



Test report

Number: T251-0353/16
Project file: C20160602
Date: 2016-03-29
Pages: 54

Product: AVALANCHE TRANSCEIVER

Type reference: PIEPS MICRO

Ratings: 1,5 VDC
Maximum clock frequency: 47,985 MHz
Protection class: III.

Trademark: PIEPS

Applicant: Pieps GmbH
Parkring 4, AT-8403 Lebring, Austria

Manufacturer: Pieps GmbH
Parkring 4, AT-8403 Lebring, Austria

Place of manufacture: Jabil Circuit Poland sp. z.o.o.
ul. Lotnicza 2, PL-82-500 Kwidzyn, Poland

Summary of testing

Testing method: FCC Part 15, Subpart C

Testing location: SIQ Ljubljana, Trpinčeva ulica 37 A, SI-1000 Ljubljana, Slovenia

Remarks: Date of receipt of test items: 2016-02-24
Number of items tested: 1
Date of performance of tests: 2016-03-08 - 2016-03-16
The test results presented in this report relate only to the items tested.
The product complies with the requirements of the testing methods.

/

Tested by: Andrej Škof

Approved by: Marjan Mak

The report shall not be reproduced except in full.



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1 GENERAL

History sheet			
Date	Report No.	Change	Revision
2016-03-29	T251-0353/16	Initial Test Report issued.	--

Environmental conditions:

Ambient temperature: 15°C to 35°C

Relative humidity: 30% to 60%

Atmospheric pressure: 860 mbar to 1060 mbar

1.1 Equipment under test

AVALANCHE TRANSCIEVER

Type: PIEPS MICRO

FCC ID: REMDSP03

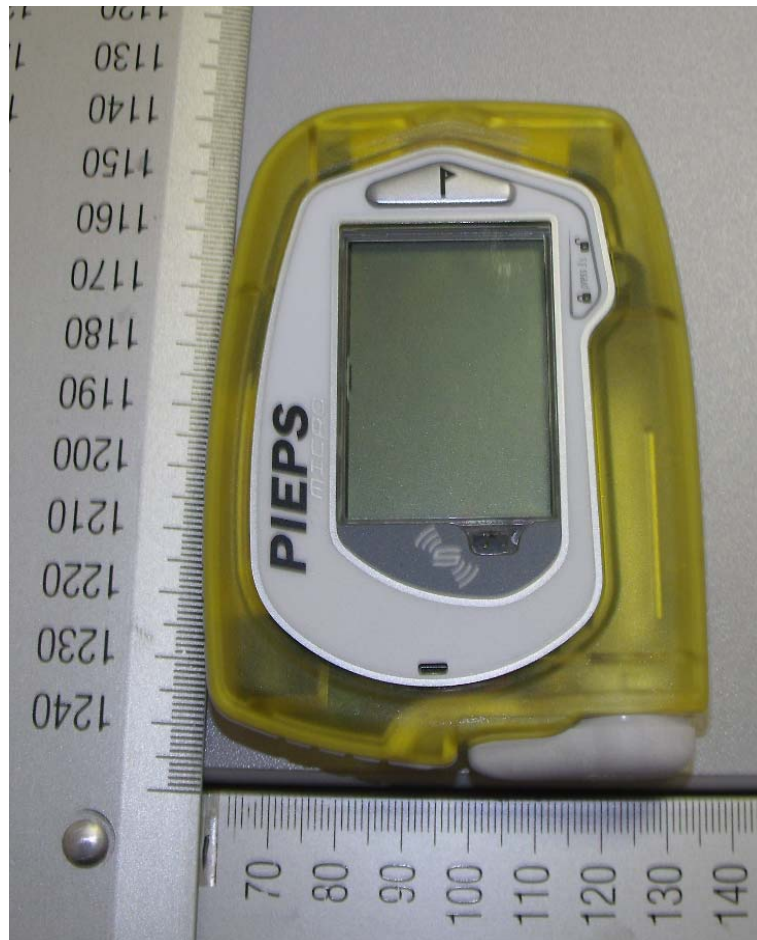
Contains FCC ID: VPYLBZY

1.1.1 General product information

Tested sample SIQ number: S20161218



Picture of label



Picture of EUT

1.2 ANSI C63.4 Subpart selection

Subpart B: Unintentional Radiators

Subpart C: Intentional Radiators

1.3 Class statement requirements

- The Class A statement cautions that operation of the device in a residential area is likely to cause harmful interference.
- The Class B statement offers several suggestions for minimizing interference to radio or TV receivers, including reorienting the receiving antenna and moving the Class B device farther away from the receiver.

1.4 Occupied bandwidth measurement

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

1.5 Quasi-peak detector

Frequency range	Bandwidth (-6dB)
10 Hz to 20 kHz	Full range (wideband)
10 kHz to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz

1.6 Peak, rms, and average detectors

Frequency range	Bandwidth (-6dB)
10 Hz to 20 kHz	10, 100, 1000 Hz
10 kHz to 150 kHz	1 and 10 kHz
150 kHz to 30 MHz	1 and 10 kHz
30 MHz to 1 GHz	10 and 100 kHz
1 GHz to 40 GHz	0.1, 1.0 and 10 MHz

2 LIMITS FOR ALL SUBPARTS

2.1 Subpart B: Unintentional Radiators

2.1.1 Conducted emission limits (according to FCC15):

CLASS B limits:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

CLASS A limits:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.5	79	66
0.5 to 30.0	73	60

2.1.2 Radiated emission limits (according to FCC15):

CLASS B limits:

Frequency Range (MHz)	Limits (dB μ V/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
30 to 88	40	40	3
88 to 216	43.5	43.5	3
216 to 960	46	46	3
Above 960	54	54	3

CLASS A limits:

Frequency Range (MHz)	Limits (dB μ V/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
30 to 88	39	39	10
88 to 216	43.5	43.5	10
216 to 960	46.4	46.4	10
Above 960	49.5	49.5	10

2.2 Subpart C: Intentional Radiators

2.2.1 Conducted emission limits:

CLASS B limits:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

The shown limits in table shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

- For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.
- Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as appropriate.

2.2.2 Radiated emission limits:

Limits:

Frequency Range (MHz)	Limits (dBµV/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
0,009 to 0,490	$20 \cdot \log(2400/F(\text{kHz}))$	$20 \cdot \log(2400/F(\text{kHz}))$	300
0,490 to 1,705	$20 \cdot \log(24000/F(\text{kHz}))$	$20 \cdot \log(24000/F(\text{kHz}))$	30
1,705 to 30,0	30	30	30
30 to 88	40**	40**	3
88 to 216	43.5**	43.5**	3
216 to 960	46**	46**	3
Above 960	54	54	3

** Except as provided in paragraph below, fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz.

Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

3 ALL TEST EQUIPMENT AND THEIR DESCRIPTION

3.1 General information

Description	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
Rohde-Schwarz, RFI receiver	ESU8	105187	2015-11	2017-11	24 months	
Rohde-Schwarz, RFI receiver	ESU26	100428	2015-12	2017-12	24 months	X
Rohde & Schwarz, Artificial main network	ESH2-Z5	106899	2015-05	2017-05	24 months	X
ETS, Anechoic chamber	3m	103949	2014-11	2016-11	24 months	X
R&S, Antenna	HFH2-Z2	/	2015-09	2017-09	24 months	X
EMCO, Antenna	3142B	104351	2015-09	2017-09	24 months	X
EMCO, Antenna	3115	103002	2015-09	2017-09	24 months	X
Heinrich Deisel, Turn table	DS 420.00	103337	NA	NA	NA	X
Antenna tower	/	/	NA	NA	NA	X
Controller for turn table and antenna tower	/	/	NA	NA	NA	X

3.2 Other instrument information and auxiliary equipment

Description	Model No.	Bandwidth	Detector functions	Antenna factors	Cable loss	Range
Rohde-Schwarz, AMN	ENV216	/	/	/	/	9 kHz do 30 MHz
Rohde-Schwarz, RFI receiver	ESU8	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	20 Hz – 8 GHz
Rohde-Schwarz, RFI receiver	ESU26	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	20 Hz – 26.5 GHz
Hewlett Packard, RF Spectrum Analyzer	8593E	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	9 kHz – 26.5 GHz
Rohde & Schwarz, Artificial main network	ESH 2-Z5	/	/	/	/	9 kHz – 30 MHz
ETS, Anechoic chamber	3m	/	/	/	/	30 MHz – 18 GHz
EMCO, Antenna	model 3142	/	/	See tables below	/	26 MHz – 2 GHz
EMCO, Antenna	model 3115	/	/	See tables below	/	1 GHz – 18 GHz
Schwarzbeck Mess-Elektronik, Horn antenna	BBHA9120E	/	/	See tables below	/	450 MHz – 6 GHz
SIQ, Conducted emission cable	SIQ	/	/	/	See tables below	/
SIQ, Radiated emission cable	SIQ	/	/	/	See tables below	/

3.2.1 Cable loss and attenuation of radiated emission

3.2.1.1 Conducted emission cable (SIQ-K024)

Point	Frequency (9kHz-30MHz)	Cable length (meters)	Loss (dBm)
1	190 kHz	1	0,4
2	530 kHz	1	0,26
3	2,53 MHz	1	0,16
4	5,19 MHz	1	0,07
5	11,05 MHz	1	0,03
6	22,01 MHz	1	0,06
7	24,03 MHz	1	0,04

3.2.1.2 Radiated emission attenuation

Point	Frequency (30 MHz – 26,5 GHz)	Attenuation (dBm)
1	30 MHz	0,501
2	150 MHz	1,174
3	400 MHz	2,034
4	800 MHz	2,995
5	1 GHz	3,416
6	1,363	1,666667
7	2,686	3,583333
8	5,332	5,25
9	7,978	6,25
10	10,624	7,5
11	13,27	8,333333
12	15,916	9,166666
13	18,562	9,833333
14	21,208	10,666667
15	23,854	11,5
16	26,5	12,166667

4 CONVERSION FACTORS AND ALL OTHER FORMULAS

Unit	Conversion unit	Formula of conversion
$\text{dB}\mu\text{V}$	$\text{dB}\mu\text{V}/\text{m}$	$\text{dB}\mu\text{V}/\text{m} = \text{dB}\mu\text{V} + \text{AF}$
$\mu\text{V}/\text{m}$	$\text{dB}\mu\text{V}/\text{m}$	$\text{dB}\mu\text{V}/\text{m} = 20\log(X(\mu\text{V}/\text{m})/1\mu\text{V})$

	Test distance stated in standard	Test distance of measurement	Conversion factor
Class B	3 m	3 m	/
Class A	10 m	3 m	20dB/decade



5 GENERAL AND SPECIAL CONDITIONS DESCRIPTION

5.1 General condition description

Interconnect and power cabling (or wiring)

5.1.1 Test arrangement for conducted emissions

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground-plane.

All other equipment powered from additional LISN(s).

Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

LISN at least 80 cm from nearest part of EUT chassis.

Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

Non-EUT components of EUT system being tested.

Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground-plane.

5.1.2 Test arrangement for conducted emissions- floor-standing equipment

Excess I/O cables shall be bundled in the center. If bundling is not possible, the cables shall be arranged in serpentine fashion. Bundling shall not exceed 40 cm in length.

Excess power cords shall be bundled in the center or shortened to appropriate length.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. If bundling is not possible, the cable shall be arranged in serpentine fashion.

EUT and all cables shall be insulated, if required, from the ground-plane by up to 12 mm of insulating material.

EUT connected to one LISN. LISN can be placed on top of, or immediately beneath, the ground-plane.

All other equipment powered from a second LISN or additional LISN(s).

Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

5.1.3 Test arrangement for radiated emissions tabletop equipment

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center, forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using the correct terminating impedance. The total length shall not exceed 1 m.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground-plane.

Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

Non-EUT components of EUT system being tested.

Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

No vertical conducting plane used.

Power cords drape to the floor and are routed over to receptacle.

5.1.4 Test arrangement for radiated emissions floor-standing equipment

Excess I/O cables shall be bundled in center. If bundling is not possible, the cables shall be arranged in serpentine fashion. Bundling not to exceed 40 cm in length.

Excess power cords shall be bundled in the center or shortened to appropriate length.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. If bundling is not possible, the cable shall be arranged in a serpentine fashion.

EUT and all cables shall be insulated, if required, from the ground-plane by up to 12 mm of insulating material.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground plane.



Overhead cable trays and suspended ceilings

5.1.5 Test arrangement for floor-standing equipment

Only one vertical riser may be used where typical of system under test.

Excess power cord shall be bundled in the center or shortened to appropriate length.

EUT and cables shall be insulated from ground-plane by up to 12 mm. Where the manual has specified or there exists a code of practice for installation of the EUT, the test arrangement shall allow the use of this practice for the tests.

Power cords being measured connected to one LISN. All other system power cords powered through other LISN(s). A multiple receptacle strip may be used for other power cords.

For *conducted* tests, the LISNs may be placed on top of or immediately beneath and bonded directly to the ground-plane. For *radiated* tests, the LISN(s), if used, should be installed under, with the receptacle flush with the ground-plane.

5.1.6 Placement and manipulation of interconnect cabling (or wiring) of tabletop equipment

LISN(s) may have to be positioned to the side of the table to meet the criterion that the LISN receptacle shall be 80 cm away from the EUT. LISN(s) may be above ground-plane only for conducted emission measurements.

Accessories, such as ac power adapter, if typically table-mounted, shall occupy peripheral positions as is applicable.

Accessories, which are typically floor-mounted, shall occupy a floor position directly below the portion of the EUT to which they are typically connected. T

Table length may be extended beyond 1.5 m with peripherals aligned with the back edge. The table depth may be extended beyond 1 m. The 40 cm distance to the vertical conducting plane shall be maintained for conducted emission testing.

Placement of wall-mounted equipment

5.1.7 Test configuration/arrangement for combination floor-standing and tabletop equipment

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center, forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using the correct terminating impedance.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground-plane.

Cables of hand-operated devices, such as keyboards, mice, etc., have to be placed as for normal use.

Non-EUT components of EUT system being tested.

I/O cable to floor-standing unit drapes to the ground-plane and shortened or excess bundled. Cables not reaching the metal ground-plane are draped to the height of the connector or 40 cm, whichever is lower.

Power cords and signal cables shall drape to the floor. No extension cords shall be used to the power receptacles.

The floor-standing unit can be placed under the table if its height permits.

5.2 Special condition description

If for some reason the above measurement conditions can't be met, the description below should be used as an appropriate measurement condition and placement.

(Description is written additionally as the measurements differ – all is within test procedure)



6 TEST SUMMARY

STANDARDS (details on first page)	Tested		Sample	
	yes	no	pass	not pass
ANSI C63.4-2014; FCC Part 15, Subpart C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Test	Section within the report	Class	Conclusion
Conducted emission	7.1	/	N/A
Radiated emission	7.2	/	PASS

6.1 Operating voltages/frequencies used for testing

Section	Test	Operating conditions
7.1	Conducted emission measurement	/
7.2	Radiated emission measurement	1,5 VDC

7 EMISSION TESTS

7.1 Conducted emission measurement (intentional radiator)

Not applicable due to battery power supply.

7.2 Radiated emission measurement (intentional radiator)

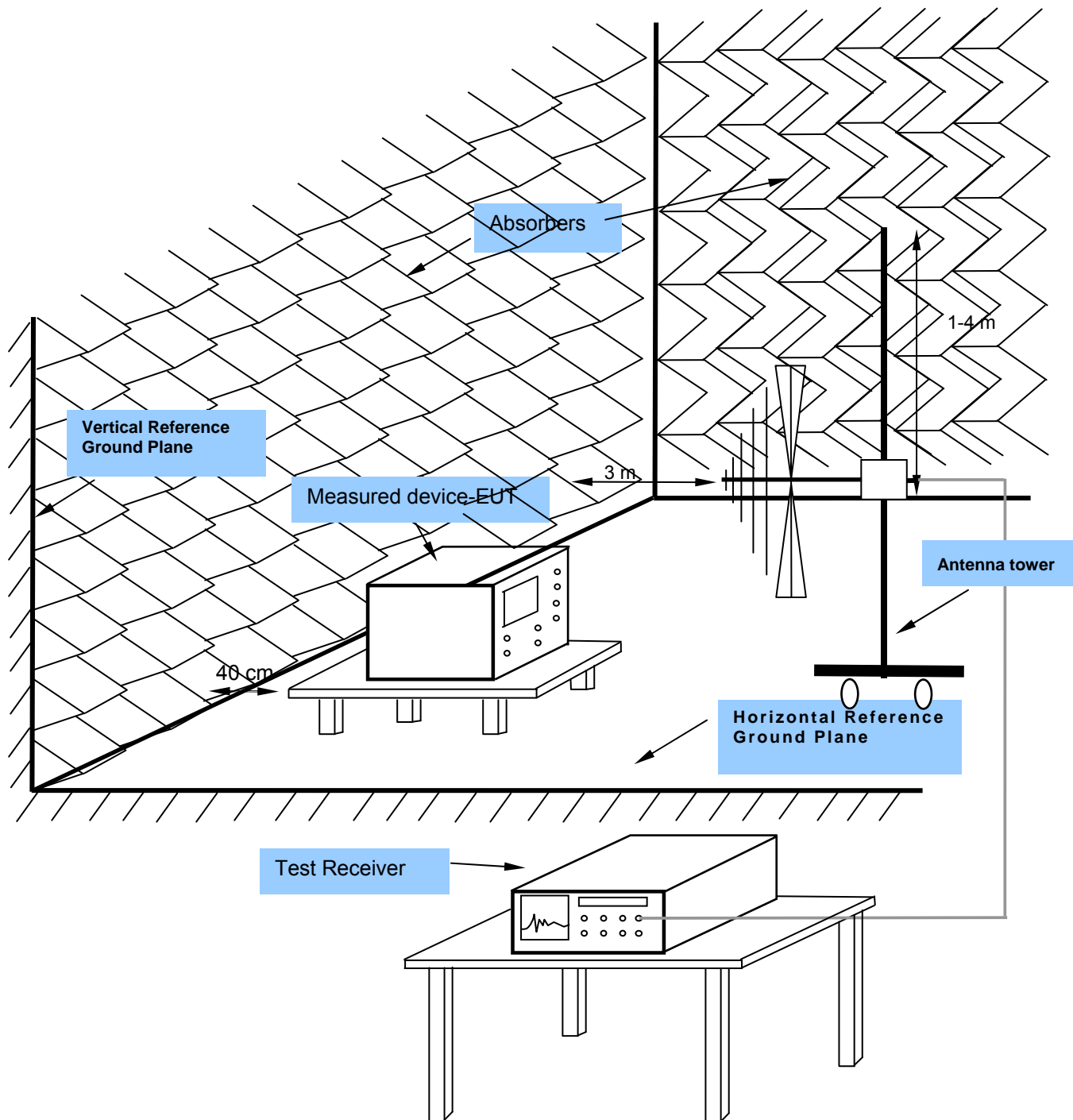
7.2.1 Test instruments

Description & Manufacturer	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
ETS, Anechoic chamber	3m	103949	2014-11	2016-11	24 months	X
Rohde-Schwarz, RFI receiver	ESU8	105187	2015-11	2017-11	24 months	/
Rohde-Schwarz, RFI receiver	ESU26	100428	2015-12	2017-12	24 months	X
R&S, Antenna	HFH2-Z2	/	2015-09	2017-09	24 months	X
EMCO, Antenna	3142B	104351	2015-09	2017-09	24 months	X
EMCO, Antenna	3115	103002	2015-09	2017-09	24 months	X
Heinrich Deisel, Turn table	DS 420.00	103337	NA	NA	NA	X
Antenna tower	/	/	NA	NA	NA	X
Controller for turn table and antenna tower	/	/	NA	NA	NA	X

7.2.2 Test procedure

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground in an Anechoic Chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of variable-height antenna tower.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to PEAK and QUAS-PEAK Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The highest points would be re-tested one by one using the quasi-peak method.

7.2.3 Test setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.2.4 Test result

Preliminary testing at 3 m in Semi-Anechoic chamber (9 kHz – 30 MHz)



ROHDE & SCHWARZ

C20160602

14.Jun 15 11:00

Meas Type RADIATED EMISSION

Equipment under Test PIEPS MICRO

Manufacturer PIEPS

OP Condition TRANSMIT MODE

Operator Andrej Skof

Test Spec

Antenna: 10 deg

Time Domain Scan (2 Ranges)

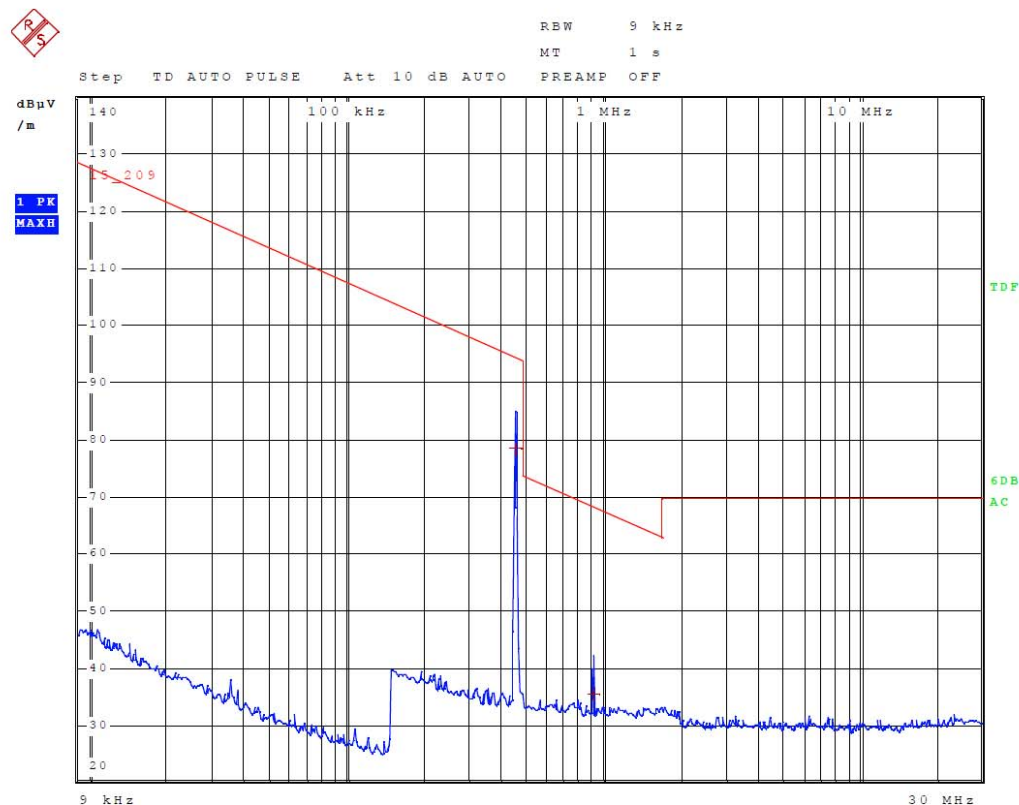
Scan Start: 9 kHz

Scan Stop: 30 MHz

Detector: Trace 1: MAX PEAK

Transducer: HFH2-Z2V

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
9.000000 kHz	149.950000 kHz	50.00 Hz	200.00 Hz	300 ms	Auto	0 dB	INPUT2
150.000000 kHz	30.000000 MHz	2.25 kHz	9.00 kHz	30 ms	Auto	0 dB	INPUT2




ROHDE & SCHWARZ
C20160602

14.Jun 15 11:00

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer PIEPS
OP Condition TRANSMIT MODE
Operator Andrej Skof
Test Spec
 Antenna: 10 deg

Final Measurement

Meas Time: 1 s
 Margin: 30 dB
 Peaks: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	456.000000000 kHz	78.25	Quasi Peak	-16.17
1	915.000000000 kHz	35.27	Quasi Peak	-33.13

**Final testing at 10 m on OATS (9 kHz – 30 MHz):**

Frequency (kHz)	Measured level at 10 m (db μ V/m)	Limit (db μ V/m)	Delta limit (dB)	PASS/FAIL
457	54,5	74,4	-19.9	PASS
Any other	Within the noise of the background	/	/	PASS

NOTE: Antenna factor and cable loss are already included in measurement correction.


ROHDE & SCHWARZ
C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

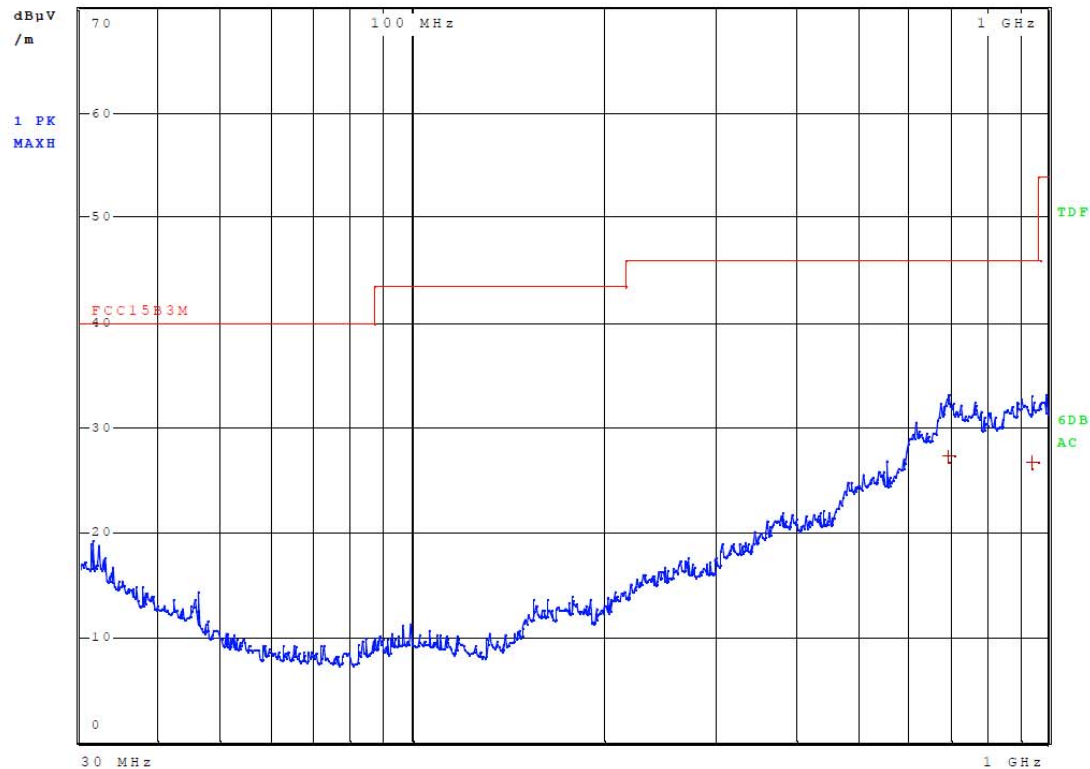
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	697.560000000 MHz	27.31	Quasi Peak	-18.69
1	943.470000000 MHz	26.64	Quasi Peak	-19.36


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

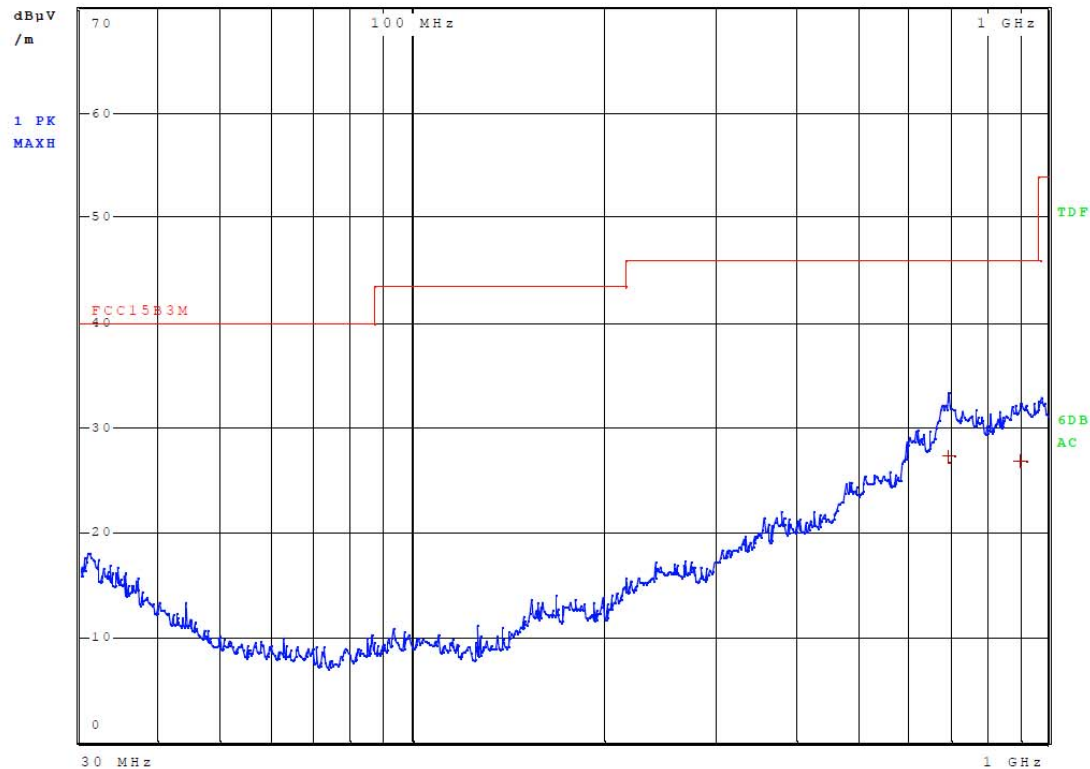
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	696.690000000 MHz	27.34	Quasi Peak	-18.66
1	904.290000000 MHz	26.82	Quasi Peak	-19.18


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C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 90 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

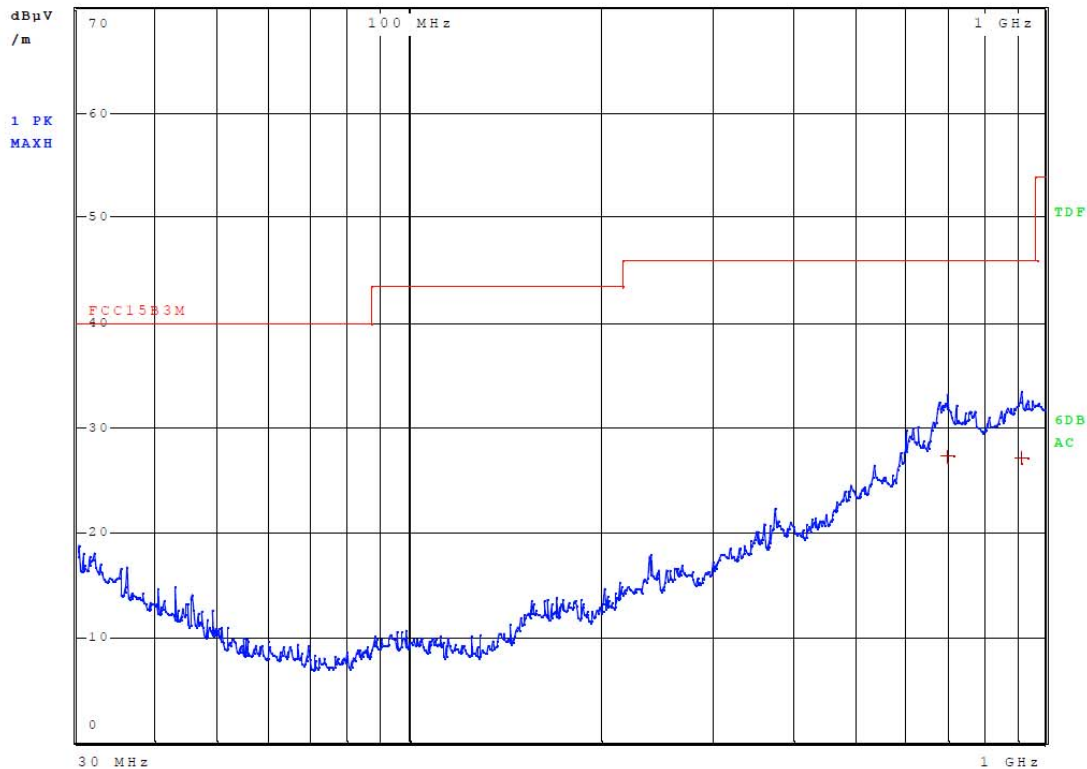
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 90 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	701.010000000 MHz	27.21	Quasi Peak	-18.79
1	917.070000000 MHz	27.07	Quasi Peak	-18.93


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 HORIZONTAL 100 cm, 90 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

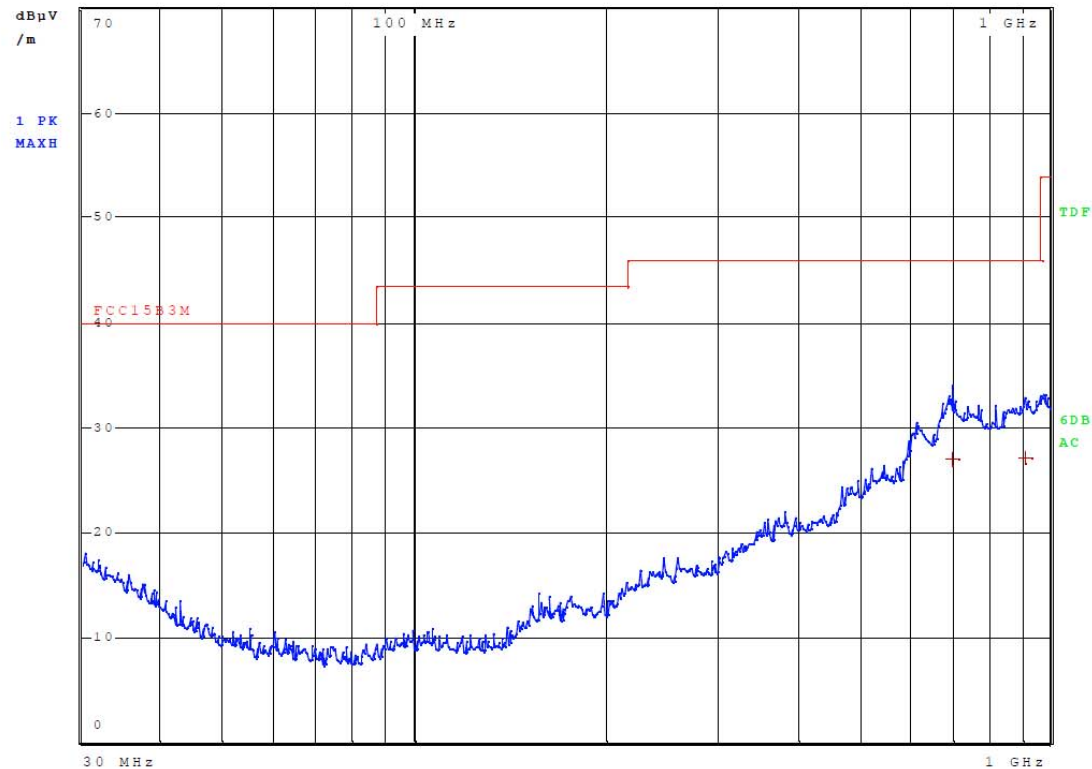
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 90 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	912.720000000 MHz	27.10	Quasi Peak	-18.90
1	703.500000000 MHz	27.04	Quasi Peak	-18.96


ROHDE & SCHWARZ
C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 180 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

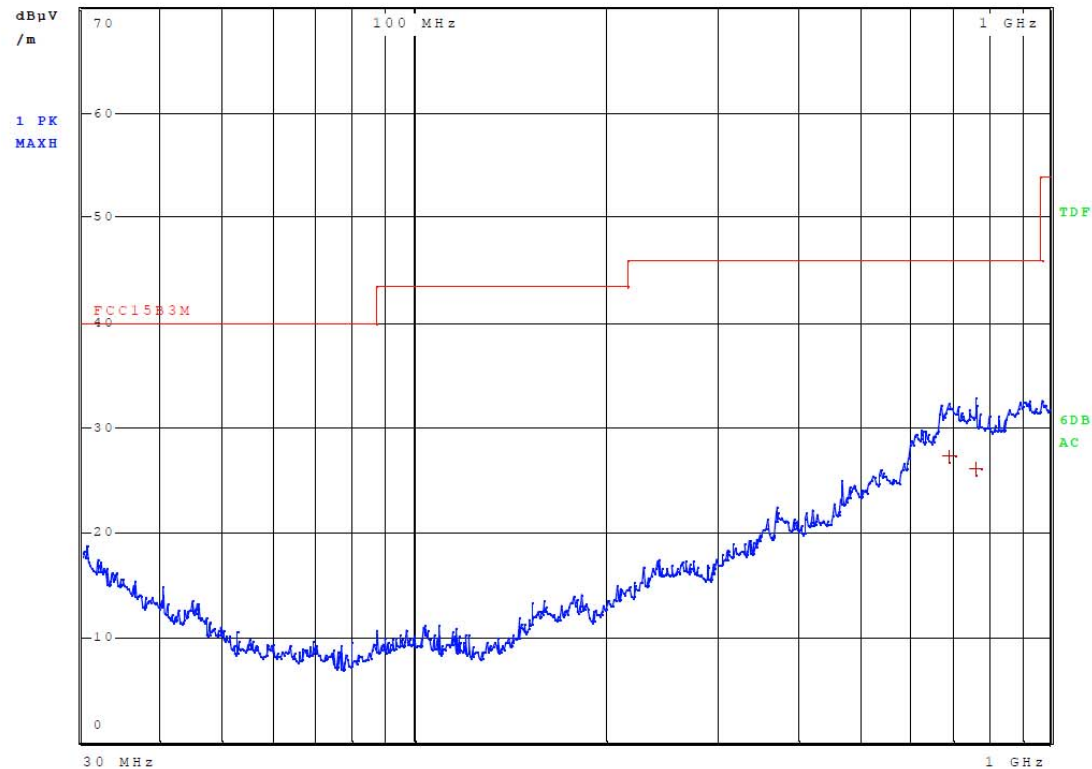
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 180 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	692.700000000 MHz	27.25	Quasi Peak	-18.75
1	761.910000000 MHz	26.06	Quasi Peak	-19.94


ROHDE & SCHWARZ
C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 HORIZONTAL 100 cm, 180 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

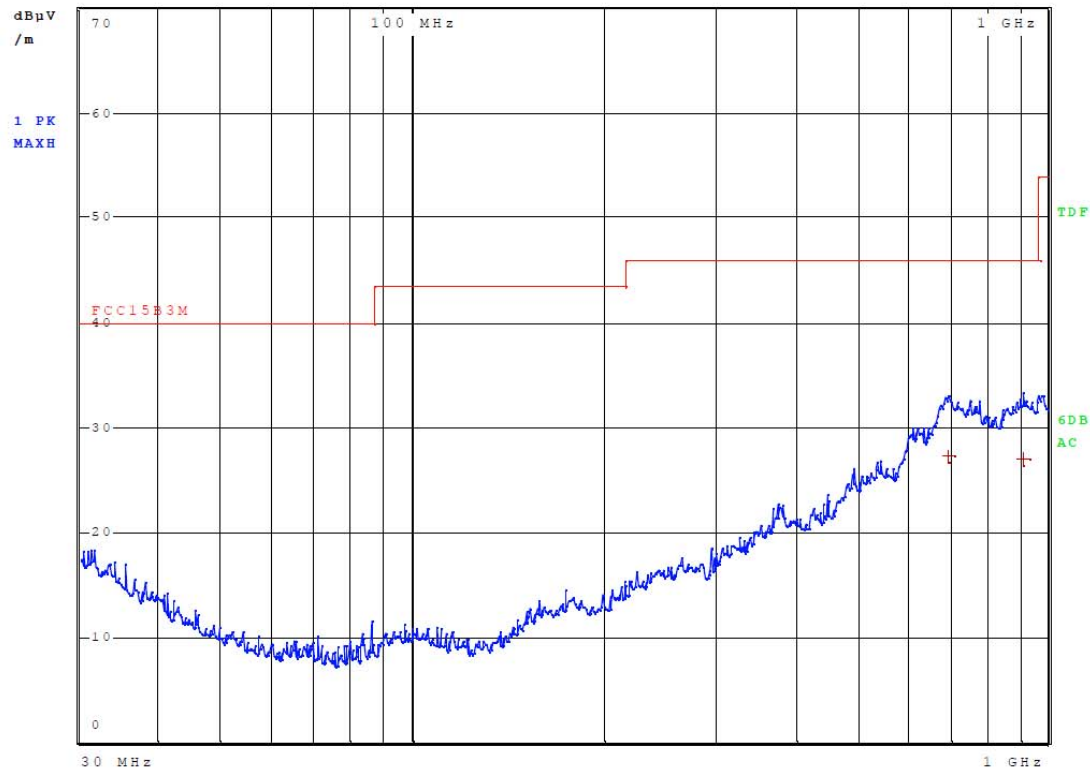
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 180 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	696.270000000 MHz	27.31	Quasi Peak	-18.69
1	916.020000000 MHz	27.04	Quasi Peak	-18.96



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C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
VERTICAL 100 cm, 270 deg

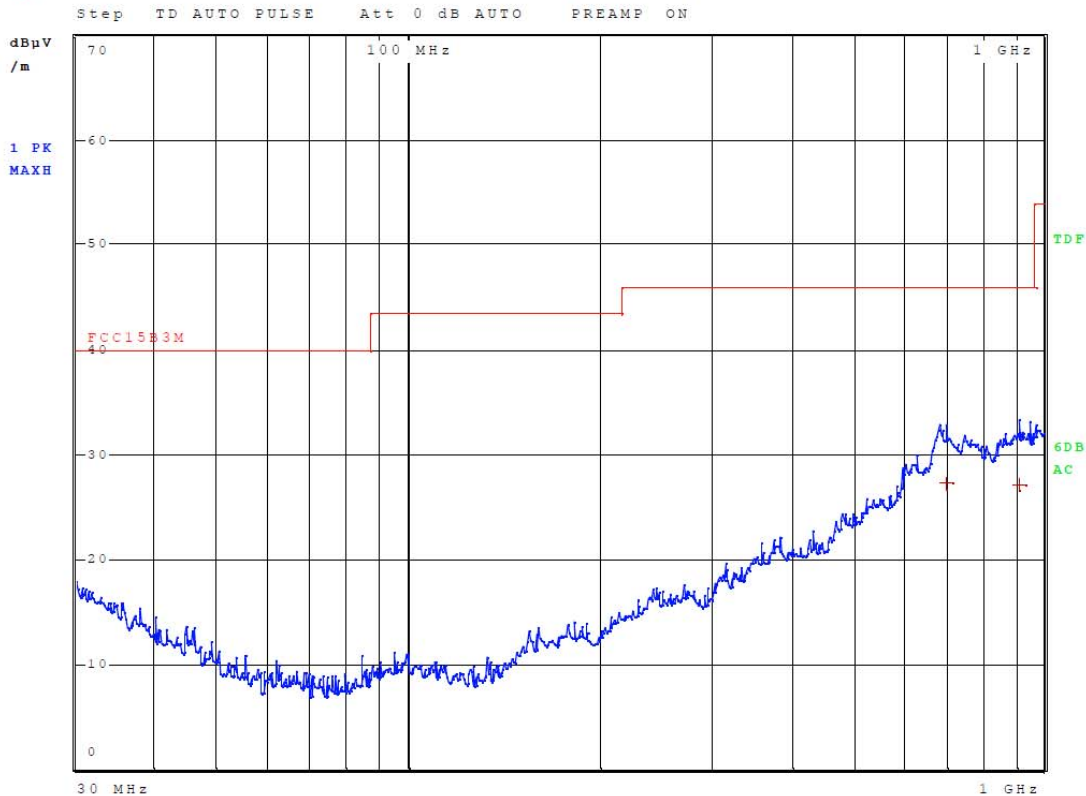
Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz
MT 1 s
PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 270 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	701.940000000 MHz	27.25	Quasi Peak	-18.75
1	915.030000000 MHz	27.18	Quasi Peak	-18.82


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF
Test Spec
 HORIZONTAL 100 cm, 270 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
 Scan Stop: 1 GHz
 Detector: Trace 1: MAX PEAK
 Transducer: 3142B3m

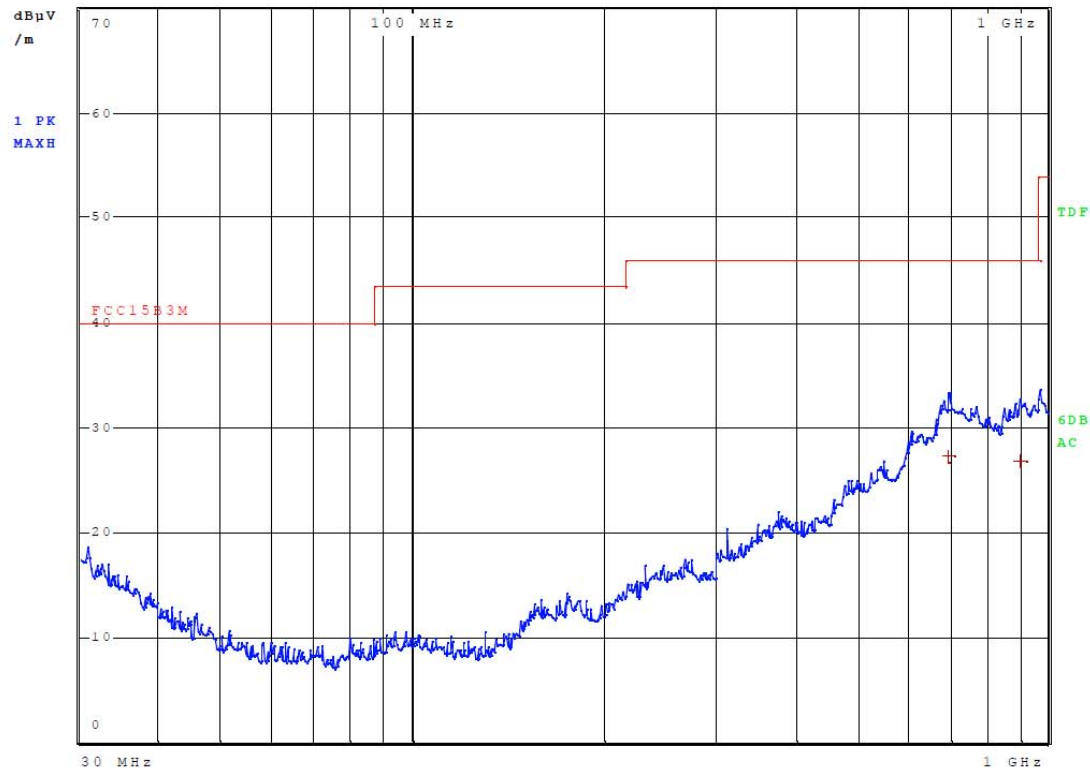
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**ROHDE & SCHWARZ****C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition SEARCH MODE
Operator ANDREJ SKOF

Test Spec

HORIZONTAL 100 cm, 270 deg

Final Measurement

Meas Time: 1 s
Margin: 15 dB
Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	697.320000000 MHz	27.28	Quasi Peak	-18.72
1	904.770000000 MHz	26.87	Quasi Peak	-19.13


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

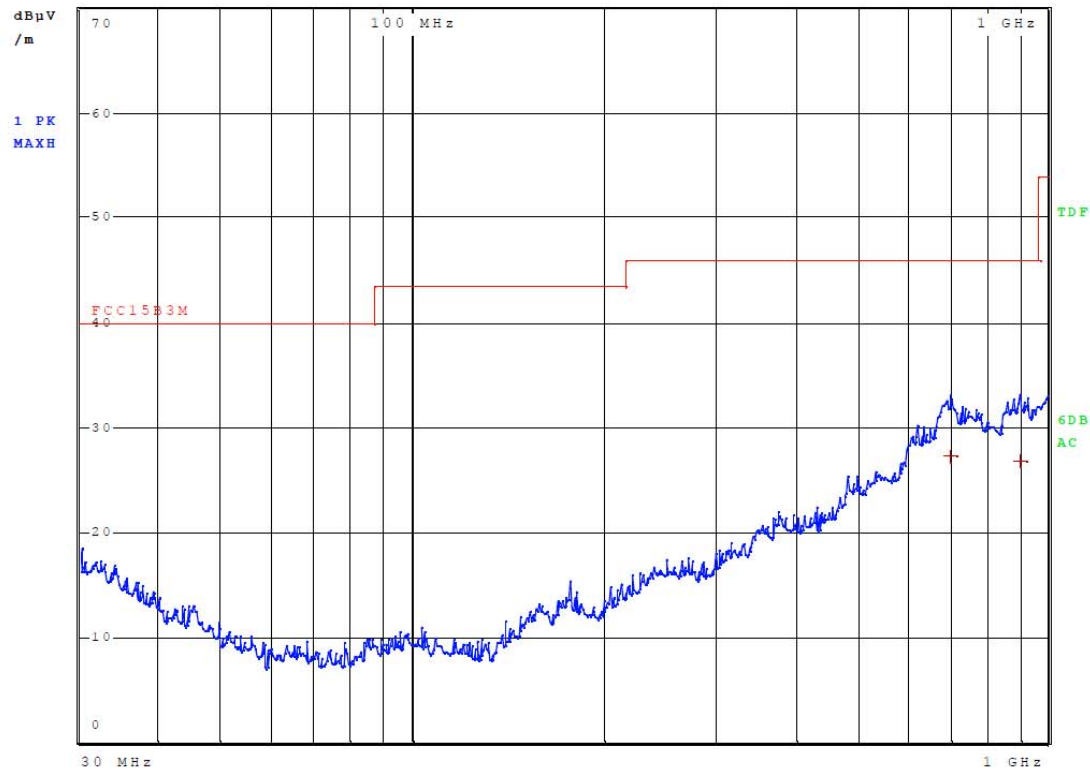
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	701.010000000 MHz	27.25	Quasi Peak	-18.75
1	904.290000000 MHz	26.82	Quasi Peak	-19.18


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

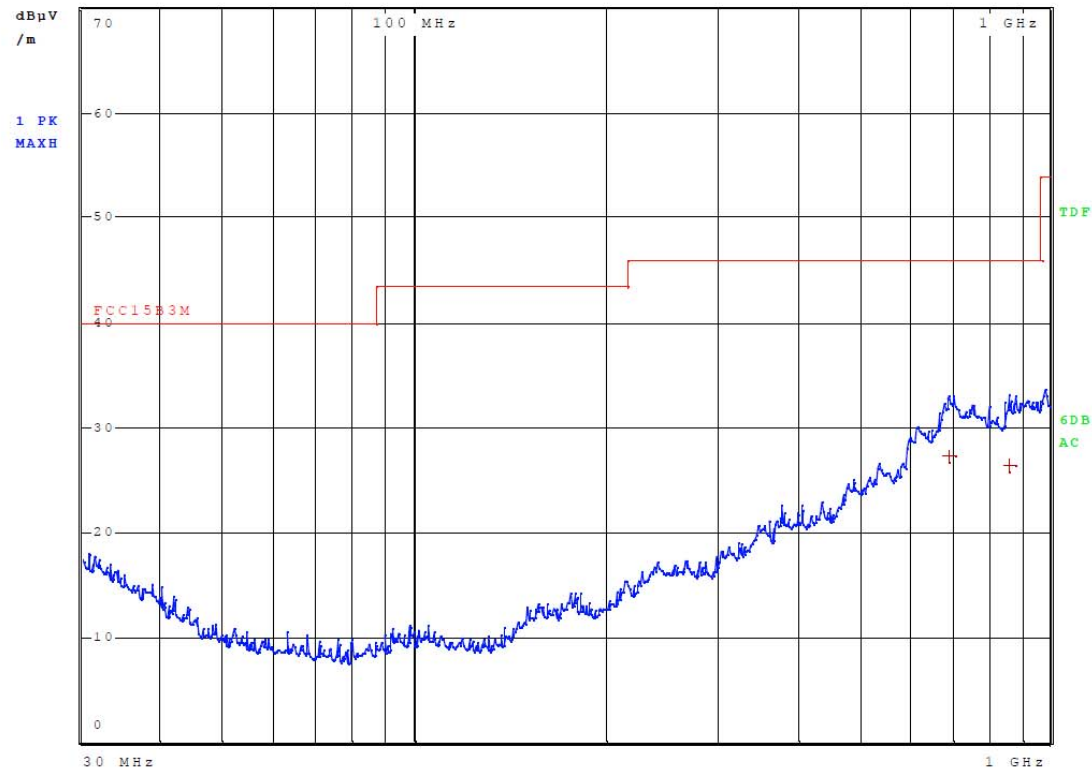
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	694.410000000 MHz	27.21	Quasi Peak	-18.79
1	861.780000000 MHz	26.42	Quasi Peak	-19.58

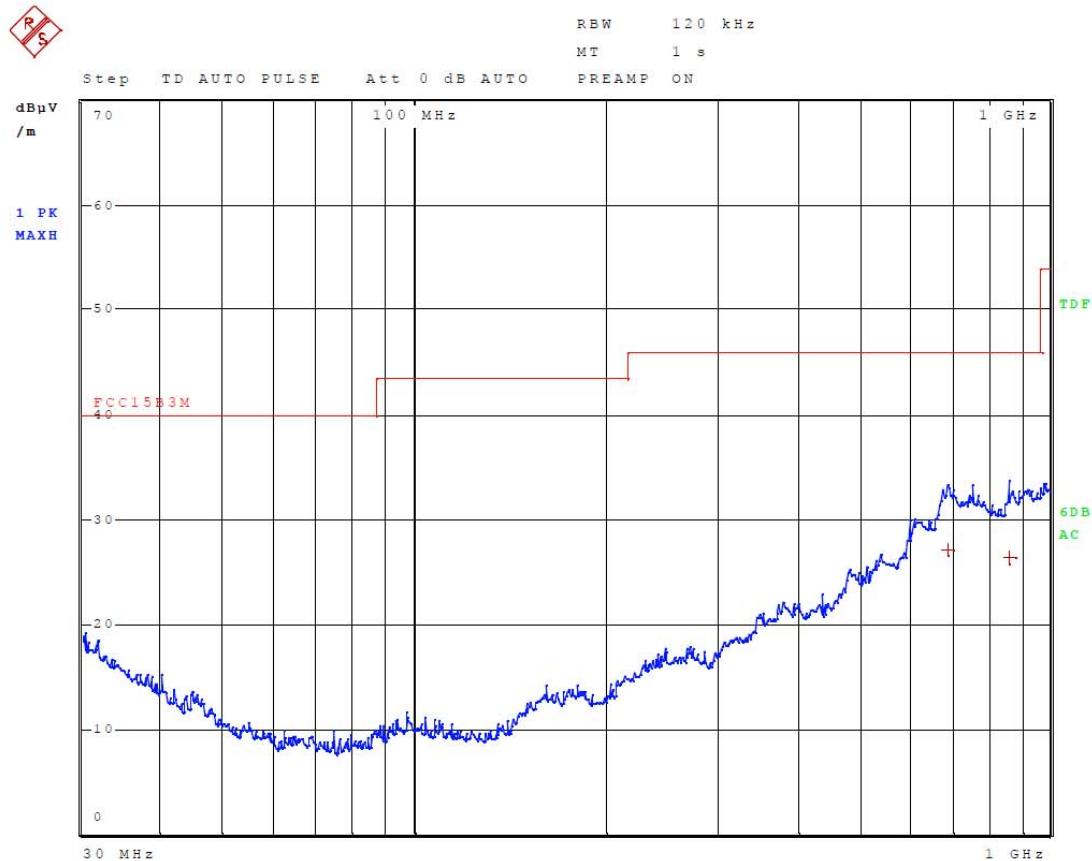

ROHDE & SCHWARZ
C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 90 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 90 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	688.770000000 MHz	27.13	Quasi Peak	-18.87
1	864.810000000 MHz	26.37	Quasi Peak	-19.63


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 90 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

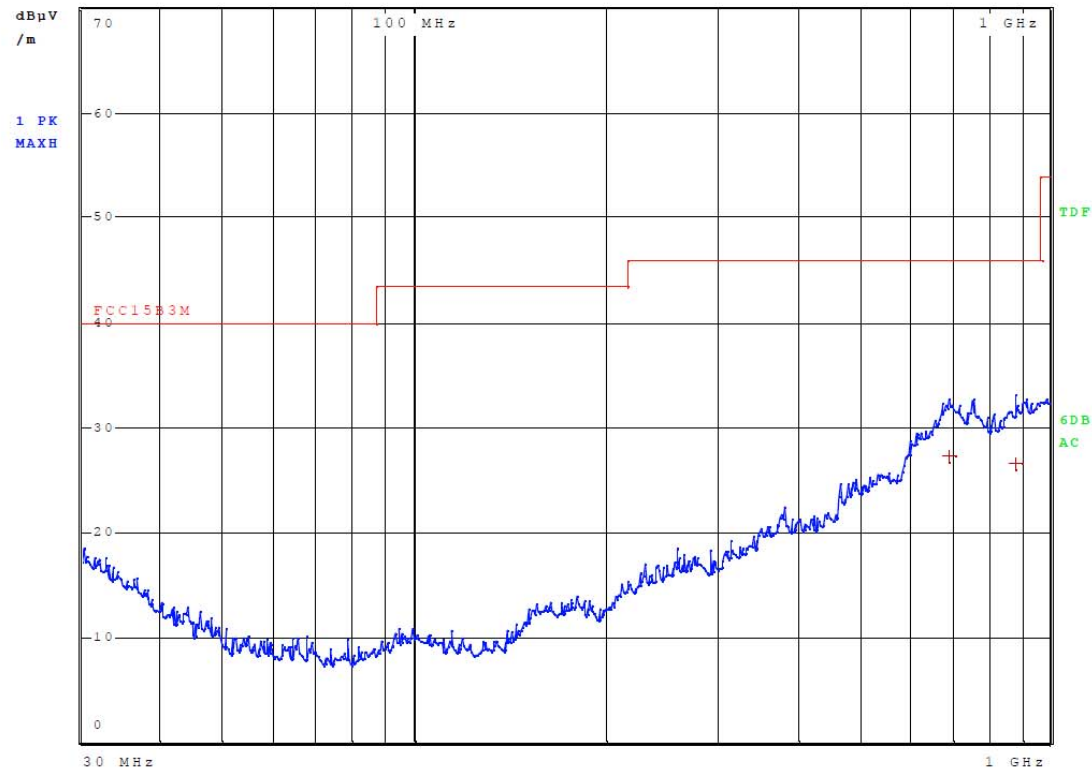
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON




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C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 90 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	692.130000000 MHz	27.21	Quasi Peak	-18.79
1	882.990000000 MHz	26.51	Quasi Peak	-19.49


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 180 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

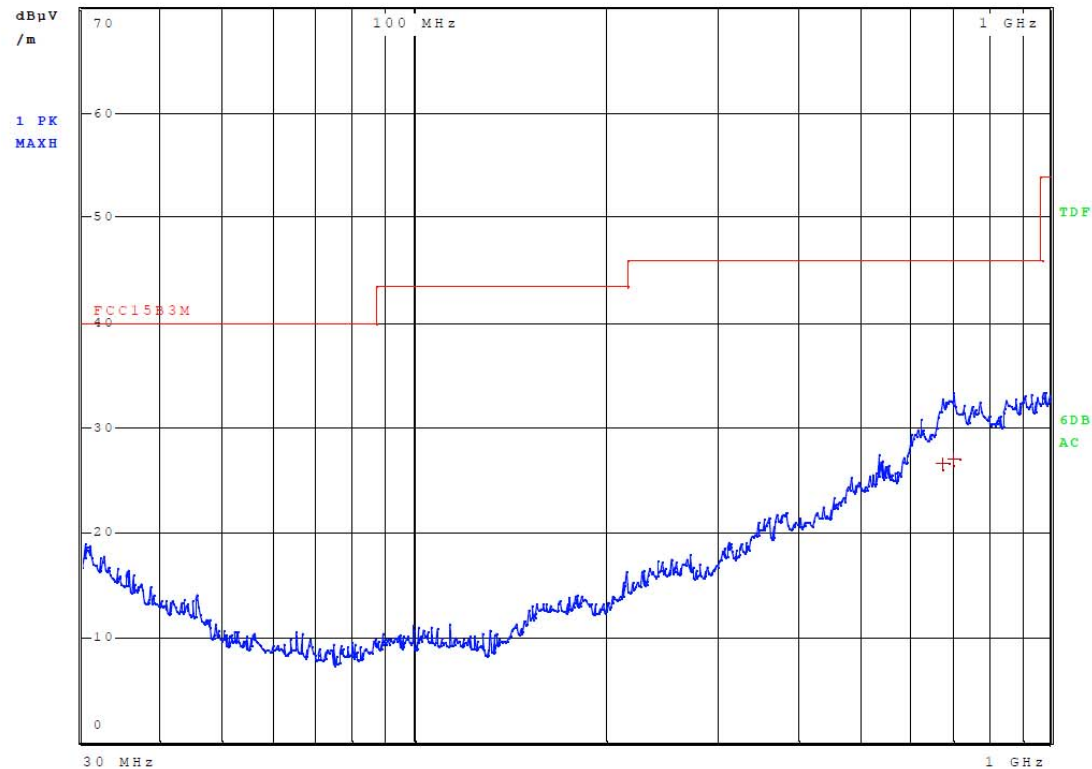
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
VERTICAL 100 cm, 180 deg

Final Measurement

Meas Time: 1 s
Margin: 15 dB
Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	706.950000000 MHz	27.03	Quasi Peak	-18.97
1	677.490000000 MHz	26.55	Quasi Peak	-19.45


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 HORIZONTAL 100 cm, 180 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

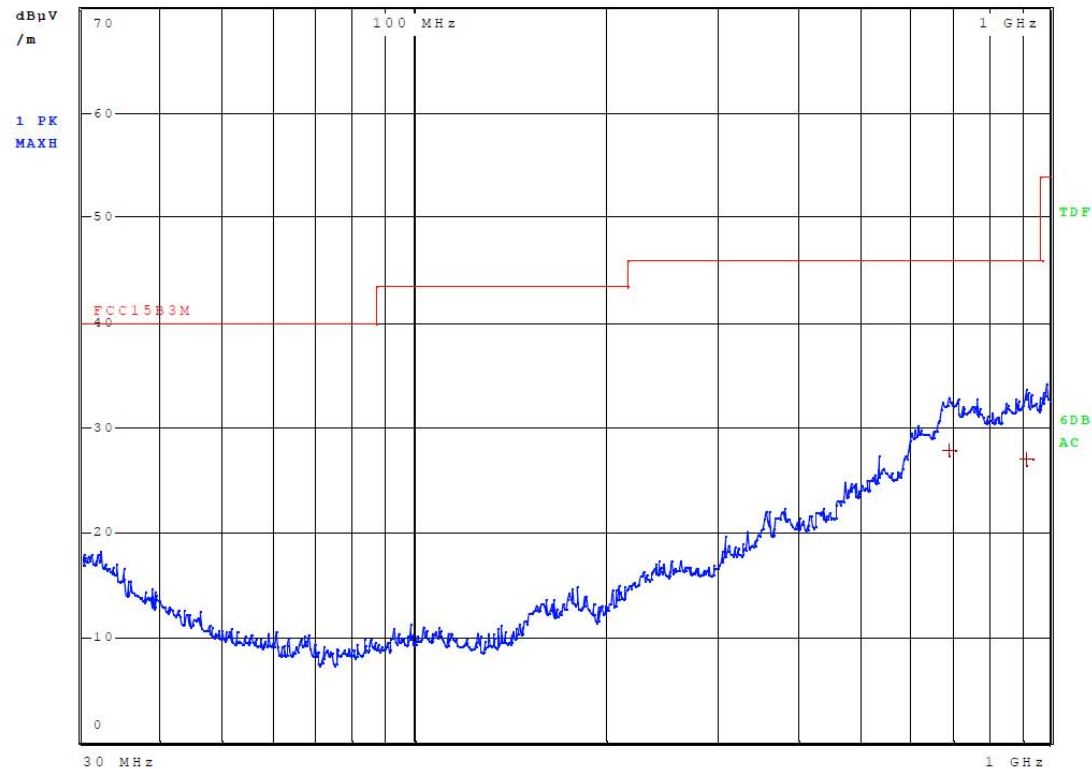
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 180 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	694.620000000 MHz	27.91	Quasi Peak	-18.09
1	918.390000000 MHz	26.99	Quasi Peak	-19.01


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Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 VERTICAL 100 cm, 270 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

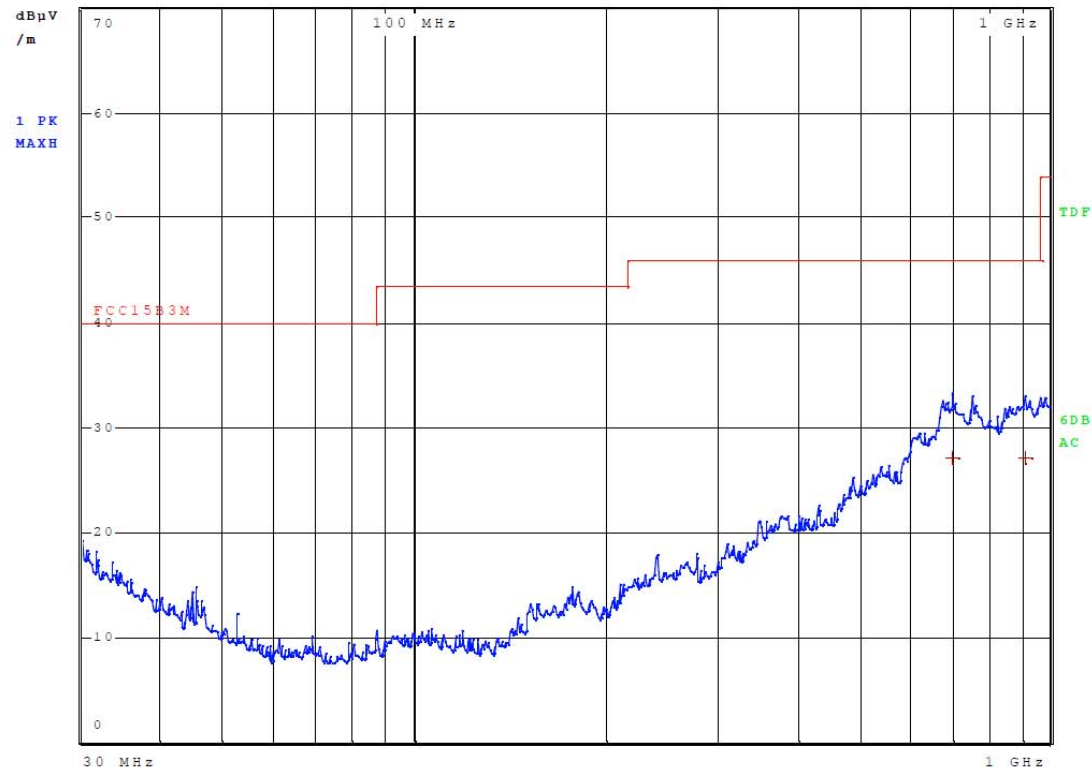
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON



**C20160602**

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 VERTICAL 100 cm, 270 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	702.570000000 MHz	27.10	Quasi Peak	-18.90
1	914.730000000 MHz	27.10	Quasi Peak	-18.90


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C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF
Test Spec
 HORIZONTAL 100 cm, 270 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

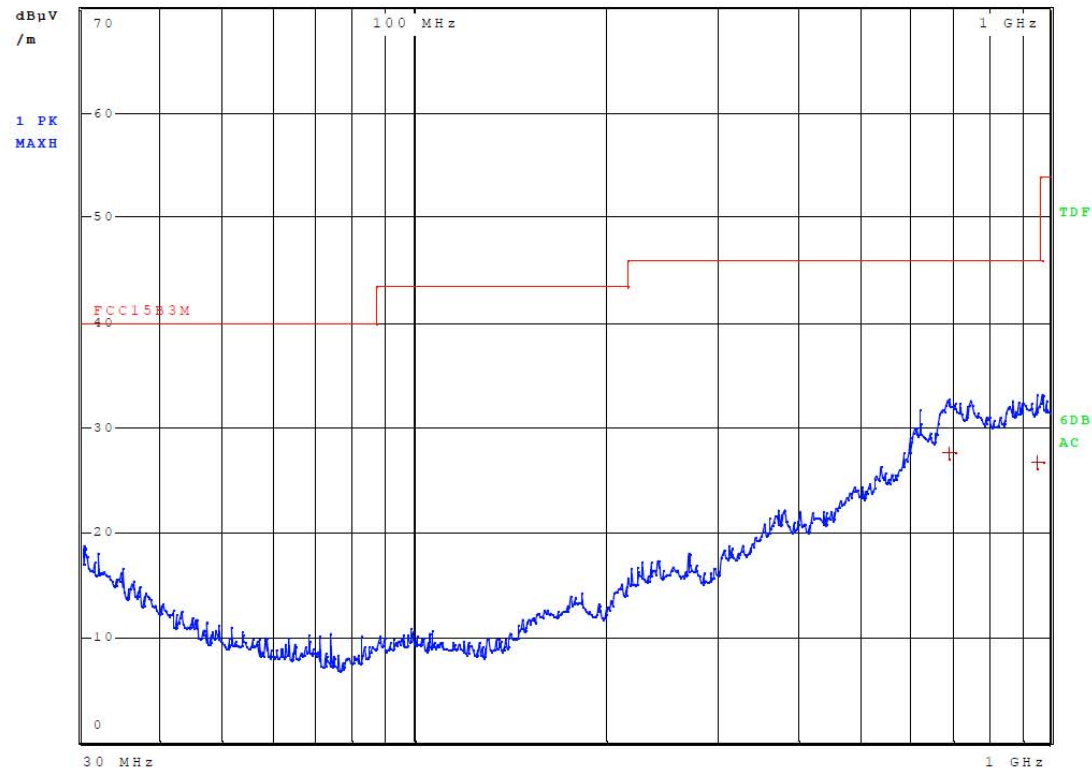
Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	2 ms	Auto	20 dB	INPUT2



RBW 120 kHz

MT 1 s

Step TD AUTO PULSE Att 0 dB AUTO PREAMP ON




ROHDE & SCHWARZ
C20160602

Meas Type RADIATED EMISSION
Equipment under Test PIEPS MICRO
Manufacturer Pieps GmbH
OP Condition TRANSMIT MODE
Operator ANDREJ SKOF

Test Spec
 HORIZONTAL 100 cm, 270 deg

Final Measurement

Meas Time: 1 s
 Margin: 15 dB
 Subranges: 2

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	695.160000000 MHz	27.60	Quasi Peak	-18.40
1	956.160000000 MHz	26.69	Quasi Peak	-19.31