

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 46 von 99
Page 46 of 99

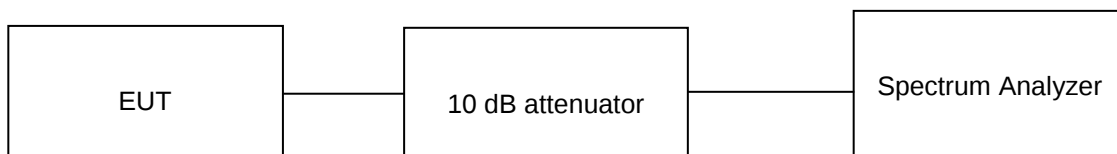
8.3 Maximum Power Spectral Density

Result

Pass

Test Specification	FCC part 15 Subpart C 15.407 (a) / RSS 247 Issue 2 Section 6.2.1 & Section 6.2.4
Test Method	Subclause 12.5 of ANSI C63.10
Measurement Bandwidth	1 MHz for UNII 1 Band and 300KHz for UNII 3 Band
Detector	Average sample detector
Port of testing	Antenna port
Requirement for FCC	1. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band 2. For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band
Requirement for IC	1. For the band 5.15-5.25 GHz, The e.i.r.p. spectral density shall not exceed 10 dBm in any 1 MHz band 2. For the band 5.725-5.85 GHz, The output power spectral density shall not exceed 30 dBm in any 500 kHz band

Test Method:



Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 47 von 99
Page 47 of 99

The following procedure shall be used:

1. Set center frequency to the nominal EUT channel center frequency
2. Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal
3. Set RBW = 1MHz (5.15-5.25 GHz band) / 500kHz (5.725-5.85 GHz band)
4. Set VBW $\geq 3 \times$ RBW
5. Number of points in sweep $\geq 2 \times$ span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto
7. Detector = power averaging (rms), if available. Otherwise, use sample detector mode
8. Do not use sweep triggering. Allow the sweep to "free run."
9. Trace average at least 100 traces and Compute power by integrating the spectrum across the EBW
10. Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission)
11. If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
 - a. Set RBW = 300 kHz
 - b. Set VBW ≥ 3 RBW
 - c. If measurement bandwidth of Maximum PSD is specified in 500 kHz

$$\text{PSD bandwidth correction Factor} = 10 * \log(500 \text{ kHz} / \text{RBW})$$

Test Condition:

Normal Test Condition:

Temperature (Norm) = + 24.5 °C Voltage = Internal Battery + 5.0 V DC Relative humidity: 63%

KDB Guidelines applied:

Measurements were made as per section F in KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test results:

Note:

1. All the losses are included during measurement and final values are mentioned in the test report
10 dB attenuator + 1.5dB Cable loss = 11.5 dB total offset
2. Duty cycle correction factor is considered in Final Average power
Duty cycle Correction factor = $10 * \log(1/X)$ Where X is Duty Cycle
3. This product do not support additional beamforming gain / directional gain, it uses signal antenna and hence directional gain of the single antenna is (5.2 dBi)
4. e.i.r.p = Maximum Average PSD (dBm) + Antenna gain in dBi

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 48 von 99
Page 48 of 99

Modulation: 802.11a – UNII 1,

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/ 1MHz)	PSD (e.i.r.p) (dBm/ 1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p SD (dBm/ 1MHz)
a_mode-6Mbps	5180	3.20	93.31	0.30	3.50	8.70	11.00	10.00
	5240	3.19	93.31	0.30	3.49	8.69	11.00	10.00
a_mode-54Mbps	5180	2.45	92.68	0.33	2.78	7.98	11.00	10.00
	5240	2.69	92.69	0.33	3.02	8.22	11.00	10.00

Modulation: 802.11a – UNII 3

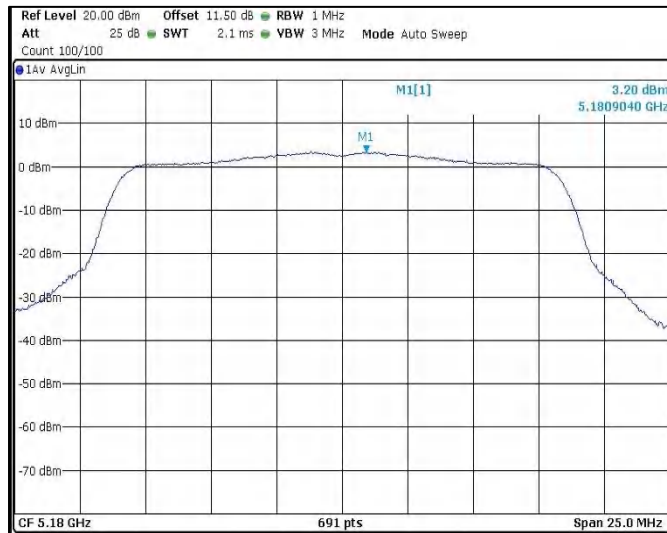
Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/ 0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Band width Correction (dB)	Maximum Average PSD (dBm/ 500kHz)	PSD (e.i.r.p) (dBm/ 500kHz)	FCC PSD Limit (dBm/ 500kHz)	IC e.i.r.p PSD (dBm/ 500kHz)
a_mode-6Mbps	5745	-5.02	99.03	0.04	2.21	-2.77	2.43	30.00	10.00
	5825	-3.42	99.03	0.04	2.21	-1.17	4.03	30.00	10.00
a_mode-54Mbps	5745	-5.56	92.14	0.36	2.21	-2.99	2.21	30.00	10.00
	5825	-4.00	92.14	0.36	2.21	-1.43	3.77	30.00	10.00

Test Plots:

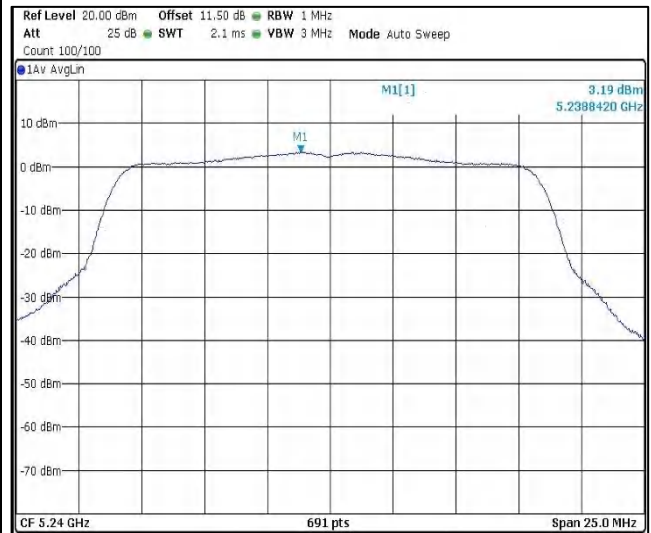
Only 6Mbps plots are copied

Data rate: 6Mbps

Channel Frequency:5180MHz

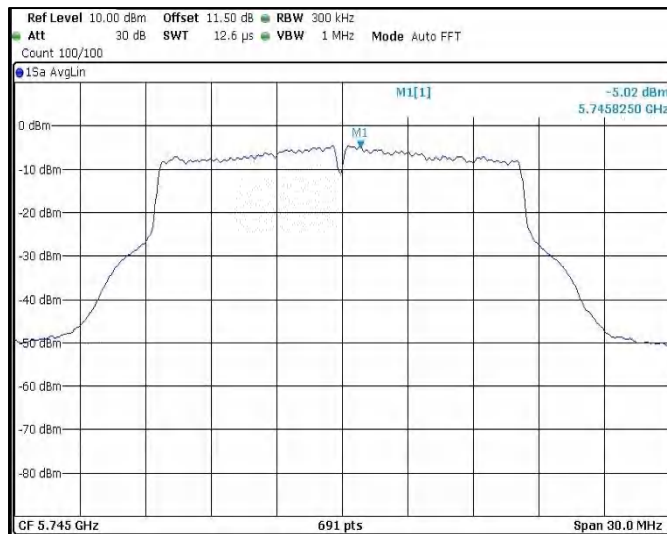


Channel Frequency:5240MHz



Data rate: 6Mbps

Channel Frequency:5745Hz



Channel Frequency:5825MHz



Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 50 von 99

Page 50 of 99

Modulation: 802.11n – 20MHz - UNII 1

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/ 1MHz)	PSD (e.i.r.p) (dBm/ 1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p SD (dBm/ 1MHz)
n_mode-MCS0	5180.00	0.45	86.68	0.62	1.07	6.27	11.00	10.00
	5240.00	-0.25	86.68	0.62	0.37	5.57	11.00	10.00
n_mode-MCS7	5180.00	2.27	99.23	0.03	2.30	7.50	11.00	10.00
	5240.00	3.48	95.85	0.18	3.66	8.86	11.00	10.00

Modulation: 802.11n – 20MHz - UNII 3

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/ 0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Bandwidth Correction (dB)	Maximum Average PSD (dBm/ 500kHz)	PSD (e.i.r.p) (dBm/ 500kHz)	FCC PSD Limit (dBm/ 500kHz)	IC e.i.r.p PSD (dBm/ 500kHz)
n_mode-MCS0	5745	-6.58	98.96	0.05	2.21	-4.32	0.88	30.00	10.00
	5825	-5.69	98.96	0.05	2.21	-3.43	1.77	30.00	10.00
n_mode-MCS7	5745	-7.46	91.34	0.39	2.21	-4.86	0.34	30.00	10.00
	5825	-5.58	91.34	0.39	2.21	-2.98	2.22	30.00	10.00

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

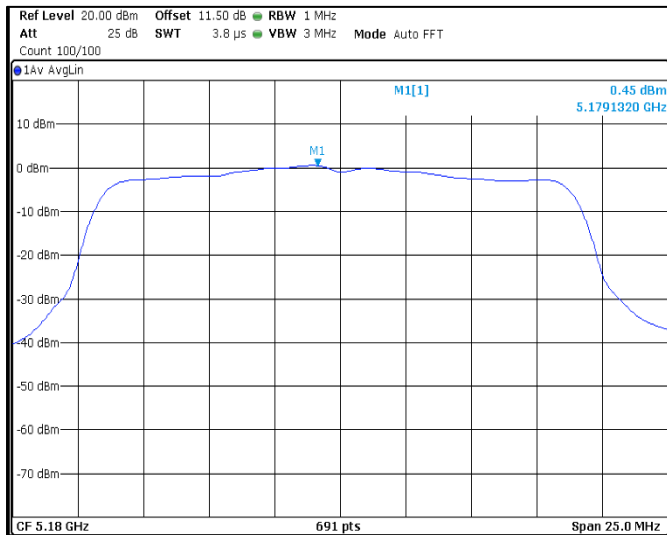
Seite 51 von 99
Page 51 of 99

Test Plots:

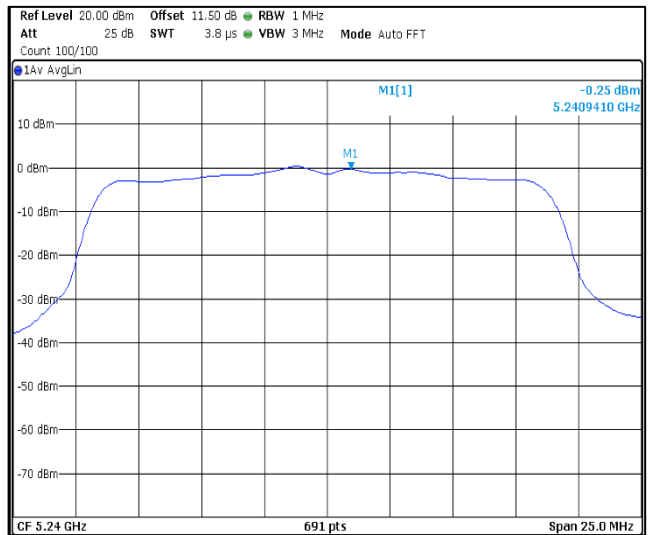
Only MCS0 plots are copied

Data rate: MCS0

Channel Frequency:5180MHz

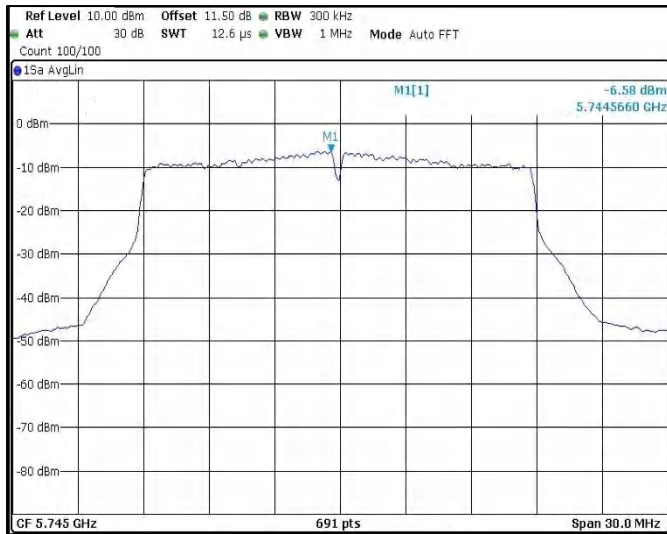


Channel Frequency:5240MHz

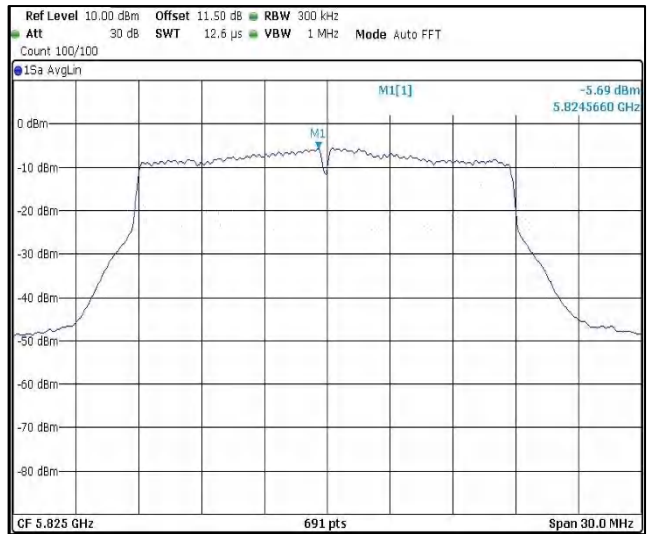


Data rate: MCS0

Channel Frequency:5745Hz



Channel Frequency:5825MHz



Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 52 von 99

Page 52 of 99

Modulation: 802.11n – 40MHz - UNII 1

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/1MHz)	PSD (e.i.r.p) (dBm/1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p SD (dBm/1MHz)
n_mode-MCS0	5190.00	-3.47	86.68	0.62	-2.85	2.35	11.00	10.00
	5230.00	-3.36	86.68	0.62	-2.74	2.46	11.00	10.00
n_mode-MCS7	5190.00	-1.24	89.27	0.49	-0.75	4.45	11.00	10.00
	5230.00	-1.42	89.27	0.49	-0.93	4.27	11.00	10.00

Modulation: 802.11n – 40MHz - UNII 3

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Bandwidth Correction (dB)	Maximum Average PSD (dBm/500kHz)	PSD (e.i.r.p) (dBm/500kHz)	FCC PSD Limit (dBm/500kHz)	IC e.i.r.p PSD (dBm/500kHz)
n_mode-MCS0	5755.00	-6.38	98.45	0.07	2.21	-4.10	1.10	30.00	10.00
	5795.00	-6.52	98.45	0.07	2.21	-4.24	0.96	30.00	10.00
n_mode-MCS7	5755.00	-8.03	89.30	0.49	2.21	-5.33	-0.13	30.00	10.00
	5795.00	-8.45	89.30	0.49	2.21	-5.75	-0.55	30.00	10.00

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

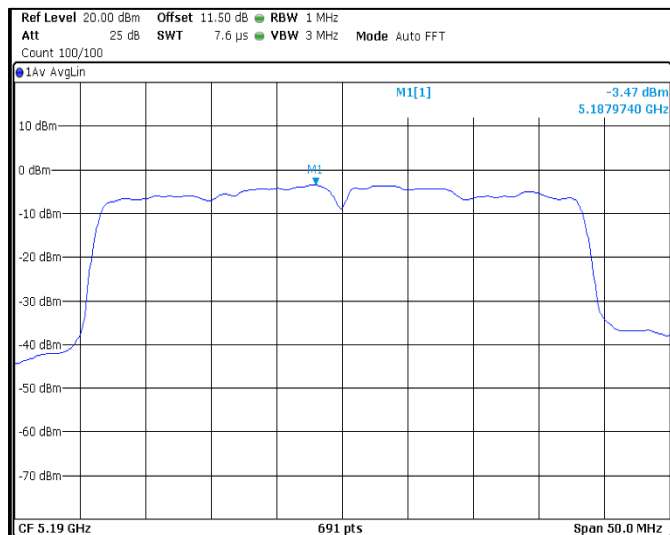
Seite 53 von 99
Page 53 of 99

Test Plots:

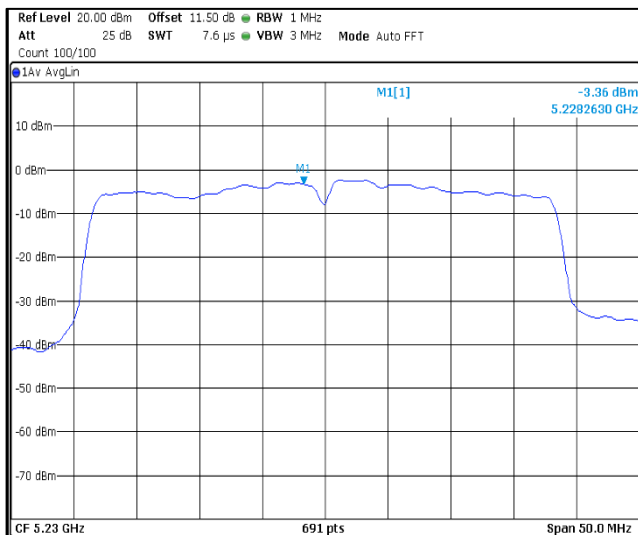
Only MCS0 plots are copied

Data rate: MCS0

Channel Frequency:5190MHz

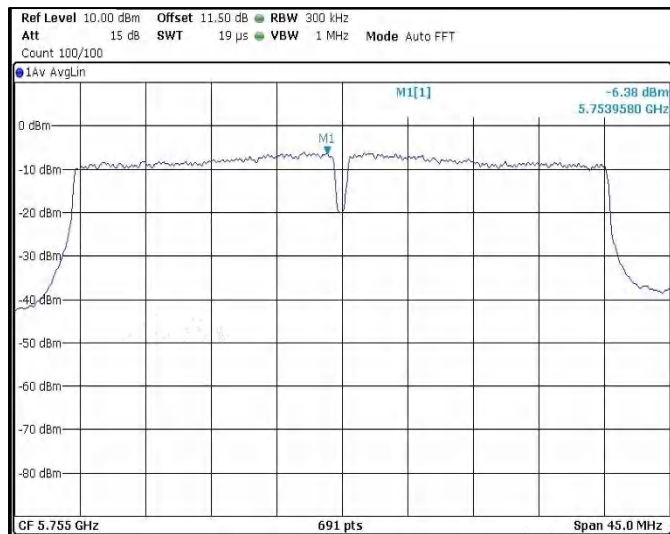


Channel Frequency:5230MHz

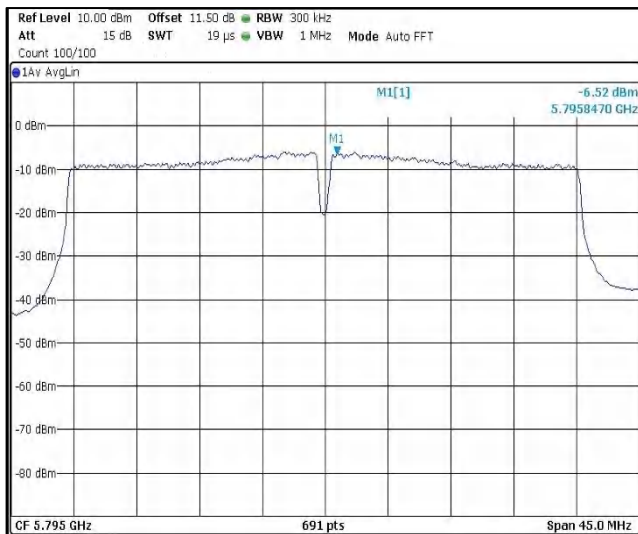


Data rate: MCS0

Channel Frequency:5755Hz



Channel Frequency:5795MHz



Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 54 von 99
Page 54 of 99

Modulation: 802.11ac – VHT20MHz - UNII 1

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/1MHz)	PSD (e.i.r.p) (dBm/1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p SD (dBm/1MHz)
ac_mode-MCS0	5180.00	3.53	92.96	0.32	3.85	8.28	11.00	10.00
	5240.00	4.51	92.95	0.32	4.83	7.55	11.00	10.00
ac_mode-MCS8	5180.00	0.30	90.95	0.41	0.71	5.91	11.00	10.00
	5240.00	0.22	90.94	0.41	0.63	5.83	11.00	10.00

Modulation: 802.11ac – VHT20MHz - UNII 3

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Bandwidth Correction (dB)	Maximum Average PSD (dBm/500kHz)	PSD (e.i.r.p) (dBm/500kHz)	FCC PSD Limit (dBm/500kHz)	IC e.i.r.p PSD (dBm/500kHz)
ac_mod-MCS0	5745	-6.44	98.96	0.05	2.21	-4.18	1.02	30.00	10.00
	5825	-4.11	98.96	0.05	2.21	-1.85	3.35	30.00	10.00
ac_mod-MCS8	5745	-6.60	90.27	0.44	2.21	-3.95	1.25	30.00	10.00
	5825	-6.99	90.27	0.44	2.21	-4.34	0.86	30.00	10.00

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

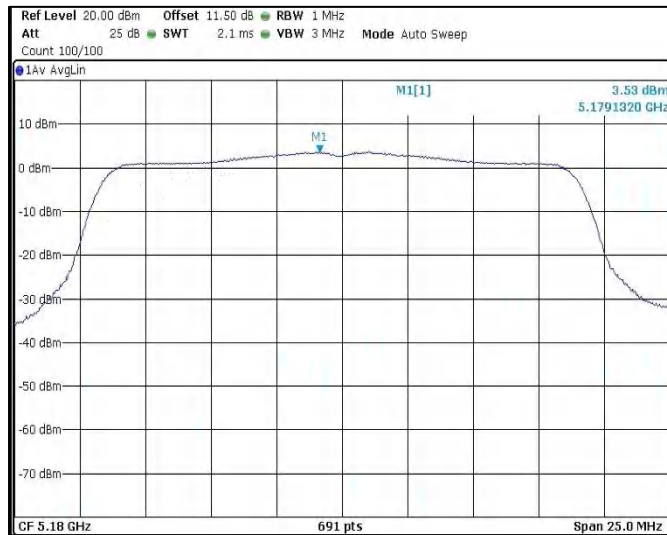
Seite 55 von 99
Page 55 of 99

Test Plots:

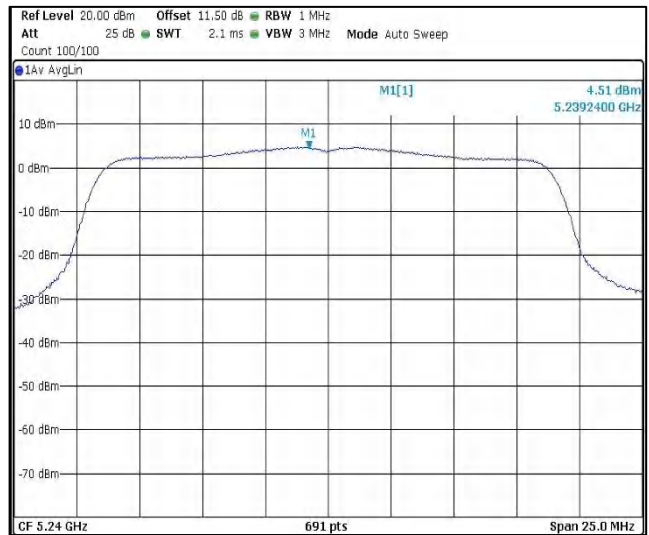
Only MCS0 plots are copied

Data rate: MCS0

Channel Frequency:5180MHz

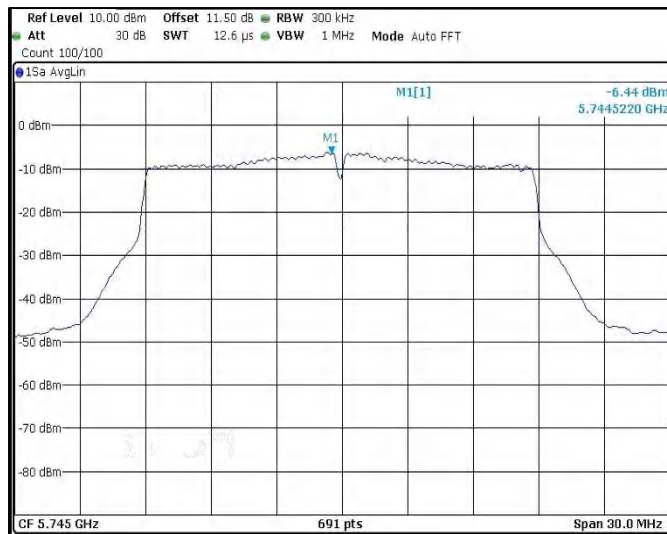


Channel Frequency:5240MHz



Data rate: MCS0

Channel Frequency:5745Hz



Channel Frequency:5825MHz



Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 56 von 99

Page 56 of 99

Modulation: 802.11ac – 40MHz - UNII 1

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/1MHz)	PSD (e.i.r.p) (dBm/1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p SD (dBm/1MHz)
n_mode-MCS0	5190.00	-0.53	86.68	0.62	0.09	5.29	11.00	10.00
	5230.00	0.52	86.68	0.62	1.14	6.34	11.00	10.00
n_mode-MCS7	5190.00	-4.67	89.27	0.49	-4.18	1.02	11.00	10.00
	5230.00	-4.86	89.27	0.49	-4.37	0.83	11.00	10.00

Modulation: 802.11ac – 40MHz - UNII 3

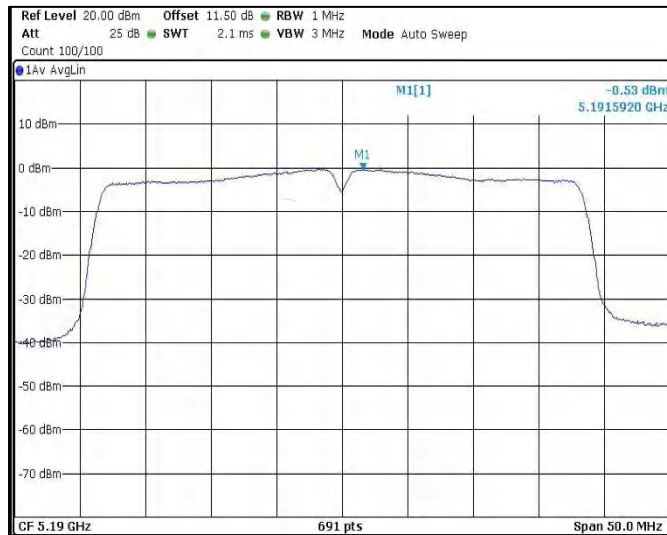
Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Bandwidth Correction (dB)	Maximum Average PSD (dBm/500kHz)	PSD (e.i.r.p) (dBm/500kHz)	FCC PSD Limit (dBm/500kHz)	IC e.i.r.p PSD (dBm/500kHz)
n_mode-MCS0	5755.00	-5.68	98.45	0.07	2.21	-3.40	1.80	30.00	10.00
	5795.00	-5.88	98.45	0.07	2.21	-3.60	1.60	30.00	10.00
n_mode-MCS7	5755.00	-10.21	87.28	0.59	2.21	-7.41	-2.21	30.00	10.00
	5795.00	-9.67	87.28	0.59	2.21	-6.87	-1.67	30.00	10.00

Test Plots:

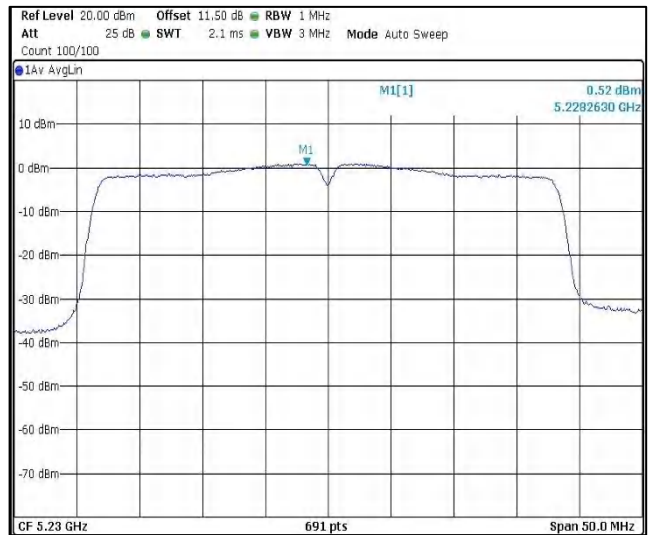
Only MCS0 plots are copied

Data rate: MCS0

Channel Frequency:5190MHz

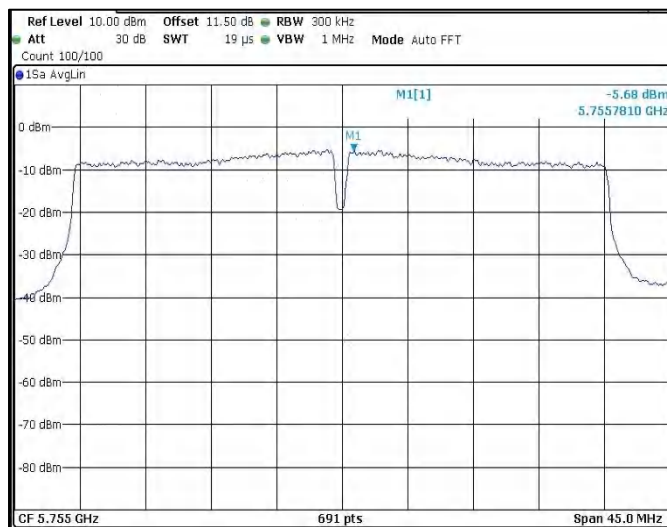


Channel Frequency:5230MHz

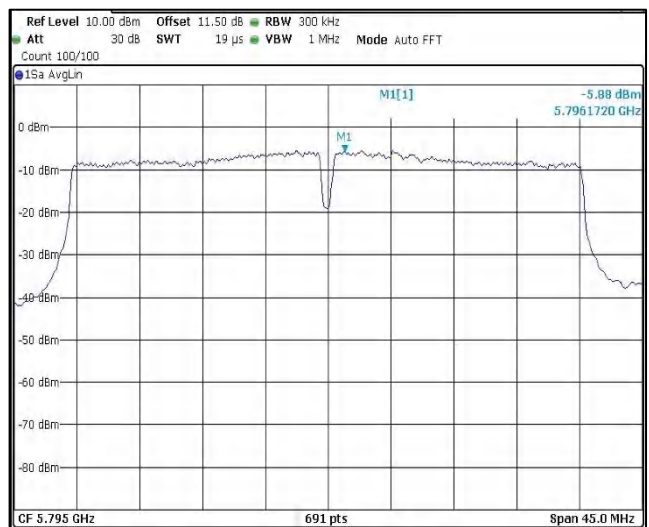


Data rate: MCS0

Channel Frequency:5755Hz



Channel Frequency:5795MHz



Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 58 von 99
Page 58 of 99

Modulation: 802.11ac – VHT80MHz - UNII 1

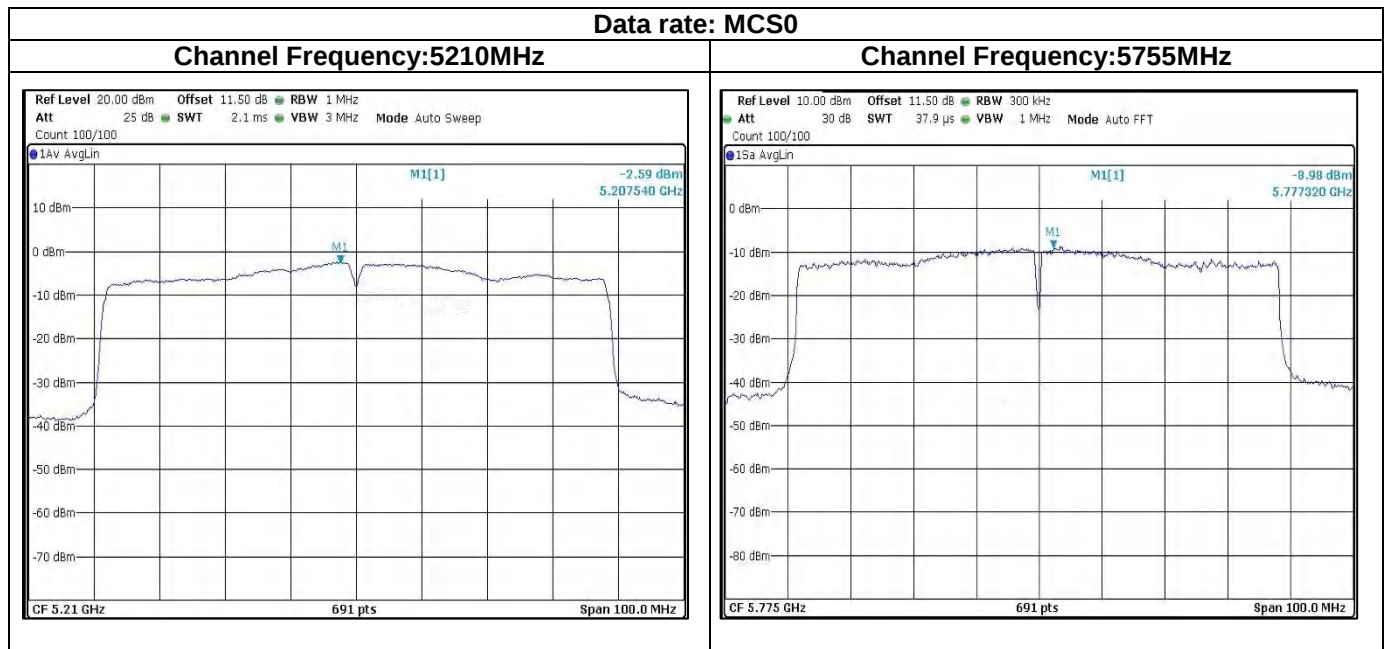
Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/1MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Maximum Average PSD (dBm/1MHz)	PSD (e.i.r.p) (dBm/1MHz)	FCC PSD Limit (dBm/1MHz)	IC e.i.r.p PSD (dBm/1MHz)
ac_mode-MCS0	5210.00	-2.59	83.61	0.78	-1.81	3.39	11.00	10.00
ac_mode-MCS9	5210.00	-9.08	43.40	3.63	-5.45	-0.25	11.00	10.00

Modulation: 802.11ac – VHT80MHz - UNII 3

Data rate (Mbps)	Measured Frequency (MHz)	Measured Average PSD (dBm/0.3MHz)	Duty Cycle X %	Duty cycle correction factor (dB)	Bandwidth Correction (dB)	Maximum Average PSD (dBm/500kHz)	PSD (e.i.r.p) (dBm/500kHz)	FCC PSD Limit (dBm/500kHz)	IC e.i.r.p PSD (dBm/500kHz)
ac_mode-MCS0	5755.00	-8.98	96.88	0.14	2.21	-6.63	-1.43	30.00	10.00
ac_mode-MCS9	5755.00	-13.56	81.57	0.88	2.21	-10.47	-5.27	30.00	10.00

Test Plots:

Only MCS0 plots are copied



8.4 Spurious Radiated Emissions & Restricted Bands of Operation
Result Pass

Test Specification	FCC part 15 Subpart C Section 15.407 (b) (15.205 & 15.209) / RSS 247 Issue 2 Section 6.2.1; 6.2.4 / RSS Gen Issue 5 Section 8.9 & 8.10
Test Method	ANSI C 63.10 – 2013
Measurement Bandwidth	100kHz for below 1GHz 1MHz for above 1GHz
Measurement Location	Semi Anechoic Chamber 30MHz - 1 GHz Fully Anechoic Chamber 1 GHz - 40GHz
Measuring Distance	3 m
Detector	Refer Remark
Requirement	As per the limits mentioned in the below table
Test setup	Refer TEST METHODOLOGY

Limit:

Table 6: Undesirable emission limits

Frequency Band	Limit
5.15-5.25 GHz	e.i.r.p. -27dBm [68.2 dBuV/3m]
5.725-5.85 GHz	5.715 GHz to 5.725 GHz - e.i.r.p. -17dBm [78.2 dBuV/3m] 5.85 GHz to 5.86 GHz - e.i.r.p. -17dBm [78.2 dBuV/3m] other frequency range - e.i.r.p. -27dBm [68.2 dBuV/3m]

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 60 von 99
Page 60 of 99

Table 7: Transmitter limits for Radiated emission

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * The limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 128.51 – 93.80, 73.80 – 62.96 and 69.54 dBμV/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Condition:

Normal Test Condition:

Temperature (Norm) = + 24.5 °C

Voltage = Internal Battery + 5.0 V DC

Relative humidity: 63%

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 61 von 99
Page 61 of 99

Test results:

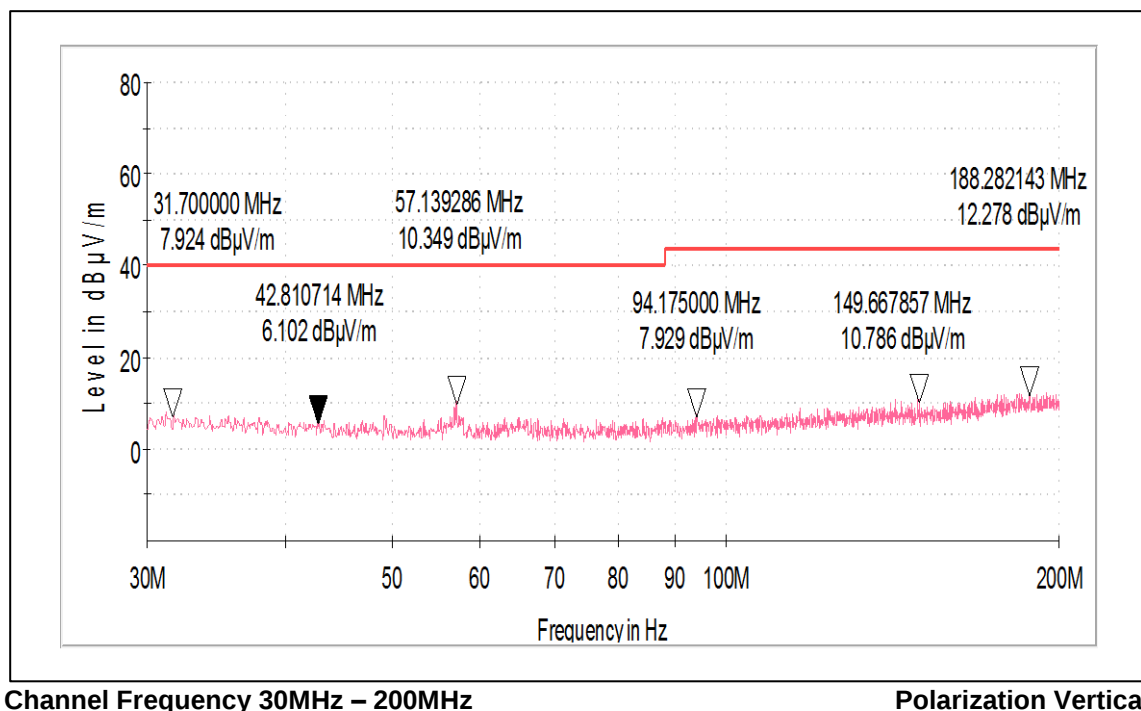
Note: All the losses are included during measurement and final values are mentioned in the test report. Refer TEST METHODOLOGY for more details

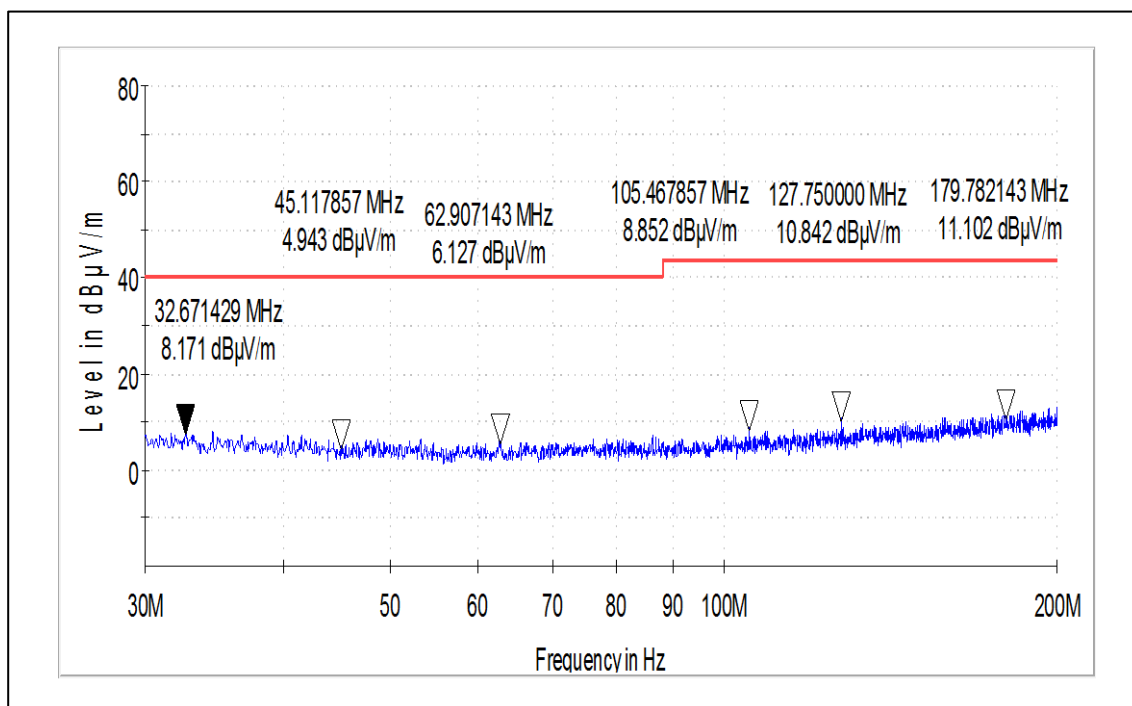
Test results for Frequency range : 9kHz – 30MHz

No Emissions found in the frequency range 9kHz – 30MHz

Test results for frequency range 30MHz – 1GHz

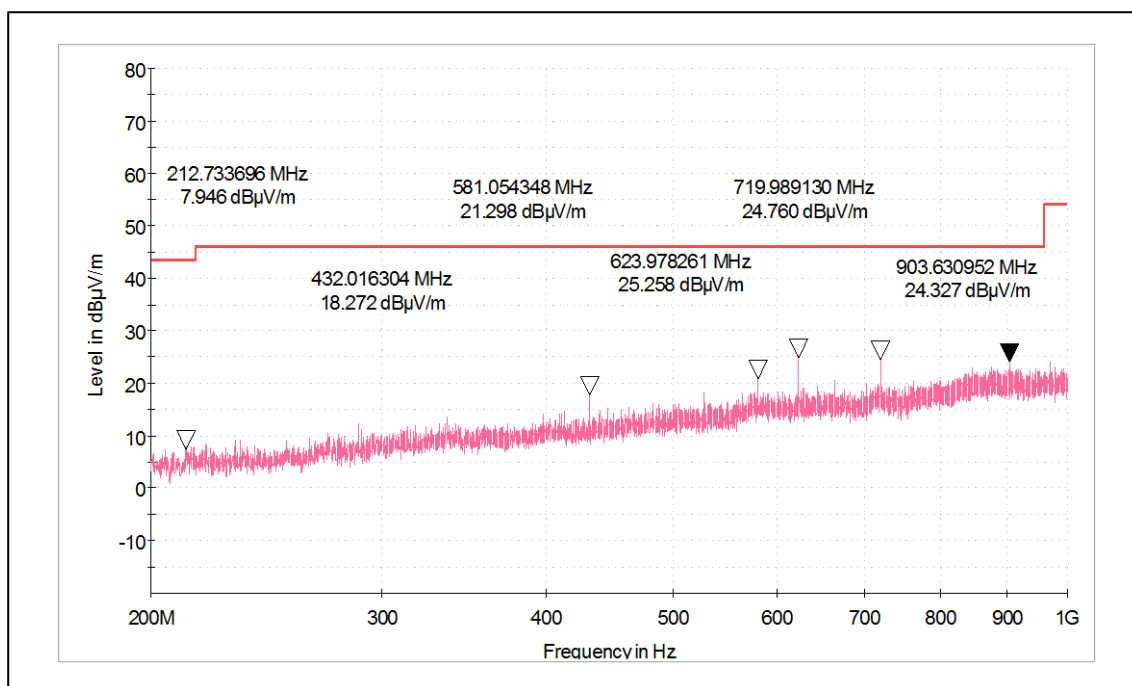
Antenna Polarization	Measured Frequency (MHz)	Measured value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Vertical	31.70	7.92	40.00	-32.08
	57.13	10.34	40.00	-29.66
	94.17	7.92	43.50	-35.58
	188.28	12.27	43.50	-31.23
	212.73	7.95	43.50	-35.55
	432.01	18.27	46.00	-27.73
	719.98	24.76	46.00	-21.24
	903.63	24.32	46.00	-21.68
Horizontal	32.67	8.17	40.00	-31.83
	62.90	6.12	43.50	-37.38
	127.75	10.84	43.50	-32.66
	432.01	18.33	46.00	-27.67
	591.28	26.92	46.00	-19.08
	623.97	29.03	46.00	-16.97
	719.98	28.25	46.00	-17.75
	830.00	33.03	46.00	-12.97





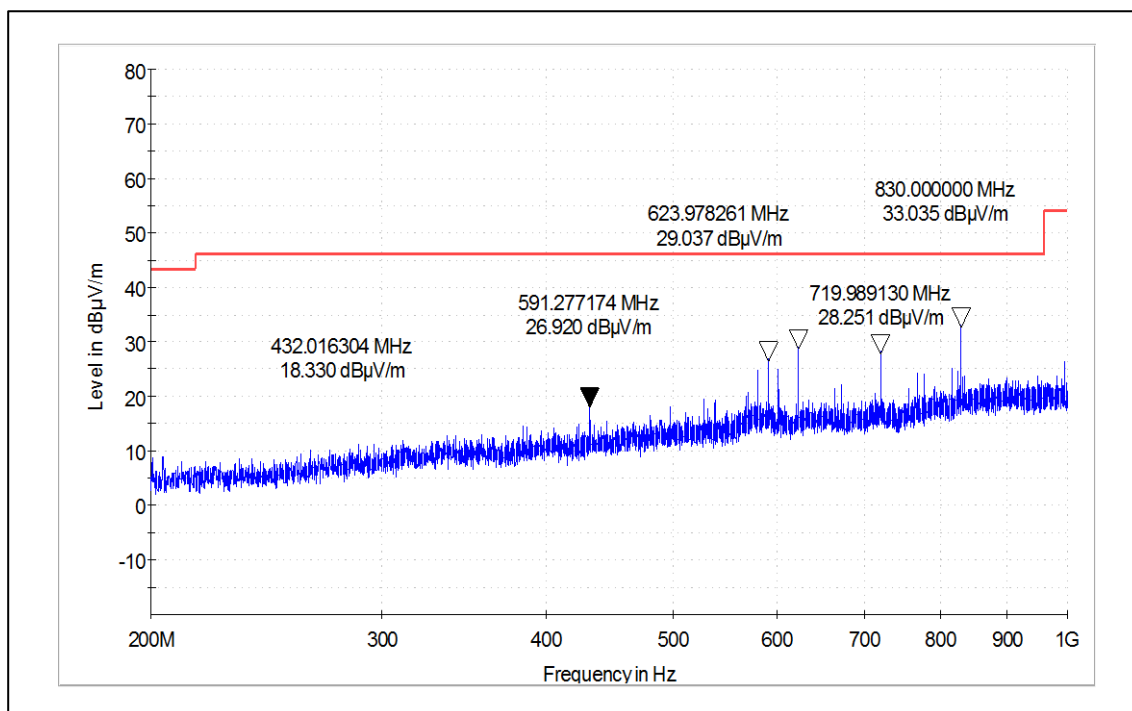
Channel Frequency 30MHz – 200MHz

Polarization Horizontal



Channel Frequency 200MHz – 1GHz

Polarization Vertical



Channel Frequency 200MHz – 1GHz

Polarization Horizontal

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 64 von 99
Page 64 of 99

Test results for frequency range – 1GHz to 40 GHz

Modulation: 802.11a
Data rate: 6Mbps

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	71.41	74.00*	-2.59
	5150 (Av)		49.61	54.00*	-4.39
	5180 (Pk)		109.30	-	-
	5180 (Av)		99.94	-	-
	10360 (Pk)		51.43	68.23	-16.80
	10360 (Av)		39.53	68.23	-28.70
	15540(Pk)		No Harmonics Found		
	15540(Pk)				
	5150 (Pk)	Horizontal	63.30	74.00*	-10.70
	5150 (Av)		43.71	54.00*	-10.29
	5180 (Pk)		103.59	-	-
	5180 (Av)		94.14	-	-
	10360 (Pk)		51.18	68.23	-17.05
	10360 (Av)		39.27	68.23	-28.96
	15540(Pk)		No Harmonics Found		
	15540(Av)				
5240	5240 (Pk)	Vertical	108.49	-	-
	5240 (Av)		99.12	-	-
	5350 (Pk)		50.27	74.00*	-23.73
	5350 (Av)		37.69	54.00*	-16.31
	10480 (Pk)		52.44	68.23	-15.79
	10480 (Av)		40.32	68.23	-27.91
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				
	5240 (Pk)	Horizontal	102.01	-	-
	5240 (Av)		92.74	-	-
	5350 (Pk)		43.89	74.00*	-30.11
	5350 (Av)		32.03	54.00*	-21.97
	10480 (Pk)		52.70	68.23	-15.53
	10480 (Av)		40.03	68.23	-28.20
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 65 von 99
Page 65 of 99

5745	5715(Pk)	Vertical	65.35	74.00*	-8.65
	5725(Pk)		71.74	74.00*	-2.26
	5745 (Pk)		107.41	-	-
	5745 (Av)		98.00	-	-
	11490 (Pk)		64.44	68.23	-3.79
	11490 (Av)		49.78	68.23	-18.45
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	54.28	74.00*	-19.72
	5725(Pk)		61.19	74.00*	-12.81
	5745 (Pk)		96.45	-	-
	5745 (Av)		88.64	-	-
	11490 (Pk)		55.61	68.23	-12.62
	11490 (Av)		42.80	68.23	-25.43
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	109.08	-	-
	5825 (Av)		99.89	-	-
	5850 (Pk)		70.89	74.00*	-3.11
	5850 (Av)		51.83	54.00*	-2.17
	11650 (Pk)		66.19	68.23	-2.04
	11650 (Av)		51.83	68.23	-16.40
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	98.87	-	-
	5825 (Av)		89.67	-	-
	5850 (Pk)		60.97	74.00*	-13.03
	5850 (Av)		42.69	54.00*	-11.31
	11650 (Pk)		54.10	68.23	-14.13
	11650 (Av)		42.32	68.23	-25.91
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 66 von 99
Page 66 of 99

Modulation: 802.11a
Data rate: 54Mbps

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	66.73	74.00*	-7.27
	5150 (Av)		47.08	54.00*	-6.92
	5180 (Pk)		110.60	-	-
	5180 (Av)		96.92	-	-
	10360 (Pk)		51.92	68.23	-16.31
	10360 (Av)		39.32	68.23	-28.91
	15540(Pk)		No Harmonics Found		
	15540(Pk)				
	5150 (Pk)	Horizontal	59.38	74.00*	-14.62
	5150 (Av)		40.94	54.00*	-13.06
	5180 (Pk)		104.46	-	-
	5180 (Av)		91.05	-	-
	10360 (Pk)		52.20	68.23	-16.03
	10360 (Av)		39.27	68.23	-28.96
	15540(Pk)		No Harmonics Found		
	15540(Av)				
5240	5240 (Pk)	Vertical	109.35	-	-
	5240 (Av)		95.75	-	-
	5350 (Pk)		49.02	74.00*	-24.98
	5350 (Av)		36.31	54.00*	-17.69
	10480 (Pk)		52.53	68.23	-15.70
	10480 (Av)		40.00	68.23	-28.23
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				
	5240 (Pk)	Horizontal	102.85	-	-
	5240 (Av)		89.50	-	-
	5350 (Pk)		44.14	74.00*	-29.86
	5350 (Av)		31.49	54.00*	-22.51
	10480 (Pk)		52.67	68.23	-15.56
	10480 (Av)		40.05	68.23	-28.18
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 67 von 99
Page 67 of 99

5745	5715(Pk)	Vertical	67.12	74.00*	-6.88
	5725(Pk)		71.72	74.00*	-2.28
	5745 (Pk)		109.81	-	-
	5745 (Av)		96.33	-	-
	11490 (Pk)		63.03	68.23	-5.20
	11490 (Av)		48.92	68.23	-19.31
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	52.10	74.00*	-21.90
	5725(Pk)		60.1*	74.00*	-13.84
	5745 (Pk)		97.68	-	-
	5745 (Av)		83.80	-	-
	11490 (Pk)		55.17	68.23	-13.06
	11490 (Av)		42.76	68.23	-25.47
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	111.15	-	-
	5825 (Av)		97.89	-	-
	5850 (Pk)		67.81	74.00*	-6.19
	5850 (Av)		49.90	54.00*	-4.10
	11650 (Pk)		62.51	68.23	-5.72
	11650 (Av)		48.40	68.23	-19.83
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	99.50	-	-
	5825 (Av)		86.35	-	-
	5850 (Pk)		58.21	74.00*	-15.79
	5850 (Av)		40.13	54.00*	-13.87
	11650 (Pk)		55.19	68.23	-13.04
	11650 (Av)		43.05	68.23	-25.18
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 68 von 99

Test Report No.:

Page 68 of 99

Modulation: 802.11n _ HT 20MHz

Data rate: MCS0

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	71.37	74.00*	-2.63
	5150 (Av)		52.30	54.00*	-1.70
	5180 (Pk)		111.27	-	-
	5180 (Av)		100.25	-	-
	10360 (Pk)		51.55	68.23	-16.68
	10360 (Av)		39.27	68.23	-28.96
	15540(Pk)		No Harmonics Found		
	15540(Pk)				
	5150 (Pk)	Horizontal	63.88	74.00*	-10.12
	5150 (Av)		45.96	54.00*	-8.04
	5180 (Pk)		104.17	-	-
	5180 (Av)		93.89	-	-
	10360 (Pk)		51.66	68.23	-16.57
	10360 (Av)		39.30	68.23	-28.93
	15540(Pk)		No Harmonics Found		
	15540(Av)				
5240	5240 (Pk)	Vertical	109.90	-	-
	5240 (Av)		99.17	-	-
	5350 (Pk)		49.19	74.00*	-24.81
	5350 (Av)		37.75	54.00*	-16.25
	10480 (Pk)		52.48	68.23	-15.75
	10480 (Av)		40.04	68.23	-28.19
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				
	5240 (Pk)	Horizontal	102.76	-	-
	5240 (Av)		92.70	-	-
	5350 (Pk)		44.03	74.00*	-29.97
	5350 (Av)		32.06	54.00*	-21.94
	10480 (Pk)		51.76	68.23	-16.47
	10480 (Av)		40.01	68.23	-28.22
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 69 von 99
Page 69 of 99

5745	5715(Pk)	Vertical	59.98	74.00*	-14.02
	5725(Pk)		68.57	74.00*	-5.43
	5745 (Pk)		106.13	-	-
	5745 (Av)		96.09	-	-
	11490 (Pk)		61.15	68.23	-7.08
	11490 (Av)		46.96	68.23	-21.27
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	53.42	74.00*	-20.58
	5725(Pk)		58.81	74.00*	-15.19
	5745 (Pk)		94.59	-	-
	5745 (Av)		84.47	-	-
	11490 (Pk)		55.09	68.23	-13.14
	11490 (Av)		42.76	68.23	-25.47
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	109.46	-	-
	5825 (Av)		99.66	-	-
	5850 (Pk)		66.41	74.00*	-7.59
	5850 (Av)		47.69	54.00*	-6.31
	11650 (Pk)		65.45	68.23	-2.78
	11650 (Av)		51.09	68.23	-17.14
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	95.49	-	-
	5825 (Av)		85.09	-	-
	5850 (Pk)		53.41	74.00*	-20.59
	5850 (Av)		35.27	54.00*	-18.73
	11650 (Pk)		57.54	68.23	-10.69
	11650 (Av)		45.35	68.23	-22.88
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 70 von 99

Test Report No.:

Page 70 of 99

Modulation: 802.11n _ HT 20MHz

Data rate: MCS7

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	69.70	74.00*	-4.30
	5150 (Av)		46.15	54.00*	-7.85
	5180 (Pk)		108.91	-	-
	5180 (Av)		94.73	-	-
	10360 (Pk)		50.90	68.23	-17.33
	10360 (Av)		39.22	68.23	-29.01
	15540(Pk)		No Harmonics Found		
	15540(Pk)		No Harmonics Found		
	5150 (Pk)	Horizontal	61.26	74.00*	-12.74
	5150 (Av)		40.85	54.00*	-13.15
	5180 (Pk)		104.18	-	-
	5180 (Av)		89.99	-	-
	10360 (Pk)		51.49	68.23	-16.74
	10360 (Av)		39.26	68.23	-28.97
	15540(Pk)		No Harmonics Found		
	15540(Av)		No Harmonics Found		
5240	5240 (Pk)	Vertical	109.66	-	-
	5240 (Av)		95.51	-	-
	5350 (Pk)		48.90	74.00*	-25.10
	5350 (Av)		36.05	54.00*	-17.95
	10480 (Pk)		51.91	68.23	-16.32
	10480 (Av)		39.98	68.23	-28.25
	15720 (Pk)		No Harmonics Found		
	15720 (Av)		No Harmonics Found		
	5240 (Pk)	Horizontal	102.81	-	-
	5240 (Av)		88.65	-	-
	5350 (Pk)		44.17	74.00*	-29.83
	5350 (Av)		31.43	54.00*	-22.57
	10480 (Pk)		51.57	68.23	-16.66
	10480 (Av)		40.00	68.23	-28.23
	15720 (Pk)		No Harmonics Found		
	15720 (Av)		No Harmonics Found		

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 71 von 99
Page 71 of 99

5745	5715(Pk)	Vertical	66.38	74.00*	-7.62
	5725(Pk)		71.43	74.00*	-2.57
	5745 (Pk)		108.67	-	-
	5745 (Av)		94.48	-	-
	11490 (Pk)		61.22	68.23	-7.01
	11490 (Av)		47.79	68.23	-20.44
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	52.68	74.00*	-21.32
	5725(Pk)		58.20	74.00*	-15.80
	5745 (Pk)		95.33	-	-
	5745 (Av)		81.18	-	-
	11490 (Pk)		55.12	68.23	-13.11
	11490 (Av)		42.73	68.23	-25.50
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	111.65	-	-
	5825 (Av)		97.42	-	-
	5850 (Pk)		71.14	74.00*	-2.86
	5860 (Pk)		48.37	54.00*	-5.63
	11650 (Pk)		57.56	68.23	-10.67
	11650 (Av)		45.74	68.23	-22.49
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	99.29	-	-
	5825 (Av)		84.98	-	-
	5850 (Pk)		58.45	74.00*	-15.55
	5860 (Pk)		38.17	54.00*	-15.83
	11650 (Pk)		55.16	68.23	-13.07
	11650 (Av)		42.32	68.23	-25.91
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 72 von 99

Test Report No.:

Page 72 of 99

Modulation: 802.11n _ HT 40MHz

Data rate: MCS0

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5190	5150 (Pk)	Vertical	66.47	74.00*	-7.53
	5150 (Av)		51.95	54.00*	-2.05
	5190 (Pk)		105.09	-	-
	5190 (Av)		94.17	-	-
	10380 (Pk)		51.86	68.23	-16.37
	10380 (Av)		39.38	68.23	-28.85
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
	5150 (Pk)	Horizontal	62.29	74.00*	-11.71
	5150 (Av)		46.62	54.00*	-7.38
	5190 (Pk)		99.40	-	-
	5190 (Av)		88.52	-	-
	10380 (Pk)		51.33	68.23	-16.90
	10380 (Av)		39.36	68.23	-28.87
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
5230	5230 (Pk)	Vertical	107.01	-	-
	5230 (Av)		95.98	-	-
	5350 (Pk)		53.35	74.00*	-20.65
	5350 (Av)		40.44	54.00*	-13.56
	10460 (Pk)		52.33	68.23	-15.90
	10460 (Av)		39.95	68.23	-28.28
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				
	5230 (Pk)	Horizontal	99.10	-	-
	5230 (Av)		88.08	-	-
	5350 (Pk)		45.30	74.00*	-28.70
	5350 (Av)		33.20	54.00*	-20.80
	10460 (Pk)		51.89	68.23	-16.34
	10460 (Av)		39.88	68.23	-28.35
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 73 von 99
Page 73 of 99

5755	5755(Pk)	Vertical	110.33	-	-
	5755(Av)		99.59	-	-
	11510(Pk)		63.62	68.23	-4.61
	11510(Av)		49.82	68.23	-18.41
	17265(Pk)		No Harmonics Found		
	17265(Av)				
	5755(Pk)	Horizontal	98.10	-	-
	5755(Av)		84.08	-	-
	11510(Pk)		54.64	68.23	-13.59
	11510(Av)		42.65	68.23	-25.58
	17265(Pk)		No Harmonics Found		
	17265(Av)				
5795	5795(Pk)	Vertical	110.46	-	-
	5795(Av)		99.21	-	-
	11590(Pk)		63.67	68.23	-4.56
	11590(Av)		49.65	68.23	-18.58
	17385(Pk)		No Harmonics Found		
	17385(Av)				
	5795(Pk)	Horizontal	94.95	-	-
	5795(Av)		84.08	-	-
	11590(Pk)		54.00	68.23	-14.23
	11590(Av)		42.45	68.23	-25.78
	17385(Pk)		No Harmonics Found		
	17385(Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 74 von 99

Test Report No.:

Page 74 of 99

Modulation: 802.11n _ HT 40MHz

Data rate: MCS7

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5190	5150 (Pk)	Vertical	68.71	74.00*	-5.29
	5150 (Av)		49.03	54.00*	-4.97
	5190 (Pk)		106.90	-	-
	5190 (Av)		90.87	-	-
	10380 (Pk)		51.78	68.23	-16.45
	10380 (Av)		39.44	68.23	-28.79
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
	5150 (Pk)	Horizontal	63.61	74.00*	-10.39
	5150 (Av)		43.29	54.00*	-10.71
	5190 (Pk)		99.95	-	-
	5190 (Av)		83.79	-	-
	10380 (Pk)		51.64	68.23	-16.59
	10380 (Av)		39.34	68.23	-28.89
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
5230	5230 (Pk)	Vertical	106.33	-	-
	5230 (Av)		90.56	-	-
	5350 (Pk)		54.00	74.00*	-20.00
	5350 (Av)		37.67	54.00*	-16.33
	10460 (Pk)		52.21	68.23	-16.02
	10460 (Av)		39.99	68.23	-28.24
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				
	5230 (Pk)	Horizontal	98.49	-	-
	5230 (Av)		82.56	-	-
	5350 (Pk)		45.91	74.00*	-28.09
	5350 (Av)		32.20	54.00*	-21.80
	10460 (Pk)		52.25	68.23	-15.98
	10460 (Av)		39.90	68.23	-28.33
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 75 von 99
Page 75 of 99

5755	5755(Pk)	Vertical	109.65	-	-
	5755(Av)		93.56	-	-
	11510(Pk)		63.10	68.23	-5.13
	11510(Av)		49.27	68.23	-18.96
	17265(Pk)		No Harmonics Found		
	17265(Av)				
	5755(Pk)	Horizontal	94.78	-	-
	5755(Av)		78.86	-	-
	11510(Pk)		54.98	68.23	-13.25
	11510(Av)		42.70	68.23	-25.53
	17265(Pk)		No Harmonics Found		
	17265(Av)				
5795	5795(Pk)	Vertical	109.90	-	-
	5795(Av)		93.87	-	-
	11590(Pk)		62.14	68.23	-6.09
	11590(Av)		48.03	68.23	-20.20
	17385(Pk)		No Harmonics Found		
	17385(Av)				
	5795(Pk)	Horizontal	95.34	-	-
	5795(Av)		79.40	-	-
	11590(Pk)		55.22	68.23	-13.01
	11590(Av)		42.46	68.23	-25.77
	17385(Pk)		No Harmonics Found		
	17385(Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 76 von 99

Test Report No.:

Page 76 of 99

Modulation: 802.11ac _ VHT 20MHz

Data rate: MCS0

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	71.45	74.00*	-2.55
	5150 (Av)		52.11	54.00*	-1.89
	5180 (Pk)		110.29	-	-
	5180 (Av)		100.10	-	-
	10360 (Pk)		51.77	68.23	-16.46
	10360 (Av)		39.26	68.23	-28.97
	15540(Pk)		No Harmonics Found		
	15540(Pk)				
	5150 (Pk)	Horizontal	65.57	74.00*	-8.43
	5150 (Av)		46.34	54.00*	-7.66
	5180 (Pk)		104.06	-	-
	5180 (Av)		93.76	-	-
	10360 (Pk)		51.63	68.23	-16.60
	10360 (Av)		39.26	68.23	-28.97
	15540(Pk)		No Harmonics Found		
	15540(Av)				
5240	5240 (Pk)	Vertical	110.39	-	-
	5240 (Av)		100.19	-	-
	5350 (Pk)		49.59	74.00*	-24.41
	5350 (Av)		37.81	54.00*	-16.19
	10480 (Pk)		52.15	68.23	-16.08
	10480 (Av)		39.97	68.23	-28.26
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				
	5240 (Pk)	Horizontal	102.79	-	-
	5240 (Av)		92.44	-	-
	5350 (Pk)		44.27	74.00*	-29.73
	5350 (Av)		31.57	54.00*	-22.43
	10480 (Pk)		52.12	68.23	-16.11
	10480 (Av)		40.00	68.23	-28.23
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 77 von 99
Page 77 of 99

5745	5715(Pk)	Vertical	61.66	74.00*	-12.34
	5725(Pk)		65.78	74.00*	-8.22
	5745 (Pk)		106.69	-	-
	5745 (Av)		96.37	-	-
	11490 (Pk)		59.58	68.23	-8.65
	11490 (Av)		47.45	68.23	-20.78
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	49.53	74.00*	-24.47
	5725(Pk)		57.02	74.00*	-16.98
	5745 (Pk)		95.45	-	-
	5745 (Av)		85.31	-	-
	11490 (Pk)		54.94	68.23	-13.29
	11490 (Av)		42.81	68.23	-25.42
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	109.08	-	-
	5825 (Av)		99.08	-	-
	5850 (Pk)		68.46	74.00*	-5.54
	5850 (Av)		51.13	54.00*	-2.87
	11650 (Pk)		63.51	68.23	-4.72
	11650 (Av)		49.20	68.23	-19.03
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	99.66	-	-
	5825 (Av)		88.69	-	-
	5850 (Pk)		58.34	74.00*	-15.66
	5850 (Av)		40.80	54.00*	-13.20
	11650 (Pk)		55.25	68.23	-12.98
	11650 (Av)		42.57	68.23	-25.66
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 78 von 99

Test Report No.:

Page 78 of 99

Modulation: 802.11ac _ VHT 20MHz

Data rate: MCS8

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5180	5150 (Pk)	Vertical	67.24	74.00*	-6.76
	5150 (Av)		42.39	54.00*	-11.61
	5180 (Pk)		108.89	-	-
	5180 (Av)		93.95	-	-
	10360 (Pk)		51.07	68.23	-17.16
	10360 (Av)		39.25	68.23	-28.98
	15540(Pk)		No Harmonics Found		
	15540(Pk)				
	5150 (Pk)	Horizontal	56.94	74.00*	-17.06
	5150 (Av)		36.09	54.00*	-17.91
	5180 (Pk)		101.74	-	-
	5180 (Av)		86.63	-	-
	10360 (Pk)		51.49	68.23	-16.74
	10360 (Av)		39.22	68.23	-29.01
	15540(Pk)		No Harmonics Found		
	15540(Av)				
5240	5240 (Pk)	Vertical	108.42	-	-
	5240 (Av)		93.35	-	-
	5350 (Pk)		45.73	74.00*	-28.27
	5350 (Av)		33.04	54.00*	-20.96
	10480 (Pk)		51.65	68.23	-16.58
	10480 (Av)		39.98	68.23	-28.25
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				
	5240 (Pk)	Horizontal	100.53	-	-
	5240 (Av)		85.60	-	-
	5350 (Pk)		43.93	74.00*	-30.07
	5350 (Av)		30.85	54.00*	-23.15
	10480 (Pk)		52.40	68.23	-15.83
	10480 (Av)		39.93	68.23	-28.30
	15720 (Pk)		No Harmonics Found		
	15720 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 79 von 99
Page 79 of 99

5745	5715(Pk)	Vertical	67.39	74.00*	-6.61
	5725(Pk)		70.77	74.00*	-3.23
	5745 (Pk)		109.07	-	-
	5745 (Av)		94.06	-	-
	11490 (Pk)		59.61	68.23	-8.62
	11490 (Av)		47.05	68.23	-21.18
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
	5715(Pk)	Horizontal	52.41	74.00*	-21.59
	5725(Pk)		56.85	74.00*	-17.15
	5745 (Pk)		96.39	-	-
	5745 (Av)		81.25	-	-
	11490 (Pk)		56.12	68.23	-12.11
	11490 (Av)		43.03	68.23	-25.20
	17235 (Pk)		No Harmonics Found		
	17235 (Av)				
5825	5825 (Pk)	Vertical	111.43	-	-
	5825 (Av)		96.31	-	-
	5850 (Pk)		70.06	74.00*	-3.94
	5850 (Av)		46.78	54.00*	-7.22
	11650 (Pk)		58.26	68.23	-9.97
	11650 (Av)		44.31	68.23	-23.92
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				
	5825 (Pk)	Horizontal	98.87	-	-
	5825 (Av)		84.02	-	-
	5850 (Pk)		58.89	74.00*	-15.11
	5850 (Av)		36.91	54.00*	-17.09
	11650 (Pk)		54.48	68.23	-13.75
	11650 (Av)		42.43	68.23	-25.80
	17475 (Pk)		No Harmonics Found		
	17475 (Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 80 von 99

Test Report No.:

Page 80 of 99

Modulation: 802.11ac _ VHT 40MHz
Data rate: MCS0

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBµV/m)	Limit (dBm)	Margin (dB)
5190	5150 (Pk)	Vertical	67.02	74.00*	-6.98
	5150 (Av)		52.77	54.00*	-1.23
	5190 (Pk)		107.00	-	-
	5190 (Av)		95.99	-	-
	10380 (Pk)		51.97	68.23	-16.26
	10380 (Av)		39.39	68.23	-28.84
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
	5150 (Pk)	Horizontal	62.27	74.00*	-11.73
	5150 (Av)		46.58	54.00*	-7.42
	5190 (Pk)		99.31	-	-
	5190 (Av)		88.34	-	-
	10380 (Pk)		51.16	68.23	-17.07
	10380 (Av)		39.51	68.23	-28.72
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
5230	5230 (Pk)	Vertical	108.34	-	-
	5230 (Av)		96.88	-	-
	5350 (Pk)		56.91	74.00*	-17.09
	5350 (Av)		41.78	54.00*	-12.22
	10460 (Pk)		52.34	68.23	-15.89
	10460 (Av)		39.97	68.23	-28.26
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				
	5230 (Pk)	Horizontal	100.19	-	-
	5230 (Av)		89.34	-	-
	5350 (Pk)		47.75	74.00*	-26.25
	5350 (Av)		34.21	54.00*	-19.79
	10460 (Pk)		52.10	68.23	-16.13
	10460 (Av)		40.05	68.23	-28.18
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 81 von 99
Page 81 of 99

5755	5755(Pk)	Vertical	110.32	-	-
	5755(Av)		99.03	-	-
	11510(Pk)		66.40	68.23	-1.83
	11510(Av)		51.27	68.23	-16.96
	17265(Pk)		No Harmonics Found		
	17265(Av)				
	5755(Pk)	Horizontal	94.65	-	-
	5755(Av)		83.48	-	-
	11510(Pk)		54.66	68.23	-13.57
	11510(Av)		42.69	68.23	-25.54
	17265(Pk)		No Harmonics Found		
	17265(Av)				
5795	5795(Pk)	Vertical	110.13	-	-
	5795(Av)		99.08	-	-
	11590(Pk)		63.01	68.23	-5.22
	11590(Av)		49.96	68.23	-18.27
	17385(Pk)		No Harmonics Found		
	17385(Av)				
	5795(Pk)	Horizontal	95.83	-	-
	5795(Av)		84.81	-	-
	11590(Pk)		54.47	68.23	-13.76
	11590(Av)		42.49	68.23	-25.74
	17385(Pk)		No Harmonics Found		
	17385(Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

ULR-TC568821300000110F

Seite 82 von 99

Test Report No.:

Page 82 of 99

Modulation: 802.11ac _ VHT 40MHz

Data rate: MCS9

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5190	5150 (Pk)	Vertical	61.64	74.00*	-12.36
	5150 (Av)		43.65	54.00*	-10.35
	5190 (Pk)		105.00	-	-
	5190 (Av)		87.51	-	-
	10380 (Pk)		51.09	68.23	-17.14
	10380 (Av)		39.37	68.23	-28.86
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
	5150 (Pk)	Horizontal	54.00	74.00*	-20.00
	5150 (Av)		36.76	54.00*	-17.24
	5190 (Pk)		96.47	-	-
	5190 (Av)		79.67	-	-
	10380 (Pk)		52.19	68.23	-16.04
	10380 (Av)		39.45	68.23	-28.78
	15570 (Pk)		No Harmonics Found		
	15570 (Av)				
5230	5230 (Pk)	Vertical	104.58	-	-
	5230 (Av)		86.57	-	-
	5350 (Pk)		49.85	74.00*	-24.15
	5350 (Av)		34.91	54.00*	-19.09
	10460 (Pk)		52.16	68.23	-16.07
	10460 (Av)		39.93	68.23	-28.30
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				
	5230 (Pk)	Horizontal	96.70	-	-
	5230 (Av)		78.74	-	-
	5350 (Pk)		43.77	74.00*	-30.23
	5350 (Av)		31.10	54.00*	-22.90
	10460 (Pk)		51.92	68.23	-16.31
	10460 (Av)		39.98	68.23	-28.25
	15690 (Pk)		No Harmonics Found		
	15690 (Av)				

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 83 von 99
Page 83 of 99

5755	5755(Pk)	Vertical	108.47	-	-
	5755(Av)		90.60	-	-
	11510(Pk)		59.79	68.23	-8.44
	11510(Av)		46.86	68.23	-21.37
	17265(Pk)		No Harmonics Found		
	17265(Av)				
	5755(Pk)	Horizontal	93.26	-	-
	5755(Av)		75.44	-	-
	11510(Pk)		54.86	68.23	-13.37
	11510(Av)		42.65	68.23	-25.58
	17265(Pk)		No Harmonics Found		
	17265(Av)				
5795	5795(Pk)	Vertical	108.69	-	-
	5795(Av)		90.78	-	-
	11590(Pk)		59.60	68.23	-8.63
	11590(Av)		46.27	68.23	-21.96
	17385(Pk)		No Harmonics Found		
	17385(Av)				
	5795(Pk)	Horizontal	94.10	-	-
	5795(Av)		76.35	-	-
	11590(Pk)		54.78	68.23	-13.45
	11590(Av)		42.42	68.23	-25.81
	17385(Pk)		No Harmonics Found		
	17385(Av)				

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 84 von 99

Page 84 of 99

Modulation: 802.11ac _ VHT 80MHz
Data rate: MCS0

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5210	5150 (Pk)	Vertical	67.87	74.00*	-6.13
	5150 (Av)		53.23	54.00*	-0.77
	5210 (Pk)		103.95	-	-
	5210 (Av)		91.67	-	-
	5350 (Pk)		58.52	74.00*	-15.48
	5350 (Av)		43.87	54.00*	-10.13
	10420 (Pk)		52.17	68.23	-16.06
	10420 (Av)		39.76	68.23	-28.47
	15630 (Pk)		No Harmonics Found		
	15630 (Av)		No Harmonics Found		
	5150 (Pk)	Horizontal	60.72	74.00*	-13.28
	5150 (Av)		45.70	54.00*	-8.30
	5210 (Pk)		96.79	-	-
	5210 (Av)		84.33	-	-
	5350 (Pk)		49.51	74.00*	-24.49
	5350 (Av)		35.30	54.00*	-18.70
	10420 (Pk)		52.52	68.23	-15.71
	10420 (Av)		39.75	68.23	-28.48
	15630 (Pk)		No Harmonics Found		
	15630 (Av)		No Harmonics Found		
5775	5775(Pk)	Vertical	107.81	-	-
	5775(Av)		95.22	-	-
	11550(Pk)		59.01	68.23	-9.22
	11550(Av)		46.63	68.23	-21.60
	17325(Pk)	Horizontal	No Harmonics Found		
	17325(Av)		No Harmonics Found		
	5775(Pk)		91.75	-	-
	5775(Av)		79.83	-	-
	11550(Pk)		54.74	68.23	-13.49
	11550(Av)		42.77	68.23	-25.46
	17325(Pk)		No Harmonics Found		
	17325(Av)		No Harmonics Found		

Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 85 von 99

Page 85 of 99

Modulation: 802.11ac _ VHT 80MHz

Data rate: MCS9

Channel Frequency (MHz)	Frequency (MHz)	Polarization	Emission (dBμV/m)	Limit (dBm)	Margin (dB)
5210	5150 (Pk)	Vertical	62.63	74.00*	-11.37
	5150 (Av)		42.97	54.00*	-11.03
	5210 (Pk)		102.05	-	-
	5210 (Av)		82.87	-	-
	5350 (Pk)		52.05	74.00*	-21.95
	5350 (Av)		36.55	54.00*	-1.95
	10420 (Pk)		51.69	68.23	-31.68
	10420 (Av)		39.75	68.23	-28.48
	15630 (Pk)		No Harmonics Found		
	15630 (Av)				
	5150 (Pk)	Horizontal	53.31	74.00*	-20.69
	5150 (Av)		36.30	54.00*	-17.70
	5210 (Pk)		92.76	-	-
	5210 (Av)		74.00	-	-
	5350 (Pk)		44.81	74.00*	-29.19
	5350 (Av)		31.66	54.00*	-22.34
	10420 (Pk)		51.79	68.23	-16.44
	10420 (Av)		39.78	68.23	-28.45
	15630 (Pk)		No Harmonics Found		
	15630 (Av)				
5775	5775(Pk)	Vertical	104.86	-	-
	5775(Av)		86.18	-	-
	11550(Pk)		56.45	68.23	-11.78
	11550(Av)		43.24	68.23	-24.99
	17325(Pk)		No Harmonics Found		
	17325(Av)				
	5775(Pk)	Horizontal	89.14	-	-
	5775(Av)		70.48	-	-
	11550(Pk)		54.54	68.23	-13.69
	11550(Av)		42.73	68.23	-25.50
	17325(Pk)		No Harmonics Found		
	17325(Av)				

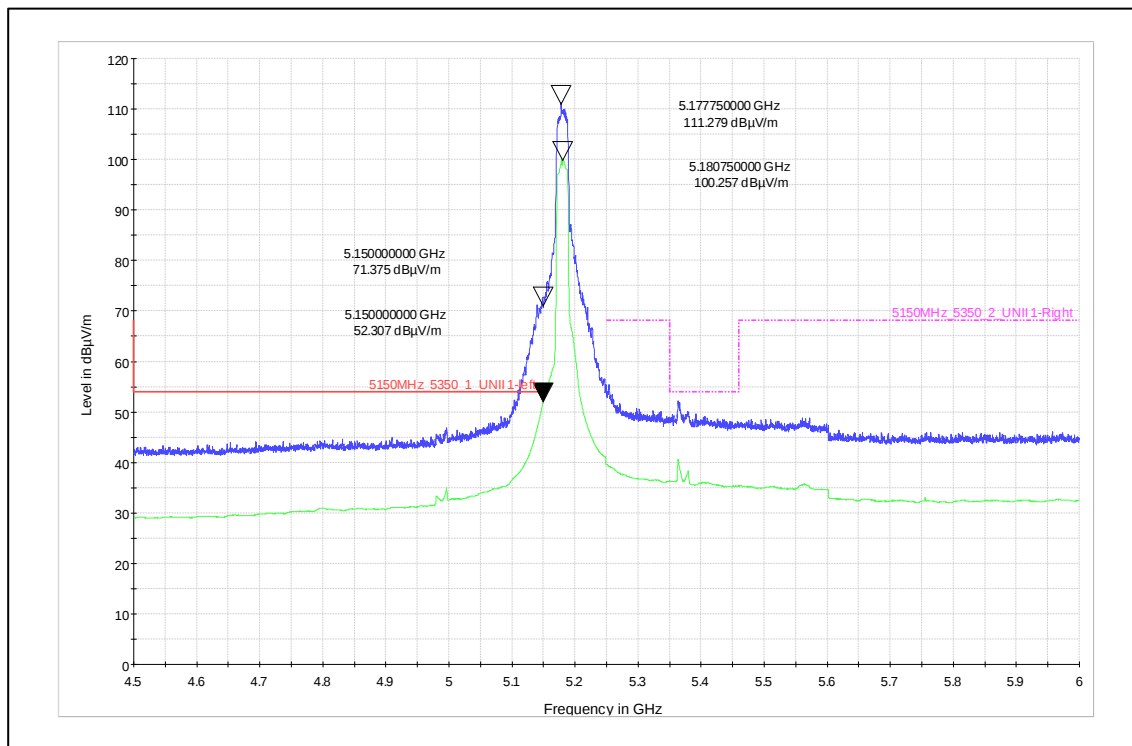
Note:

* :- Indicate restricted band frequency in 15.205

Pk: Peak Detector; Av: Average Detector

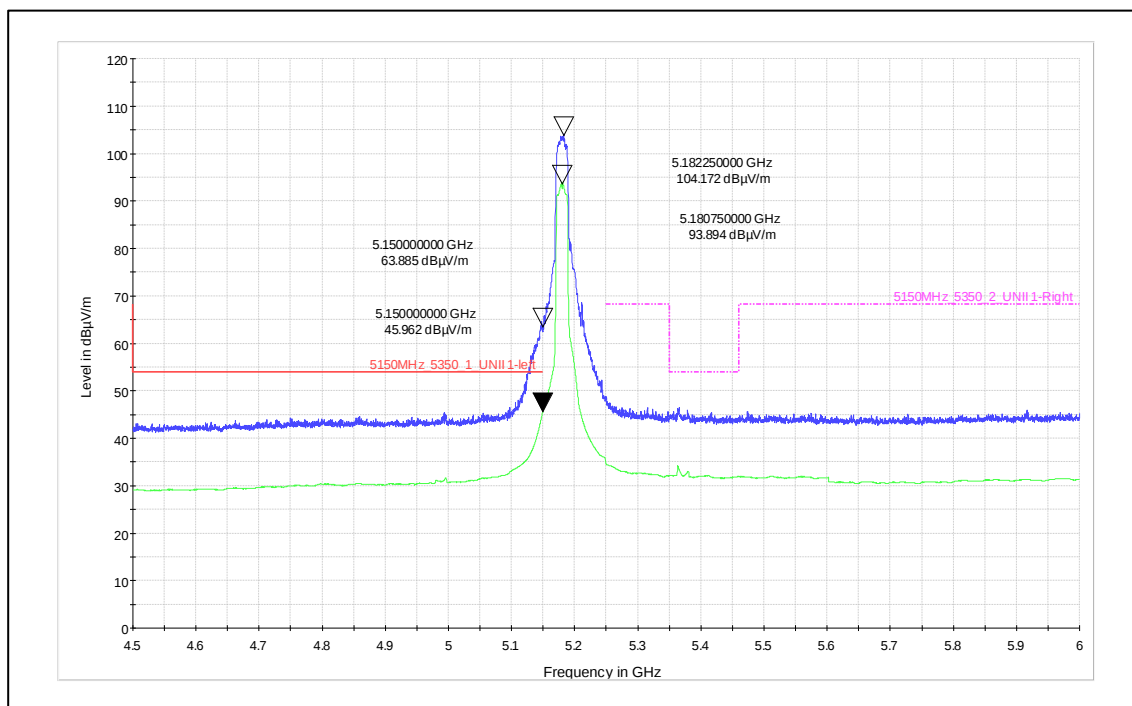
Worst case emissions for restricted band of operation

Modulation: 802.11n _ HT 20MHz
Data rate: MCS0



Channel Frequency: 5180MHz

Polarization: Vertical



Channel Frequency: 5180MHz

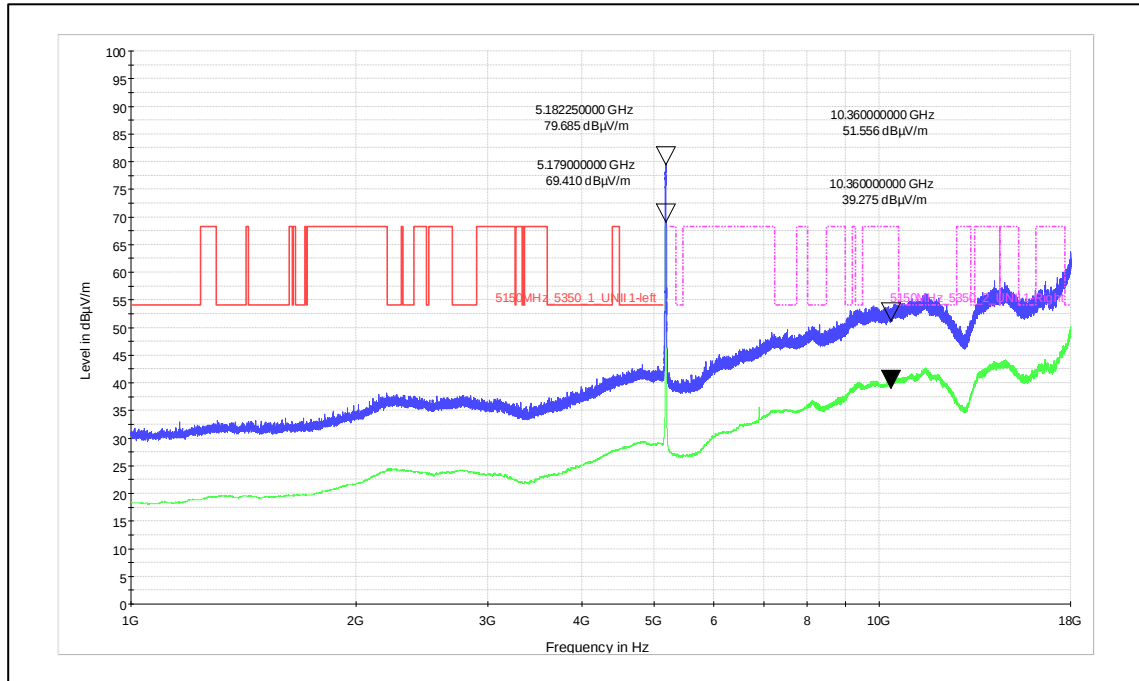
Polarization: Horizontal

Worst case emissions for Spurious radiated emissions above 1GHz

Modulation: 802.11n _ HT 20MHz

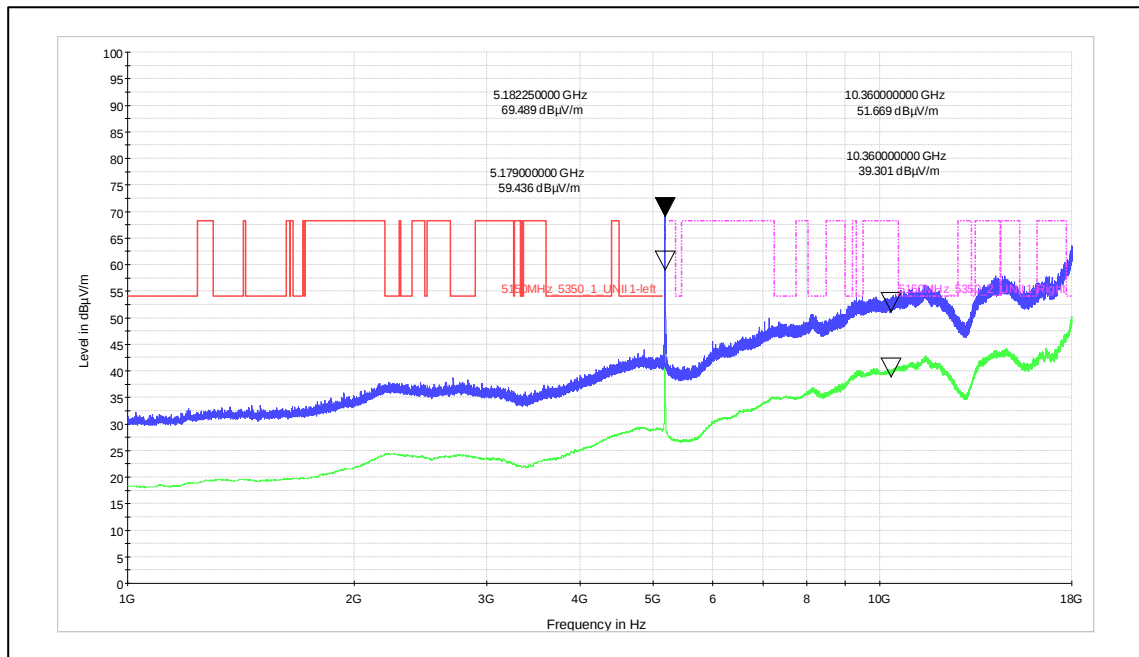
Data rate: MCS0

Channel Frequency: 5180MHz



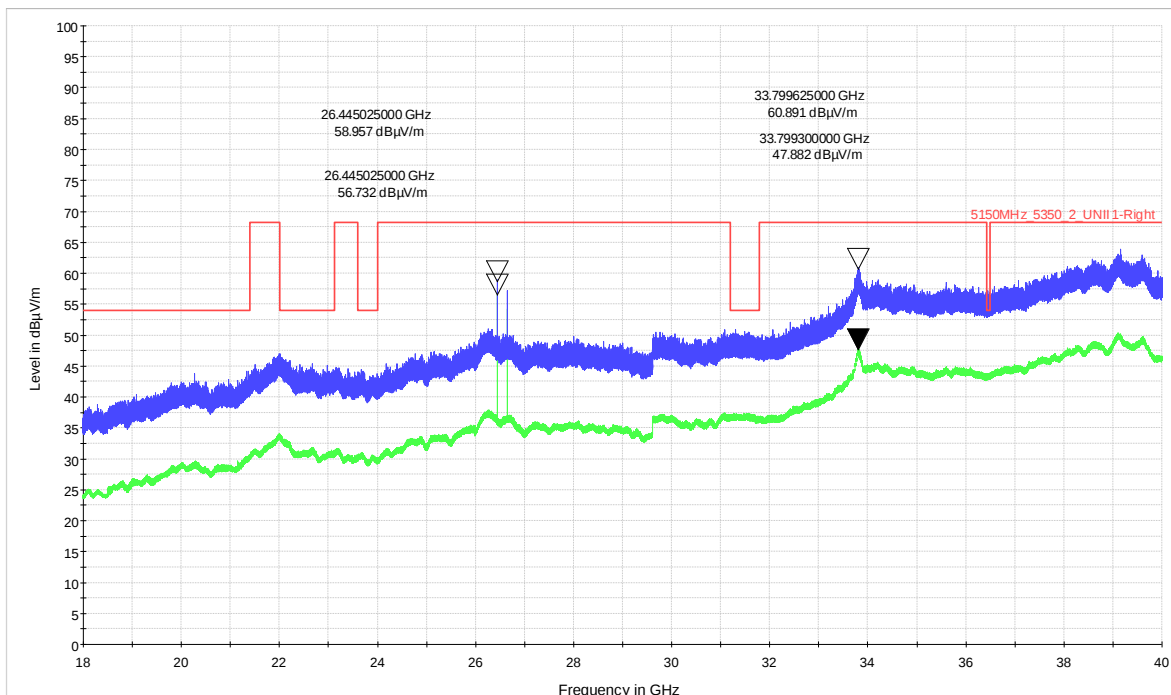
Frequency Range: 1 to 18GHz

Polarization: Vertical



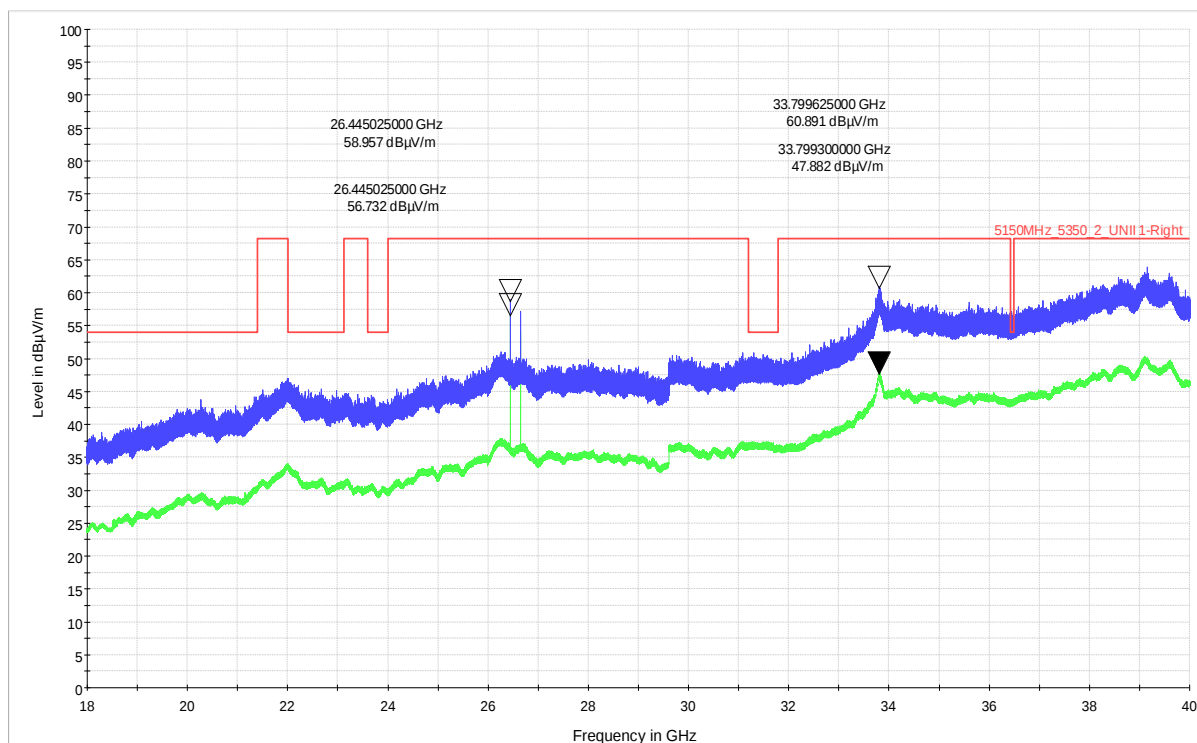
Frequency Range: 1 to 18GHz

Polarization: Horizontal



Frequency Range: 18-40GHz

Polarization: Vertical



Frequency Range: 18-40GHz

Polarization: Horizontal

8.4.1 RSE Test Results of Simultaneous Operation with Cellular and Non-Cellular:

Note: Simultaneous Operation was performed As specified under the section 4.4 and worst case test results are mentionrd in this report.

Worst case result for Wifi and WCDMA

Combination: WCDMA Band 4 and WiFi

Antenna Polarization	Measured Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Vertical	1691.5(Pk)	84.63	-	-
	1691.5(Av)	76.66	-	-
	2390.0(Pk)	64.78	74*	-9.22
	2390.0(Av)	44.45	54*	-9.55
	2412.0(Pk)	72.13	-	-
	2412.0(Av)	63.18	-	-
	3391.2(Pk)	57.18	74	-16.82
	3391.2(Av)	47.18	54	-6.82
	4239.0(Pk)	47.00	74	-27.00
	4239.0(AV)	35.19	54	-18.81
	5087.5(Pk)	52.92	74	-21.08
	5087.5(Av)	40.53	54	-13.47
Horizontal	1691.5(Pk)	90.05	-	-
	1691.5(Av)	82.12	-	-
	2390.0(Pk)	56.4	74*	-17.60
	2390.0(Av)	38.31	54*	-15.69
	2412.0(Pk)	70.75	-	-
	2412.0(Av)	61.83	-	-
	3391.2(Pk)	45.62	74	-28.38
	3391.2(Av)	35.33	54	-18.67
	4824.0(Pk)	44.93	74	-29.07
	4824.0(Av)	31.39	54	-22.61

Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 90 von 99

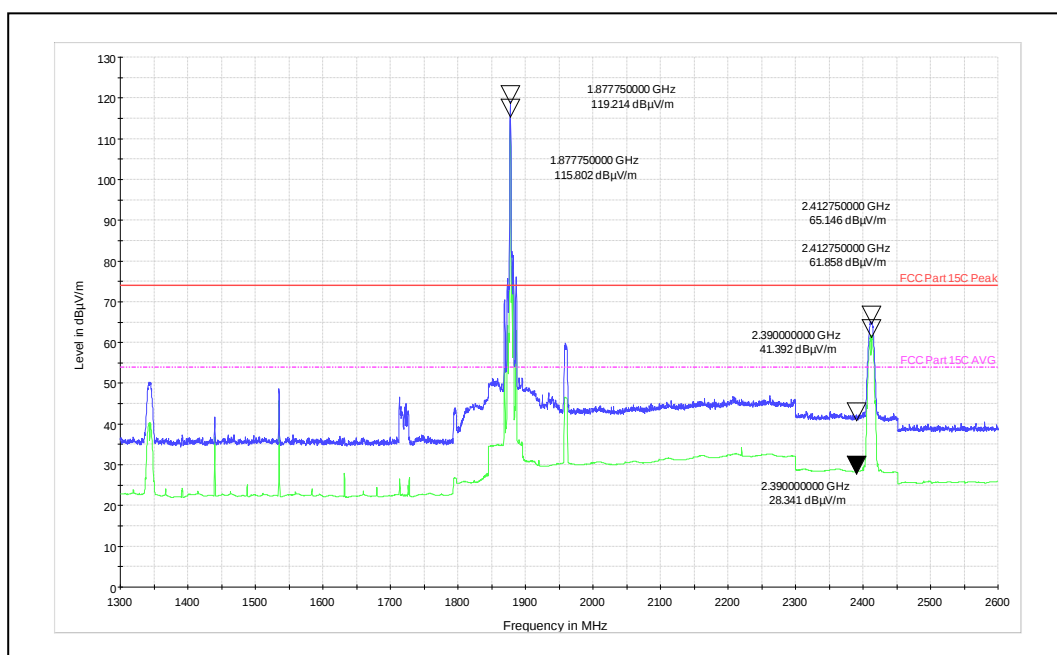
Page 90 of 99

Worst case result for Wifi and LTE

Combination: LTE Band 2 and WiFi

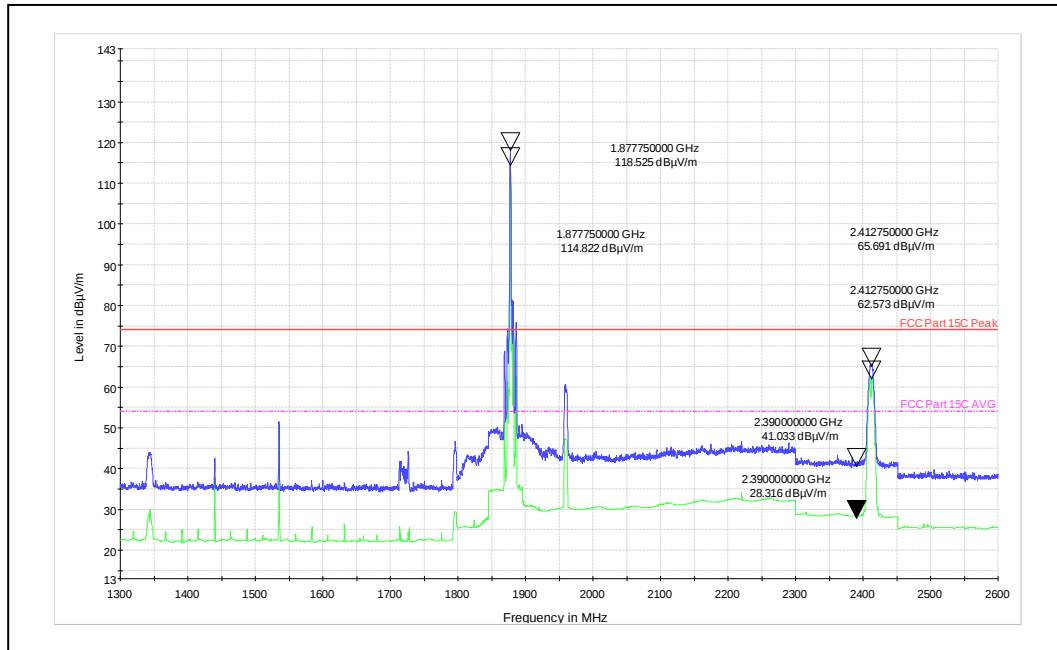
Antenna Polarization	Measured Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Vertical	1877.7(Pk)	119.21	-	-
	1877.7(Av)	115.80	-	-
	2390.0(Pk)	41.03	74*	-32.97
	2390.0(Av)	28.31	54*	-25.69
	2412.0(Pk)	65.14	-	-
	2412.0(Av)	61.85	-	-
	3755.5(Pk)	57.18	74	-16.82
	3755.5(Av)	47.18	54	-6.82
	5633.2(Pk)	47.00	74	-27.00
	5633.2(AV)	35.19	54	-18.81
	5087.5(Pk)	No harmonics Found		
	5087.5(Av)			
Horizontal	1877.7(Pk)	118.52	-	-
	1877.7(Av)	114.82	-	-
	2390.0(Pk)	41.03	74*	-32.97
	2390.0(Av)	28.31	54*	-25.69
	2412.0(Pk)	65.69	-	-
	2412.0(Av)	62.57	-	-
	3755.5(Pk)	45.62	74	-28.38
	3755.5(Av)	35.33	54	-18.67
	5633.2(Pk)	50.52	74	-23.48
	5633.2(AV)	40.06	54	-13.94

Worst Case Plots:

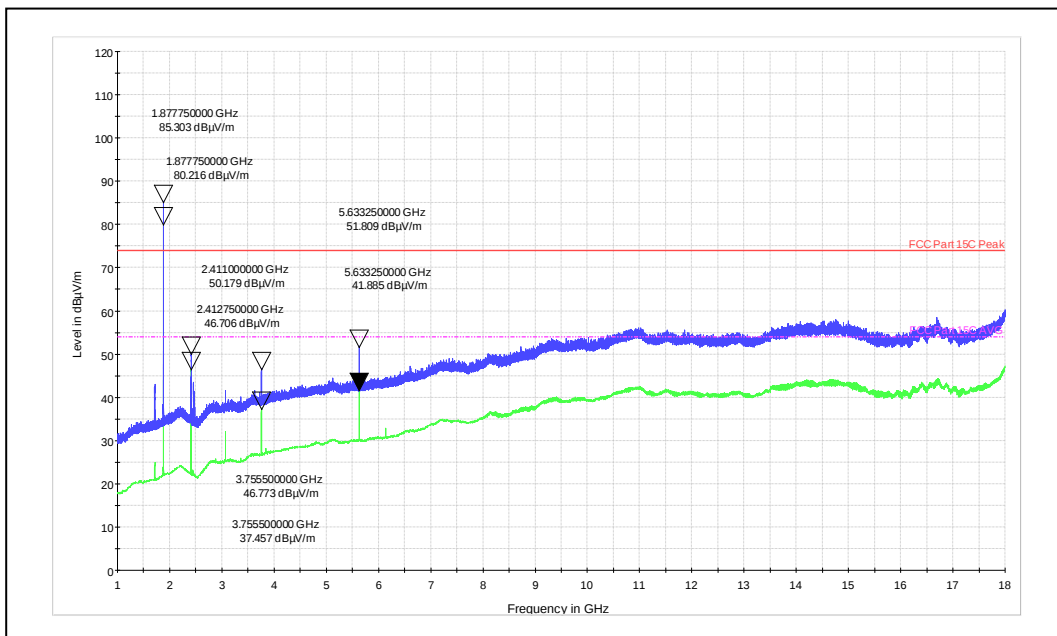


Fundamental Frequency(LTE-1880.0MHz , Wi-Fi 2412MHz)

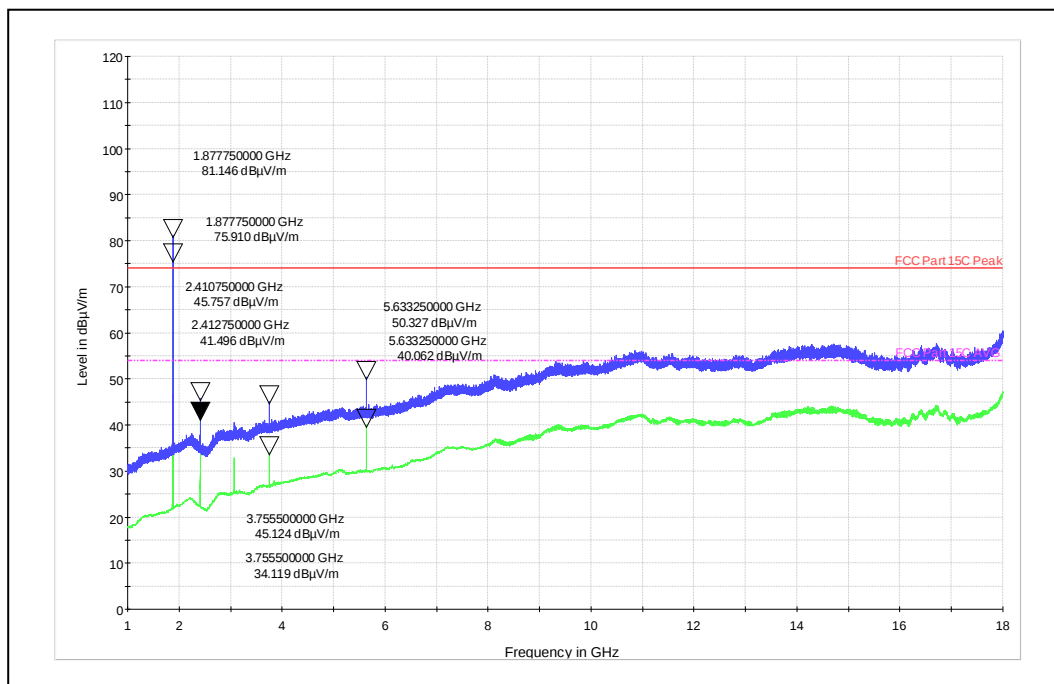
Polarization: Vertical



Fundamental Frequency(LTE-1880.0MHz , Wi-Fi 2412MHz) Polarization: Horizontal



Frequency range: 1GHz to 18GHz Polarization: Vertical



Frequency range: 1GHz to 18GHz

Polarization: Horizontal

9 Frequency Stability

Result

Pass

Test Specification

FCC part 15 Subpart C 15.407 (g) / RSS Gen Issue 5, Section 8.11

Test Method

Subclause 6.8.1 of ANSI C63.10

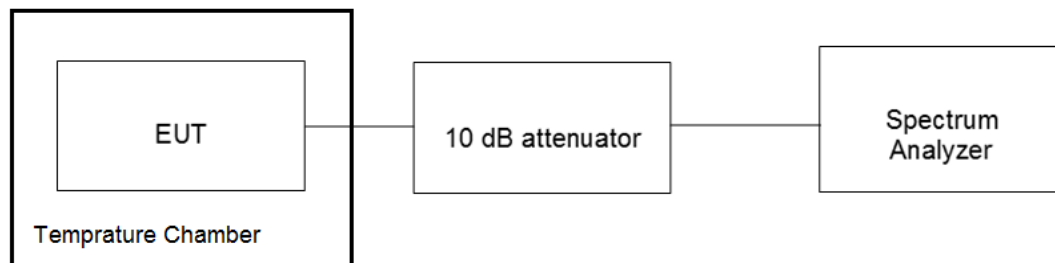
Port of testing

Antenna port

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

Test Method:



Test Condition:

Normal Test Condition:

Temperature (Norm) = + 24.5 °C

Voltage = Internal Battery + 5.0 V DC

Relative humidity: 63%

KDB Guidelines applied:

Measurements were made as per section 3 in KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Prüfbericht - Nr.:

Test Report No.:

ULR-TC568821300000110F

Seite 94 von 99

Page 94 of 99

Test results:

Channel Frequency (MHz)	Temperature	Frequency deviation for different time interval (MHz)				Limit
		0Min	2Min	5Min	10Min	
5180	-10	1.57	-1.50	-1.16	-1.83	Emission drift measured are maintained within the authorised band
	25	-1.06	-1.07	1.48	-1.20	
	50	-0.29	1.14	-1.12	-1.01	
5240	-10	-1.19	-1.26	0.10	-1.89	
	25	-2.55	1.49	-1.83	1.87	
	50	1.57	-2.07	1.17	-0.97	
5745	-10	1.05	-1.18	-1.07	-1.59	
	25	-2.09	-0.92	-1.55	1.85	
	50	1.23	-1.86	-1.28	-1.10	
5825	-10	0.95	-0.97	1.97	-0.28	
	25	-1.12	-0.96	-1.95	-1.43	
	50	2.04	-1.3	-0.75	-1.04	

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 95 von 99
Page 95 of 99

10 Conducted Spurious Emission test on AC Power Line

Result

Pass

Test Specification : FCC Part 15 Section 15.207 / RSS Gen Issue 5 Section 8.8
Test Method : ANSI C 63.10-2013
Testing Location : Screened room
Measurement Bandwidth : 9kHz
Frequency Range : 150kHz – 30MHz
Supply Voltage : 110VAC,60Hz
Test Method : Refer TEST METHODOLOGY

***Note: The product has tested with AC to DC adapter and Wireless Qi charger**

Limits of section 15.207

Frequency of emission (MHz)	QP Limit (dBμV)	AV Limit (dBμV/m)
0.15 – 0.5	66 – 56*	56 – 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency

Test Conditions:

Normal Temperature = +24°C Voltage (V norm) = 110V AC (5.0V DC through AC to DC Adapter)

RH = 64 %

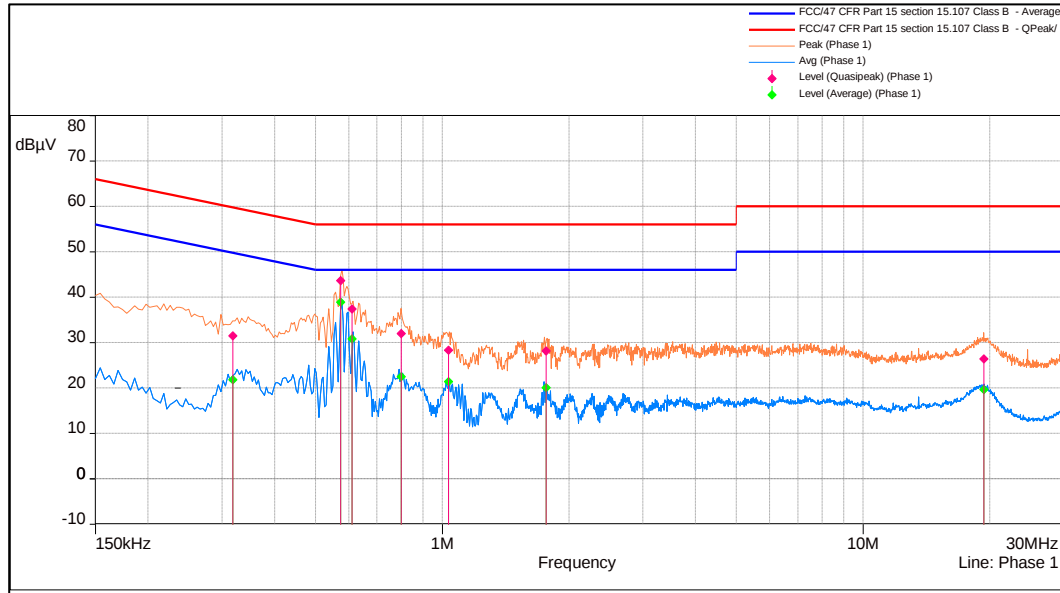
Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 96 von 99
Page 96 of 99

Test result:

Power: 110V 60HZ_LINE



Quasipeak (15)										
Frequency (MHz)	SR	Level (dBμV)	Limit (dBμV)	Margin (dB)	Pos	Measuring time	RBW	Meas Time	Comments	Correction (dB)
0.57515	1	43.67	56	-12.33	Phase 1	1	9k	0.02	Pass	20.22
0.61195	1	37.43	56	-18.57	Phase 1	1	9k	0.02	Pass	20.28
0.7962	1	31.98	56	-24.02	Phase 1	1	9k	0.02	Pass	20.61
1.03435	1	28.37	56	-27.63	Phase 1	1	9k	0.02	Pass	20.42
1.76485	1	28.2	56	-27.8	Phase 1	1	9k	0.02	Pass	20.48
0.3187	1	31.48	59.76	-28.28	Phase 1	1	9k	0.02	Pass	20.06
19.33855	1	26.43	60	-33.57	Phase 1	1	9k	0.02	Pass	20.2

Line Table

Prüfbericht - Nr.:
Test Report No.:

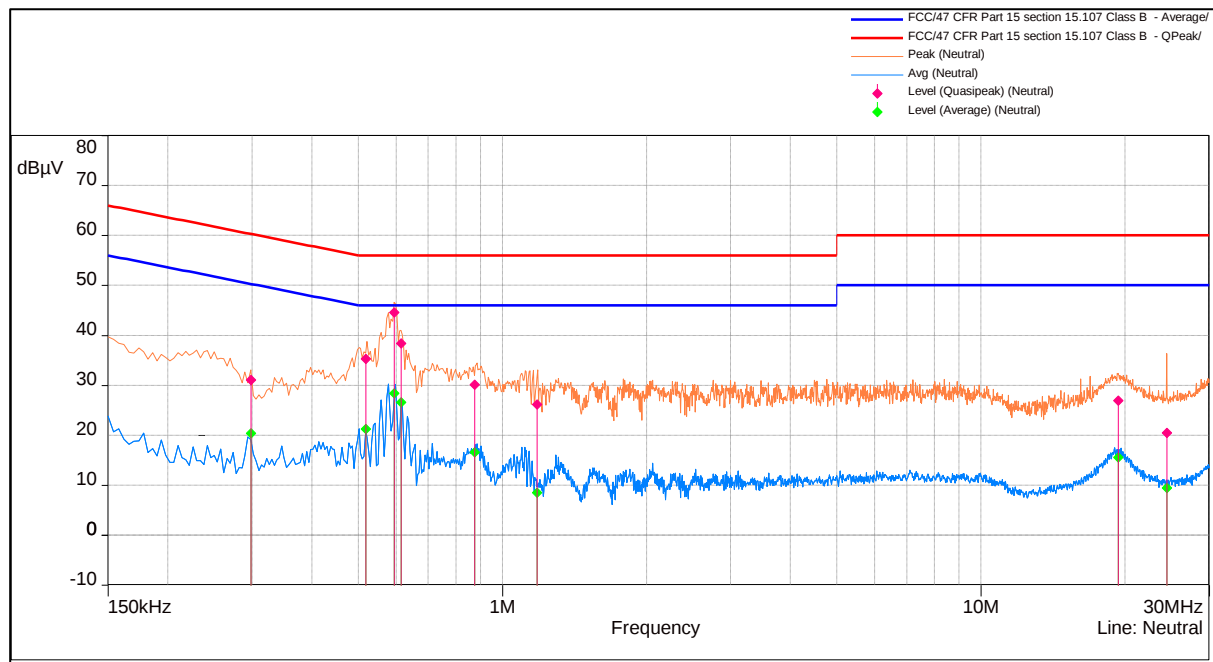
ULR-TC568821300000110F

Seite 97 von 99
Page 97 of 99

Average (15)										
Frequency (MHz)	S R	Level (dBμV)	Limit (dBμV)	Margin (dB)	Pos	Measur ing time	RBW	Meas .Time	Com ment s	Correction (dB)
0.57515	1	38.96	46	-7.04	Phase 1	1	9k	0.02	Pass	20.22
0.61195	1	30.86	46	-15.14	Phase 1	1	9k	0.02	Pass	20.28
0.7962	1	22.48	46	-23.52	Phase 1	1	9k	0.02	Pass	20.61
1.03435	1	21.44	46	-24.56	Phase 1	1	9k	0.02	Pass	20.42
1.76485	1	20.13	46	-25.87	Phase 1	1	9k	0.02	Pass	20.48
0.3187	1	21.86	49.76	-27.9	Phase 1	1	9k	0.02	Pass	20.06
19.33855	1	19.66	50	-30.34	Phase 1	1	9k	0.02	Pass	20.2

Line Table

Power: 110V60HZ_NEUTRAL



Neutral Graph

Prüfbericht - Nr.:
Test Report No.:

ULR-TC568821300000110F

Seite 98 von 99
Page 98 of 99

Quasipea k (15)										
Frequenc y (MHz)	S R	Level (dBµV)	Limit (dBµV)	Margi n (dB)	Pos	Measurin g time	RBW	Meas Time	Comments	Correctio n (dB)
0.5924	2	44.61	56	-11.39	Neutra 	1	9k	0.02	Pass	20.39
0.6155	2	38.38	56	-17.62	Neutra 	1	9k	0.02	Pass	20.43
0.51795	2	35.29	56	-20.71	Neutra 	1	9k	0.02	Pass	20.27
0.8734	2	30.1	56	-25.9	Neutra 	1	9k	0.02	Pass	20.66
0.29665	2	31.06	60.3	-29.24	Neutra 	1	9k	0.02	Pass	19.96
1.1833	2	26.16	56	-29.84	Neutra 	1	9k	0.02	Pass	20.51
19.35055	2	26.98	60	-33.02	Neutra 	1	9k	0.02	Pass	20.44
24.44805	2	20.51	60	-39.49	Neutra 	1	9k	0.02	Pass	20.57

Neutral Table

Average (15)										
Frequenc y (MHz)	S R	Level (dBµV)	Limit (dBµV)	Margi n (dB)	Pos	Measurin g time	RBW	Meas.Tim e	Comment s	Correctio n (dB)
0.5924	2	28.4	46	-17.6	Neutr al	1	9k	0.02	Pass	20.39
0.6155	2	26.64	46	-19.36	Neutr al	1	9k	0.02	Pass	20.43
0.51795	2	21.26	46	-24.74	Neutr al	1	9k	0.02	Pass	20.27
0.8734	2	16.59	46	-29.41	Neutr al	1	9k	0.02	Pass	20.66
0.29665	2	20.42	50.3	-29.88	Neutr al	1	9k	0.02	Pass	19.96
19.35055	2	15.6	50	-34.4	Neutr al	1	9k	0.02	Pass	20.44
1.1833	2	8.51	46	-37.49	Neutr al	1	9k	0.02	Pass	20.51
24.44805	2	9.48	50	-40.52	Neutr al	1	9k	0.02	Pass	20.57

Neutral Table

11 LIST OF TABLES

Table 1: List of test and measurement instruments	6
Table 2: Instrument application Software versions	7
Table 3: Ratings and System Details as declared by the Client*	7
Table 4: Measurement Uncertainty	8
Table 5: List of Wi-Fi center Frequencies	9
Table 6: Undesirable emission limits	59
Table 7: Transmitter limits for Radiated emission	60

12 Power level used for testing

a_6Mbps_20MHz		n_HT20_MCS0		ac_VHT20_MCS0	
5180	14	5180	15	5180	15
5240	14	5240	15	5240	16
5745	12	5745	11	5745	11
5825	14	5825	12	5825	14
a_54Mbps-20MHz		n_HT20_MCS7		ac_VHT20_MCS8	
5180	14	5180	15	5180	16
5240	14	5240	15	5240	16
5745	12	5745	11	5745	11
5825	14	5825	13	5825	16
		n_HT40_MCS0		ac_VHT40_MCS0	
		5190	14	5190	14
		5230	15	5230	16
		5755	15	5755	15
		5795	15	5795	15
		n_HT40_MCS7		ac_VHT40_MCS9	
		5190	15	5190	16
		5230	15	5230	16
		5755	15	5755	15
		5795	15	5795	15
				ac_VHT80_MCS0	
				5210	14
				5775	15
				ac_VHT80_MCS9	
				5210	16
				5775	15

END OF TEST REPORT