

Annex 1: Measuring diagrams to
TEST REPORT
No.: 19-1-0117401T01a-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 SensorBar for 48 port panel ELISO
RFID based network infrastructure monitoring system

FCC ID: 2AVF4R837017

Laboratory Accreditation and Listings
 Accredited EMC-Test Laboratory
accredited according to DIN EN ISO/IEC 17025:2018
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Table of contents

1. MEASUREMENT DIAGRAMS..... 3

1.1. Conducted emission on AC-Power lines 3

1.2. Operating frequency ranges (99% OBW)..... 4

1.3. H-Field requirements (§15.225 (a)(b)(c)) 5

1.4. Transmitter spurious emissions 6

1.5. Frequency tolerance of the carrier signal due temperature variations (§15.255(e))..... 9

1.6. Frequency tolerance of the carrier signal due voltage variations (§15.255(e))..... 12

1. Measurement diagrams

1.1. Conducted emission on AC-Power lines

1.01_S01_AC_EMI

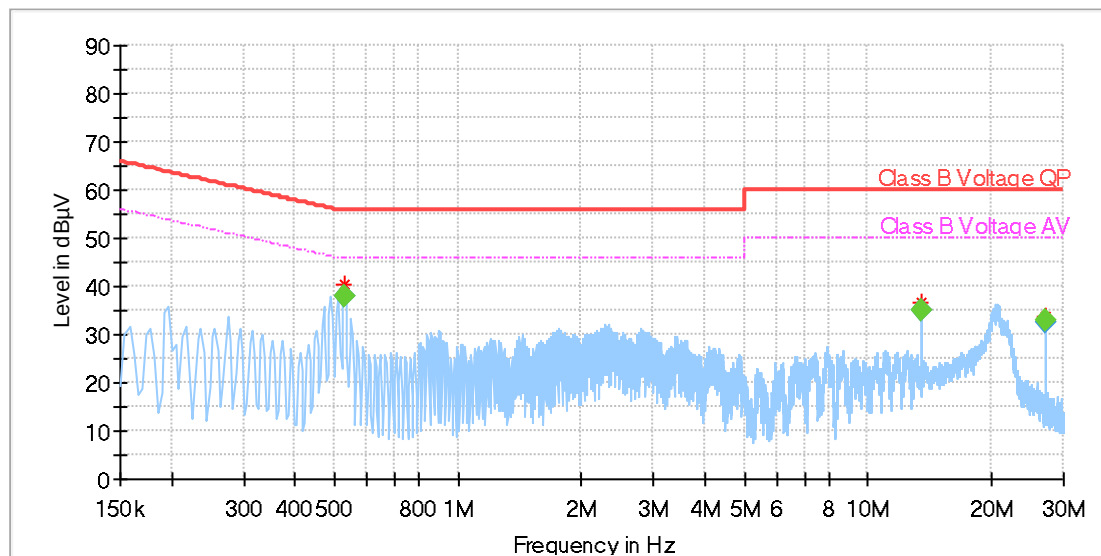
Common Information

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 TXRX
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:	GHu
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01174S01
Product:	R&MinteliPhy SensorBar for 48 port panel ELISO
Model:	RFID based network infrastructure monitoring system
HW version:	Rev. B
SW version:	N/A
Serial number:	1002011000006346
Power Supply:	120 V AC 60 Hz

Full Spectrum

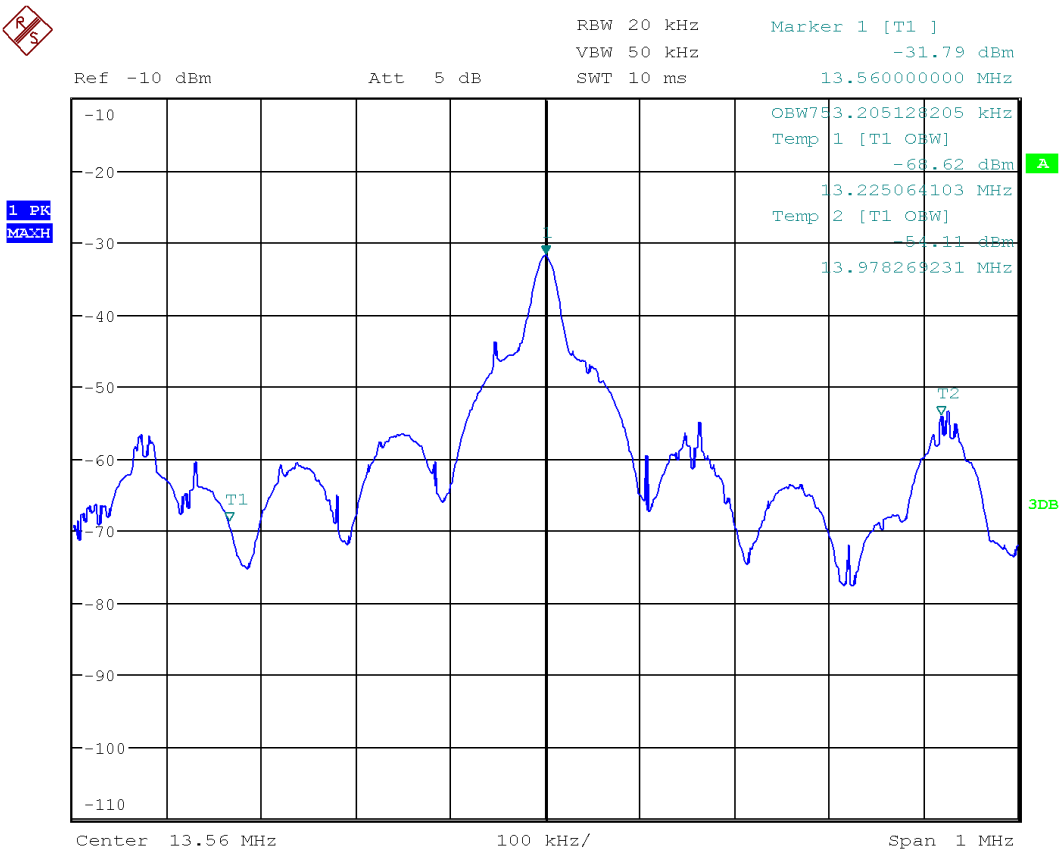


Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Marg in (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.526406	---	38.06	46.00	7.94	1000.	9.000	N	GN	0.1
0.526406	37.94	---	56.00	18.06	1000.	9.000	N	GN	0.1
13.557656	---	35.06	50.00	14.94	1000.	9.000	N	GN	0.6
13.557656	35.00	---	60.00	25.00	1000.	9.000	N	GN	0.6
27.121250	---	33.10	50.00	16.90	1000.	9.000	N	GN	0.9
27.121250	32.52	---	60.00	27.48	1000.	9.000	N	GN	0.9

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))

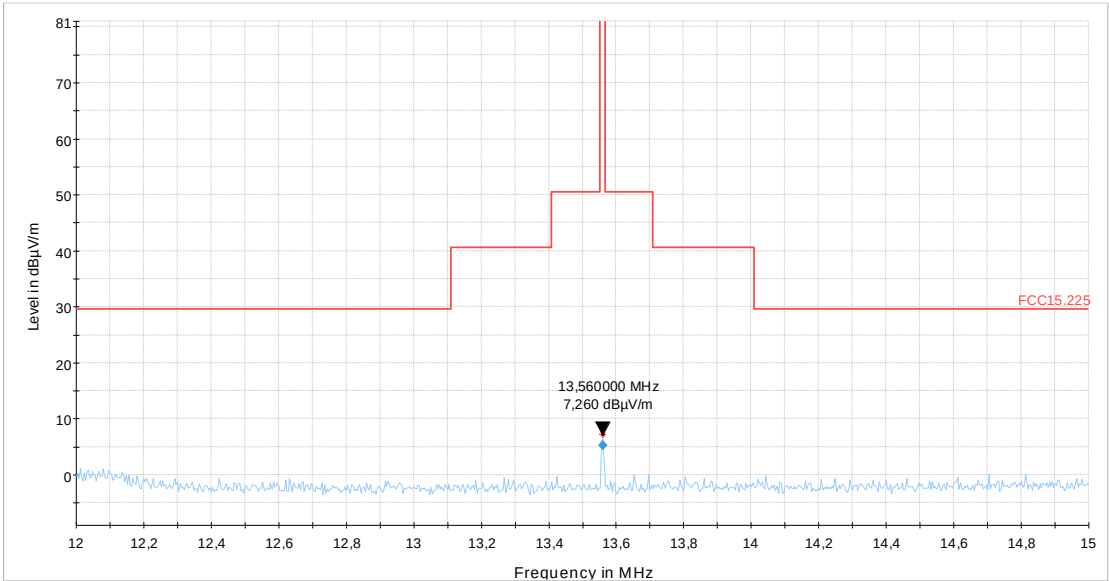


Diagram 2: EUT lying

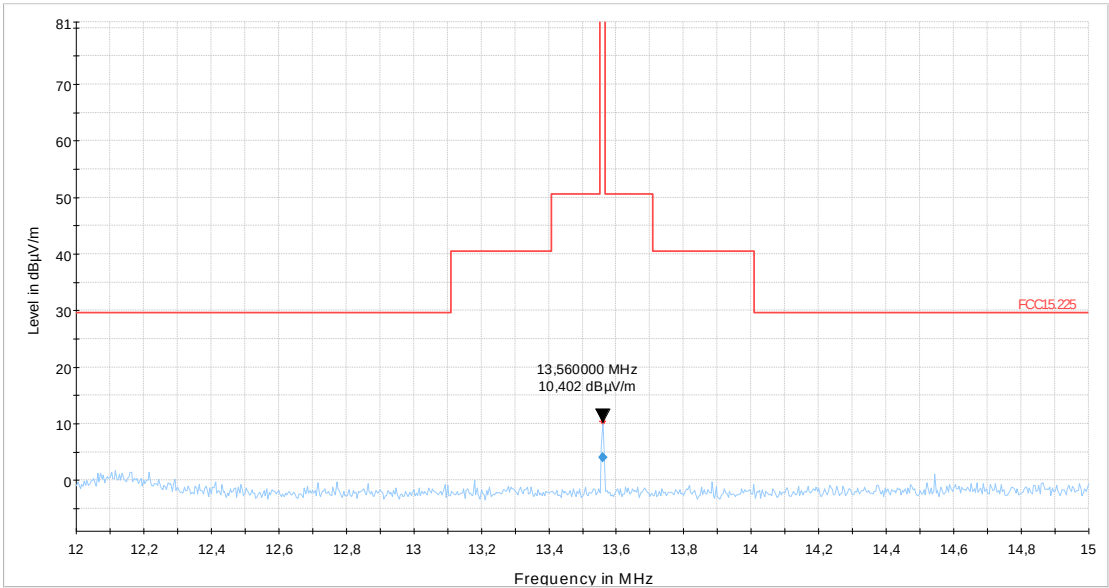


Diagram 3: EUT standing

1.4. Transmitter spurious emissions

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

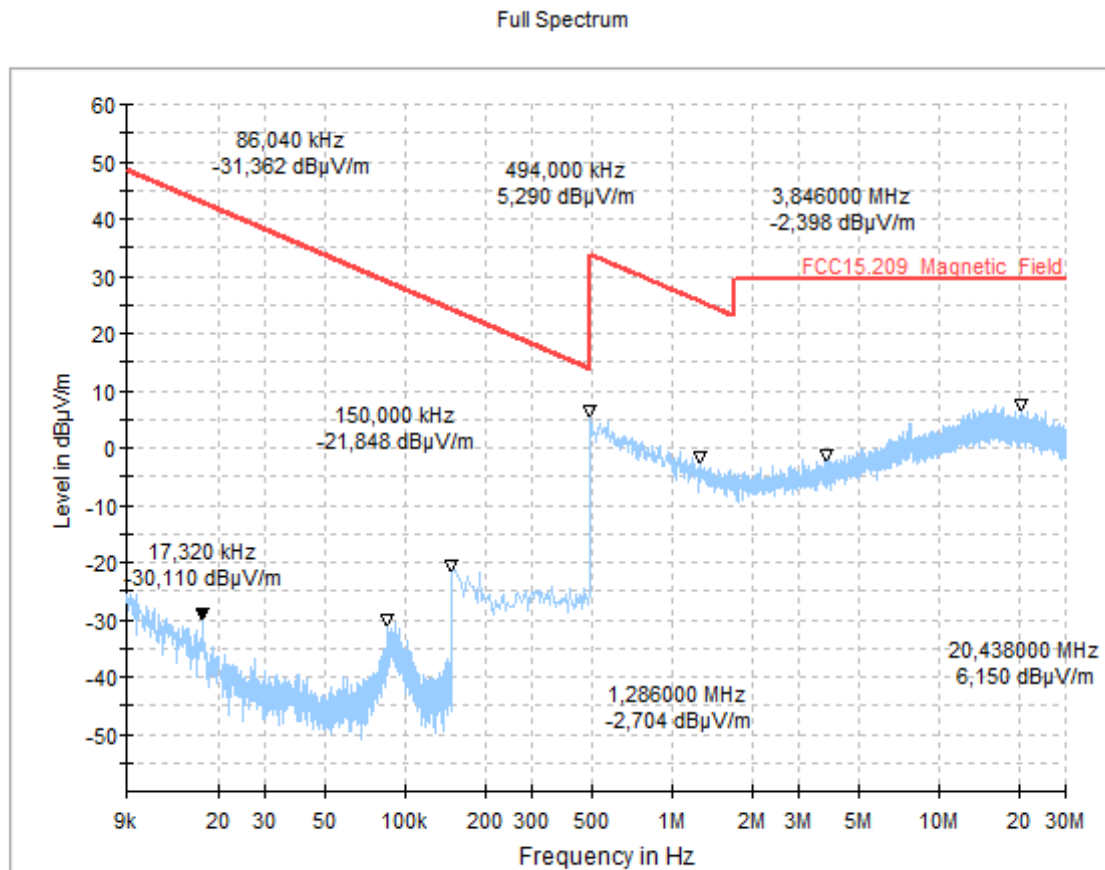


Diagram 4: TX spurious emissions up to 30 MHz

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

Full Spectrum

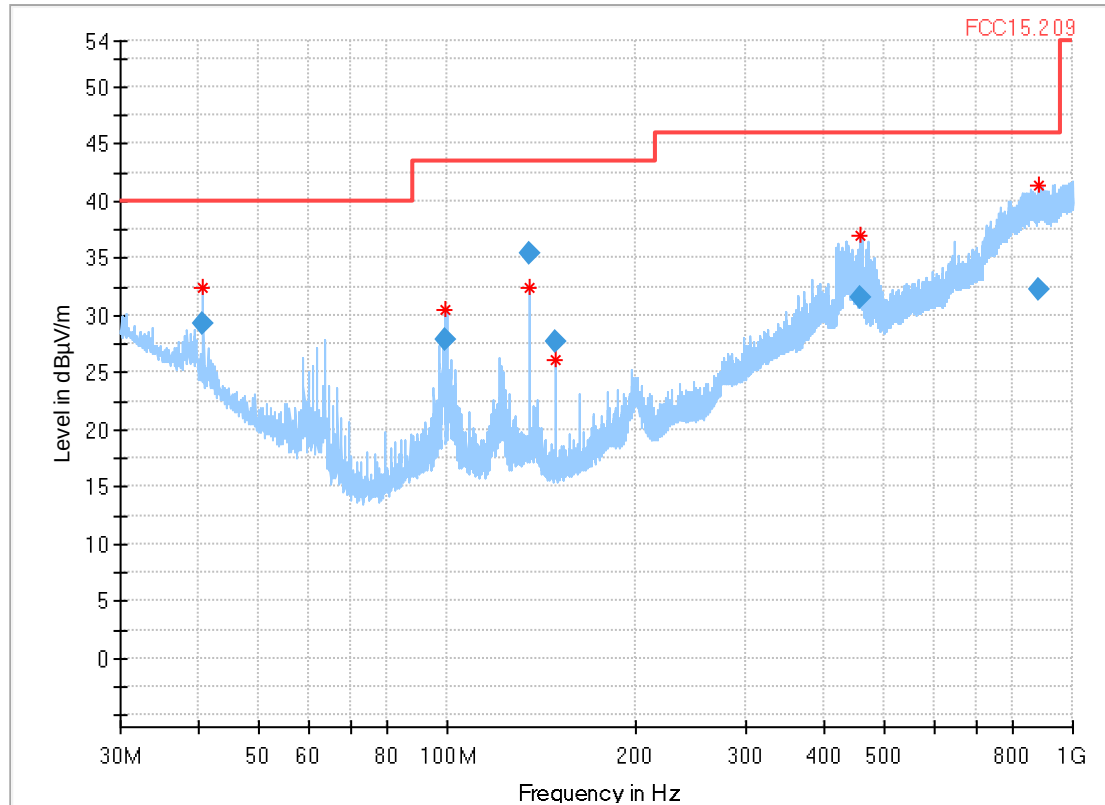


Diagram 5: E-Field measurements, EUT lying

Final_Result

Frequency (MHz)	QuasiPeak (dBμV /m)	Limit (dBμV /m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Cor. (dB)
40.680000	29.19	40.00	10.81	120.000	336.0	V	350.0	16.8
99.140000	27.90	43.50	15.60	120.000	113.0	V	193.0	8.1
135.600000	35.40	43.50	8.10	120.000	105.0	V	289.0	9.8
149.156000	27.75	43.50	15.75	120.000	204.0	H	329.0	8.6
457.224000	31.48	46.00	14.52	120.000	112.0	V	44.0	19.6
884.396000	32.23	46.00	13.77	120.000	368.0	H	221.0	26.9

Full Spectrum

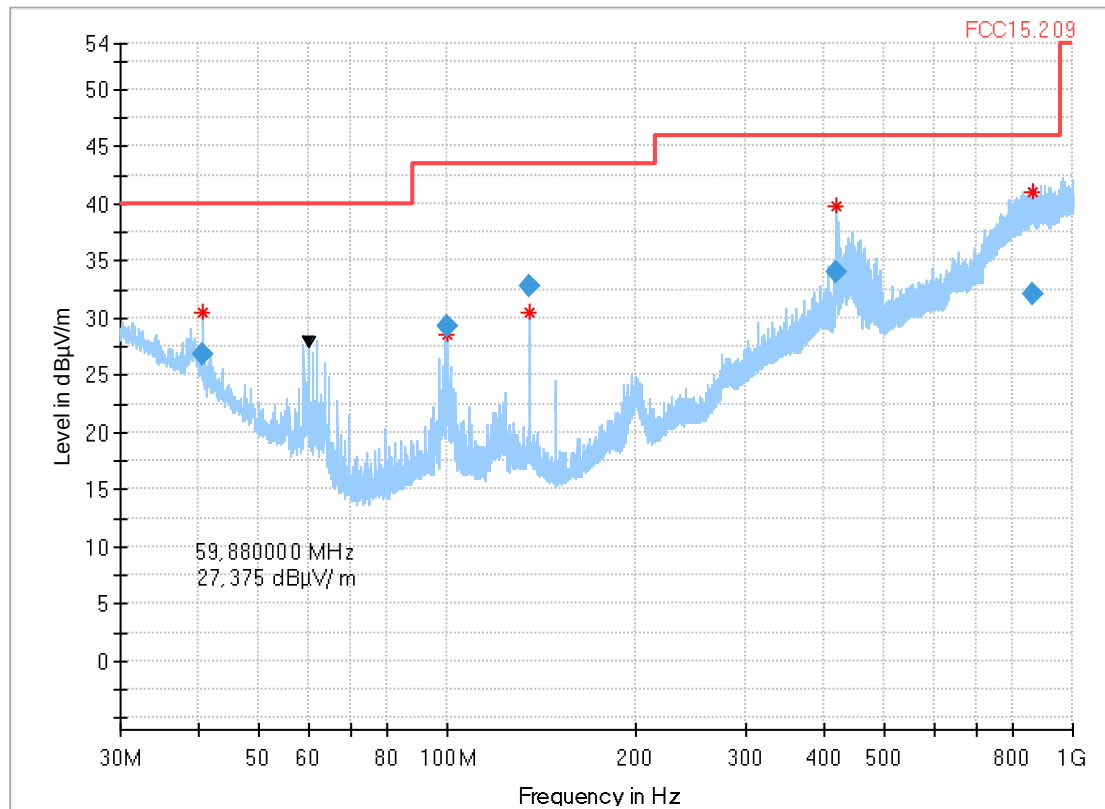


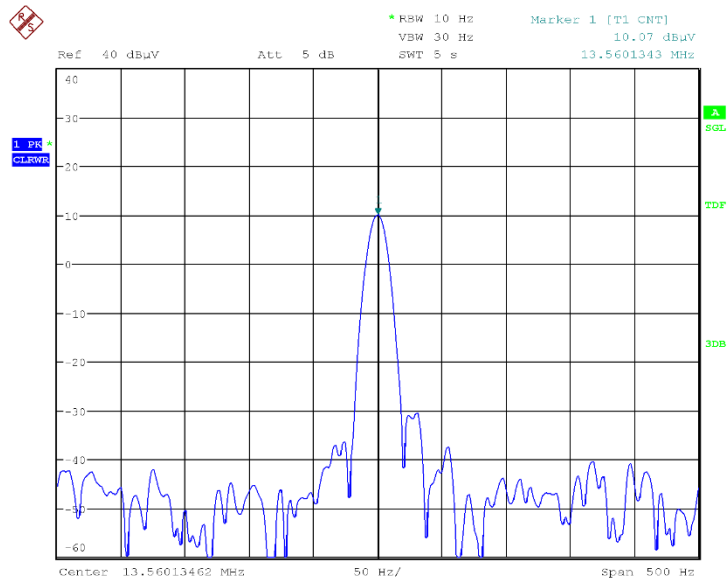
Diagram 6: E-Field measurements, EUT standing

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.680000	26.73	40.00	13.27	120.000	360.0	V	16.0	16.8
100.096000	29.27	43.50	14.23	120.000	153.0	V	217.0	8.1
135.600000	32.78	43.50	10.72	120.000	154.0	H	135.0	9.8
419.080000	34.08	46.00	11.92	120.000	118.0	V	357.0	18.8
863.168000	32.07	46.00	13.94	120.000	320.0	H	47.0	26.6

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

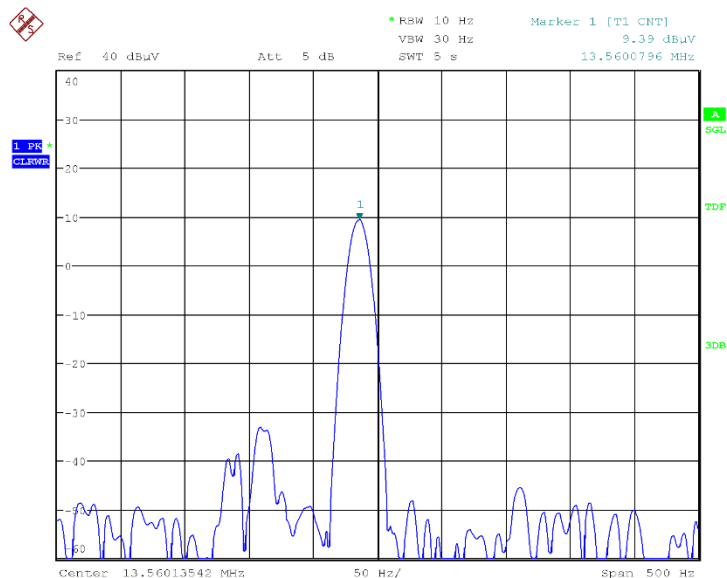
1.5.1. T_{NOM} , V_{NOM}



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Diagram 7: Frequency error

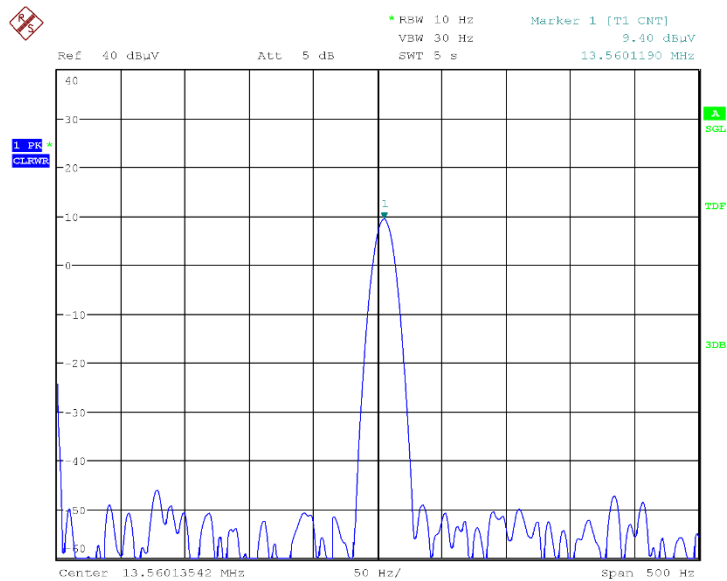
1.5.2. $T = +40\text{ }^{\circ}\text{C}$, V_{NOM}



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

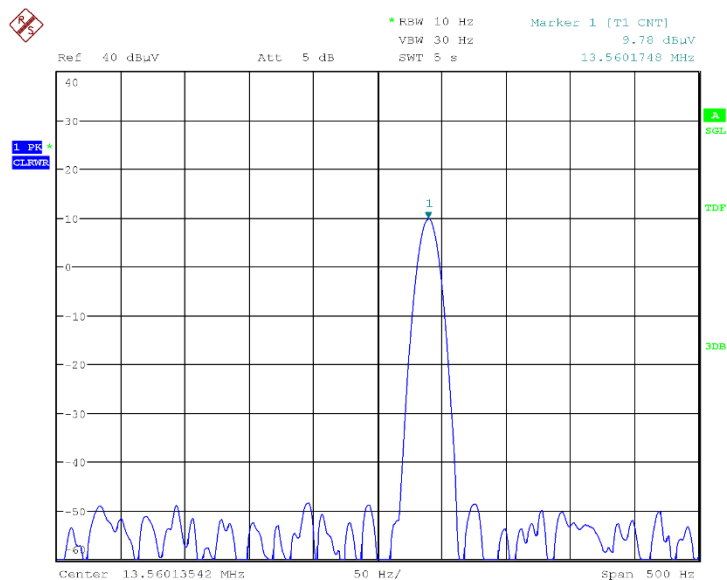
1.5.3. T= +30 °C, V_{NOM}



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

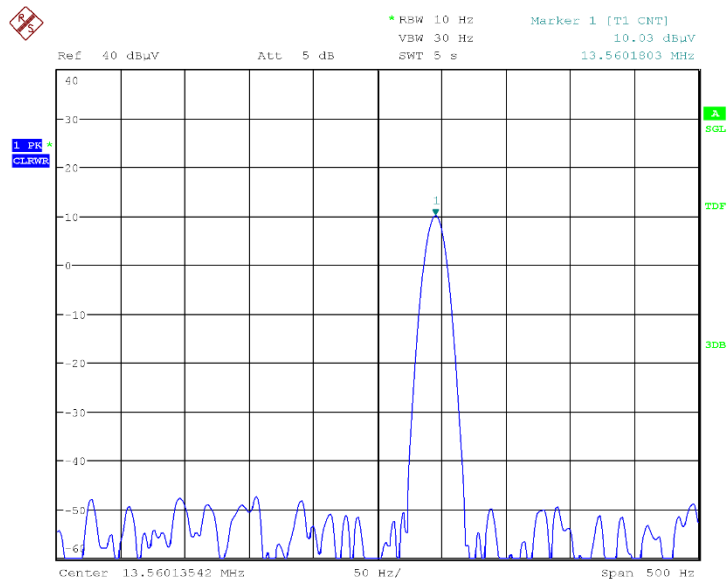
1.5.4. T= +10 °C, V_{NOM}



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

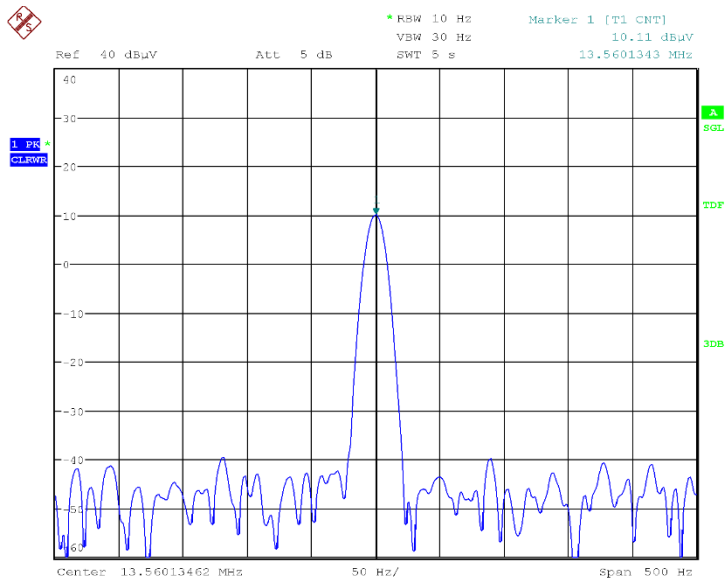
1.5.5. T= 0 °C, V_{NOM}



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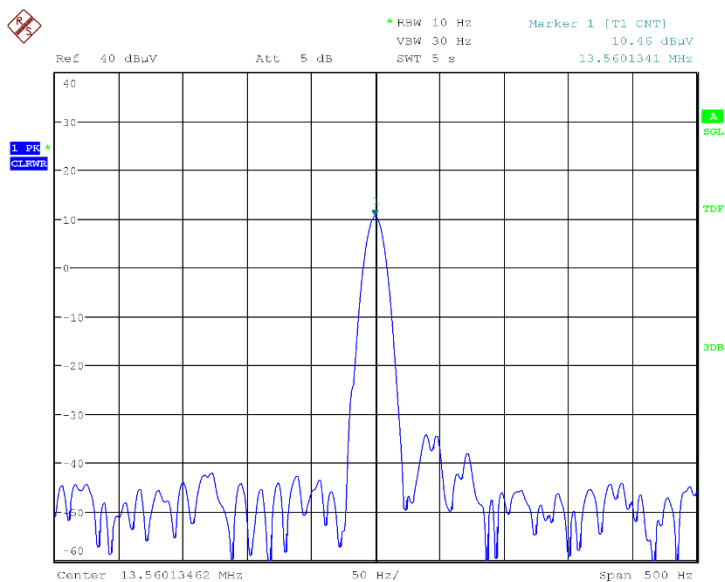
Diagram 11: Frequency error at 0 °C, on start up

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

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