FCC RADIO TEST REPORT

Applicant…….	:	Robert Bosch GmbH
Address……...	:	Robert-Bosch-Platz 1, 70839 Gerlingen, Germany
Manufacturer……..	:	Robert Bosch GmbH
Address……...	:	Robert-Bosch-Platz 1, 70839 Gerlingen, Germany
Factory 1.....	:	Robert Bosch Malaysia
Address.....	:	Phase 1 – Free Industrial Zone, 11900 Bayan Lepas, Penang, Malaysia
Factory 2.....	:	Bosch Automotive Electronics India Pvt.Ltd.
Address.....	:	Hangar 703 Naganathapura, Electronic city PO, Bengaluru - 560100
Product Name……..	:	Multimedia device with Bluetooth and WLAN
Brand Name…….....	:	BOSCH
Model No. ……	:	71U0
FCC ID……..….	:	2AUXS-71U0
Measurement Standard…….....	:	47 CFR FCC Part 15, Subpart C (Section 15.247)
Receipt Date of Samples……	:	February 18, 2025
Date of Tested…….	:	February 18, 2025 to March 24, 2025
Date of Report……..	:	March 25, 2025

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

Jenny Liu / Project Engineer

Approved by

Iori Fan / Authorized Signatory

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Revision History

Report Number	Description	Issued Date
NTC2502408FV00	Initial Issue	2025-03-25

1. Summary of Test Result

FCC Rules	Description of Test	Result	Remarks
§15.207 (a)	AC Power Conducted Emission	N/A	See note
§15.247(b)(3)	Maximum Conducted Output Power	PASS	---
§15.247(a)(2)	6dB Bandwidth	PASS	---
§15.247(e)	Power Spectral Density	PASS	---
§15.247(d)	Band Edge and Conducted Spurious Emissions	PASS	---
§15.247(d),§15.209, §15.205	Radiated Spurious Emissions and Restricted Bands	PASS	---
§15.203	Antenna Requirement	PASS	---

Note: The device is designed for vehicle environment using and cannot connect to the public low-voltage network.

2. General Description of EUT

Product Information	
Product Name:	Multimedia device with Bluetooth and WLAN
Main Model Name:	71U0
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	4c8117b1 (conducted sample) / 60c50fde (radiated sample)
Brand Name	BOSCH
Hardware Version:	DA3-002
Software Version:	D3I_51.6(S3R-01-00 (2024-51-6))
Rating:	DC 10V to 16 V come from vehicle environment
Classification:	Class B
Typical Arrangement:	Tabletop
I/O Port:	Refer to the user‘s manual
Accessories Information	
Adapter:	N/A
Cable:	N/A
Other:	N/A
Additional Information	
Note:	1. The device has six variant versions, and all the versions have the same schematic, construction, PCB Layout, Bluetooth & WIFI RF module; the differences are software version and components populated in accordance with the function feature. Details refer to following the variant version description. 2. According to the version differences and the manufacturer, all tests were performed on version GEX w/DAB, deviation test of Radiated Emission was performed on version IND.
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification	
Frequency Range:	2412-2462MHz for IEEE 802.11b/g/n(HT20)
Modulation Technology:	DSSS, OFDM
Modulation Type:	CCK, DQPSK, DBPSK, 64-QAM, 16-QAM, QPSK, BPSK
Number of Channel:	11
Channel Space:	5MHz
Antenna Type:	Chip Antenna
Number of Antenna	2 (BT & 5G WIFI x1, 2.4G & 5G WIFI x 1)
Antenna Gain:	2.79 dBi maximum (Declared by the manufacturer)
Note: This report only applies to 2.4GHz WLAN feature of the EUT.	

Variant Version Description:

Function	Versions					
	IND	GEX w/DAB	GEX with no 5GHz AP support	GEX w/o DAB	EU w/DAB	EU w/o DAB
AM	Yes	Yes	Yes	Yes	Yes	Yes
FM	Yes	Yes	Yes	Yes	Yes	Yes
DAB	---	Yes	---	---	Yes	---
DRM	Yes	---	---	---	---	---
BT	Yes	Yes	Yes	Yes	Yes	Yes
BLE	Yes	Yes	Yes	Yes	Yes	Yes
Wifi Station (2.4 GHz)	Yes	Yes	Yes	Yes	Yes	Yes
GNSS	Yes	Yes	Yes	Yes	Yes	Yes
Wifi AP 2.4GHz	---	---	Yes	---	---	---
Wifi AP 5GHz	Yes	Yes	---	Yes	Yes	Yes
USB DCM	Yes	---	---	---	Yes	Yes
USB	Yes	Yes	Yes	Yes	Yes	Yes
QZSS	Yes	Yes	Yes	Yes	Yes	Yes
RVC	Yes	Yes	Yes	Yes	Yes	Yes
Int SVS	Yes	Yes	Yes	Yes	---	---
Ext SVS	---	---	---	---	---	---
Audio (8 CH)	Yes	Yes	Yes	Yes	---	---
Audio (4 CH)	---	---	---	---	Yes	Yes

Note: For wireless functions Bluetooth and WIFI, the hardware design is exactly the same. The WIFI bands and features are locked by the software at the factory and cannot be modified by the user.

Channel List			
IEEE 802.11b/ g/ n(HT20)		IEEE 802.11n(HT40)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	---	---
2	2417	---	---
3	2422	3	---
4	2427	4	---
5	2432	5	---
6	2437	6	---
7	2442	7	---
8	2447	8	---
9	2452	9	---
10	2457	----	----
11	2462	----	----

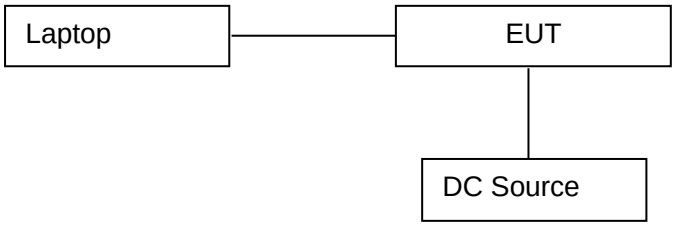
3. Test Channels and Modes Detail

Mode		Channel	Frequency (MHz)	Remark
1	TX	1	2412	IEEE 802.11b/ g/ n(HT20)
		6	2437	IEEE 802.11b/ g/ n(HT20)/ n(HT40)
		11	2462	IEEE 802.11b/ g/ n(HT20)
2	WIFI (CH 11) + Bluetooth Link			Co-transmitting

Note: TX mode means that the EUT was programmed to be in continuously transmitting mode.

4. Configuration of EUT

TX/ Mode



5. Modification of EUT

No modifications are made to the EUT during all test items.

6. Description of Support Device

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Laptop	Lenovo	R720-151KBN	PF0Z35FH	---	Provided by the lab

Software	Power Setting	
	Mode	Setting
ADB commands & MyFTM_GUI_v2.0.1m	IEEE 802.11b	15
	IEEE 802.11g	7
	IEEE 802.11n(HT20)	8

7. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2030 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 The Certificate is valid until December 31, 2025 Listed by FCC, November 06, 2017 Test Firm Registration Number is 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

8. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Test Standards:

47 CFR Part 15, Subpart C, 15.247

ANSI C63.10-2013

References Test Guidance:

DTS KDB 558074 D01 15.247 Meas Guidance v05r02

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	AC Power Conducted Emission	---	---	---	---
2.	Max. Conducted Output Power	1	DC 13.5V	Sean	See note 1
3.	6dB Bandwidth	1	DC 13.5V	Sean	See note 1
4.	Power Spectral Density	1	DC 13.5V	Sean	See note 1
5.	Band Edge and Conducted Spurious Emissions	1	DC 13.5V	Sean	See note 1
6.	Radiated Spurious Emissions and Restricted Bands	1-2	DC 13.5V	Sean	See note 1,3
7.	Antenna Requirement	---	---	---	---

Note:

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35℃, 30~70%, 86~106kPa
2. DC 13.5V comes from the external DC source.
3. The device is designed for vehicle environment using and cannot connect to the public low-voltage network.

11. Measurement Uncertainty

No.	Test Item	Frequency	Uncertainty	Remarks
1.	Conducted Emission	150KHz ~ 30MHz	±2.52 dB	---
2.	Radiated Emission	9kHz ~ 30MHz	±5.60 dB	
		30MHz ~ 1GHz	±5.60 dB	---
		1GHz ~ 18GHz	±5.22 dB	---
		18GHz ~ 40GHz	±5.22 dB	
3.	RF Conducted	10Hz ~ 40GHz	±1.18 dB	---
4.	Occupied Channel Bandwidth	---	±1.05%	---

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainly levels above are estimated and calculated according to CISPR 16-4-2.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

12. Sample Calculations

Conducted Emission						
Freq. (MHz)	**Reading Level (dBuV)**	**Correct Factor (dB)**	**Measurement (dBuV)**	**Limit (dBuV)**	**Over (dB)**	**Detector**
0.2379	16.70	20.60	37.30	62.17	-24.87	QP

Where,

Freq.	= Emission frequency in MHz
Reading Level	= Spectrum Analyzer/Receiver Reading
Corrector Factor	= Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation
Measurement	= Reading + Corrector Factor
Limit	= Limit stated in standard
Margin	= Measurement - Limit
Detector	= Reading for Quasi-Peak / Average / Peak

Radiated Spurious Emissions and Restricted Bands						
Freq. (MHz)	**Reading Level (dBuV)**	**Correct Factor (dB/m)**	**Measurement (dBuV/m)**	**Limit (dBuV/m)**	**Over (dB)**	**Detector**
185.2000	35.99	-9.24	26.75	43.50	-16.75	QP

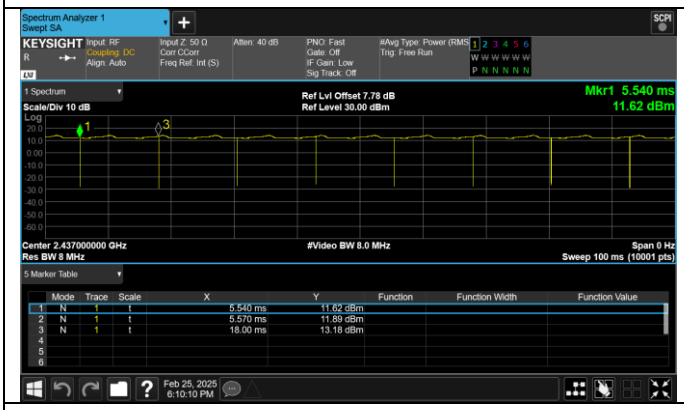
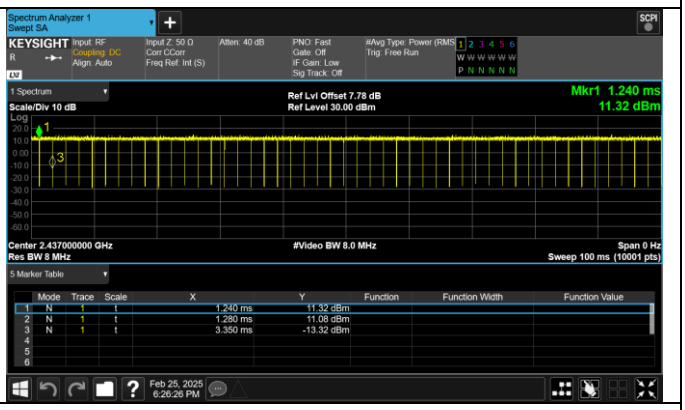
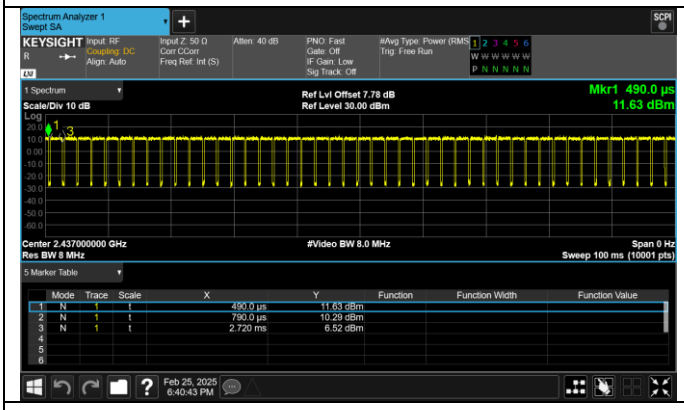
Where,

Freq.	= Emission frequency in MHz
Reading Level	= Spectrum Analyzer/Receiver Reading
Corrector Factor	= Antenna Factor + Cable Loss - Pre-amplifier
Measurement	= Reading + Corrector Factor
Limit	= Limit stated in standard
Over	= Margin, which calculated by Measurement - Limit
Detector	= Reading for Quasi-Peak / Average / Peak

Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.

13. Duty Cycle of Test Signal

Frequency MHz	Mode	TP time (ms)	Ton time	Duty cycle	Duty cycle Factor
2437	802.11b	12.46	12.43	99.76%	0.08
2437	802.11g	2.11	2.07	98.10%	0.48
2437	802.11n20	2.23	1.93	86.55%	0.52

802.11b	802.11g
	
802.11n20	---
	Blank

Note: Duty Cycle = (Ton time / TP time) x 100%

Duty Cycle Factor= 10 x log(1/Duty Cycle)

Reporting only

14. Test Items and Results

14.1 Conducted Emissions Measurement

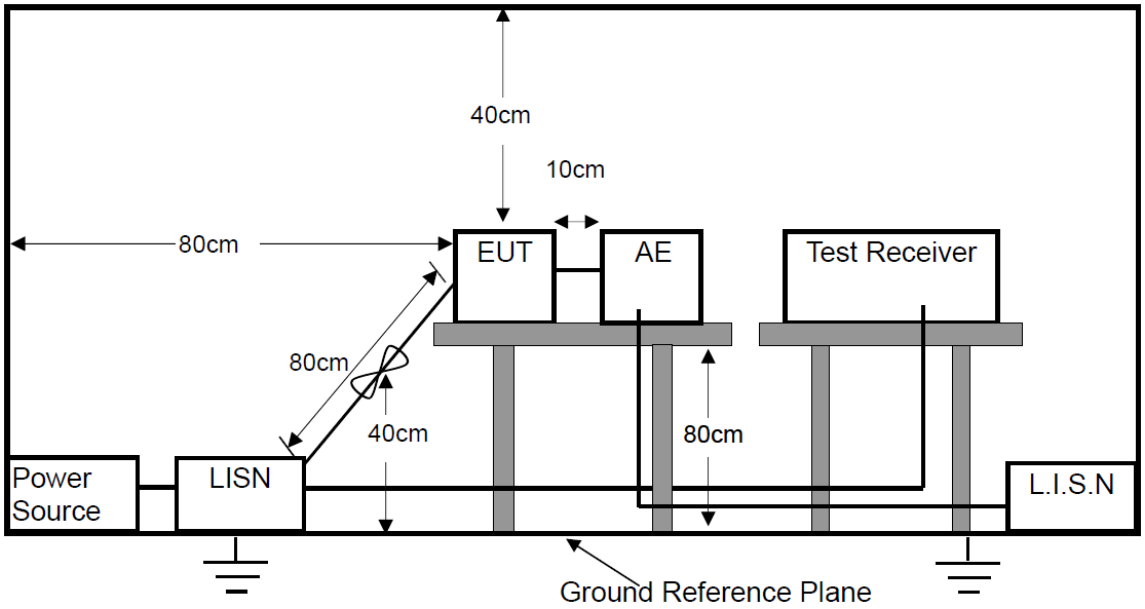
LIMITS

According to the requirements of FCC PART 15.207, the limits are as follows:

Frequency (MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

Note: 1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
2. The lower limit shall apply at the transition frequencies.
3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.

b. All I/O cables and support devices were positioned as per ANSI C63.10.

c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).

d. Connect all support devices to the other LISN and AAN, if needed.

e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

TEST RESULTS

Not Applicable

14.2 Maximum Conducted Output Power Measurement

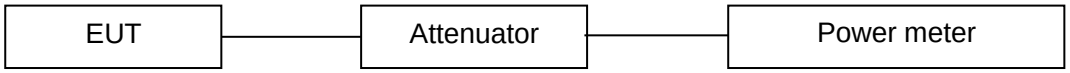
LIMITS

For system using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1 Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

ANSI C63.10 - 2013, Section 11.9.1.3
ANSI C63.10 - 2013, Section 11.9.2.3.2

TEST RESULTS

PASS

Please refer to the following table.

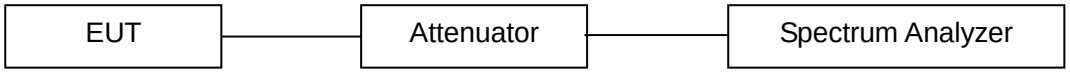
Channel	Frequency (MHz)	Data Rate (Mbps)	Peak Output Power (dBm)	Limit (dBm)	Result
IEEE 802.11b					
1	2412	1	12.46	≤30	PASS
6	2437	1	13.51	≤30	PASS
11	2462	1	13.91	≤30	PASS
IEEE 802.11g					
1	2412	6	12.87	≤30	PASS
6	2437	6	11.17	≤30	PASS
11	2462	6	11.60	≤30	PASS
IEEE 802.11n(HT20)					
1	2412	MCS0	13.29	≤30	PASS
6	2437	MCS0	14.20	≤30	PASS
11	2462	MCS0	14.63	≤30	PASS
Note: Duty Factor has considered during the test.					

14.3 6dB Bandwidth Measurement

LIMITS

The minimum 6dB bandwidth shall be at least 500 kHz

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB558074 (v05r02):

a. Set the RBW = 100KHz.

b. Set the VBW ≥ 3 x RBW

c. Set the Detector = peak.

d. Set the Sweep time = auto couple.

e. Set the Trace mode = max hold.

f. Allow trace to fully stabilize.

g. 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 dB relative to the maximum level measured in the fundamental emission.

TEST RESULTS

PASS

Please refer to the following tables.

Channel	Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	6dB Limit (MHz)	Result
IEEE 802.11b						
1	2412	1	8.114	14.198	>0.5	PASS
6	2437	1	8.111	13.926	>0.5	PASS
11	2462	1	8.111	13.950	>0.5	PASS
IEEE 802.11g						
1	2412	6	15.080	16.405	>0.5	PASS
6	2437	6	15.050	16.324	>0.5	PASS
11	2462	6	15.070	16.350	>0.5	PASS
IEEE 802.11n(HT20)						
1	2412	MCS0	15.090	17.642	>0.5	PASS
6	2437	MCS0	15.040	17.603	>0.5	PASS
11	2462	MCS0	15.060	17.627	>0.5	PASS
Note: 99% Bandwidth measurement results are just used for reporting.						

Test Plots of 6dB Bandwidth

IEEE 802.11b - 2412MHz

IEEE 802.11b - 2437MHz

IEEE 802.11b - 2462MHz

IEEE 802.11g - 2412MHz

IEEE 802.11g - 2437MHz

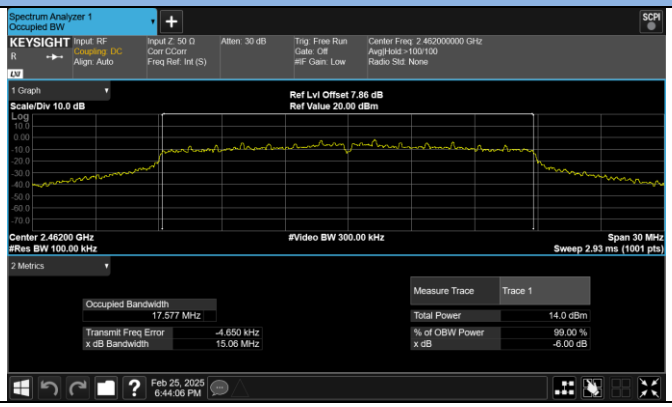
IEEE 802.11g - 2462MHz

Test Plots of 6dB Bandwidth

IEEE 802.11n(HT20) - 2412MHz

IEEE 802.11n(HT20) - 2437MHz

IEEE 802.11n(HT20) - 2462MHz



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Test Plots of 99% Bandwidth

IEEE 802.11b - 2412MHz

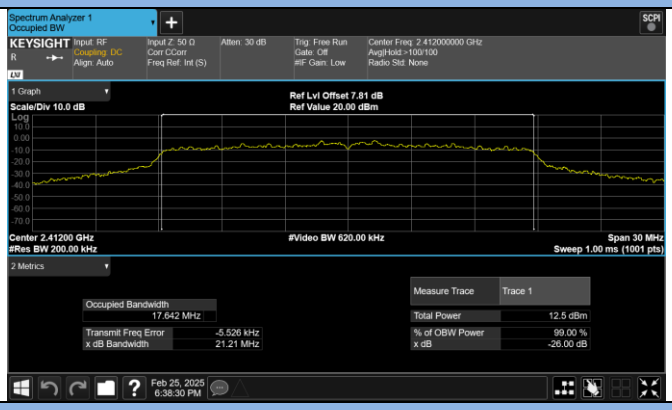
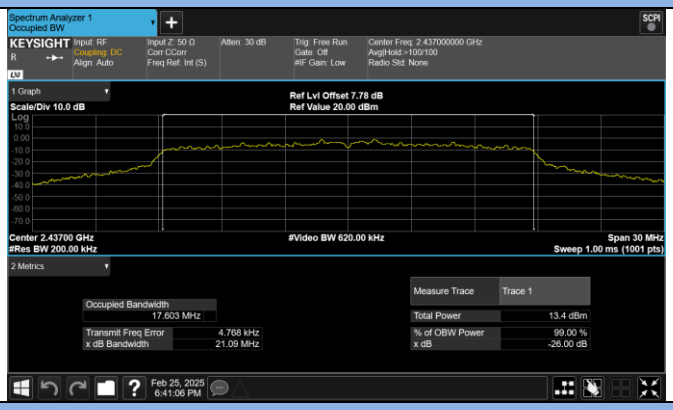
IEEE 802.11b - 2437MHz

IEEE 802.11b - 2462MHz

IEEE 802.11g - 2412MHz

IEEE 802.11g - 2437MHz

IEEE 802.11g - 2462MHz

Test Plots of 99% Bandwidth	
IEEE 802.11n(HT20) - 2412MHz	IEEE 802.11n(HT20) - 2437MHz
	
IEEE 802.11n(HT20) - 2462MHz	---
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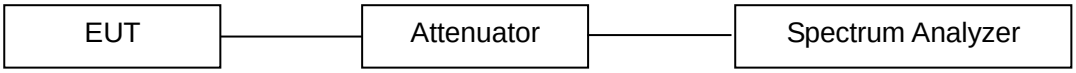
14.4 Power Spectral Density Measurement

LIMITS

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB558074 (v05r02):

a. Set analyzer center frequency to DTS channel center frequency.

b. Set the span to 1.5 times the DTS bandwidth.

c. Set the RBW to: 3 kHz ≤ RBW ≤ 100KHz

d. Set the VBW ≥ 3 x RBW.

e. Set the Detector = peak.

f. Set the Sweep time = auto couple.

g. Set the Trace mode = max hold.

h. Allow trace to fully stabilize.

i. Use the peak marker function to determine the maximum amplitude level within the RBW.

j. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST RESULTS

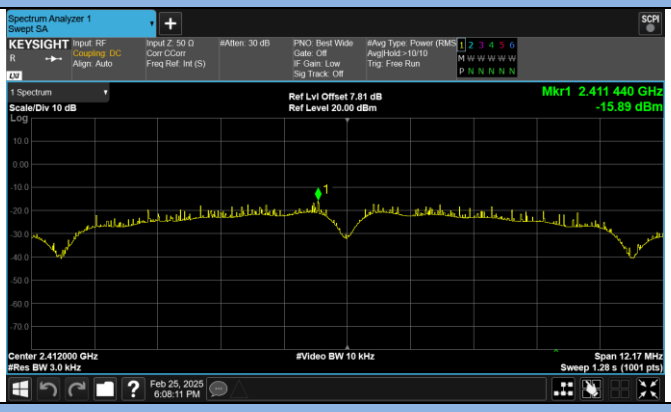
PASS

Please refer to the following table.

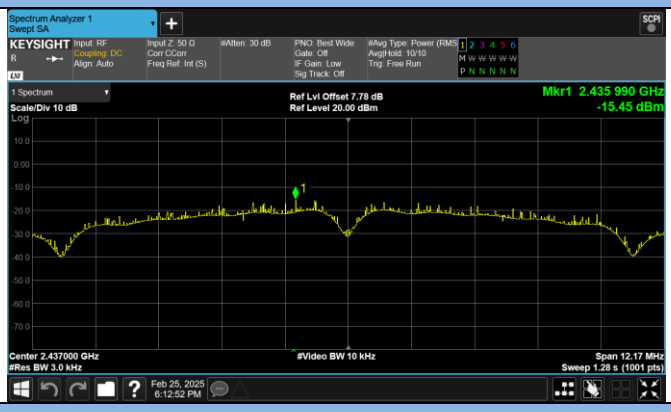
Channel	Frequency (MHz)	Data Rate (Mbps)	PSD dBm / 3kHz	Limit dBm / 3kHz	Result
IEEE 802.11b					
1	2412	1	-15.89	8	PASS
6	2437	1	-15.45	8	PASS
11	2462	1	-15.78	8	PASS
IEEE 802.11g					
1	2412	6	-20.91	8	PASS
6	2437	6	-22.00	8	PASS
11	2462	6	-21.98	8	PASS
IEEE 802.11n(HT20)					
1	2412	MCS0	-20.61	8	PASS
6	2437	MCS0	-19.13	8	PASS
11	2462	MCS0	-17.71	8	PASS

Test Plots of Power Spectral Density

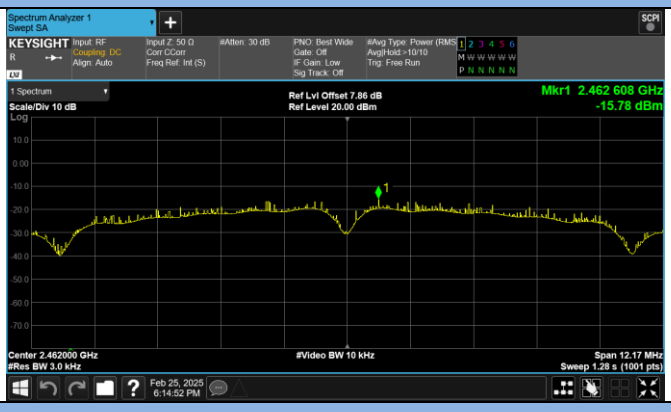
IEEE 802.11b - 2412MHz



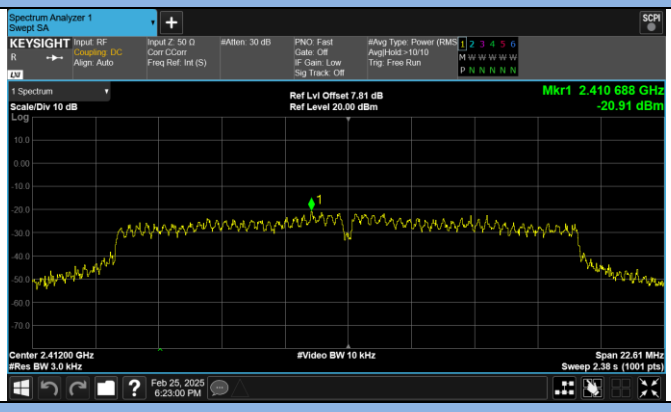
IEEE 802.11b - 2437MHz



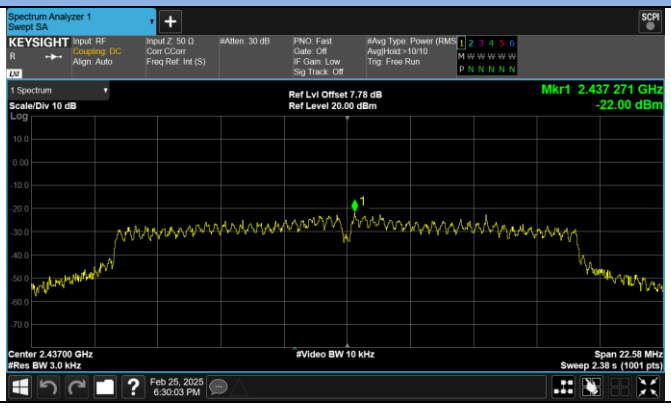
IEEE 802.11b - 2462MHz



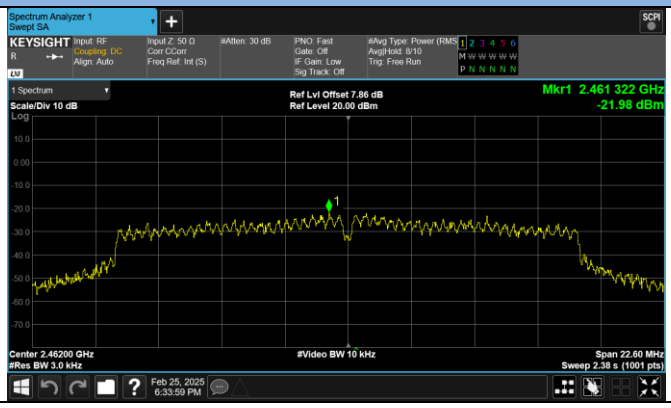
IEEE 802.11g - 2412MHz

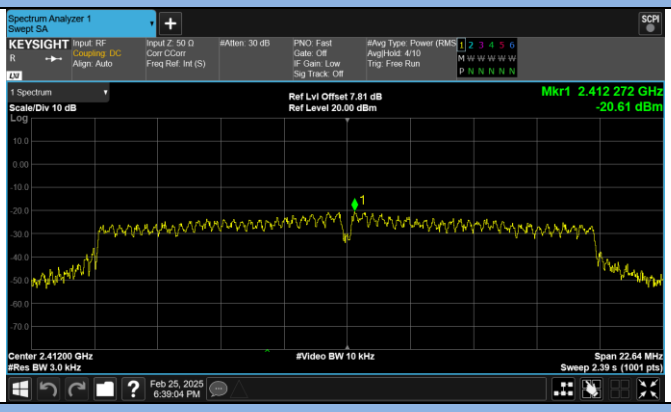
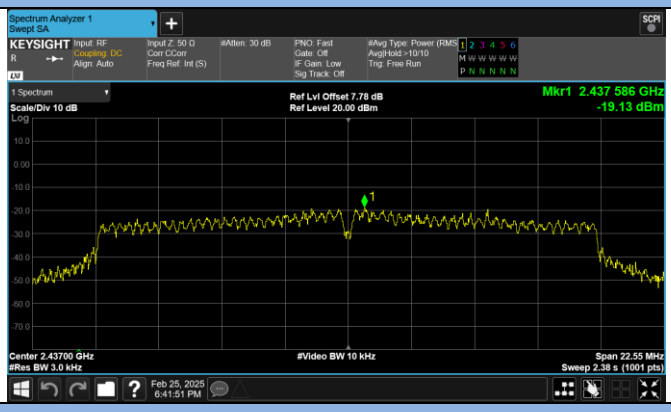
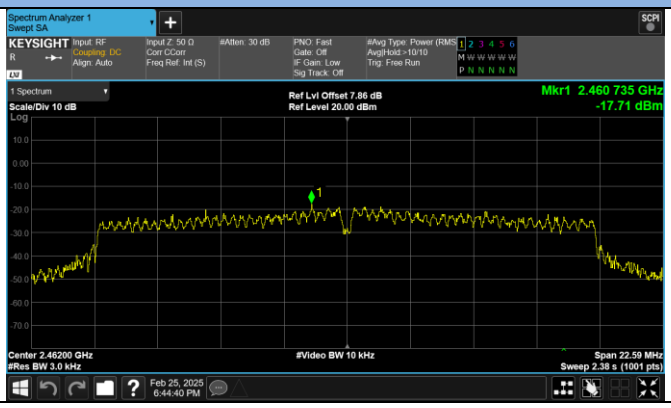


IEEE 802.11g - 2437MHz



IEEE 802.11g - 2462MHz



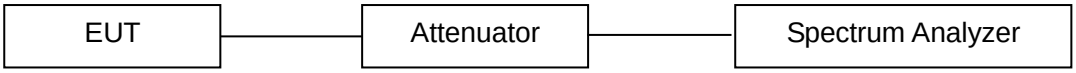
Test Plots of Power Spectral Density	
IEEE 802.11n(HT20) - 2412MHz	IEEE 802.11n(HT20) - 2437MHz
	
IEEE 802.11n(HT20) - 2462MHz	---
	Blank

14.5 Band Edge and Conducted Spurious Emissions Measurement

LIMITS

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

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to ANSI C63.10-2013, Section 11.11

Measurement Procedure REF

a. Set the RBW = 100 kHz.

b. Set the VBW ≥ 300 kHz.

c. Set the Detector = peak.

d. Set the Sweep time = auto couple.

e. Trace mode = max hold.

f. Allow trace to fully stabilize.

g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure OOBE

a. Set RBW = 100 kHz.

b. Set VBW ≥ 300 kHz.

c. Set the Detector = peak.

d. Set the Sweep = auto couple.

e. Set the Trace Mode = max hold.

f. Allow trace to fully stabilize.

g. Use the peak marker function to determine the maximum amplitude level.

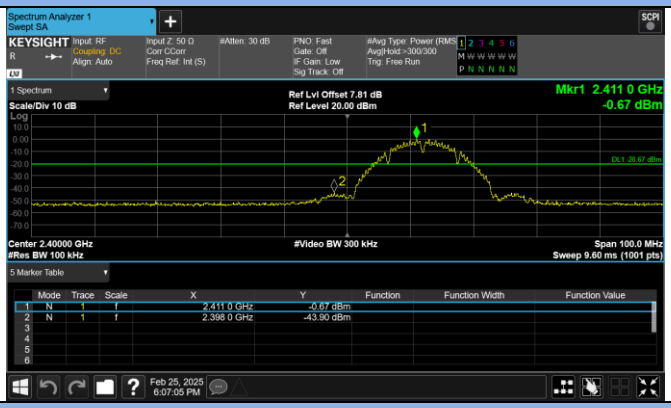
TEST RESULTS

PASS

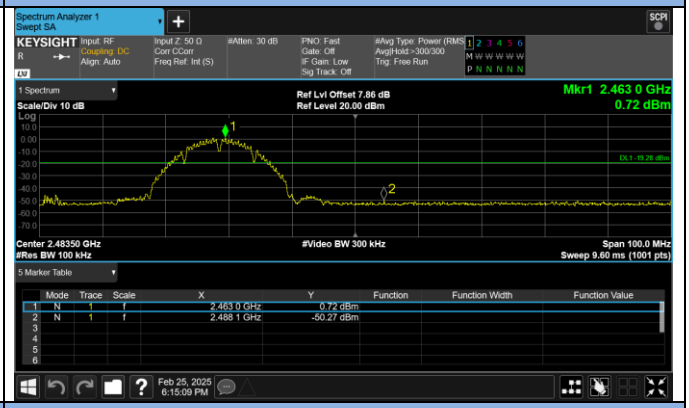
Please refer to the following test plots of the worst case.

Band Edge

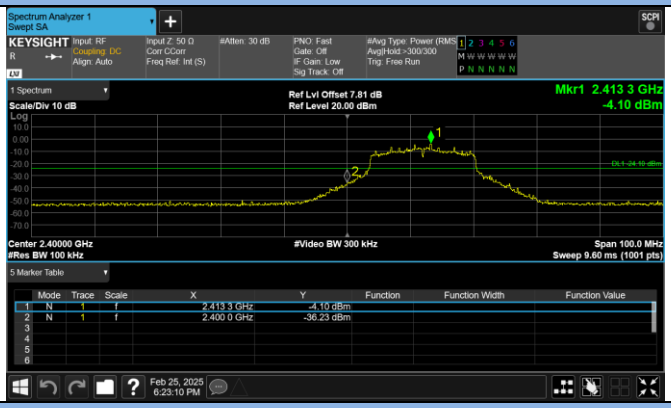
IEEE 802.11b / Low Channel



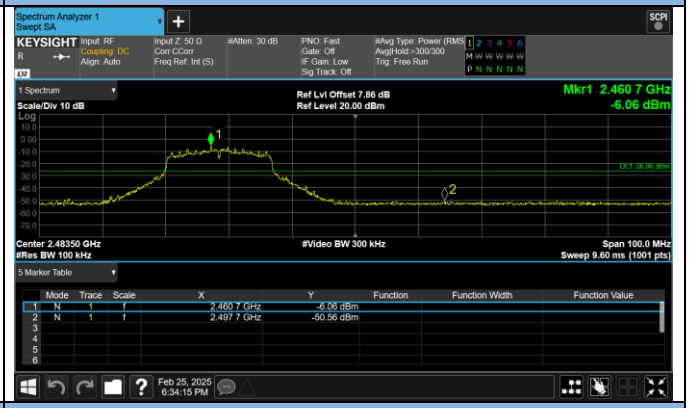
IEEE 802.11b / High Channel



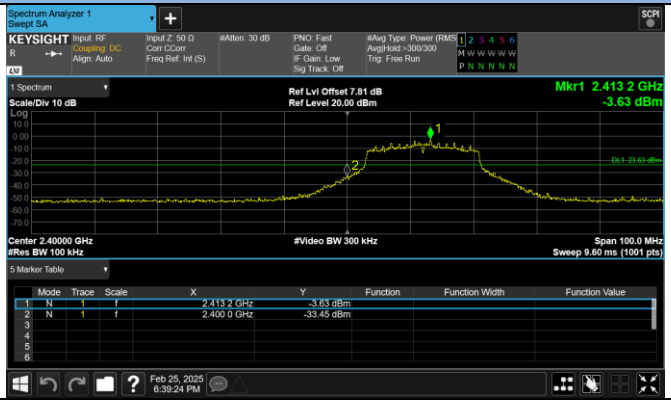
IEEE 802.11g / Low Channel



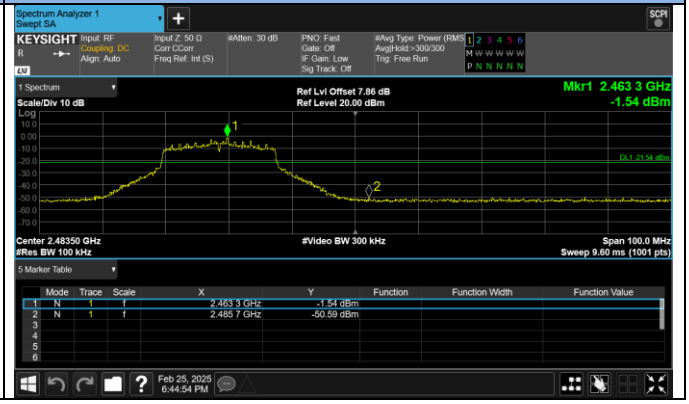
IEEE 802.11g / High Channel



IEEE 802.11n(HT20) / Low Channel

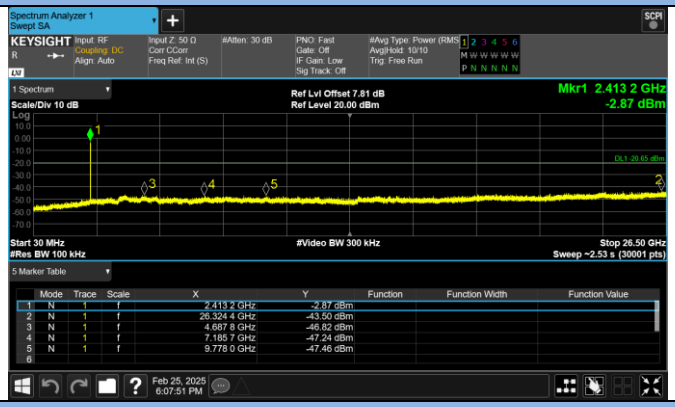


IEEE 802.11n(HT20) / High Channel

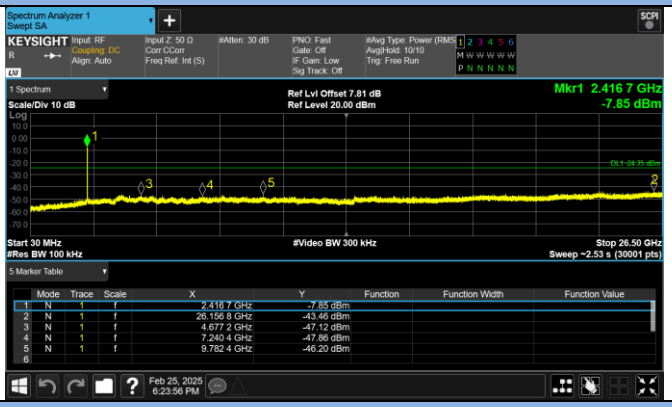


Conducted Spurious Emissions

802.11b / Low Channel / 30MHz~26.5GHz



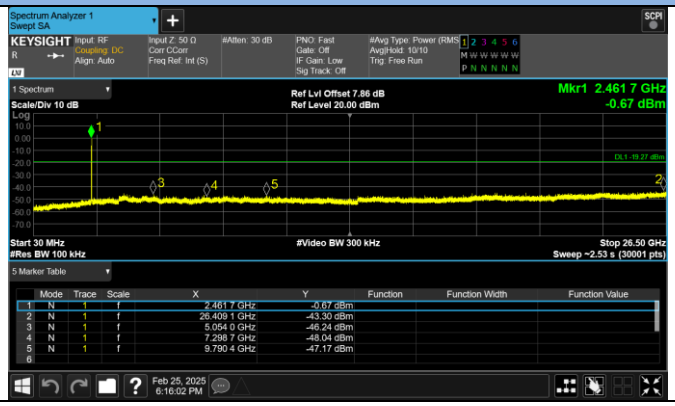
802.11g / Low Channel / 30MHz~26.5GHz



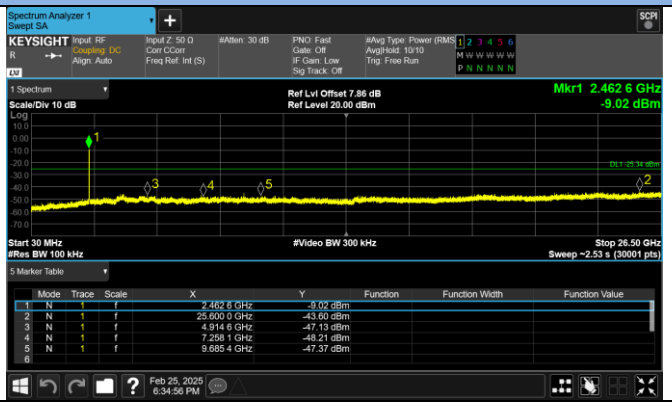
802.11b / Middle Channel / 30MHz~26.5GHz

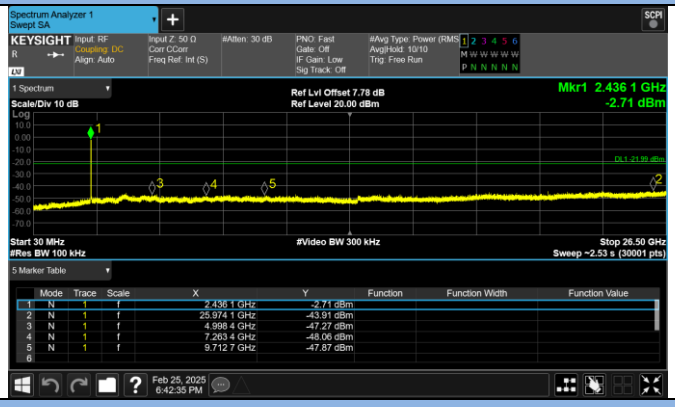
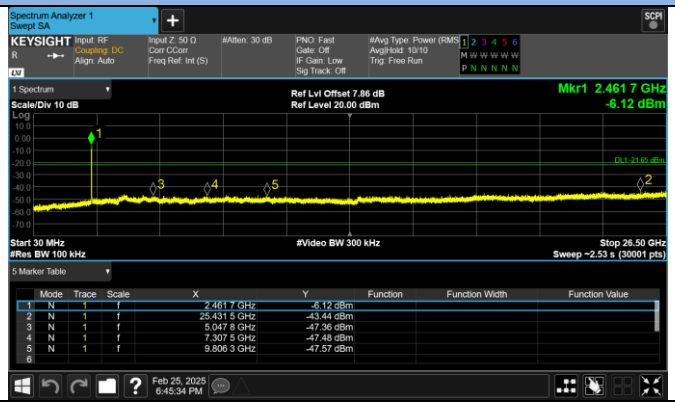
802.11g / Low Channel / 30MHz~26.5GHz

802.11b / High Channel / 30MHz~26.5GHz



802.11g / Low Channel / 30MHz~26.5GHz



Conducted Spurious Emissions	
802.11n(HT20) / Low Channel / 30MHz~26.5GHz	---
	Blank
802.11n(HT20) / Middle Channel / 30MHz~26.5GHz	---
	Blank
802.11n(HT20) / High Channel / 30MHz~26.5GHz	---
	Blank

14.6 Radiated Spurious Emissions and Restricted Bands Measurement

LIMIT of Radiated Band Edges and non-restricted bands

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

LIMIT of Restricted bands

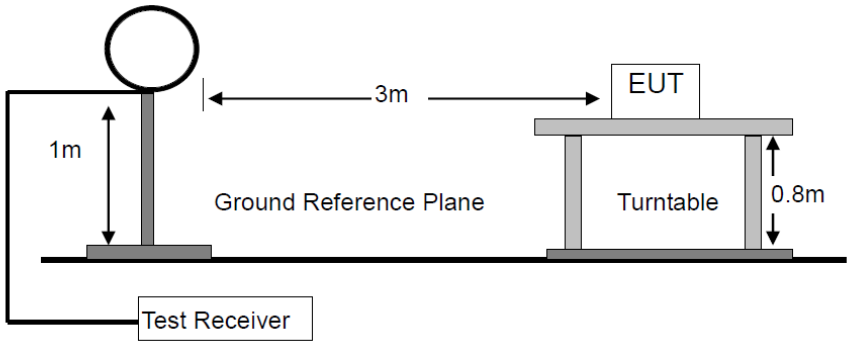
In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below:

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209)
		μV/m
0.009 ~ 0.490	300	2400/F(kHz)
0.490 ~ 1.705	30	24000/F(kHz)
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

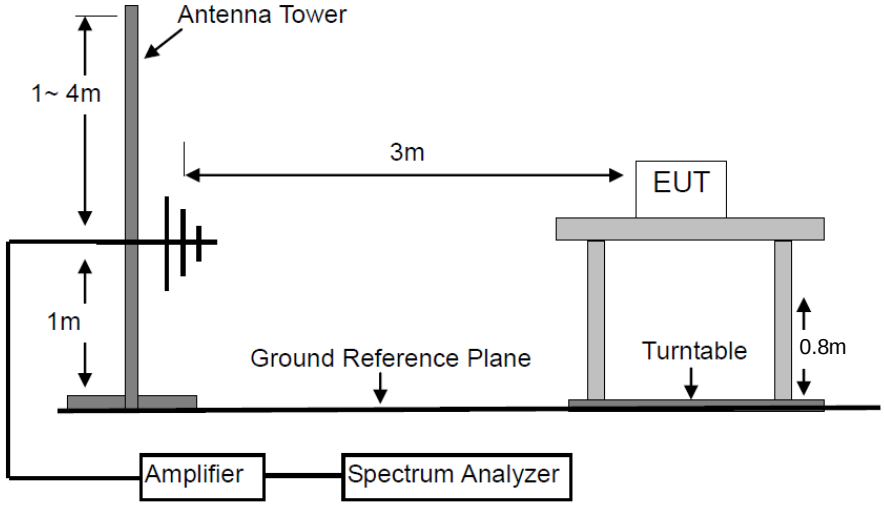
Remark:
(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
(4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
(5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

BLOCK DIAGRAM OF TEST SETUP

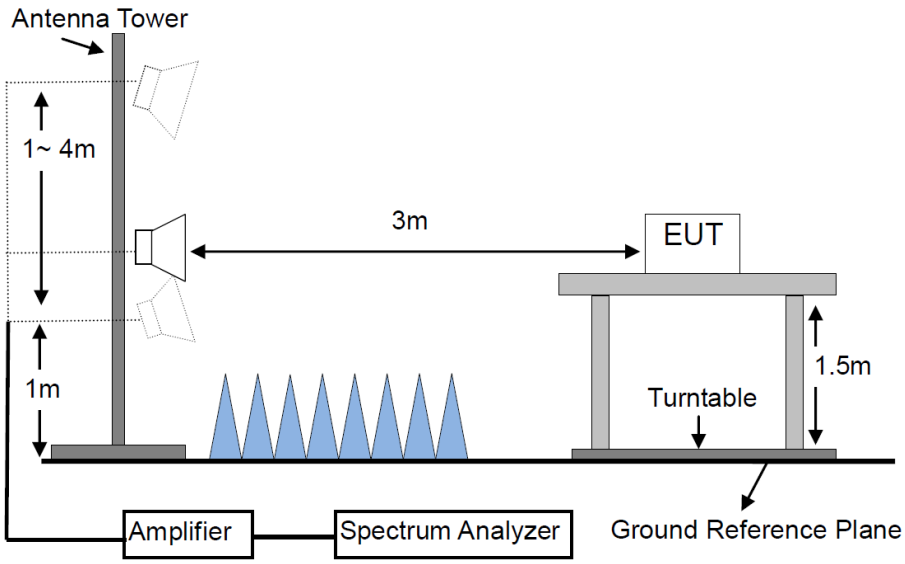
For Radiated Emission below 30MHz



For Radiated Emission 30-1000MHz



For Radiated Emission Above 1000MHz.



TEST PROCEDURES

a. Below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.

b. For the radiated emission test above 1GHz:

The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.

f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

g. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and packet type.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Detector	Resolution Bandwidth	Video Bandwidth
0.009 to 0.090	AVG	300 Hz	1 KHz
0.091 to 0.109	QP	300 Hz	1 KHz
0.110 to 0.490	AVG	300 Hz / 10 KHz	1 KHz / 30 KHz
0.15 to 30	QP, AVG	10 KHz	30 KHz
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	10 Hz

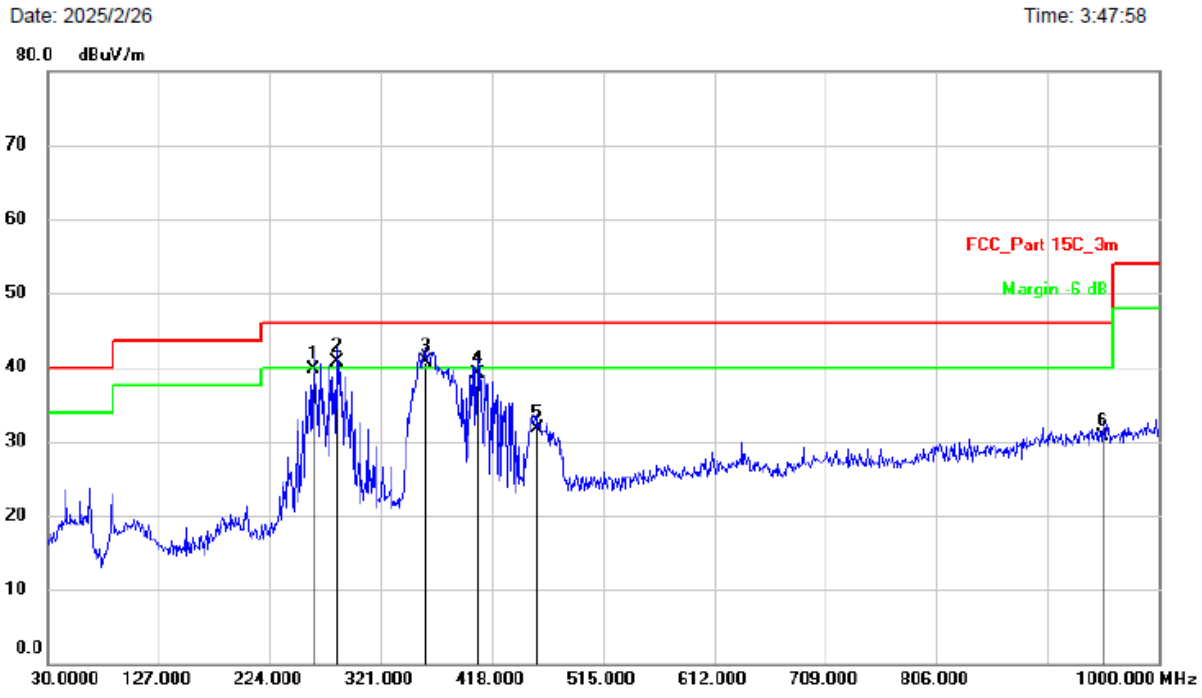
TEST RESULTS

PASS

Please refer to the following pages of the worst case.

M/N: 71U0 (GEX w/DAB version)	Testing Voltage: DC 13.5V
Polarization: Horizontal	Detector: QP
Test Mode: 1 (IEEE 802.11n20 High channel)	Distance: 3m

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		261.8299	45.76	-6.13	39.63	46.00	-6.37	QP	
2	*	282.2000	46.62	-5.84	40.78	46.00	-5.22	QP	
3	!	359.8000	44.66	-4.01	40.65	46.00	-5.35	QP	
4		405.3900	42.31	-3.25	39.06	46.00	-6.94	QP	
5		456.8000	34.05	-2.44	31.61	46.00	-14.39	QP	
6		951.5000	24.47	6.28	30.75	46.00	-15.25	QP	

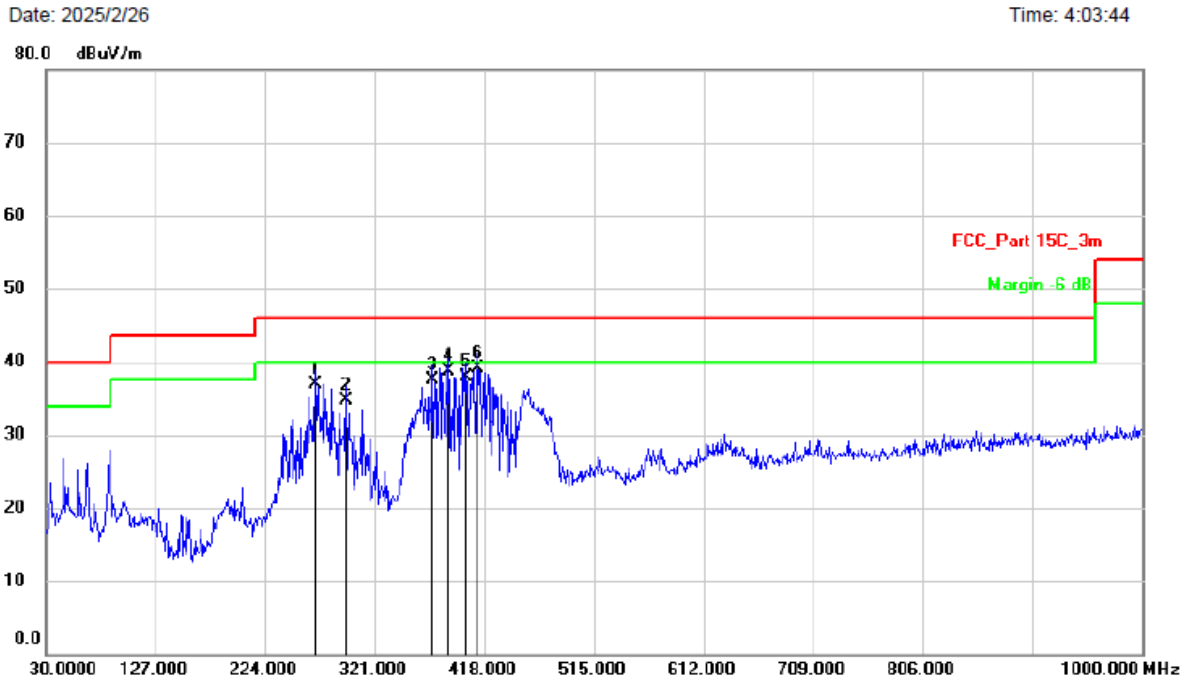
Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

.

M/N: 71U0 (GEX w/DAB version)	Testing Voltage: DC 13.5V
Polarization: Vertical	Detector: QP
Test Mode: 1 (IEEE 802.11n20 High channel)	Distance: 3m

Radiated Emission Measurement

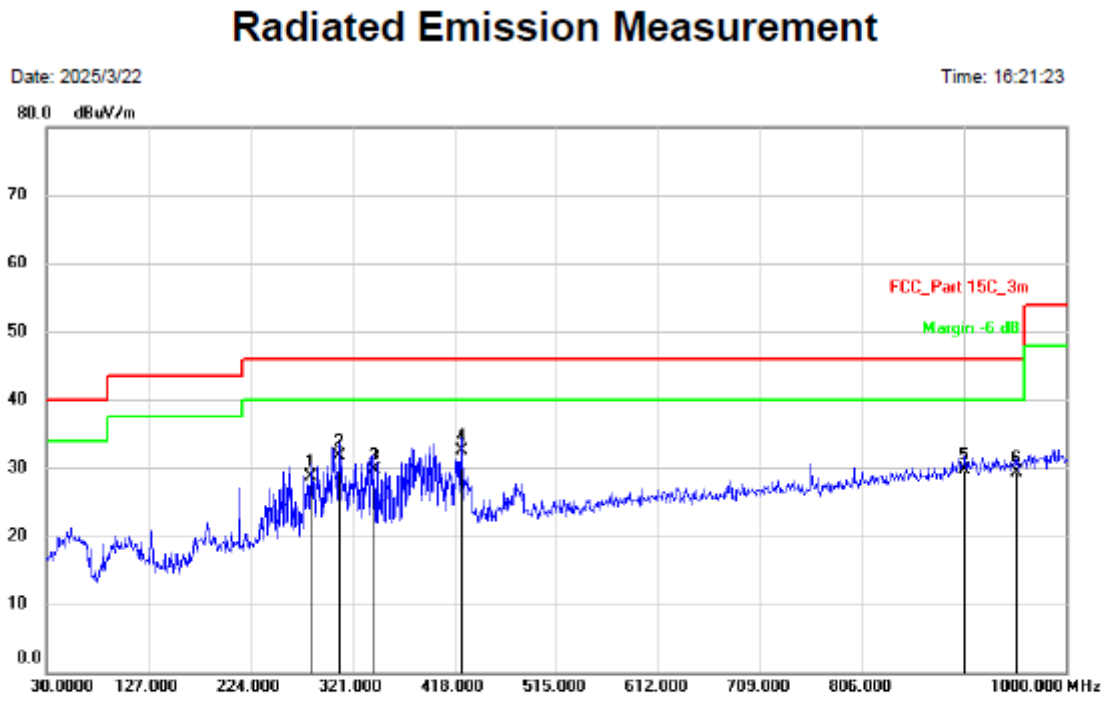


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		268.6200	43.95	-7.03	36.92	46.00	-9.08	QP	
2		295.7800	41.35	-6.60	34.75	46.00	-11.25	QP	
3		372.4100	42.40	-4.84	37.56	46.00	-8.44	QP	
4		385.9900	43.24	-4.62	38.62	46.00	-7.38	QP	
5		401.5100	42.22	-4.30	37.92	46.00	-8.08	QP	
6	*	412.1800	43.25	-4.12	39.13	46.00	-6.87	QP	

Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

M/N: 71U0 (GEX w/DAB version)	Testing Voltage: DC 13.5V
Polarization: Horizontal	Detector: QP
Test Mode: 2	Distance: 3m



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		281.2300	34.56	-5.86	28.70	46.00	-17.30	QP	
2		308.3900	36.99	-5.29	31.70	46.00	-14.30	QP	
3		342.3400	34.09	-4.29	29.80	46.00	-16.20	QP	
4	*	424.7900	35.44	-2.94	32.50	46.00	-13.50	QP	
5		903.9700	23.50	6.20	29.70	46.00	-16.30	QP	
6		952.4700	23.02	6.28	29.30	46.00	-16.70	QP	

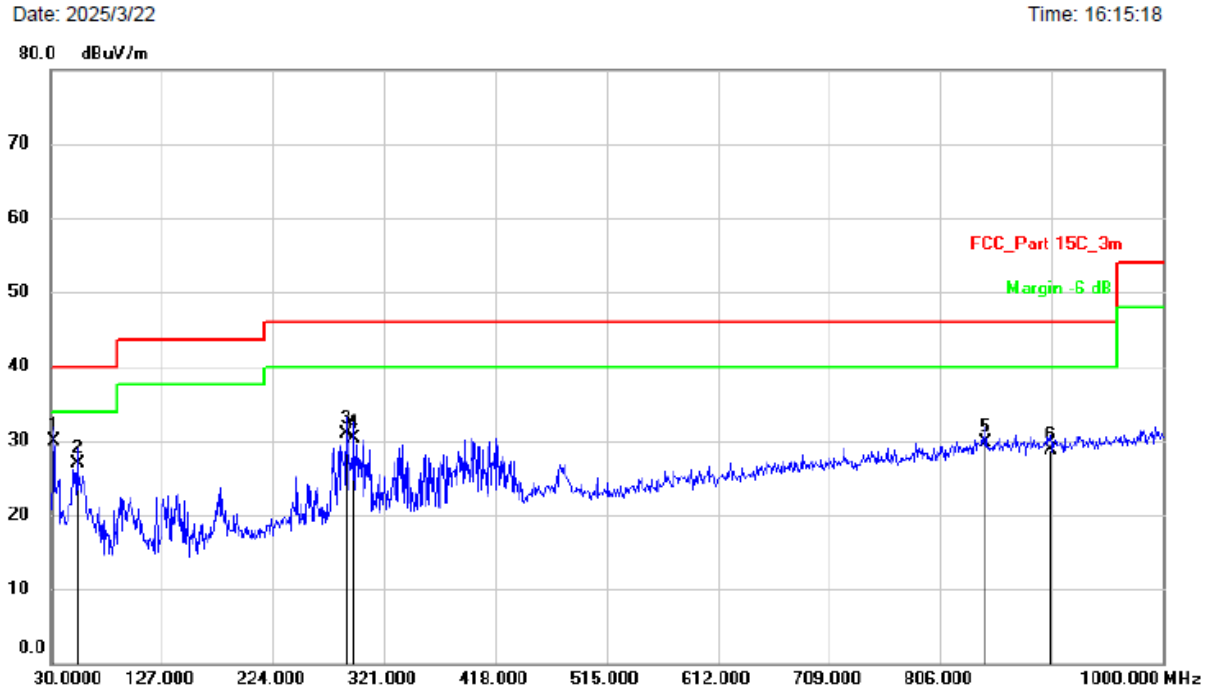
Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

.

M/N: 71U0 (GEX w/DAB version)	Testing Voltage: DC 13.5V
Polarization: Vertical	Detector: QP
Test Mode: 2	Distance: 3m

Radiated Emission Measurement



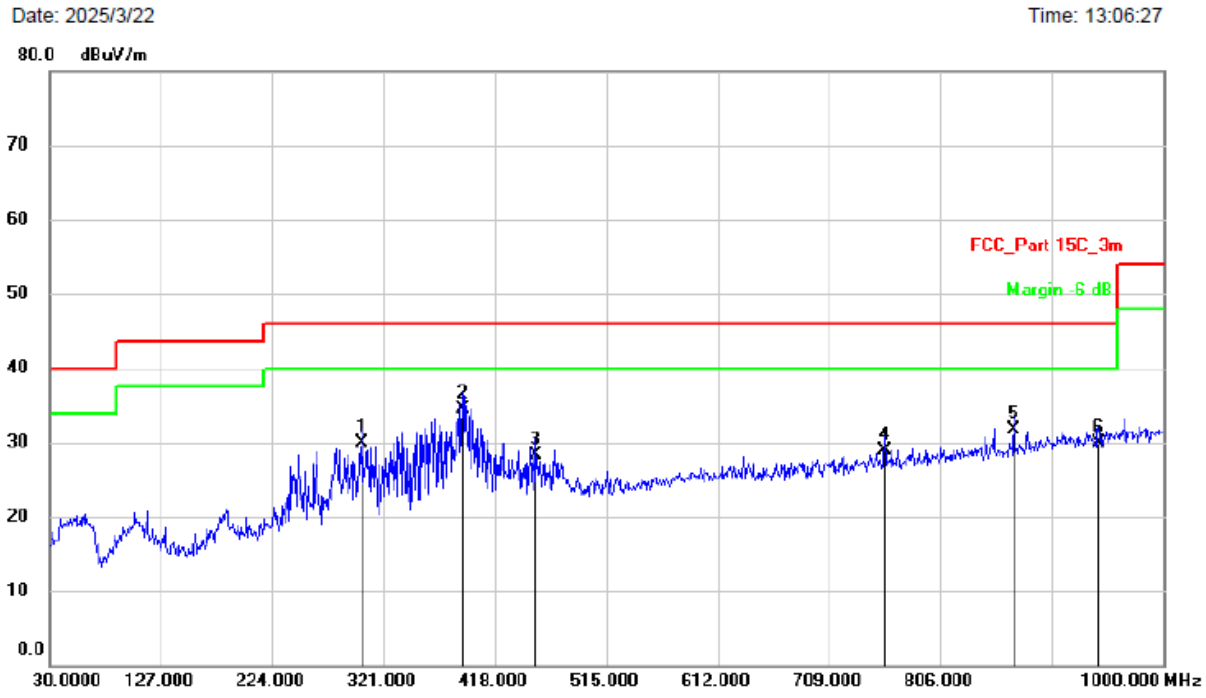
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	32.9100	39.39	-9.49	29.90	40.00	-10.10	QP	
2		53.2800	34.37	-7.47	26.90	40.00	-13.10	QP	
3		288.0200	37.76	-6.76	31.00	46.00	-15.00	QP	
4		294.8100	37.02	-6.62	30.40	46.00	-15.60	QP	
5		845.7700	25.08	4.72	29.80	46.00	-16.20	QP	
6		902.0300	23.74	4.96	28.70	46.00	-17.30	QP	

Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

M/N: 71U0 (IND version)	Testing Voltage: DC 13.5V
Polarization: Horizontal	Detector: QP
Test Mode: 1 (IEEE 802.11n20 High channel)	Distance: 3m

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		302.5700	35.34	-5.44	29.90	46.00	-16.10	QP	
2	*	389.8700	38.14	-3.54	34.60	46.00	-11.40	QP	
3		452.9200	30.89	-2.49	28.40	46.00	-17.60	QP	
4		757.5000	25.73	3.17	28.90	46.00	-17.10	QP	
5		870.0200	26.79	4.91	31.70	46.00	-14.30	QP	
6		943.7400	23.74	6.26	30.00	46.00	-16.00	QP	

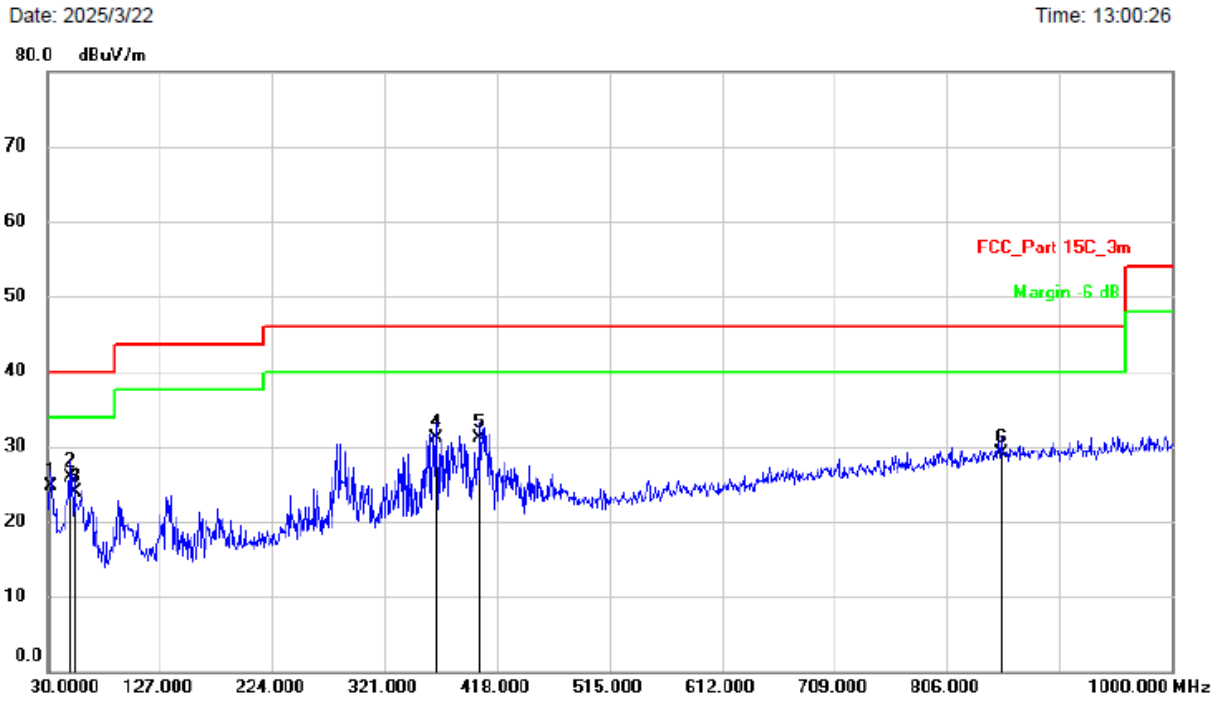
Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

.

M/N: 71U0 (IND version)	Testing Voltage: DC 13.5V
Polarization: Vertical	Detector: QP
Test Mode: 1 (IEEE 802.11n20 High channel)	Distance: 3m

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		32.9100	34.29	-9.49	24.80	40.00	-15.20	QP	
2	*	49.4000	33.00	-7.00	26.00	40.00	-14.00	QP	
3		53.2800	31.47	-7.47	24.00	40.00	-16.00	QP	
4		365.6200	36.03	-4.93	31.10	46.00	-14.90	QP	
5		403.4500	35.38	-4.28	31.10	46.00	-14.90	QP	
6		852.5600	24.38	4.82	29.20	46.00	-16.80	QP	

Note 1: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Note 2: *:Maximum data x:Over limit !:over margin

Modulation: TX (IEEE 802.11n20, the worst case)				Test Result: PASS			Test frequency range: 1-25GHz			
Freq. (MHz)	Ant. Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV/m)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
Operation Mode: TX Mode (Low)										
4824	H	45.52	32.12	6.38	51.90	38.50	74.00	54.00	-22.10	-15.50
7236	H	46.45	31.78	10.48	56.93	42.26	74.00	54.00	-17.07	-11.74

4824	V	45.43	31.36	6.38	51.81	37.74	74.00	54.00	-22.19	-16.26
7236	V	46.28	31.31	10.48	56.76	41.79	74.00	54.00	-17.24	-12.21

Operation Mode: TX Mode (Mid)										
4874	H	45.40	32.24	6.56	51.96	38.80	74.00	54.00	-22.04	-15.20
7311	H	46.59	32.02	10.53	57.12	42.55	74.00	54.00	-16.88	-11.45

4874	V	45.30	31.4	6.56	51.86	37.96	74.00	54.00	-22.14	-16.04
7311	V	46.08	31.83	10.53	56.61	42.36	74.00	54.00	-17.39	-11.64

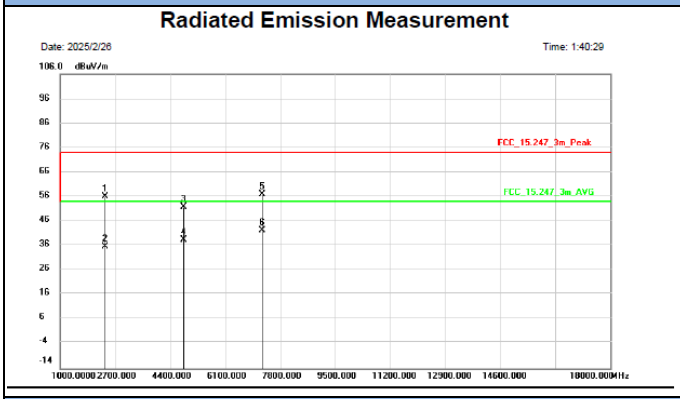
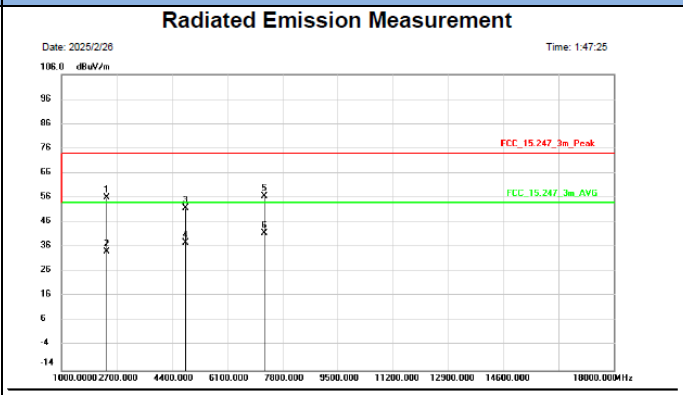
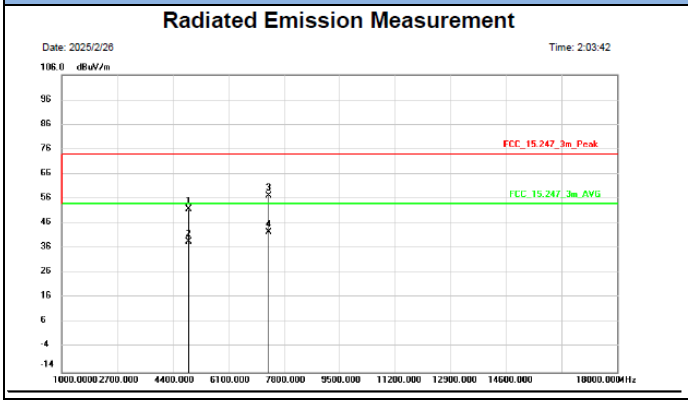
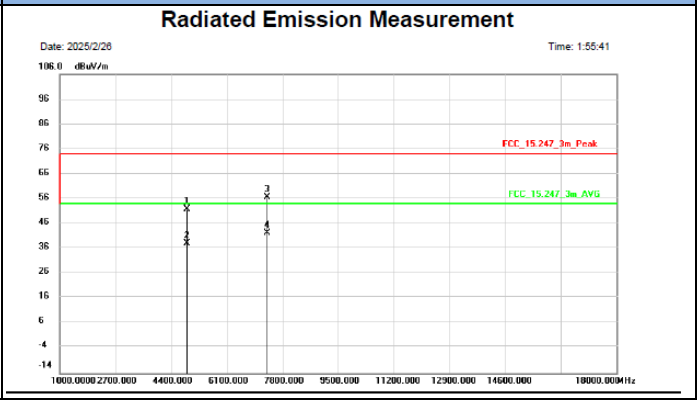
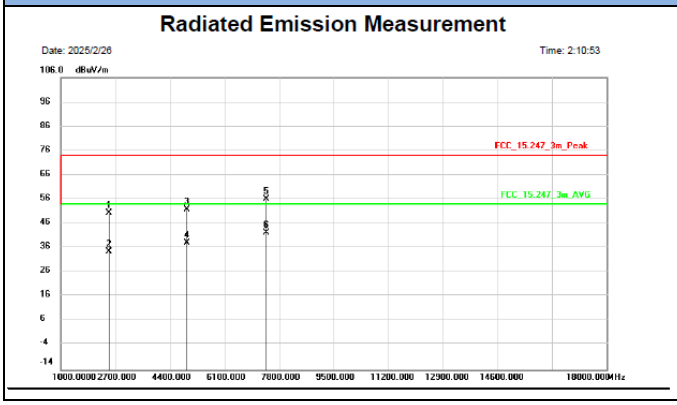
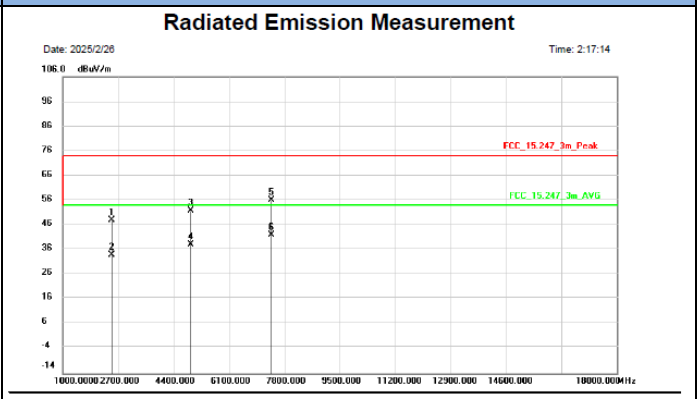
Operation Mode: TX Mode (High)										
4924	H	45.03	31.35	6.76	51.79	38.11	74.00	54.00	-22.21	-15.89
7386	H	45.58	31.63	10.57	56.15	42.20	74.00	54.00	-17.85	-11.80

4924	V	45.08	31.16	6.76	51.84	37.92	74.00	54.00	-22.16	-16.08
7386	V	45.42	31.37	10.57	55.99	41.94	74.00	54.00	-18.01	-12.06

Spurious Emission in restricted band:										
2390.000	H	55.97	35.55	0.13	56.10	35.68	74.00	54.00	-17.90	-18.32
2390.000	V	55.93	33.93	0.13	56.06	34.06	74.00	54.00	-17.94	-19.94
2483.500	H	50.07	34.10	0.34	50.41	34.44	74.00	54.00	-23.59	-19.56
2483.500	V	47.53	33.66	0.34	47.87	34.00	74.00	54.00	-26.13	-20.00

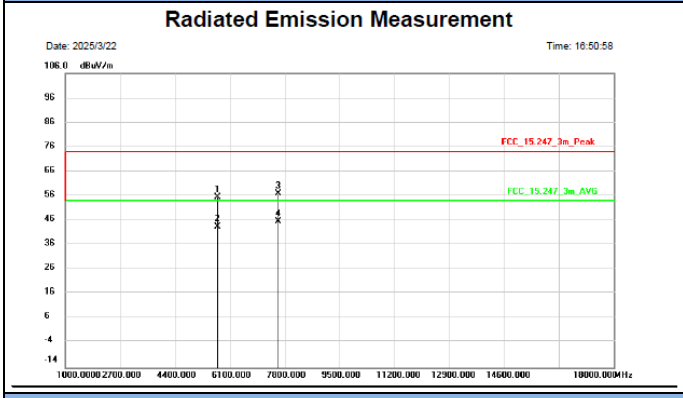
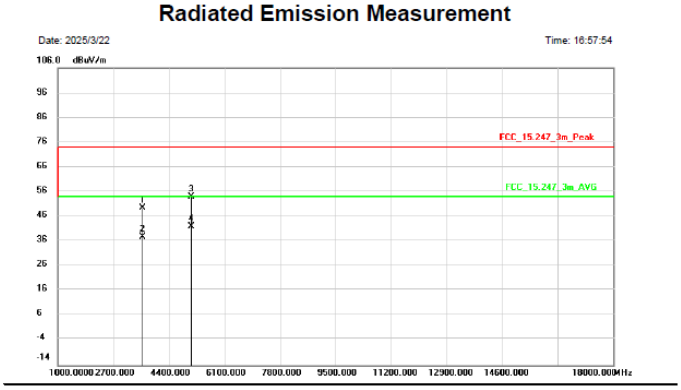
Remark: 1. Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits.

2. Others emissions are attenuated 20dB below the limits, so it does not record in report.

Low Channel / Horizontal	Low Channel / Vertical
	
Mid Channel / Horizontal	**Mid Channel / Vertical**
	
High Channel / Horizontal	**High Channel / Vertical**
	

Test Mode: 2				Test Result: PASS			Test frequency range: 1-25GHz			
Freq. (MHz)	Ant. Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV/m)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
Operation Mode: TX Mode										
5726	H	48.62	36.68	6.90	55.52	43.58	74.00	54.00	-18.48	-10.42
7613	H	46.19	34.74	10.85	57.04	45.59	74.00	54.00	-16.96	-8.41
3584	V	46.41	34.72	2.92	49.33	37.64	74.00	54.00	-24.67	-16.36
5080	V	46.99	34.93	6.97	53.96	41.90	74.00	54.00	-20.04	-12.10

Remark: 1. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits.

Horizontal	
	---
Vertical	
	---

14.7 Antenna Requirement

STANDARD APPLICABLE

According to of FCC part 15C section 15.203 and 15.247:

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, 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.

Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

ANTENNA CONNECTED CONSTRUCTION

The antenna is chip antenna that no antenna other than furnished by the responsible party shall be used with the device, and the best case gain of the antenna is 2.79 dBi, therefore, the antenna is considered to meet the requirement.

15. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 12, 2025	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2024	2 Year
3.	Spectrum Analyzer	Keysight	N9010B	MY62170254	Aug. 14, 2024	1 Year
4.	Spectrum Analyzer	Keysight	N9020A	MY54200831	Mar. 12, 2025	1 Year
5.	Horn Antenna+Amplifier	COM-Power	AHA-840	10100020	Mar. 23, 2024	2 Year
6.	Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2024	2 Year
7.	Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 12, 2025	1 Year
8.	Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 12, 2025	1 Year
9.	Power Meter	Agilent	N1912A	MY41497159	Aug.14, 2024	1 Year
10.	Power Sensor	Agilent	N1921A	MY48251036	Aug.14, 2024	1 Year
11.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	Mar. 23, 2024	2 Year
12.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 12, 2025	1 Year
13.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 12, 2025	1 Year
14.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	893606/014	Mar. 12, 2025	1 Year
15.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 12, 2025	1 Year
16.	Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	Mar. 12, 2025	1 Year
17.	DC Source	Maynuo	MY8811	N/A	Mar. 12, 2025	1 Year
18.	Temporary antenna connector	TESCOM	SS402	N/A	N/A	N/A
19.	Chamber	SAEMC	9*7*7m	N/A	Apr. 21, 2023	2 Year
20.	Test Software	EZ	EZ_EMC	N/A	N/A	N/A

Note: For photographs of EUT and measurement, please refer to appendix in separate documents.

---End---