



CFR 47 FCC PART 15 SUBPART E

TEST REPORT

For

Smart Window Camera

MODEL NUMBER: CAM-S3W

REPORT NUMBER: E04A26060695F00501

ISSUE DATE: July 15, 2026

FCC ID: 2APN5-CAMS3W

Prepared for

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Prepared by

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This report is based on a single evaluation of the submitted sample(s) of the above mentioned product, it does not imply an assessment of the production of the products.

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	July 15, 2026	Initial Issue	

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
ON TIME AND DUTY CYCLE	ANSI C63.10-2020, Clause 12.2	None; for reporting purposes only.	Pass
6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH	KDB 789033 D02 v02r01 Section C.1	FCC Part 15.407 (a)/(e), RSS-247 Issue 4, Clause 7.3.5.2 RSS-Gen Clause 6.7	Pass
CONDUCTED OUTPUT POWER	KDB 789033 D02 v02r01 Section E.3.a (Method PM)/KDB 789033 D02 v02r01 Section E.3.b (Method PM) Section E.2.d (Method SA-2)	FCC 15.407 (a) RSS-247 Clause 7.3	Pass
POWER SPECTRAL DENSITY	KDB 789033 D02 v02r01 Section F	FCC 15.407 (a) RSS-247 Clause 7.3	Pass
AC POWER LINE CONDUCTION EMISSION	ANSI C63.10-2020, Clause 6.2	FCC 15.207, RSS-GEN Clause 8.8	Pass
RADIATED EMISSIONS AND BAND EDGE MEASUREMENT	KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 7.3 RSS-GEN Clause 8.9	Pass
FREQUENCY STABILITY	ANSI C63.10-2020, Clause 6.8	FCC 15.407 (g)	Pass
DYNAMIC FREQUENCY SELECTION (SLAVE)	KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02	FCC Part 15.407 (h), RSS-247 Issue 4 Clause 7.3.6	N/A
DYNAMIC FREQUENCY SELECTION (MASTER)	KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02	FCC Part 15.407 (h), RSS-247 Issue 4 Clause 7.3.6	N/A
ANTENNA REQUIREMENT	N/A	FCC 47 CFR Part 15.203/ 15.407(a)(1) (2), RSS-Gen Issue 5, Clause 6.8	Pass
ADDITIONAL REQUIREMENTS	N/A	FCC Part 15.407 (c), RSS-247 Issue 4 Clause 7.3.7	Pass

Note:

1. N/A: In this whole report not applicable.
2. For ISSED, this report is also performed according to ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 standards.

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART E, ISSED RSS-247 Issue 4 > when <Accuracy Method> decision rule is applied.

CONTENTS

1. ATTESTATION OF TEST RESULTS.....	5
2. TEST METHODOLOGY.....	6
3. FACILITIES AND ACCREDITATION.....	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	<i>7</i>
4.2. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>7</i>
5. EQUIPMENT UNDER TEST	8
5.1. <i>DESCRIPTION OF EUT</i>	<i>8</i>
5.2. <i>CHANNEL LIST</i>	<i>8</i>
5.3. <i>MAXIMUM EIRP</i>	<i>9</i>
5.4. <i>THE WORSE CASE POWER SETTING PARAMETER.....</i>	<i>9</i>
5.5. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	<i>10</i>
5.6. <i>SUPPORT UNITS FOR SYSTEM TEST</i>	<i>10</i>
5.7. <i>SETUP DIAGRAM</i>	<i>10</i>
6. MEASURING EQUIPMENT AND SOFTWARE USED.....	12
7. ANTENNA PORT TEST RESULTS	14
7.1. <i>ON TIME AND DUTY CYCLE</i>	<i>14</i>
7.2. <i>6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH.....</i>	<i>15</i>
7.3. <i>CONDUCTED OUTPUT POWER</i>	<i>17</i>
7.4. <i>POWER SPECTRAL DENSITY</i>	<i>20</i>
7.5. <i>FREQUENCY STABILITY.....</i>	<i>22</i>
8. RADIATED TEST RESULTS.....	24
8.1. <i>RADIATED EMISSIONS AND BAND EDGE MEASUREMENT</i>	<i>29</i>
9. AC POWER LINE CONDUCTION EMISSION	46
10. ANTENNA REQUIREMENT	49
11. ADDITIONAL REQUIREMENTS	51
12. TEST DATA - Appendix A	53

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Shenzhen Sonoff Technologies Co., Ltd.
Address: 3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, China

Manufacturer Information

Company Name: Shenzhen Sonoff Technologies Co., Ltd.
Address: 3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, China

EUT Information

Product Description: Smart Window Camera
Model: CAM-S3W
Series Model: N/A
Brand: N/A
Sample Received Date: June 26 2026
Sample Status: Normal
Sample ID: A26060695 003
Date of Tested: June 26 2026 to July 15, 2026

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E	Pass

Prepared By:

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2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART E, ISED RSS-247 Issue 4, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 662911 D01 Multiple Transmitter Output v02r01, CFR 47 FCC Part 2, ANSI C63.10-2020, ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 and ISED RSS-GEN Issue 5

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 6947.01) Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1343) Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules ISED (Company No.: 30714) Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.
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Note: All tests measurement facilities use to collect the measurement data are located at Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Items	k	Uncertainty
Emission Bandwidth	1.96	±9.0 PPM
Conduct Output Power	1.96	± 1.12 dB
Power Spectral Density	1.96	± 2.1 dB
Conducted Spurious Emission	1.96	9 kHz-30 MHz: ± 0.95 dB 30 MHz-1 GHz: ± 1.5 dB 1GHz-12.75GHz: ± 1.8 dB 12.75 GHz-26.5 GHz: ± 2.1dB 26.5 GHz-40 GHz: ± 2.6 dB
Frequency Stability	1.96	±9.0 PPM
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.		

Test Item	Frequency Range	k	U(dB)
Conducted emissions from the AC mains power ports (AMN)	150 kHz ~ 30 MHz	2	3.37
Radiated emissions	9 kHz ~ 30 MHz	2	4.16
Radiated emissions	30 MHz ~ 1 GHz	2	3.79
Radiated emissions	1 GHz ~ 18 GHz	2	5.62
Radiated emissions	18 GHz ~ 40 GHz	2	5.54
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Smart Window Camera
Model	CAM-S3W
Series Model	N/A
Hardware Version	V2.0
Software Version	V1.0
Power Supply	5V  1A

Frequency Band:	5150 MHz to 5250 MHz (U-NII-1) 5725 MHz to 5850 MHz (U-NII-3)
Frequency Range:	5180 MHz to 5240 MHz 5745 MHz to 5825 MHz
Support Standards:	IEEE 802.11a/n
TPC Function:	Not Support
DFS Operational mode:	Not Support
Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20: 20 MHz IEEE 802.11n-HT40: 40 MHz
Data Rate:	IEEE 802.11a: Up to 54 Mbps IEEE 802.11n HT20: Up to MCS7 IEEE 802.11n HT40: Up to MCS7
Number of Channels:	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n HT20 2 for IEEE 802.11n HT40 5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n HT20 2 for IEEE 802.11n HT40
Normal Test Voltage:	5 V
Note:	1. The Antenna Gain was provided by customer, and this information may affect the validity of the results, customer should be responsible for this.

5.2. CHANNEL LIST

UNII-1 (For Bandwidth=20MHz)		UNII-1 (For Bandwidth=40MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190
40	5200	46	5230
44	5220		
48	5240		

UNII-3 (For Bandwidth=20MHz)		UNII-3 (For Bandwidth=40MHz)	
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Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755
153	5765	159	5795
157	5785		
161	5805		
165	5825		

5.3. MAXIMUM EIRP

UNII-1 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Conducted Power (dBm)
a	5150 ~ 5250	14.77
n HT20		13.78
n HT40		12.96

UNII-3 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Conducted Power (dBm)
a	5725 ~ 5850	14.86
n HT20		13.74
n HT40		13.86

5.4. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	CRT

UNII-1

Mode	Rate	Channel	Soft set value
			ANT 1
11a	6M	36	18
		40	18
		48	18
11n HT20	MCS0	36	17
		40	17
		48	18
11n HT40	MCS0	38	17
		46	18

UNII-3

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	149	15
		157	15
		165	17
11n HT20	MCS0	149	13
		157	14
		165	16

11n HT40	MCS0	151	14
		159	14

THE WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.4.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5150-5850	FPC	3.51

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	☒ TX, RX	ANT 1 can be used as transmitting/receiving antenna.
802.11n HT20	☒ TX, RX	ANT 1 can be used as transmitting/receiving antenna.
802.11n HT40	☒ TX, RX	ANT 1 can be used as transmitting/receiving antenna.

5.6. SUPPORT UNITS FOR SYSTEM TEST

The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Laptop	Lenovo	T14	/	GTG Support

5.7. SETUP DIAGRAM

Radiated emissions & AC Power Line Conducted Emission:



6. MEASURING EQUIPMENT AND SOFTWARE USED

Test Equipment of Conducted RF					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2025/08/25	2026/08/24
Spectrum Analyzer	KEYSIGHT	N9020A	MY51285127	2025/08/25	2026/08/24
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY61253075	2025/08/25	2026/08/24
Vector Signal Generator	Rohde & Schwarz	SMM100A	101899	2025/08/25	2026/08/24
RF Control box	MWRF-test	MW100-RFCB	MW220926GTG	2025/08/25	2026/08/24
Wideband Radio Communication Tester	Rohde & Schwarz	CMW270	102792	2025/08/25	2026/08/24
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	103235	2025/08/25	2026/08/24
temperature humidity chamber	Espec	SH-241	SH-241-2014	2025/08/25	2026/08/24
RF Test Software	MWRF-test	MTS8310E (Ver. V2/0)	N/A	N/A	N/A

Test Equipment of Radiated emissions below 1GHz					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2146	2025/08/23	2026/08/22
EMI Test Receiver	Rohde & Schwarz	ESC13	101144	2025/08/23	2026/08/22
Pre-Amplifier	HZEMC	HPA-9K0130	HYPA21001	2025/08/23	2026/08/22
Biconilog Antenna	Schwarzbeck	VULB 9168	01315	2025/09/20	2028/09/19
Biconilog Antenna	ETS	3142E	00243651	2025/02/22	2028/02/21
Loop Antenna	ETS	6502	00243668	2025/02/22	2028/02/21
RF Cable	TIMES Microwave	LMR240UF-NMMN-14M	N/A	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMMN-11.00M	N/A	2025/08/23	2026/08/22
RF Cable	JCT	JCT-06S-NJ-NJ-2.5M	N/A	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A	N/A

Test Equipment of Radiated emissions above 1GHz					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2149	2025/08/23	2026/08/22
Spectrum Analyzer	Rohde & Schwarz	FSV40	101413	2025/08/23	2026/08/22
Pre-Amplifier	HZEMC	HPA-1G1850	HYPA21003	2025/08/23	2026/08/22

Horn antenna	ETS	3117	00246069	2025/02/22	2028/02/21
Pre-Amplifier	HzEMC	HPA-184057	HYP A21004	2025/08/23	2026/08/22
Horn antenna	ETS	3116C	00246265	2025/02/22	2028/02/21
RF Filter Bank	HzEMC	HSW-F18	HSWF2218E01	2025/08/23	2026/08/22
RF Filter Bank	HzEMC	HPF18	HPF2218E02	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMNM- 7.00M	N/A	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMNM- 2.50M	N/A	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE+)	N/A	N/A	N/A

Test Equipment of Conducted emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Shielded Room	CHENG YU	8m*5m*4m	N/A	2025/08/23	2026/08/22
EMI Test Receiver	Rohde & Schwarz	ESR3	102647	2025/08/23	2026/08/22
LISN/AMN	Rohde & Schwarz	ENV216	102843	2025/08/23	2026/08/22
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

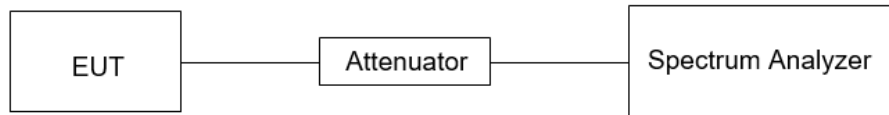
None; for reporting purposes only.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq EBW$ if possible; otherwise, set RBW to the largest available value. Set $VBW \geq RBW$. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

TEST SETUP



TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.2. 6DB AND 26DB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISSED)

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 26 dB Bandwidth: $> 3 \times \text{RBW}$ For 99 % Bandwidth: $> 3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

Calculation for 99 % Bandwidth of UNII-2C and UNII-3 Straddle Channel:

For Example: Fundamental Frequency: 5720 MHz

99 % OBW: 21.00 MHz

Turning Frequency: 5725 MHz

99 % Bandwidth of UNII-2C Band Portion = $(5725 - (5720 - (21.00/2))) = 15.50 \text{ MHz}$

99 % Bandwidth of UNII-3 Band Portion = $(5720 + (21.00/2) - 5725) = 5.50 \text{ MHz}$

Calculation for 26 dB Bandwidth of UNII-2C Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

26 dB BW: 20.00 MHz

FL: 5710.16 MHz

FH: 5730.16 MHz

Turning Frequency: 5725 MHz

26 dB Bandwidth of UNII-2C Band Portion = $5725 - 5710.16 = 14.84$ MHz

Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

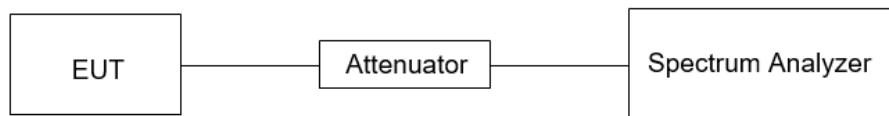
6 dB BW: 16.44 MHz

FL: 5711.76 MHz

FH: 5728.2 MHz

Turning Frequency: 5725 MHz

6 dB Bandwidth of UNII-3 band Portion = $5728.2 - 5725 = 3.2$ MHz

TEST SETUP**TEST ENVIRONMENT**

Temperature	25°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.3. CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 4		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or $11 + 10 \log_{10} B$ dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or $17 + 10 \log_{10} B$ dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction):

- (i) Measure the duty cycle, x, of the transmitter output signal as described in II.B.
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz.
- (iv) Set VBW $\geq$ 3 MHz.

- (v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
- (vi) Sweep time = auto.
- (vii) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (viii) Do not use sweep triggering. Allow the sweep to “free run.”
- (ix) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- (x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (xi) 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). For example, add $10 \log (1/0.25) = 6$ dB if the duty cycle is 25%.

Measurement using a Power Meter (PM):

a) Method PM (Measurement using an RF average power meter):

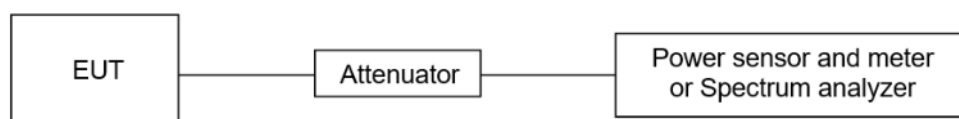
- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
- The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
 - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- (ii) If the transmitter does not transmit continuously, measure the duty cycle, x , of the transmitter output signal as described in II.B.
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25%).

b) Method PM-G (Measurement using a gated RF average power meter):

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Note: Method SA-2 was used for straddle channel output power test, and Method PM was used for testing rest channels.

TEST SETUP



TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☒ Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

ISED RSS-247 ISSUE 4		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
	The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.	5250 ~ 5350 5470 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyzer and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

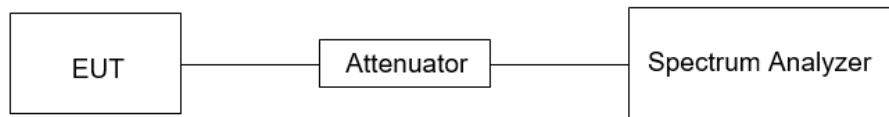
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.5. FREQUENCY STABILITY

LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

TEST PROCEDURE

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 50 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

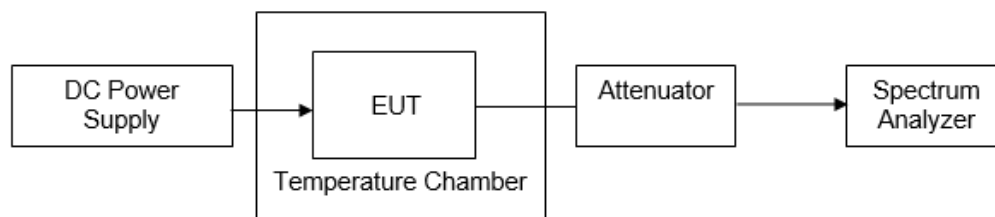
Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

TEST SETUP



TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

8. RADIATED TEST RESULTS

LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
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

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISSED RSS-247 7.3.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2020 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits 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.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made

to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω . For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to $Y-51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2020 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz

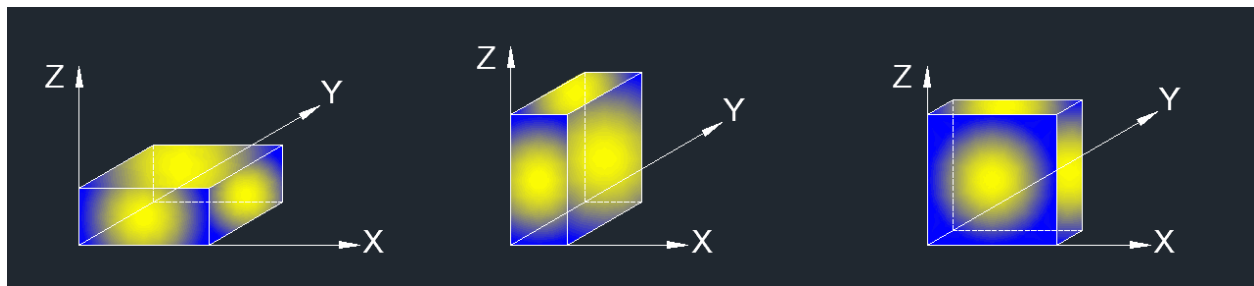
The setting of the spectrum analyzer

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.

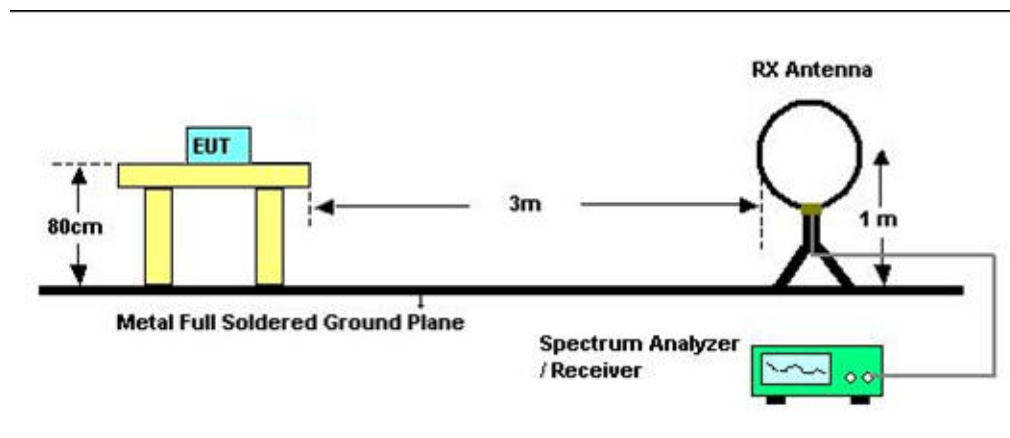
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1. ON TIME AND DUTY CYCLE.

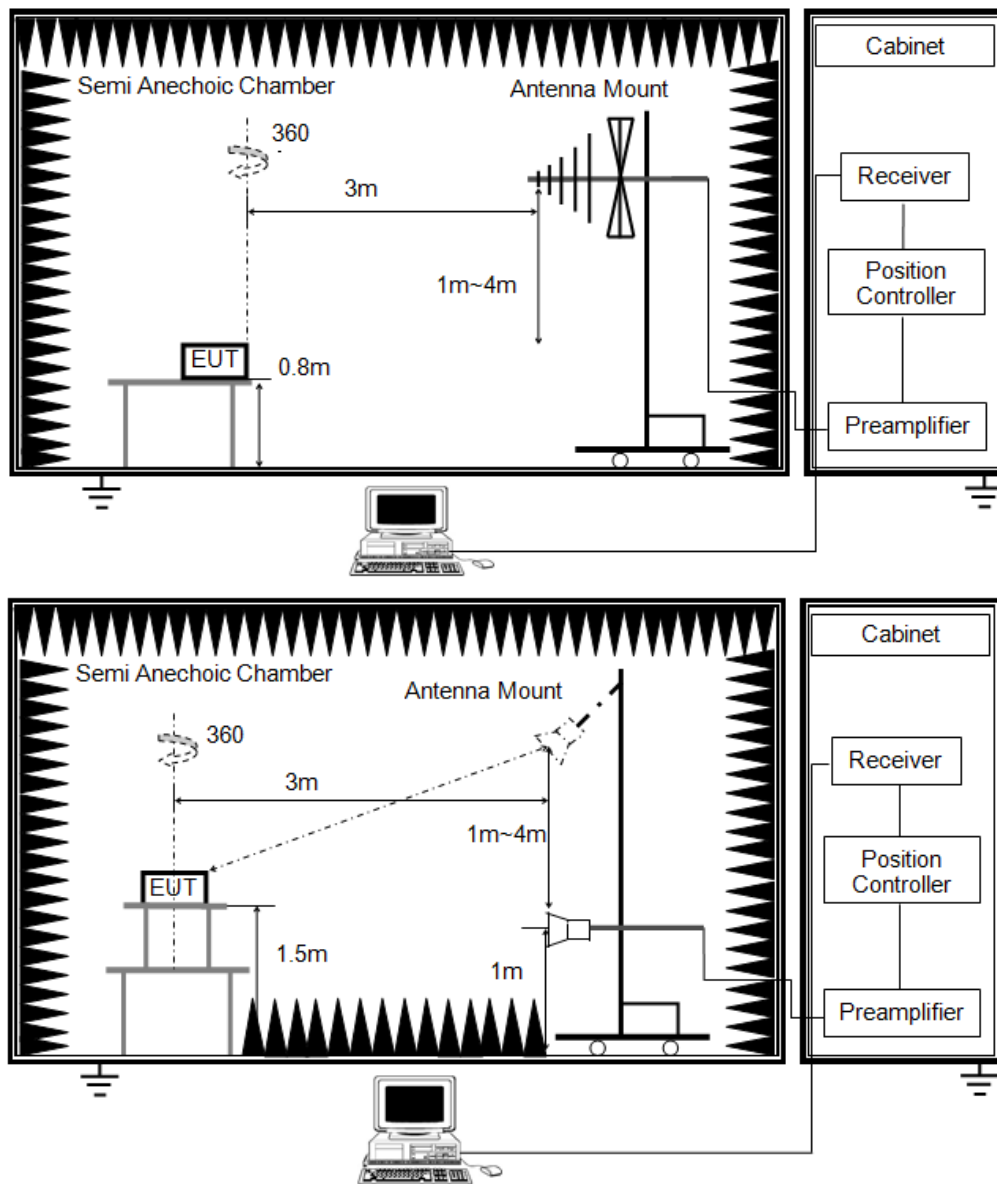
X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST SETUP





TEST ENVIRONMENT

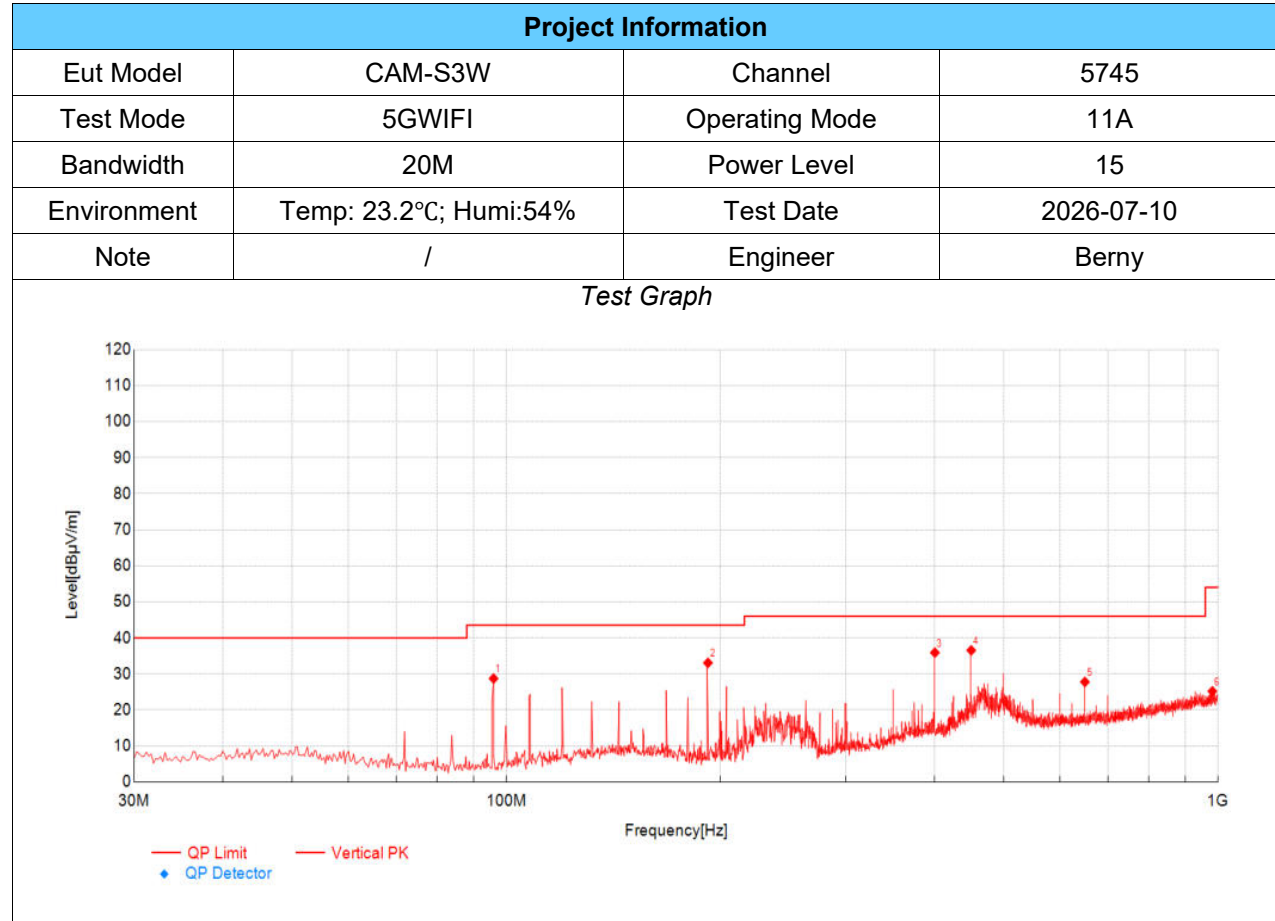
Temperature	23.2°C	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS

8.1. RADIATED EMISSIONS AND BAND EDGE MEASUREMENT

Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)

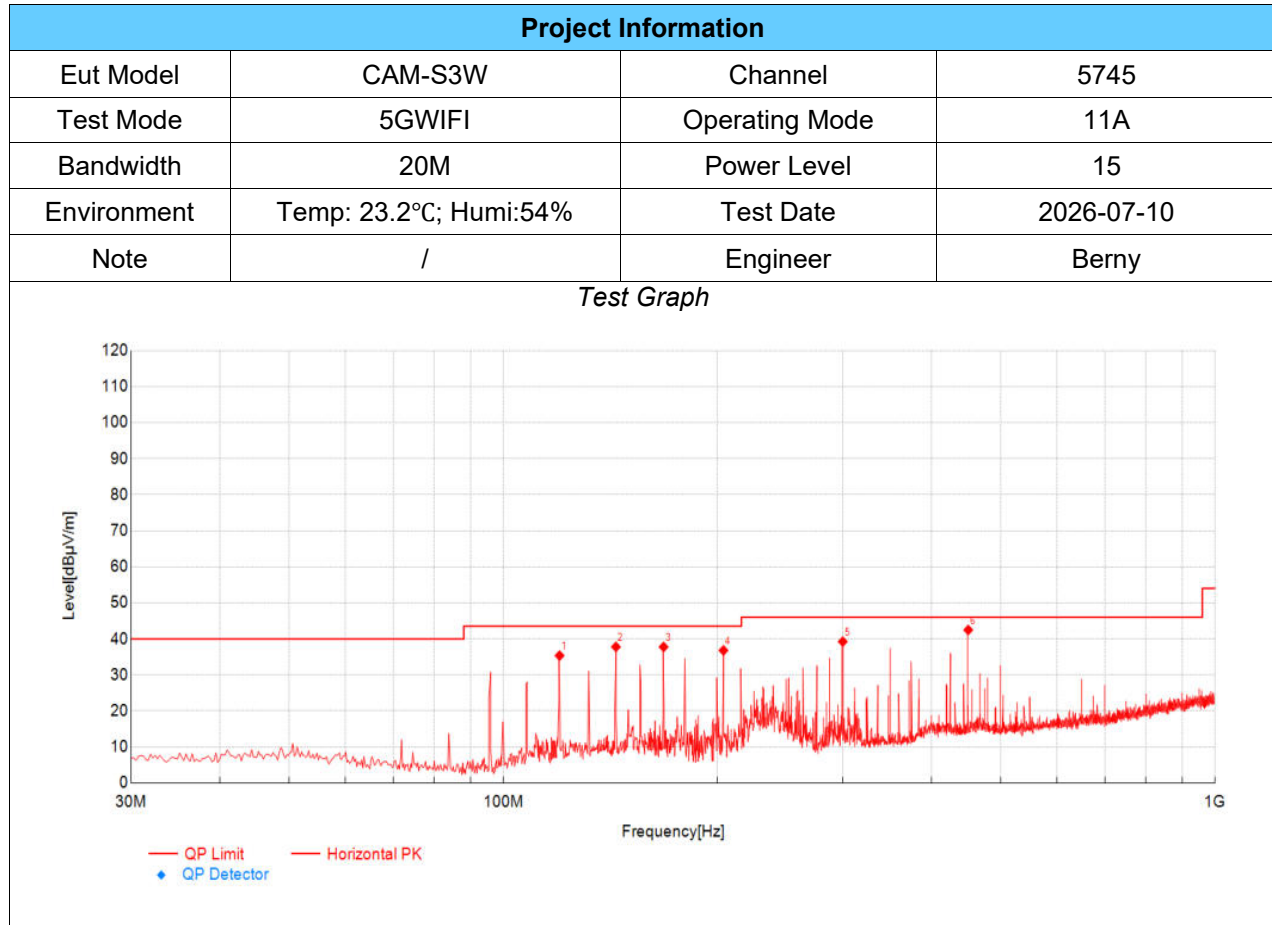
All modes have been tested and the worst result as bellow:



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	95.96	51.63	28.72	-22.91	43.50	14.78	PK	Vertical	PASS
2	191.99	54.87	33.06	-21.81	43.50	10.44	PK	Vertical	PASS
3	400.06	51.57	35.91	-15.66	46.00	10.09	PK	Vertical	PASS
4	450.01	50.91	36.55	-14.36	46.00	9.45	PK	Vertical	PASS
5	650.07	37.76	27.78	-9.98	46.00	18.22	PK	Vertical	PASS
6	981.81	29.17	25.18	-3.99	54.00	28.82	PK	Vertical	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level



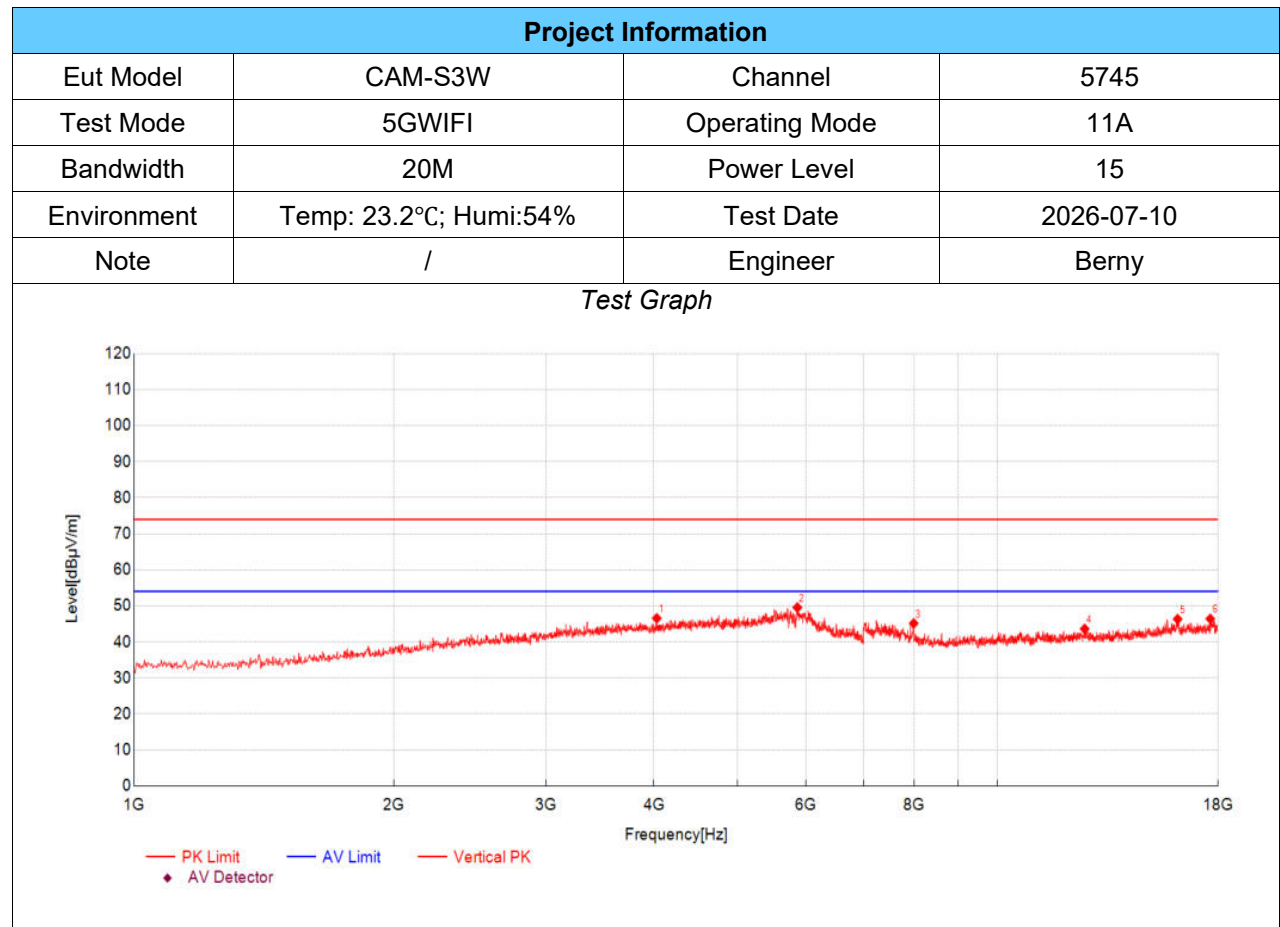
Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	119.97	55.86	35.36	-20.50	43.50	8.14	PK	Horizontal	PASS
2	143.98	55.98	37.79	-18.19	43.50	5.71	PK	Horizontal	PASS
3	167.98	56.77	37.77	-19.00	43.50	5.73	PK	Horizontal	PASS
4	203.87	59.03	36.80	-22.23	43.50	6.70	PK	Horizontal	PASS
5	299.90	57.90	39.23	-18.67	46.00	6.77	PK	Horizontal	PASS
6	450.01	56.84	42.48	-14.36	46.00	3.52	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level

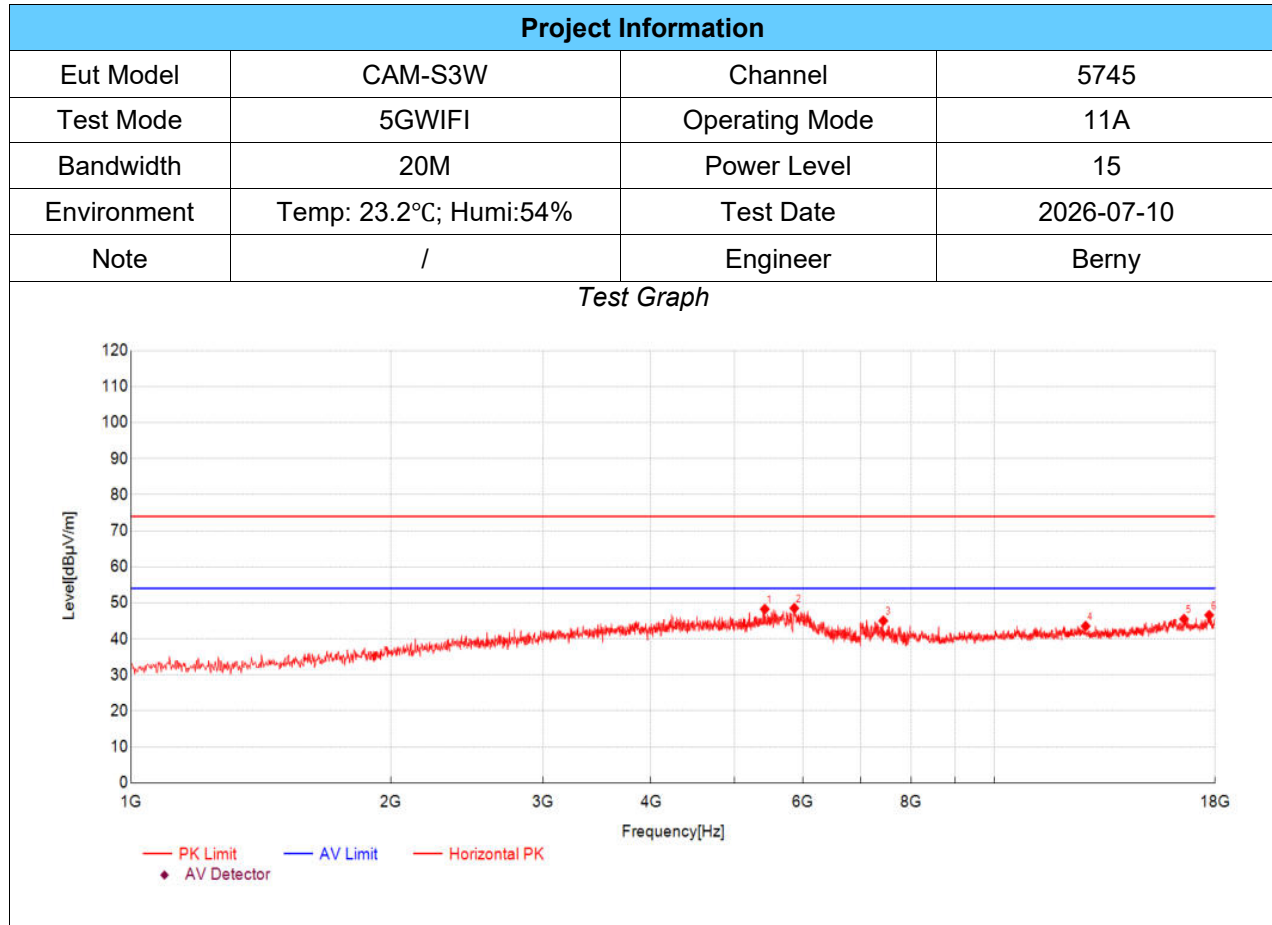
Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All modes have been tested and the worst result as bellow:



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	4029.68	50.88	46.56	-4.32	74.00	27.44	PK	Vertical	PASS
2	5861.95	49.57	49.53	-0.04	74.00	24.47	PK	Vertical	PASS
3	7995.33	42.44	45.12	2.68	74.00	28.88	PK	Vertical	PASS
4	12611.54	47.66	43.60	-4.06	74.00	30.40	PK	Vertical	PASS
5	16162.72	46.51	46.32	-0.19	74.00	27.68	PK	Vertical	PASS
6	17633.21	46.73	46.38	-0.35	74.00	27.62	PK	Vertical	PASS

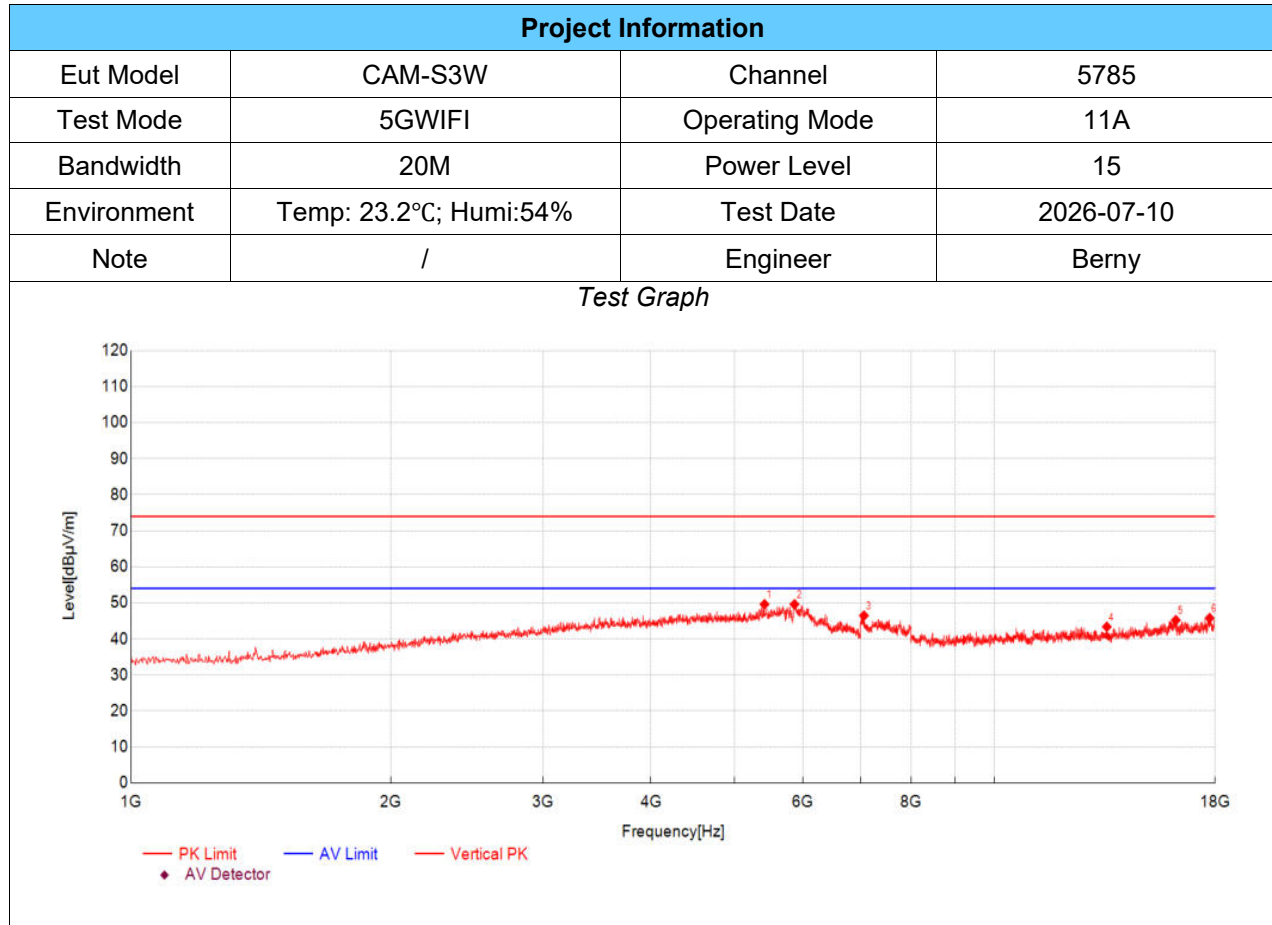
Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5418.47	49.49	48.27	-1.22	74.00	25.73	PK	Horizontal	PASS
2	5861.95	48.56	48.52	-0.04	74.00	25.48	PK	Horizontal	PASS
3	7430.48	44.02	45.03	1.01	74.00	28.97	PK	Horizontal	PASS
4	12748.25	47.73	43.55	-4.18	74.00	30.45	PK	Horizontal	PASS
5	16569.52	46.89	45.51	-1.38	74.00	28.49	PK	Horizontal	PASS
6	17719.91	47.23	46.58	-0.65	74.00	27.42	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

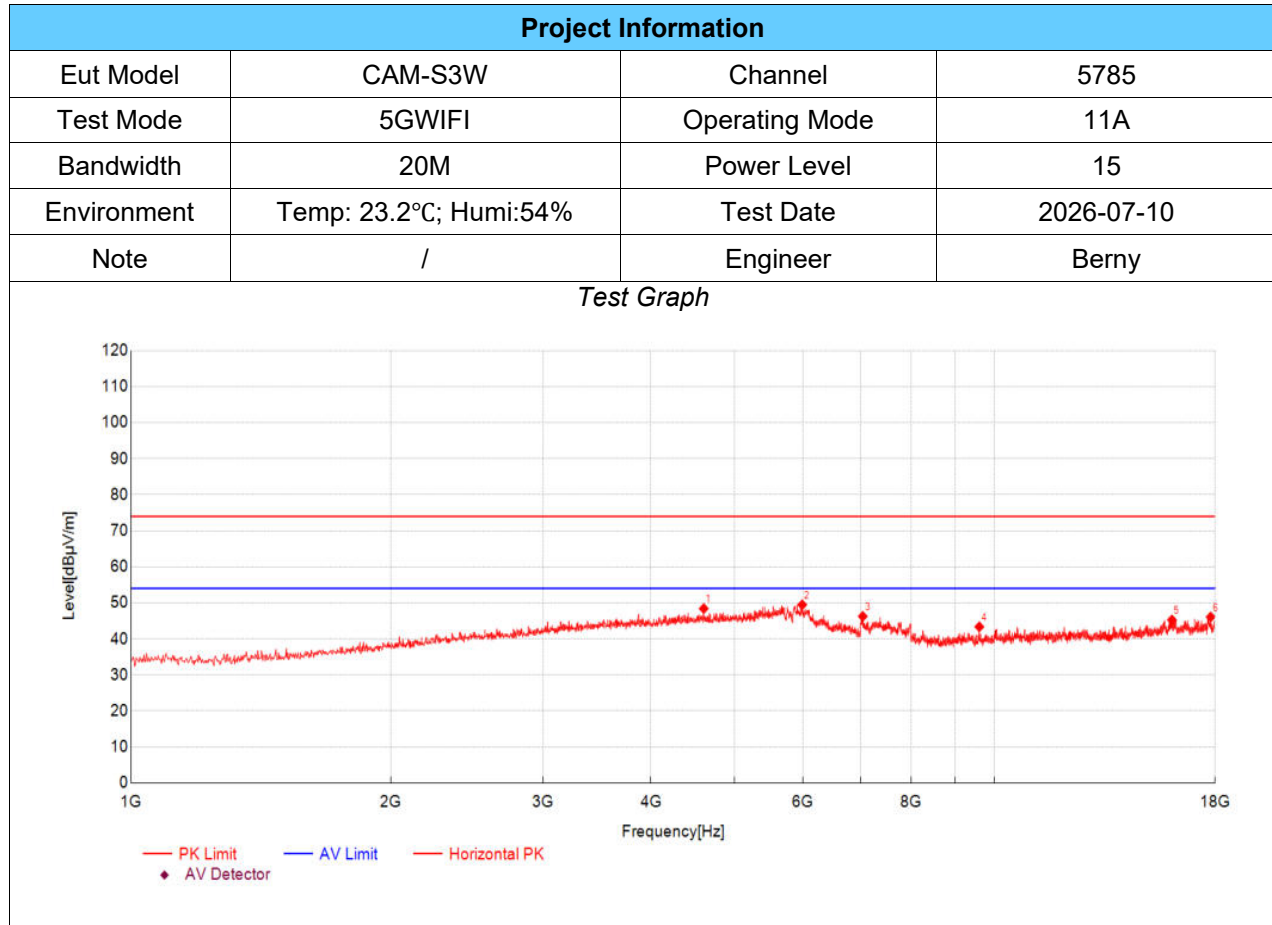
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5413.80	50.83	49.60	-1.23	74.00	24.40	PK	Vertical	PASS
2	5864.29	49.48	49.59	0.11	74.00	24.41	PK	Vertical	PASS
3	7057.02	45.79	46.45	0.66	74.00	27.55	PK	Vertical	PASS
4	13488.50	47.71	43.35	-4.36	74.00	30.65	PK	Vertical	PASS
5	16212.74	46.02	45.19	-0.83	74.00	28.81	PK	Vertical	PASS
6	17743.25	46.45	45.79	-0.66	74.00	28.21	PK	Vertical	PASS

Note:(1)Level=Reading+Factor

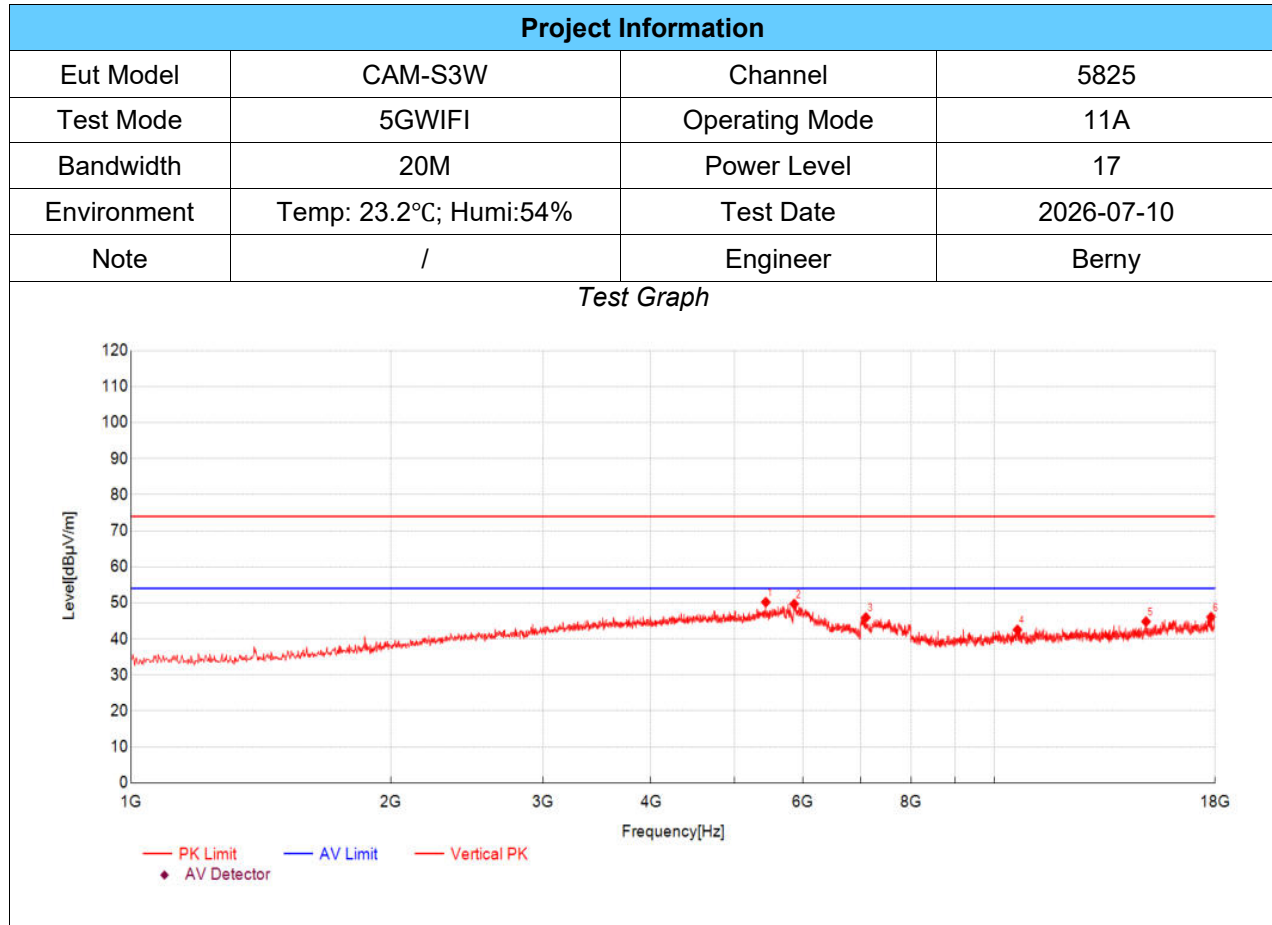
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	4603.87	52.19	48.42	-3.77	74.00	25.58	PK	Horizontal	PASS
2	5985.66	50.18	49.47	-0.71	74.00	24.53	PK	Horizontal	PASS
3	7036.01	45.42	46.26	0.84	74.00	27.74	PK	Horizontal	PASS
4	9600.53	49.94	43.36	-6.58	74.00	30.64	PK	Horizontal	PASS
5	16046.02	46.83	45.27	-1.56	74.00	28.73	PK	Horizontal	PASS
6	17793.26	45.93	46.08	0.15	74.00	27.92	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

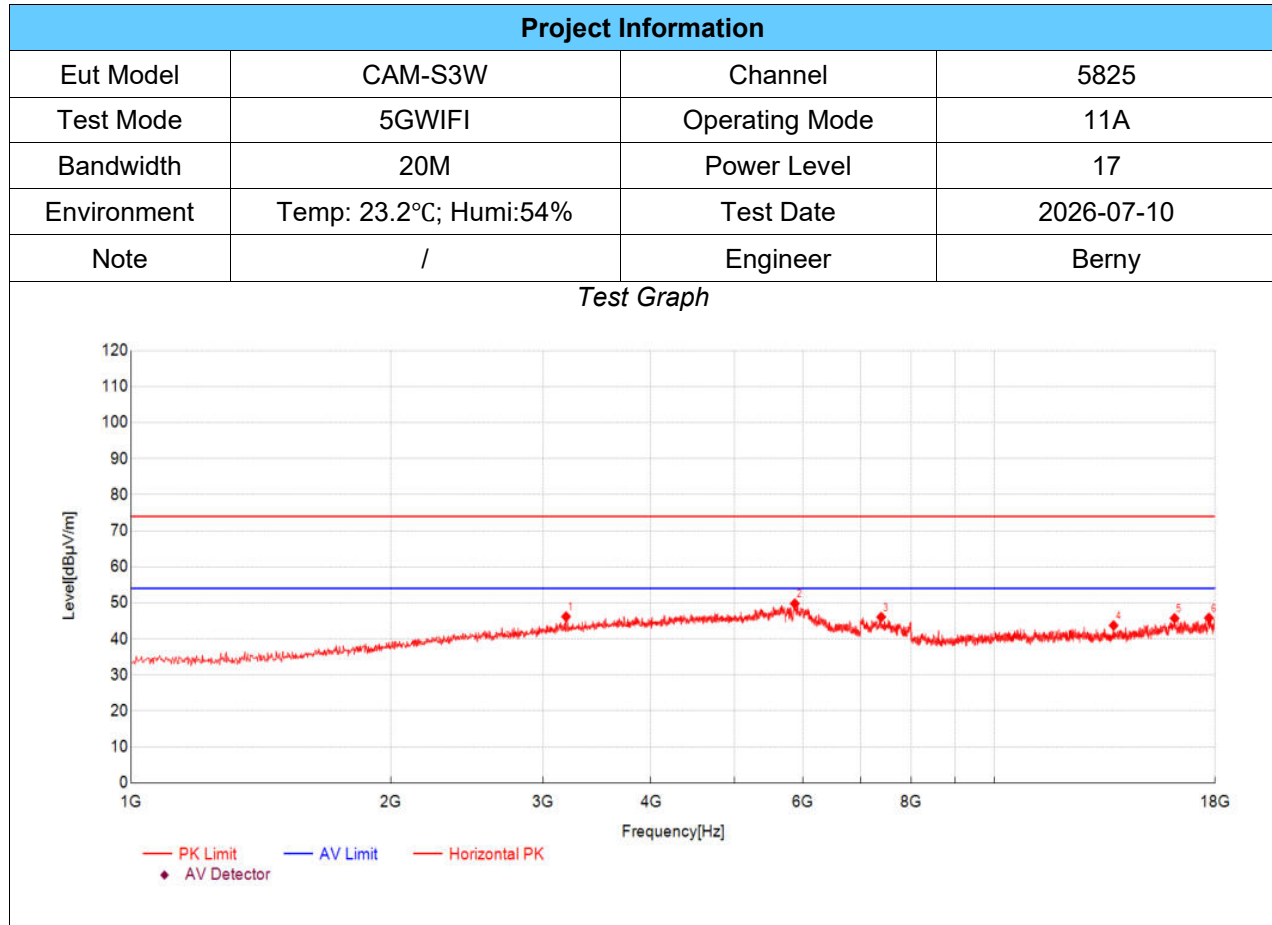
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5432.48	51.53	50.19	-1.34	74.00	23.81	PK	Vertical	PASS
2	5859.62	49.87	49.68	-0.19	74.00	24.32	PK	Vertical	PASS
3	7094.36	45.80	45.94	0.14	74.00	28.06	PK	Vertical	PASS
4	10627.54	47.05	42.53	-4.52	74.00	31.47	PK	Vertical	PASS
5	14975.66	47.21	44.80	-2.41	74.00	29.20	PK	Vertical	PASS
6	17813.27	45.95	46.06	0.11	74.00	27.94	PK	Vertical	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	3189.40	52.07	46.19	-5.88	74.00	27.81	PK	Horizontal	PASS
2	5868.96	49.59	49.80	0.21	74.00	24.20	PK	Horizontal	PASS
3	7390.80	44.57	46.05	1.48	74.00	27.95	PK	Horizontal	PASS
4	13735.25	47.42	43.73	-3.69	74.00	30.27	PK	Horizontal	PASS
5	16159.39	45.92	45.71	-0.21	74.00	28.29	PK	Horizontal	PASS
6	17709.90	46.37	45.84	-0.53	74.00	28.16	PK	Horizontal	PASS

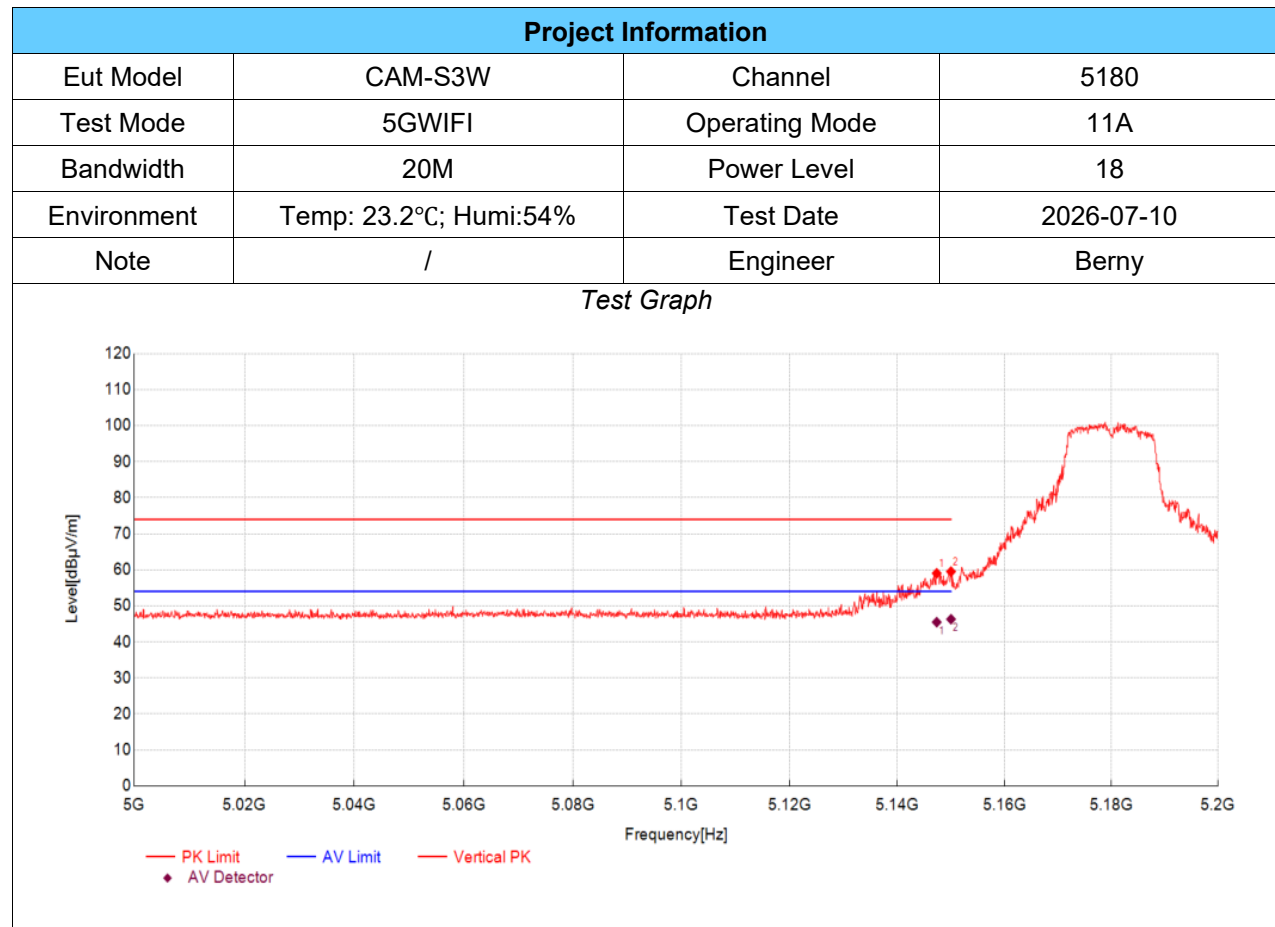
Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level

For 9KHz to 30MHz and above 18 GHz, a pre-scan was performed, and the result was 20 dB lower than the limit line, the test data was not shown in the report.

Band Edge

All modes have been tested and the worst result as bellow:



Suspected Data List

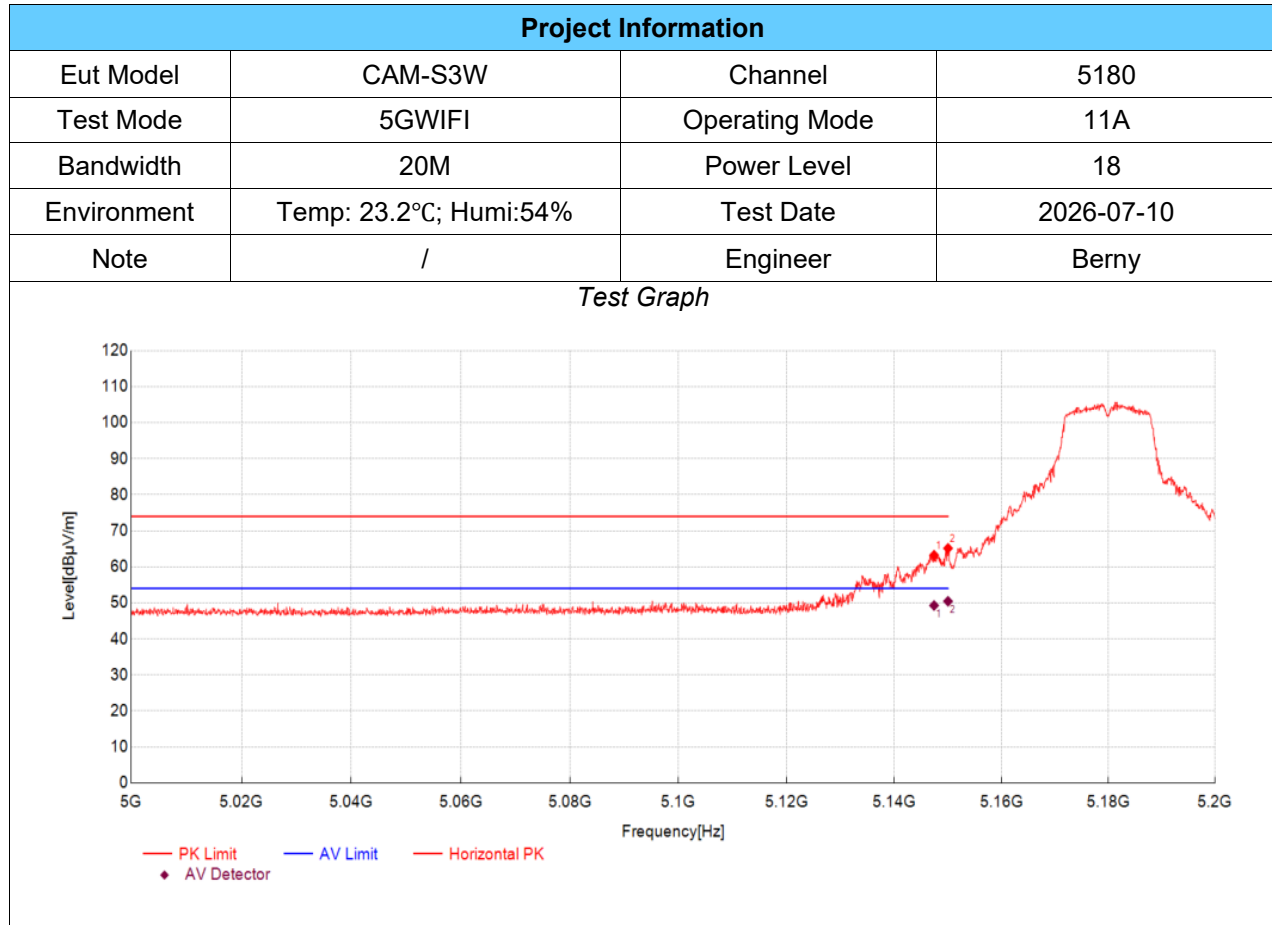
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5147.33	30.55	59.04	28.49	74.00	14.96	PK	Vertical	PASS
2	5150.00	31.05	59.50	28.45	74.00	14.50	PK	Vertical	PASS

Final Data List

NO.	Frequency [MHz]	Factor [dB/m]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Pol	Verdict
1	5147.33	28.49	16.98	45.47	54.00	8.53	Vertical	PASS
2	5150.00	28.45	17.84	46.29	54.00	7.71	Vertical	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level

**Suspected Data List**

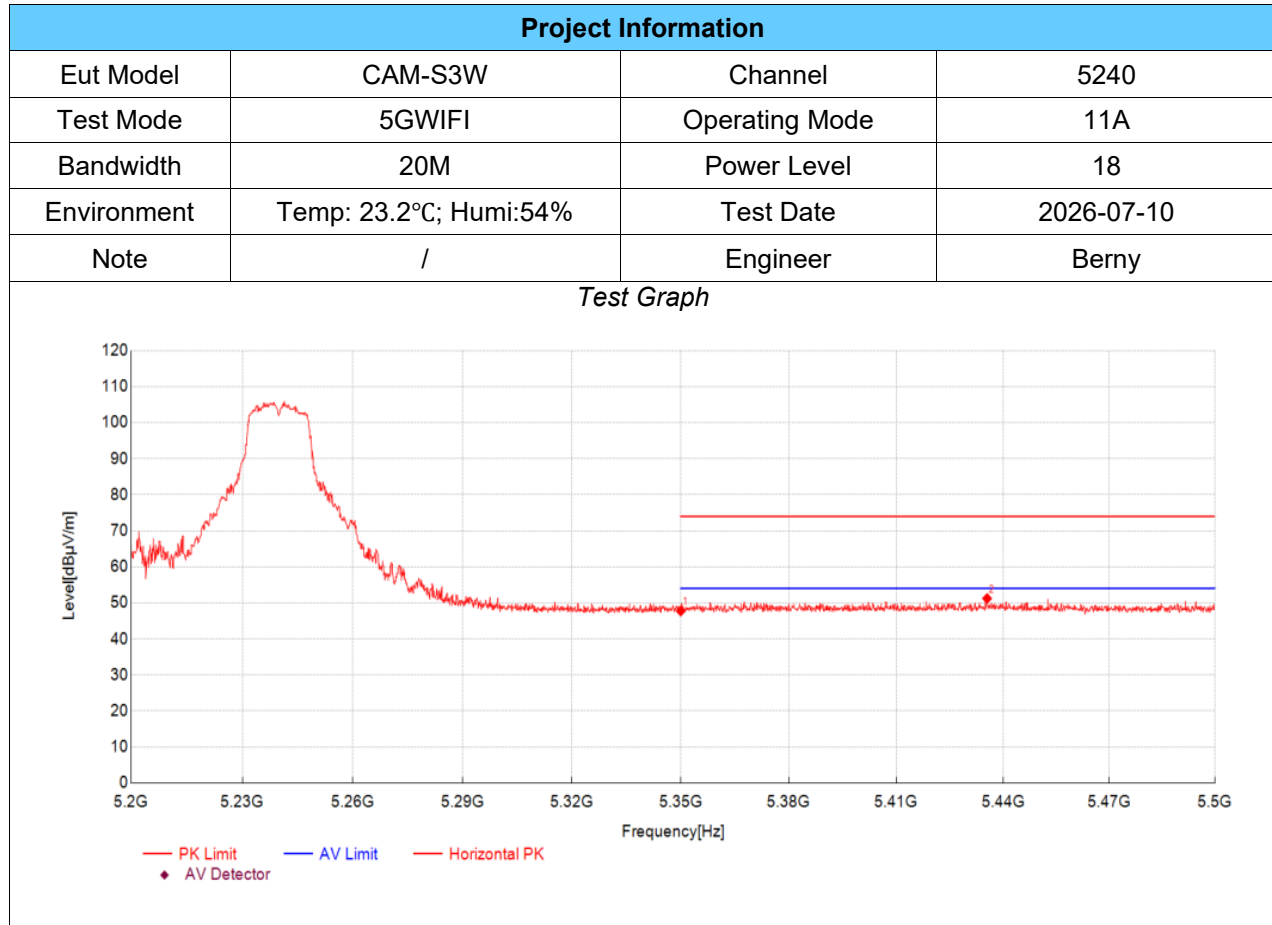
NO.	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5147.40	34.74	63.23	28.49	74.00	10.77	PK	Horizontal	PASS
2	5150.00	36.69	65.14	28.45	74.00	8.86	PK	Horizontal	PASS

Final Data List

NO.	Frequency [MHz]	Factor [dB/m]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Pol	Verdict
1	5147.40	28.49	20.78	49.27	54.00	4.73	Horizontal	PASS
2	5150.00	28.45	21.98	50.43	54.00	3.57	Horizontal	PASS

Note:(1)Level=Reading+Factor

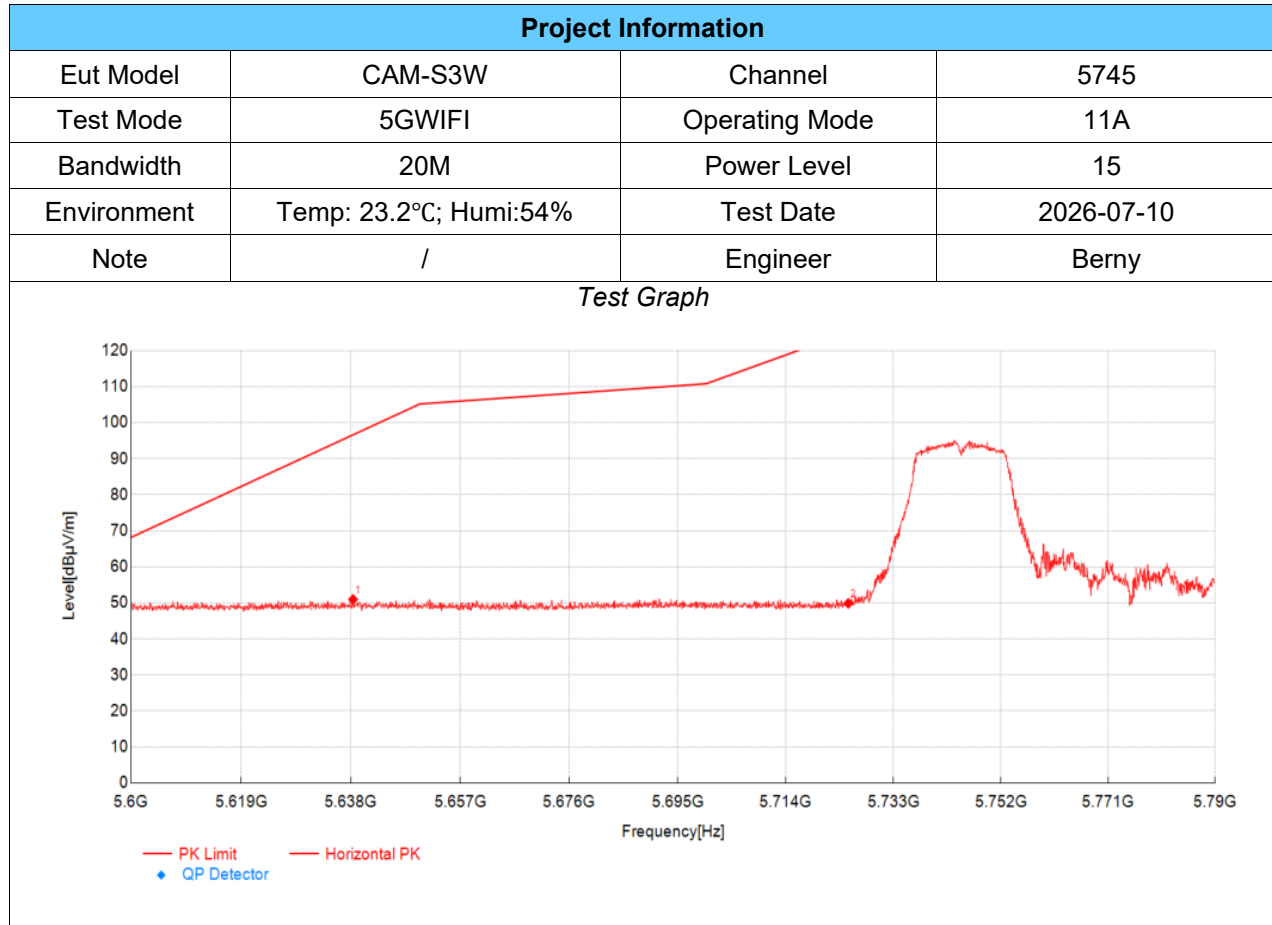
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5350.00	18.73	47.72	28.99	74.00	26.28	PK	Horizontal	PASS
2	5435.50	21.80	51.21	29.41	74.00	22.79	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

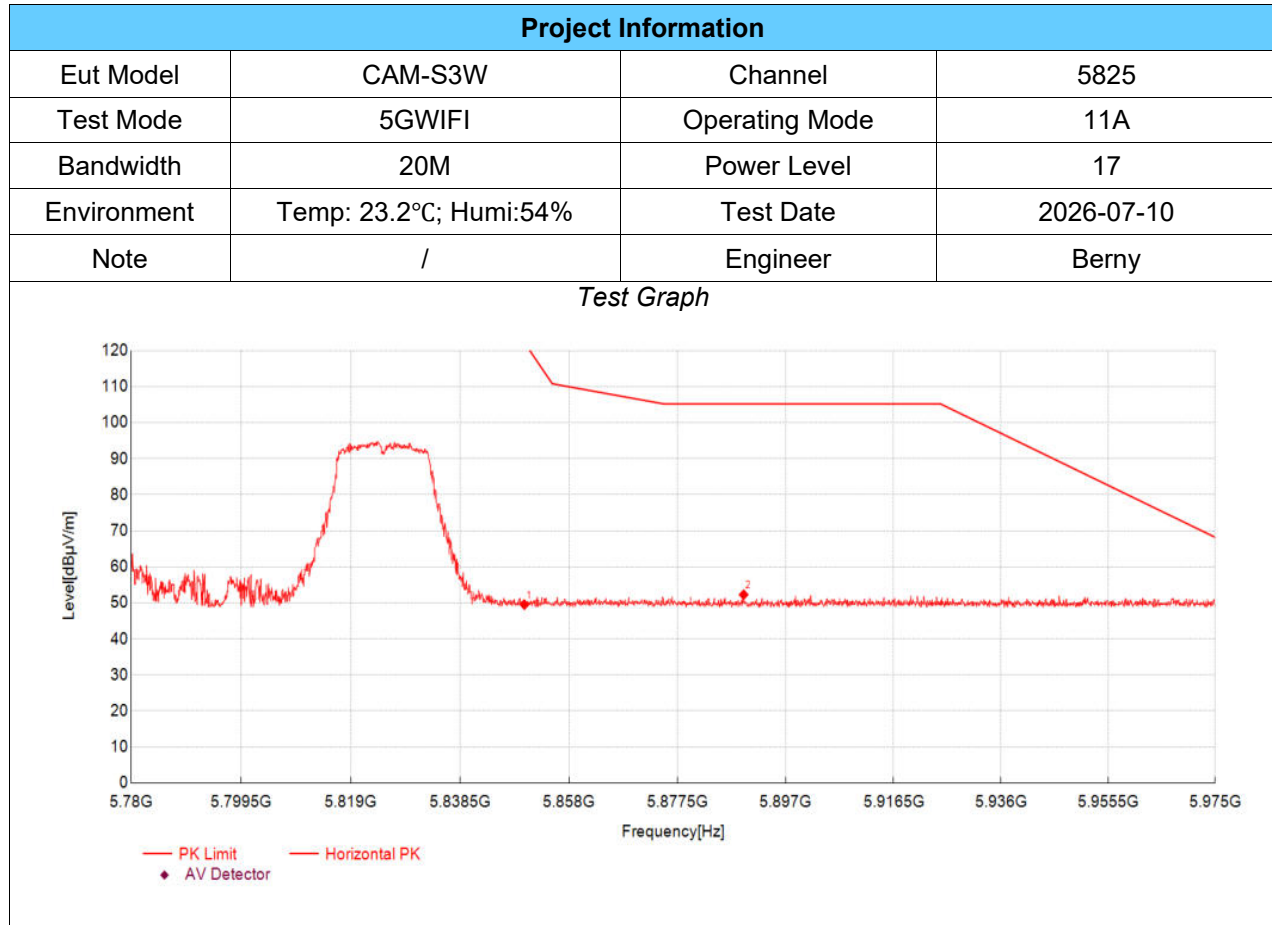
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5638.38	21.53	50.97	29.44	96.63	45.66	PK	Horizontal	PASS
2	5725.00	20.64	49.87	29.23	122.20	72.33	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

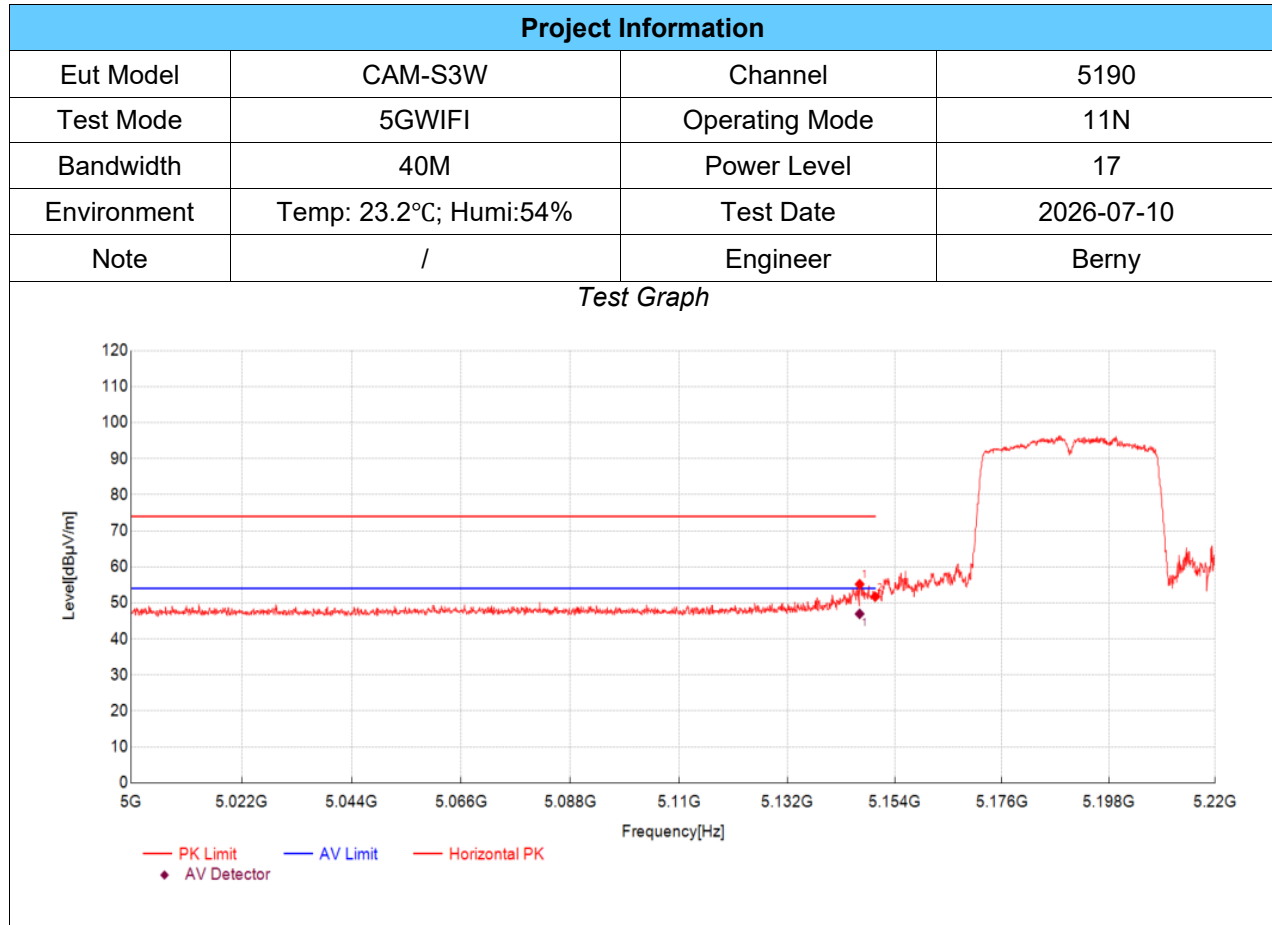
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5850.00	20.17	49.49	29.32	122.20	72.71	PK	Horizontal	PASS
2	5889.40	23.04	52.27	29.23	105.20	52.93	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level

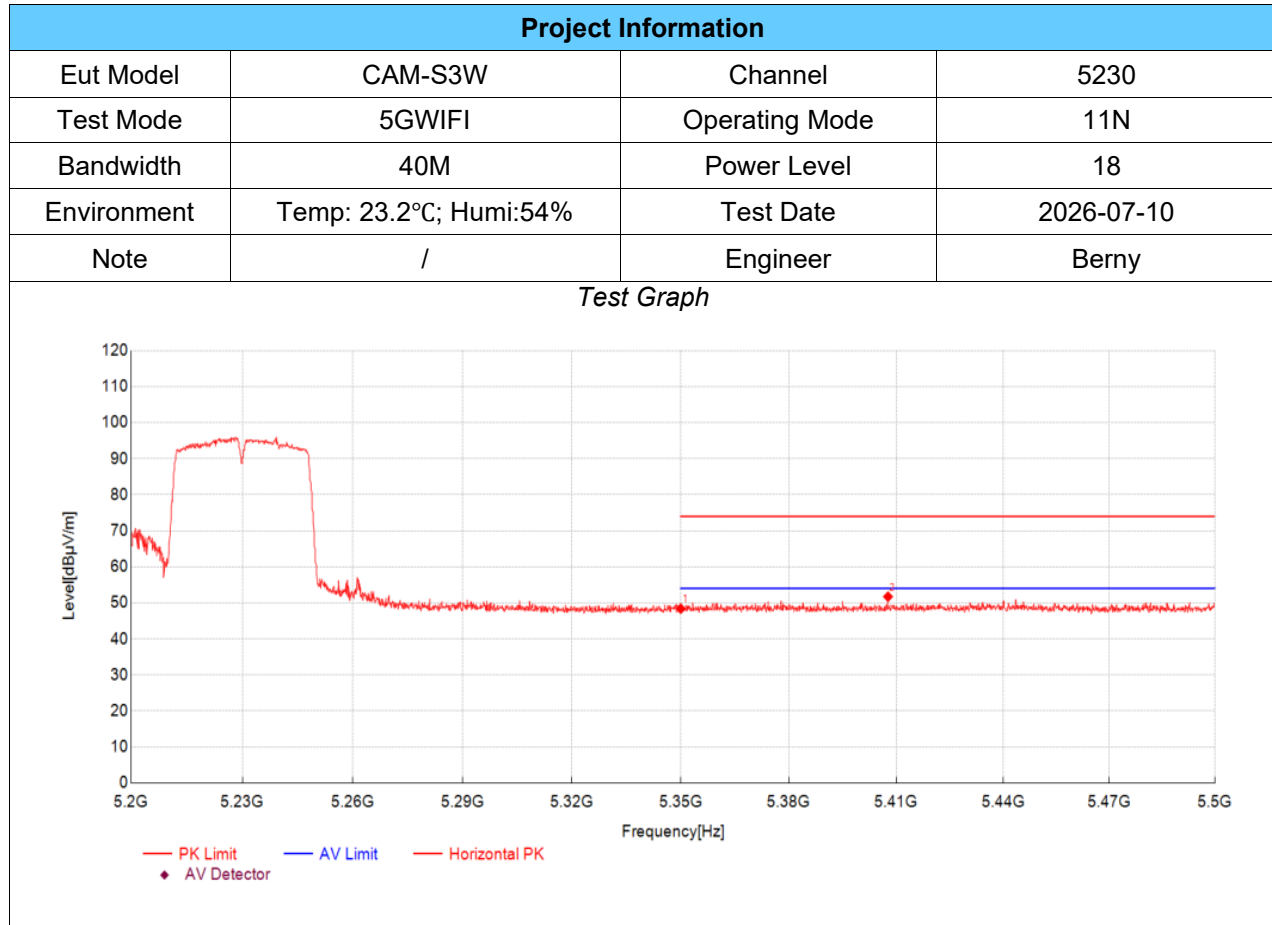
**Suspected Data List**

NO.	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5146.81	26.67	55.16	28.49	74.00	18.84	PK	Horizontal	PASS
2	5150.00	23.26	51.71	28.45	74.00	22.29	PK	Horizontal	PASS

Final Data List

NO.	Frequency [MHz]	Factor [dB/m]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Pol	Verdict
1	5146.81	28.49	18.45	46.94	54.00	7.06	Horizontal	PASS

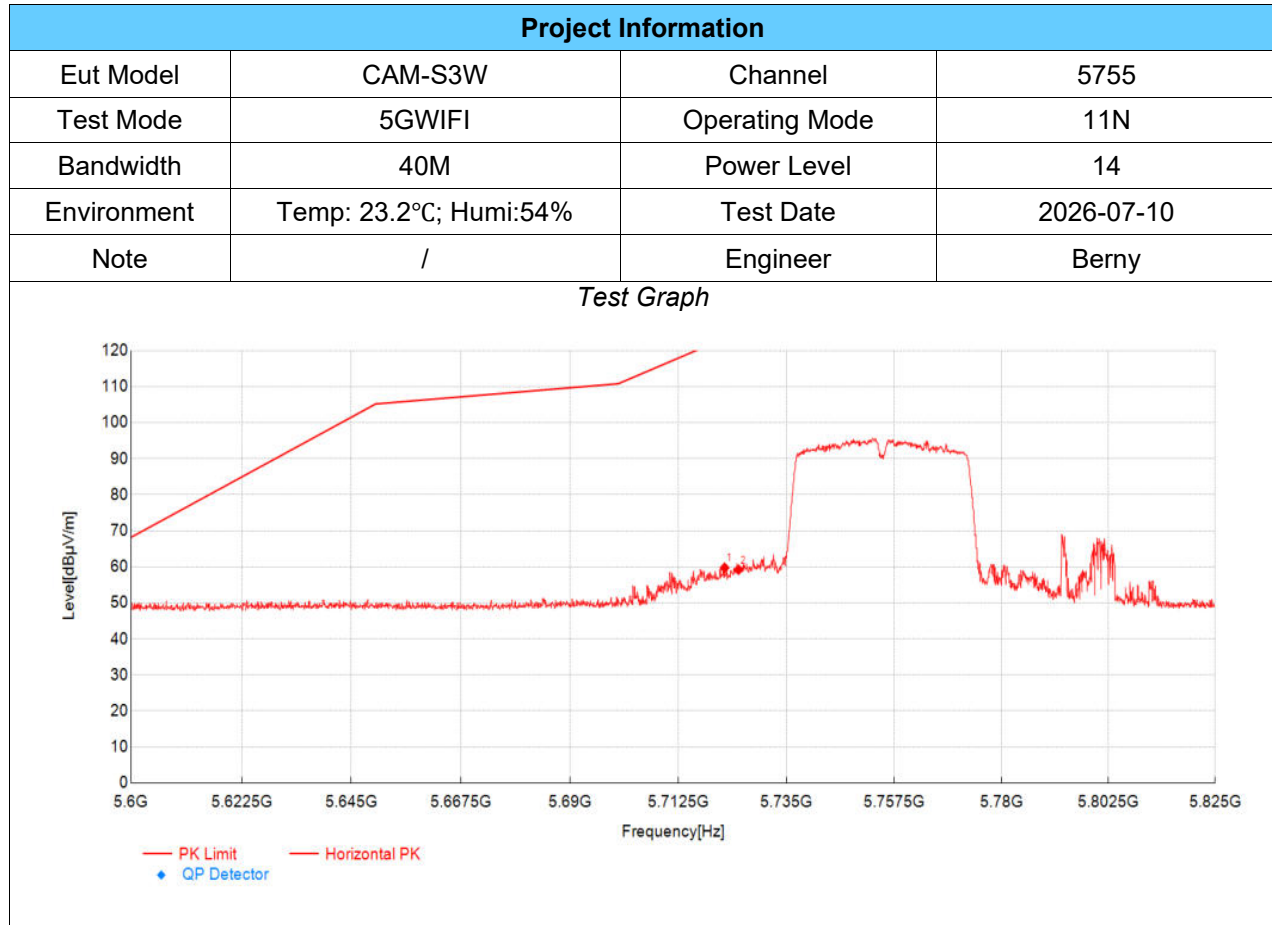
Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5350.00	19.41	48.40	28.99	74.00	25.60	PK	Horizontal	PASS
2	5407.70	22.44	51.71	29.27	74.00	22.29	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

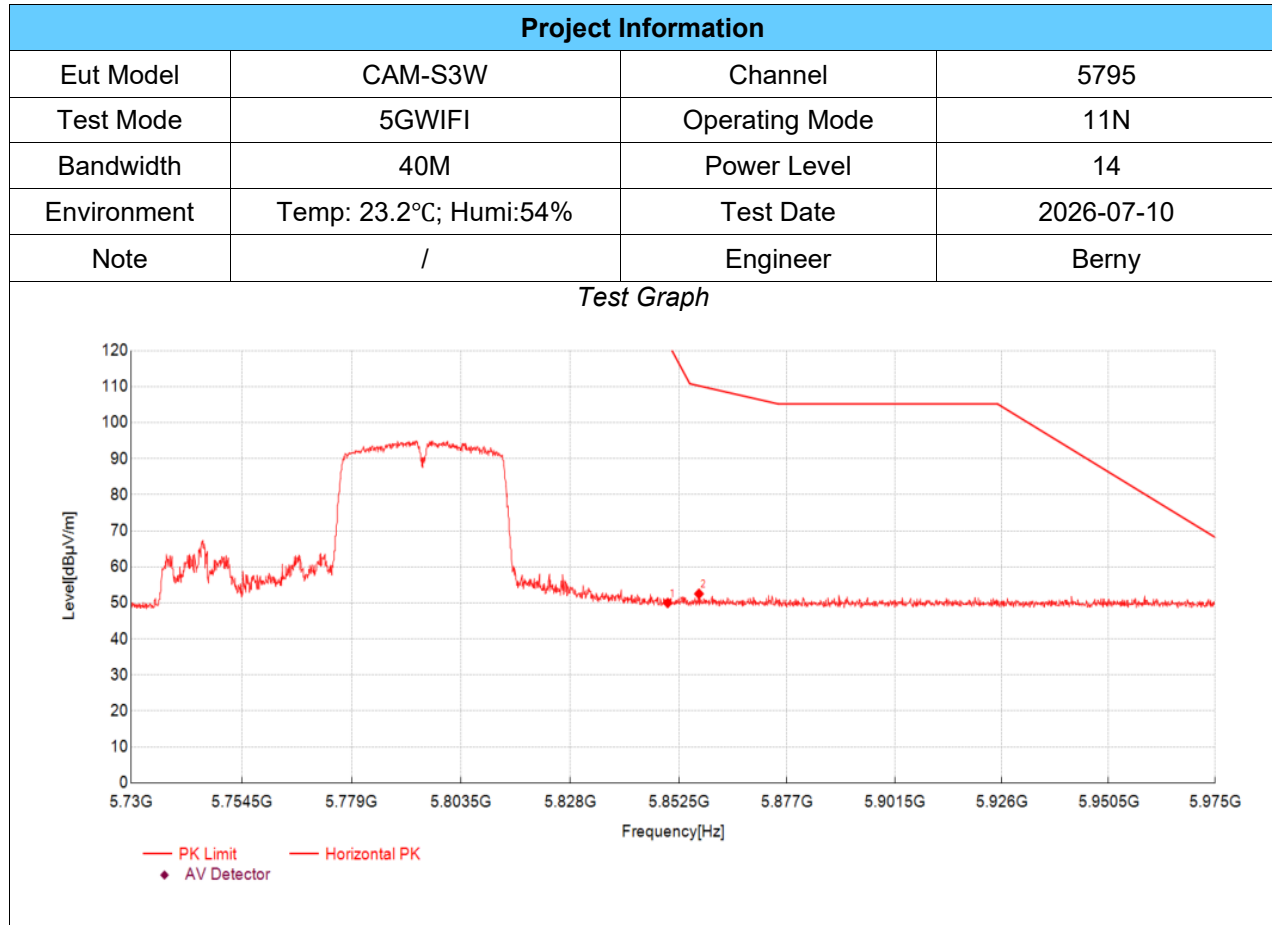
(2)Margin=Limit-Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5722.10	30.47	59.73	29.26	122.20	62.47	PK	Horizontal	PASS
2	5725.00	29.97	59.20	29.23	122.20	63.00	PK	Horizontal	PASS

Note: (1) Level = Reading + Factor

(2) Margin = Limit - Level



Suspected Data List									
NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	5850.00	20.64	49.96	29.32	122.20	72.24	PK	Horizontal	PASS
2	5857.07	23.13	52.51	29.38	110.22	57.71	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor

(2)Margin=Limit-Level

9. AC POWER LINE CONDUCTION EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a)

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

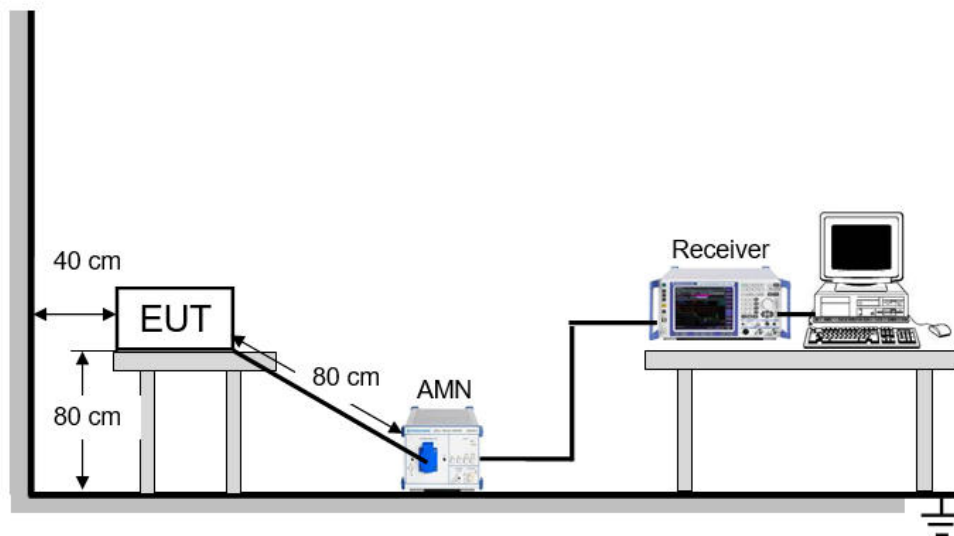
*Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2020. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

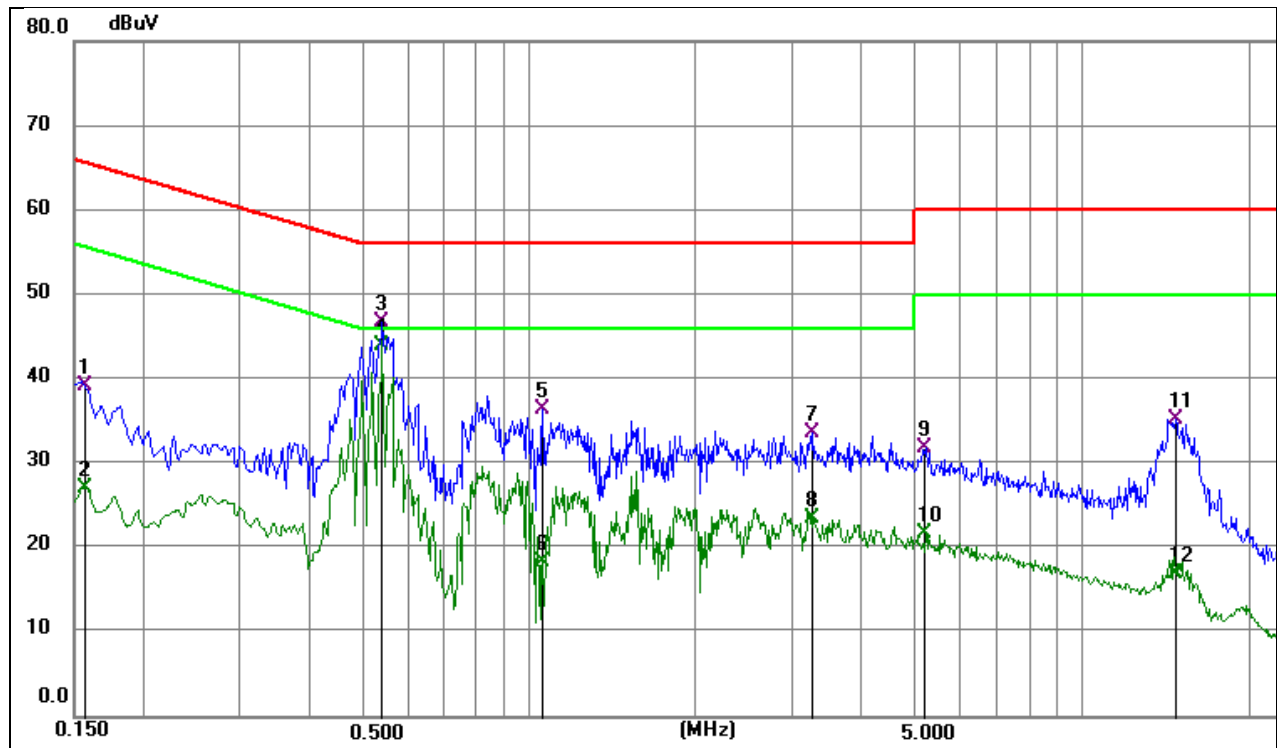
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP



TEST ENVIRONMENT

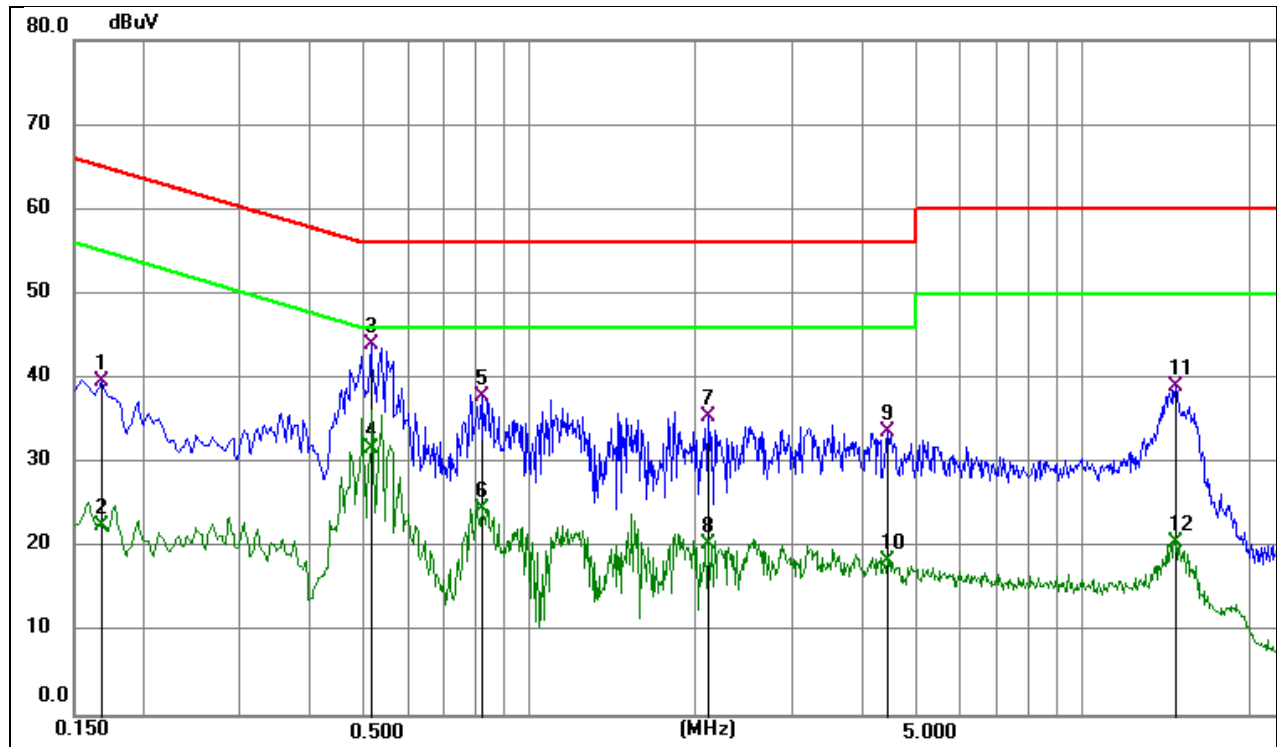
Temperature	23.2°C	Relative Humidity	52%
Atmosphere Pressure	101kPa		

TEST RESULTS

Phase: N

Mode: 11n HT40-5755MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1565	29.59	9.63	39.22	65.65	-26.43	QP
2	0.1565	17.45	9.63	27.08	55.65	-28.57	AVG
3	0.5415	37.09	9.63	46.72	56.00	-9.28	QP
4	0.5415	34.32	9.63	43.95	46.00	-2.05	AVG
5	1.0590	26.80	9.69	36.49	56.00	-19.51	QP
6	1.0590	8.63	9.69	18.32	46.00	-27.68	AVG
7	3.2505	24.00	9.71	33.71	56.00	-22.29	QP
8	3.2505	13.79	9.71	23.50	46.00	-22.50	AVG
9	5.1989	22.13	9.79	31.92	60.00	-28.08	QP
10	5.1989	11.86	9.79	21.65	50.00	-28.35	AVG
11	14.7300	25.03	10.25	35.28	60.00	-24.72	QP
12	14.7300	6.76	10.25	17.01	50.00	-32.99	AVG



Phase: L1

Mode: 11n HT40-5755MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1680	29.80	9.71	39.51	65.06	-25.55	QP
2	0.1680	12.84	9.71	22.55	55.06	-32.51	AVG
3	0.5144	34.42	9.59	44.01	56.00	-11.99	QP
4	0.5144	22.15	9.59	31.74	46.00	-14.26	AVG
5	0.8205	28.10	9.62	37.72	56.00	-18.28	QP
6	0.8205	14.96	9.62	24.58	46.00	-21.42	AVG
7	2.1030	25.72	9.75	35.47	56.00	-20.53	QP
8	2.1030	10.56	9.75	20.31	46.00	-25.69	AVG
9	4.4520	23.83	9.81	33.64	56.00	-22.36	QP
10	4.4520	8.60	9.81	18.41	46.00	-27.59	AVG
11	14.7300	28.73	10.25	38.98	60.00	-21.02	QP
12	14.7300	10.39	10.25	20.64	50.00	-29.36	AVG

10. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC §15.203

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 a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.407(a)

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Standard	Requirement
RSS-Gen issue 5 6.8.	The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list. For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below). When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested. For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location: This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

	Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.
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DESCRIPTION

Pass

11. ADDITIONAL REQUIREMENTS

REQUIREMENT

The following requirements shall apply:

- a. the device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. A description on how this is done shall accompany the application for equipment certification. Note that this is not intended to prohibit transmission of control or signalling information or the use of repetitive codes where required by the technology.
- b. all LE-LAN devices must contain security features to protect against modification of software by unauthorized parties.

Manufacturers must implement security features in any digitally modulated devices capable of operating in any of the frequency ranges within the 5 GHz band, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software must prevent the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers may use various means, including the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment certification.

Manufacturers must take steps to ensure that DFS functionality cannot be disabled by the operator of the LE-LAN device.

- c. the user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:
 - i. any devices capable of operating in the band 5150–5250 MHz shall only be used indoors to reduce the potential for harmful interference to co-channel mobile satellite systems (this requirement does not apply to OEM devices installed in vehicles by vehicle manufacturers);
 - ii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
 - iii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and
 - iv. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 7.3.2.4 or 7.3.5.3 shall be clearly indicated.

DESCRIPTION

Pass

Note:

The following judgment comes from the manufacturer:

a) Automatic discontinuation of transmission.

We hereby certify that, pursuant to FCC Part 15.407(c) and RSS-247 Issue 4 Clause 7.3.7, the device is designed to automatically terminate RF transmission in the absence of payload data or upon the occurrence of an operational fault.

b) Security features to protect against modification of software by unauthorized parties.

We hereby certify that, pursuant to FCC Part 15.407(c) and RSS-247 Issue 4 Clause 7.3.7, the device incorporates effective security safeguards to preclude unauthorized software alteration.

These measures ensure that third parties are unable to reconfigure the device to operate beyond the scope of its certified operational limits.

12. TEST DATA - Appendix A

Please refer to section "Test Data" - Appendix A.

END OF REPORT