

MEASUREMENT REPORT

FCC PART 15.247 Bluetooth

Report No.: S2025021260650102

Issue Date: 08-07-2025

Applicant: Neusoft Group (Dalian) Co., Ltd
Address: No.901-7 Huangpu Road. Ganjingzi District, Dalian City,
Liaoning Province, China
FCC ID: 2AZAXCUSP000D00
Product: Cockpit domain controller
Model No.: CUSP000D00
FCC Classification: FCC Part 15 Spread Spectrum Transmitter (DSS)
FCC Rule Part(s): Part 15 Subpart C (15.247)
Test Procedure(s): ANSI C63.10-2013, KDB 558074 D01v05r02
Result: Pass
Item Receipt Date: Feb.12, 2025
Test Date: Mar.19, 2025 ~Mar. 21, 2025

Compiled By

Stone Zhang.

(Stone Zhang)
Senior Test Engineer

Approved By

Line Chen

(Line Chen)
Engineer Manager

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s). The test report shall not be reproduced except in full without the written approval of Fangguang Inspection & Testing Co., Ltd. Wuxi Branch

The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

Revision History

Report No.	Version	Description	Issue Date
S2025021260650102	Rev. 01	/	08-07-2025

Note 1: Except for radiated spurious emissions, The test results of all conducted test items please refer to the module FCC test report (Report No.: JCF241024031-001,FCC ID:2BMJZ-P13A01H4) which issued on 2025/3/7 by Guangzhou Jingce Testing Technology Co., Ltd..

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§2.1033 General Information

Applicant:	Neusoft Group (Dalian) Co., Ltd
Applicant Address:	No.901-7 Huangpu Road. Ganjingzi District, Dalian City, Liaoning Province, China
Manufacturer:	Neusoft Group (Dalian) Co., Ltd
Manufacturer Address:	No.901-7 Huangpu Road. Ganjingzi District, Dalian City, Liaoning Province, China
Factory:	Qingdao Daesung Electronic Co., Ltd
Factory's Address:	No.37,Mengshahe 1 Road,Jimo Zone Qingdao,Shandong,266200 China
Test Site:	Fanguang Inspection & Testing Co., Ltd.
LAB ID:	CN5037
Test Site Address:	No.8 Ningyun Rd., Xinwu District Wuxi, Jiangsu 214000 China
FCC Rule Part(s):	Part 15 Subpart C (15.247)
FCC ID:	2AZAXCUSP000D00
Test Device Serial No.:	S/N.:/ <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering
FCC Classification:	FCC Part 15 Spread Spectrum Transmitter (DSS)

1. Introduction

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2. Fangguang Test Location

These measurement tests were performed at the Fangguang Inspection & Testing Co. Ltd No.8 Ningyun Rd.,Xinwu District Wuxi,Jiangsu 214000 China. The detailed description of the measurement facility was found to be in compliance with the requirements of ANSI C63.4-2014.

2. Product Information

2.1. Equipment Description

Product Name:	Cockpit domain controller
Model Name:	CUSP000D00
Additional Model:	/
Model Description:	/
Trade Mark:	/
Input Voltage Range:	DC 12V
Hardware Version:	HWA.0.3
Software Version:	SWA.0.20241226a
EUT sample number:	S20250212606501-1-1(Radiated)

Note: This information is provided by the Customer and its authenticity is the responsibility of the Customer.

2.2. Product Specification Subjective to this Standard

Operating Frequency:	2402~2480MHz
Channel Number:	79
Channel Spacing	1 MHz
Type of modulation:	FHSS (GFSK for 1Mbps, $\pi/4$ -DQPSK for 2Mbps, 8DPSK for 3Mbps)
Antenna Type:	Internal antenna with 4.86dBi (Max.)
Note:	The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth transmitter.

- 15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
- 15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

- 15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

2.3. Operation Frequency / Channel List

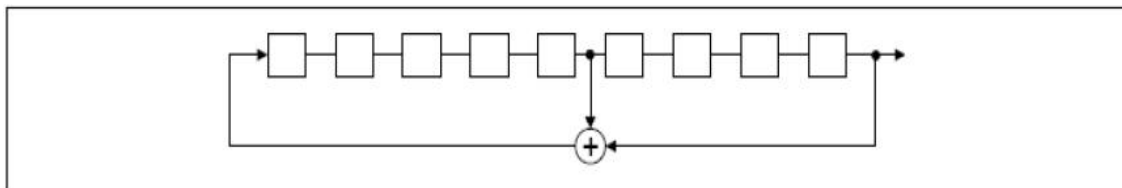
Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz
03	2405 MHz	04	2406 MHz	05	2407 MHz
06	2408 MHz	07	2409 MHz	08	2410 MHz
09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz
15	2417 MHz	16	2418 MHz	17	2419 MHz
18	2420 MHz	19	2421 MHz	20	2422 MHz
21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz
27	2429 MHz	28	2430 MHz	29	2431 MHz
30	2432 MHz	31	2433 MHz	32	2434 MHz
33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz
39	2441 MHz	40	2442 MHz	41	2443 MHz
42	2444 MHz	43	2445 MHz	44	2446 MHz
45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz
51	2453 MHz	52	2454 MHz	53	2455 MHz
54	2456 MHz	55	2457 MHz	56	2458 MHz
57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz
63	2465 MHz	64	2466 MHz	65	2467 MHz
66	2468 MHz	67	2469 MHz	68	2470 MHz
69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz
75	2477 MHz	76	2478 MHz	77	2479 MHz
78	2480 MHz	-	-	-	-

EUT was tested with Channel 0, 39 and 78.

2.4. Pseudorandom Frequency Hopping Sequence

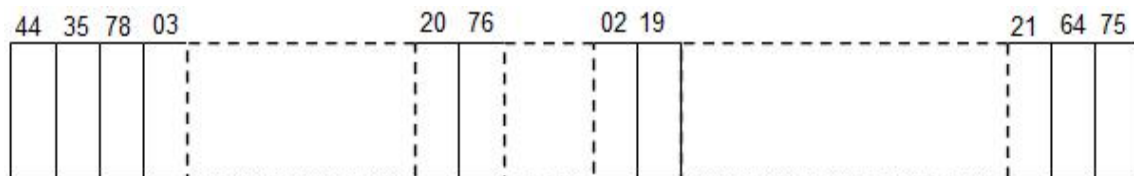
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

2.5. Device Capabilities

This device contains the following capabilities: Bluetooth

Note: The duty cycles are refer to the module FCC test report (Report No.: JCF241024031-001,FCC ID:2BMJZ-P13A01H4) which issued on 2025/3/7 by Guangzhou Jingce Testing Technology Co., Ltd..

2.6. Description of Test Software

The test utility software used during testing for below table, and the test software power level setting is Default.

Software version	Test level
Scrcpy	default

2.7. Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.9. EUT Photo

The EUT external photo, internal photo and test setup photo, please refer to the plots in the S20250212606501-A1/A2/A3.

2.10. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.11. Calculation with all conversion and correction factors used

For Radiated Emissions Below 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

For Radiated Emissions Above 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

3. Description of Test

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the “Filing were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 9'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions were used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. The turntable is used for radiated measurement. It is a continuously rotatable, remotecontrolled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beamwidth of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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.”

- Use a unique coupling to the intentional radiator.

5. Test Equipment Calibration Date

Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	FWXGJC-2016-181	1 year	2026/07/08
Two-Line V-Network	R&S	ENV 216	FWXGJC-2016-182	1 year	2026/07/09
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-387	1 year	2025/09/03

Radiated Emission

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Loop Antenna	Schwarzbeck	FMZB 1519B	FWXGJC-2018-015	1 year	2026/06/21
Bi-Log Antenna	R&S	HL562E	FWXGJC-2016-267-06	1 year	2026/01/17
Broadband Horn Antenna	R&S	HF907	FWXGJC-2016-267-07	1 year	2026/06/21
Broadband Horn Antenna	Schwarzbeck	BBHA 9170	FWXGJC-2018-016	1 year	2026/06/21
EMI Receiver	R&S	ESCI3	FGZZ-2024-033	1 year	2026/07/17
EXA Signal Analyzer	Keysight	N9010B	FWXGJC-2018-010	1 year	2026/07/16
Pre-Amplifier	Tonscend	TAP0118048	FWXGJC-2024-037	1 year	2026/06/21
Pre-Amplifier	Chengyi	EMC184055SE	FWXGJC-2018-018	1 year	2026/06/21
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-385	1 year	2025/09/03
Anechoic Chamber	SAEMC	FSAC318	FWXGJC-2024-035	3 year	2027/06/02

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Keysight	N9010B	FWXGJC-2018-010	1 year	2026/07/16
RF Control Unit	Tonscend	JS0806-2	FWXGJC-2018-013	1 year	2026/07/25
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-386	1 year	2025/09/03

Test Software	Manufacturer	Version	Asset No.	Function
JS1120-3 Test System	tonscend	V3.3.10	/	Conducted Test
JS32	tonscend	V5.0.0	/	Radiated Emission
EMI Test Software	R&S	9.26.00	/	Conducted Emission

Auxiliary Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Filter	Tonscend	ZBSF6	07247867	1 year	2026/07/25
Filter	Tonscend	ZHPF6	07233297	1 year	2026/07/25
Attenuator	Tonscend	10dB	/	1 year	2026/07/25
RF Cable	Tonscend	T-1	/	1 year	2026/07/25

6. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.68dB
Radiated Emission Measurement (9kHz - 30MHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 3.06dB
Radiated Emission Measurement (30MHz -1GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.01dB
Radiated Emission Measurement (1-18GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.97dB
Radiated Emission Measurement (18-40GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 5.32dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 30MHz-1GHz: 1.00 dB 1GHz-12.75GHz: 1.30 dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.60dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.80dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.20MHz
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.1×10^{-6} MHz

7. Test Result

7.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.247(a)(1)	20dB Bandwidth	N/A	Conducted	PASS
15.247(b)(1)	Peak Transmitter Output Power	<0.125 Watt if > 75 non- overlapping channels used		PASS
15.247(a)(1)	Channel Separation	> 2/3 of 20 dB BW for systems with Output Power < 125mW		PASS
15.247(a)(1)(iii)	Number of Channels	> 15 Channels		PASS
15.247(a)(1)(iii)	Time of Occupancy	< 0.4 sec in 31.6 sec period		PASS
15.247(d)	Band Edge / out- of-Band Emissions	Conducted \geq 20dBc		PASS
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	PASS
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	N/A

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) The test results of all conducted test items please refer to the module FCC test report (Report No.: JCF241024031-001,FCC ID:2BMJZ-P13A01H4) which issued on 2025/3/7 by Guangzhou Jingce Testing Technology Co., Ltd..
- 4) The EUT is DC supply, this item only for the EUT is designed to be connected to the public utility (AC) power line.

7.2. Radiated Spurious Emission Measurement

7.2.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.2.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.2.3. Test Setting

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

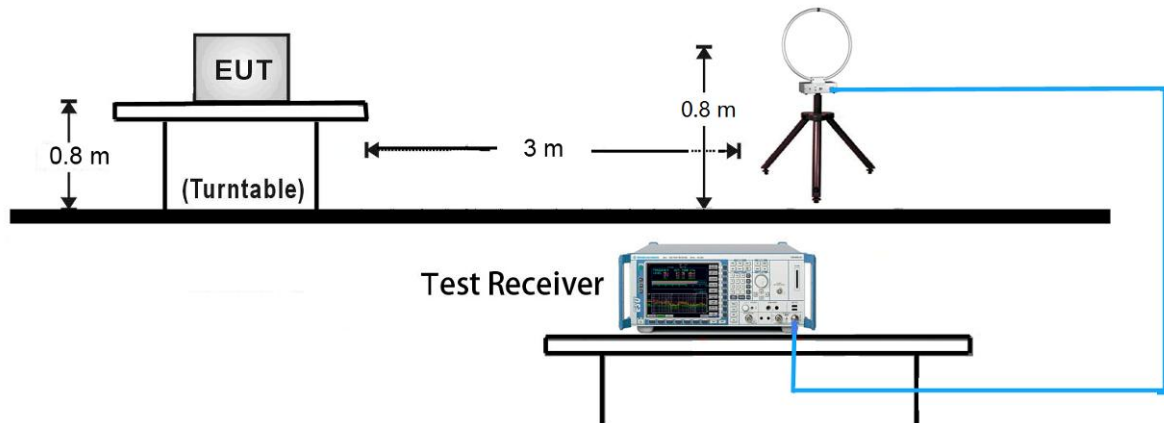
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto

6. Trace mode = max hold

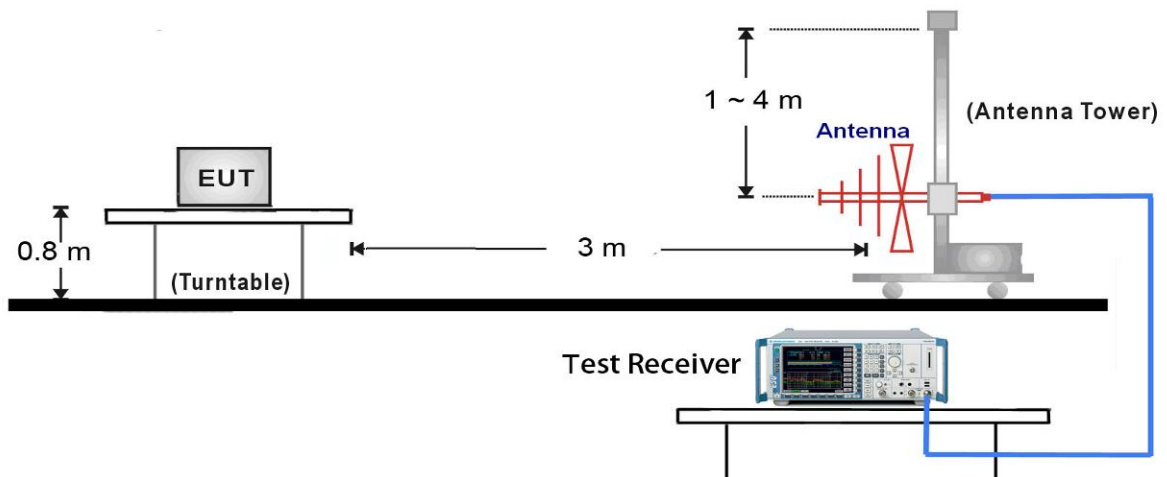
7. Trace was allowed to stabilize

7.2.4. Test Setup

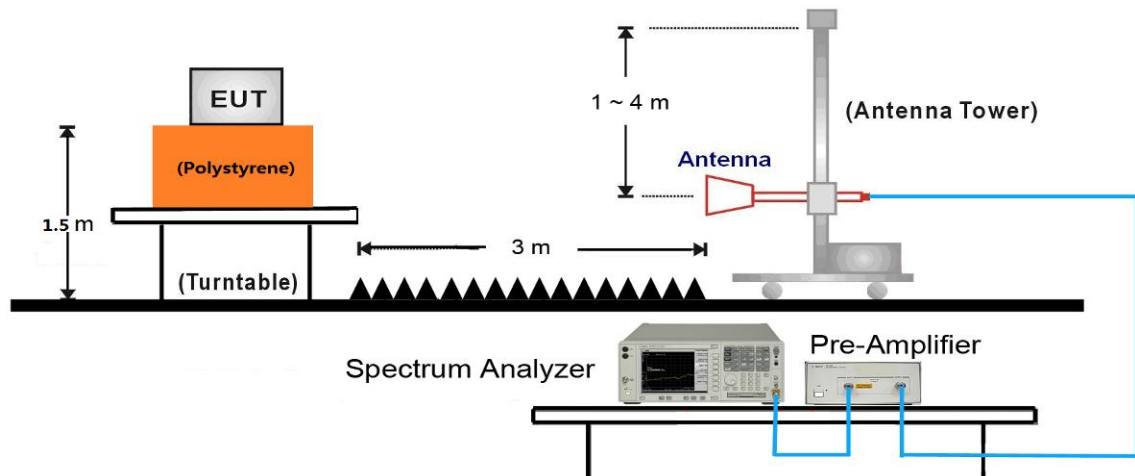
9kHz ~30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:

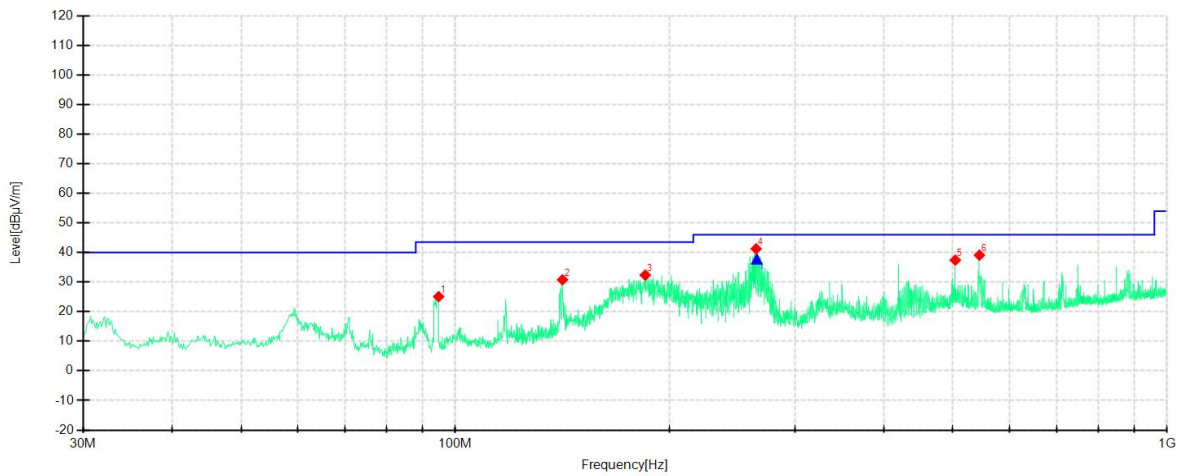


7.2.5. Test Result

All models were pretested and only the worst modes and channels were recorded in this report (DH5_2441MHz).

Below 1GHz:

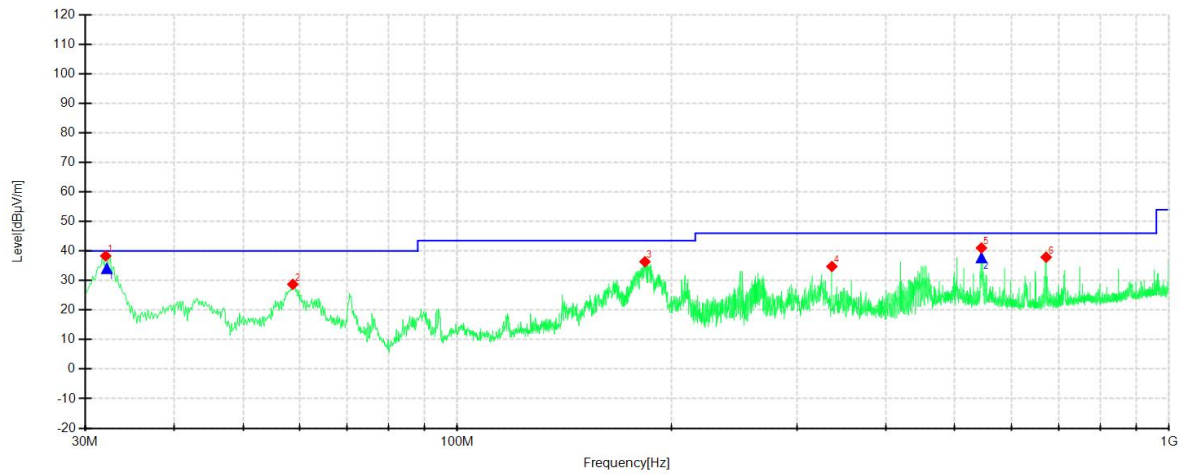
Power supply:	DC 12V	Environmental Conditions:	18.3°C/33%RH/102.3kPa
Test Engineer:	Stone Zhang	Test Date:	2025-03-20



NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity	Verdict
1	94.7556	58.08	25.10	-32.98	43.50	18.40	QP	200	275	Horizontal	PASS
2	141.4427	59.29	30.81	-28.48	43.50	12.69	QP	200	248	Horizontal	PASS
3	184.8556	62.67	32.37	-30.30	43.50	11.13	QP	100	85	Horizontal	PASS
4	264.6481	70.29	41.27	-29.02	46.00	4.73	QP	100	72	Horizontal	PASS
5	504.0255	59.01	37.44	-21.57	46.00	8.56	QP	200	222	Horizontal	PASS
6	545.0131	59.72	39.13	-20.59	46.00	6.87	QP	200	289	Horizontal	PASS

Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV/m]	Level [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	265.1766	-29.02	66.85	37.83	46.00	8.17	100	94.2	Horizontal	PASS



NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity	Verdict
1	32.0615	67.68	38.34	-29.34	40.00	1.66	QP	100	168	Vertical	PASS
2	58.7398	58.15	28.72	-29.43	40.00	11.28	QP	100	181	Vertical	PASS
3	183.5217	66.54	36.38	-30.16	43.50	7.12	QP	100	312	Vertical	PASS
4	335.9520	61.00	34.78	-26.22	46.00	11.22	QP	100	234	Vertical	PASS
5	545.0131	61.64	41.05	-20.59	46.00	4.95	QP	100	234	Vertical	PASS
6	671.9777	56.33	37.91	-18.42	46.00	8.09	QP	100	23	Vertical	PASS

Final Data List										
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV/m]	Level [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	32.1752	-29.34	63.40	34.06	40.00	5.94	100	286.1	Vertical	PASS
2	545.0763	-20.59	58.31	37.72	46.00	8.28	100	255.3	Vertical	PASS

Remark:

- No emission found between lowest internal used/generated frequency to 30MHz.
- Pre-scan all mode and recorded the worst case results in this report (DH5_2441MHz).
- Measuring frequencies from 9kHz to the 1GHz.
- Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.
- The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.
- If the margin of the pre-test results is greater than 6dB, it meets the requirements of quasi peak or average values, and final testing is no longer required.

1GHz to 18GHz:

All models were pretested and only the worst modes were recorded in this report.

Mode: DH5 2441MHz

Environment: 15.6°C/32%RH/103.0kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Date: 2025-03-19

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1908.6000	49.92	45.75	-4.17	74.00	28.25	100	312	Horizontal
2	2944.2000	49.10	48.15	-0.95	74.00	25.85	200	14	Horizontal
3	3817.0000	54.24	43.00	-11.24	74.00	31.00	100	19	Horizontal
4	4617.0000	53.72	45.02	-8.70	74.00	28.98	100	19	Horizontal
5	13242.0000	52.26	66.38	14.12	74.00	7.62	200	110	Horizontal
6	15690.0000	57.20	67.62	10.42	74.00	6.38	100	319	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2944.1630	-0.95	42.37	41.42	54.00	12.58	200	14	Horizontal
2	13240.5280	14.12	25.58	39.70	54.00	14.30	200	155	Horizontal
3	15689.4170	10.42	26.93	37.35	54.00	16.65	100	319	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1133.4000	53.44	42.75	-10.69	74.00	31.25	100	123	Vertical
2	1908.6000	53.17	48.52	-4.65	74.00	25.48	100	286	Vertical
3	3340.0000	63.38	50.09	-13.29	74.00	23.91	100	51	Vertical
4	4636.0000	54.42	45.78	-8.64	74.00	28.22	200	334	Vertical
5	13290.0000	52.13	65.54	13.41	74.00	8.46	100	245	Vertical
6	15292.0000	54.72	68.46	13.74	74.00	5.54	100	320	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1908.6550	-4.65	49.27	44.62	54.00	9.38	121	269.6	Vertical
2	3340.3380	-13.29	56.31	43.02	54.00	10.98	151	64.3	Vertical

3	13280.3800	13.41	23.56	36.97	54.00	17.03	172	231.8	Vertical
4	15232.4700	13.74	23.85	37.59	54.00	16.41	163	93	Vertical

Remark:

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum setting:
 - a. Peak Setting 1GHz–26.5GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = auto.
 - b. AV Setting 1GHz–26.5GHz, Set RBW=1MHz, if the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10kHz) but not less than 10 Hz. if the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$.

Above 18GHz:

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

All models were pretested and only the worst modes were recorded in this report(DH5_2441MHz).

Environment: 23.0°C/35%RH/102.2kPa

Voltage: DC 12V

Tested By: Stone Zhang

Date: 2025-03-21

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18972.4000	46.34	49.34	39.80	3.00	74	34.20	100	83	Horizontal
2	19417.8000	47.16	50.36	40.82	3.20	74	33.18	100	331	Horizontal
3	20677.5000	45.37	49.37	39.83	4.00	74	34.17	100	207	Horizontal
4	21516.4500	44.81	48.83	39.29	4.02	74	34.71	100	124	Horizontal
5	24394.9750	41.34	46.44	36.90	5.10	74	37.10	100	103	Horizontal
6	25812.3500	41.09	46.23	36.69	5.14	74	37.31	100	310	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18556.7500	46.31	49.14	39.60	2.83	74	34.40	100	213	Vertical
2	18864.8750	46.53	49.63	40.09	3.10	74	33.91	100	340	Vertical
3	20007.2750	45.45	49.76	40.22	4.31	74	33.78	100	213	Vertical
4	21844.9750	44.70	48.77	39.23	4.07	74	34.77	100	6	Vertical
5	25026.5250	41.24	47.30	37.76	6.06	74	36.24	100	297	Vertical
6	26055.4500	42.57	48.45	38.91	5.88	74	35.09	100	70	Vertical

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3)

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Cockpit domain controller** is in compliance with Part 15C of the FCC Rules.

Statement

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