

Annex 1: Measurement Diagrams to
TEST REPORT
No.: 19-1-0066701T07a

According to:
FCC Regulations, Title 47, Subpart C
§15.225

ISED-Regulations
RSS-Gen, Issue 4
RSS-210, Issue 9

for

Continental Automotive GmbH

D-WMI2020A
Wireless Power Charger

FCC ID: KR5DWMI2020A
ISED ID: 7812D-DWMI2020A

Laboratory Accreditation



accredited according to DIN EN ISO/IEC 17025

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1. Measurement diagrams

1.1. Operating frequency ranges (99% OBW)

1.1.1. T_{NOM}, V_{NOM}

Diagram 1: OBW 99%_NFC_External Antenna (Only for information)

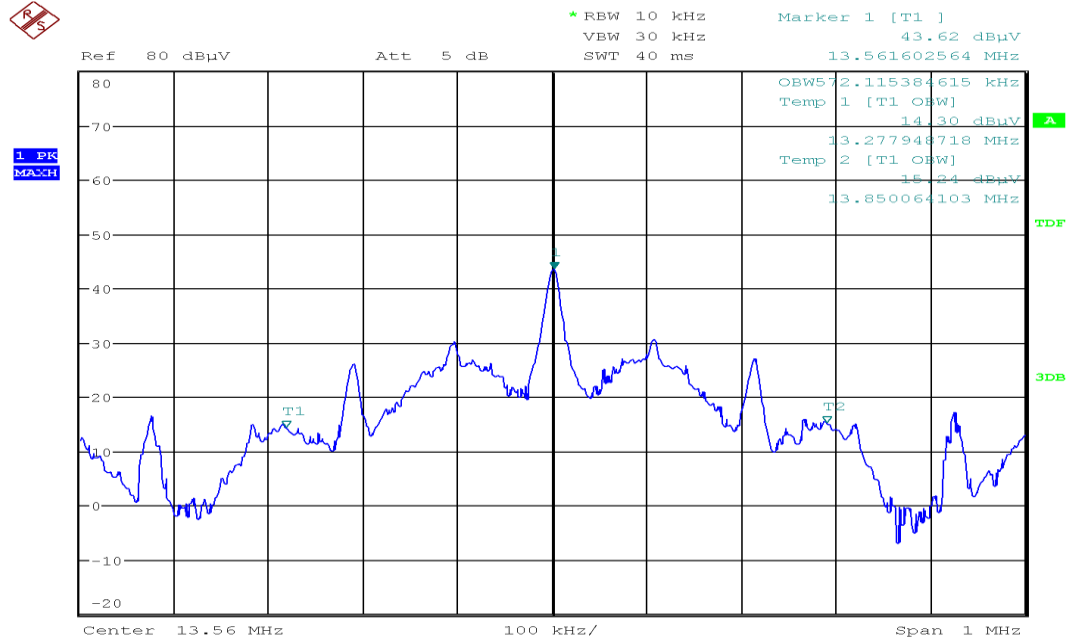
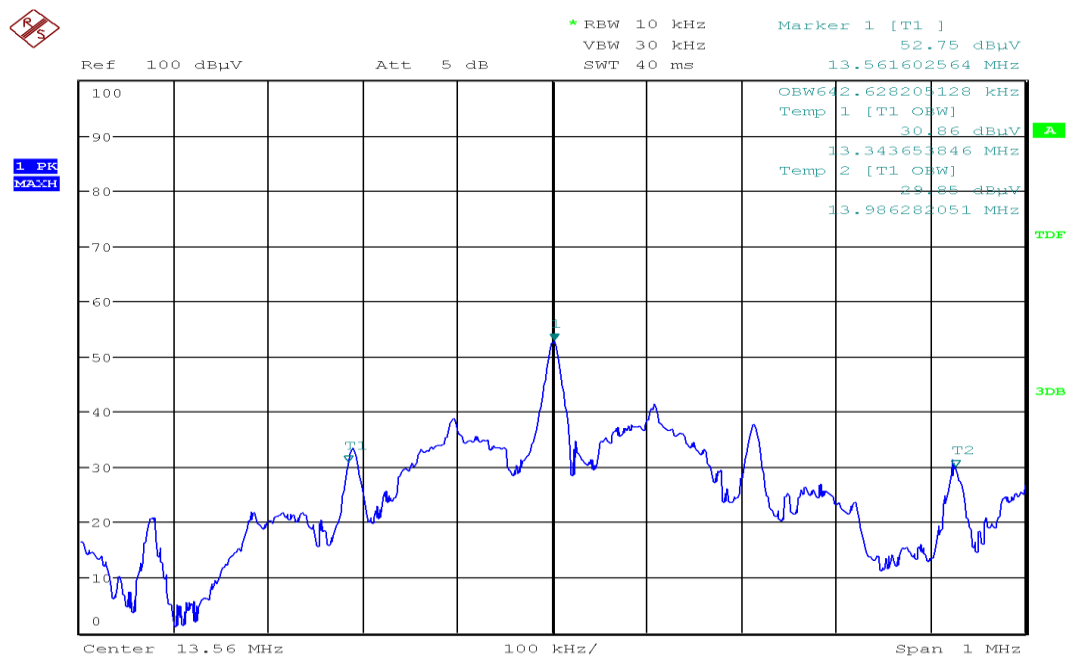


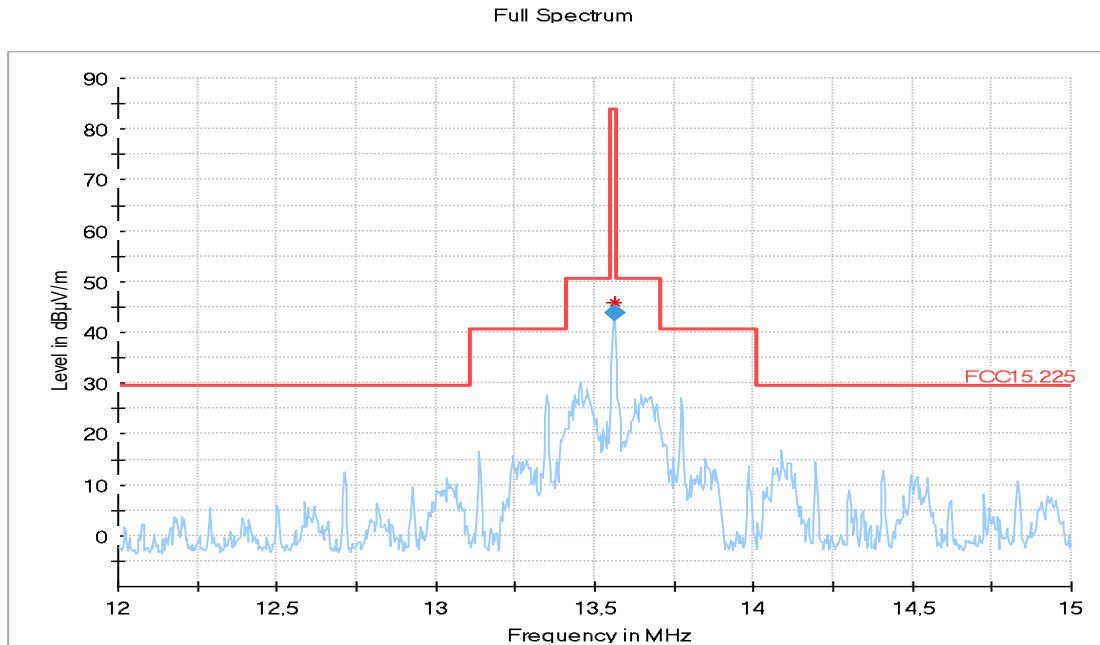
Diagram 2: OBW 99%_NFC_Internal Antenna (Only for information)



1.2. H-Field requirements (§15.225 (a)(b)(c))

Remark: EUT position standing found as worst case against position lying.

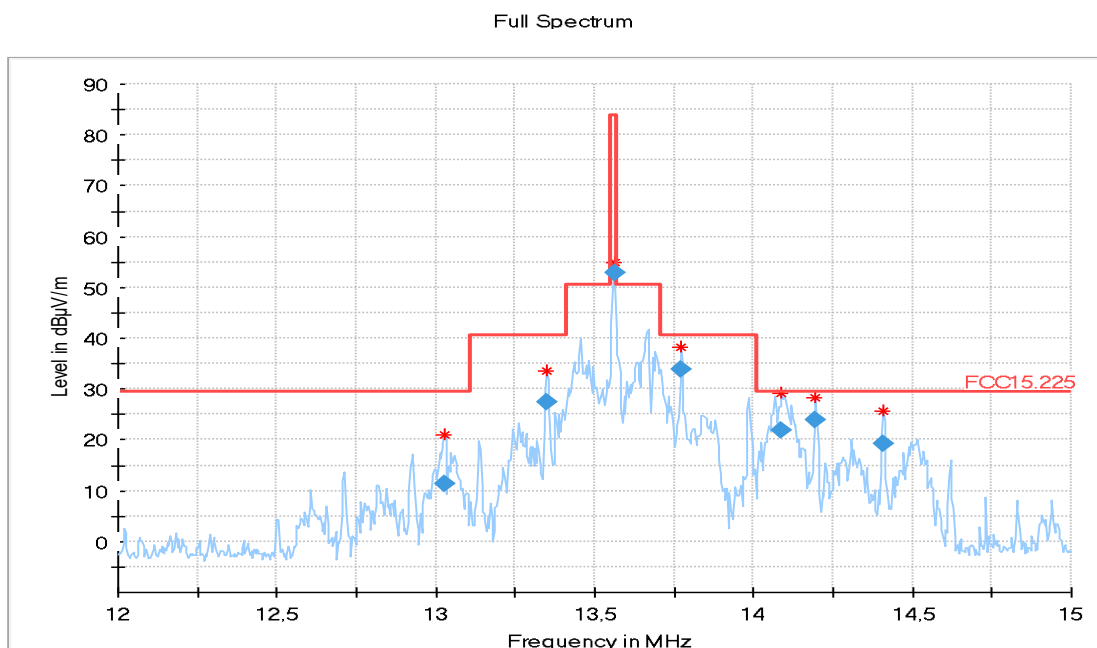
Diagram 3: Radiated Field strength/Emission Mask, set-up. 1 + Op.1, EUT standing



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)
13.560000	43.89	84.00	40.11	9.000	H	201.0	-11.4

Diagram 4: Radiated Field strength/Emission Mask, set-up. 2 + Op.1, EUT standing

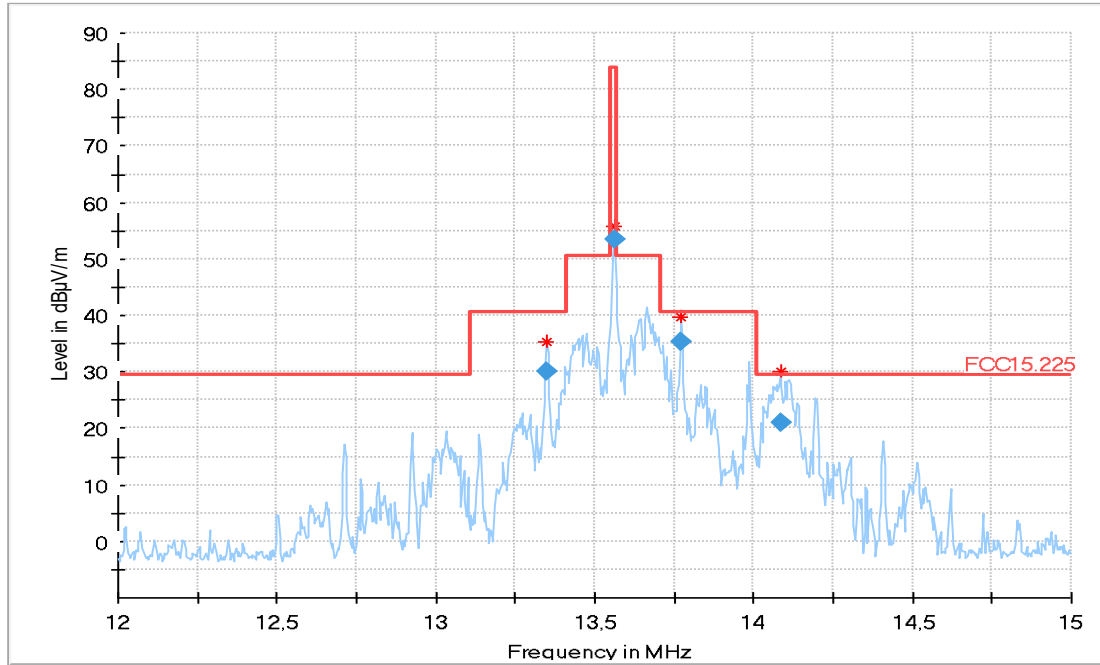


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)
13.028000	11.38	29.54	18.16	9.000	H	17.0	-11.7
13.348000	27.54	40.50	12.96	9.000	H	82.0	-11.5
13.560000	52.84	84.00	31.16	9.000	H	34.0	-11.4
13.772000	33.84	40.50	6.66	9.000	H	30.0	-11.3
14.088000	22.00	29.54	7.54	9.000	H	10.0	-11.2
14.196000	23.88	29.54	5.66	9.000	H	39.0	-11.1
14.408000	19.29	29.54	10.25	9.000	H	193.0	-11.0

Diagram 5: Radiated Field strength/Emission Mask, set-up. 3 + Op.1, EUT standing

Full Spectrum



Final Result

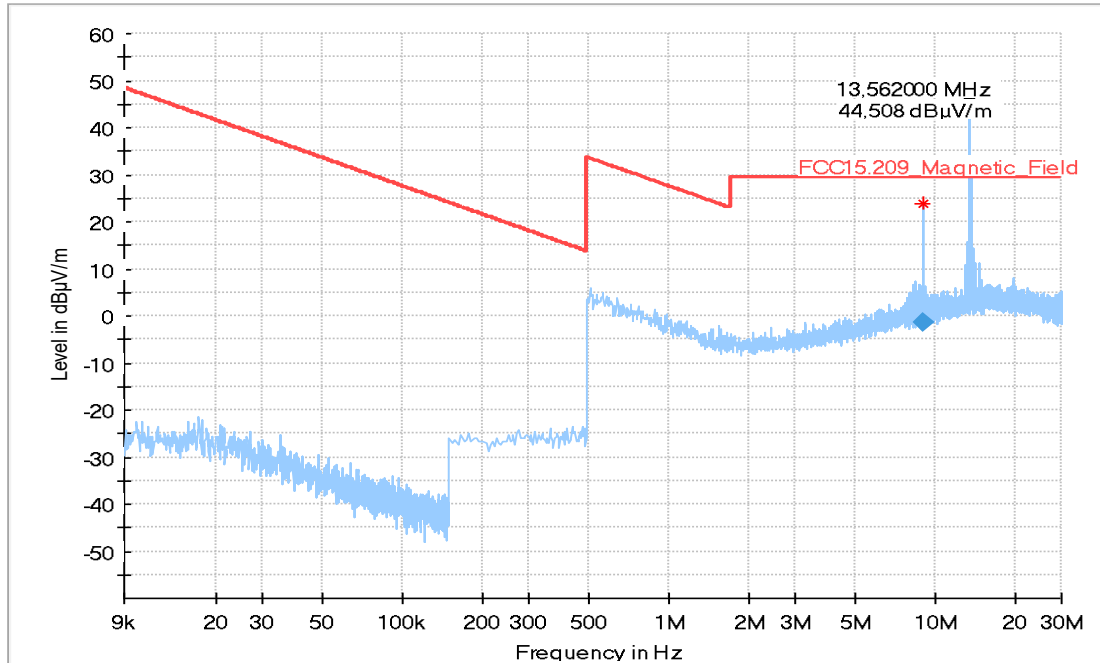
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)
13.348000	30.07	40.50	10.43	9.000	H	34.0	-11.5
13.560000	53.52	84.00	30.48	9.000	H	24.0	-11.4
13.772000	35.20	40.50	5.30	9.000	H	211.0	-11.3
14.084000	20.93	29.54	8.61	9.000	H	34.0	-11.2

1.3. Transmitter spurious emissions

1.3.1. Frequency 9 kHz to 30 MHz

Diagram 6: TX spurious emissions, set-up. 1 + Op.1, EUT standing

Full Spectrum



Remarks:

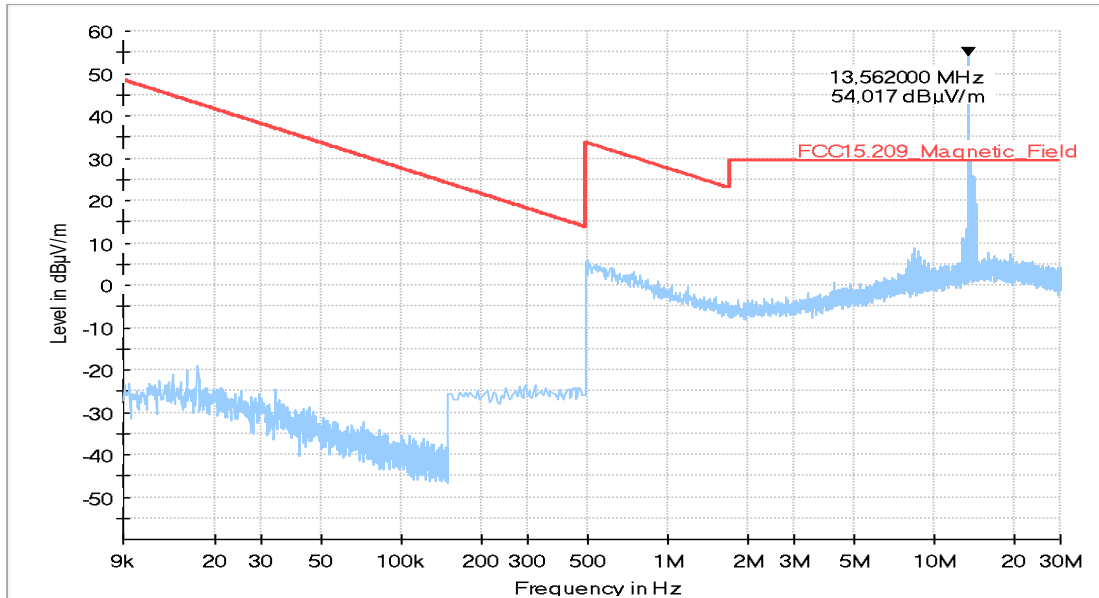
- Emission at 13.562 MHz is not relevant to results (wanted carrier)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)	Comment
9.068200	-1.25	29.54	30.79	9.000	H	91.0	-14.2	10:51:08 - 14.05.2019

Diagram 7: TX spurious emissions, set-up 2 + Op.1, EUT standing

Full Spectrum

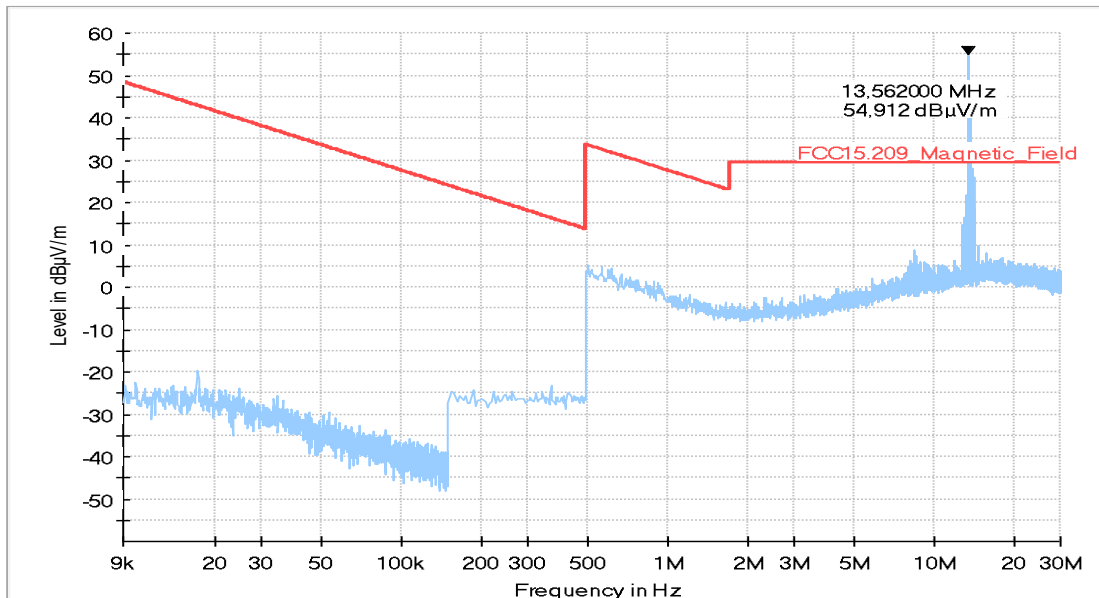


Remarks:

- Emission at 13.562 MHz is not relevant to results (wanted carrier)

Diagram 8: TX spurious emissions, set-up 3 + Op.1, EUT standing

Full Spectrum

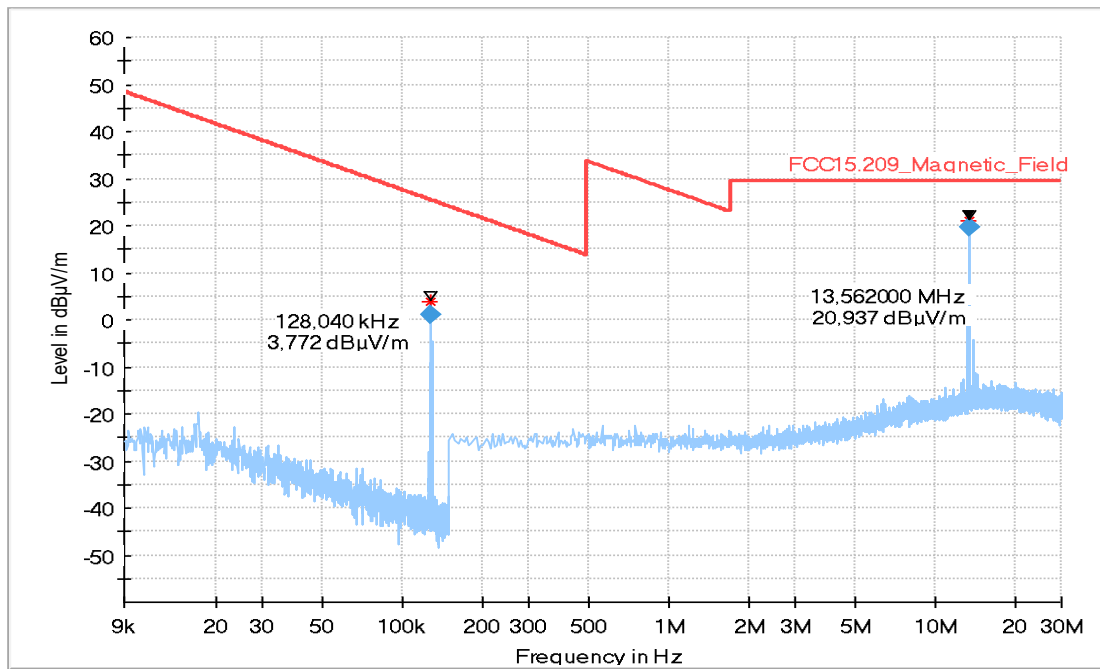


Remarks:

- Emission at 13.562 MHz is not relevant to results (wanted carrier)

Diagram 9: TX spurious emissions, set-up 6 + Op.2, EUT standing

Full Spectrum



Remarks:.

- Emission at 128.04 kHz and 13.562 MHz is not relevant to results (wanted carriers)

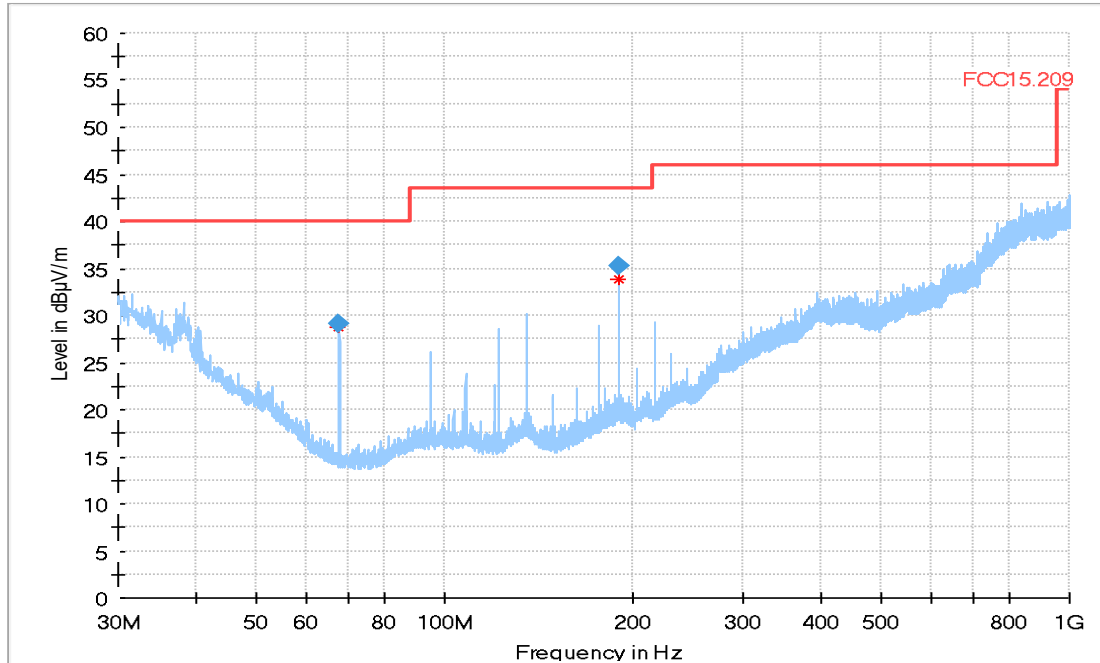
Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)	Comment
0.127900	1.03	25.46	24.43	0.200	H	343.0	-68.6	11:41:27 - 21.05.2019
13.560600	19.69	29.54	9.85	9.000	V	316.0	-31.4	11:48:03 - 21.05.2019

1.3.2. Frequency 30 MHz to 1000 MHz

Diagram 10: E-Field measurement, set-up. 1 + Op.1, EUT laying

Full Spectrum

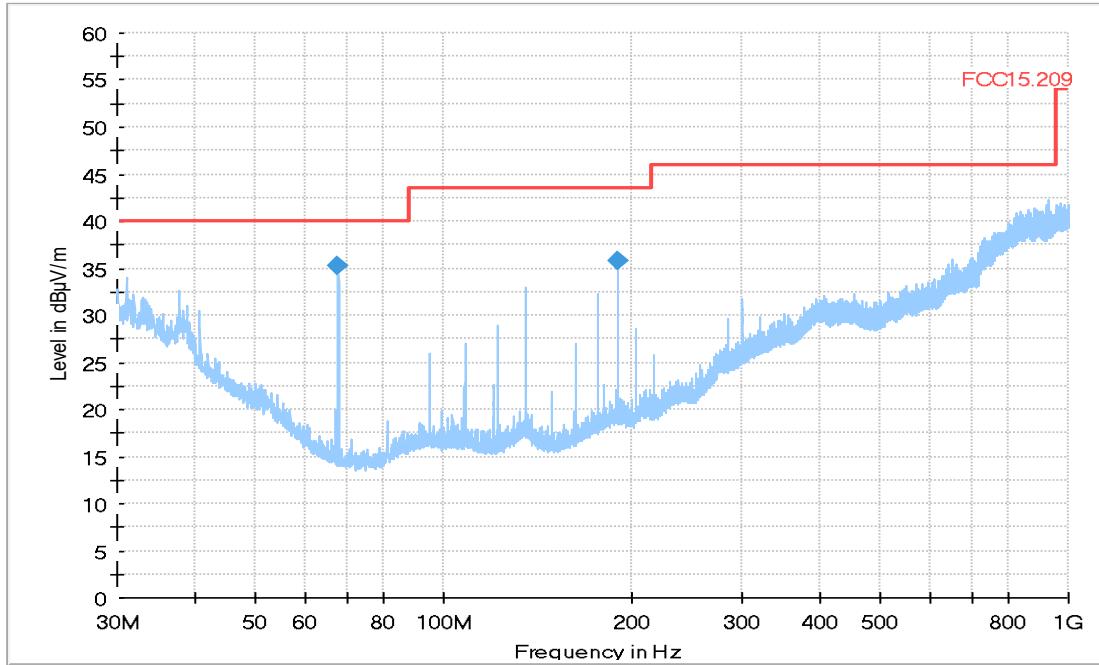


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
67.804000	29.11	40.00	10.89	120.000	153.0	V	240.0	6.8
189.844000	35.33	43.50	8.17	120.000	142.0	H	189.0	11.4

Diagram 11: E-Field measurement, , set-up. 1 + Op.1, EUT standing

Full Spectrum

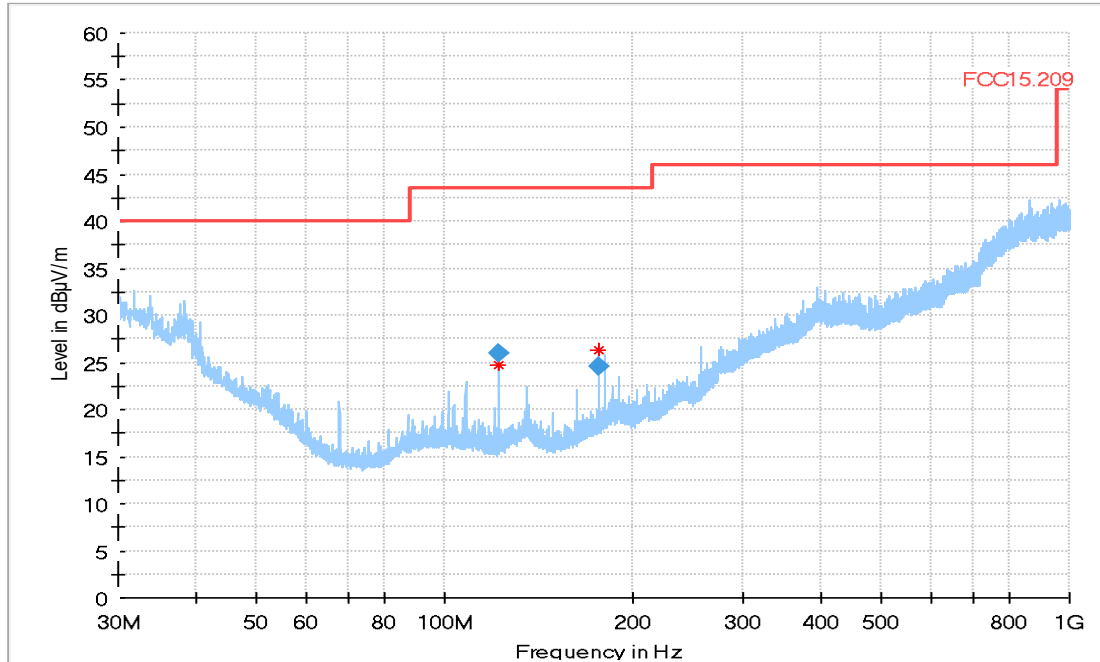


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
67.804000	35.21	40.00	4.79	120.000	105.0	V	89.0	6.8
189.840000	35.76	43.50	7.74	120.000	237.0	H	0.0	11.4

Diagram 12: E-Field measurement, , set-up. 2 + Op.1, EUT laying

Full Spectrum

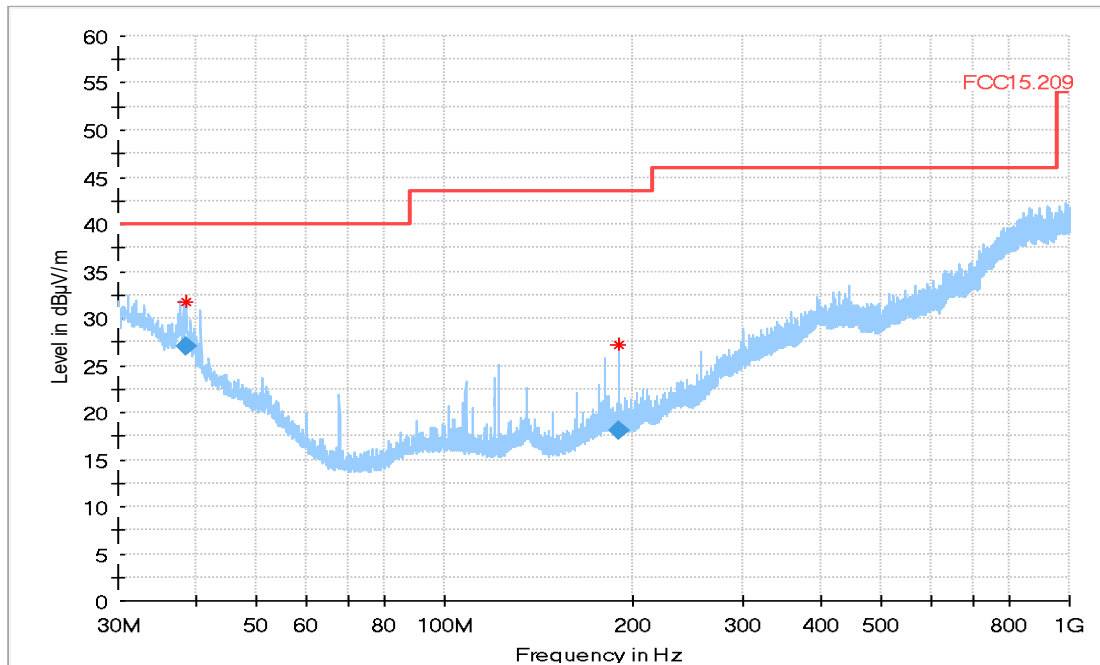


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
122.048000	26.05	43.50	17.45	120.000	109.0	V	123.0	8.0
176.284000	24.62	43.50	18.88	120.000	144.0	H	329.0	10.5

Diagram 13: E-Field measurement, , set-up. 2 + Op.1, EUT standing

Full Spectrum

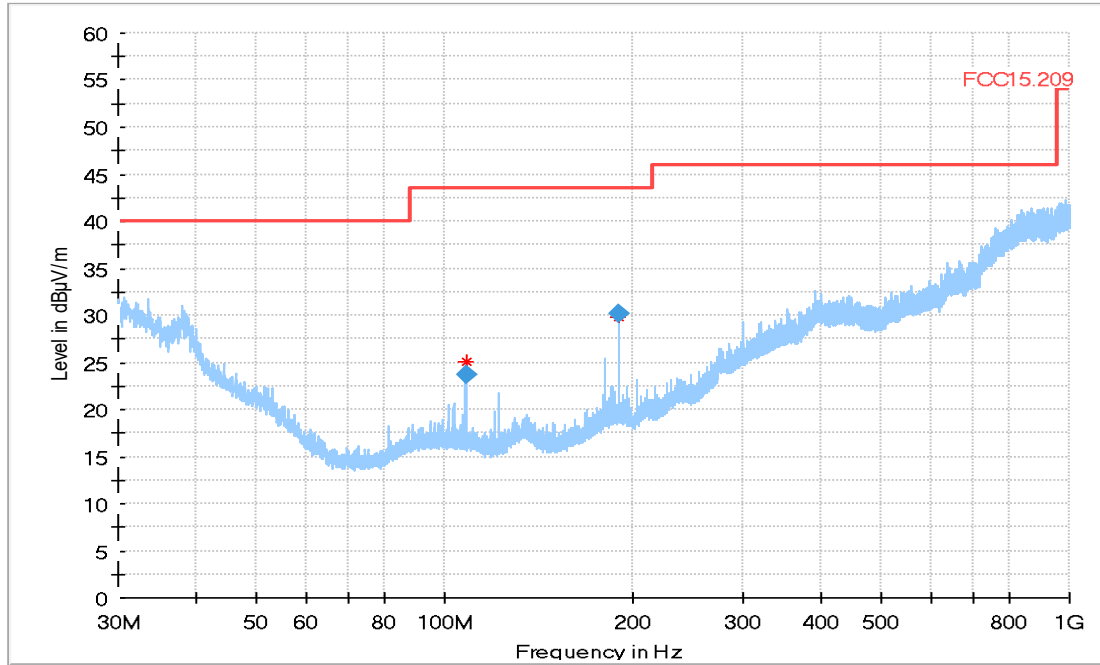


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.616000	26.96	40.00	13.04	120.000	105.0	V	118.0	17.7
189.740000	18.09	43.50	25.41	120.000	202.0	H	355.0	11.4

Diagram 14: E-Field measurement, , set-up. 3 + Op.1, EUT laying

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
108.000000	23.61	43.50	19.89	120.000	118.0	V	183.0	8.2
189.848000	30.09	43.50	13.41	120.000	169.0	H	197.0	11.4

Diagram 15: E-Field measurement, , set-up. 3 + Op.1, EUT standing

Full Spectrum

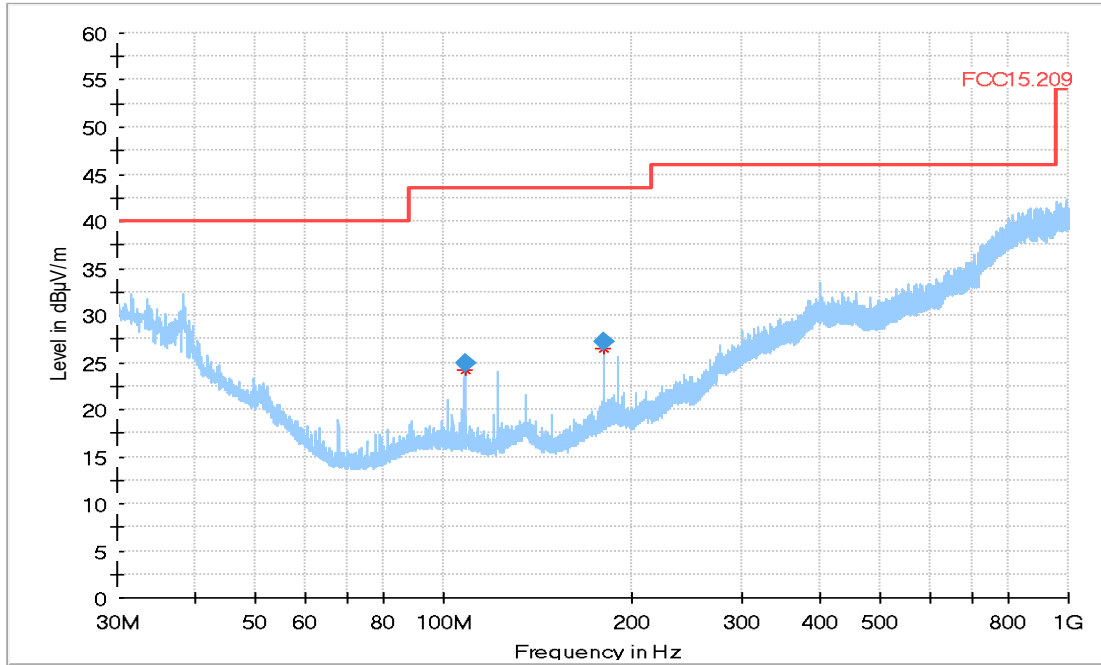
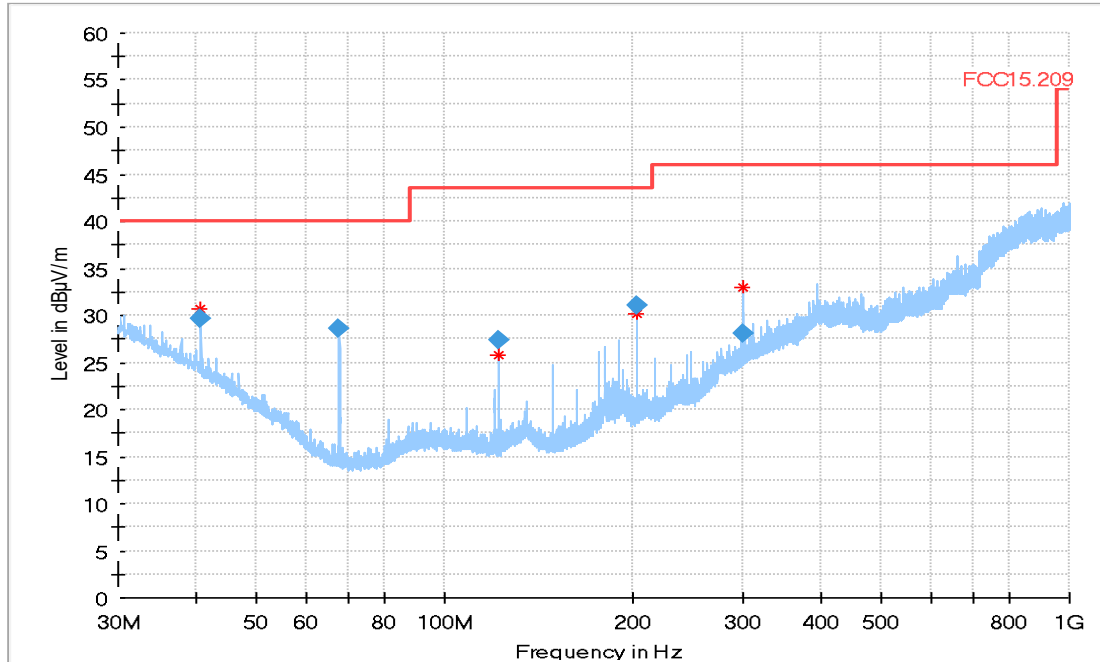


Diagram 16: E-Field measurement, , set-up. 6 + Op.2, EUT laying

Full Spectrum

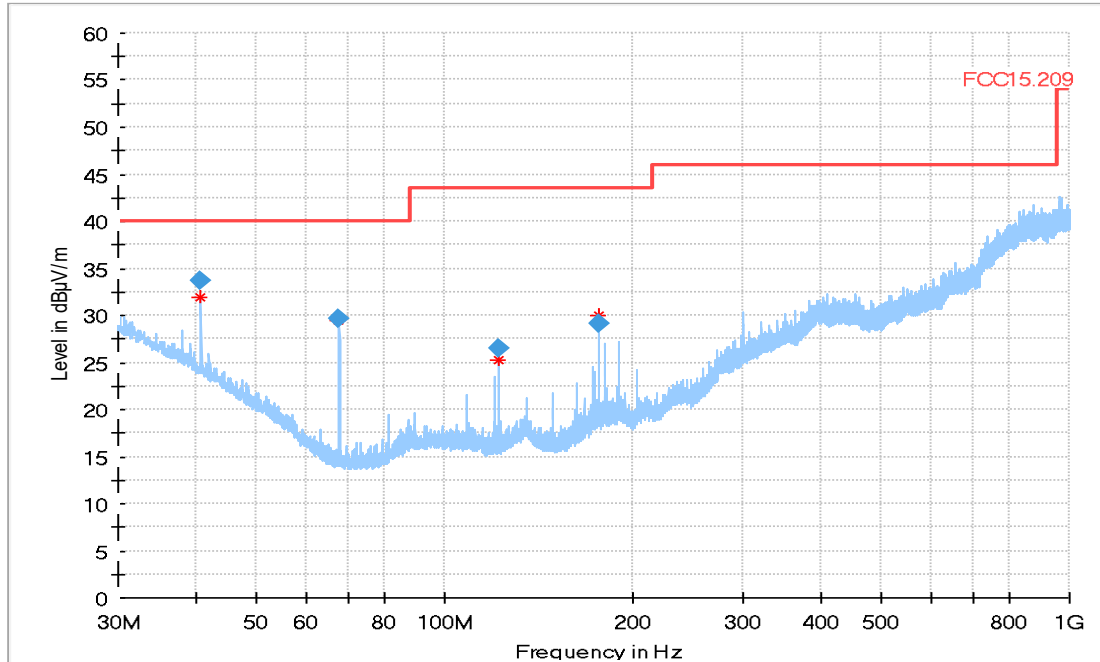


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.680000	29.63	40.00	10.37	120.000	105.0	V	5.0	16.8
67.808000	28.59	40.00	11.41	120.000	145.0	V	251.0	6.8
122.052000	27.42	43.50	16.08	120.000	105.0	V	50.0	8.0
203.408000	31.03	43.50	12.47	120.000	159.0	H	10.0	11.4
300.300000	28.12	46.00	17.88	120.000	109.0	H	75.0	15.1

Diagram 17: E-Field measurement, , set-up. 6 + Op.2, EUT standing

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.680000	33.69	40.00	6.31	120.000	105.0	V	241.0	16.8
67.800000	29.64	40.00	10.36	120.000	147.0	V	281.0	6.8
122.044000	26.55	43.50	16.95	120.000	105.0	V	164.0	8.0
176.284000	29.14	43.50	14.36	120.000	192.0	V	151.0	10.5

1.4. Frequency tolerance of the carrier signal due temperature variations (§15.255(e))

1.4.1. T_{NOM}, V_{NOM}

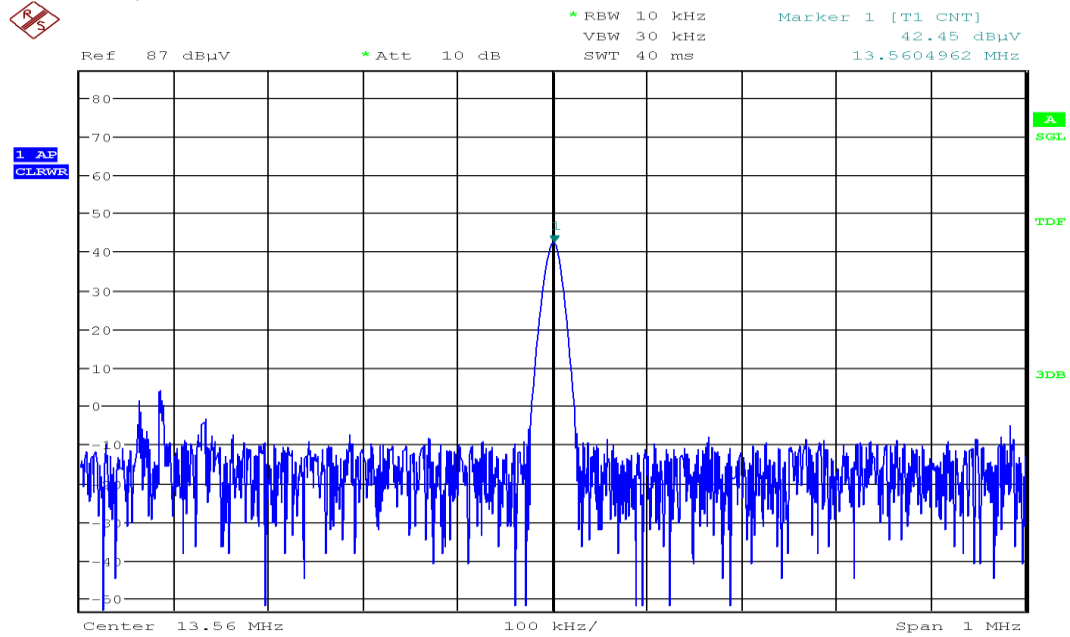
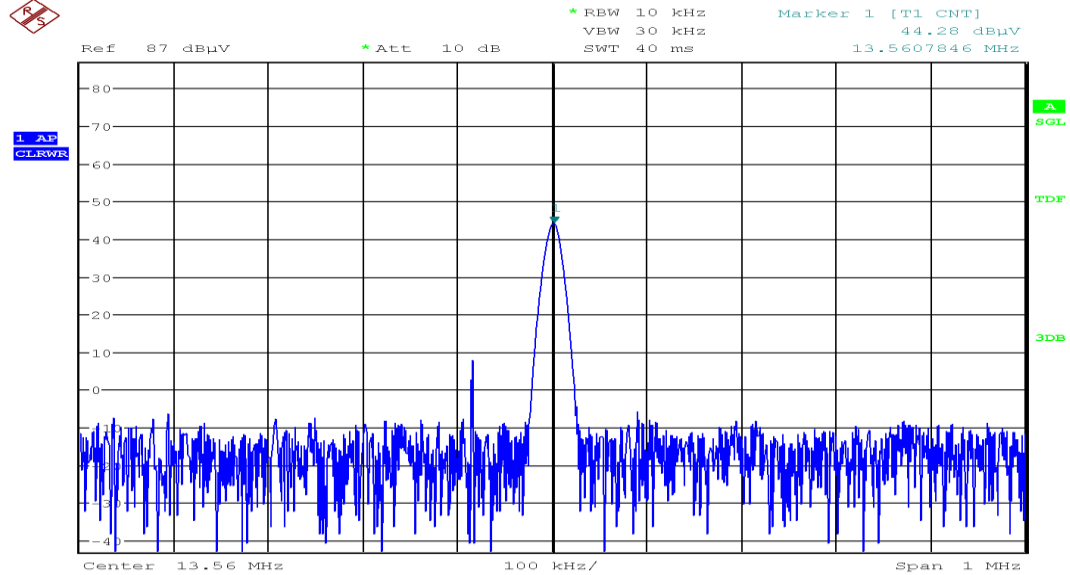


Diagram 18: Carrier frequency under nominal stabilized condition as the reference

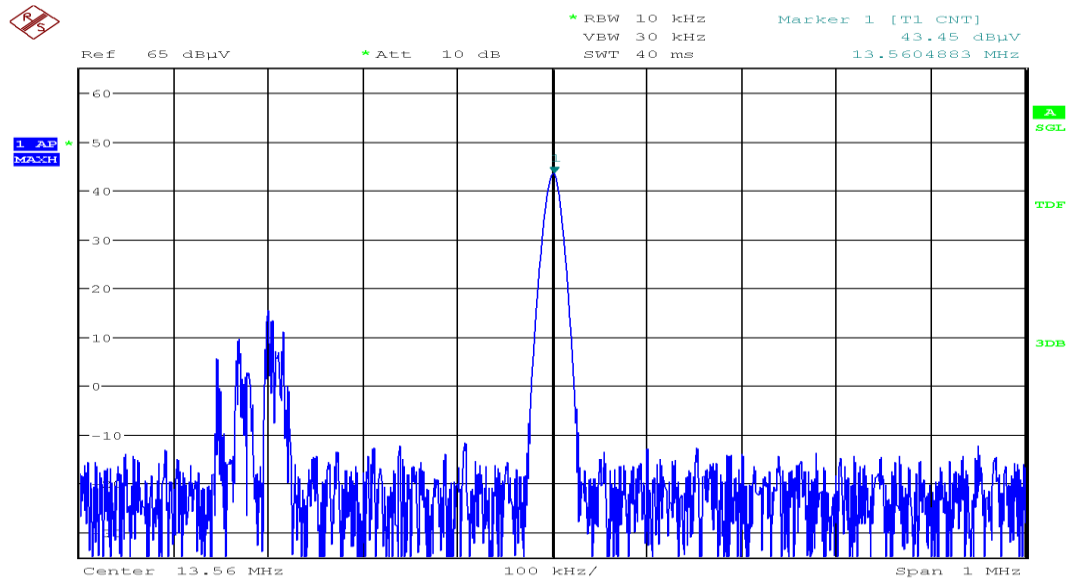
1.4.2. T = -20 ° C, V_{NOM} (worst case)



Date: 31.MAY.2019 17:48:41

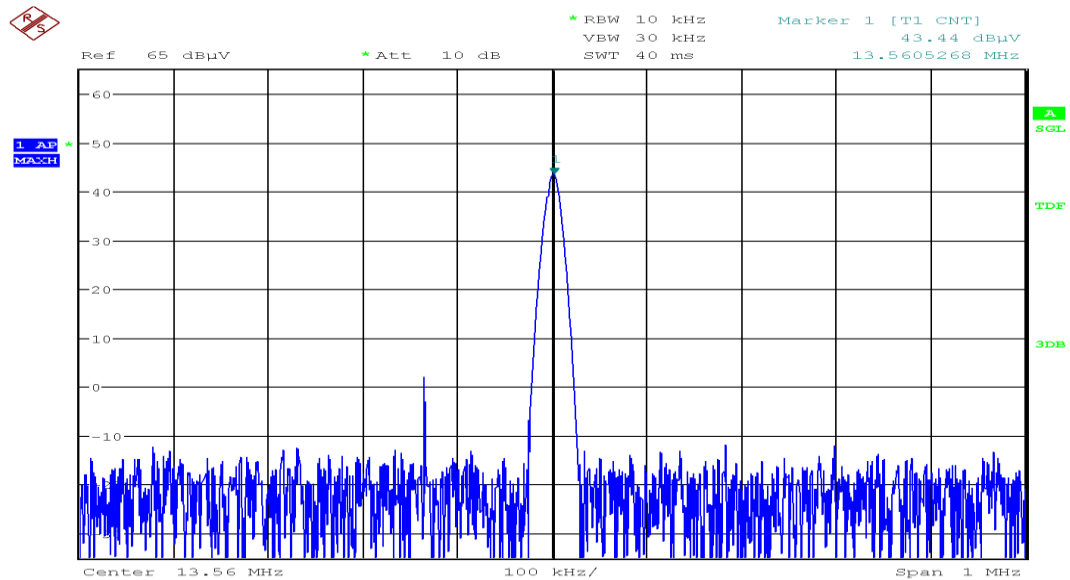
Diagram 19: Carrier frequency under -20° C, 2 min after startup (worst case from the temperature variation and within 10 min after startup of the EUT)

1.5. Frequency tolerance of the carrier signal due voltage variations (§15.255(e))



Date: 10.JUL.2019 15:44:09

Diagram 20: Frequency error at V_{MIN}



Date: 10.JUL.2019 15:41:36

Diagram 21: Frequency error at V_{MAX}