

Test Report

Applicant : Shinwa Industries (China) Ltd.
Address : No.26,HuiFeng West 2 Road,Zhongkai High-Tech
Park,Huizhou,Guangdong,China
Product Name : Car Kit WiFi/BT Module
Brand Mark : Shinwa
Model : WF-MA80-FY3
Series model : WF-MA80-FY1
Report Number : BLA-EMC-202602-A1405
FCC ID : ZWYMA80X
Date of Receipt : Feb. 02,2026
Date of Test : Feb. 02,2026 to Mar. 23,2026
Test Standard : 47 CFR Part 15, Subpart E 15.407
Test Result : Pass

Compiled by:

charlie

Review by:

Xavier

Approved by:

Blue Zheng

Issued Date:

Mar. 23,2026



BlueAsia Technical Services (Shenzhen) Co., Ltd

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Revise Record

Version No.	Date	Description
01	Mar. 23,2026	Original

1 General information

1.1 General information

Applicant	Shinwa Industries (China) Ltd.
Address	No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China
Manufacturer	Shinwa Industries (China) Ltd.
Address	No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China
Factory	N/A
Address	N/A

1.2 General description of EUT

Product name	Car Kit WiFi/BT Module
Model no.	WF-MA80-FY3
Series model	WF-MA80-FY1
Differences of Series model	Due to the different sales channels, the names are different, but the rest are the same.
Operation Frequency	Band1: 5180MHz~5240MHz;Band2:5260MHz~5320MHz Band3: 5500MHz~5700MHz;Band4:5745MHz~5825MHz
Channel numbers	Band 1: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 4, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):2, 802.11ac(HT80)/ax(HE80): 1 Band 2: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 4, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):2, 802.11ac(HT80)/ax(HE80): 1 Band 3: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 11, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):5, 802.11ac(HT80)/ax(HE80): 3 Band 4: 802.11a/802.11(HT20)/802.11ac(HT20)/ax(HE20): 5, 802.11n(HT40)/802.11ac(HT40)/ax(HE40): 2, 802.11ac(HT80)/ax(HE80): 1
Channel Spacing	802.11a/n/ac(HT20)/ax(HE20): 20MHz, 802.11n/ac(HT40)/ax(HE40): 40MHz, 802.11ac(HT80)/ax(HE80): 80MHz
Modulation Type	IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE for 802.11ac(VHT20/VHT40/VHT80): OFDM(BPSK, QPSK, 16QAM, 64QAM,256QAM) IEEE for 802.11ax(HE20/HE40/HE80): OFDMA(BPSK, QPSK, 16QAM, 64QAM,256QAM,1024QAM)
Resource unit (802.11ax)	Only support full RU

Transmit Data Rate	IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20(1X1): up to 72.2 Mbps, HT40(1X1): up to 150 Mbps IEEE 802.11ac VHT20(1X1): up to 86.7 Mbps, VHT40(1X1): up to 200 Mbps, VHT80(1X1): up to 433.3 Mbps IEEE 802.11ax HE20(1X1): up to 143.4 Mbps, HE40(1X1): up to 286.6 Mbps, HE80(1X1): up to 600.5 Mbps
DFS Operation Type	☐ Master Device ☐ Slaver Device with Radar detection function ☒ Slaver Device without Radar detection function
Antenna Type	FPC antenna
Antenna Gain	4.5dBi(Provided by the customer)
Function	☒ SISO ☐ 2x2 MIMO ☐ TPC
Power supply or adapter information	DC5V for test board
Hardware version	WF-MA80-FY1 V1.1 240701
Software version	N/A
Engineer sample no.	BLA-EMC-202410-A51
<i>Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.</i>	

2 Test summary

No.	Test item	FCC standard	Test Method (Clause)	Result
1	Antenna Requirement	§15.203	N/A	Pass
2	Conducted Emissions at AC Power Line (150kHz-30MHz)	§15.207	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2	Pass
3	Frequency Stability	§15.407 (g)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.8	Pass
4	Maximum Conducted output power	§15.407 (a)	KDB 789033 D02 II E	Pass
5	Transmitter Power Control	§15.407 (h)(1)	KDB 789033 D02 II E	N/A
6	Peak Power spectrum density	§15.407 (a)	KDB 789033 D02 II F	Pass
7	Minimum 6 dB bandwidth (5.725-5.85 GHz band)	§15.407 (e)	KDB 789033 D02 II C 2	Pass
8	26dB Emission bandwidth	§15.407 (a)	KDB 789033 D02 II C 1	Pass
9	99% Bandwidth	N/A	KDB 789033 II D	Pass
10	Duty Cycle	KDB 789033 D02 II B 1	KDB 789033 II B 1	Pass
11	Conducted Band Edges Measurement	§15.407 (b)(4)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13	Pass
12	Conducted spurious emissions	§15.407(b)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11	Pass
13	Radiated Emissions which fall in the restricted bands	§15.209 §15.407(b)	KDB 789033 D02 II G	Pass
14	Radiated Emissions	§15.209 §15.407(b)	KDB 789033 D02 II G	Pass
15	DFS: Channel Closing Transmission Time	§15.407((h)(2)	KDB 905462 D02 Clause 7.8.3	Pass
16	DFS: Non-occupancy period	§15.407((h)(2)	KDB 905462 D02 Clause 7.8.3	Pass

N/A: Not Applicable

3 Test Configuration

3.1 Test mode

Test Mode ^{Note 1}	Description
TX	Keep the EUT in continuously transmitting mode with modulation.(Duty cycle>98%)
RX	Keep the EUT in receiving mode
TX Low channel	Keep the EUT in continuously transmitting mode in low channel
TX middle channel	Keep the EUT in continuously transmitting mode in middle channel
TX high channel	Keep the EUT in continuously transmitting mode in high channel

Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use

3.2 Operation frequency and test channel

802.11a/n/ac/ax

U-NII-1					
20(MHz)		40(MHz)		80(MHz)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz	42	5210MHz
40	5200MHz	46	5230MHz		
44	5220MHz				
48	5240MHz				
U-NII-2A					
20(MHz)		40(MHz)		80(MHz)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260MHz	54	5270MHz	58	5290MHz
56	5280MHz	62	5310MHz		
60	5300MHz				
64	5320MHz				
U-NII-2C					
20(MHz)		40(MHz)		80(MHz)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
100	5500MHz	102	5510MHz	106	5530MHz
104	5520MHz	110	5550MHz	122	5610MHz
108	5540MHz	118	5590MHz		
112	5560MHz	126	5630MHz		
116	5580MHz	134	5670MHz		
120	5600MHz				
124	5620MHz				
128	5640MHz				
132	5660MHz				
136	5680MHz				
140	5700MHz				
U-NII-3					
20(MHz)		40(MHz)		80(MHz)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	155	5775MHz
153	5765MHz	159	5795MHz		
157	5785MHz				
161	5805MHz				
165	5825MHz				

3.3 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	lenovo	E46OC	N/A	From lab (No.BLA-ZC-BS-2022005)
WiFi Router	ASUS	RT-AC86U	N/A	FCCID:MSQ-RTACHN00 ICID:3568A-RTAC86U

Note:“--” mean no any auxiliary device during testing.

3.4 Test environment

Temperature	Normal	25°C
	Low Extreme	0°C
	High Extreme	+85°C
Voltage	Normal	DC 3.7V
	Low Extreme	DC 3.33V
	High Extreme	DC 4.07V

4 Laboratory information

4.1 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

Company name:	BlueAsia Technical Services (Shenzhen) Co.,Ltd.
Address:	No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
Test Firm Registration Number:	923526
ISED CAB identifier No.:	CN0028
Company Number:	24243
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

4.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

Parameter	Expanded Uncertainty
Radiated Emission(9kHz-30MHz)	$\pm 4.34\text{dB}$
Radiated Emission(30Mz-1000MHz)	$\pm 4.24\text{dB}$
Radiated Emission(1GHz-18GHz)	$\pm 4.68\text{dB}$
Radiated Emission(18GHz-40GHz)	$\pm 4.78\text{dB}$
AC Power Line Conducted Emission(150kHz-30MHz)	$\pm 3.45\text{dB}$
Occupied Channel Bandwidth	$\pm 5\%$
RF output power, conducted	$\pm 1.5\text{ dB}$
Power Spectral Density, conducted	$\pm 3.0\text{ dB}$
Unwanted Emissions, conducted	$\pm 3.0\text{ dB}$
Temperature	$\pm 3\text{ }^{\circ}\text{C}$
Supply voltages	$\pm 3\%$
Time	$\pm 5\%$

5 Test equipment

Radiated Spurious Emissions (Below 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-002-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-002-02	Control room	966 control room	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2025/08/05	2026/08/04
BLA-EMC-043	Loop antenna	FMZB1519B	Schwarzbeck	00102	2024/06/29	2026/06/28
BLA-EMC-065	Broadband antenna	VULB9168	Schwarzbeck	01065P	2024/06/29	2026/06/27
BLA-XC-01	Coaxial Cable	N/A	BlueAsia	V01	N/A	N/A
BLA-XC-02	Coaxial Cable	N/A	BlueAsia	V02	N/A	N/A

Radiated Spurious Emissions (Above 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-001-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-001-02	Control Room	966 control room	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-008	Spectrum	FSP40	R&S	100817	2025/08/05	2026/08/04
BLA-EMC-013	Horn Antenna	BBHA9120D	Schwarzbeck	01892	2024/06/29	2026/06/28
BLA-EMC-014	Amplifier	PA_000318G-45	SKET	PA2018043003	2025/08/05	2026/08/04
BLA-EMC-046	Filter bank	2.4G/5G Filter bank	SKET	N/A	2025/06/09	2026/06/08
BLA-EMC-061	Receiver	ESPI7	R&S	101477	2025/06/09	2026/06/08
BLA-EMC-066	Amplifier	LNPA_30M01G-30	SKET	SK2021060801	2025/06/09	2026/06/08
BLA-EMC-086	Amplifier	LNPA_18G40G-50dB	SKET	SK2022071301	2025/06/09	2026/06/08
BLA-EMC-087	Horn Antenna	BBHA 9170	Schwarzbeck	1106	2024/06/29	2026/06/28
BLA-XC-03	Coaxial Cable	N/A	BlueAsia	V03	N/A	N/A
BLA-XC-04	Coaxial Cable	N/A	BlueAsia	V04	N/A	N/A

Conducted emissions at AC power line (150 kHz-30 MHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-001	Shield room	8*3*3	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2025/08/05	2026/08/04
BLA-EMC-011	LISN	ENV216	R&S	101372	2025/08/05	2026/08/04
BLA-EMC-033	Impedance transformer	DC-2GHz	DFXP	N/A	2025/06/09	2026/06/08
BLA-EMC-041	LISN	AT166-2	ATTEN	AKK1806000003	2025/08/05	2026/08/04
BLA-EMC-045	Impedance stable network	ISNT8-cat 6	TESEQ	53580	2025/08/05	2026/08/04
BLA-EMC-095	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01045	2025/06/09	2026/06/08
BLA-EMC-096	Single-channel	NNBM	Schwarzbeck	01075	2025/06/09	2026/06/08

	vehicle artificial power network	8124	ck			
BLA-XC-05	Coaxial Cable	N/A	BlueAsia	V05	N/A	N/A

RF conducted

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-003	Shield room	5*3*3	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-016	Signal Generator	N5182A	Agilent	MY52420567	2025/06/09	2026/06/08
BLA-EMC-038	Spectrum	N9020A	Agilent	MY49100060	2025/08/05	2026/08/04
BLA-EMC-042	Power sensor	RPR3006 W	DARE	14I00889SN042	2025/08/05	2026/08/04
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	2025/08/05	2026/08/04
BLA-EMC-064	Signal Generator	N5182B	KEYSIGHT	MY58108892	2025/06/09	2026/06/08
BLA-EMC-079	Spectrum	N9020A	Agilent	MY54420161	2025/08/05	2026/08/04
BLA-EMC-088	Audio Analyzer	ATS-1	Audio Precision	ATS141094	2025/06/09	2026/06/08
BLA-EMC-100	Digital Radio Tester	RWC2010	Redwoodcomm	RWC20102490304	2025/06/09	2026/06/08

Test Software Record

Software No.	Software Name	Manufacture	Software version	Test site
BLA-EMC-S001	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S002	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S003	EZ-EMC	EZ	EEMC-3A1+	CE
BLA-EMC-S010	MTS 8310	MW	2.0.0.0	RF

6 Test result

6.1 Antenna requirement

Test Standard	47 CFR Part 15, Subpart C 15.203
Test Method	N/A

6.1.1 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of a so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT antenna:

The antenna is FPC antenna. The best case gain of the antenna is 4.5 dBi.

6.2 Conducted emissions at AC power line (150 kHz-30 MHz)

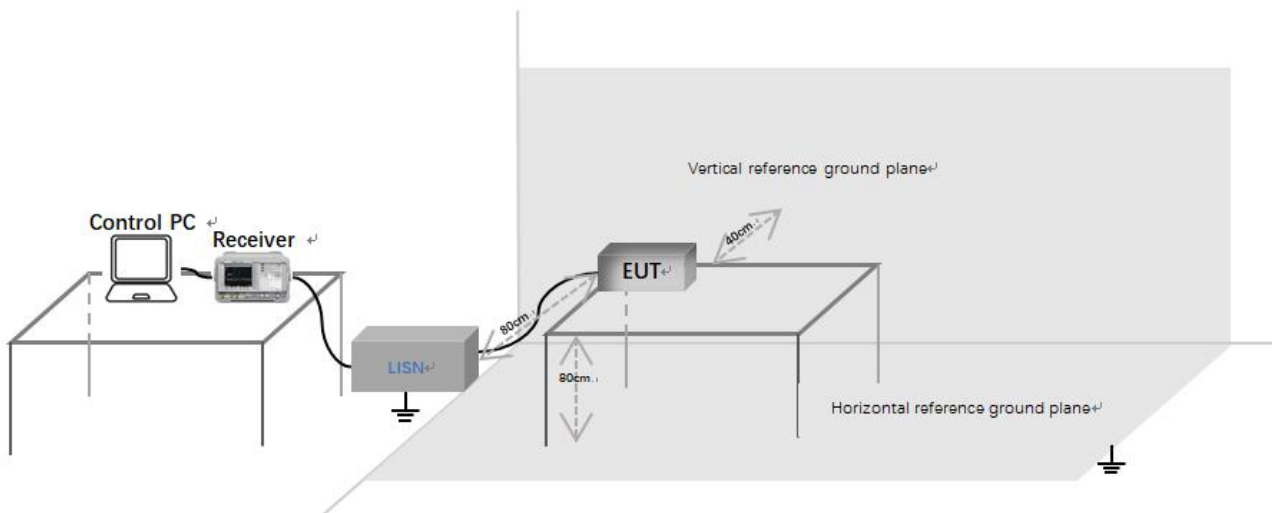
Test Standard	47 CFR Part 15, Subpart C 15.207
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.2.1 Limit

Frequency of emission(MHz)	Conducted limit(dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

6.2.2 Test setup



Description of test setup connection:

- Connect the control PC to the receiver through a USB to GPIB cable;
- The receiver is connected to the LISN through a coaxial line;
- Connect the power port of LISN to the EUT.

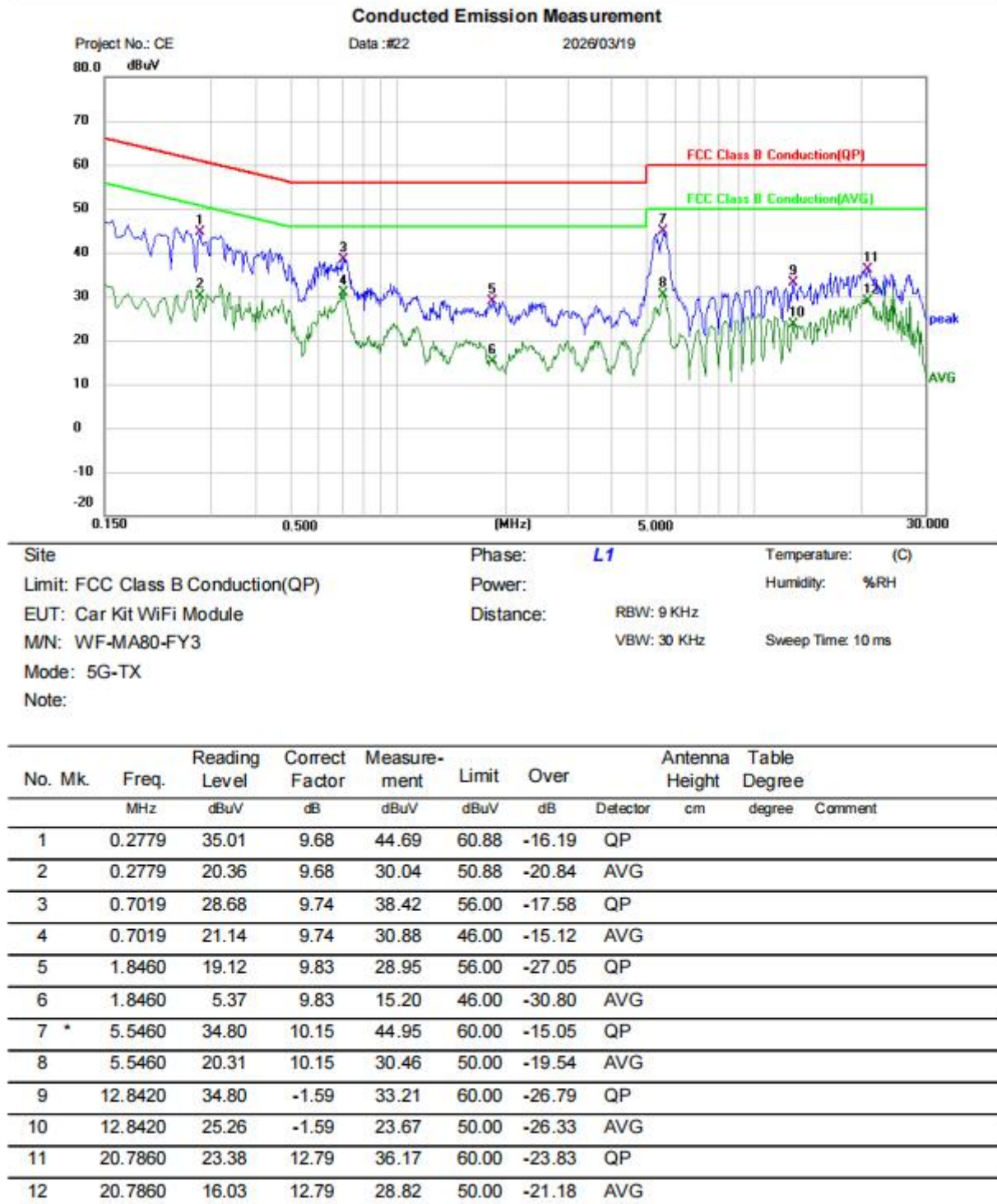
6.2.3 Procedure

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

LISN=Read Level+ Cable Loss+ LISN Factor

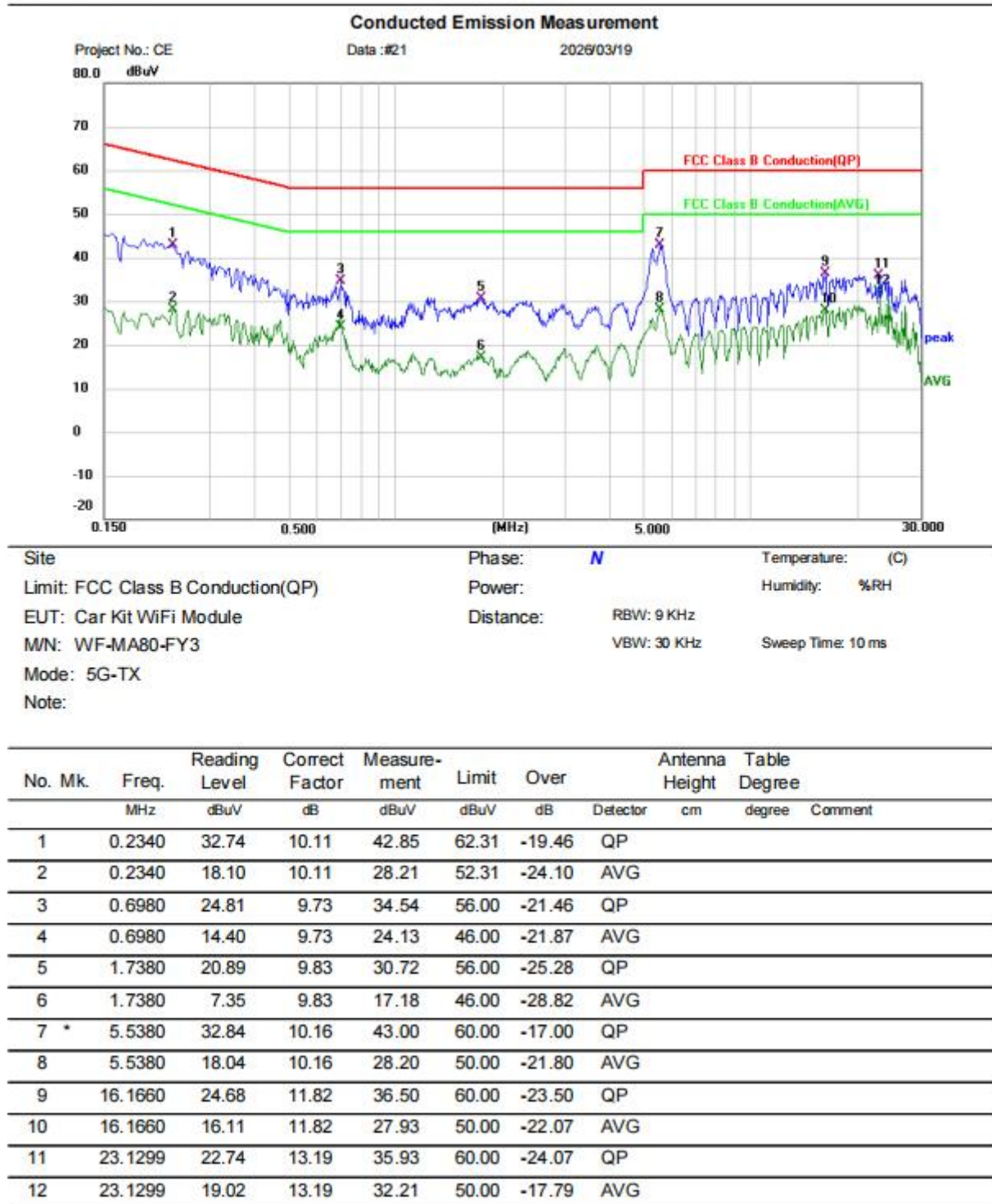
6.2.4 Test data

[Test mode: TX]; [Line: Line];[Power:AC120V/60Hz]



Test Result: Pass

[Test mode: TX]; [Line: Neutral];[Power:AC120V/60Hz]



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.

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Report version : V1.3

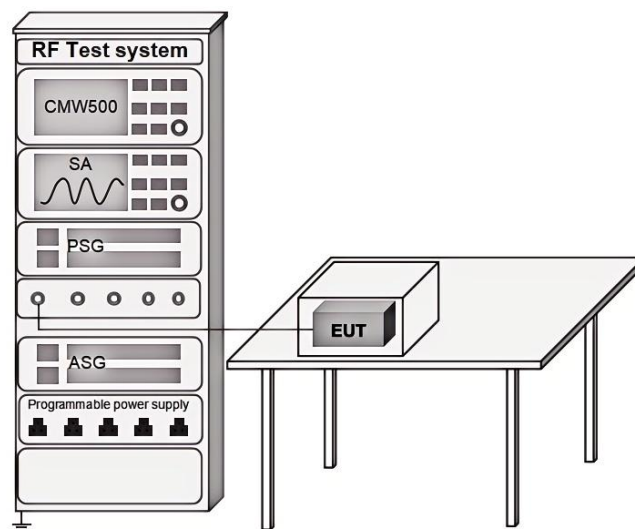
6.3 Frequency Stability

Test Standard	47 CFR Part 15, Subpart E 15.407(g)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.8
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.3.1 Limit

The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

6.3.2 Test setup



6.3.3 Test data

Pass: Please refer to appendix A for details