

Annex 1: Measuring diagrams to
TEST REPORT
No.: 19-1-0117501T01a-C1

According to:
Title 47 CFR, Chapter I
FCC Regulations, Subchapter A
Part 15, Subpart C: §15.225

for

R&M USA Inc.

R&MinteliPhy Netscale 60 ports
RFID based network infrastructure monitoring system

FCC ID: 2AVF4R837014

Laboratory Accreditation and Listings
 Deutsche Akkreditierungsstelle D-PL-12047-01-01 D-PL-12047-01-03 D-PL-12047-01-04 Accredited EMC-Test Laboratory
accredited according to DIN EN ISO/IEC 17025:2018
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1. Measurement diagrams

1.1. Conducted emissions on AC-Power lines

1.01_S01_EMI_AC

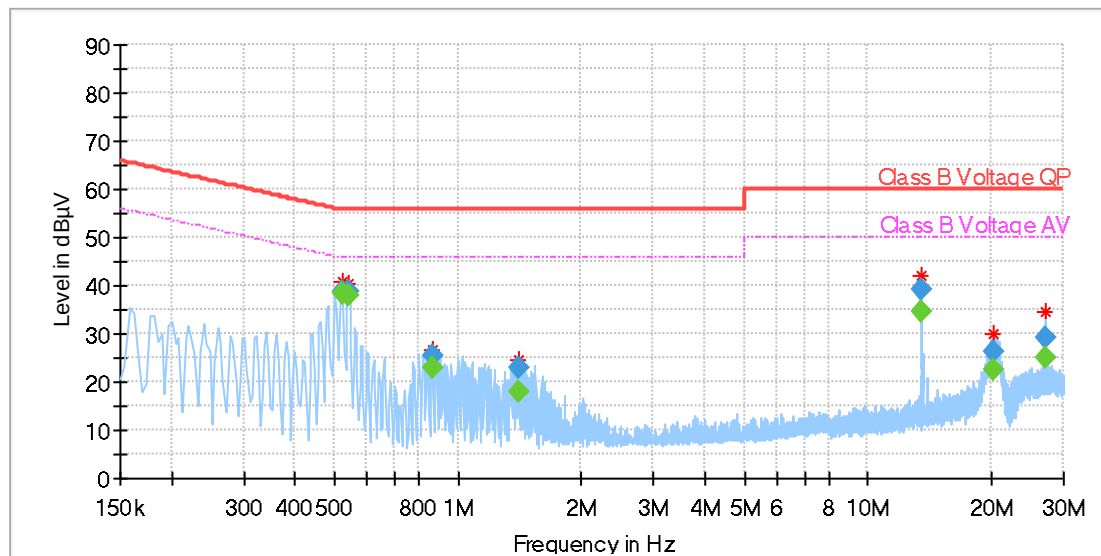
Common Information

Test Description:	Conducted Voltage Measurement Class B
Test Site Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Standard:	FCC 15.207
Operating Mode:	NFC 13,56MHz
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions::	Humidity : 40 % rH; Temperature: 21 °C
Operator:	Mah
Verdict:	Passed

EUT Information

PMT number:	19-1-01175S01
Product:	R&MinteliPhy Netscale Kit 60 ports
Model:	RFID based network infrastructure monitoring system
HW version:	Rev. A
SW version:	400C
Config:	NFC is switched on
Power Supply:	120 AC/60 Hz

Full Spectrum

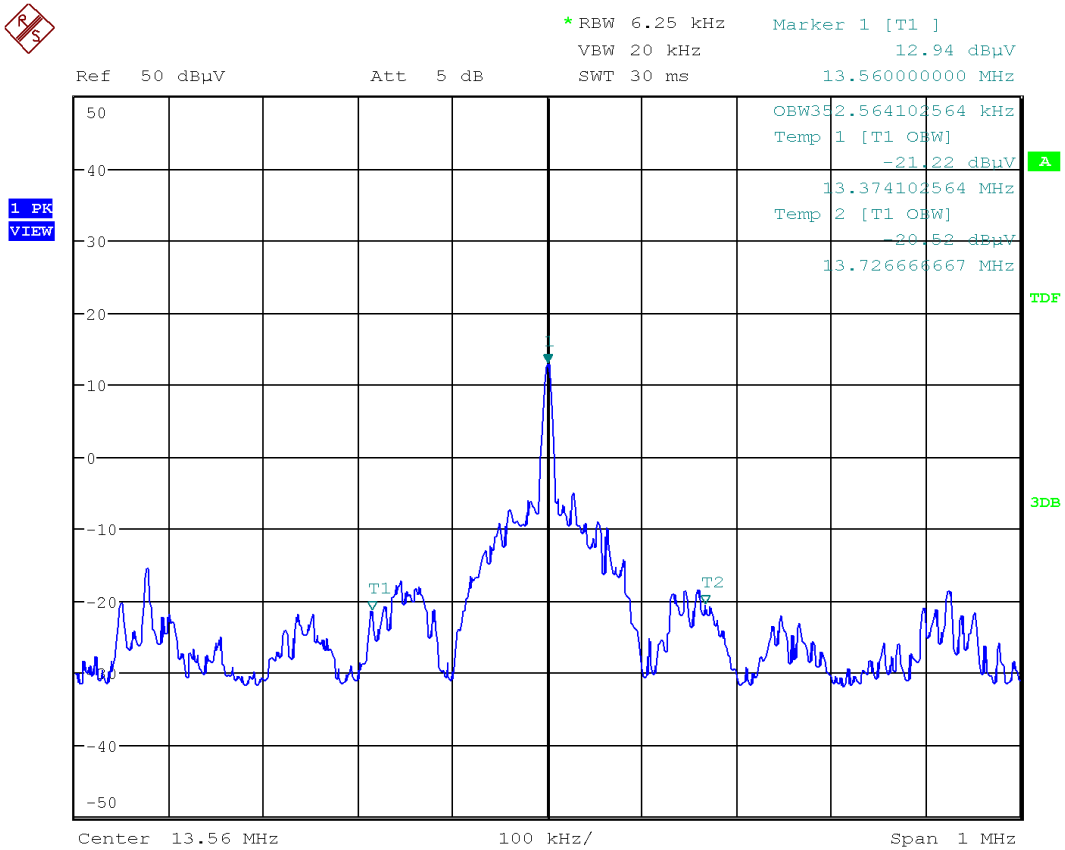


Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Marg in (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.523125	38.90	---	56.00	17.10	1000.	9.000	N	GN	0.1
0.523125	---	38.42	46.00	7.58	1000.	9.000	N	GN	0.1
0.538594	38.82	---	56.00	17.18	1000.	9.000	N	GN	0.1
0.538594	---	37.95	46.00	8.05	1000.	9.000	N	GN	0.1
0.862969	25.52	---	56.00	30.48	1000.	9.000	N	GN	0.2
0.862969	---	22.74	46.00	23.26	1000.	9.000	N	GN	0.2
1.401406	22.90	---	56.00	33.10	1000.	9.000	N	GN	0.3
1.401406	---	17.98	46.00	28.02	1000.	9.000	N	GN	0.3
13.562656	39.18	---	60.00	20.82	1000.	9.000	N	GN	0.6
13.562656	---	34.55	50.00	15.45	1000.	9.000	N	GN	0.6
20.326563	---	22.39	50.00	27.61	1000.	9.000	L1	GN	0.8
20.326563	26.44	---	60.00	33.56	1000.	9.000	L1	GN	0.8
27.121250	29.09	---	60.00	30.91	1000.	9.000	L1	GN	0.5
27.121250	---	25.05	50.00	24.95	1000.	9.000	L1	GN	0.5

1.2. Operating frequency ranges (99% OBW)

1.2.1. T_{NOM}, V_{NOM}



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Diagram 1: OBW 99%

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

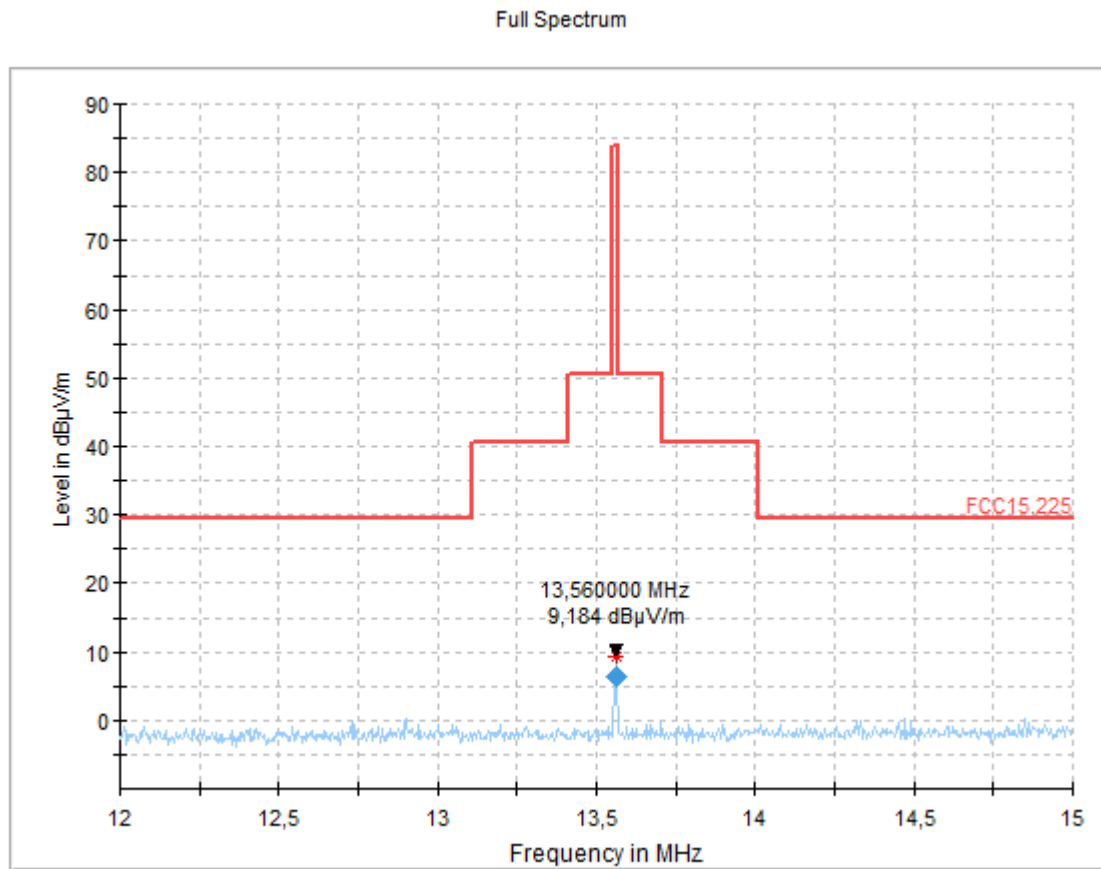


Diagram 2: EUT lying

Full Spectrum

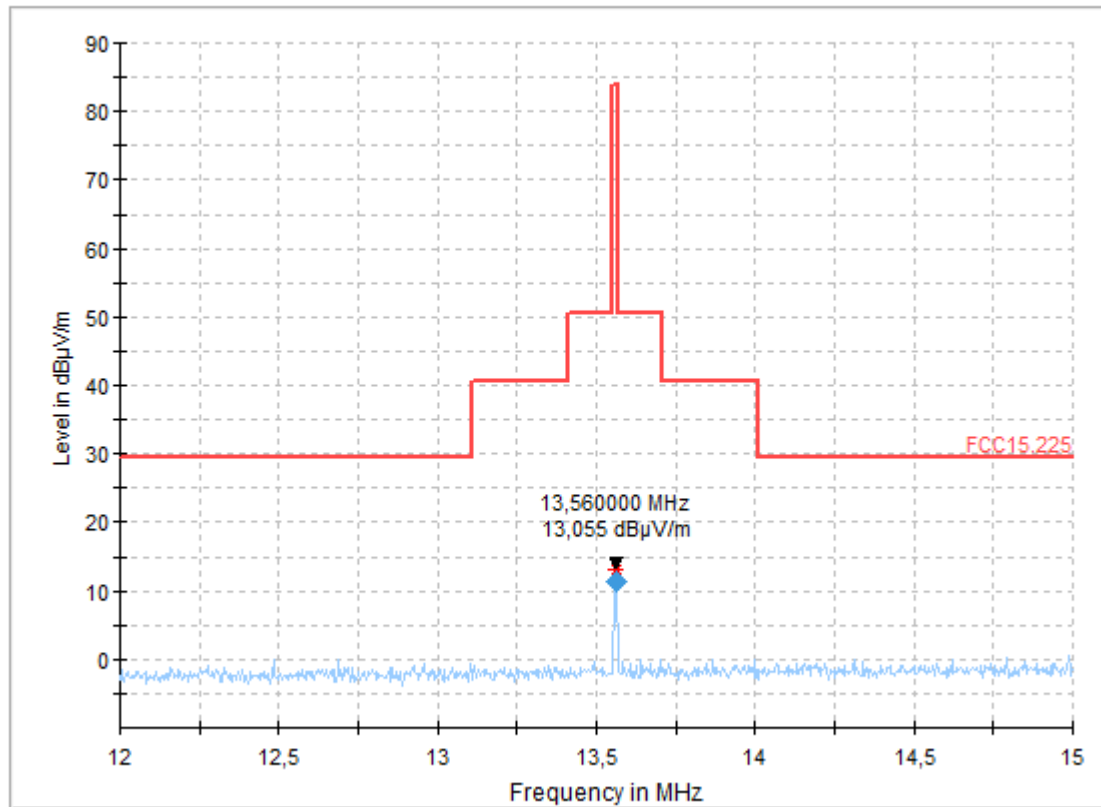


Diagram 3: EUT standing

1.4. Transmitter spurious emissions

1.4.1. Frequency 9 kHz to 30 MHz (TX-Mode)

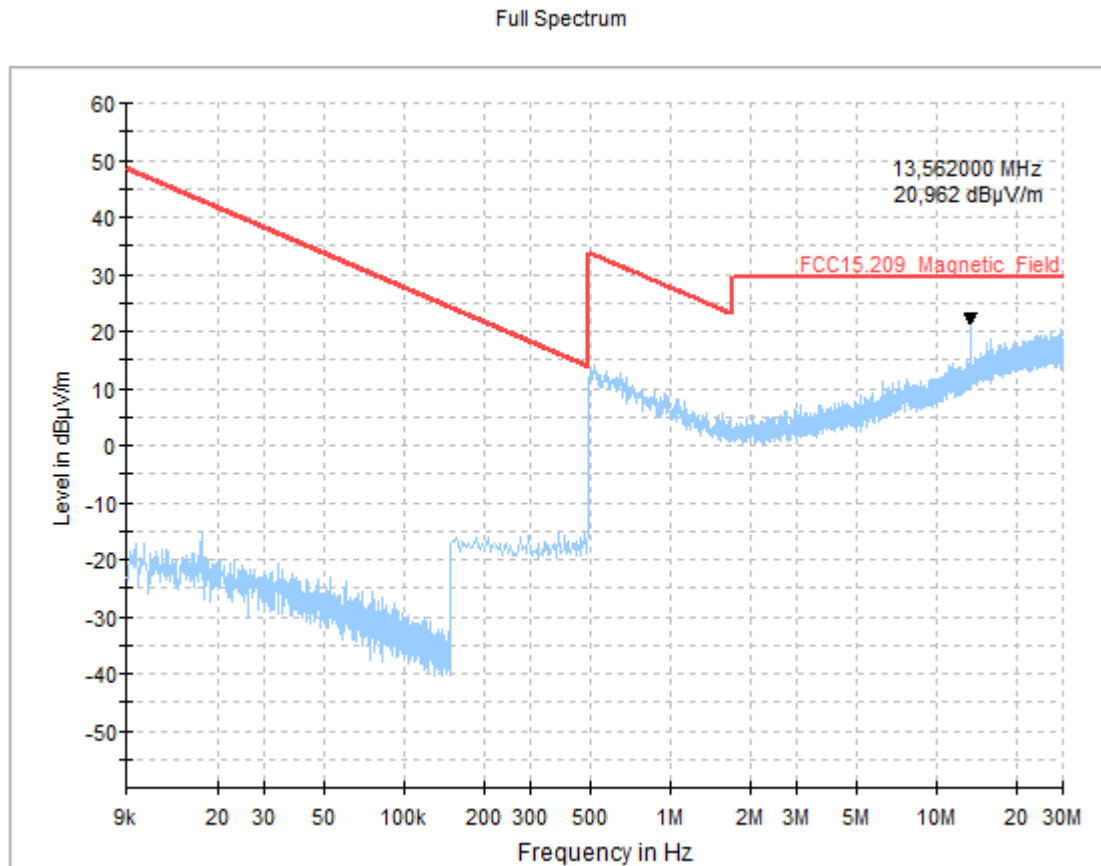


Diagram 4: TX spurious emissions up to 30 MHz

1.4.2. Frequency 30 MHz to 1000 MHz (TX Mode)

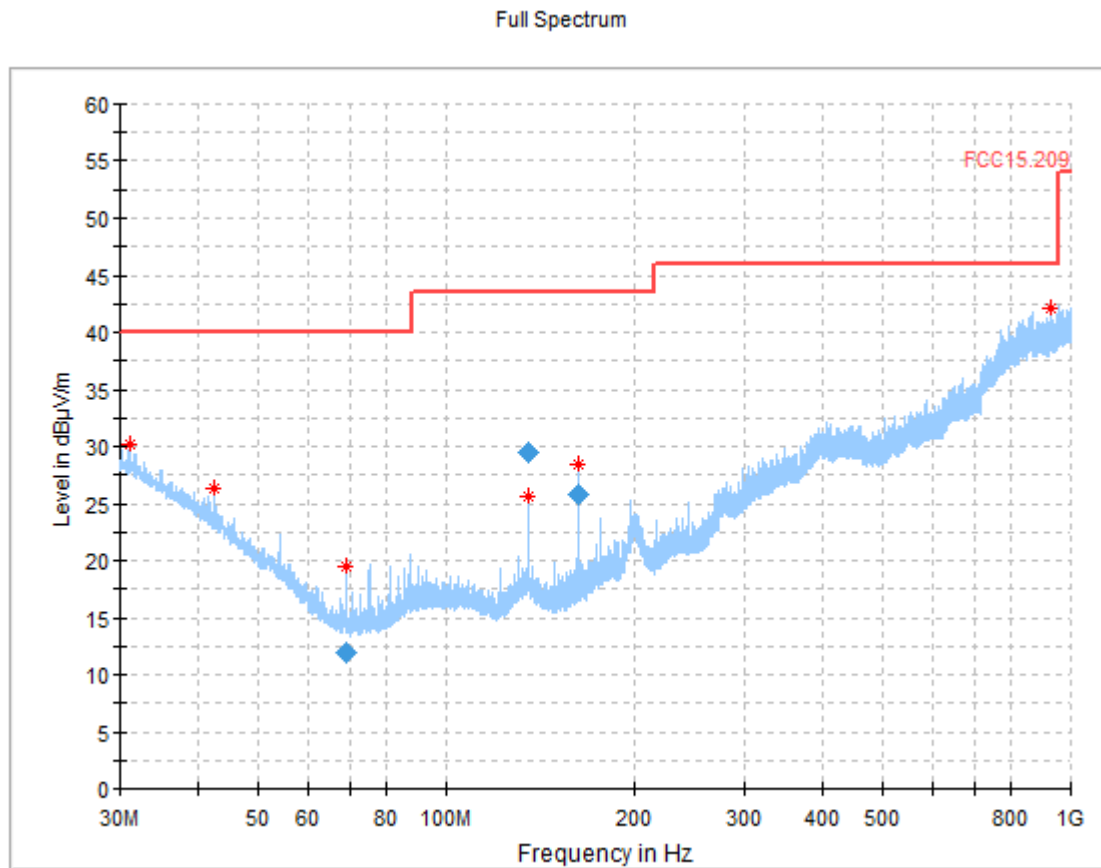


Diagram 5: E-Field measurements, EUT lying

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
68.956000	11.96	40.00	28.04	120.000	189.0	V	30.0	6.7
135.600000	29.50	43.50	14.00	120.000	203.0	H	295.0	9.8
162.724000	25.78	43.50	17.72	120.000	224.0	H	289.0	9.5

Full Spectrum

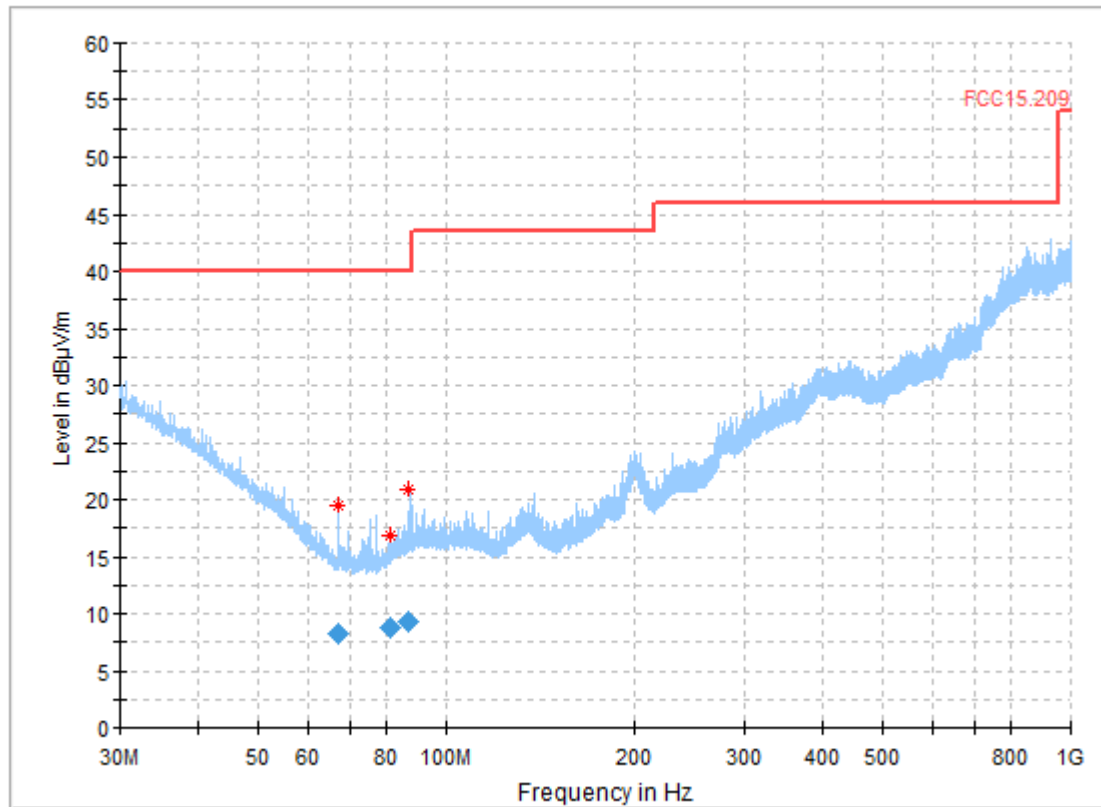


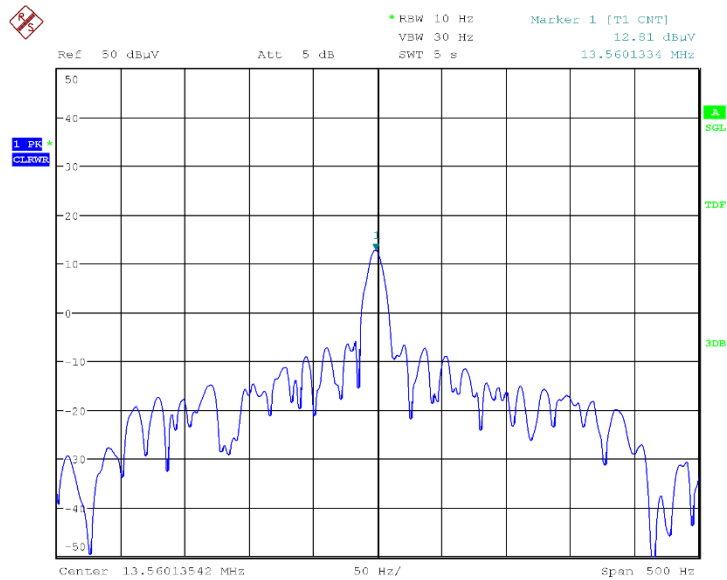
Diagram 6: E-Field measurements, EUT standing

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)		Pol	Azimuth (deg)	Corr. (dB)
67.232000	8.18	40.00	31.82	120.000	170.0		V	352.0	6.9
81.004000	8.85	40.00	31.15	120.000	154.0		V	112.0	7.1
87.176000	9.37	40.00	30.63	120.000	225.0		V	175.0	8.0

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

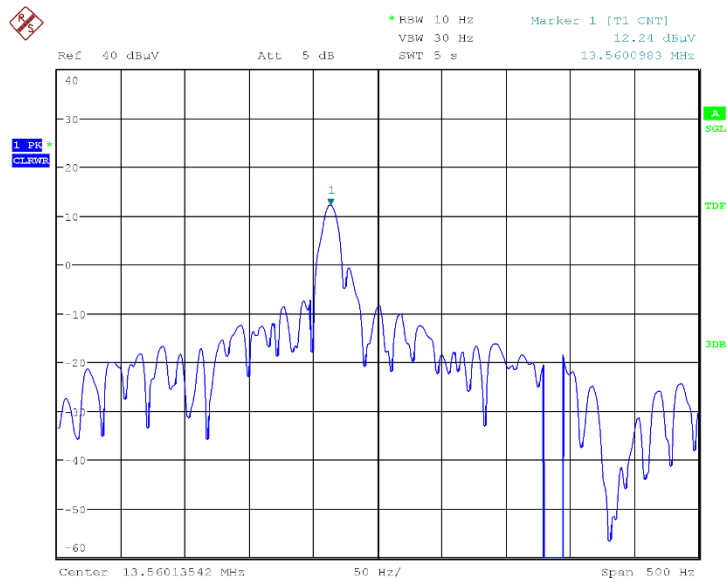
1.5.1. T_{NOM} , V_{NOM}



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Diagram 7: Frequency error

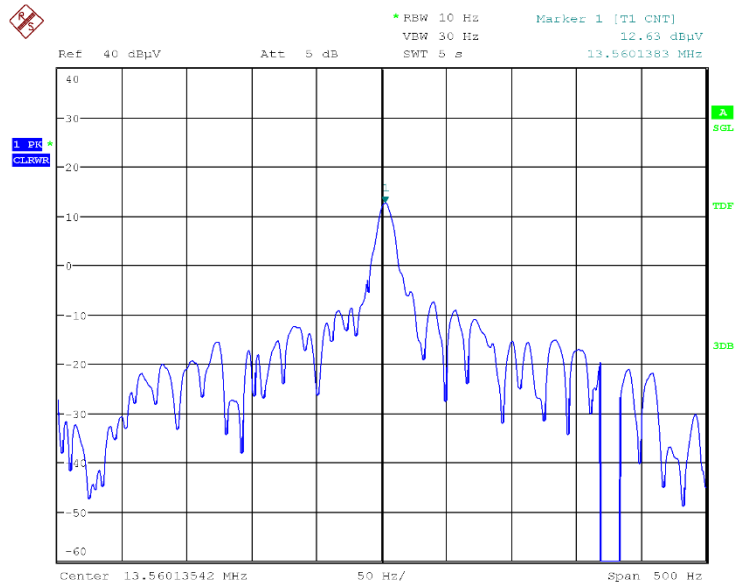
1.5.2. $T = +40\text{ }^{\circ}\text{C}$, V_{NOM}



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Diagram 8: Frequency error at +40 °C, on start up

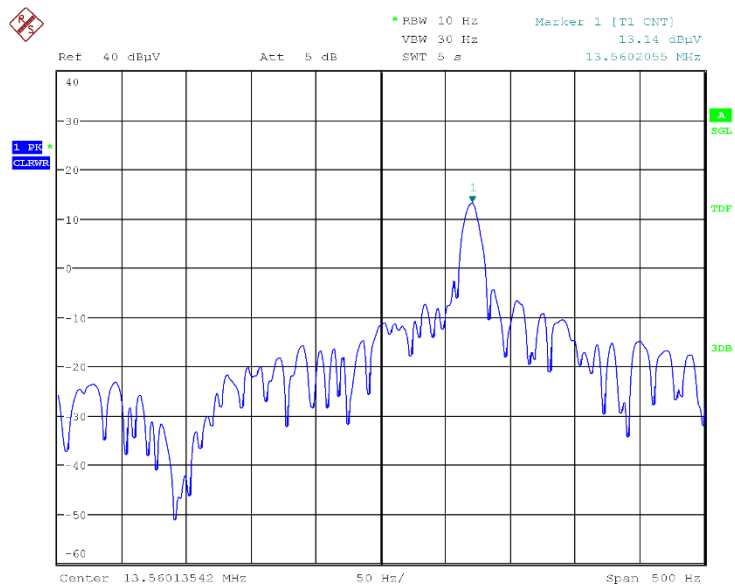
1.5.3. $T = +30^{\circ}\text{C}$, V_{NOM}



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Diagram 9: Frequency error at +30 °C, on start up

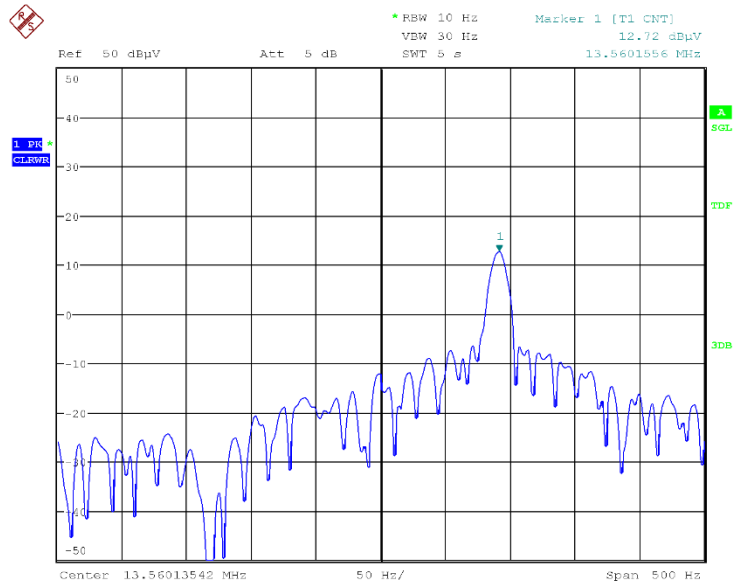
1.5.4. $T = +10^{\circ}\text{C}$, V_{NOM}



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Diagram 10: Frequency error at +10 °C, on start up

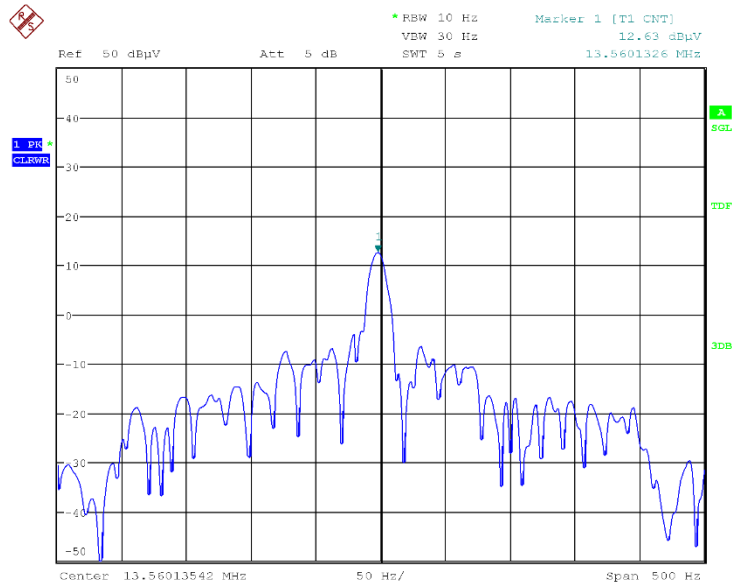
1.5.5. T= 0 °C, V_{NOM}



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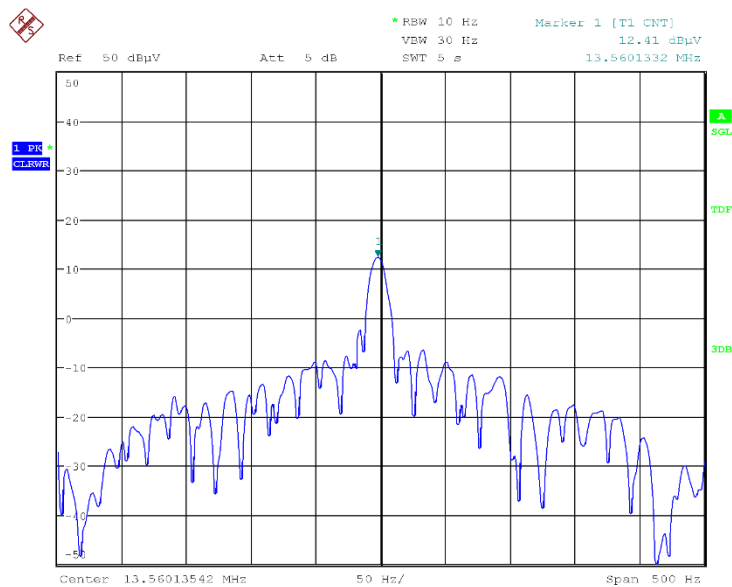
Diagram 11: Frequency error at 0 °C, on start up

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



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Diagram 12: Frequency error at $U_{MIN} = 12$ V



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Diagram 13: Frequency error at $U_{MAX} = 17$ V

End of the Annex