

6.4 Maximum conducted output Power

Test Standard	47 CFR Part 15, Subpart E 15.407 (a)
Test Method	KDB 789033 D02 II E
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

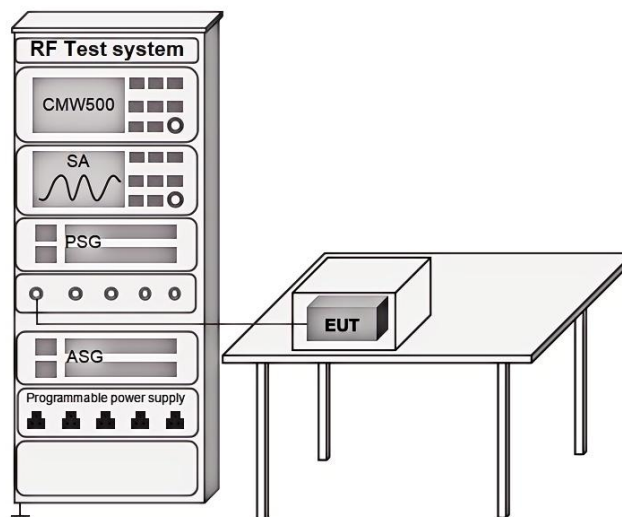
6.4.1 Limit

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)

Remark:* Where B is the 26dB emission bandwidth in MHz.

The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

6.4.2 Test setup



6.4.3 Test data

Pass: Please refer to appendix A for details

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Report version : V1.3

6.5 Peak power spectrum density

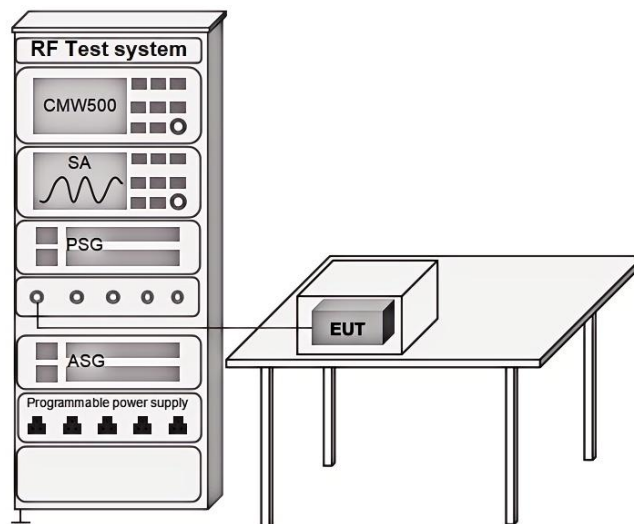
Test Standard	47 CFR Part 15, Subpart E 15.407 (a)
Test Method	KDB 789033 D02 II F
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.5.1 Limit

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz

Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

6.5.2 Test setup



6.5.3 Test data

Pass: Please refer to appendix A for details

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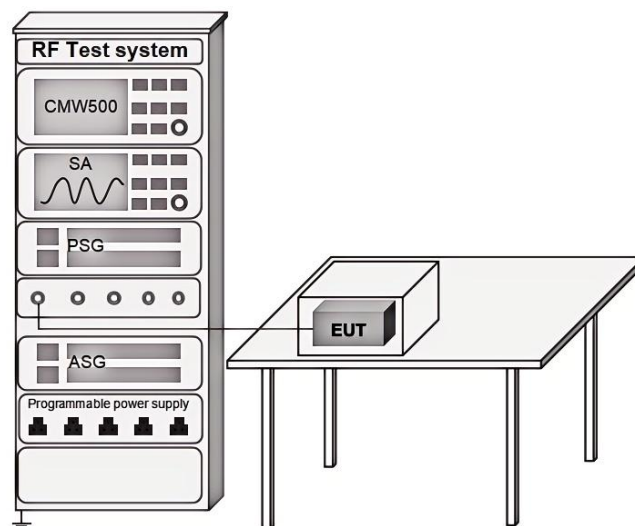
6.6 Minimum 6dB bandwidth (5.725-5.85 GHz band)

Test Standard	47 CFR Part 15, Subpart E 15.407 (e)
Test Method	KDB 789033 D02 II C 2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.6.1 Limit

≥500 kHz

6.6.2 Test setup



6.6.3 Test data

Pass: Please refer to appendix A for details

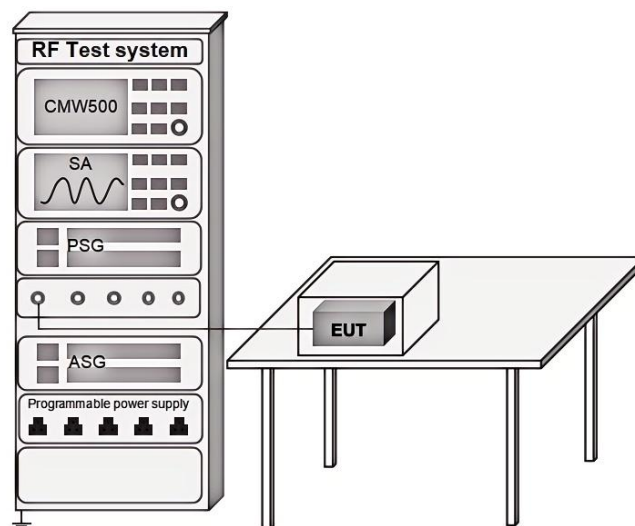
6.7 26dB Emission bandwidth

Test Standard	47 CFR Part 15, Subpart E 15.407 (a)
Test Method	KDB 789033 D02 II C 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.7.1 Limit

N/A

6.7.2 Test setup



6.7.3 Test data

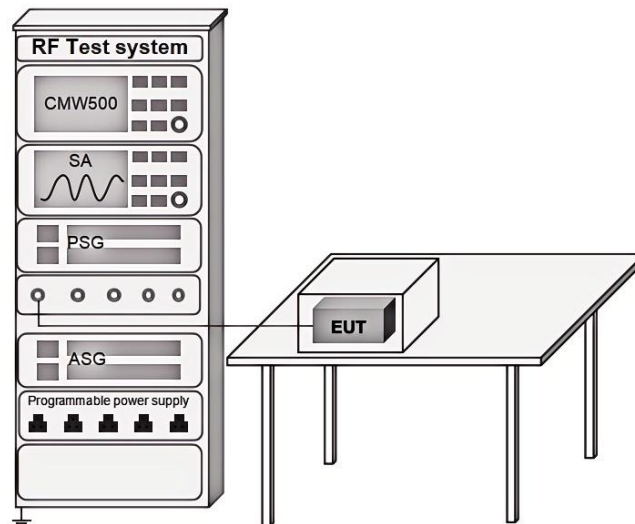
Pass: Please refer to appendix A for details

6.8 99% Bandwidth

Test Standard	N/A
Test Method	KDB 789033 II D
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.8.1 Limit

6.8.2 Test setup



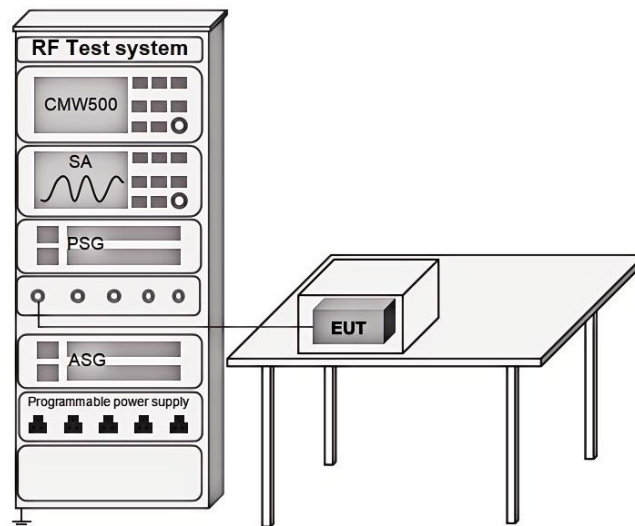
6.8.3 Test data

Pass: Please refer to appendix A for details

6.9 Duty Cycle

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 II B 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.9.1 Test setup



6.9.2 Test data

Pass: Please refer to appendix A for details

6.10 Conducted Band Edges Measurement

Test Standard	47 CFR Part 15, Subpart C 15.407(b)(4)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.10.1 Limit

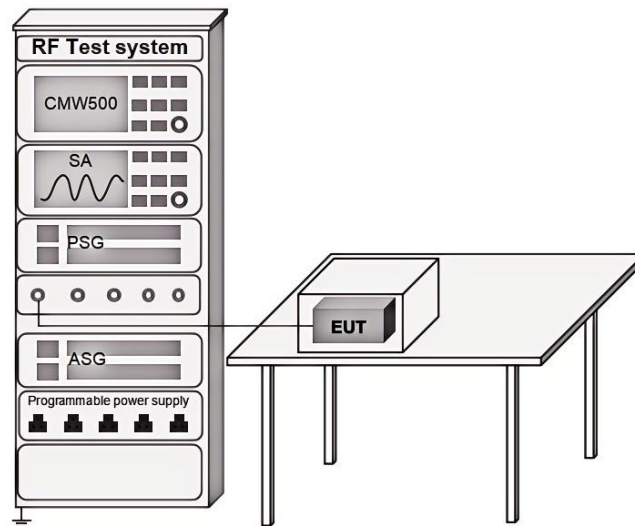
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20dB.

Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

6.10.2 Test setup



6.10.3 Test data

Pass: Please refer to appendix A for details

6.11 Conducted spurious emissions

Test Standard	47 CFR Part 15, Subpart C 15.407
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.11.1 Limit

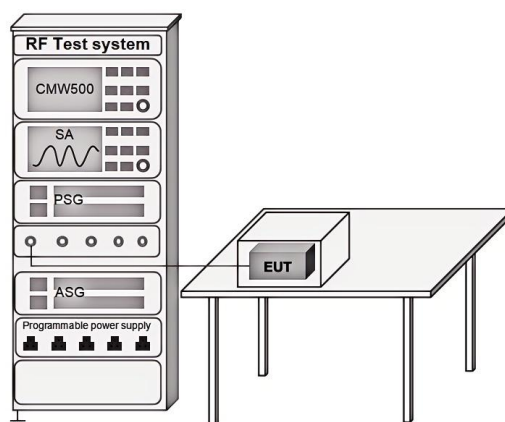
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20dB.

Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

6.11.2 Test setup



6.11.3 Test data

Pass: Please refer to appendix A for details

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6.12 Radiated emissions

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II G
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

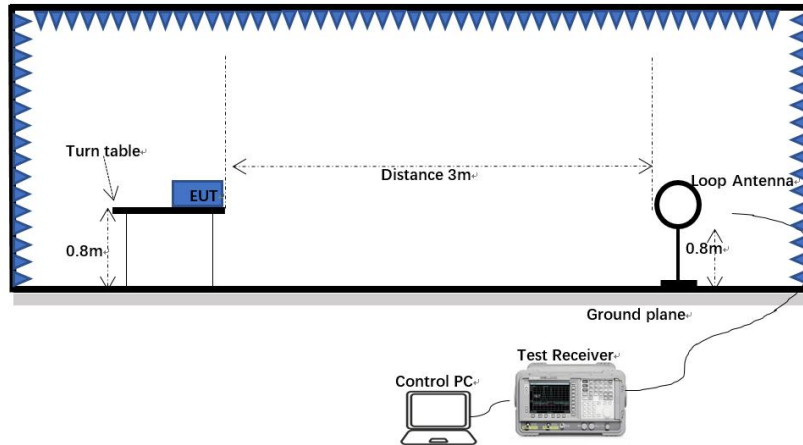
6.12.1 Limit

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

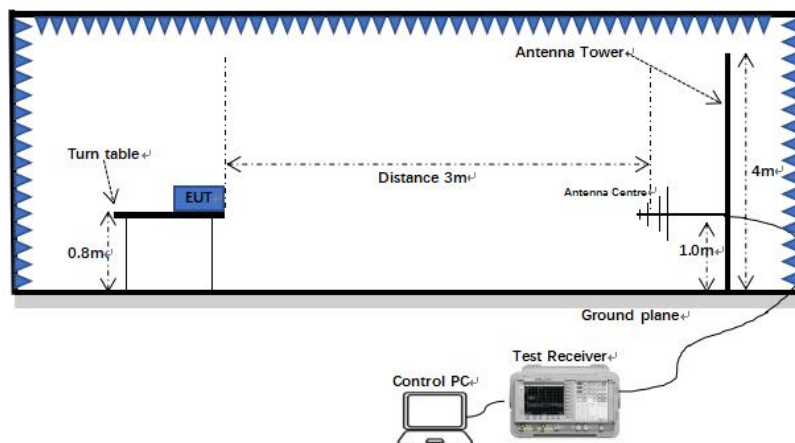
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

6.12.2 Test setup

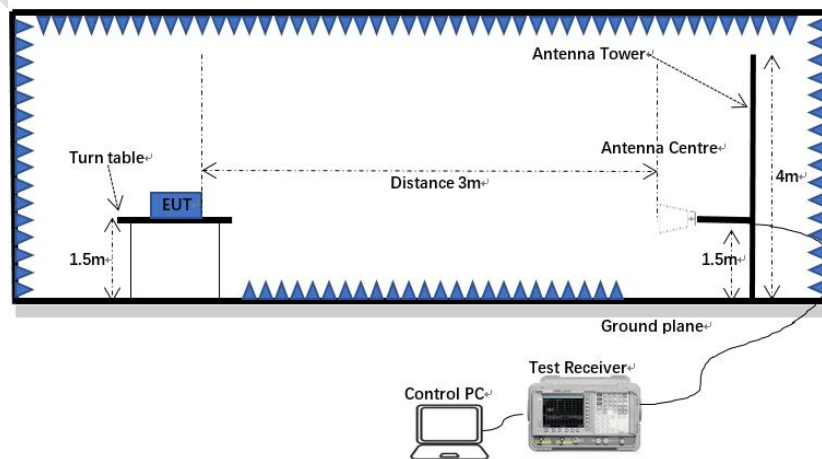
Below 1GHz:



30MHz-1GHz:



Above 1GHz:



6.12.3 Procedure

- a) For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c) The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d) The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h) Test the EUT in the lowest channel, the middle channel, the highest channel.
- i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j) Repeat above procedures until all frequencies measured was complete.

Note 1: Scan from 9 kHz to 40GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

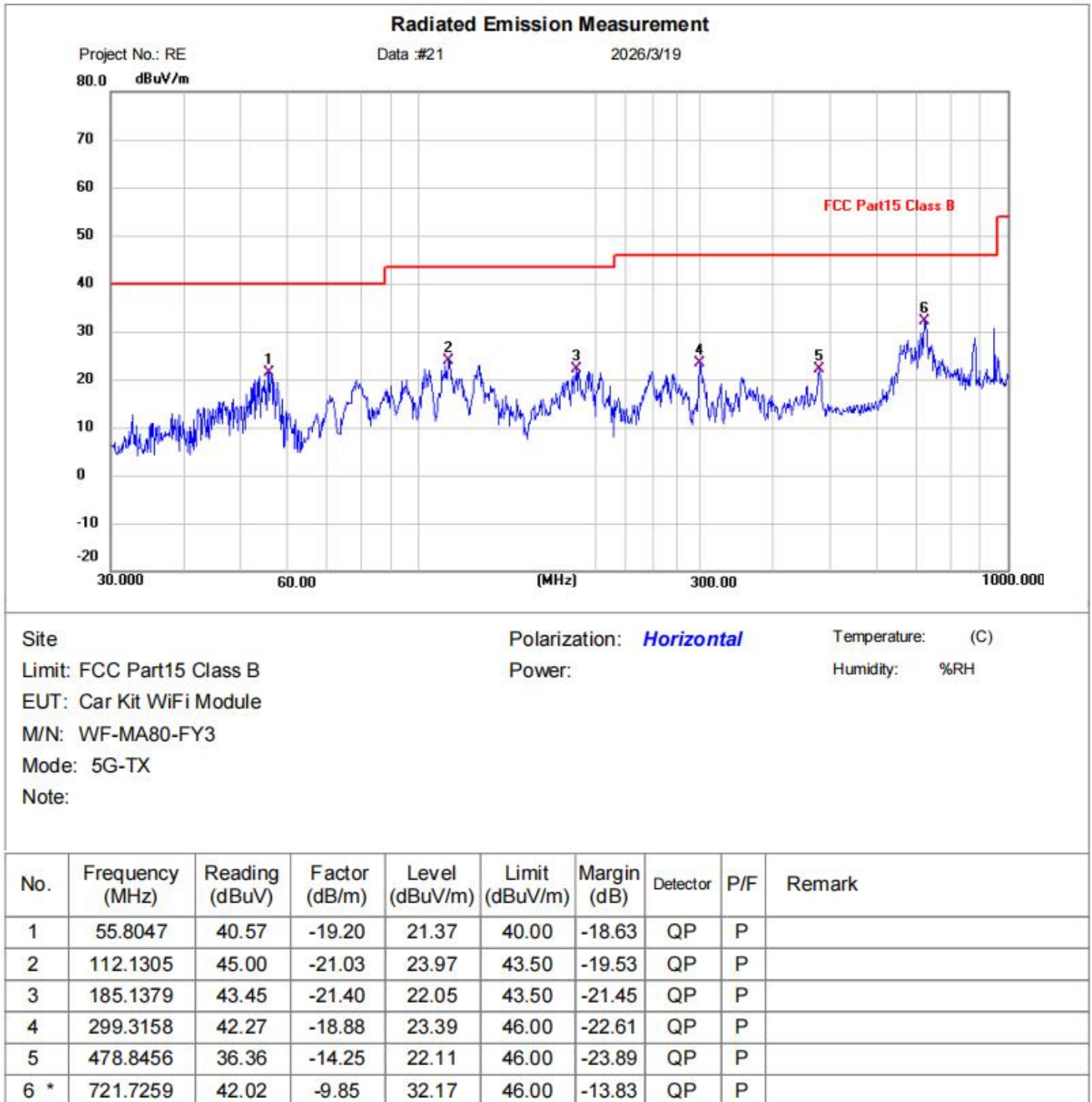
Note 3: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$\text{Level (dBuV)} = \text{Reading (dBuV)} + \text{Factor (dB/m)}$$

6.12.4 Test data

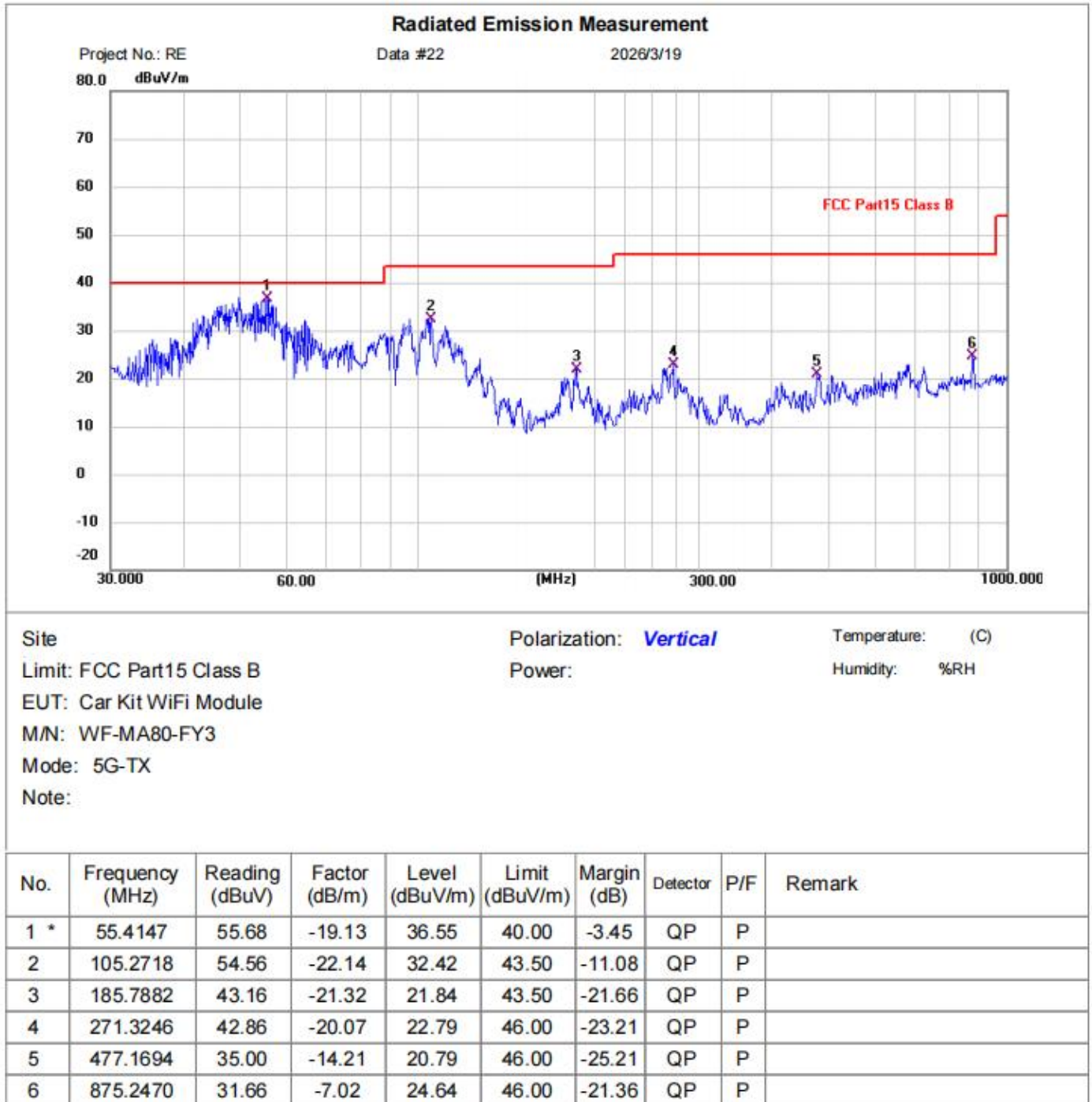
Below 1GHz:

[Test mode: Band1 TX low channel]; [Polarity: Horizontal] ;[Power: DC5V]



Test Result: Pass

[Test mode: Band1 TX low channel]; [Polarity: Vertical] ;[Power: DC5V]

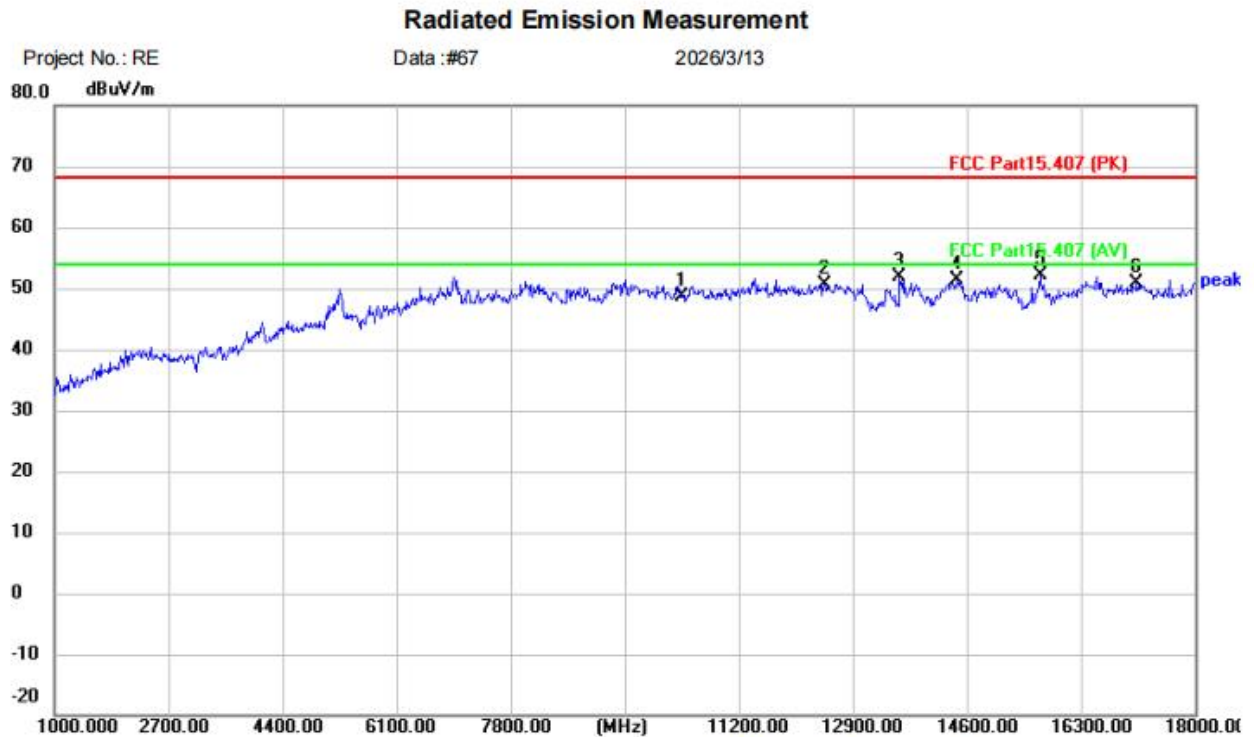


Test Result: Pass

Remark: During the test, pre-scan the (Band1-4)802.11a/n/ac /ax mode, and found the 802.11ac mode which it is worse case, only the worse case lowest channel for Band1/802.11ac was recorded in the report.

Above 1GHz:

[Test mode:Band1 TX low channel]; [Polarity: Horizontal] ;[Power: DC5V]

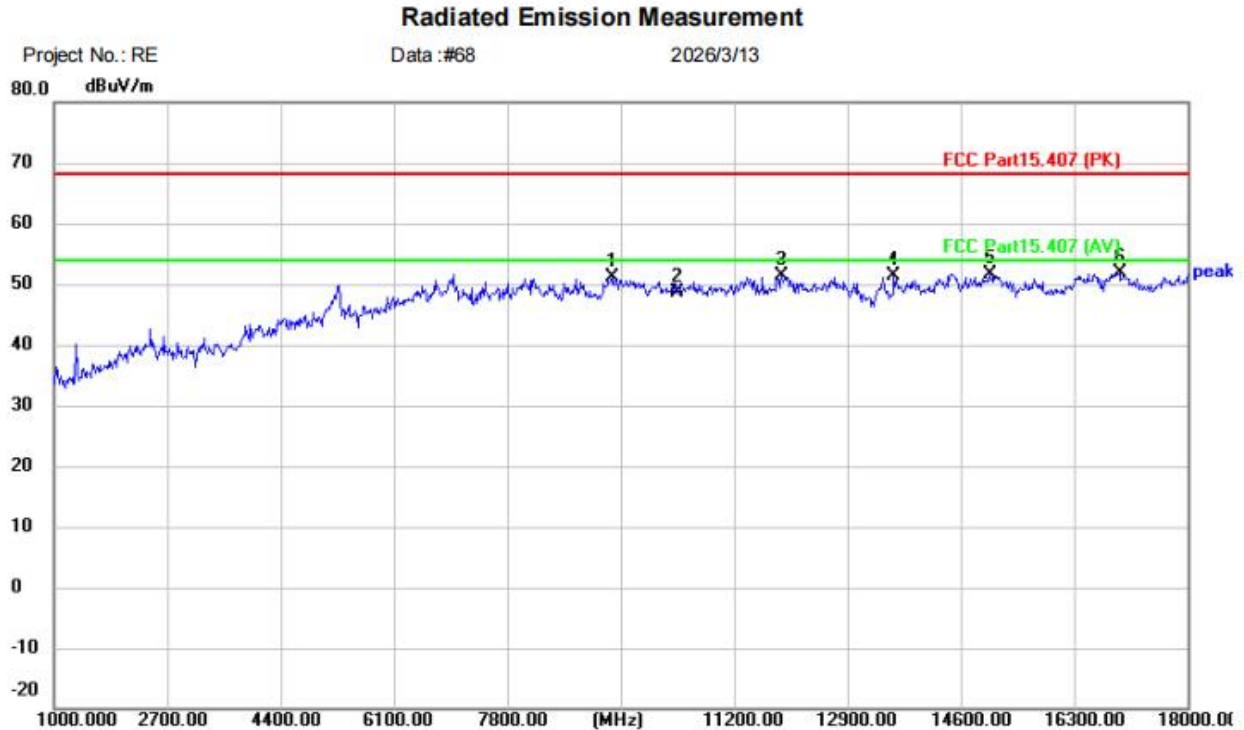


Site Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15.407 (PK) Power: Humidity: %RH
 EUT: Car Kit WiFi Module
 M/N: WF-MA80-FY3
 Mode: 5G-Band1-5180
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		10360.00	35.05	13.53	48.58	68.20	-19.62	peak	
2		12475.00	37.84	12.88	50.72	68.20	-17.48	peak	
3		13597.00	39.01	12.90	51.91	68.20	-16.29	peak	
4		14447.00	40.75	10.59	51.34	68.20	-16.86	peak	
5	*	15688.00	42.62	9.44	52.06	68.20	-16.14	peak	
6		17133.00	40.66	10.12	50.78	68.20	-17.42	peak	

Test Result: Pass

[Test mode:Band1 TX low channel]; [Polarity: Vertical] ;[Power: DC5V]



Site Polarization: **Vertical** Temperature: (C)

Limit: FCC Part15.407 (PK) Power: Humidity: %RH

EUT: Car Kit WiFi Module

M/N: WF-MA80-FY3

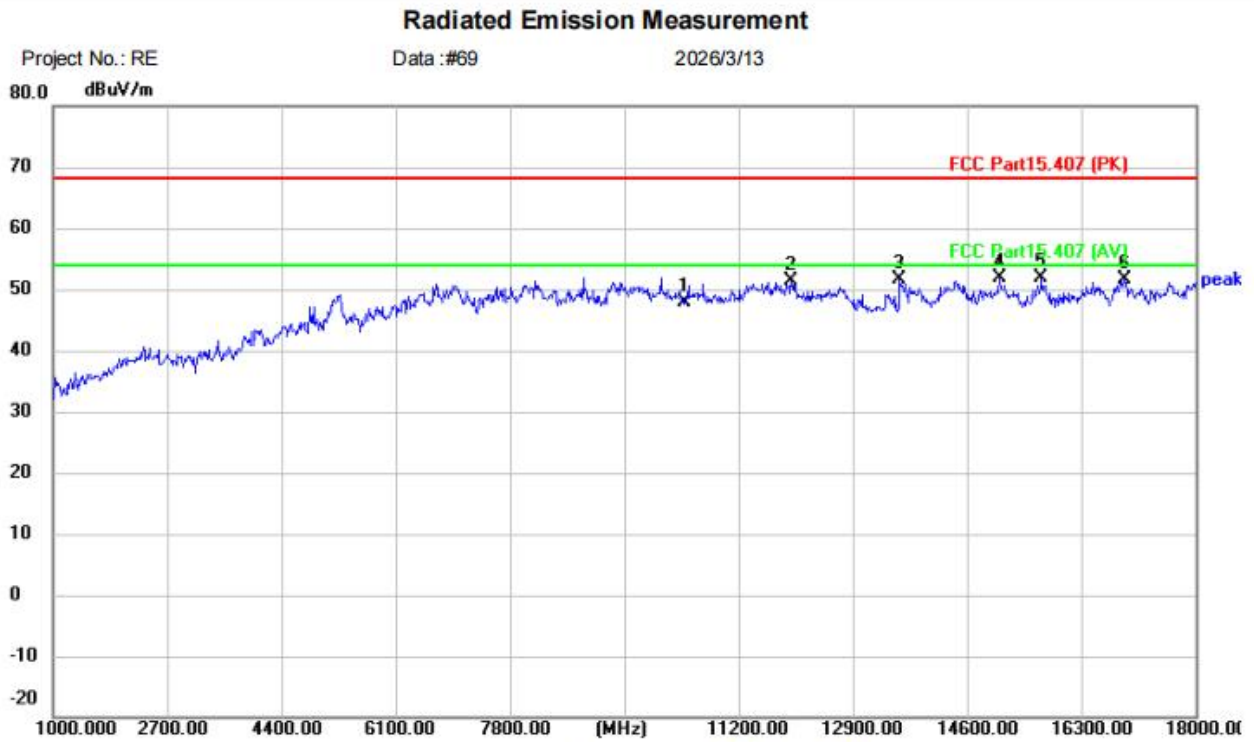
Mode: 5G-Band1-5180

Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	9364.000	38.04	13.21	51.25	68.20	-16.95	peak	
2	10360.00	35.14	13.53	48.67	68.20	-19.53	peak	
3	11914.00	37.61	13.66	51.27	68.20	-16.93	peak	
4	13597.00	38.57	12.90	51.47	68.20	-16.73	peak	
5	15042.00	42.32	9.42	51.74	68.20	-16.46	peak	
6 *	16980.00	42.49	9.33	51.82	68.20	-16.38	peak	

Test Result: Pass

[Test mode:Band1 TX middle channel]; [Polarity: Horizontal] ;[Power: DC5V]

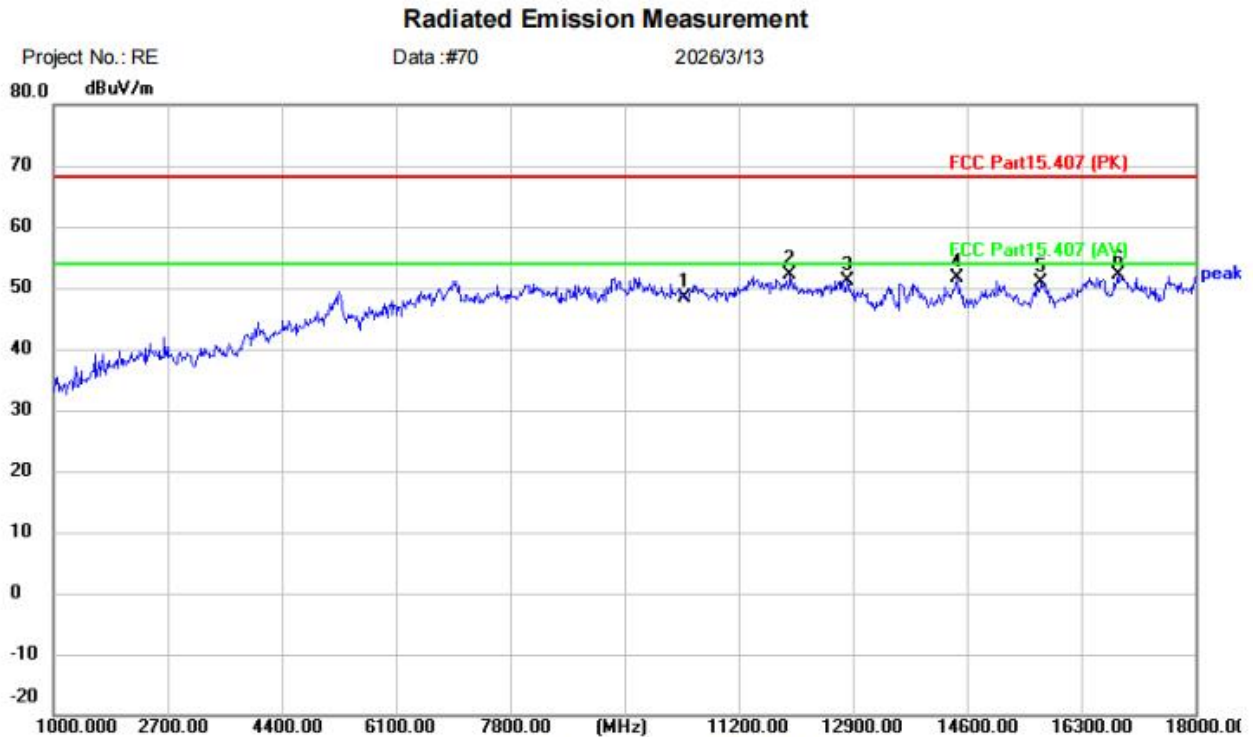


Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15.407 (PK) Power: Humidity: %RH
EUT: Car Kit WiFi Module
M/N: WF-MA80-FY3
Mode: 5G-Band1-5200
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	10400.00	34.44	13.51	47.95	68.20	-20.25	peak	
2	11982.00	37.32	14.14	51.46	68.20	-16.74	peak	
3	13597.00	38.67	12.90	51.57	68.20	-16.63	peak	
4 *	15076.00	42.42	9.51	51.93	68.20	-16.27	peak	
5	15705.00	42.31	9.45	51.76	68.20	-16.44	peak	
6	16946.00	41.78	9.81	51.59	68.20	-16.61	peak	

Test Result: Pass

[Test mode:Band1 TX middle channel]; [Polarity: Vertical] ;[Power: DC5V]



Site Polarization: **Vertical** Temperature: (C)

Limit: FCC Part15.407 (PK) Power: Humidity: %RH

EUT: Car Kit WiFi Module

M/N: WF-MA80-FY3

Mode: 5G-Band1-5200

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		10400.00	34.85	13.51	48.36	68.20	-19.84	peak	
2		11965.00	37.99	14.03	52.02	68.20	-16.18	peak	
3		12815.00	37.44	13.73	51.17	68.20	-17.03	peak	
4		14447.00	41.10	10.59	51.69	68.20	-16.51	peak	
5		15705.00	41.54	9.45	50.99	68.20	-17.21	peak	
6	*	16844.00	41.83	10.34	52.17	68.20	-16.03	peak	

Test Result: Pass

[Test mode:Band1 TX High channel]; [Polarity: Horizontal] ;[Power: DC5V]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)

Limit: FCC Part15.407 (PK) Power: Humidity: %RH

EUT: Car Kit WiFi Module

M/N: WF-MA80-FY3

Mode: 5G-Band1-5240

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		10480.00	36.77	13.70	50.47	68.20	-17.73	peak	
2	*	11319.00	38.91	13.38	52.29	68.20	-15.91	peak	
3		13631.00	39.22	12.41	51.63	68.20	-16.57	peak	
4		14311.00	40.34	11.04	51.38	68.20	-16.82	peak	
5		15705.00	41.79	9.45	51.24	68.20	-16.96	peak	
6		16810.00	40.77	10.26	51.03	68.20	-17.17	peak	

Test Result: Pass