ 2008-08-29
002	Probe	ESH2-Z3	Rohde & Schwarz		1 Year(s)/ 2008-08-31
003	LISN 1	ESH3-Z5	Rohde & Schwarz	835268/007	1 Year(s)/ 2008-08-31
004	LISN 2	ESH3-Z5	Rohde & Schwarz	835268/003	1 Year(s)/ 2008-08-31
005	LISN 3	NNB 4/32T	Rolf Heine HF-Technik	4/32T-96015	1 Year(s)/ 2008-08-31
007	Absorbing clamp	MDS 21	Schwarzbeck	942436	1 Year(s)/ 2008-08-31
008	Antenna 9kHz-30MHz	HFH2-Z2	Rohde & Schwarz	835776/0002	3 Year(s)/ 2010-05-01
009	Antenna 30-300MHz	VHBA9123 / BBA9106	Schwarzbeck	435	1 Year(s)/ 2009-03-19
010	Antenna 250-1200MHz	UHALP 9108A	Schwarzbeck	108	1 Year(s)/ 2009-03-19
011	Antenna 30-300MHz	VHBA9123 / BBA9106	Schwarzbeck	0408/94	1 Year(s)/ 2008-08-31
012	Antenna 250-1200MHz	UHALP 9108A	Schwarzbeck	166	1 Year(s)/ 2008-08-31
013	Antenna 9kHz-30MHz	Ø 1.5m	EMCE GmbH		1 Year(s)/ 2008-08-31
014	OATS	3m	EMCE GmbH		3 Year(s)/ 2010-08-31
015	OATS	10m	EMCE GmbH		1 Year(s)/ 2008-08-31
020	Coupling clamp	IP4A	Haefely	082672-13	1 Year(s)/ 2008-08-31
022	ESD-Gun	NSG 435	Schaffner	577	1 Year(s)/ 2009-03-11
024	HF-Generator	SMY01	Rohde & Schwarz	844146/046	1 Year(s)/ 2008-08-31
025	Current clamp BCI	F-120-2	FCC	47	1 Year(s)/ 2008-08-31
026	Coupling device network	CDN 801-M3-25	FCC	92	1 Year(s)/ 2008-08-31
030	Coupling device network	CDN 801-S1/9pol.DSUB	EMCE GmbH		1 Year(s)/ 2008-08-31

Inv.-No.	Designation	Type	Manufacturer	S/N	Calibration: Interval /valid until
031	Coupling device network	CDN 801-S1/9pol.DSUB	EMCE GmbH		1 Year(s)/ 2008-08-31
032	HF Amplifier	75A250	Amplifier Research	22789	1 Year(s)/ 2008-08-31
033	Coupling device network	CDN-AF2	EMCE GmbH		1 Year(s)/ 2008-08-31
034	Coupling device network	CDN-AF2	EMCE GmbH		1 Year(s)/ 2008-08-31
035		CDN-1000	EMC-Partner	CDN-1000-45	1 Year(s)/ 2008-08-17
036	Coupling device network	CDN 801-M5-25	EMCE GmbH		1 Year(s)/ 2008-08-31
037	Coupling device network	CDN 801-S1	EMCE GmbH		1 Year(s)/ 2008-08-31
038	Helmholtz coil	1 m x 1 m	EMCE GmbH		1 Year(s)/ 2008-08-31
039	Helmholtz coil	1 m x 1 m	EMCE GmbH		1 Year(s)/ 2008-08-31
040	Current transformer		EMCE GmbH		1 Year(s)/ 2008-08-31
041	Loop antenna, shielded	HZ-10 0816.2511.02	Rohde & Schwarz	849788/020	3 Year(s)/ 2010-05-04
042	AC-Source / Analyser / Norm impedance	EMV D 5000/PAS	Spitzenberger + Spies	A2747 00/0 0501 A2747 07/00501 (ARS16/3)	2 Year(s)/ 2009-05-04
043	Receiver	3DH/E Fieldmeter ESM-100	Maschek	971521	3 Year(s)/ 2011-01-09
044	CDN	CN-U	EMC-Partner	86	3 Year(s)/ 2008-09-16
045	CDN	DN-HF	EMC-Partner	86	3 Year(s)/ 2008-09-16
046	CDN	DN-LF2	EMC-Partner	86	3 Year(s)/ 2008-09-16
047	CDN	DN-LF1	EMC-Partner	86	3 Year(s)/ 2008-09-16
048	ESD/Burst/Surge-Generator	Transient 2000	EMC-Partner	561	1 Year(s)/ 2008-08-07
050	Data Acquisition/Switch Unit	Agilent 34970A	Agilent Technologies Inc.	MY41019453	3 Year(s)/ 2009-11-30
051	20 Channel Multiplexer	Agilent 34901A	Agilent Technologies Inc.	MY41013531	3 Year(s)/ 2009-11-30
052	Function / Arbitrary	Agilent 33220A	Agilent	MY43002650	3 Year(s)/

Inv.-No.	Designation	Type	Manufacturer	S/N	Calibration: Interval /valid until
	Waveform Generator		Technologies Inc.		2009-11-30
054	Helmholtz coil	1.25 m x 1.25 m	EMCE GmbH		1 Year(s)/ 2008-08-31
055	Helmholtz coil	1.25 m x 1.25 m	EMCE GmbH		1 Year(s)/ 2008-08-31
057	Field probe	HI-6005	Holaday	34274	1 Year(s)/ 2009-06-10
058	Receiver	ESIB 40	Rohde & Schwarz	100200	3 Year(s)/ 2011-05-05
068	LISN	ESH2-Z5	Rohde&Schwarz	872460/042	1 Year(s)/ 2008-08-31
074	Function generator	SMX	Rohde&Schwarz		1 Year(s)/ 2008-08-31
087	DSO	HP54502A 400MHz	Hewlett Packard	2934A03381	2 Year(s)/ 2010-01-25
116	Vertikal rod antenna	VAMP 9243	Schwarzbeck	9243-205	1 Year(s)/ 2009-04-03
117	LISN	ESH3-Z6	Rohde & Schwarz	100521	1 Year(s)/ 2009-04-23
107	Distortion generator	CAR-TESTER II	HILO-TEST	20073238	1 Year(s)/ 2009-02-12

Scope:

1 EMC-Test(s)

1.1 EMI Report FCC Rules 47 CFR Part 15 – Subpart C – Technical standards

1.1.1 Terminal voltage according 47 CFR Part 15 – Subpart C

☒ Full compliance
☐ Precompliance
☐ Test not requested
☐ Test not carried out*

*

Test location

☒	Inv.-No.	Designation	Type (LxWxH)	Manufacturer	Location
☒	504	Shielded room #1	6.4 x 4.0 x 2.3m	Frankonia EMV-Messsysteme GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	588	Shielded room #2	8.3/5.8 x 5.5/2.9 x 3.4m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	584	Shielded room #3	3.6 x 3.6 x 2.5m	Siemens AG	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	061	Semi anechoic chamber #1	4.0 x 4.0 x 3.5m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	062	Semi anechoic chamber #2	13.5 x 6.1 x 5.5m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
		Alternative test site			

1.1.1.1 Test set up

According 47 CFR Part 15 – Subpart C

Used test equipment

☒	Inv.-No.	Designation	Type	Manufacturer	S/N
☒	001	Test receiver	ESS 5Hz - 1000 MHz	Rohde & Schwarz	833776/008
	002	Probe	ESH2-Z3	Rohde & Schwarz	-
☒	003	LISN 1	ESH3-Z5	Rohde & Schwarz	835268/007
	004	LISN 2	ESH3-Z5	Rohde & Schwarz	835268/003
	005	LISN 3	NNB 4/32T	Rolf Heine HF-Technik	4/32T-96015
	006	LISN	NNBM 8125	Schwarzbeck	8125371
	007	Absorbing clamp	MDS 21	Schwarzbeck	942436
☒	042	AC-Source / Analyser / Norm impedance	EMV D5000/PAS	Spitzenberger + Spies	A274700/ 0 0501
	058	Test receiver	ESIB 40	Rohde & Schwarz	100200
	060	HF coupling clamp	KEMA 801	Schaffner	20808

All used test equipment are checked resp. calibrated periodically.

☒ Test equipment was checked and complied to the requirements

Test / Measurement uncertainty

The measurement uncertainty in the test met the guideline of CISPR16-4-2 or better.

Measurement uncertainty of the terminal voltage with an extended coverage factor of k=2:

Frequency	Measurement uncertainty
9kHz – 150kHz	4.0dB
150kHz – 30MHz	3.6dB

1.1.1.2 Test

Regulation

FCC Rules 47 CFR Part 15 – Subpart C

	☐ 9kHz - 30MHz	☒ 150kHz - 30MHz
Limits:	☒ Section 15.207	☐ __

Operation mode

EUT arrangement:	☒ Tabletop	☐ Floor standing
Power supply:	☐ 230V/50Hz	☒ 115V/60Hz

Port #	Leads	Remarks
#1	AC power line	L1/N/PE
#2		
#3		

Continuous operation of the system. The RFID card reader unit was supplied via the Multi Controller RMC/a

Environmental conditions

Temperature:	15 - 35 °C
Humidity:	30 - 60 %
Air pressure:	860 - 1060 hPa

Environmental conditions during the test:
☒ kept
☐ not kept

Test - / Measurement procedure

Measurements are made with a receiver according CISPR guidelines. The required frequency range is scanned in an automatically operation. If the emanation is closer than 6dB to the limits or more, the receiver will stop and measure the exact value with quasipeak or average detector. The frequency, the maximum reading and the limit will be printed out.

Test result

Limits for continuous disturbances:
☒ kept
☐ not kept

Evidence of conformity,
evaluated statistically with __ devices:
☐ kept
☐ not kept
☒ not carried out

Remarks: xx

Protocol scope

☒ Readings - continuous emanation
☒ Diagram - continuous emanation

EMCE GmbH Ing_buero fuer EMV_Pruefungen

11. Aug 08 09:22

Conducted emission - Terminal voltage

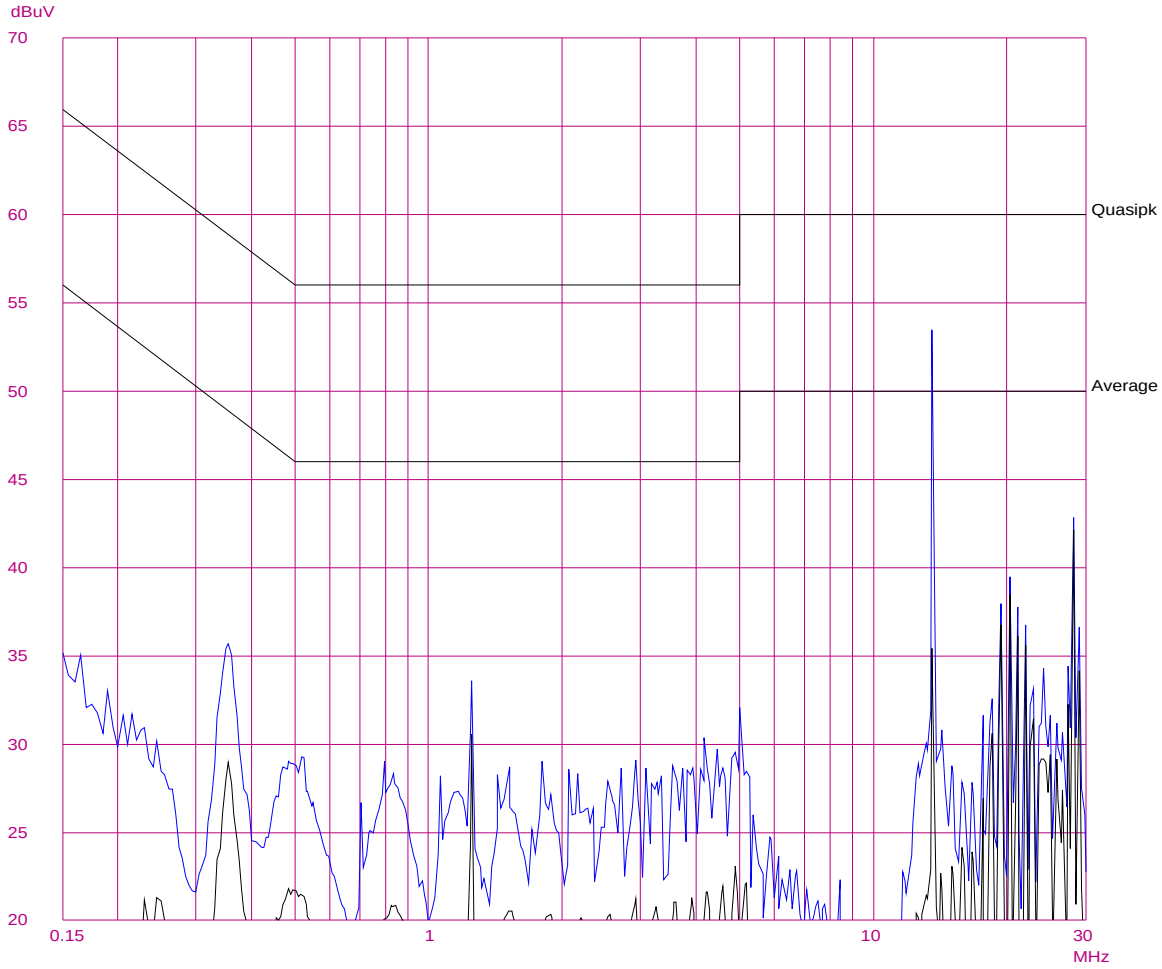
EUT:	Legic advant
Manuf:	B. Rexroth GmbH
Op Cond:	Operational, 1.5sec pulse rep.
Operator:	Mr. Hauser
Test Spec:	47 CFR Part 15 Subpart C
Comment:	Test_ID EUT PRE32_06
	RTE33_01, Phase L1

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF 60dB

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 50
Acc Margin: 6dB

Transducer No.	Start	Stop	Name
2	1Hz	1000M	Kabel_6m



EMCE GmbH Ing_buero fuer EMV_Pruefungen

11. Aug 08 09:22

Conducted emission - Terminal voltage

EUT:	Legic advant
Manuf:	B. Rexroth GmbH
Op Cond:	Operational, 1.5sec pulse rep.
Operator:	Mr. Hauser
Test Spec:	47 CFR Part 15 Subpart C
Comment:	Test_ID EUT PRE32_06
	RTE33_01, Phase L1

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

no Results

EMCE GmbH Ing_buero fuer EMV_Pruefungen

11. Aug 08 09:34

Conducted emission - Terminal voltage

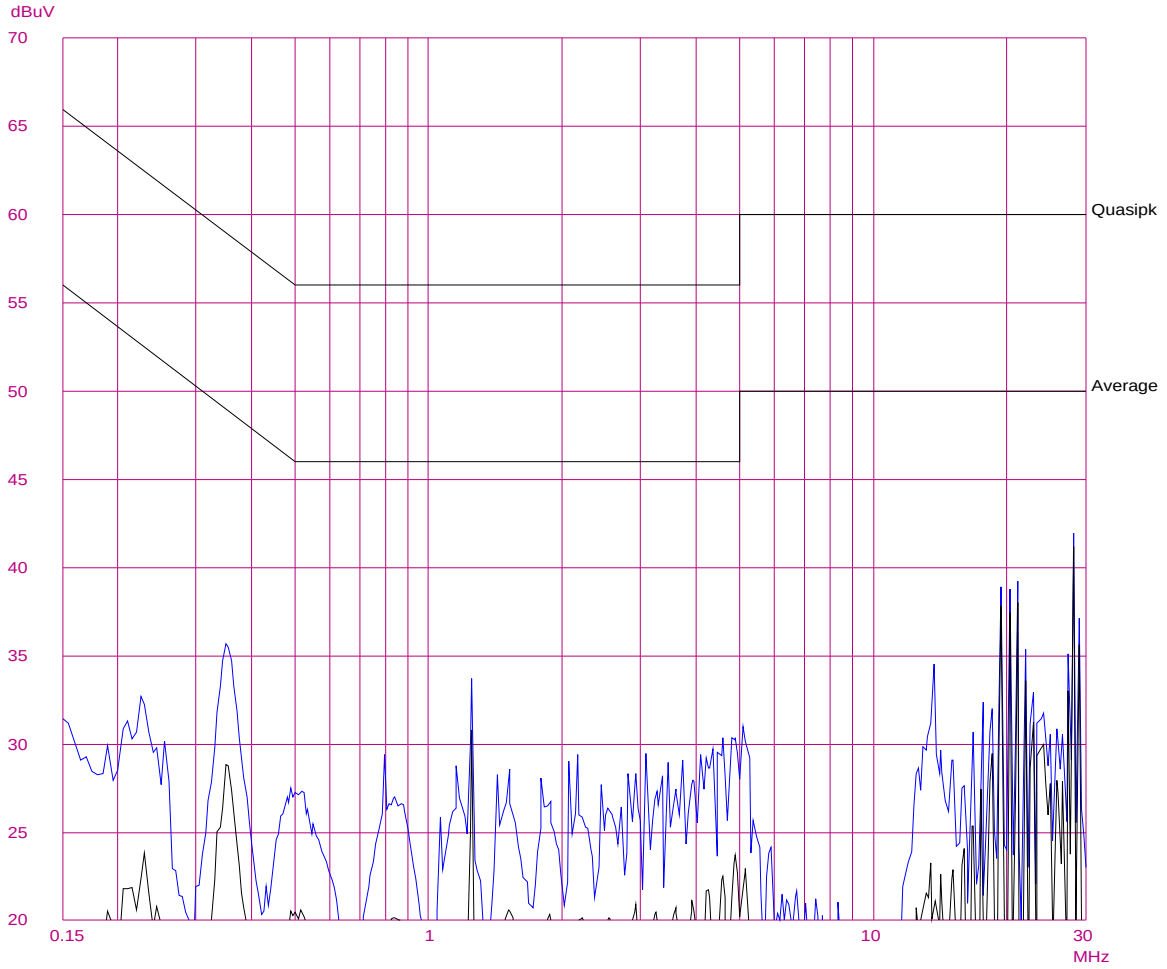
EUT:	Legic advant
Manuf:	B. Rexroth GmbH
Op Cond:	Operational, 1.5sec pulse rep.
Operator:	Mr. Hauser
Test Spec:	47 CFR Part 15 Subpart C
Comment:	Test_ID EUT PRE32_06
	RTE33_02, Phase N

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF 60dB

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 50
Acc Margin: 6dB

Transducer No.	Start	Stop	Name
2	1Hz	1000M	Kabel_6m



EMCE GmbH Ing_buero fuer EMV_Pruefungen

11. Aug 08 09:34

Conducted emission - Terminal voltage

EUT:	Legic advant
Manuf:	B. Rexroth GmbH
Op Cond:	Operational, 1.5sec pulse rep.
Operator:	Mr. Hauser
Test Spec:	47 CFR Part 15 Subpart C
Comment:	Test_ID EUT PRE32_06
	RTE33_02, Phase N

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

no Results

1.1.2 Radio disturbances according 47 CFR Part 15 – Subpart C

☒ Full compliance
☐ Precompliance
☐ Test not requested
☐ Test not carried out*

*
———

Test location

☒	Inv.-No.	Designation	Type (LxBxH)	Manufacturer	Location
	504	Shielded room #1	6.4 x 4.0 x 2.3m	Frankonia EMV-Messsysteme GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	588	Shielded room #2	8.3/5.8 x 5.5/2.9 x 3.4m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	584	Shielded room #3	3.6 x 3.6 x 2.5m	Siemens AG	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	061	Semi anechoic chamber #1	4.0 x 4.0 x 3.5m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	062	Semi anechoic chamber #2	13.5 x 6.1 x 5.5m	EMC-Technik & Consulting GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	807	Semi anechoic chamber #3	7.6 x 4.6 x 3.6m	Siemens AG	Hochschule Ulm Eberhard-Finck-Str. 11 89075 Ulm
	014	OATS	3m – Test distance	EMCE GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
☒	015	OATS	10m – Test distance	EMCE GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
	066	OATS	30m – Test distance	EMCE GmbH	EMCE GmbH Untere Wiesen 1 88483 Burgrieden
		Alternative test site			

1.1.2.1 Test set up

According 47 CFR Part 15 – Subpart C

Used test equipment

☒	Inv.-No.	Designation	Type	Manfacturer	S/N
☒	001	Test receiver	ESS 5Hz - 1000 MHz	Rohde & Schwarz	833776/008
	003	LISN 1	ESH3-Z5	Rohde & Schwarz	835268/007
	004	LISN 2	ESH3-Z5	Rohde & Schwarz	835268/003
	005	LISN 3	NNB 4/32T	Rolf Heine HF-Technik	4/32T-96015
	006	LISN	NNBM 8125	Schwarzbeck	8125371
	007	Absorbing clamp	MDS 21	Schwarzbeck	942436
☒	008	Antenna 9kHz - 30MHz	HFH2-Z2	Rohde & Schwarz	835776/0002
	009	Antenna 30 - 300MHz	VHBA9123 / BBA9106	Schwarzbeck	435
	010	Antenna 250 -1200MHz	UHALP 9108A	Schwarzbeck	108
	011	Antenna 30 - 300MHz	VHBA9123 / BBA9106	Schwarzbeck	0408/94
	012	Antenna 250 -1200MHz	UHALP 9108A	Schwarzbeck	166
	013	Antenna 9kHz - 30 MHz	Loop antenna 1.5m ∅	EMCE GmbH	-
	041	HZ-10	Shielded coil	Rohde & Schwarz	849788/020
☒	042	AC-Source / Analyser / Norm impedance	EMV D5000/PAS	Spitzenberger + Spies	A274700/ 0 0501
	058	Test receiver	ESIB 40	Rohde & Schwarz	100200
	059	Logper. Antenna	HL050	Rohde & Schwarz	100006
	060	HF coupling clamp	KEMA 801	Schaffner	20808
	063	Logper. Antenna	HL023 A2	Rohde & Schwarz	

All used test equipment are checked resp. calibrated periodically.

☒ Test equipment was checked and complied to the requirements

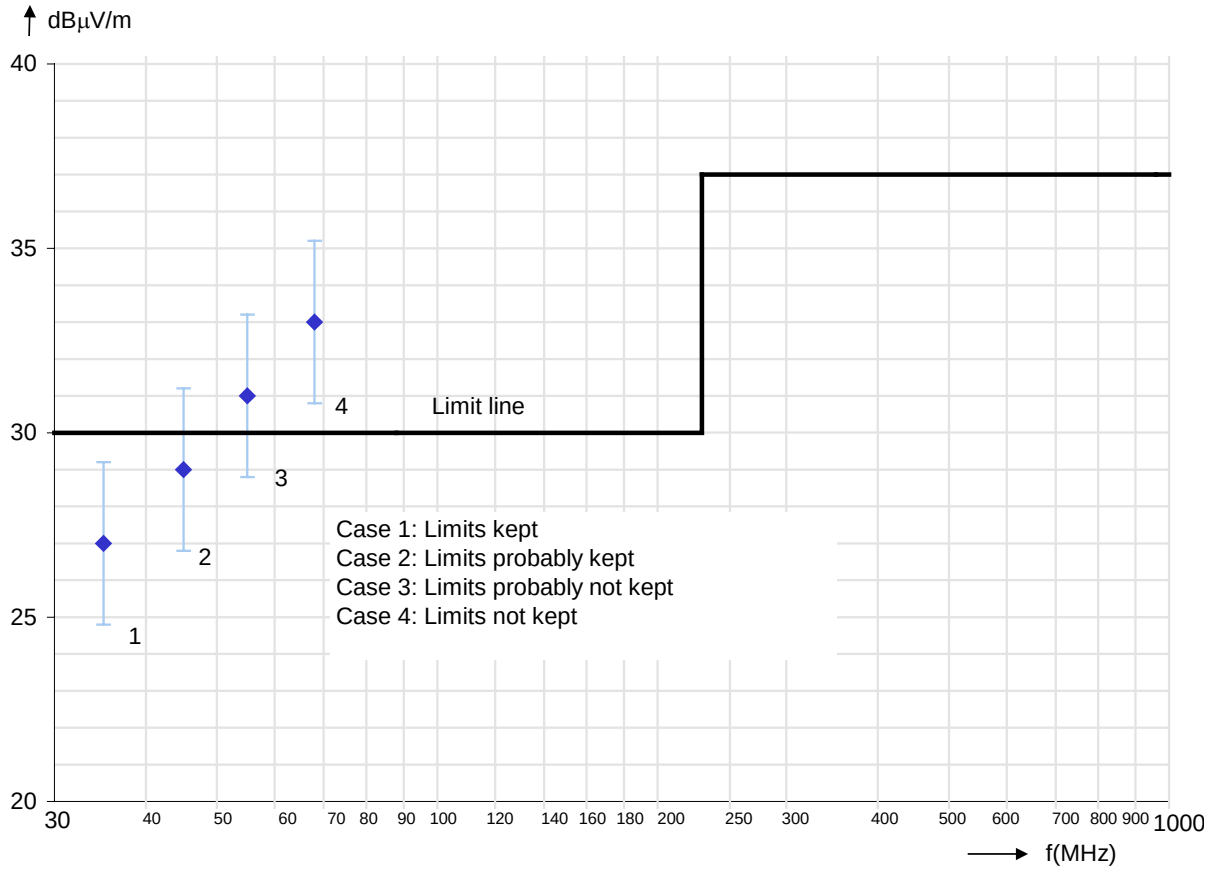
Test / Measurement uncertainty

The measurement uncertainty in the test met the guideline of CISPR16-4-2 or better.

Measurement uncertainty of the radiated emission with an extended coverage factor of k=2

Frequency	Measurement uncertainty
9kHz – 30MHz	on request
30MHz – 300MHz	4.4dB
300MHz – 1GHz	3.4dB
1GHz – 18GHz	on request

Annotation of the diagram



1.1.2.2 Test – intentional radiator

Regulation

47 CFR Part 15 – Subpart C

	☒ 9kHz - 30MHz	☐ 150kHz – 1GHz
	☐ 30MHz - 1000MHz	☐ 1 – 18GHz
Limits:	☒ Section 15.209*	☒ Section 15.225*

* The limits for frequencies below 30MHz were corrected for a closer measuring distance by using an extrapolation factor of 40 dB/decade..

Antennena distance:	☐ 3m	☐ 5m
	☒ 10m	☐ 30m

Operation mode

EUT arrangement:	☒ Tabletop	☐ Floor standing
Power supply:	☐ 230V/50Hz	☒ 115V/60Hz

Continuous operation of the system. The RFID card reader unit was supplied via the Multi Controller RMC/a

Environmental conditions

Temperature:	15 - 35 °C
Humidity:	30 - 60 %
Air pressure:	860 - 1060 hPa

Environmental conditions during the test:
☒ were kept
☐ were not kept

Test - / Measurement procedure

The test was performed at an antenna to EUT distance of 10m. Measurements were made with a CISPR receiver with quasi-peak. The average detector is used in the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. For pulse modulated devices with a pulse repetition frequency of 20Hz or less, peak detector is used (15.35a Note). The frequency, the measured value, antenna information and the limit will be printed out.

Test result

Limits for radiated disturbances:
☒ kept
☐ not kept

The level of any unwanted emissions from an intentional radiator shall not exceed the level of the fundamental wave:
☒ kept
☐ not kept

Remarks: There was no deviation of the fundamental frequency when the supply voltage was varied in the range of 115V ±15%.
The duty cycle of the RFID field was ~0.4%, Peak Detector was used according section 15.35 (a) Note

Protocol scope

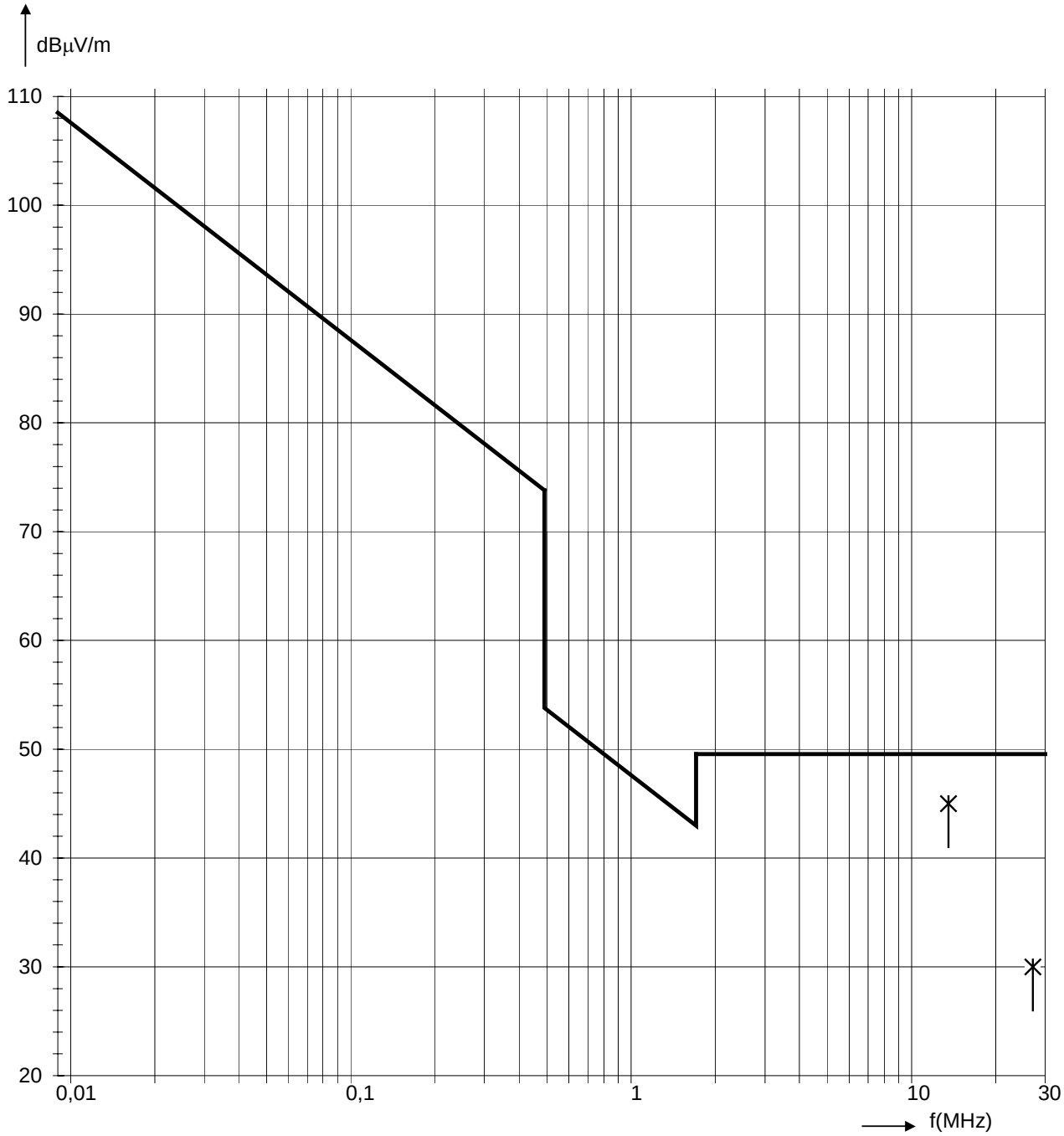
☐ Readings - Antenna horizontal polarized.
☐ Diagram - Antenna horizontal polarized.
☒ Readings - Antenna vertical polarized.
☒ Diagram - Antenna vertical polarized.
☐ Bandwidth plot – Frequency response vs. supply voltage
☐ Precompliance measurement(s).

Readings - Antenna vertical polarized, Antenna loop center height 1m

Frequency	Reading	Limit	Margin	Ant.-	Ant.-	Detector	Receiver
	U			Distance	Polar.	Peak /	6dB BW
MHz	dBµV/m	dBµV/m	dB	m	H/V	QP / AV	kHz
13.559	45.0	104	59	10.0	V	Peak	10
27.116	30.0	49.5	19.5	10.0	V	Peak	10

Diagram - Antenna vertical polarized

Limits according FCC Rules CFR 47 Part 15 – Subpart C
☒ Section 15.209



1.1.2.3 Test – unintentional radiaton

Regulation

47 CFR Part 15 – Subpart C

	☐ 9kHz - 30MHz	☐ 150kHz – 1GHz
	☒ 30MHz - 1000MHz	☐ 1 – 18GHz
Limits:	☒ Section 15.209	☐ __
Antennena distance:	☒ 3m	☐ 5m
	☐ 10m	☐ 30m

Operation mode

EUT arrangement:	☒ Tabletop	☐ Floor standing
Power supply:	☐ 230V/50Hz	☒ 115V/60Hz

Continuous operation of the system. The RFID card reader unit was supplied via the Multi Controller RMC/a

Environmental conditions

Temperature:	15 - 35 °C
Humidity:	30 - 60 %
Air pressure:	860 - 1060 hPa

Environmental conditions during the test:
☒ were kept
☐ were not kept

Test - / Measurement procedure

The test was performed at an antenna to EUT distance of 3m. Measurements were made with a CISPR receiver with quasi-peak. The average detector is used in the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. For pulse modulated devices with a pulse repetition frequency of 20Hz or less, peak detector is used (15.35a Note). The frequency, the measured value, antenna information and the limit will be printed out.

Test result

Limits for radiated disturbances:
☒ kept
☐ not kept

Remarks: Radio disturbances below the limit line with a margin >10dB to the limit are generally not listed.

Protocol scope

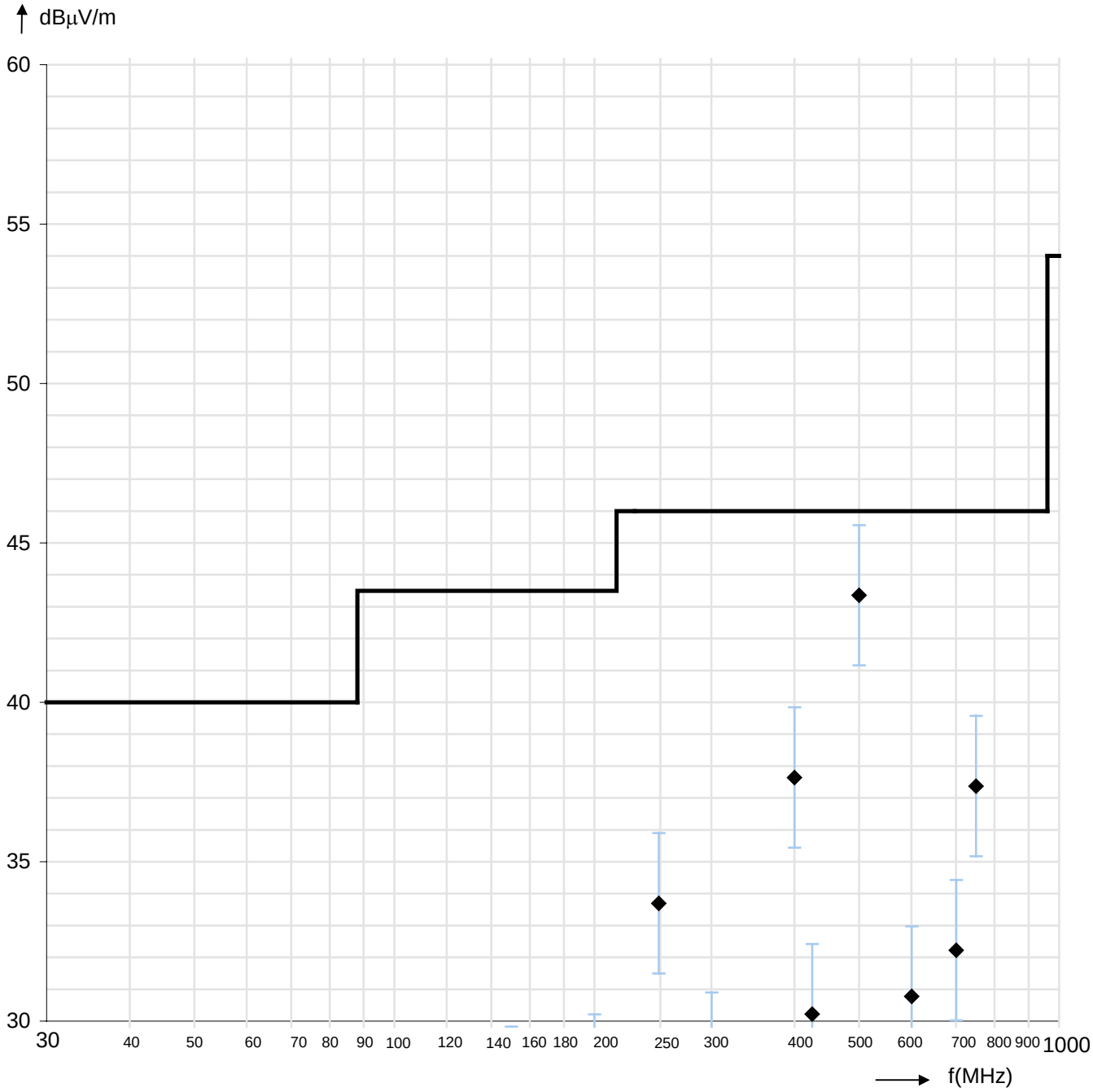
☒ Readings - Antenna horizontal polarized
☒ Diagram radio disturbances - Antenna horizontal polarized
☒ Readings - Antenna vertical polarized
☒ Diagram radio disturbances - Antenna vertical polarized
☐ Precompliance measurement(s) in the shielded room

Readings - Antenna horizontal polarized

Frequency	Readings	+ AF Antenna correction factor	+ KF Cable correction factor	Field strength	Limit	Margin	Antenna-Height	Antenna-Polarisation
MHz	dBµV	dB/m	dB	dBµV/m	dBµV/m	dB	m	hor./ver.
400.010	17.4	16.0	4.2	37.6	46.0	8.4	1.0	H
500.010	21.0	17.7	4.7	43.4	46.0	2.6	1.0	H
750.010	11.2	20.6	5.6	37.4	46.0	8.6	1.5	H

Diagram radio disturbances – Antenna horizontal polarized

Limits: ☒ Section 15.209

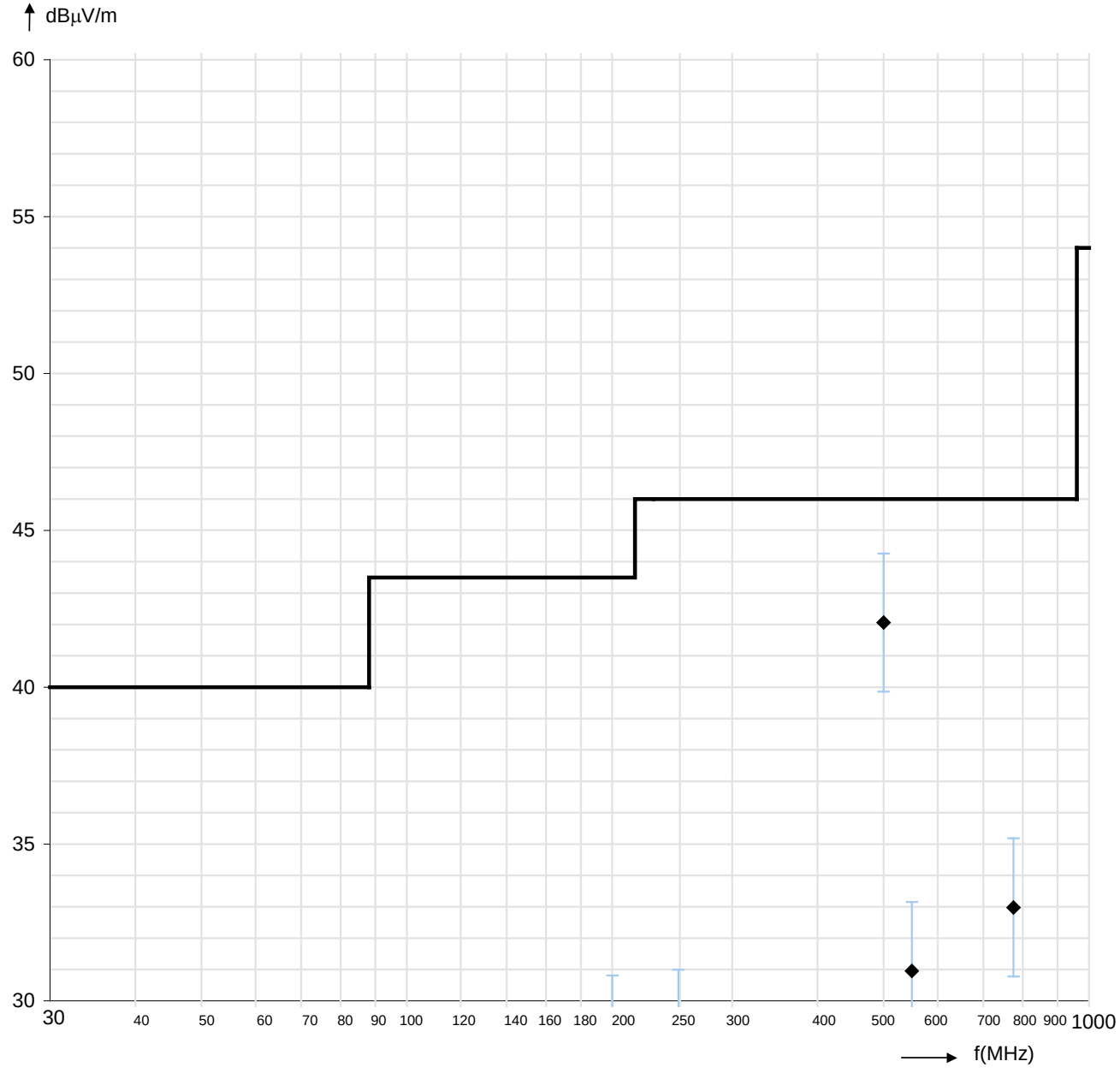


Readings - Antenna vertical polarized

Frequency	Readings	+ AF Antenna correction factor	+ KF Cable correction factor	Field strength	Limit	Margin	Antenna-Height	Antenna-Polarisation
MHz	dBµV	dB/m	dB	dBµV/m	dBµV/m	dB	m	hor./ver.
500.010	19.7	17.7	4.7	42.1	46.0	3.9	1.6	V

Diagram radio disturbances – Antenna vertical polarized

Limits: ☒ Section 15.209



2 Summary

Regulation	Class / Test level	Result	Remark(s)
FCC Rules 47 CFR Part 15 Subpart C			
Terminal voltage 0.15-30MHz	Section 15.207	Limits kept	
Radiated emissions 0.009-30MHz	Section 15.209 15.225	Limits kept	Intentional / unwanted emissions
Radiated emissions 30-1000MHz	Section 15.209	Limits kept	Unintentional emissions

Burgrieden, 08/13/2008

Report generated by:

Responsible Tester – Peter Hauser