Technical Memorandum

SAR test exclusion assessment for - LIZN ApS - HP2 series according to FCC specifications

Performed for LIZN ApS

Project no.: 123-32107

26 February 2025

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Title	SAR test exclusion assessment for - LIZN ApS - HP2 series according to FCC specifications
Assessment objects	HP2 series
Report no.	123-27564-18 Rev. 3
Client	LIZN ApS Sindalsvej 34 8240 Risskov DENMARK
Manufacturer	LIZN ApS Sindalsvej 34 8240 Risskov DENMARK
Specifications	KDB 447498 D04 Interim General RF Exposure Guidance v01
Results	The test object was found to be in compliance with the specifications
FORCE personnel	Jan Askov
Date	26 February 2025

Project Manager

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Senior Specialist
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1. Conclusion

Product name: (HP2 series)

The assessment object mentioned in this report meets the requirements of the rule parts stated below for all operating configurations and exposure conditions.

- KDB 447498 D01 General RF Exposure Guidance v06 clause 4.3.1 a)

The results relate only to the object assessed.

1.1 Assessment objects

Photo 1.1.1 Assessment objects.

Assessment object 1.1.1

No.	Test item name	Unique identification / type / description	Extent of test
1	Left hearpiece, internally powered.	HP2L (#3, #5, #7)	Not used
2	Right hearpiece, internally powered.	HP2R (#1, #2, #4, #6)	Not used
3	Left hearpiece, internally powered.	HP2L, Special version with Antenna replaced with SMA connector	Not used
4	Right hearpiece, internally powered.	HP2R, Special version with Antenna replaced with SMA connector	Tested
Antenna replaced with coaxial cable with SMA.			

2. General test conditions

2.1 Description and intended use of the test object

Over the counter hearing solution

2.2 Test modes during emission tests

See test report: 123-32107-15 Rev. A

2.3 Characteristics and parameters of the assessed object.

See test report: 123-32107-15 Rev. A

2.4 Exposed parts of the body

Any significant exposure will be to the body (worst case).

2.5 Pulsed / transient fields

The emissions from the assessed object are not pulse modulated.
There are no occasional or periodic transients in the emitted field.

3. Assessment of compliance with FCC requirements

Assessment method:

- KDB 447498 D01 General RF Exposure Guidance v06 clause 4.3.1 a)
    - Single source, standalone
    - Power max Limit: 10 mW for 1-g SAR

Calculation according to KDB 447498 D01 General RF Exposure Guidance v06 clause 4.3.1 a)

For 100 MHz < f < 6 GHz and 5 mm < d ≤ 50 mm				
f	2483,5	MHz	100 MHz < f < 6 GHz	
d	5	mm	d ≤ 50 mm	
1 or 10g SAR	3	(3 or 7,5)	fixed	
	9,52	mW		
Power_max (Round)	10	mW		

3.1 Parameters for assessment

The requirements for determination of compliance and the preparation of an Environmental Assessment regarding human exposure to levels of radiofrequency radiation. The exposure is assessed according KDB 447498 D01 General RF Exposure Guidance v06 clause 4.3.1 a)

3.2 Duty Cycle correction factor

Test location (stand) .....:	Hørsholm EMCRUM4	
Applied limit.....:	☐	Limit according to 47 CFR Part 15 C Subpart 15.247
	☐	
Test setup description .....:	☒	Conducted measurement performed on SMA connector.
	☐	Other:
Supplementary test setup description .....:		
Test method applied .....:	☒	(Time) Duty Cycle correction factor - conducted
	☐	Other:
Supplementary information .....:	Rohde & Schwarz test system	

Results:

DutyCycle (%)	(Time) Duty Cycle correction factor (dB)
77.082	**-1.13**

This is the worst-case duty cycle measured by our Rohde & Schwarz test system.

Graphical Representation:

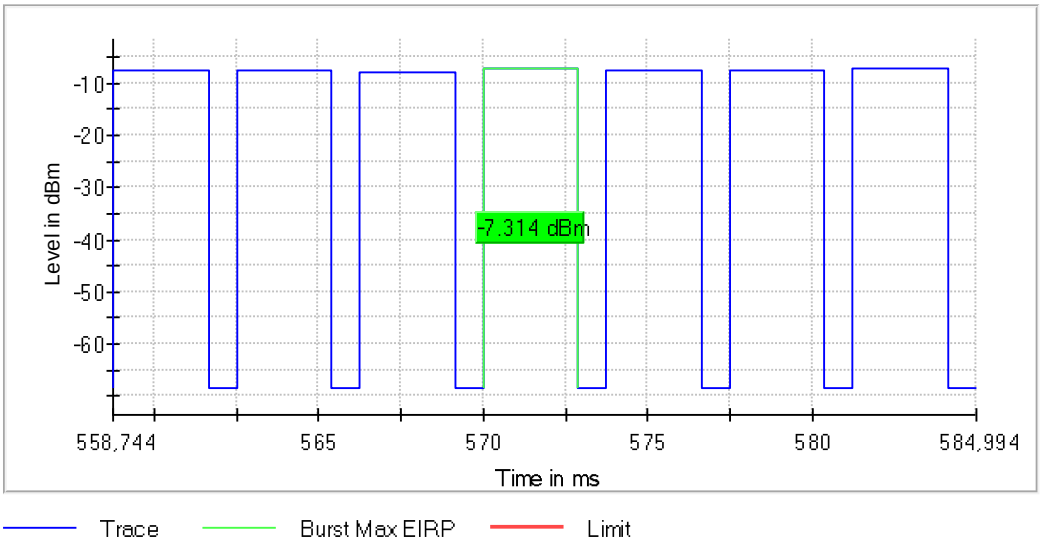


Photo 3.2.1.....:	Duty Cycle correction factor setup

3.3 Measurement results – Average

Average output power - BT Classic

DUT Frequency (MHz)	Average Power (dBm) Note1	(Time) Duty Cycle correction factor (dB)	Time average output power (dBm)	Limit Max (dBm)	Result
2402	10.61	-1.13	**9.48**	**10**	**PASS**
2438	10.38	-1.13	**9.25**	**10**	**PASS**
2480	10.05	-1.13	**8.92**	**10**	**PASS**

RBW: 2 MHz
VBW: 10 MHz

Note 1: See Annex 5.2 – measured with an Average detector

Average output power - BLE 1 MHz

DUT Frequency (MHz)	Average Power (dBm) Note1	(Time) Duty Cycle correction factor (dB)	Time average output power (dBm)	Limit Max (dBm)	Result
2402	10.51	-1.13	**9.38**	**10**	**PASS**
2438	10.25	-1.13	**9.12**	**10**	**PASS**
2480	9.86	-1.13	**8.73**	**10**	**PASS**

RBW: 2 MHz
VBW: 10 MHz

Note 1: See Annex 5.2 – measured with an Average detector

Average output power - BLE 2 MHz

DUT Frequency (MHz)	Average Power (dBm) Note1	(Time) Duty Cycle correction factor (dB)	Time average output power (dBm)	Limit Max (dBm)	Result
2402	10.20	-1.13	**9.07**	**10**	**PASS**
2438	9.90	-1.13	**8.77**	**10**	**PASS**
2480	9.53	-1.13	**8.40**	**10**	**PASS**

RBW: 2 MHz
VBW: 10MHz

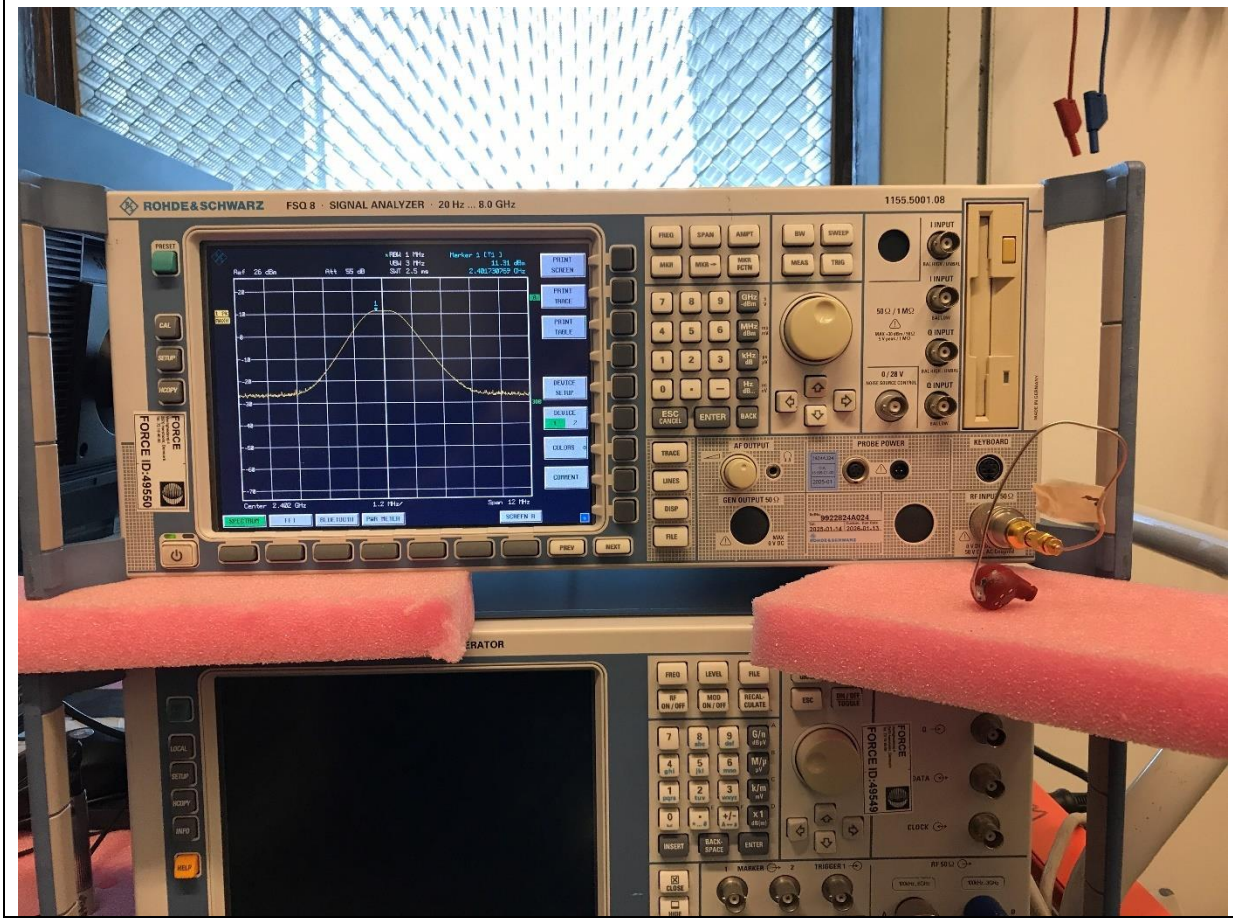
Note 1: See Annex 5.2 – measured with an Average detector

Summary of test results:

The worst-case test result is 9.48 dBm for the BT Classic at 2402 MHz and including the tuning-up tolerance at 0.39 dB, this is within the limit at +10 dBm / 10 mW for a worst-case time average conducted RF output power.

Radiated emission will be lower due to the antenna gain is below 0 dBi, please see 17a to e_HP2_ AntSpec.

Photo 3.3.1.....:	Measurements results - Average



4. List of test equipment

No	Category/Action	Manufacturer	Type no	Cal. date	Cal. exp
49550	Signal Analyzer	Rohde & Schwarz	FSQ8	2024-01-10 2025-01-14	2025-02-09 2026-01-13
49732	RF-Powermeter for SRD Power Measurement	Rohde & Schwarz	OSP120 INCL. B157	2024-01-29	2025-01-28
49994	EMC32-Software SRD setup	Rohde & Schwarz	Ver. 10.40.10	2024-09-16	2025-09-16

5. Annex

5.1 Measurement results – Peak (For reference)

Peak output power - BT Classic

DUT Frequency (MHz)	Peak Power (dBm) Note1	
2402	**11.56**	
2438	**11.25**	
2480	**11.26**	

RBW: 1 MHz
VBW: 3 MHz

Note 1: Output peak power test procedure for FHSS (7.8.5) from test report 123-32107-15 Rev. A

Peak output power - BLE 1 MHz

DUT Frequency (MHz)	Peak Power (dBm) Note2	
2402	11.31	
2438	11.21	
2480	10.91	

RBW: 1 MHz
VBW: 3 MHz

Note 2: Maximum peak conducted output power (11.9.1) from test report 123-32107-15 Rev. A

Peak output power - BLE 2 MHz

DUT Frequency (MHz)	Peak Power (dBm) Nore2	
2402	11.39	
2438	11.22	
2480	11.00	

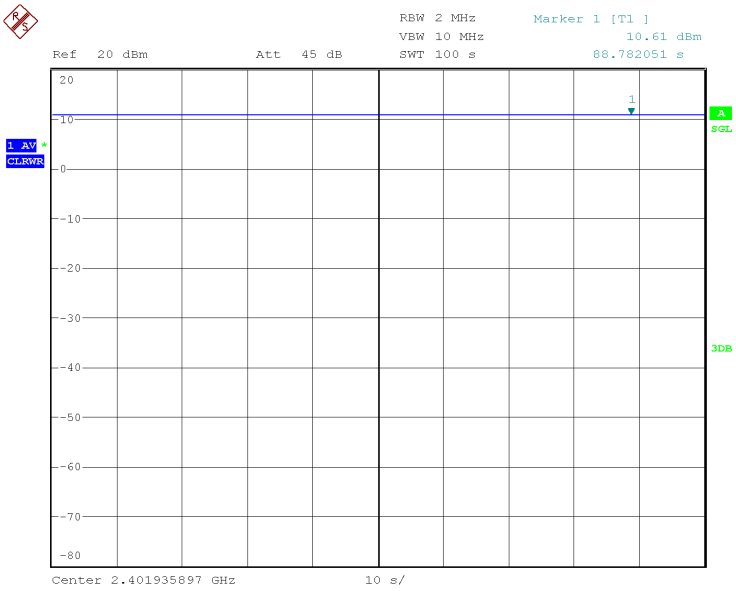
RBW: 2 MHz
VBW: 10MHz

Note 2: Maximum peak conducted output power (11.9.1) from test report 123-32107-15 Rev. A

Radiated emission will be lower due to the antenna gain is below 0 dBi, please see 17a to e_HP2_ AntSpec.

5.2 Measurement results – average

BT Classic



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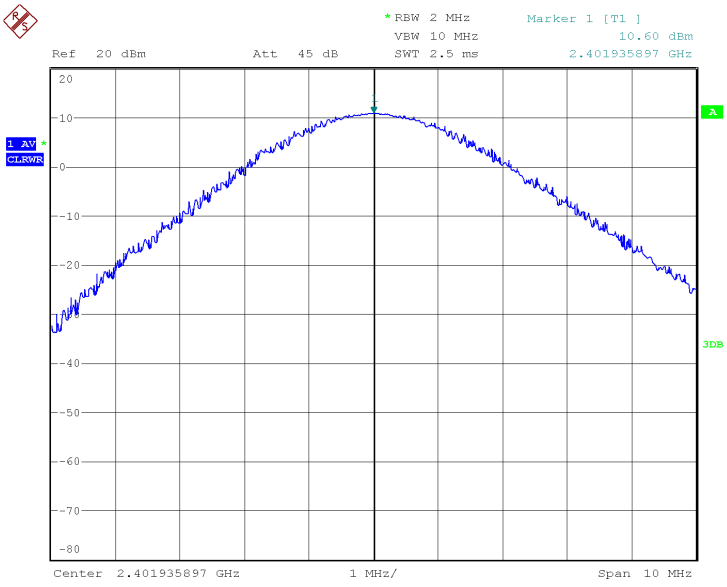

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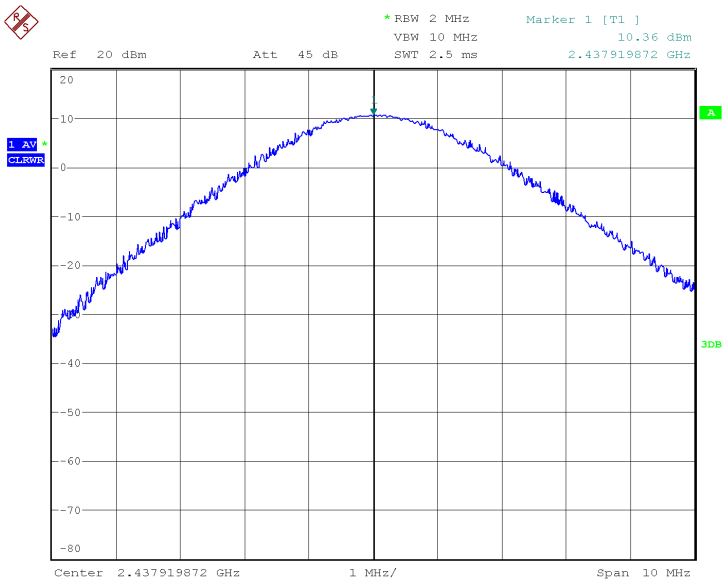

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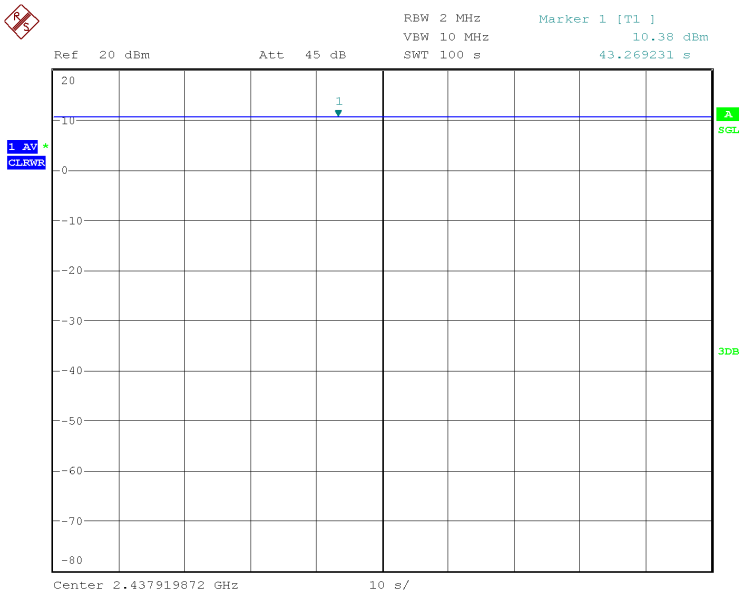

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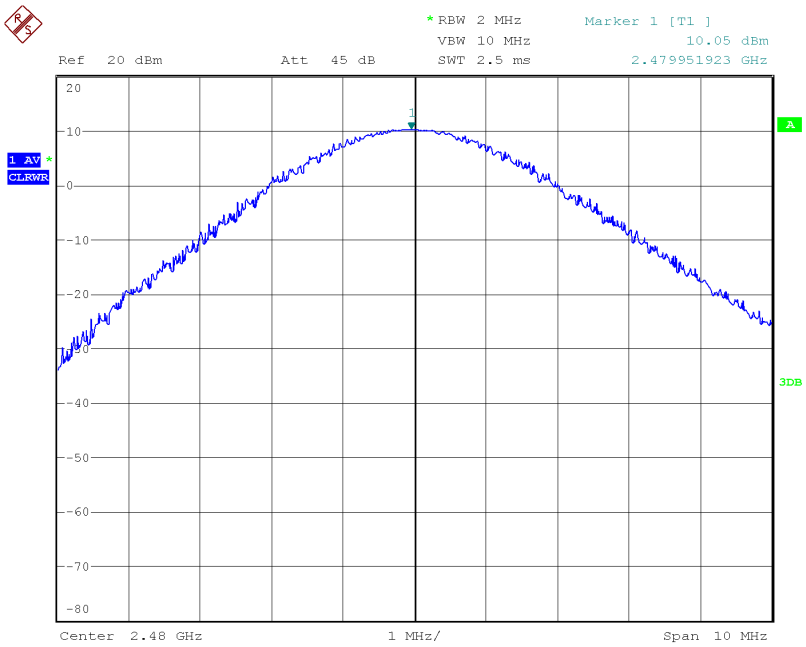

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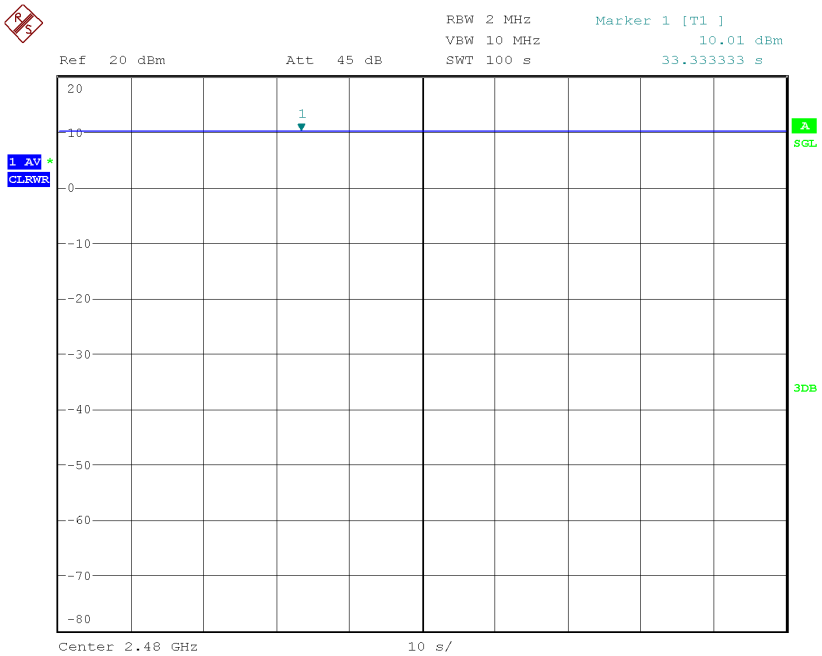

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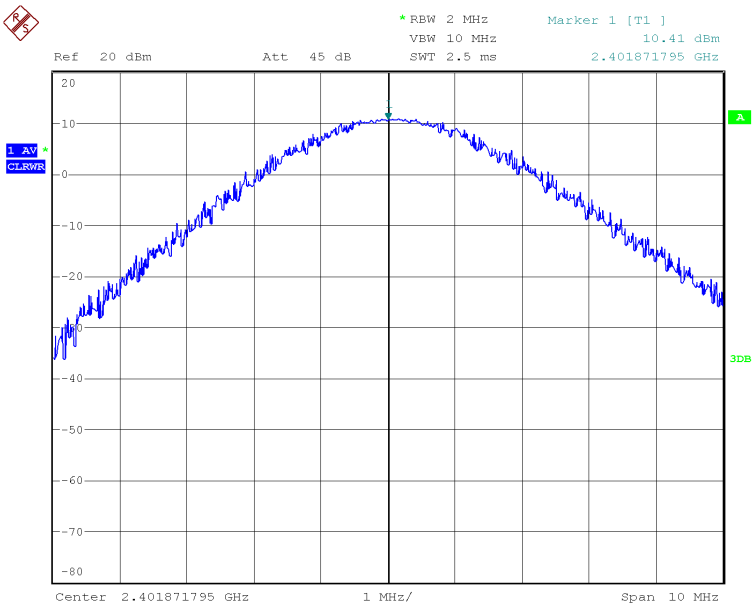
BLE 1 MHz



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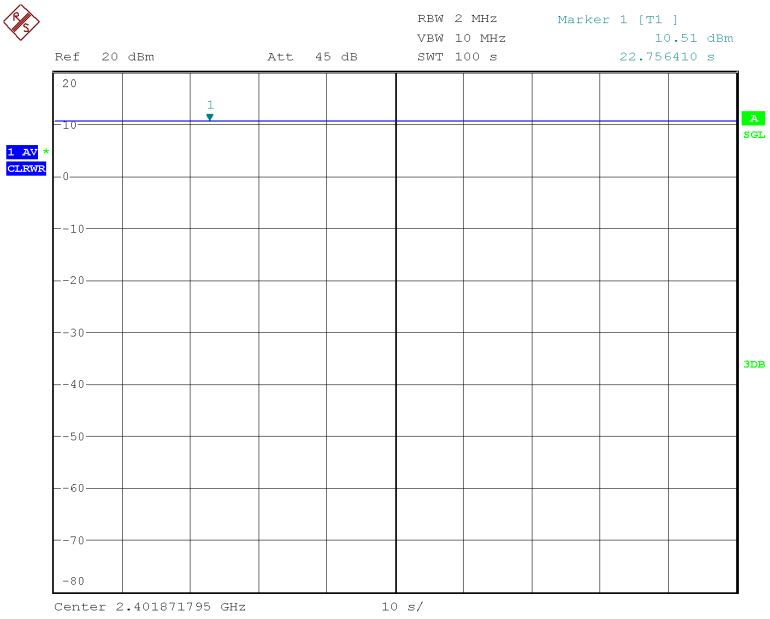

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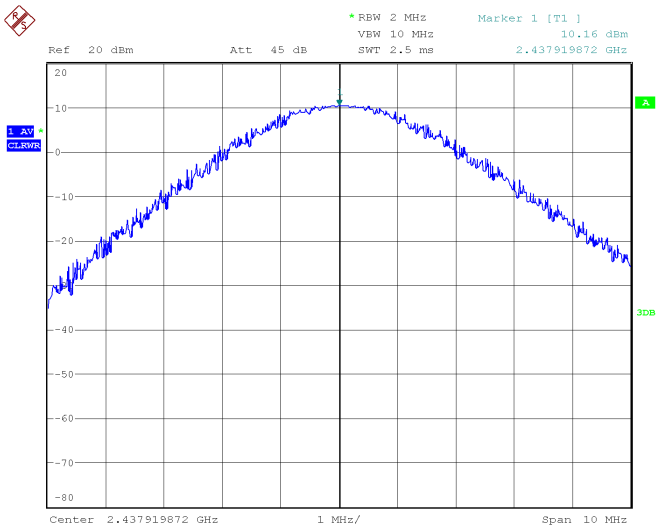

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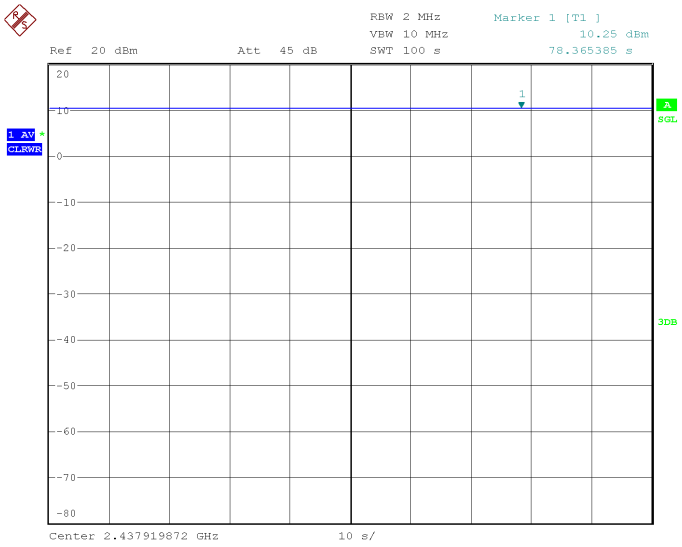

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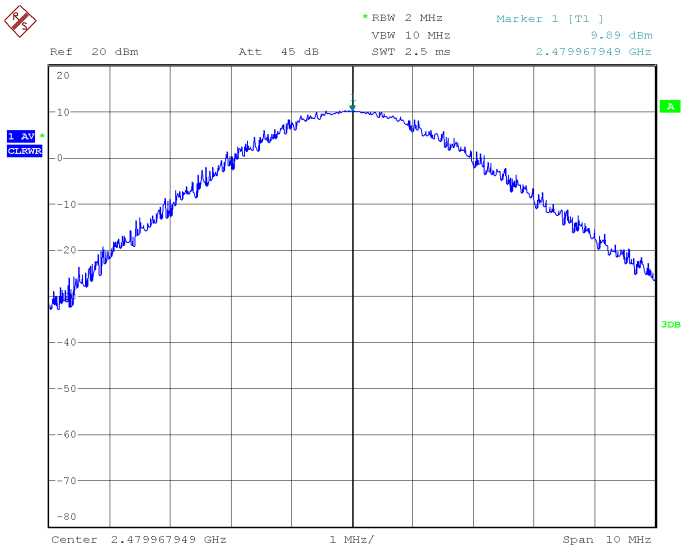

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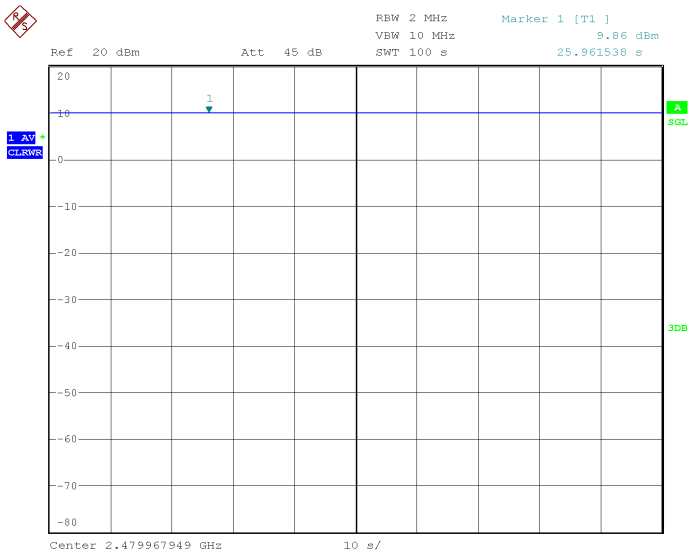

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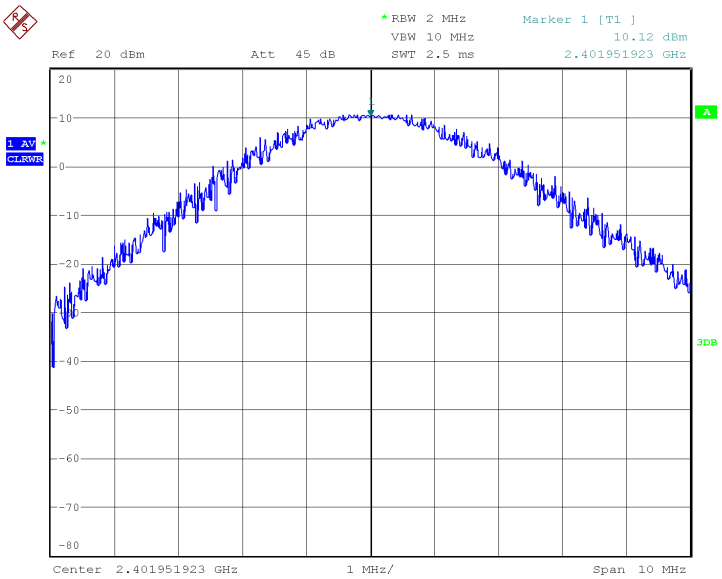
BLE 2 MHz



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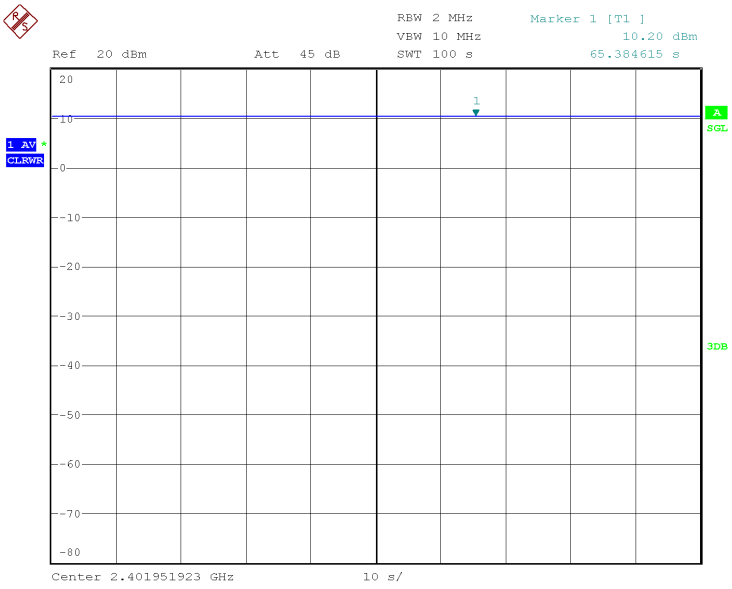

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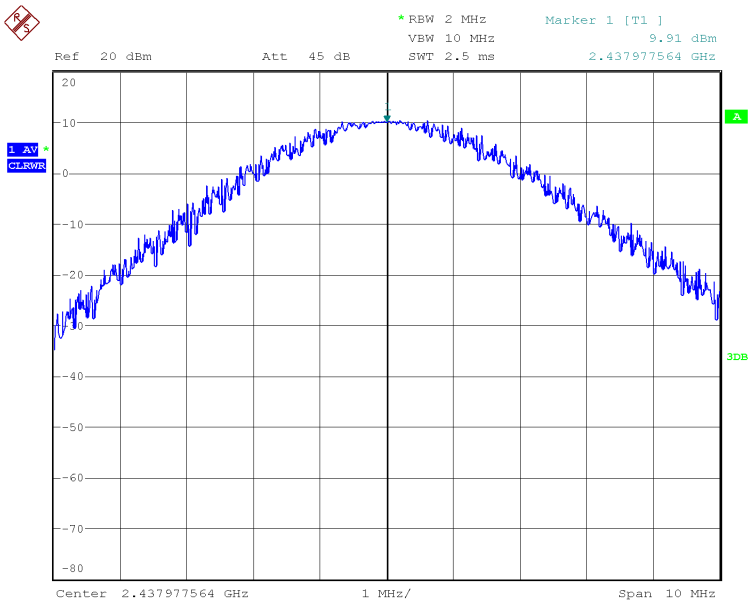

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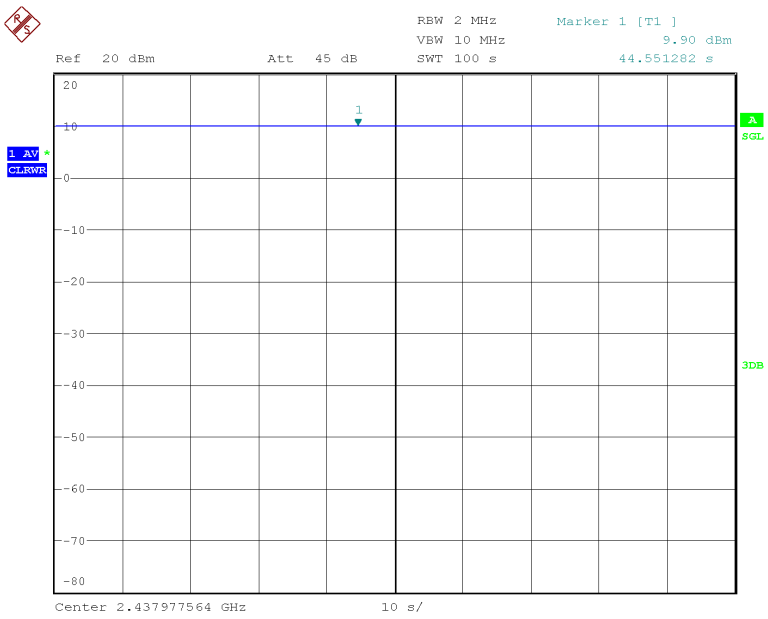

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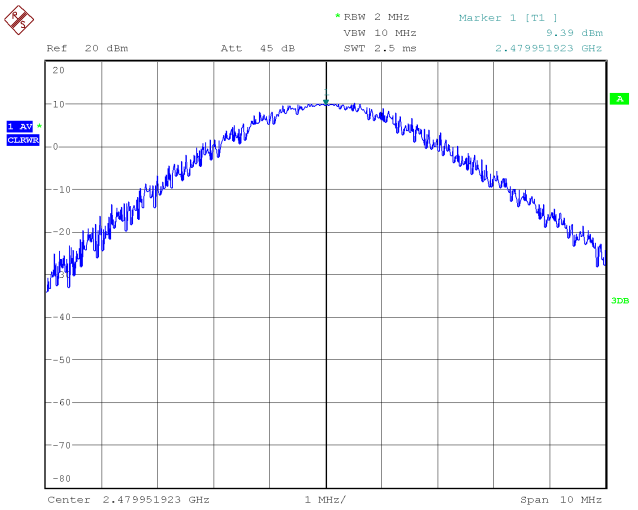

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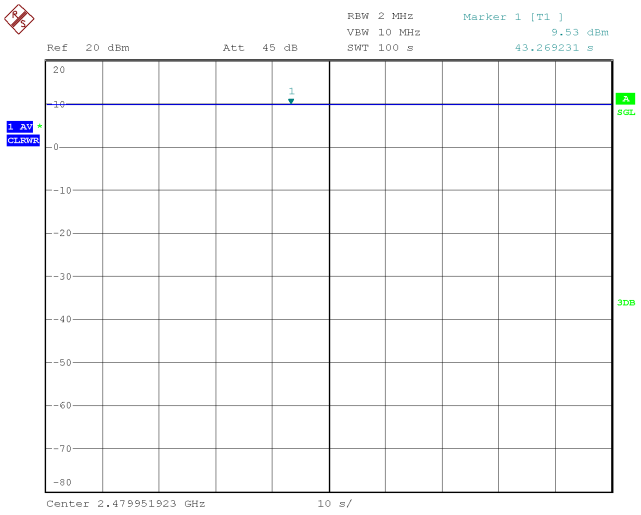

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