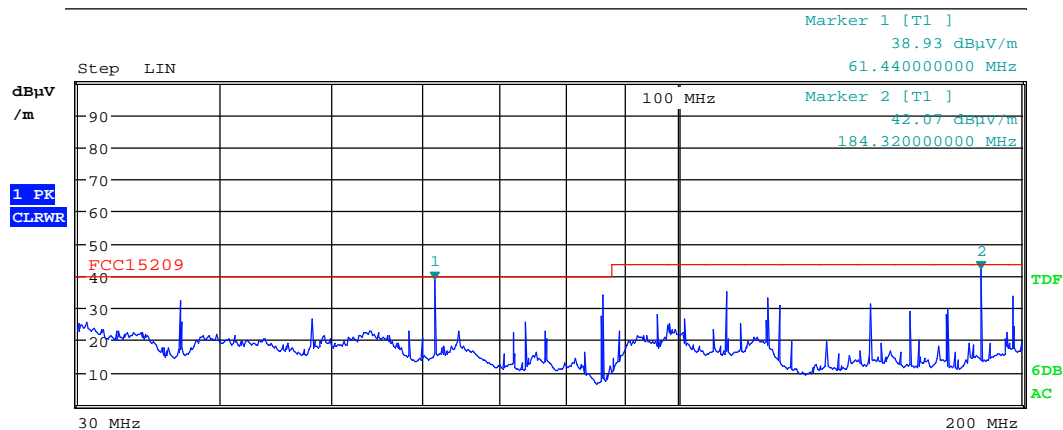
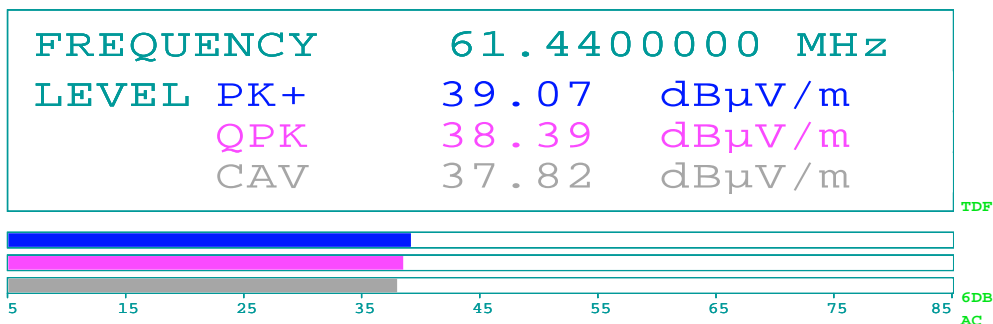




Att 10 dB RBW 120 kHz  
MT 1 s  
PREAMP OFF

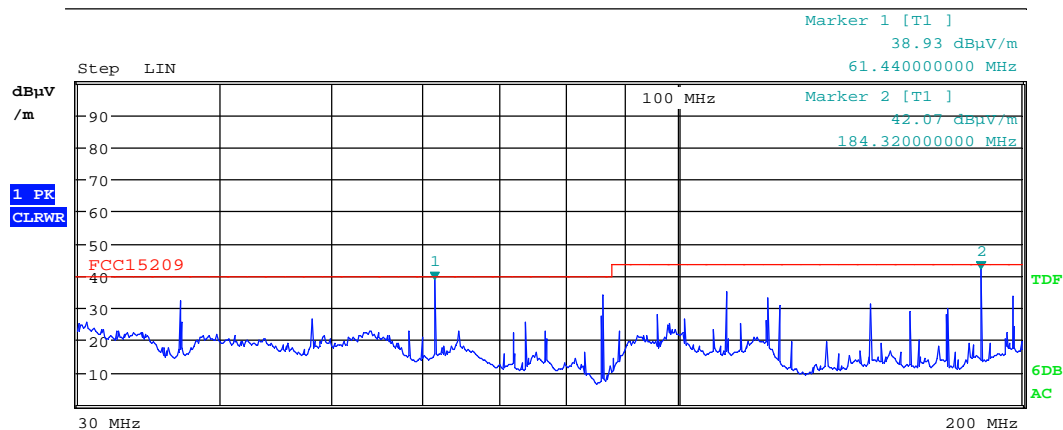
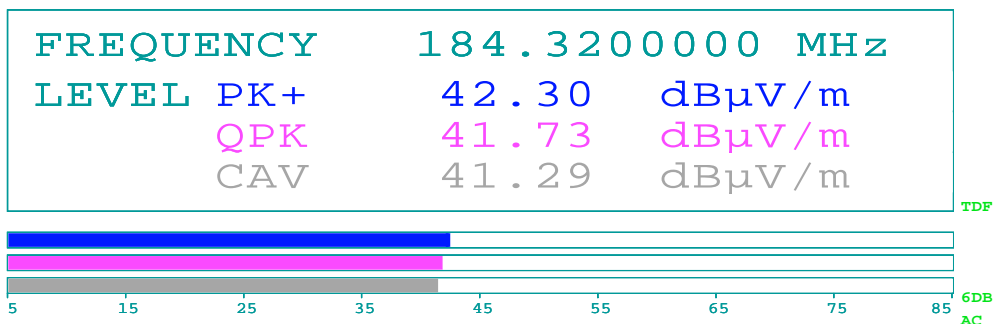


Date: 19.SEP.2018 18:07:49

VP: QP at 61.44MHz

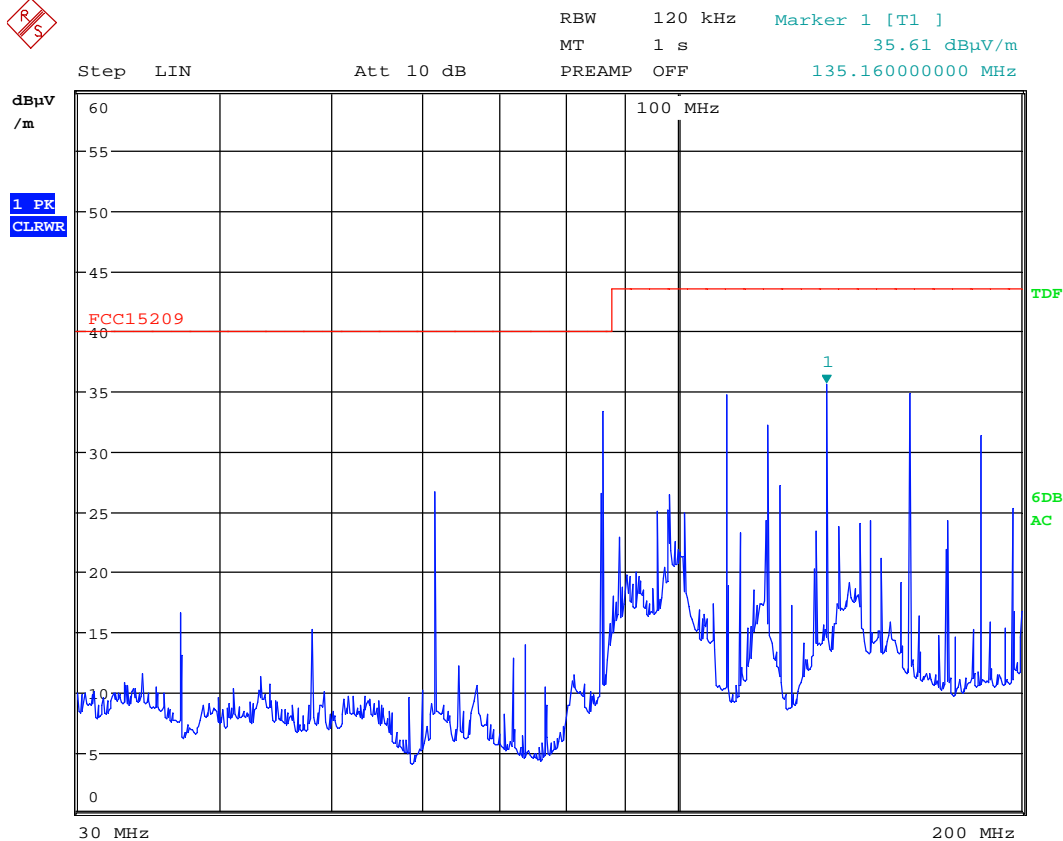


Att 10 dB RBW 120 kHz  
MT 1 s  
PREAMP OFF



Date: 19.SEP.2018 18:09:28

VP: QP at 184.32MHz

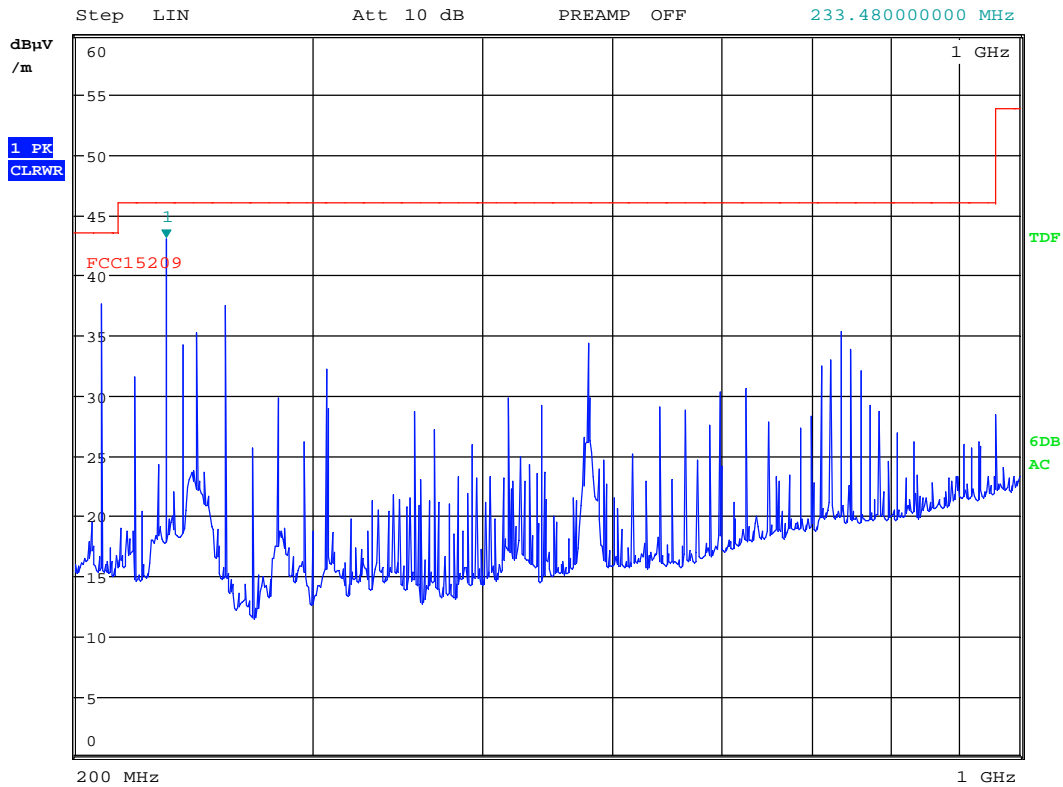


Date: 19.SEP.2018 18:12:45

HP: 30 - 200MHz PK scan



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 43.08 dBμV/m  
PREAMP OFF 233.480000000 MHz



Date: 19.SEP.2018 18:31:07

VP: 200 - 1000MHz PK scan



MARKER 1

442.36 MHz

Step LIN Att 10 dB

RBW 100 kHz

MT 30 ms

PREAMP OFF

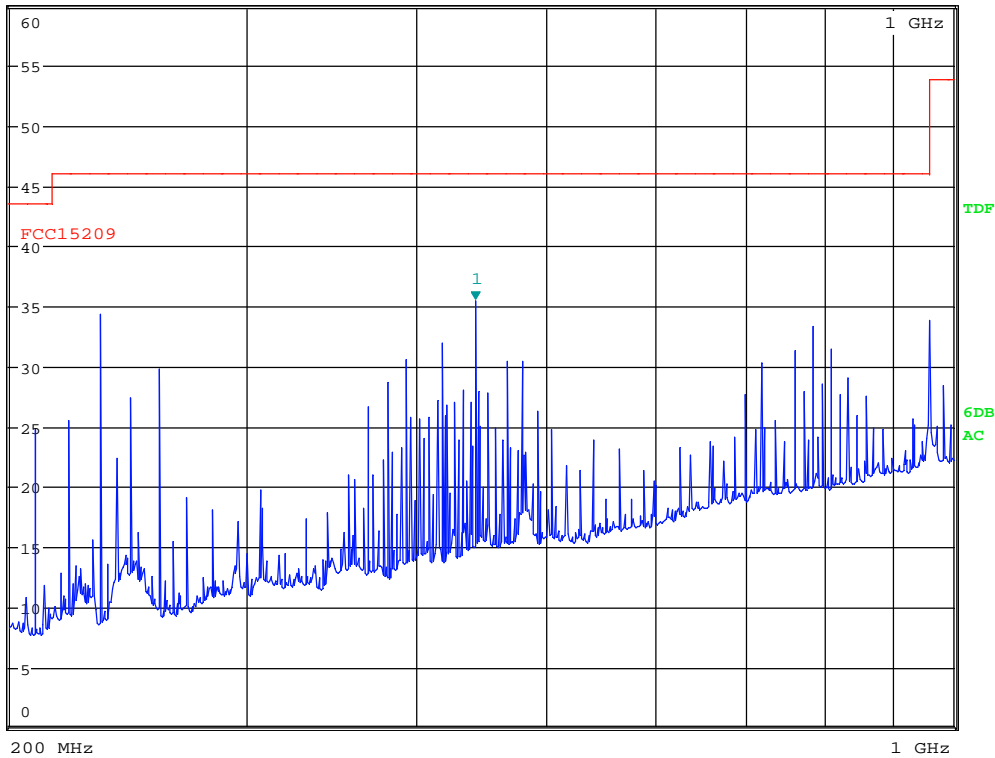
Marker 1 [T1]

35.45 dBμV/m

442.36000000 MHz

dBμV  
/m

1 PK  
CLRWR



Date: 19.SEP.2018 18:42:19

HP: 200 - 1000MHz PK scan

### 3.10 Radiated Emissions, above 1GHz

FCC 15.205, 15.209

ISED RSS-GEN, Issue 4, Clause 8.9

Test Results: Complies

Radiated Emissions, 1-40 GHz

Measuring distance 3m up to 18 GHz, 1m above 18 GHz.

Antenna A and Antenna B:

Frequency	RF channel	Dist. corr. factor	Field strength, Peak Detector	Duty cycle corr. factor	Limit	Margin
GHz	L,M,H	dB	dB $\mu$ V/m	dB	dB $\mu$ V/m	dB
1 - 18	L	0	None detected	/	54	/
1 - 18	M	0	None detected	/	54	/
1 - 18	H	0	None detected	/	54	/
18 - 40	L,M,H	-9.5	None detected	/	54	/

Average Detector values are calculated from Peak values by Duty Cycle Correction Factor.

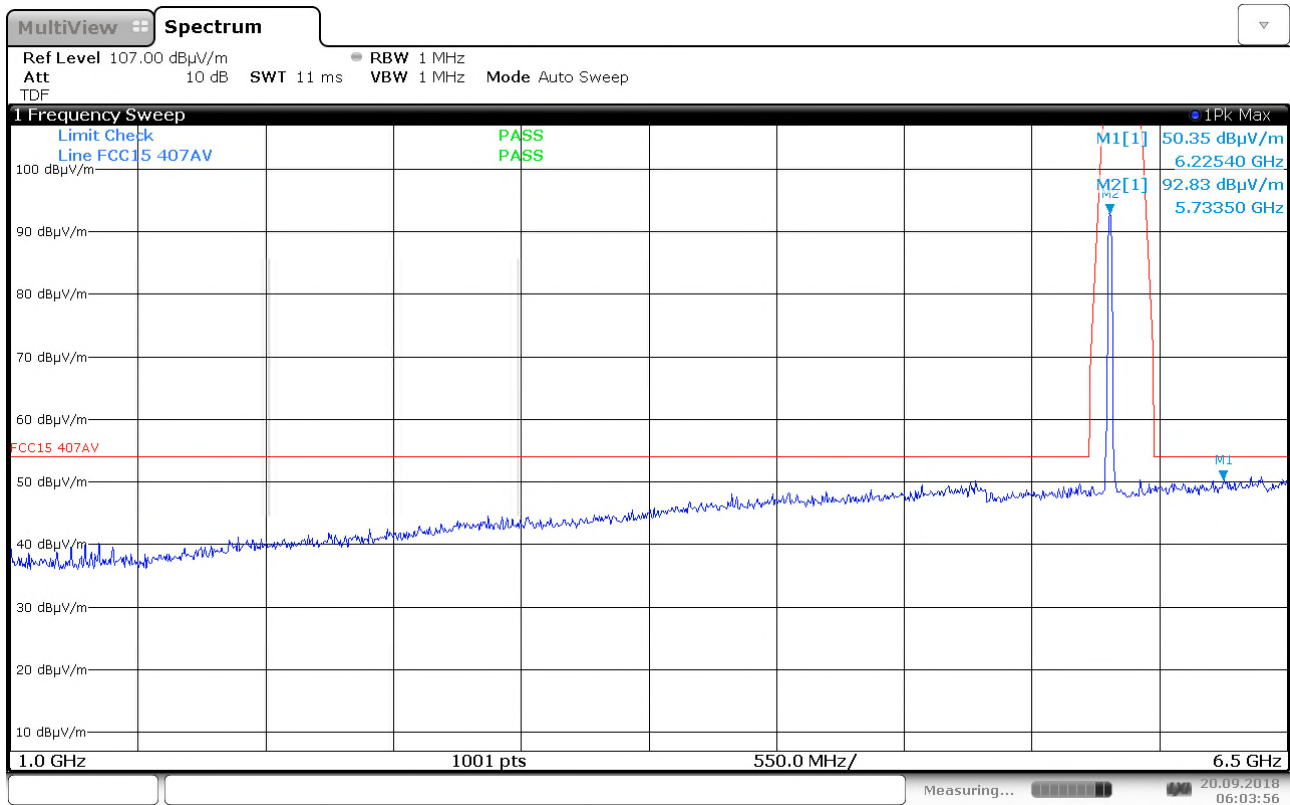
Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

See plots (The PK scan complies with average limit )

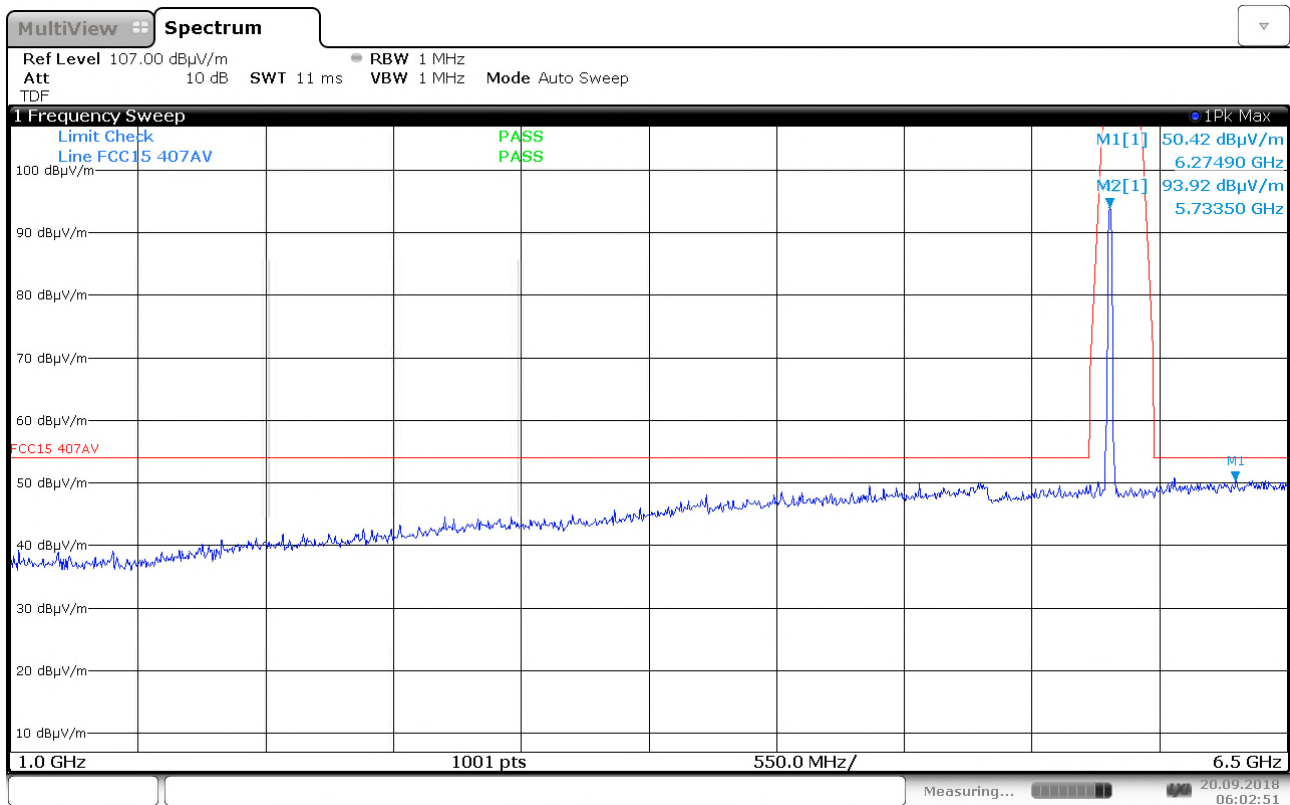
#### Requirements/Limit

<b>FCC</b>	Part 15.209 @ frequencies defined in §15.205	
<b>ISED</b>	RSS-GEN Issue 4, Clause 8.9 @ frequencies defined in clause 8.10	
	<b>Radiated emission limit @3 meters</b>	
<b>Frequency (MHz)</b>	<b>AV (dB<math>\mu</math>V/m)</b>	<b>Peak (dB<math>\mu</math>V/m)</b>
<b>Above 1 GHz</b>	54.0	74.0

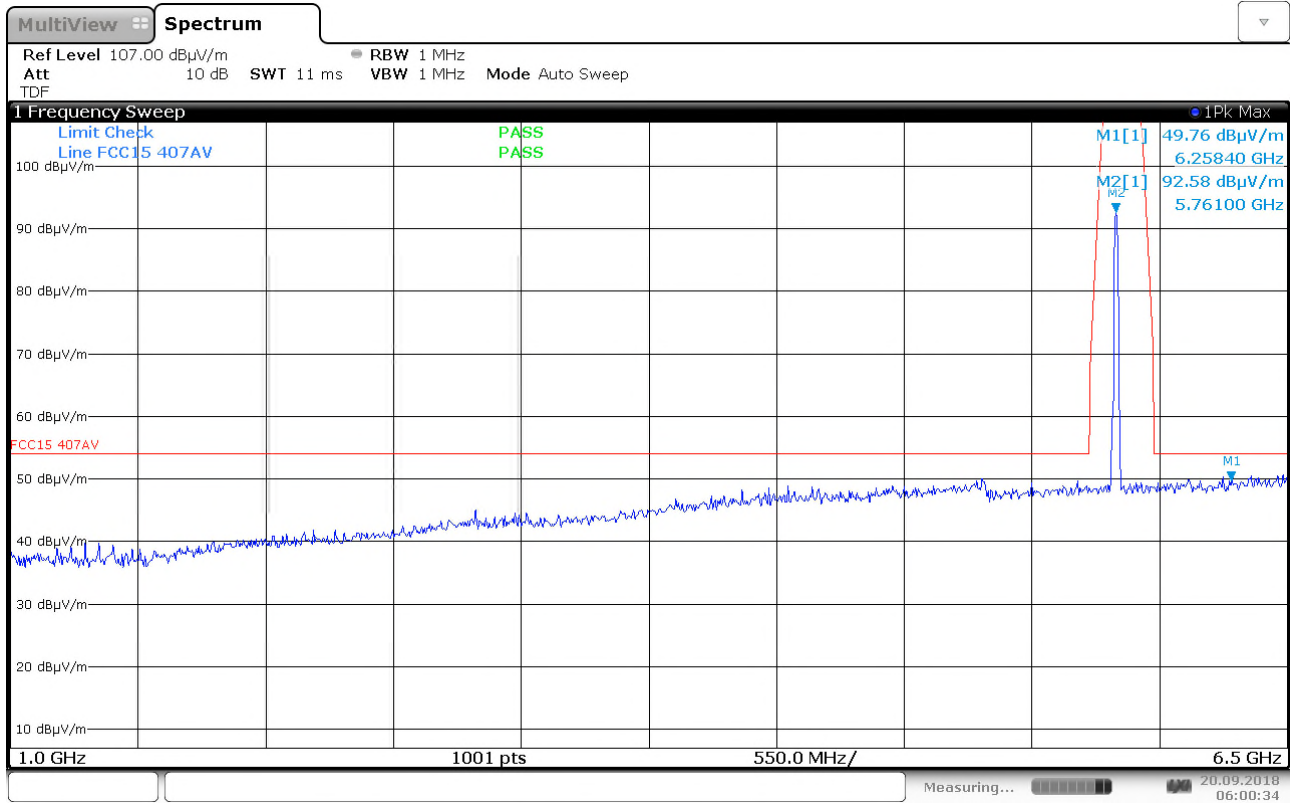
### Antenna A



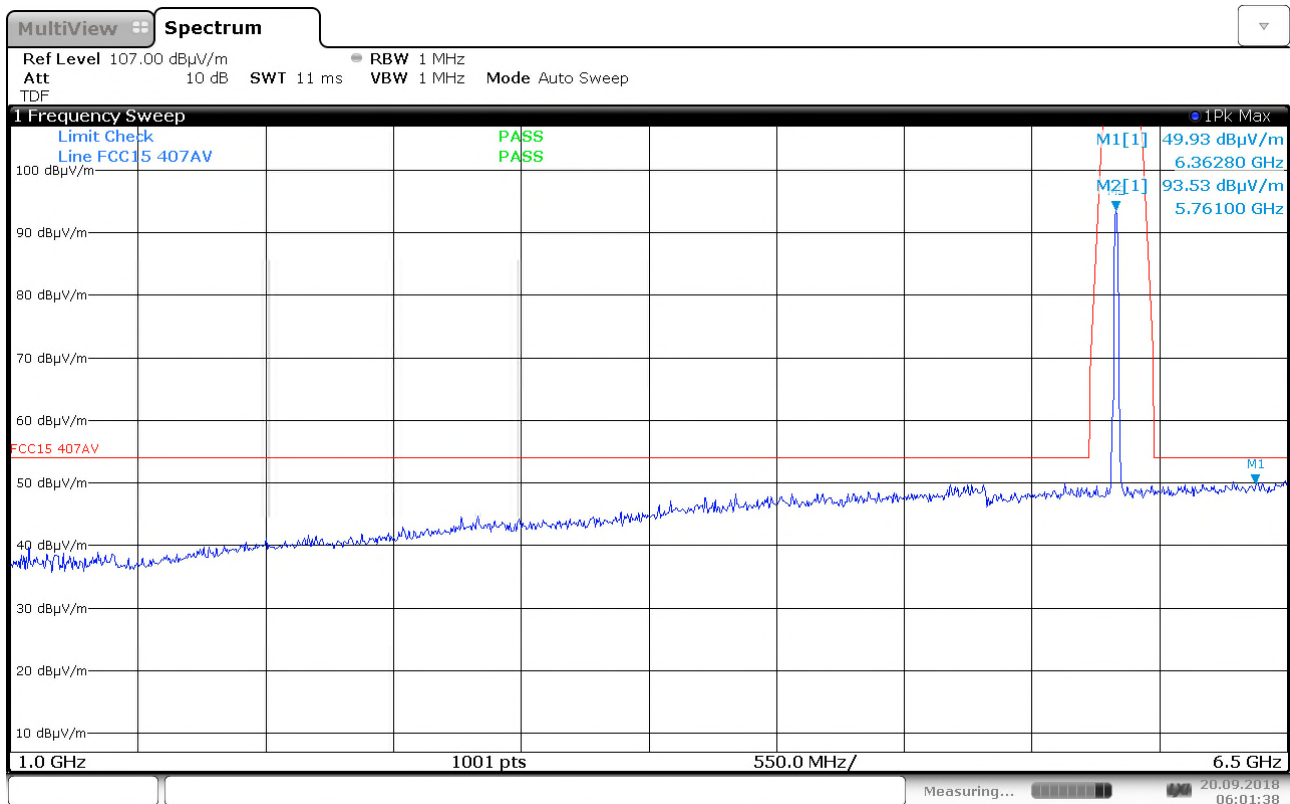
VP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5736MHz



HP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5736MHz

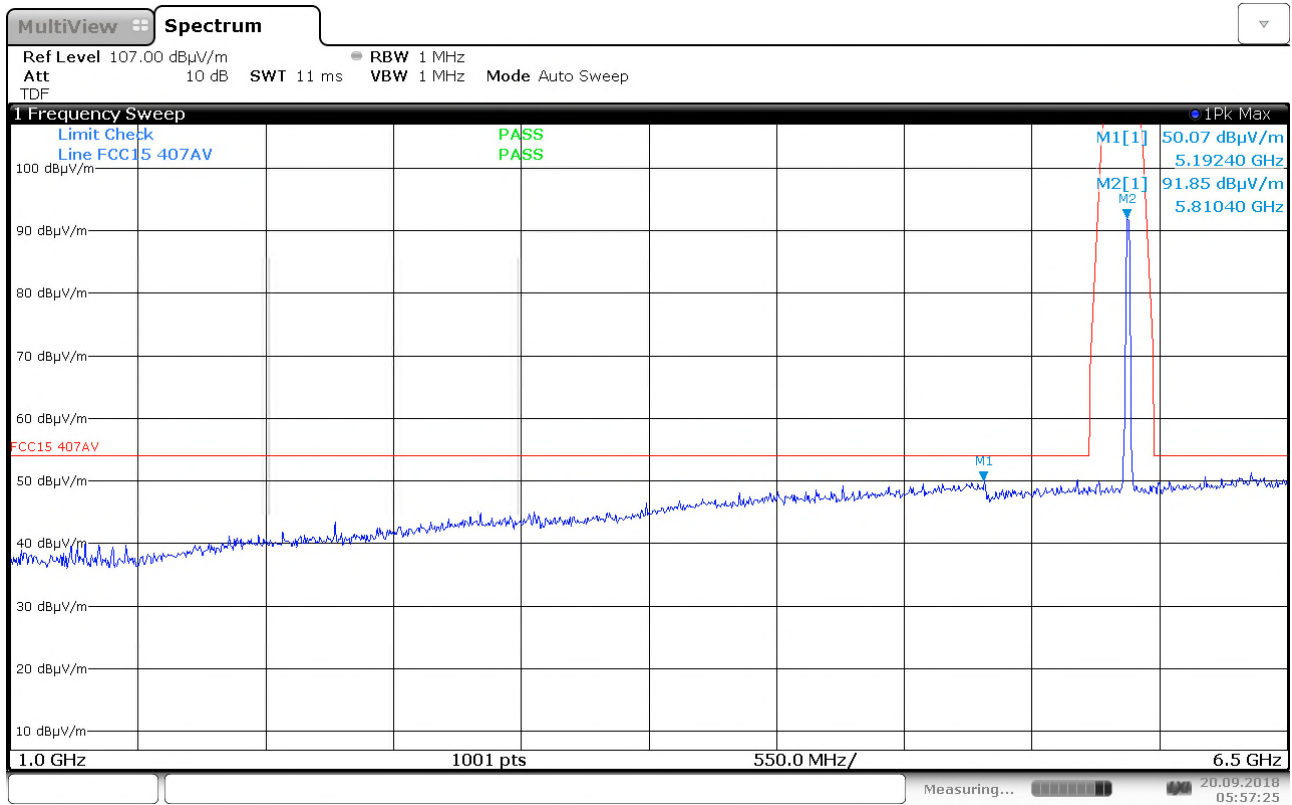


**VP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5762MHz**

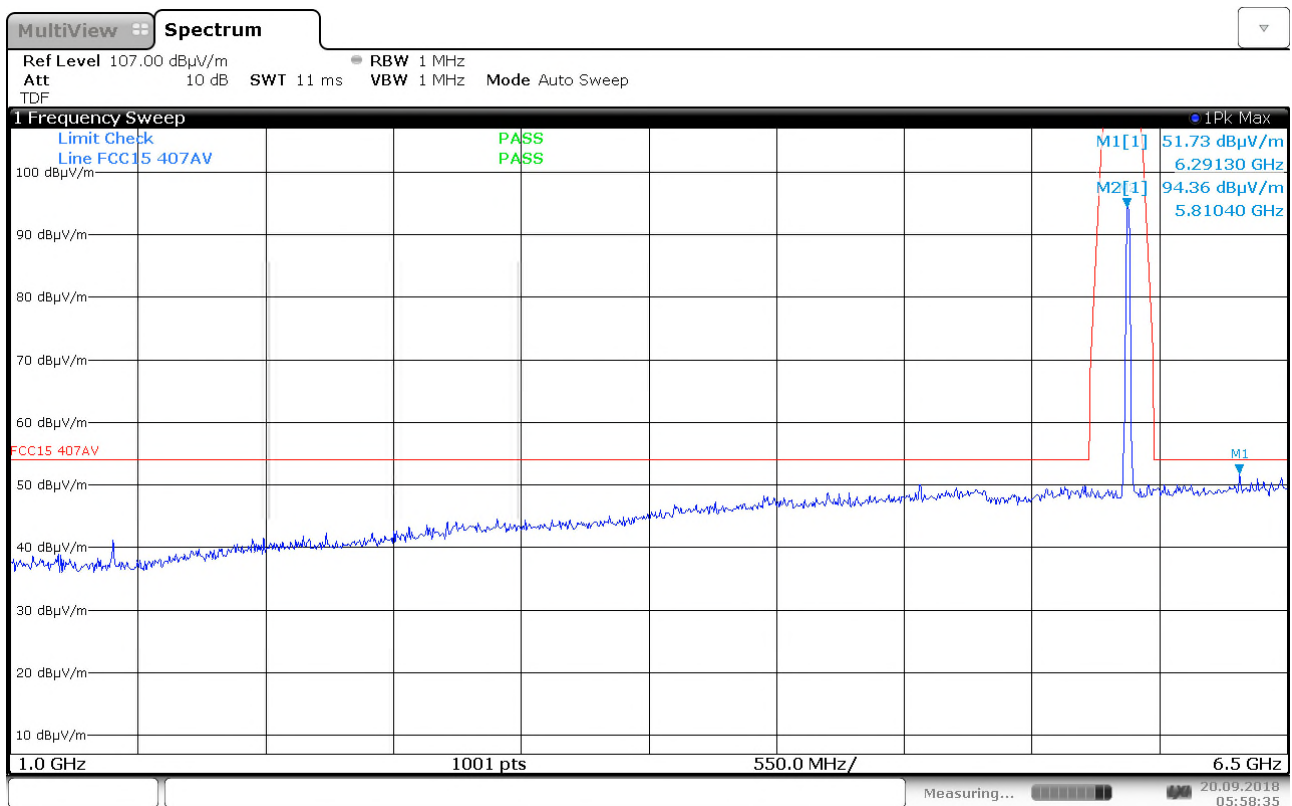


**HP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5762MHz**





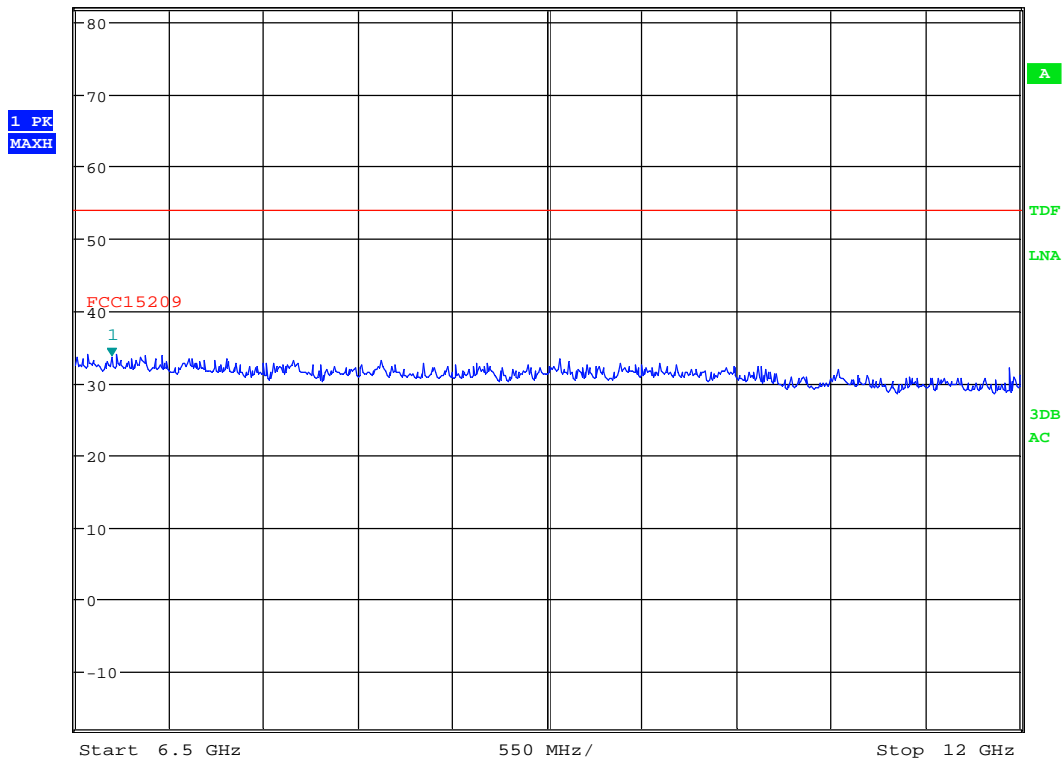
**VP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5814MHz**



**HP: 1 - 6.5GHz @ 3m , PK scan , Ant.A, ch5814MHz**



**MARKER 1**  
6.711538462 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 33.53 dBμV/m  
SWT 35 ms 6.711538462 GHz

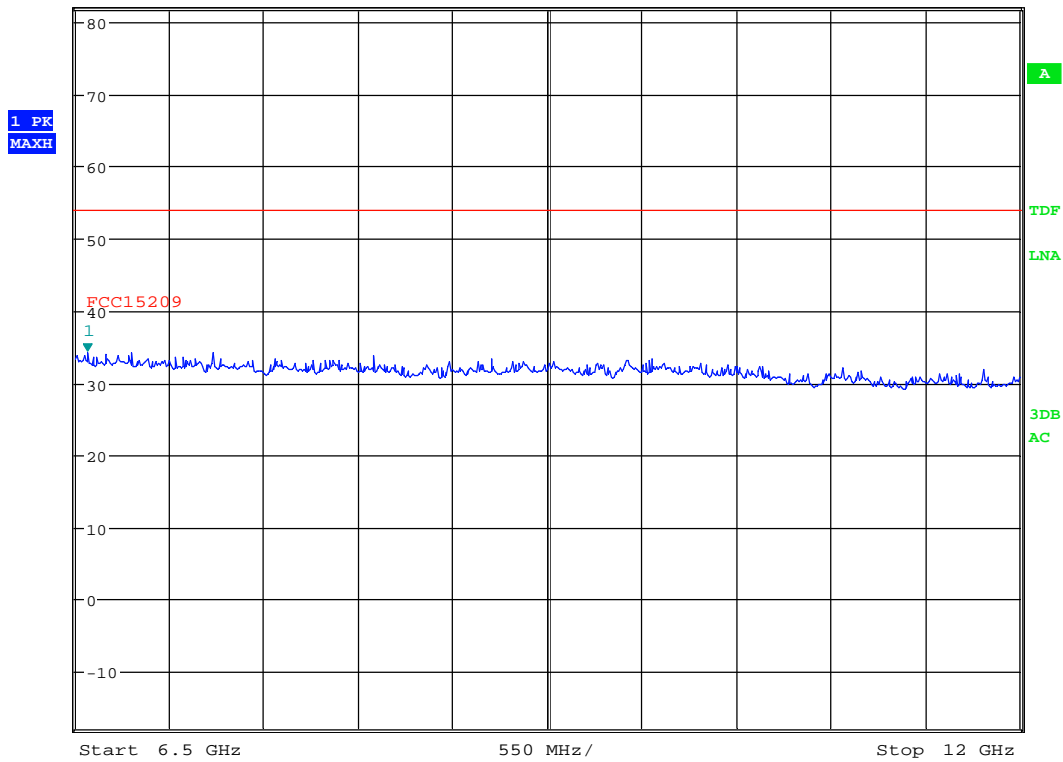


Date: 20.SEP.2018 06:52:55

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5736MHz



**MARKER 1**  
6.570512821 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 34.15 dBμV/m  
SWT 35 ms 6.570512821 GHz



Date: 20.SEP.2018 06:52:01

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5736MHz



**MARKER 1**  
7.143429487 GHz

\*RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

34.78 dBμV/m

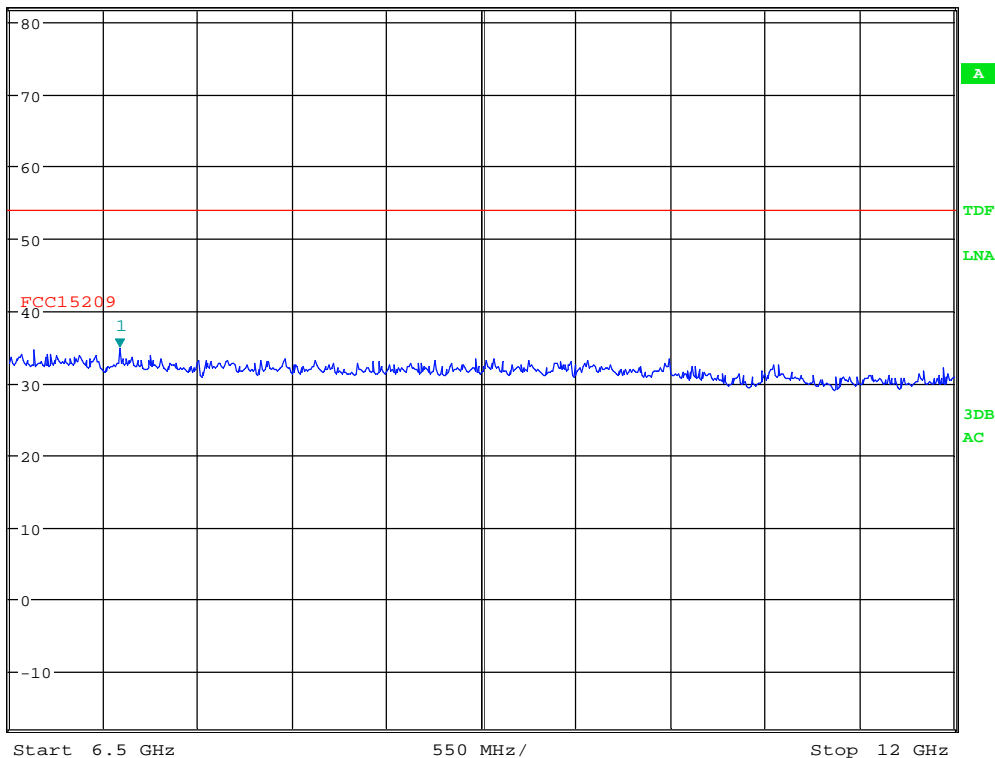
Ref 82 dBμV/m

\*Att 10 dB

SWT 35 ms

7.143429487 GHz

1 PK  
MAXH

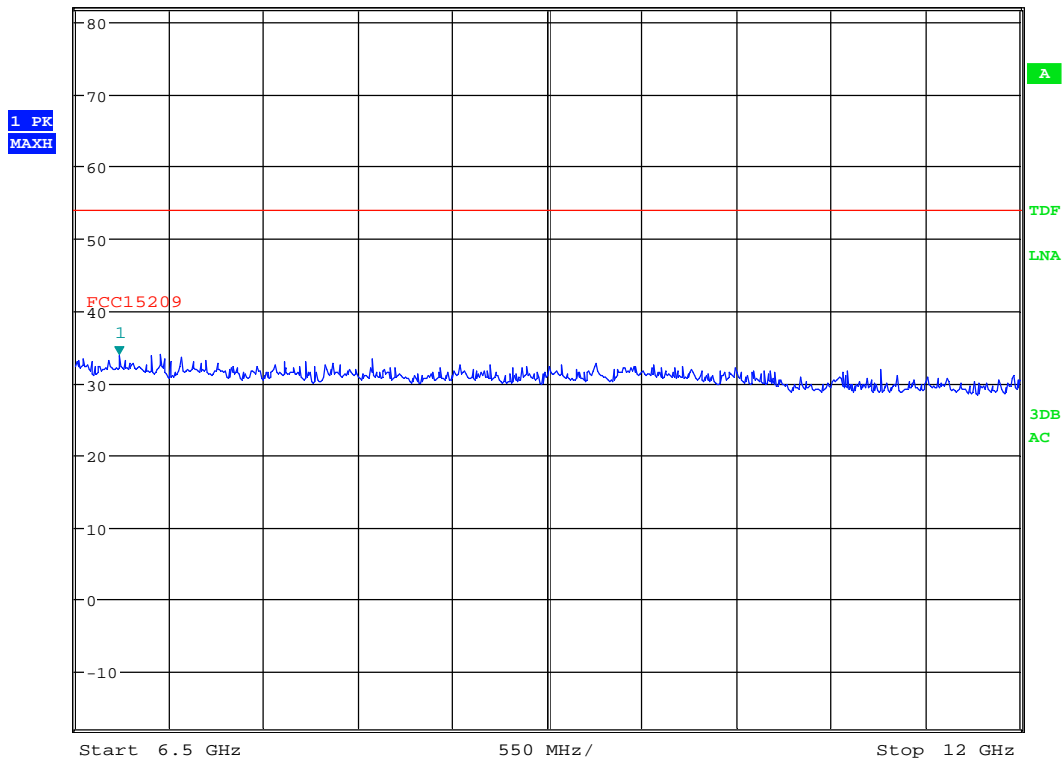


Date: 20.SEP.2018 06:53:26

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5762MHz



**MARKER 1**  
6.755608974 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 33.82 dBμV/m  
SWT 35 ms 6.755608974 GHz



Date: 20.SEP.2018 06:53:54

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5762MHz



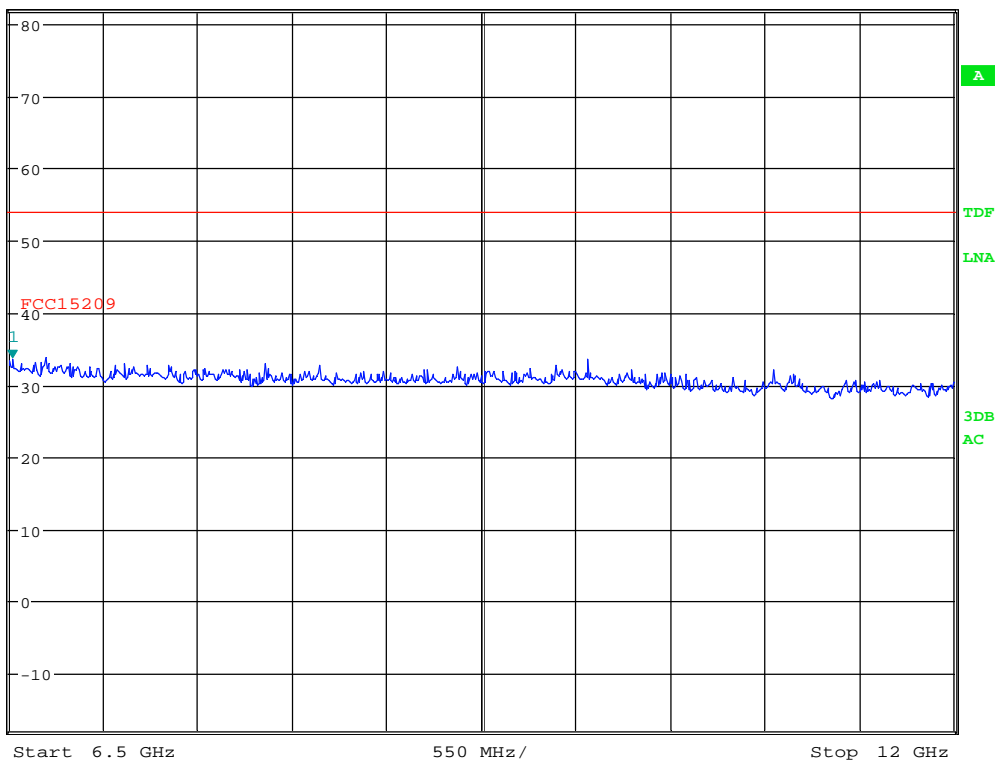
**MARKER 1**  
6.517628205 GHz

\* RBW 1 MHz  
VBW 3 MHz  
SWT 35 ms

Marker 1 [T1]  
33.51 dBμV/m  
6.517628205 GHz

Ref 82 dBμV/m \* Att 10 dB

1 PK  
MAXH

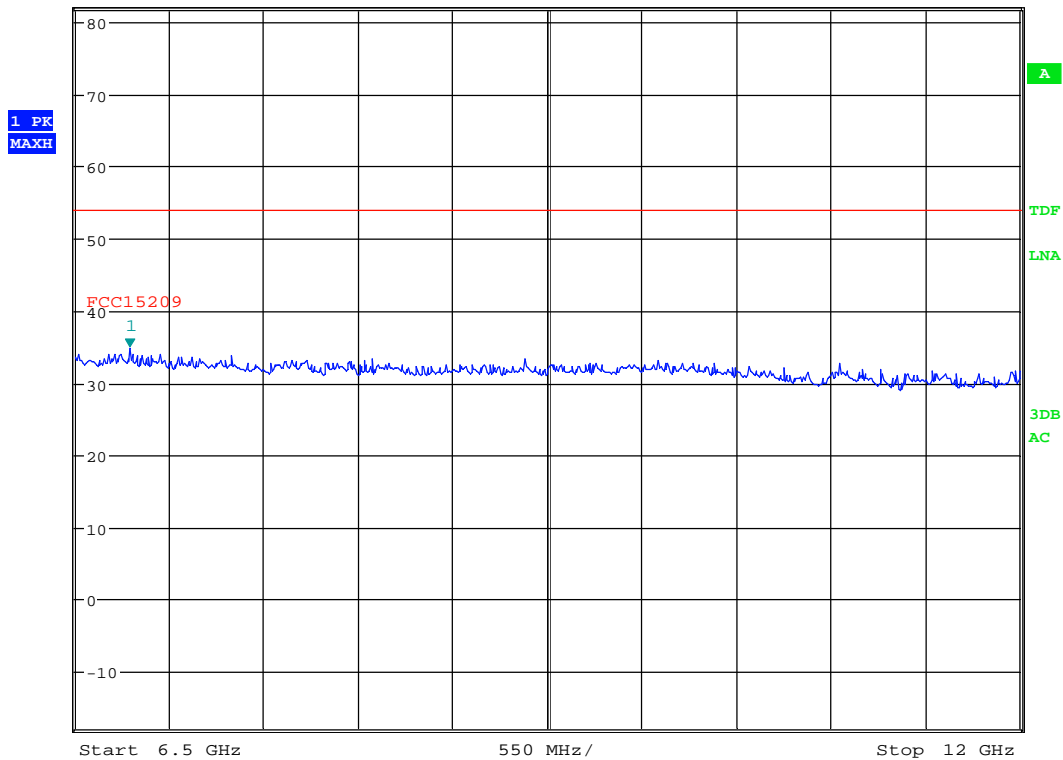


Date: 20.SEP.2018 06:54:56

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5814MHz



**MARKER 1**  
6.817307692 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 34.83 dBμV/m  
SWT 35 ms 6.817307692 GHz



Date: 20.SEP.2018 06:54:34

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.A, ch5814MHz



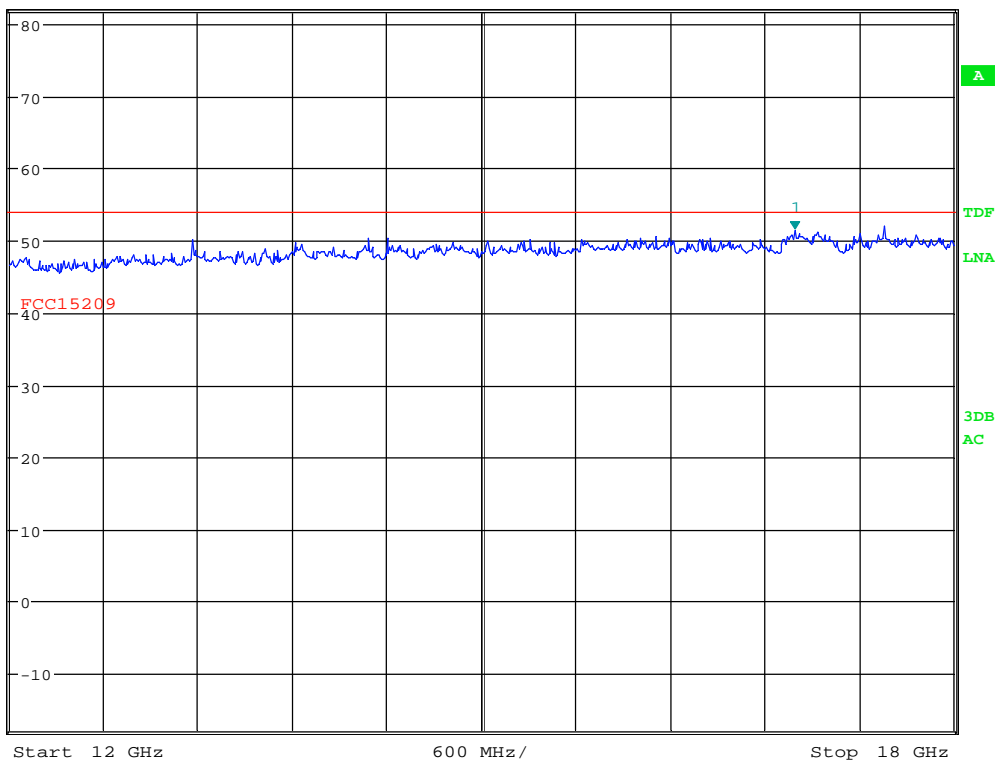
**MARKER 1**  
16.99038462 GHz

\* RBW 1 MHz  
VBW 3 MHz  
SWT 35 ms

Marker 1 [T1]  
51.37 dBμV/m  
16.990384615 GHz

Ref 82 dBμV/m \* Att 10 dB

1 PK  
MAXH



Date: 20.SEP.2018 07:09:19

VP: 12 - 18GHz @ 3m , PK scan , Ant.A





**MARKER 1**  
17.55769231 GHz

\* RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

51.97 dBμV/m

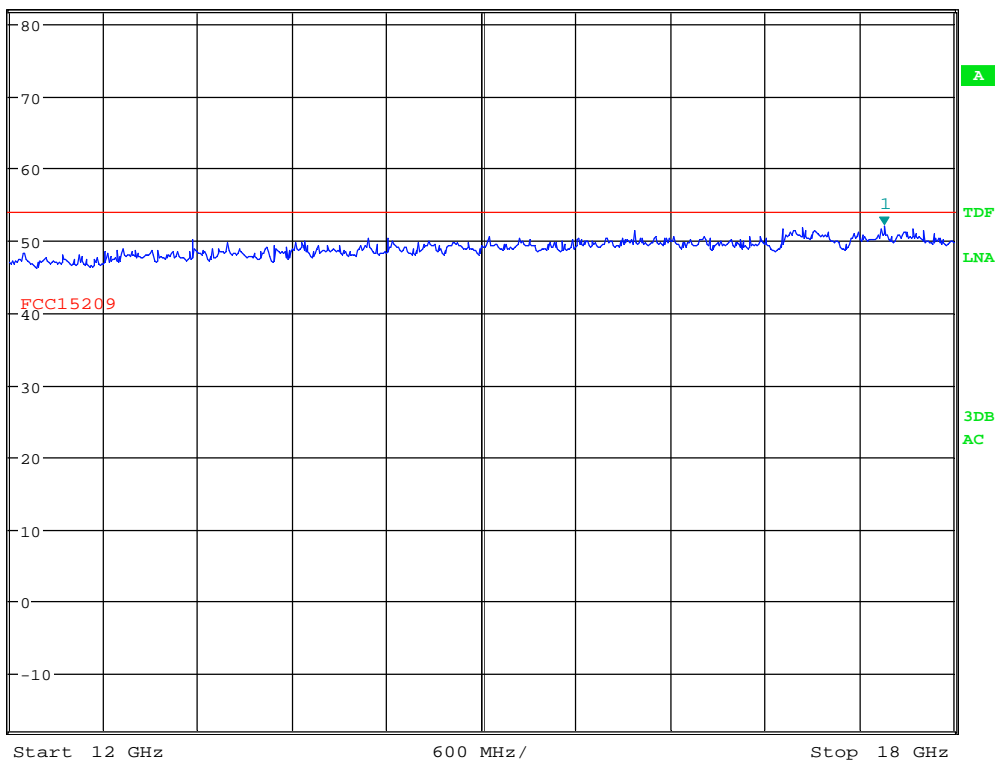
Ref 82 dBμV/m

\* Att 10 dB

SWT 35 ms

17.557692308 GHz

1 PK  
MAXH



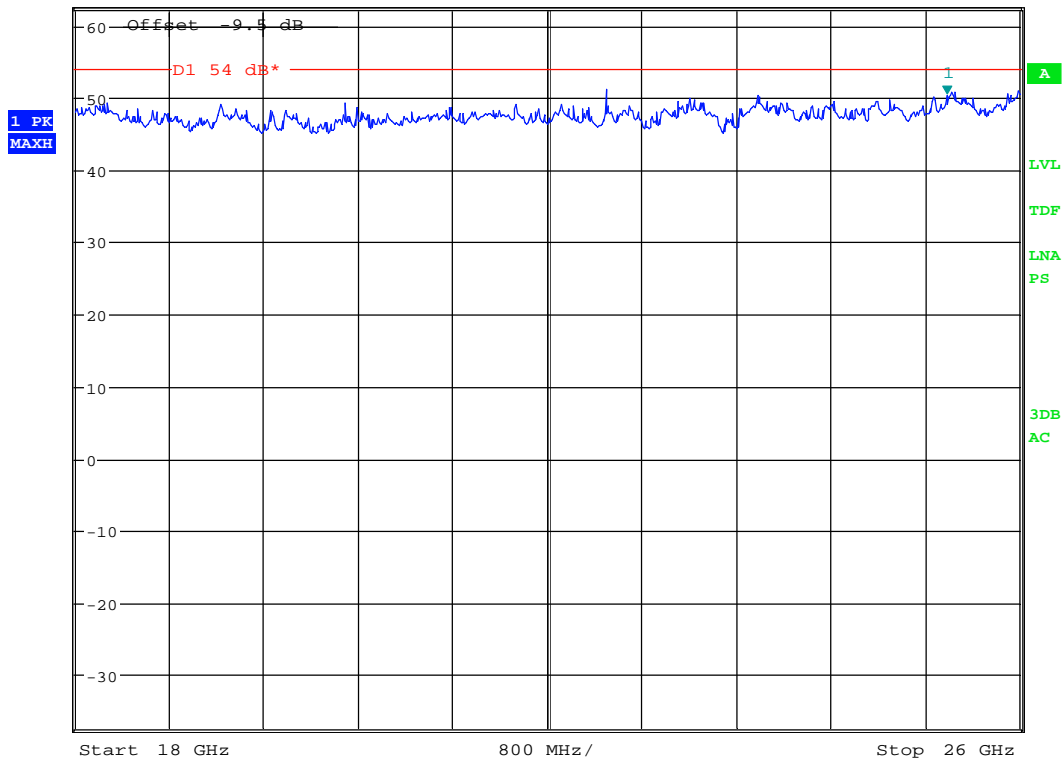
Date: 20.SEP.2018 07:10:53

HP: 12 - 18GHz @ 3m , PK scan , Ant.A



**MARKER 1**  
25.38461538 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 50.48 dBμV/m  
SWT 50 ms 25.384615385 GHz



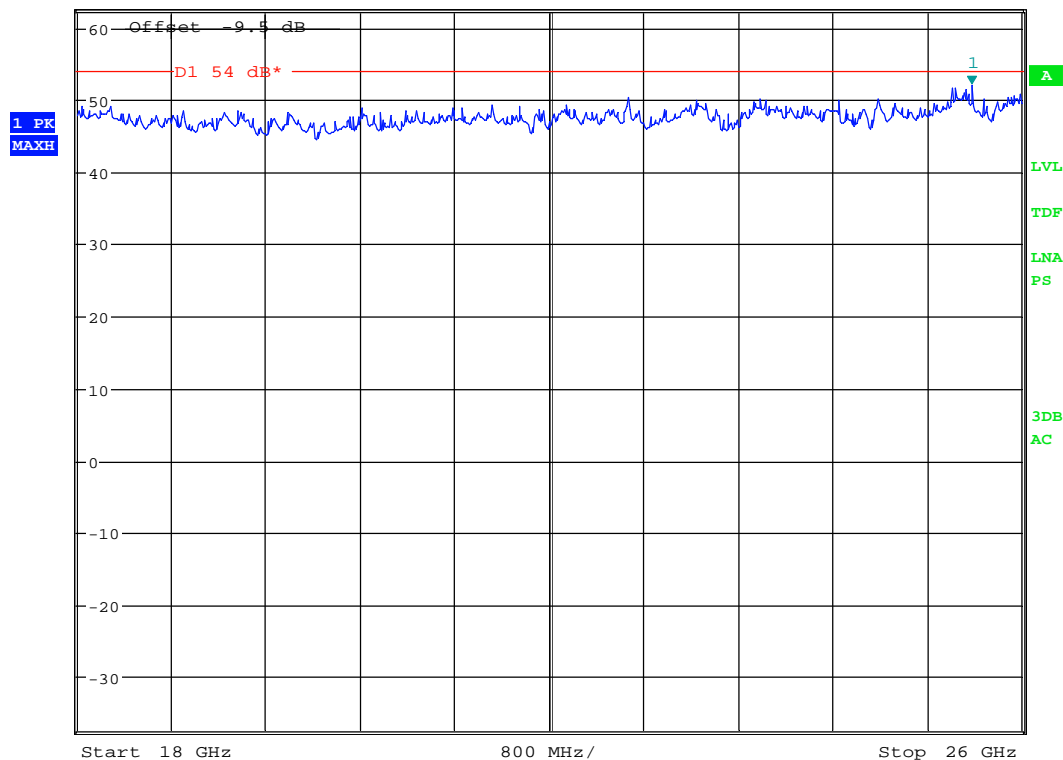
Date: 20.SEP.2018 08:04:22

VP: 18 - 26GHz @ 1m , PK scan , Ant.A



**MARKER 1**  
25.57692308 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 52.10 dBμV/m  
SWT 50 ms 25.576923077 GHz



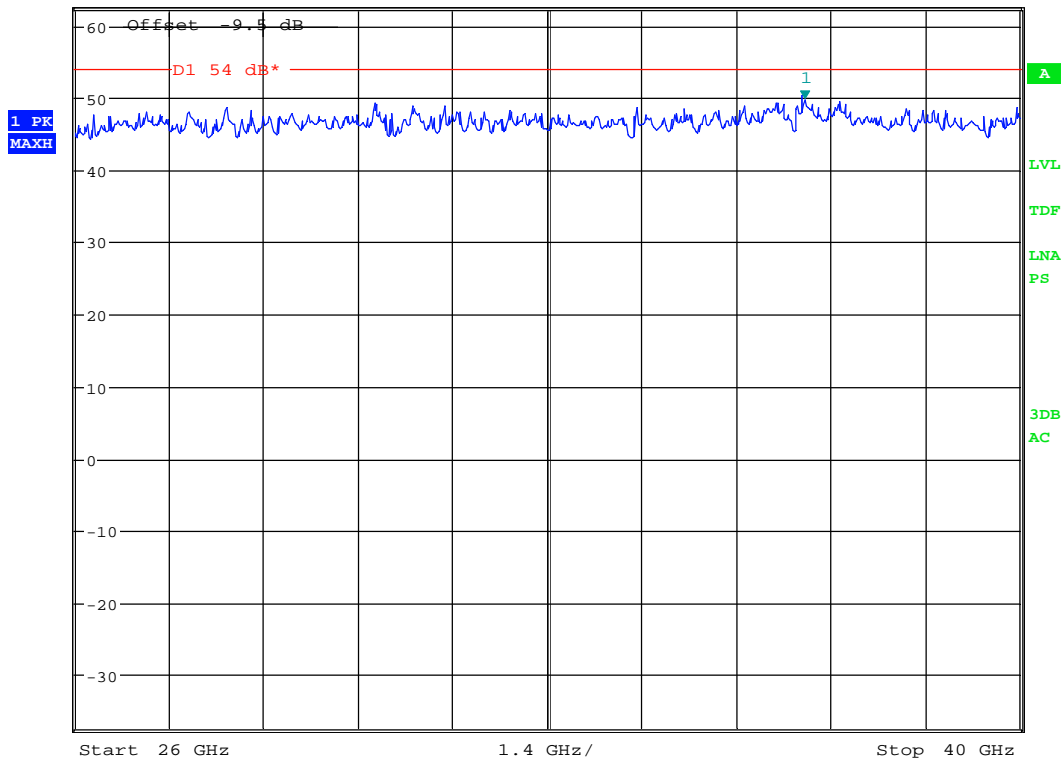
Date: 20.SEP.2018 08:05:26

HP: 18 - 26GHz @ 1m , PK scan , Ant.A



**MARKER 1**  
36.81410256 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 49.79 dBμV/m  
SWT 85 ms 36.814102564 GHz



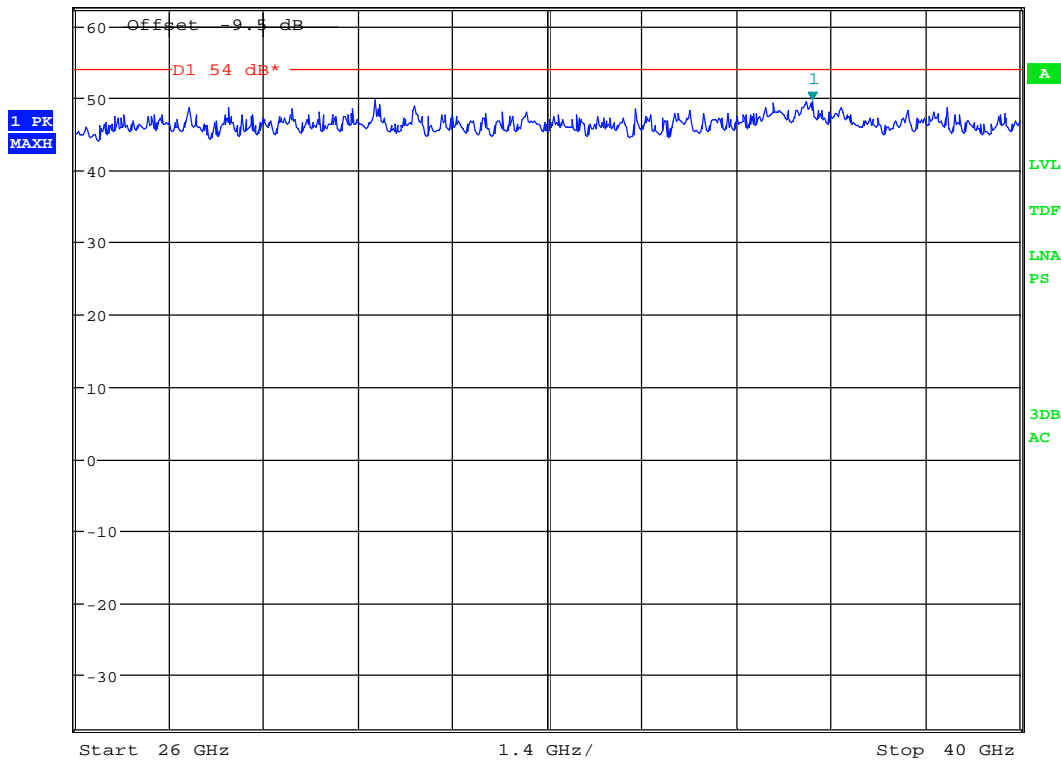
Date: 20.SEP.2018 07:59:13

VP: 26 - 40GHz @ 1m , PK scan , Ant.A



**MARKER 1**  
36.92628205 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

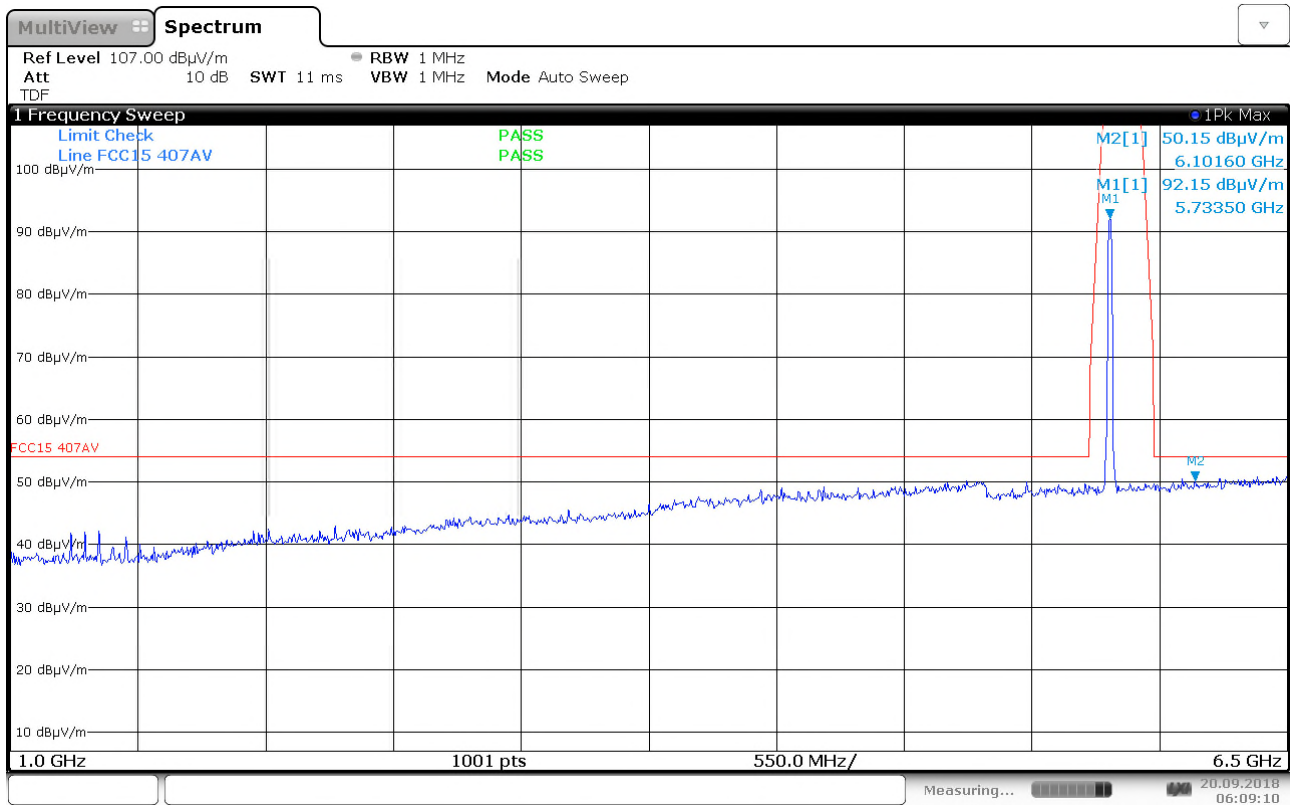
\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 49.63 dBμV/m  
SWT 85 ms 36.926282051 GHz



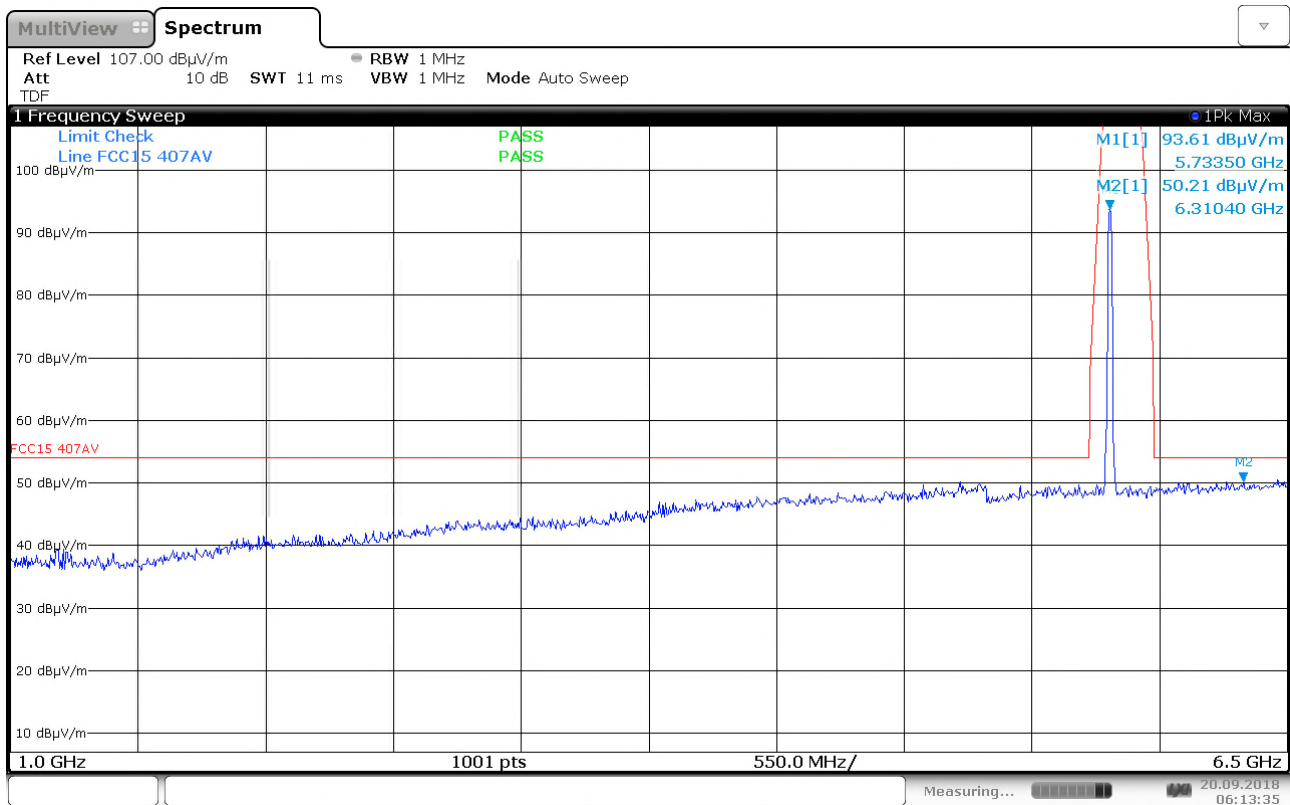
Date: 20.SEP.2018 08:00:06

HP: 26 - 40GHz @ 1m , PK scan , Ant.A

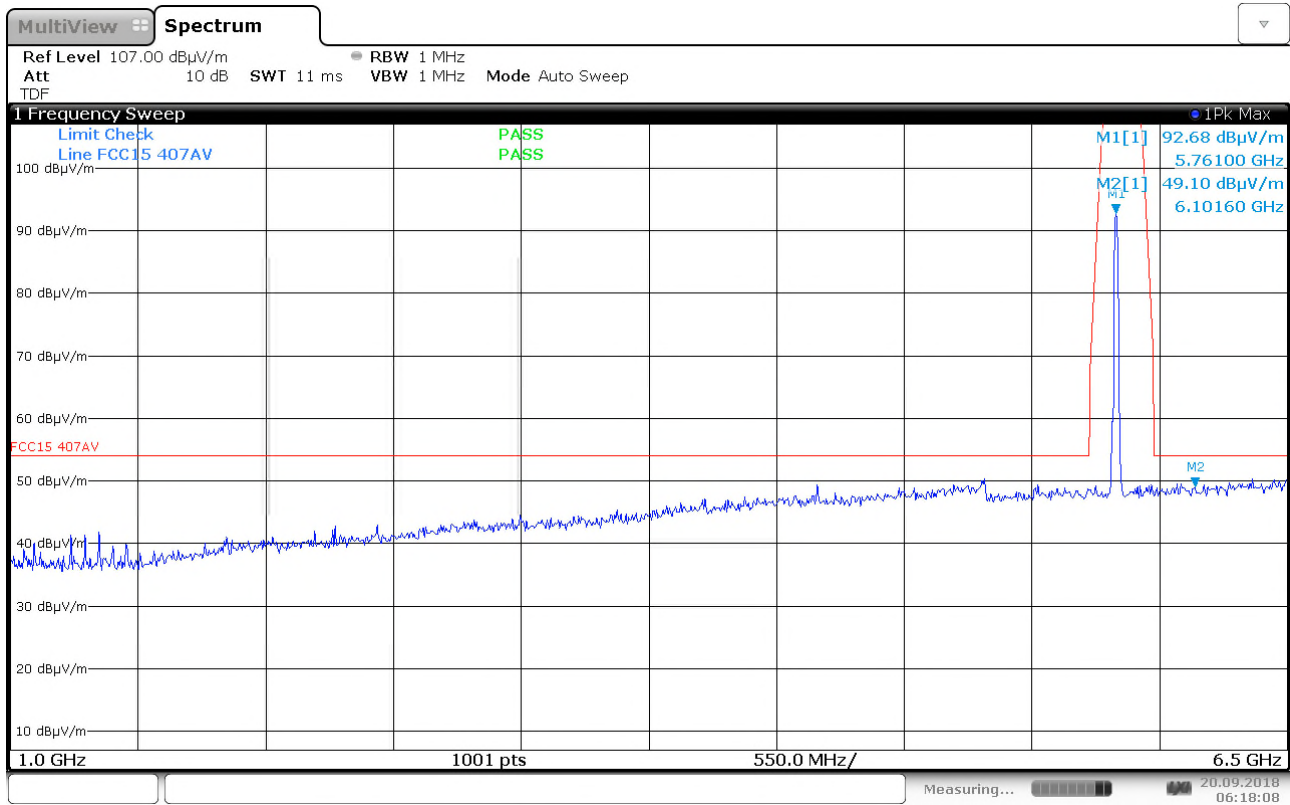
### Antenna B



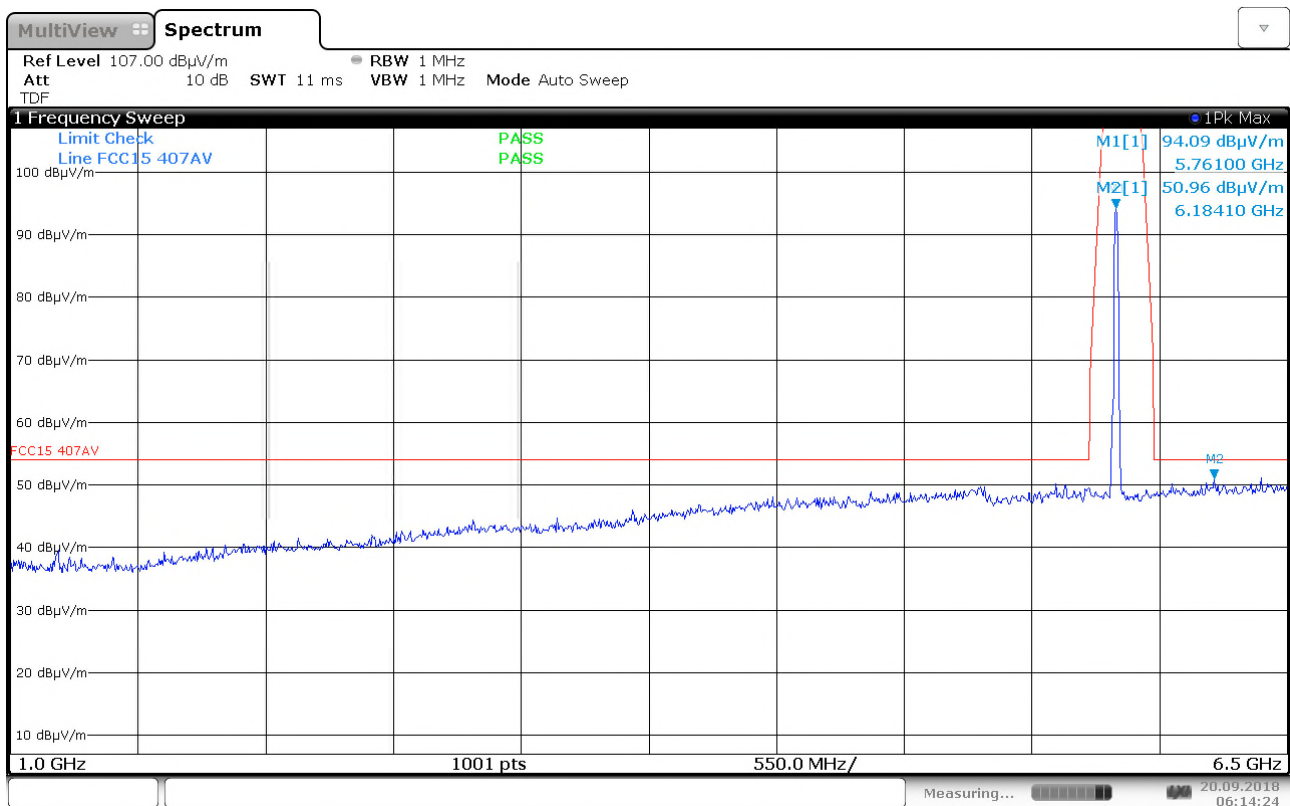
VP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5736MHz



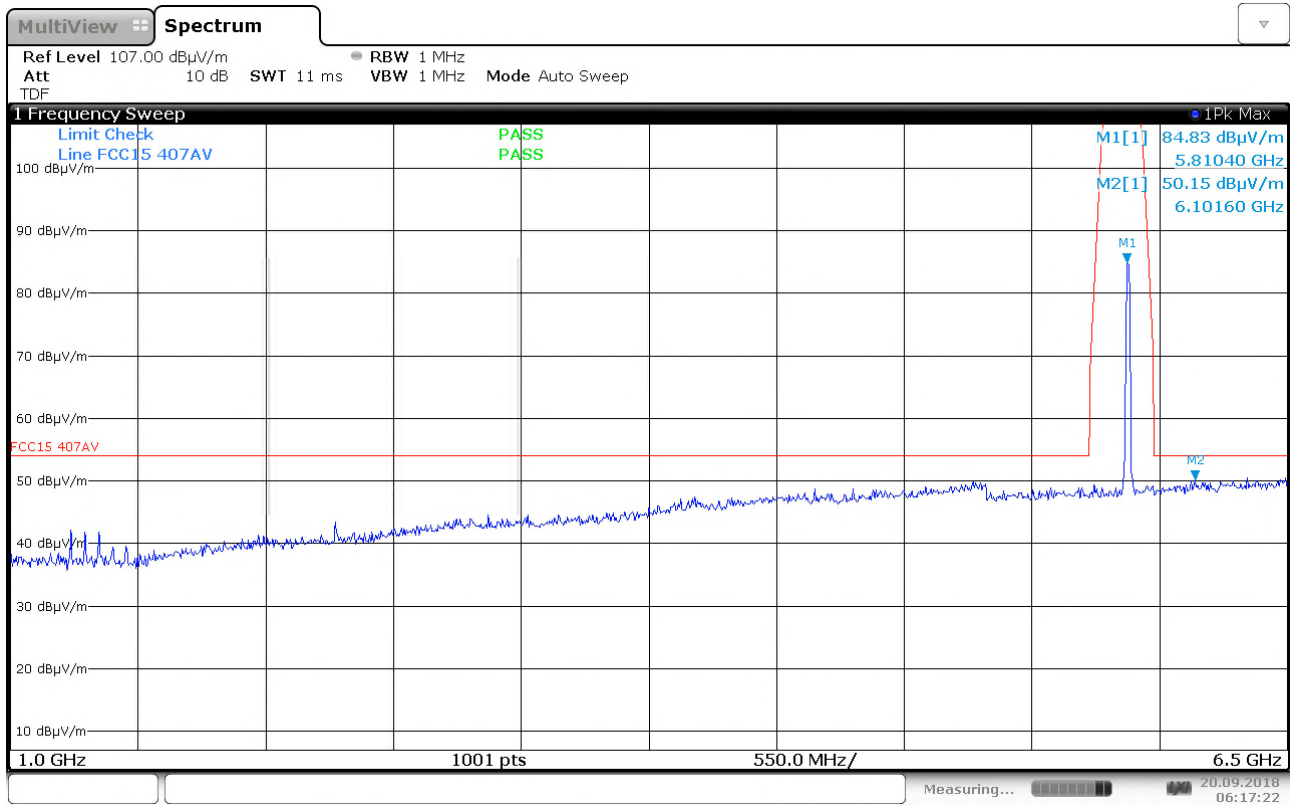
HP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5736MHz



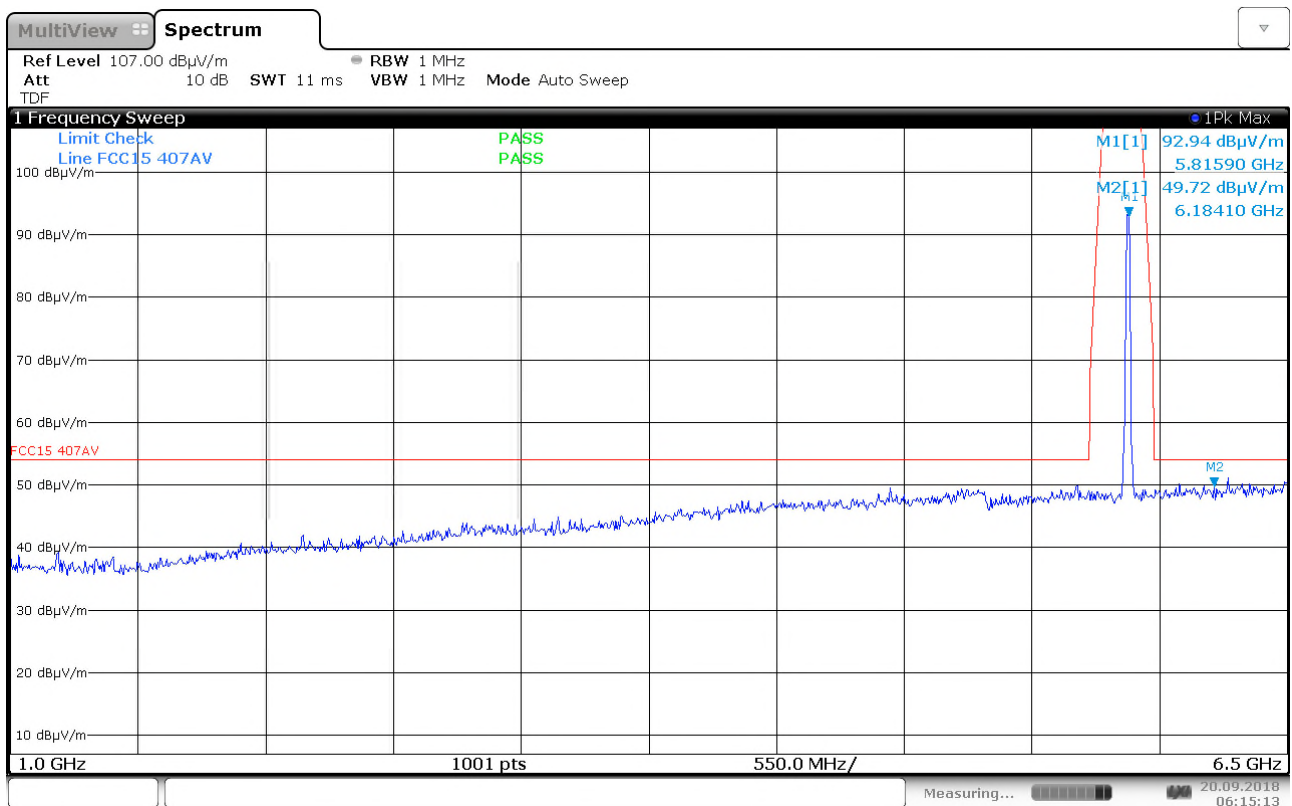
VP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5762MHz



HP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5762MHz



**VP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5814MHz**

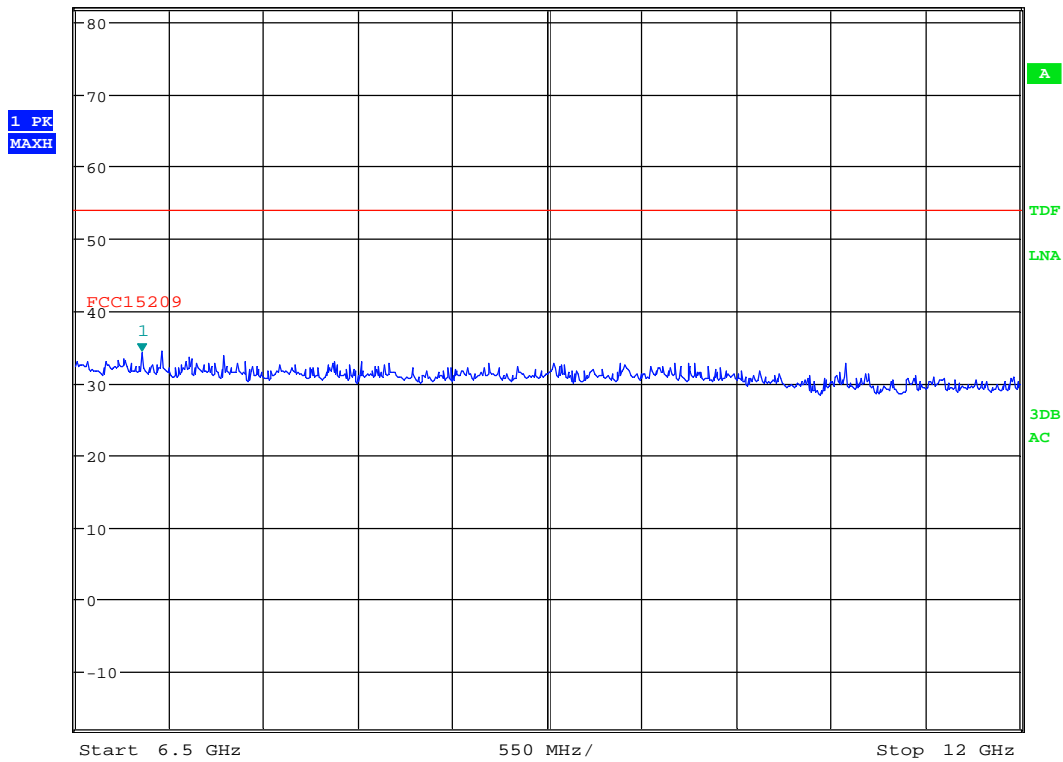


**HP: 1 - 6.5GHz @ 3m , PK scan , Ant.B, ch5814MHz**





**MARKER 1**  
6.887820513 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 34.13 dBμV/m  
SWT 35 ms 6.887820513 GHz

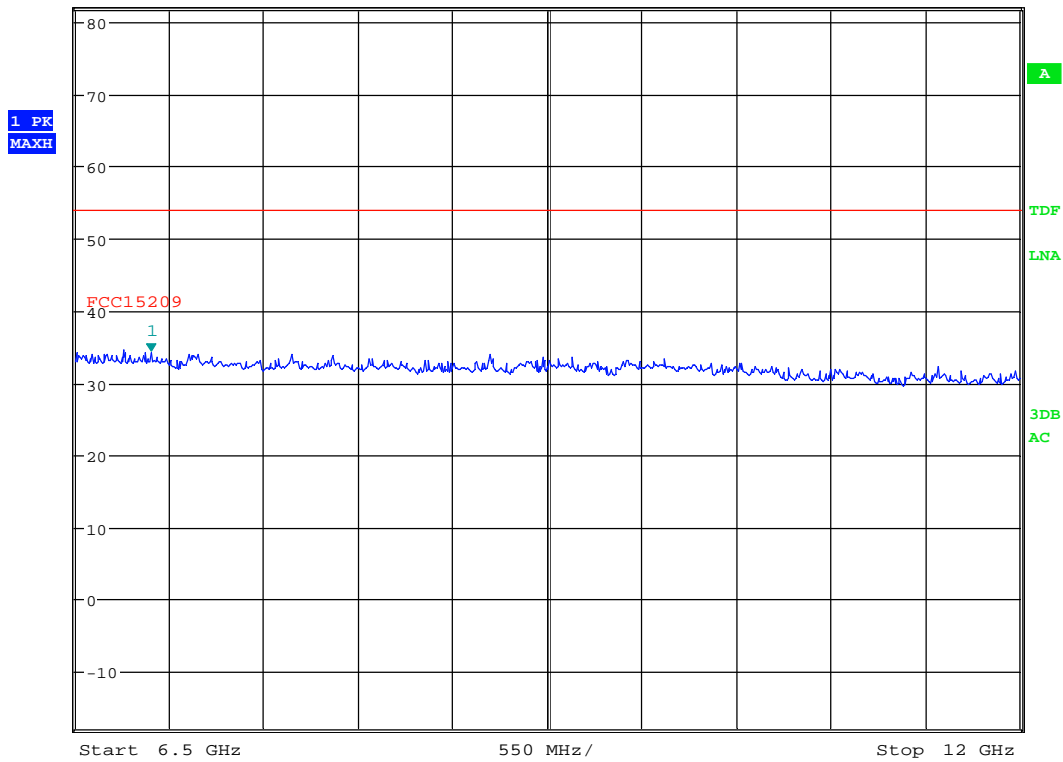


Date: 20.SEP.2018 06:47:54

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5736MHz



**MARKER 1**  
6.940705128 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 34.18 dBμV/m  
SWT 35 ms 6.940705128 GHz



Date: 20.SEP.2018 06:46:39

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5736MHz



**MARKER 1**  
10.08733974 GHz

\* RBW 1 MHz

Marker 1 [T1 ]

VBW 3 MHz

33.41 dBμV/m

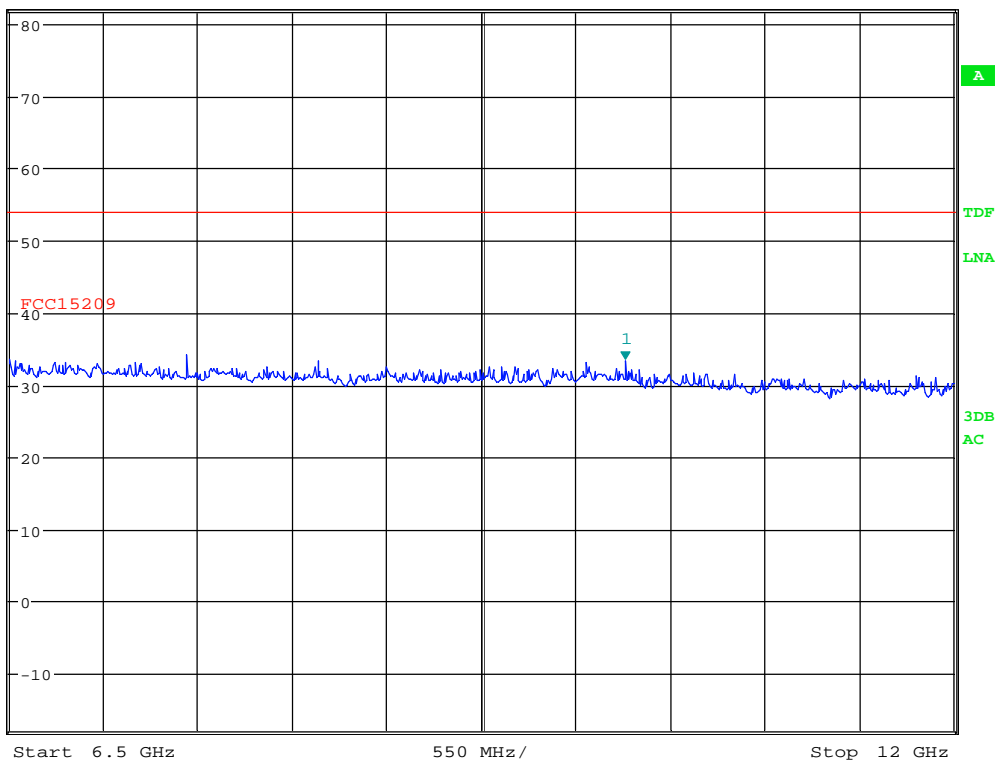
Ref 82 dBμV/m

\* Att 10 dB

SWT 35 ms

10.087339744 GHz

1 PK  
MAXH



Date: 20.SEP.2018 06:50:19

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5762MHz



**MARKER 1**  
6.711538462 GHz

\* RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

33.58 dBμV/m

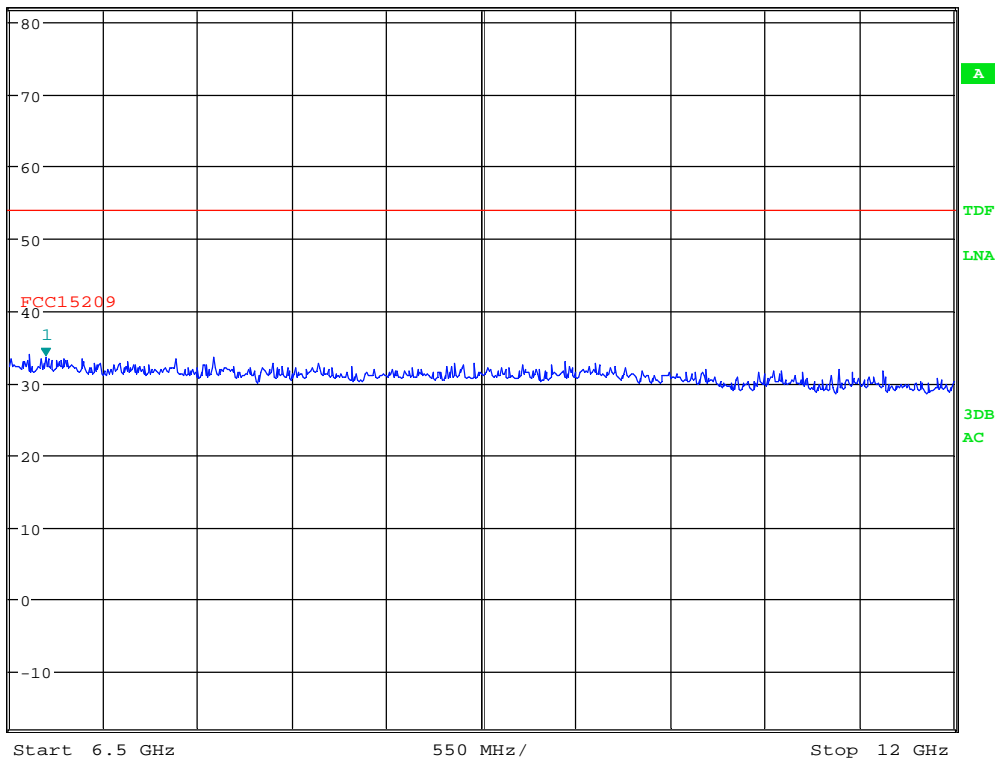
Ref 82 dBμV/m

\* Att 10 dB

SWT 35 ms

6.711538462 GHz

1 PK  
MAXH



Date: 20.SEP.2018 06:49:44

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5762MHz



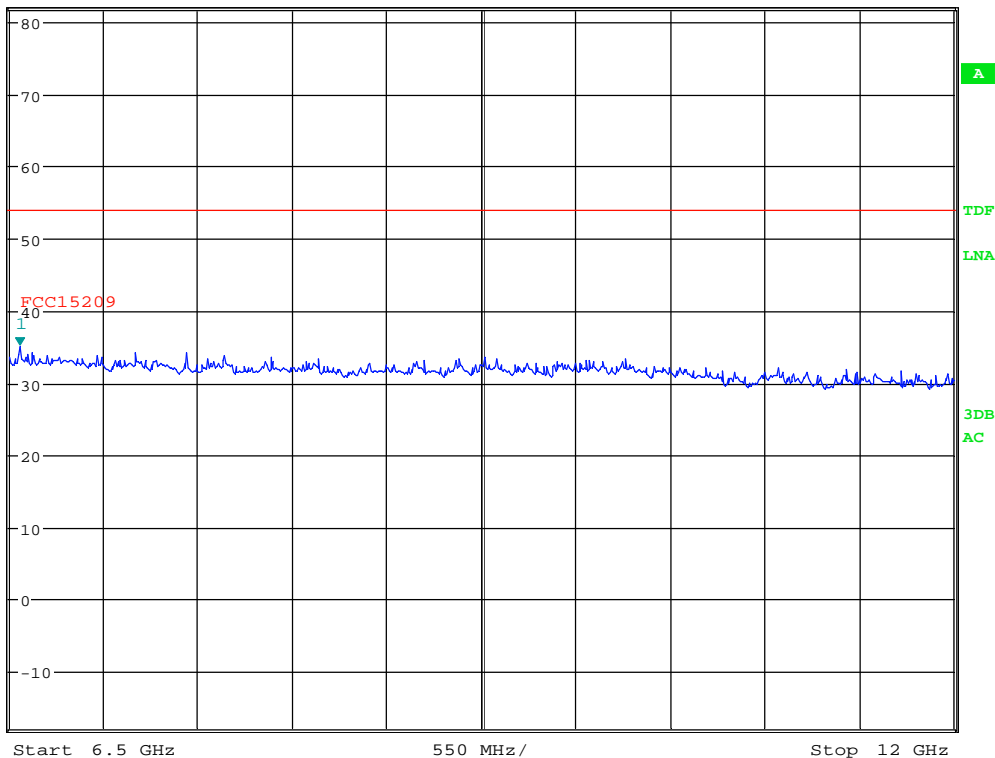
**MARKER 1**  
6.561698718 GHz

\*RBW 1 MHz  
VBW 3 MHz  
SWT 35 ms

Marker 1 [T1]  
35.04 dBμV/m  
6.561698718 GHz

Ref 82 dBμV/m \* Att 10 dB

1 PK  
MAXH



Date: 20.SEP.2018 06:50:58

VP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5814MHz



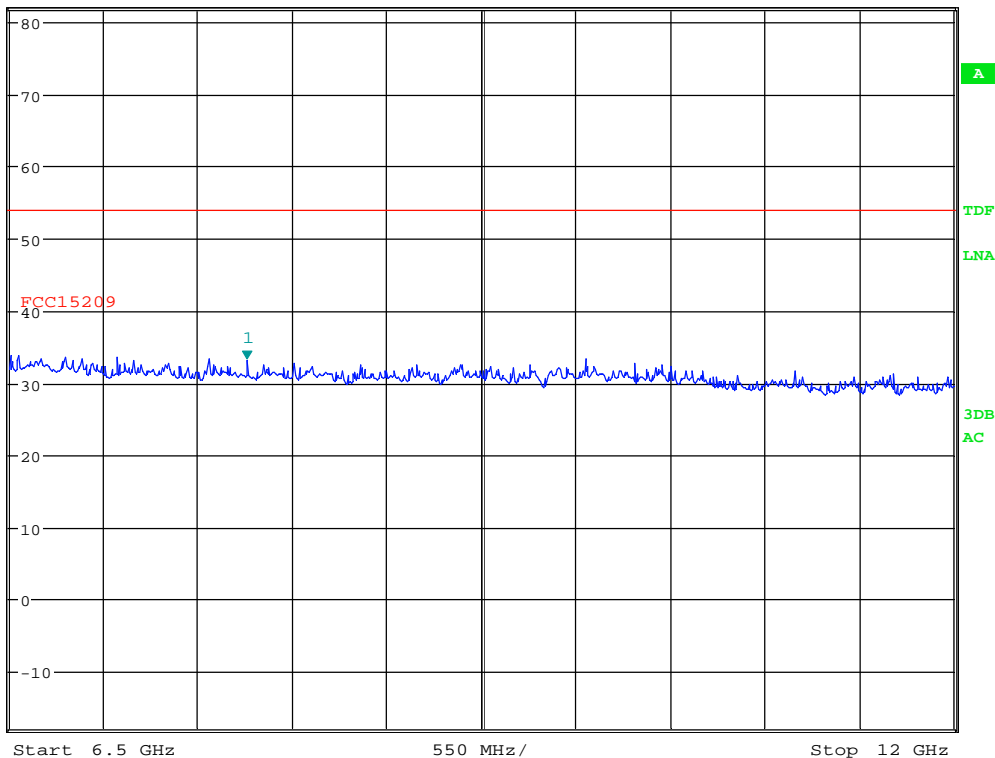
**MARKER 1**  
7.883814103 GHz

\*RBW 1 MHz  
VBW 3 MHz  
SWT 35 ms

Marker 1 [T1]  
33.23 dBμV/m  
7.883814103 GHz

Ref 82 dBμV/m \*Att 10 dB

1 PK  
MAXH



Date: 20.SEP.2018 06:51:29

HP: 6.5 - 12GHz @ 3m , PK scan , Ant.B, ch5814MHz



**MARKER 1**  
17.17307692 GHz

\* RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

50.44 dBμV/m

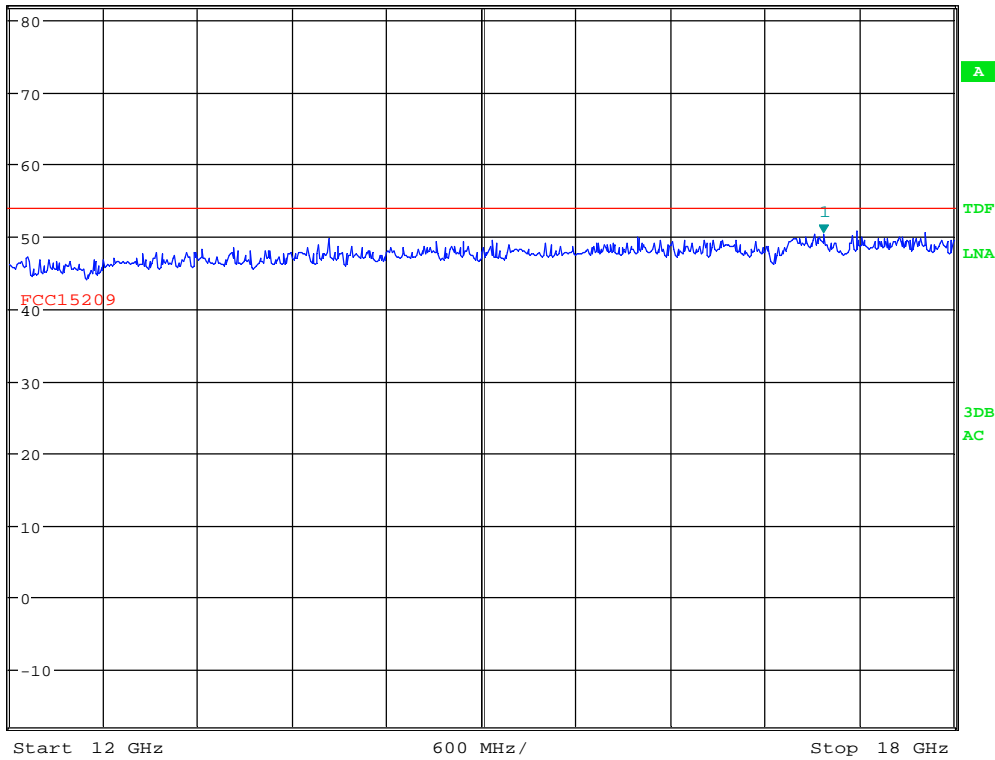
Ref 82 dBμV/m

\* Att 10 dB

SWT 35 ms

17.173076923 GHz

1 PK  
MAXH

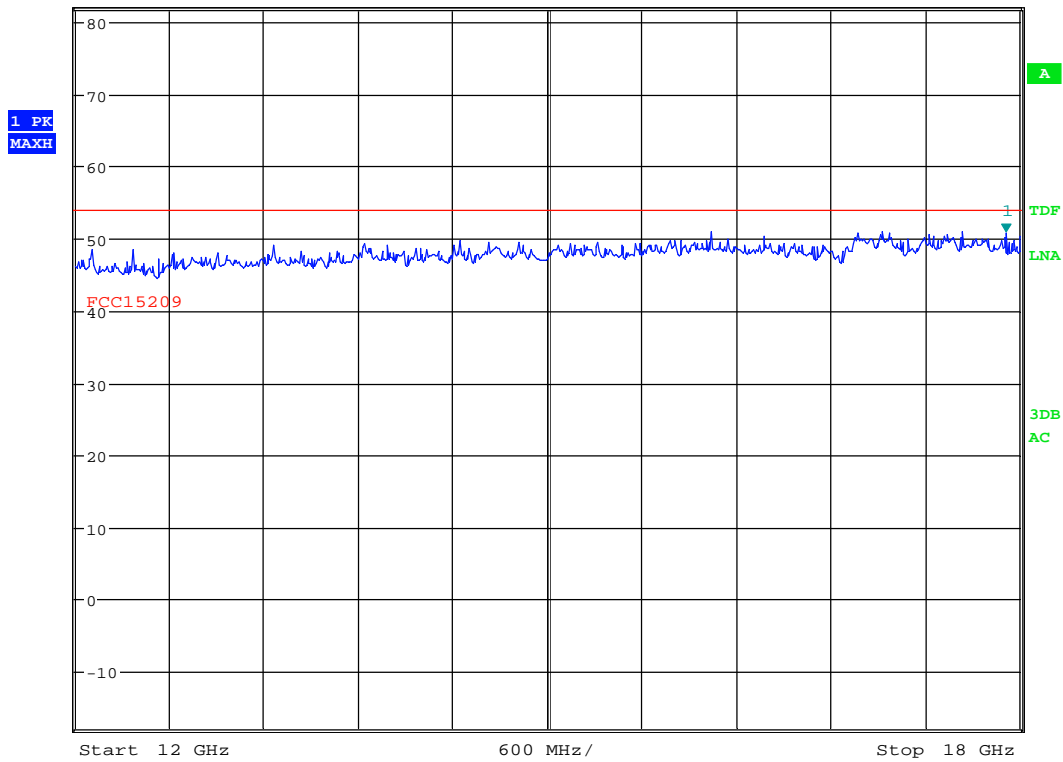


Date: 20.SEP.2018 07:12:10

VP: 12 - 18GHz @ 3m , PK scan , Ant.B



**MARKER 1**  
17.91346154 GHz  
Ref 82 dBμV/m \* Att 10 dB \* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 50.71 dBμV/m  
SWT 35 ms 17.913461538 GHz



Date: 20.SEP.2018 07:11:32

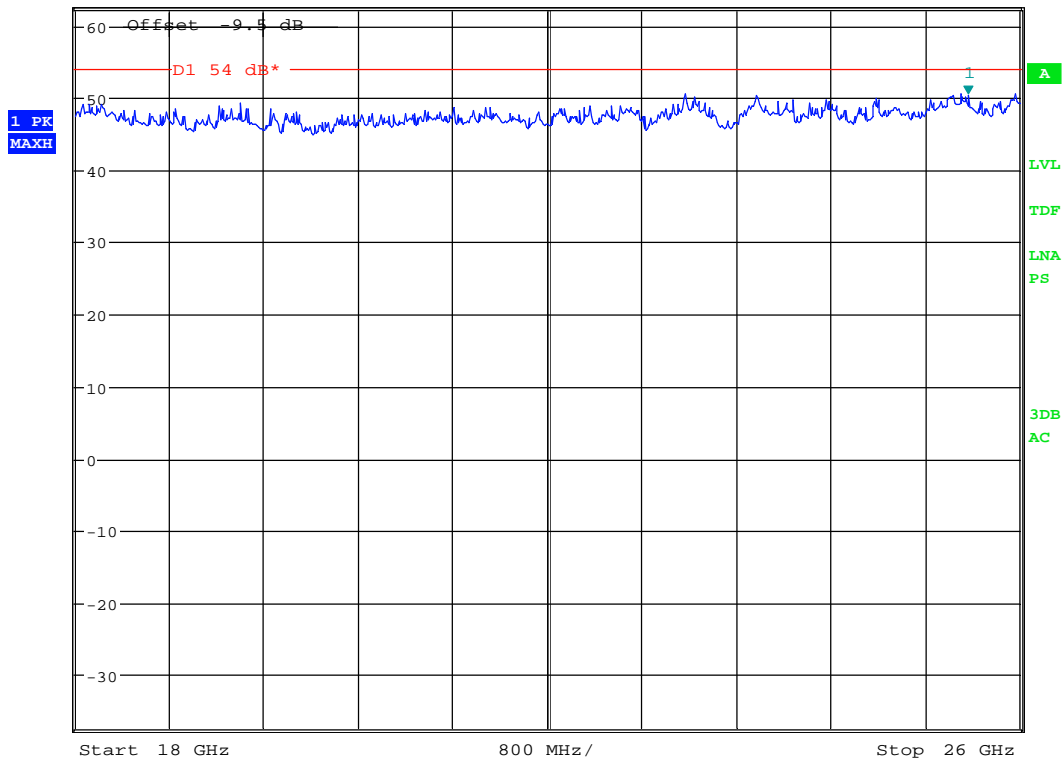
HP: 12 - 18GHz @ 3m , PK scan , Ant.B





**MARKER 1**  
25.56410256 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 50.49 dBμV/m  
SWT 50 ms 25.564102564 GHz



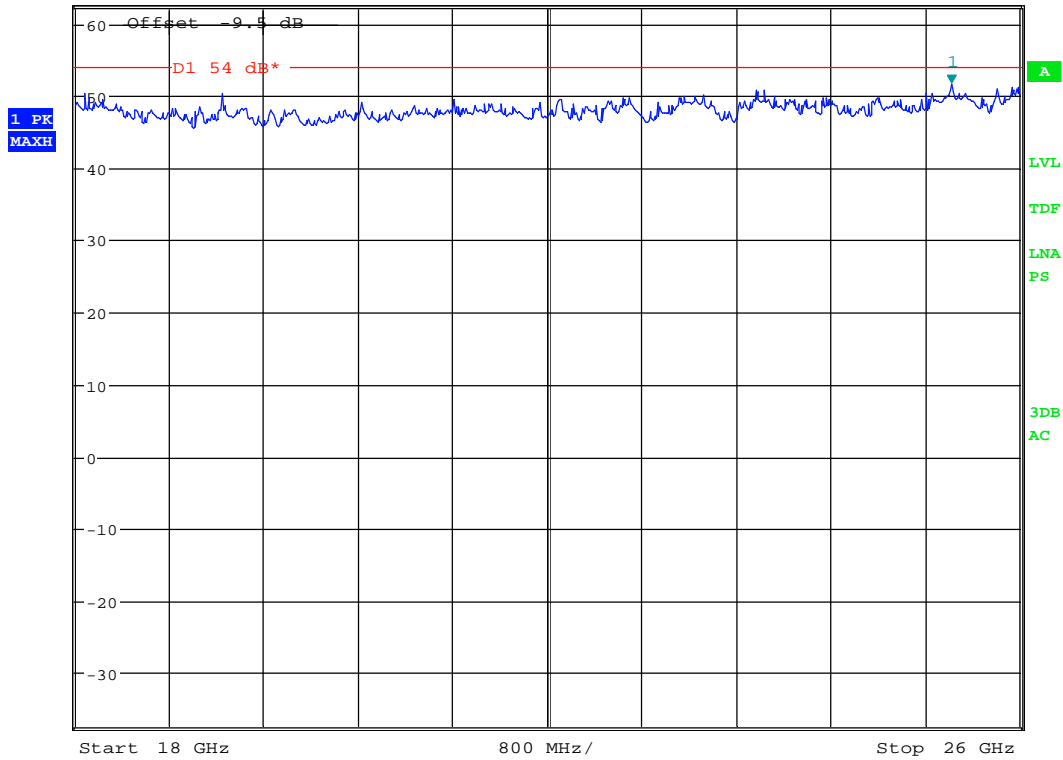
Date: 20.SEP.2018 08:06:46

VP: 18 - 26GHz @ 1m , PK scan , Ant.B



**MARKER 1**  
25.42307692 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 51.68 dBμV/m  
SWT 50 ms 25.423076923 GHz



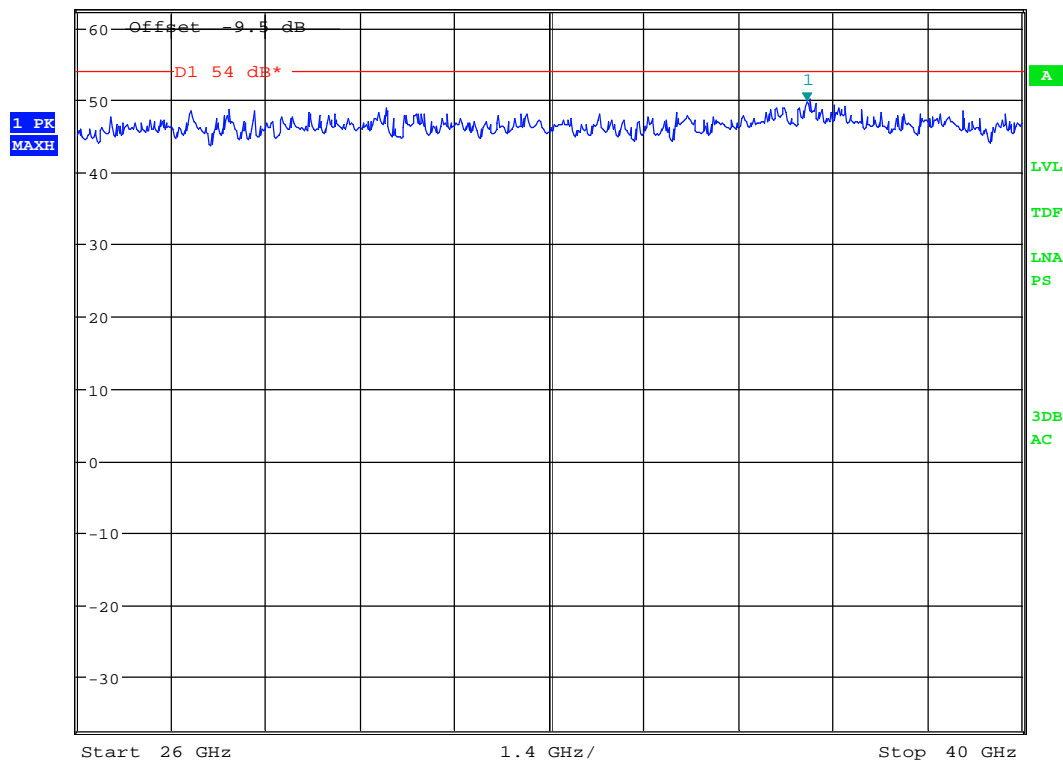
Date: 20.SEP.2018 08:06:20

HP: 18 - 26GHz @ 1m , PK scan , Ant.B



**MARKER 1**  
36.81410256 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 49.70 dBμV/m  
SWT 85 ms 36.814102564 GHz



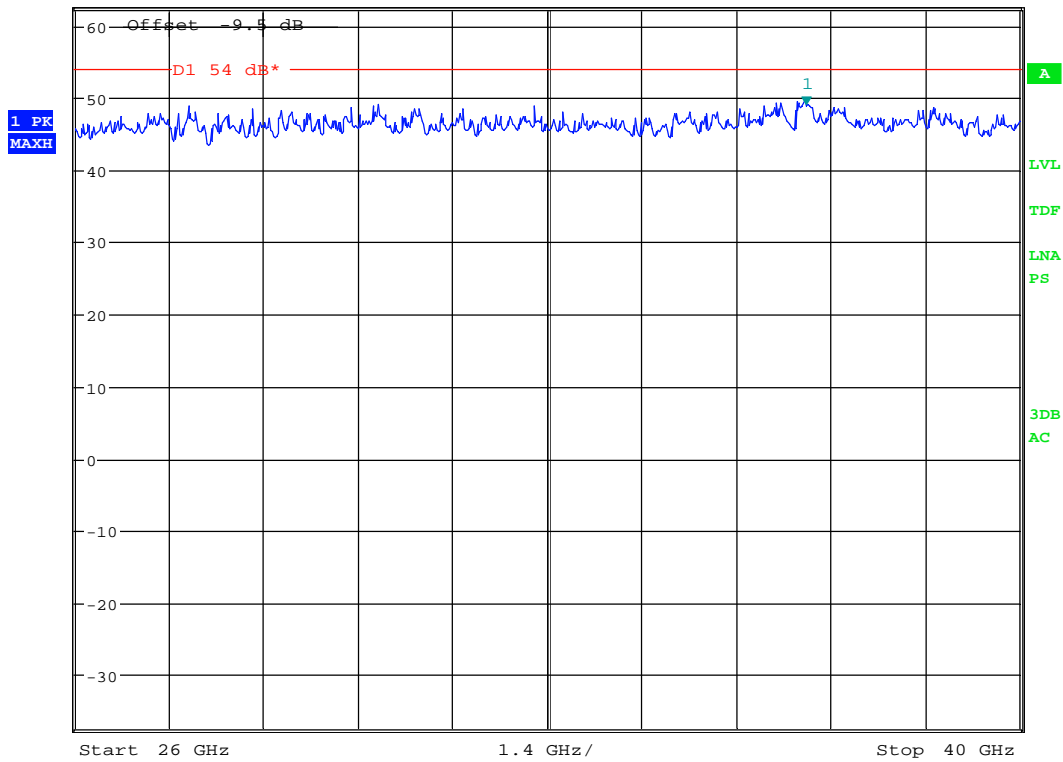
Date: 20.SEP.2018 08:01:23

VP: 26 - 40GHz @ 1m , PK scan , Ant.B



**MARKER 1**  
36.83653846 GHz  
Ref 62.5 dBμV/m \* Att 0 dB

\* RBW 1 MHz Marker 1 [T1 ]  
VBW 3 MHz 49.04 dBμV/m  
SWT 85 ms 36.836538462 GHz



Date: 20.SEP.2018 08:00:54

HP: 26 - 40GHz @ 1m , PK scan , Ant.B

### 3.11 Frequency Stability

FCC 15.407(g)

RSS-Gen: 6.11

Test Results: Complies

#### Measurement Data:

Assigned band 5725MHz – 5825MHz

Temperature	Carrier 5736MHz Frequency Drift (ppm)	Carrier 5814MHz Frequency Drift (ppm)
+50°C	-1.41	-0.14
+40 °C	-0.48	-0.88
+30 °C	-0.48	-0.10
+20 °C	-0.44	-0.31
+10 °C	1.17	0.91
0 °C	2.98	2.89
-10 °C	3.91	3.88
-20 °C	3.81	3.81

The manufacturer rated power USB: 5Vdc

The test was performed with the counter function of a spectrum analyzer.

The upper and lower temperatures used are the outer limits specified by in the RSS-Gen 6.11 (a)(b) for licence-exempt devices.

#### Frequency Stability requirement:

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

### 3.12 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Output Power		±0.5 dB
Power Spectral Density		±0.5 dB
Out of Band Emissions, Conducted	< 3.6 GHz	±0.6 dB
	> 3.6 GHz	±0.9 dB
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		+2.9 / -4.1 dB
Spectrum Mask Measurements	Frequency	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

## 4 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

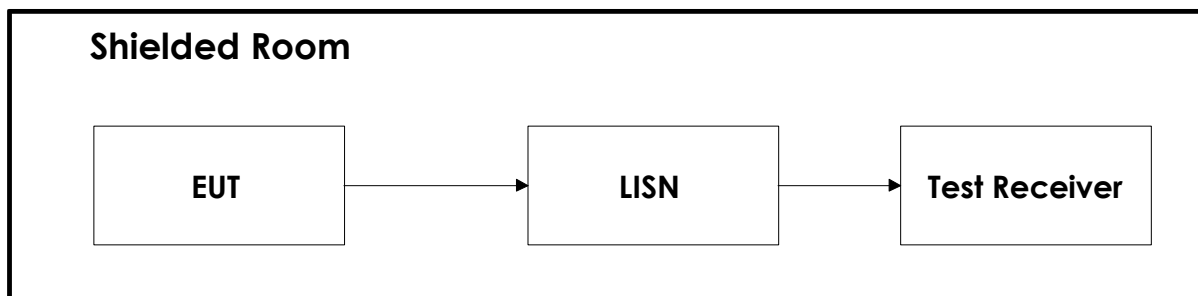
No.	Model	Description	Manufacturer	Asset no.	Cal. date	Cal. Due
1	ESCI	EMI Receiver	Rohde & Schwarz	N-4259	2017.10	2019.10
2	ENV216	Two-Line V-Network	Rohde & Schwarz	LR 1665	2017.11	2019.11
3	FSW46	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2018.01	2019.01
4	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2018.03	2020.03
5	3115	Horn Antenna	EMCO	LR 1330	2013.11	2020.11
6	8449B	Pre-amplifier	Hewlett Packard	LR 1322	2018.07	2019.07
7	637	Antenna Horn	Narda	LR 097	2009.01	2020.01
8	PM7320X	Antenna Horn	Sivers Lab	LR 102	2009.01.26	2020.01
9	DBF-520-20	Antenna Horn	Systron Donner	LR 100	2009.01.26	2020.01
10	638	Antenna Horn	Narda	LR 1480	2010.06.17	2020.06
11	JS4	Pre-amplifier	Miteq	LR 1591	2018.08	2019.08
12	WHKX6.6/18 G-8SS	HP filter	Wainwright	LR 1619	COU	
13	6812B	AC power source	Agilent	LR 1515	2017.09	2019.07
14	ST18/SMAm/Nm/36iln	RF cable	Huber+Suhner	LR 1737	COU	
15	4768-10	Attenuator	Narda	LR 1696	COU	
16	TY 80	Climatic chamber	ACS	LR 1083	2018.03	2019.03
17	Model 87 V	Multi meter	Fluke	LR 1600	2018.02	2020.02

COU = Cal on Use

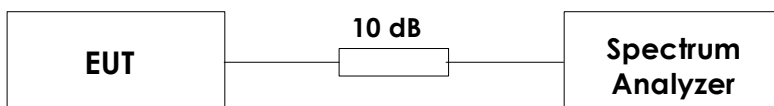
Test Software List			
Description	Manufacturer	Model	Version
EMC 32	Rohde & Schwarz	/	V10.40.10
GPIO shot	Rohde & Schwarz	/	V2.7
RSCCommander	Rohde & Schwarz	/	V1.9.2 (64bit)

## 5 BLOCK DIAGRAM

### 5.1 Power Line Conducted Emission



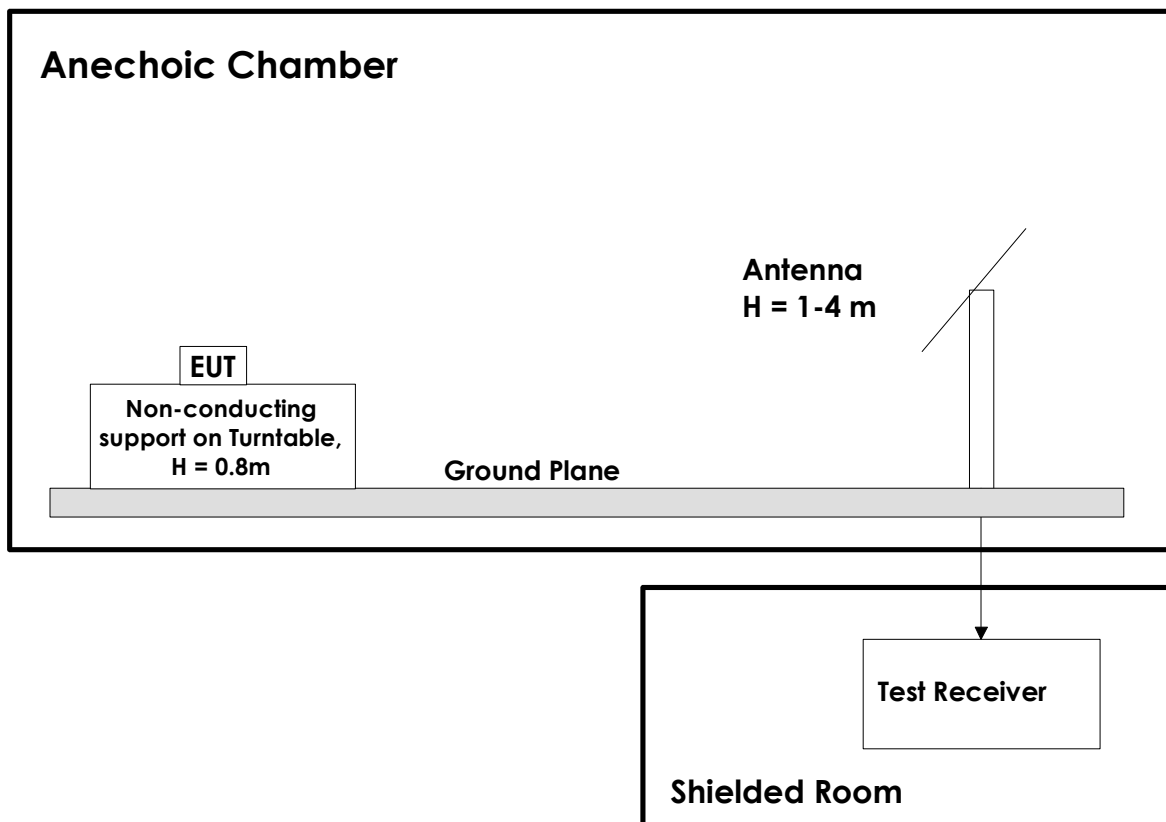
### 5.2 Conducted Tests



This test set-up is used for all Conducted tests. For the Frequency Stability test the EUT was placed in a climatic chamber.



### 5.3 Test Site Radiated Emission



This test set-up was used for the radiated measurements. The EUT support height was 0.8m for frequencies below 1 GHz and 1.5m for frequencies above 1 GHz.

For frequencies above 1 GHz the ground plane between the EUT and the measuring antenna was covered by absorbers.

## Revision history

Version	Date	Comment	Sign
1.00	2018.09.21	First version	gns