

Test Report

Applicant : XIAMEN iMGS TECHNOLOGIES CO.,LTD.
Address : 19th Floor, 482 Xinglinwan Road,Jimei District,
Xiamen, China
Product Name : Digital Signage
Brand Mark : IMGS
Model : LCD185S-D01A
Report Number : BLA-EMC-202503-A00202
FCC ID : 2BN2NLCD
Date of Receipt : Mar.05,2025
Date of Test : Mar.11,2025 to Apr.01,2025
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Compiled by:

charlie

Review by:

Sueels

Approved by:

J. Zheng

Issued Date:

Apr.02, 2025



BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Address: Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China



The test report is effective only with both signature and specialized stamp and The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full. The results described in this report do not represent the quality or characteristics of the sampled batch, nor do they represent any similar or identical products that are not explicitly stated.

Table of Contents

1 General information	5
1.1 General information	5
1.2 General description of EUT	5
2 Test summary	7
3 Test Configuration	8
3.1 Test mode	8
3.2 Operation Frequency each of channel	9
3.3 Auxiliary equipment	9
3.4 Test environment	9
4 Laboratory information	10
4.1 Laboratory and accreditations	10
4.2 Measurement uncertainty	10
5 Test equipment	11
6 Test result	13
6.1 Antenna requirement	13
6.2 Conducted emissions at AC power line (150 kHz-30 MHz)	14
6.3 Conducted Peak output Power	18
6.4 Minimum 6dB bandwidth	19
6.5 Power spectrum density	20
6.6 Conducted Band Edges Measurement	21
6.7 Conducted spurious emissions	23
6.8 Radiated spurious emissions	25
6.9 Radiated emissions which fall in the restricted bands	36
7 Appendix A	55
7.1 Maximum Peak Conducted Output Power	55
7.2 -6dB Bandwidth	62
7.3 Occupied Channel Bandwidth	69
7.4 Maximum Power Spectral Density Level	76
7.5 Band Edge	83
7.6 Conducted RF Spurious Emission	92

Appendix B: photographs of test setup 105

Appendix C: photographs of EUT 107

BlueAsia

Revise Record

Version No.	Date	Description
01	Apr.02,2025	Original

BlueAsia

1 General information

1.1 General information

Applicant	XIAMEN iMGS TECHNOLOGIES CO.,LTD.
Address	19th Floor, 482 Xinglinwan Road,Jimei District, Xiamen, China
Manufacturer	iMGS SMART GLASS TECHNOLOGIES(FUJIAN) CO., LTD.
Address	Room C101, No. 5-2 Zhongwan Road, Jimei District, Xiamen City
Factory	N/A
Address	N/A

1.2 General description of EUT

Product name	Digital Signage
Model no.	LCD185S-D01A
Series model	LCD097X-XXXX , LCD4X-XXXX , LCD7X-XXXX , LCD8X-XXXX , LCD9X-XXXX , LCD10X-XXXX , LCD12X-XXXX , LCD133X-XXXX , LCD14X-XXXX , LCD141X-XXXX , LCD164X-XXXX , LCD190X-XXXX , LCD191X-XXXX , LCD195X-XXXX , LCD231X-XXXX , LCD154X-XXXX , LCD156X-XXXX , LCD185X-XXXX , LCD213X-XXXX , LCD215X-XXXX , LCD220X-XXXX , LCD233X-XXXX , LCD238X-XXXX , LCD240X-XXXX , LCD245X-XXXX , LCD266X-XXXX , LCD276X-XXXX , LCD279X-XXXX , LCD280X-XXXX , LCD282X-XXXX , LCD285X-XXXX , LCD286X-XXXX , LCD290X-XXXX , LCD312X-XXXX , LCD315X-XXXX , LCD332X-XXXX , LCD345X-XXXX , LCD350X-XXXX , LCD366X-XXXX , LCD370X-XXXX , LCD377X-XXXX , LCD378X-XXXX , LCD430X-XXXX , LCD437X-XXXX , LCD438X-XXXX , LCD471X-XXXX , LCD476X-XXXX , LCD49X-XXXX , LCD538X-XXXX , LCD15X-XXXX , LCD16X-XXXX , LCD17X-XXXX , LCD18X-XXXX , LCD19X-XXXX , LCD20X-XXXX , LCD21X-XXXX , LCD22X-XXXX , LCD23X-XXXX , LCD24X-XXXX , LCD25X-XXXX , LCD26X-XXXX , LCD27X-XXXX , LCD28X-XXXX , LCD29X-XXXX , LCD30X-XXXX , LCD31X-XXXX , LCD32X-XXXX , LCD33X-XXXX , LCD34X-XXXX , LCD35X-XXXX , LCD36X-XXXX , LCD37X-XXXX , LCD38X-XXXX , LCD39X-XXXX , LCD40X-XXXX , LCD41X-XXXX , LCD42X-XXXX , LCD43X-XXXX , LCD44X-XXXX , LCD45X-XXXX , LCD46X-XXXX , LCD47X-XXXX , LCD48X-XXXX , LCD49X-XXXX , LCD50X-XXXX , LCD51X-XXXX , LCD52X-XXXX , LCD53X-XXXX , LCD54X-XXXX , LCD55X-XXXX , LCD56X-XXXX , LCD57X-XXXX , LCD579X-XXXX , LCD58X-XXXX , LCD583X-XXXX , LCD584X-XXXX , LCD585X-XXXX , LCD59X-XXXX , LCD60X-XXXX , LCD61X-XXXX , LCD62X-XXXX , LCD63X-XXXX , LCD64X-XXXX , LCD65X-XXXX , LCD66X-XXXX , LCD67X-XXXX , LCD68X-XXXX , LCD69X-XXXX , LCD70X-XXXX , LCD71X-XXXX , LCD72X-XXXX ,

	LCD73X-XXXX , LCD74X-XXXX , LCD75X-XXXX , LCD750X-XXXX , LCD76X-XXXX , LCD77X-XXXX , LCD78X-XXXX , LCD79X-XXXX , LCD80X-XXXX , LCD81X-XXXX , LCD814X-XXXX , LCD82X-XXXX , LCD83X-XXXX , LCD84X-XXXX , LCD85X-XXXX , LCD86X-XXXX , LCD87X-XXXX , LCD88X-XXXX , LCD89X-XXXX , LCD90X-XXXX , LCD91X-XXXX , LCD92X-XXXX , LCD93X-XXXX , LCD94X-XXXX , LCD95X-XXXX , LCD96X-XXXX , LCD97X-XXXX , LCD98X-XXXX , LCD99X-XXXX , LCD100X-XXXX , LCD101X-XXXX , LCD102X-XXXX , LCD103X-XXXX , LCD104X-XXXX , LCD105X-XXXX , LCD106X-XXXX , LCD107X-XXXX , LCD108X-XXXX , LCD109X-XXXX , LCD110X-XXXX , LCD111X-XXXX , LCD112X-XXXX , LCD113X-XXXX , LCD114X-XXXX , LCD115X-XXXX , LCD116X-XXXX , LCD117X-XXXX , LCD118X-XXXX , LCD119X-XXXX , LCD120X-XXXX , LCD122X-XXXX , LCD124X-XXXX
Desc of series model	" X "is 0-9 or A-Z or" - "or". "or a space." X "only indicates distinguishing market or customer codes and does not affect the safety and electromagnetic compatibility of the product, All models of hardware and software designs are identical.
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Nominal Bandwidth	20MHz&40MHz
Channel Spacing	5MHz
Number of Channels	802.11b/g/n(HT20): 11 802.11n(HT40):7
Antenna Type	FPC antenna
Antenna Gain	5.2dBi(Provided by customer)
Power supply or adapter information	
Hardware Version	N/A
Software Version	N/A
Engineer sample no	BLA-EMC-202503-A002
Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.	

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 C63.10-2013 Clause 6.2	Pass
3	Conducted Peak Output Power	§15.247 (b)(3)	ANSI C63.10-2013, Clause 11.9.1.3	Pass
4	Minimum 6dB Bandwidth	§15.247 (a)(2)	ANSI C63.10-2013, Clause 11.8.1	Pass
5	Power Spectrum Density	§15.247 (e)	ANSI C63.10-2013, Clause 11.10.2	Pass
6	Conducted Band Edges Measurement	§15.247(d)	ANSI C63.10-2013, Clause 11.13.3.2	Pass
7	Conducted Spurious Emissions	§15.247(d)	ANSI C63.10-2013, Clause 11.11	Pass
8	Radiated Spurious Emissions	§15.247 (d) §15.209	ANSI C63.10-2013 Clause 6.4&6.5&6.6	Pass
9	Radiated Emissions which fall in the restricted bands	§15.247 (d) §15.205	ANSI C63.10-2013 Clause 6.10.5	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 each of channel

Operation Frequency each of channel(802.11b/g/n HT20)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	5	2432MHz	9	2452MHz
2	2417MHz	6	2437MHz	10	2457MHz
3	2422MHz	7	2442MHz	11	2462MHz
4	2427MHz	8	2447MHz	--	--

(802.11b/g/n HT20)		(802.11n HT40)	
Channel	Frequency	Channel	Frequency
The lowest channel	2412MHz	The lowest channel	2422MHz
The middle channel	2437MHz	The middle channel	2437MHz
The Highest channel	2462MHz	The Highest channel	2452MHz

3.3 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	lenovo	E46OC	N/A	From lab (No.BLA-ZC-BS-2022005)
Note: “--” mean no any auxiliary device during testing.				

3.4 Test environment

Environment	Temperature	Voltage
Normal	25℃	AC 120V

4 Laboratory information

4.1 Laboratory and accreditations

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

Company name:	BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Address:	Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
ISED CAB identifier No.:	CN0028
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)	$\pm 4.68\text{dB}$
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	2024/08/08	2025/08/07
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	2025/11/15
BLA-EMC-008	Spectrum	FSP40	R&S	100817	2024/08/08	2025/08/07
BLA-EMC-012	Broadband antenna	VULB9168	Schwarzbeck	00836 P:00227	2022/10/12	2025/10/11
BLA-EMC-013	Horn Antenna	BBHA9120D	Schwarzbeck	01892	2024/06/29	2026/06/28
BLA-EMC-014	Amplifier	PA_000318G-45	SKET	PA201804 3003	2024/08/08	2025/08/07
BLA-EMC-046	Filter bank	2.4G/5G Filter bank	SKET	N/A	2024/06/28	2025/06/27
BLA-EMC-061	Receiver	ESPI7	R&S	101477	2024/06/28	2025/06/27
BLA-EMC-066	Amplifier	LNPA_30M01 G-30	SKET	SK202106 0801	2024/06/28	2025/06/27
BLA-EMC-086	Amplifier	LNPA_18G40 G-50dB	SKET	SK202207 1301	2024/06/28	2025/06/27
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	2025/11/15
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2024/08/08	2025/08/07
BLA-EMC-011	LISN	ENV216	R&S	101372	2024/08/08	2025/08/07
BLA-EMC-033	Impedance transformer	DC-2GHz	DFXP	N/A	2024/06/28	2025/06/27
BLA-EMC-041	LISN	AT166-2	ATTEN	AKK1806000003	2024/08/08	2025/08/07
BLA-EMC-045	Impedance stable network	ISNT8-cat 6	TESEQ	53580	2024/08/08	2025/08/07
BLA-EMC-095	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01045	2024/06/28	2025/06/27
BLA-EMC-096	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01075	2024/06/28	2025/06/27
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	2025/11/15
BLA-EMC-016	Signal Generator	N5182A	Agilent	MY52420567	2024/06/28	2025/06/27
BLA-EMC-038	Spectrum	N9020A	Agilent	MY49100060	2024/08/08	2025/08/07
BLA-EMC-042	Power sensor	RPR3006W	DARE	14I00889SN042	2024/08/08	2025/08/07
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	2024/08/08	2025/08/07
BLA-EMC-064	Signal Generator	N5182B	KEYSIGHT	MY58108892	2024/06/28	2025/06/27
BLA-EMC-079	Spectrum	N9020A	Agilent	MY54420161	2024/08/08	2025/08/07
BLA-EMC-088	Audio Analyzer	ATS-1	Audio Precision	ATS141094	2024/06/28	2025/06/27

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

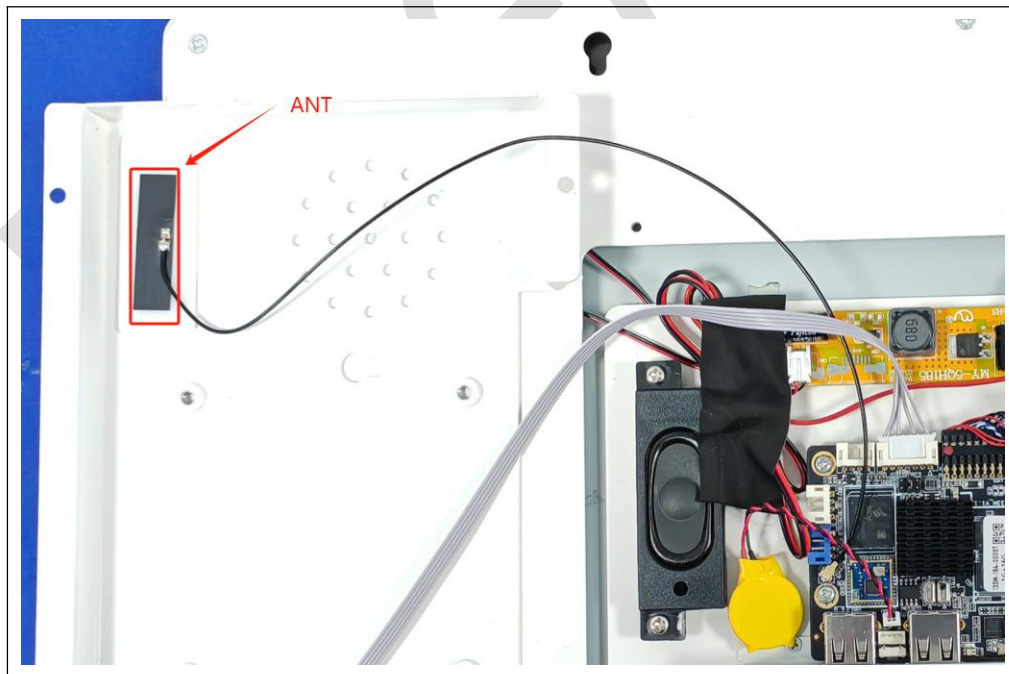
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

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 internal FPC antenna. The best case gain of the antenna is 5.2dBi from 2412~2462MHz



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

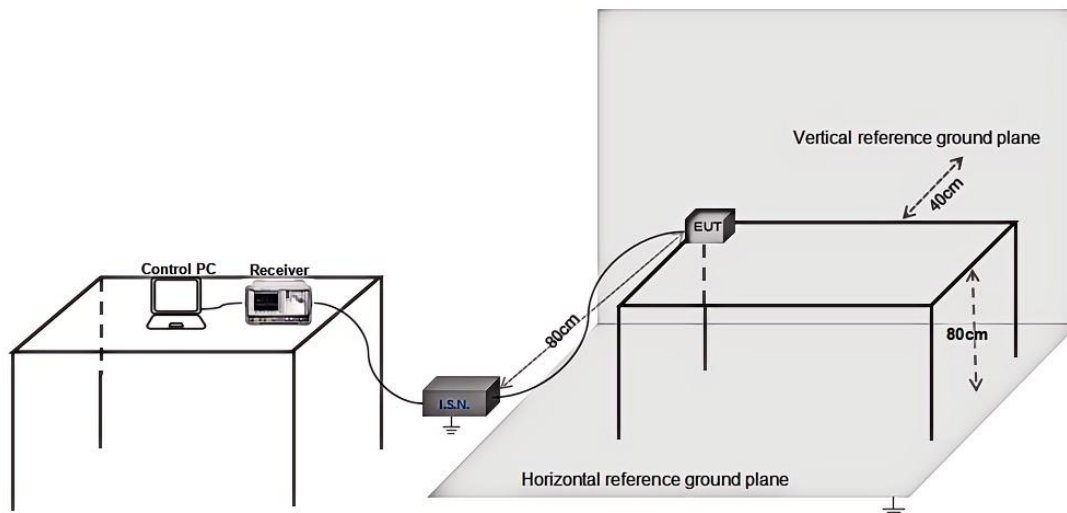
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.2.1 Limit

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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.

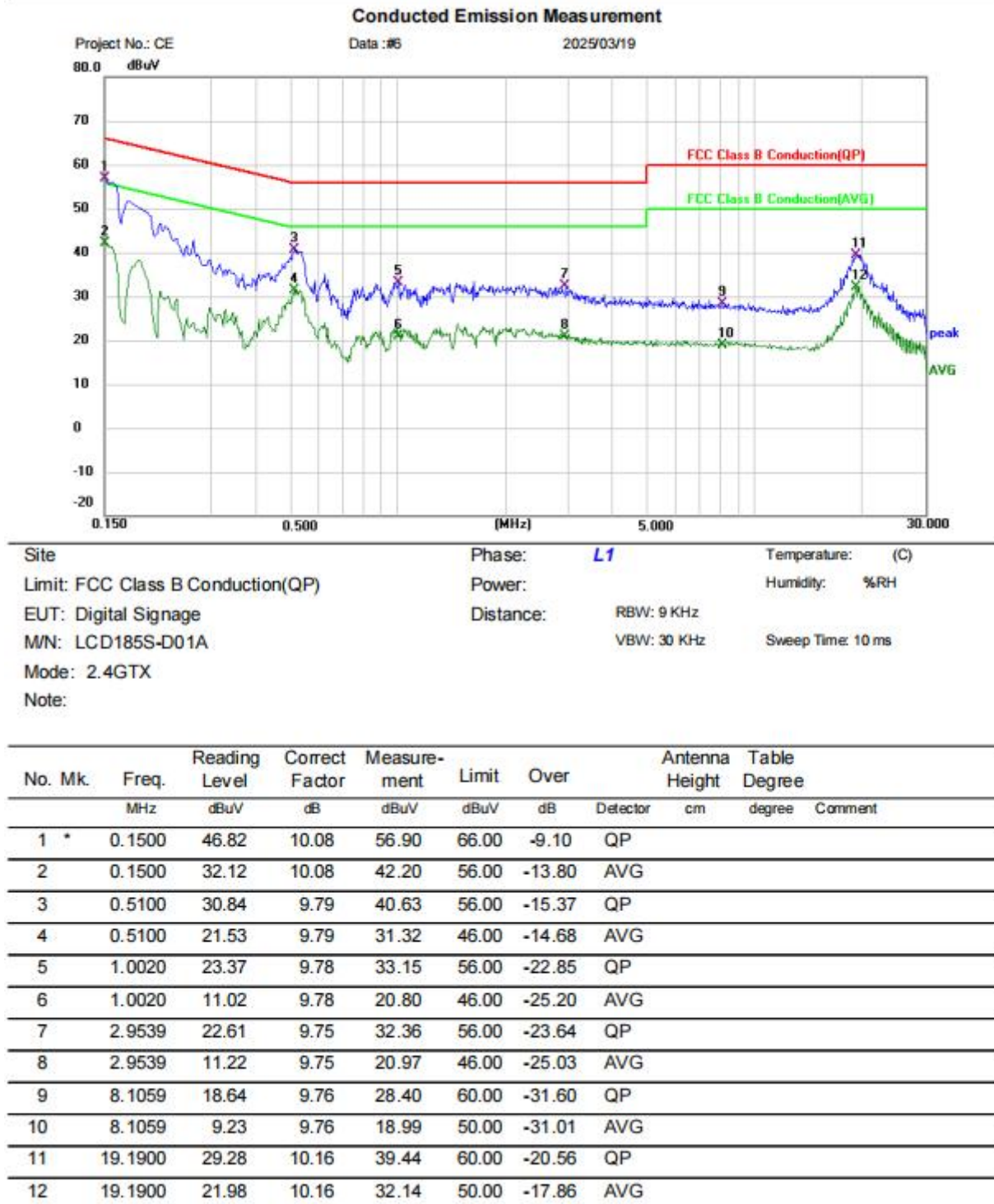
6.2.3 Procedure

- 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

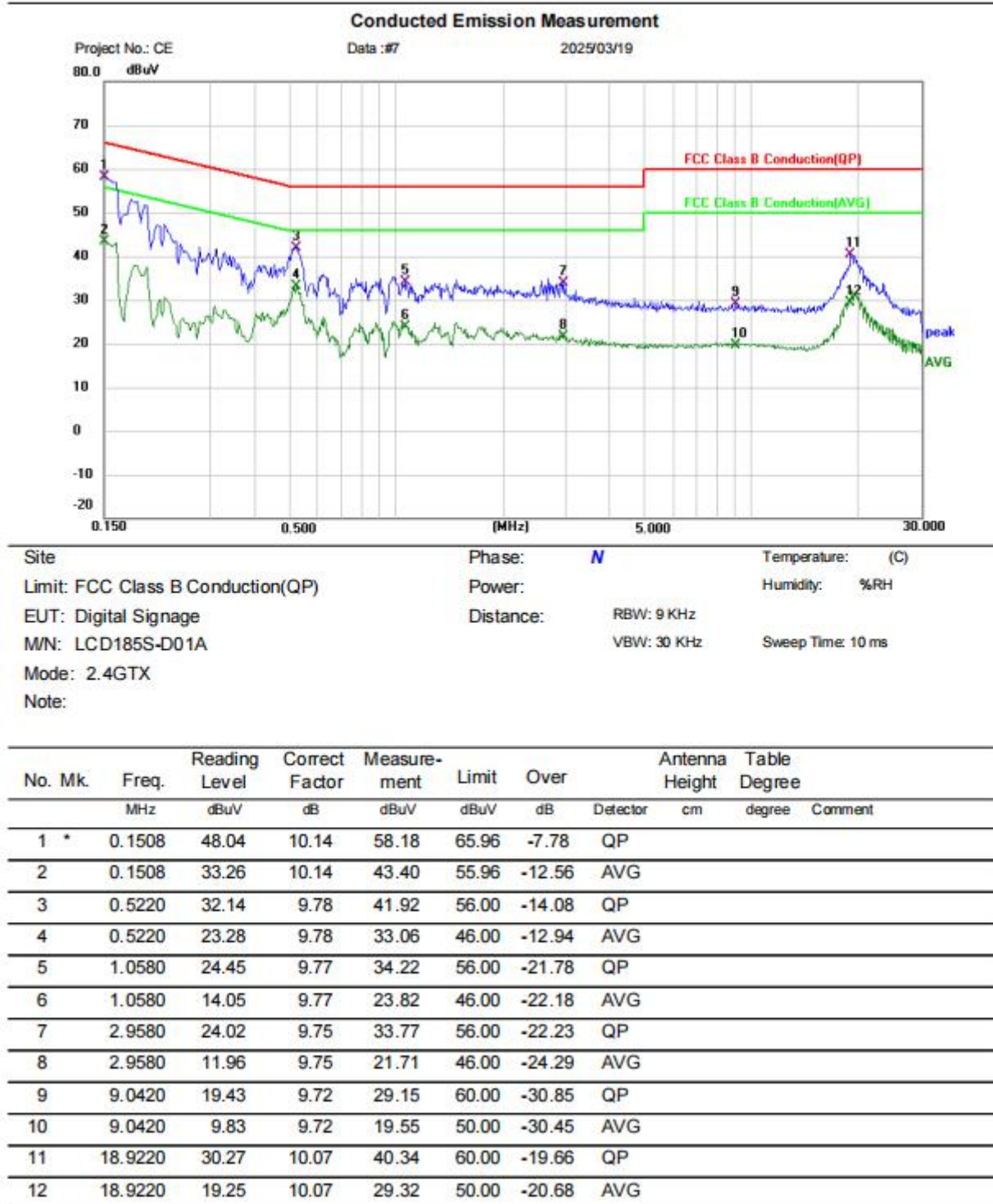
6.2.4 Test data

[Test Mode: TM1]; [Line: Line] ;[Power:AC120V/60Hz]



Test Result: Pass

[Test Mode: TM1]; [Line: Neutral] ;[Power:AC120V/60Hz]



Test Result: Pass

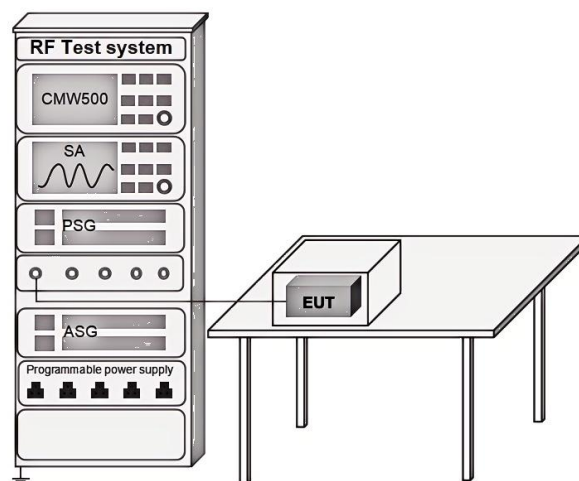
6.3 Conducted Peak output Power

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.3.1 Limit

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq \text{hopping channels} < 50$
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

6.3.2 Test setup



6.3.3 Test data

Note: PK power sensor is used to read PK Conducted power power directly

Pass: Please refer to appendix A for details

BlueAsia of Technical Services (Shenzhen) Co., Ltd.

Tel: +86-755-23059481

Email: marketing@cblueasia.com www.cblueasia.com

Version:v1.2

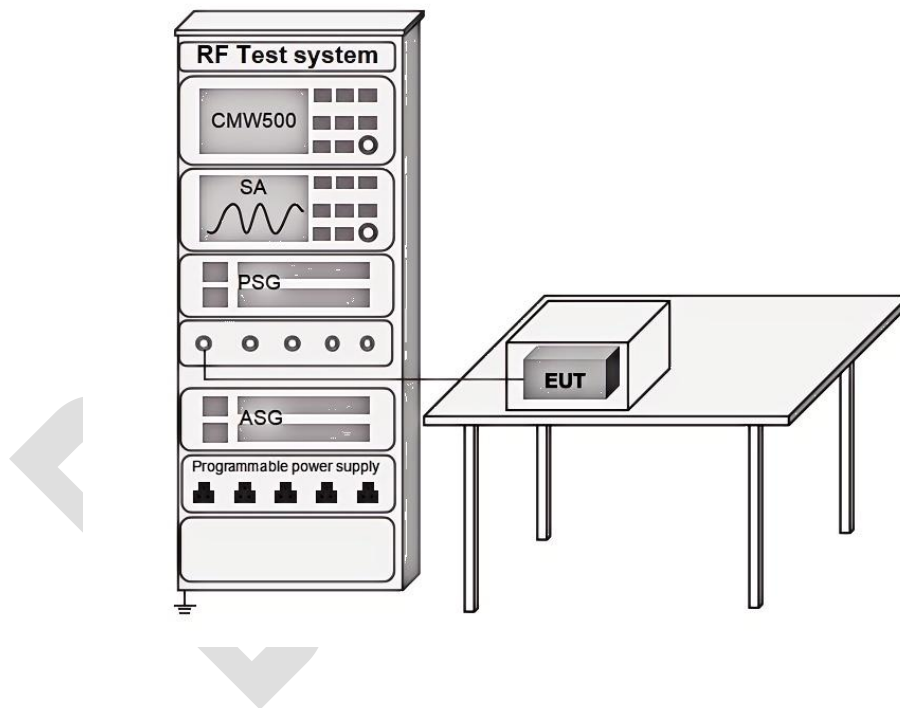
6.4 Minimum 6dB bandwidth

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.8.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.4.1 Limit

≥500 kHz

6.4.2 Test setup



6.4.3 Test data

Pass: Please refer to appendix A for details

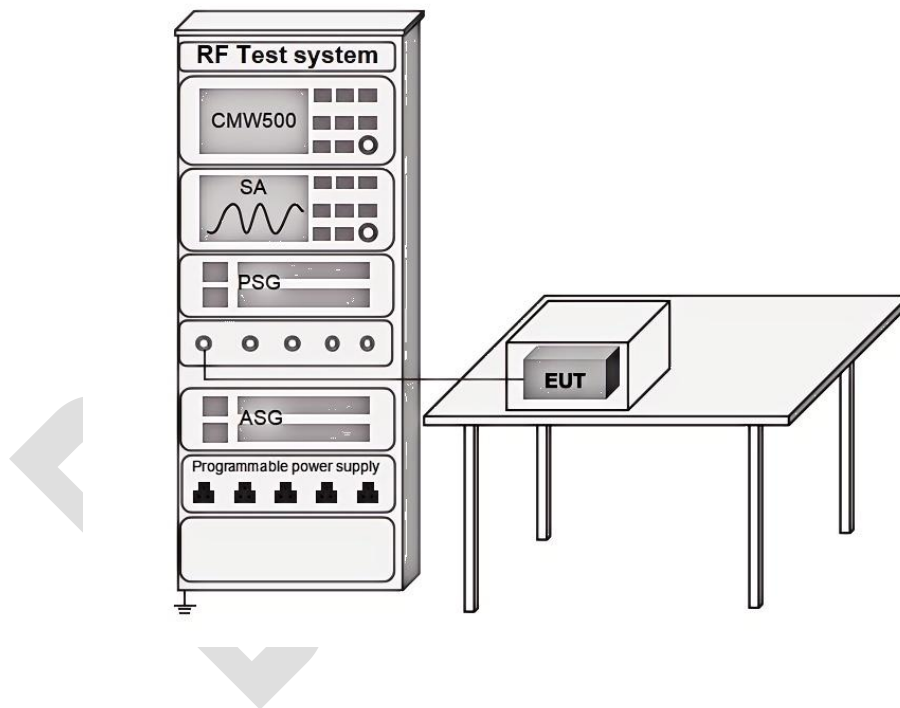
6.5 Power spectrum density

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.5.1 Limit

$\leq 8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

6.5.2 Test setup



6.5.3 Test data

Pass: Please refer to appendix A for details