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FCC 15.247 & RSS-247
2.4GHz Test Report

for

FUTABA Corporation

1080 Yabutsuka Chosei-mura Chosei-gun, Chiba-ken, 299-4395 Japan

Product Name	**:**	**Radio Control Module**
Model Name	**:**	**FEX12TB**
Brand	**:**	**Futaba**
FCC ID	**:**	**AZP-FEX12T**
IC	**:**	**2914D-FEX12T**
Prepared by:	**:**	**AUDIX Technology Corporation, EMC Department**

Testing Laboratory
1724

The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

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TEST REPORT

Applicant : FUTABA Corporation
Manufacturer : FUTABA Corporation

EUT Description
(1) Product : Radio Control Module
(2) Model : FEX12TB
(3) Brand : Futaba
(4) Power Supply : DC 5V

Applicable Standards:

Title 47 CFR FCC Part 15 Subpart C
RSS-Gen Issue 6, July 2026
RSS-247 Issue 4, July 2025

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.
Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2026. 08. 27

Reviewed by:  (Annie Yu/Section Manager)

Approved by:  (Johnny Hsueh/Deputy Manager)

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1. REVISION RECORD OF TEST REPORT

Edition No	Issued Date	Revision Summary	Report Number
0	2026. 08. 27	Original Report	EM-F260405

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2. Summary of TEST results

Rule		Description	Results
FCC	**IC**		
15.207	RSS-Gen §8.8	Conducted Emission	**PASS**
15.247(d)/15.205	RSS-Gen §8.9 RSS-247 §5.5	Radiated Band Edge and Radiated Spurious Emission	**PASS**
15.247(a)(1)	RSS-247 §6.2.3.1(a)	20dB/Occupied Bandwidth	**PASS**
15.247(a)(1)	RSS-247 §6.2.3.1(a)	Carrier Frequency Separation	**PASS**
15.247(a)(1)(iii)	RSS-247 §6.2.3.1(b)	Time of Occupancy	**PASS**
15.247(a)(1)(iii)	RSS-247 §6.2.3.1(b)	Number of Hopping Channels	**PASS**
15.247(b)(1)	RSS-247 §6.2.3.2	Maximum Peak Output Power	**PASS**
15.247(d)	RSS-247 §6.6	Conducted Band Edges and Conducted Spurious Emission	**PASS**
Note: The uncertainties value is not used in determining the result.			

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3. GENERAL INFORMATION

The EUT's information described in this section are all provided by the applicant.

3.1. Description of Application

Applicant	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun, Chiba-ken, 299-4395 Japan
Manufacturer	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun, Chiba-ken, 299-4395 Japan
Product	Radio Control Module
Model	FEX12TB
Brand	Futaba

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3.2. Description of EUT

Test Model	FEX12TB
Serial Number	N/A
Power Rating	DC 5V
Software Version	N/A
RF Features	Frequency-Hopping Spread-Spectrum
Transmit Type	1T1R
Sample Status	Trial sample
Test Sample	Sample No. / Test Item / Firmware: 01 / AC Conduction, RE, RF Conducted / N/A
Date of Receipt	2026. 07. 08
Date of Test	2026. 07. 15 ~ 08. 25
Interface Ports of EUT	None
Accessories Supplied	None

Note: Pursuant ISO 17025:2017 section 7.8.2, Audix Technology Corp. does not assume responsibility for all EUT's information including RF features, transmit type, antenna information…etc are provided by customer.

3.3. Reference Test Guidance

ANSI C63.10-2020 & ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024

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3.4. Antenna Information

No.	Antenna Part Number	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
1.	STDANTEMD-013	Sansei	1 /2 λ dipole type	2400-2500	1.9

Note: The antenna is compliance with FCC Part 15 Section § 15.203 requirement.

3.5. UT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
Frequency-Hopping Spread-Spectrum	2407.500-2467.500	31	FHSS	128.143

Channel List			
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
01	2407.5	16	2437.5
02	2409.5	17	2439.5
03	2411.5	18	2441.5
04	2413.5	19	2443.5
05	2415.5	20	2445.5
06	2417.5	21	2447.5
07	2419.5	22	2449.5
08	2421.5	23	2451.5
09	2423.5	24	2453.5
10	2425.5	25	2455.5
11	2427.5	26	2457.5
12	2429.5	27	2459.5
13	2431.5	28	2461.5
14	2433.5	29	2463.5
15	2435.5	30	2465.5
		31	2467.5

3.6. Description of Key Components

None

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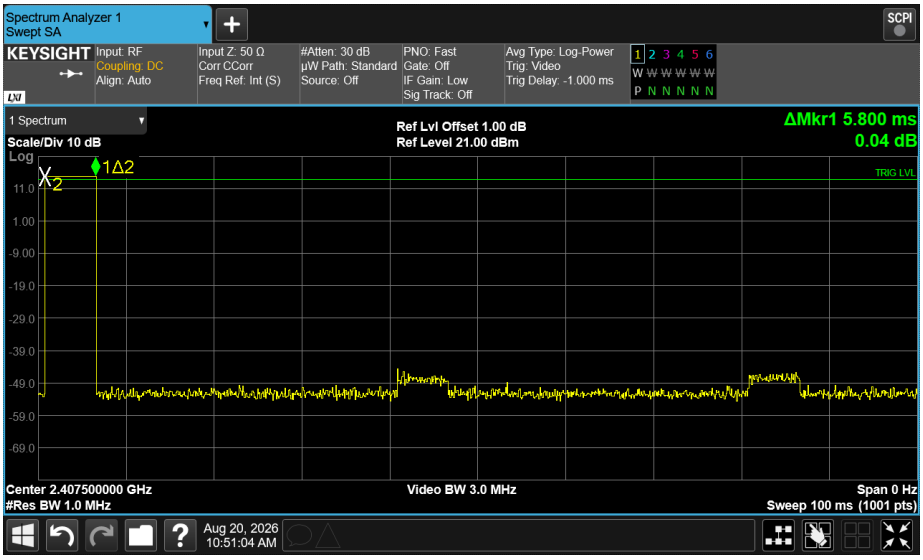
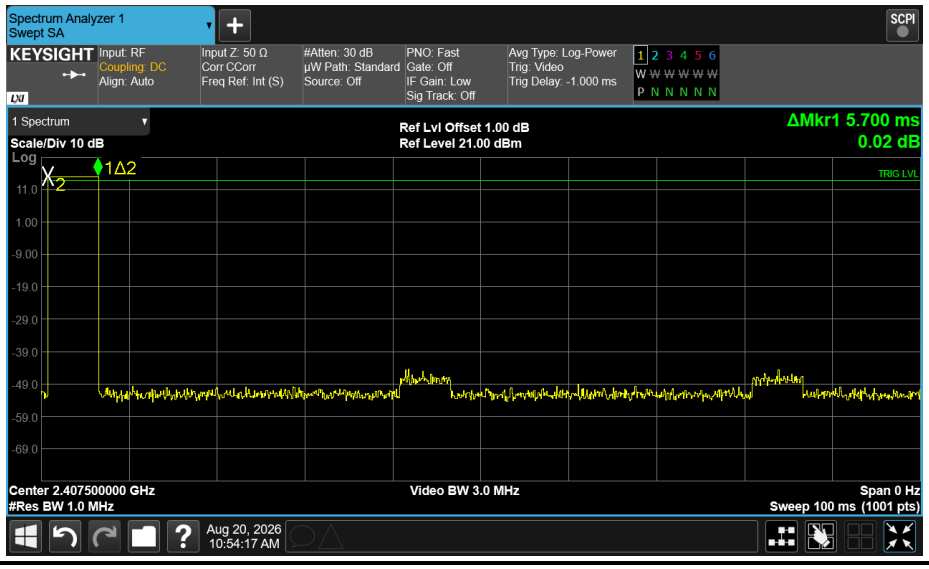
3.7. Test Configuration

Antenna	TX_{on} (ms)	TX_{on+off}(ms)	Duty Cycle Correction Factor (DCCF) (dB)
A	5.800	100	-24.73
B	5.700	100	-24.88

Note: Duty Cycle Correction Factor (DCCF)= $20\log(TX_{on}/TX_{on+off})$
"TX_{on+off}" means the period of the pulse train or 100ms if the pulse train length is greater than.

Mode	TX_{on} (ms)
Antenna A	
Antenna B	

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Item	Mode
AC Conduction Test Case	Operation

Item		Antenna	Test Channel
Radiated Test Case	Radiated Spurious Emission (30MHz~1GHz)Note 1,2	A	1
		B	1
	Radiated Band Edge Note1	A	1/31
		B	1/31
	Radiated Spurious Emission Note1 & 2 & 3	A	1/15/31
		B	1/15/31

Item		Antenna	Test Channel
Conducted Test Case	20dB/Occupied Bandwidth	A	1/15/31
		B	1/15/31
	Carrier Frequency Separation	A	1/15/31
		B	1/15/31
	Time of Occupancy	A	1/15/31
		B	1/15/31
	Number of Hopping Channels	A	15
		B	15
	Maximum Peak Output Power	A	1/15/31
		B	1/15/31
	Band Edges	A	1/31
		B	1/31
	Spurious Emission	A	1/15/31
		B	1/15/31

Note 1: ☑Mobile Device ☐Portable Device and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow: ☑Lie ☐Side ☐Stand

Note 2: We performed testing of the highest and lowest data rate.

Note 3: In accordance with ANSI C63.10-2020, Clause 6.3.4, both tabular data and spectral plots are provided. Since multiple operating modes were evaluated, only the worst-case spectral plots representing the maximum emission levels for each mode in each operating band are included in this report.

3.8. Output Power Setting

Centre Frequency (MHz)	Power Setting	
	Antenna A	Antenna B
2407.5	Default	Default
2437.5	Default	Default
2467.5	Default	Default

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3.9. Tested Supporting System List

3.9.1. Support Peripheral Unit

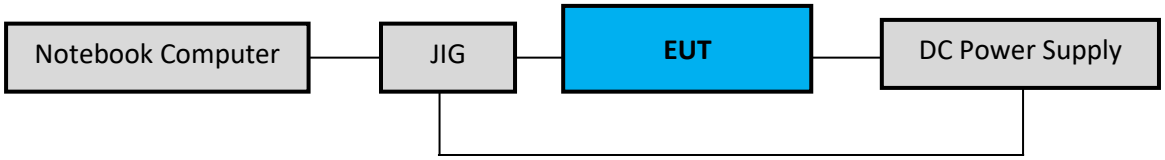
No.	Product	Brand	Model No.	Serial No.	Approval
1	Notebook Computer	HP	LAPTOP 14bp1xx	N/A	N/A
2	DC Power Supply	TOP WARD	6303A	N/A	N/A
3	JIG	Futaba	70600145	N/A	N/A

3.9.2. Cable Lists

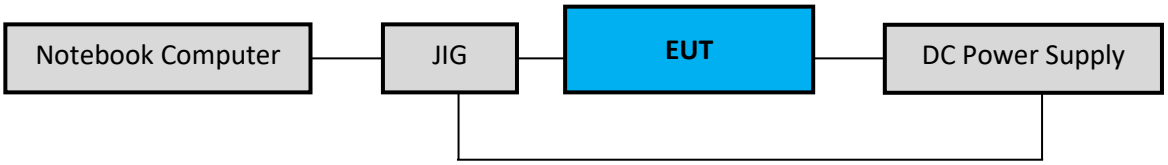
No.	Cable Description Of The Above Support Units
1	Bus Cable: Unshielded, Detachable, 0.06m
2	RS232 Cable: Shielded, Detachable, 1.0m
3	Power Wire: Unshielded, Detachable, 1.0 m*2

3.10. Setup Configuration

3.10.1. EUT Configuration for Power Line & Radiated Emission



3.10.2. EUT Configuration for RF Conducted Test Items



3.11. Operating Condition of EUT

Test program “Futaba Term” is used for enabling EUT RF function under continues transmitting and choosing data rate/ channel.

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3.12.Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	FCC OET Designation Number under APEC MRA by NCC is : TW1724 ISED CAB Identifier Number under APEC TEL MRA by NCC is TW1724 (1) No.8 Shielded Room (2) No.1 3m Semi Anechoic Chamber

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3.13.Measurement Uncertainty

The measurement uncertainty levels have been estimated as specified in ETSI TR 100 028-2001

Test Items/Facilities			Frequency Range	Uncertainty
Conduction Test	☐	No. 7 Shielded Room	30MHz-200MHz, 3m, Horizontal	±3.7dB
			200MHz-1000MHz, 3m, Horizontal	±3.4dB
	☒	No. 8 Shielded Room	30MHz-200MHz, 3m, Vertical	±3.7dB
			200MHz-1000MHz, 3m, Vertical	±3.4dB
Radiation Test	☒	No.1 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.0dB
			200MHz-1000MHz, 3m, Horizontal	±4.0dB
			30MHz-200MHz, 3m, Vertical	±4.8dB
			200MHz-1000MHz, 3m, Vertical	±4.5dB
			1GHz-6GHz, 3m	±4.2dB
			6GHz-18GHz, 3m	±4.0dB
	☐	No.3 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.9dB
			200MHz-1000MHz, 3m, Horizontal	±3.9dB
			30MHz-200MHz, 3m, Vertical	±4.6dB
			200MHz-1000MHz, 3m, Vertical	±4.3dB
			1GHz-6GHz, 3m	±4.6dB
			6GHz-18GHz, 3m	±4.1dB
	☐	No.4 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.4dB
			200MHz-1000MHz, 3m, Horizontal	±4.2dB
			30MHz-200MHz, 3m, Vertical	±4.9dB
			200MHz-1000MHz, 3m, Vertical	±5.1dB
			1GHz-6GHz, 3m	±4.4dB
			6GHz-18GHz, 3m	±4.0dB
	☐	No.5 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.2dB
			200MHz-1000MHz, 3m, Horizontal	±4.1dB
			30MHz-200MHz, 3m, Vertical	±4.9dB
			200MHz-1000MHz, 3m, Vertical	±4.6dB
			1GHz-6GHz, 3m	±4.4dB
			6GHz-18GHz, 3m	±4.0dB
	Radiated emissions (18GHz-40GHz)		18GHz-40GHz, 3m	±3.6dB

Remark：Uncertainty = kuc(y)

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Test Item	Uncertainty
20dB Bandwidth	±0.48%
99% Occupied Bandwidth	±0.38%
Carrier Frequency Separation	±0.2kHz
Time of Occupancy	±2.6%
Maximum peak Output power	± 0.8dB
Conducted Emission Limitations	±1.24 dB

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4. MEASUREMENT EQUIPMENTLIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESR3	101774	2025.12.30	1 Year
2.	A.M.N.	R&S	ENV432	101567	2026.06.04	1 Year
3.	Pulse Limiter	R&S	ESH3-Z2	100354	2025.12.04	1 Year
4.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.8 S/R	2026.04.08	1 Year
5.	Signal Cable	Yeida	RG/58AU	CE-08	2025.09.03	1 Year
6.	Test Software	Audix	e3	V9 18621a	N.C.R.	N.C.R.
1.	Test Receiver	R&S	ESR3	101774	2025.12.30	1 Year

4.2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2026.07.27	1 Year
2.	Spectrum Analyzer	Keysight	N9010B-544	MY55460198	2026.07.01	1 Year
3.	Test Receiver	R&S	ESCI	100556	2026.05.15	1 Year
4.	Amplifier	HP	8447D	2944A06305	2025.12.11	1 Year
5.	Amplifier	HP	8447D	2944A06305	2025.12.11	1 Year
6.	Microwave Preamplifier	HP	8449B	3008A01284	2026.06.30	1 Year
7.	Amplifier	SGH	SGH184	20221107-2	2026.07.02	1 Year
8.	Loop antenna	TESEQ	HLA 6121	60478	2026.06.03	1 Year
9.	Bilog Antenna	TESEQ	CBL6112D	33821	2026.02.06	1 Year
10.	Horn Antenna	EMCO	3115	9112-3775	2026.04.29	1 Year
11.	Horn Antenna	COM-POWER	AH-840	10090054	2025.09.03	1 Year
12.	2.4GHz Notch Filter	K&L	7NSL10-2441.5/E13 0.5-O/O	1	2026.04.08	1 Year
13.	High-Pass Filter	Microwave	H3G018G1	484796	2026.04.09	1 Year
14.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2026.01.02	1 Year
15.	Coaxial Cable	HUBER+SUHNER	RG223/U	RE-33	2026.06.09	1 Year
16.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 106	RE-14	2025.12.17	1 Year
17.	Coaxial Cable	EMEC	EM102A	RE-38	2026.07.10	1 Year
18.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2026.04.08	1 Year
19.	Test Software	Audix	e3	V9 18621a	N.C.R.	N.C.R.

4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9020B	MY57120357	2026.01.27	1 Year
2.	Digital Thermo-Hygro Meter	iMax	HTC-1	RF-03	2026.04.08	1 Year

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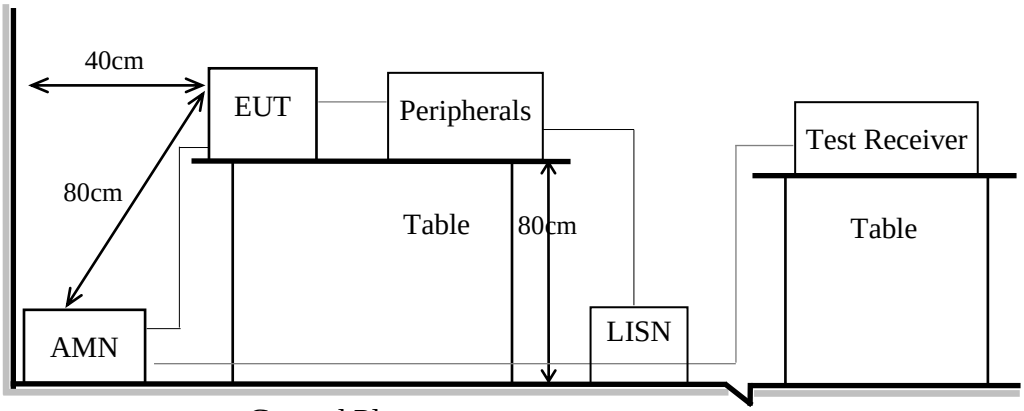
5. CONDUCTED EMISSION

5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT

Indicated as section 3.10

5.1.2. Shielded Room Setup Diagram



5.2. Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.
2.: The lower limit applies to the band edges.

5.3. Test Procedure

5.3.1. To set up the EUT as indicated in ANSI C63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.

5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).

5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)

5.3.4. Checking frequency range from 150kHz to 30 MHz and record the emission which does not have 20 dB below limit.

5.4. Test Results

Please refer to Appendix A.

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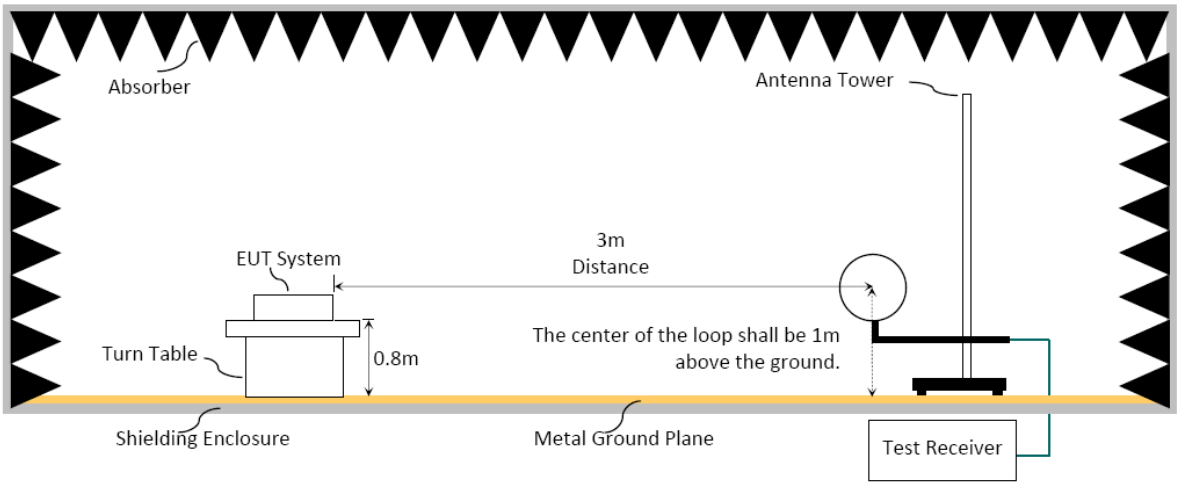
6. RADIATED EMISSION

6.1. Block Diagram of Test Setup

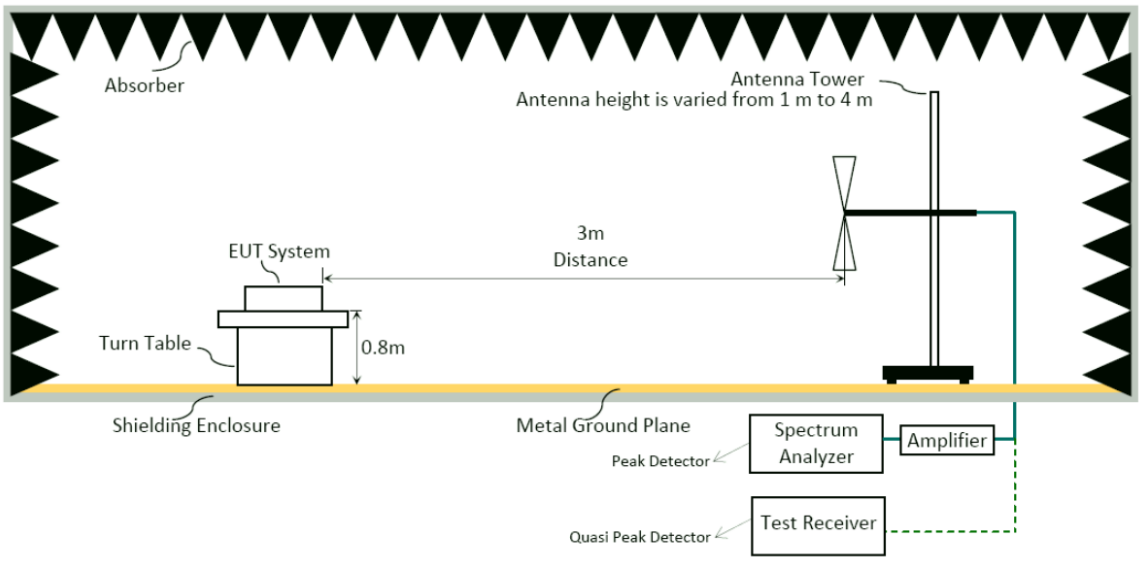
6.1.1. Block Diagram of EUT

Indicated as section 3.10

6.1.2. Setup Diagram for 9kHz-30MHz



6.1.3. Setup Diagram for 30-1000MHz



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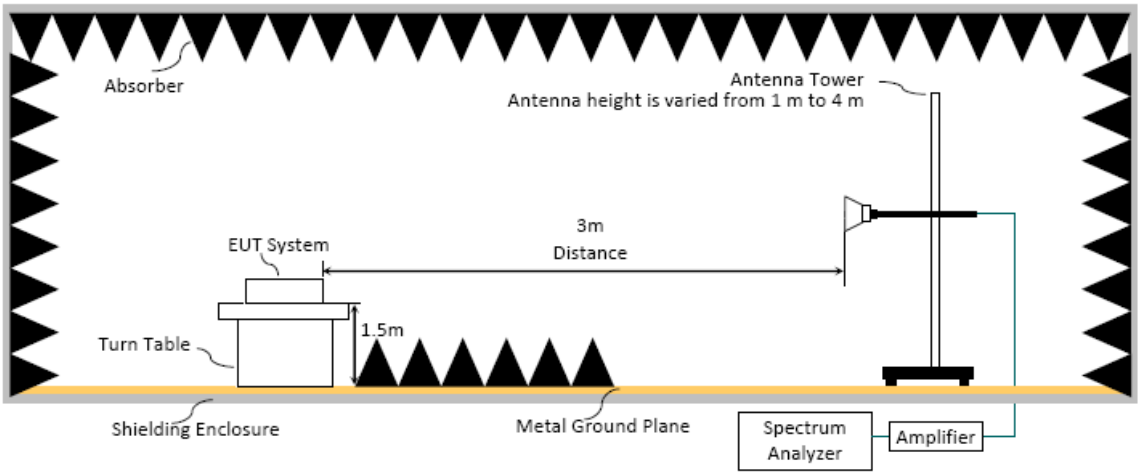
6.1.4. Setup Diagram for above 1GHz



6.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205/RSS-Gen Section 8.10 table 6, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance(m)	Limits	
		dBμV/m	μV/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) dBμV/m = 20 log (μV/m)
(2) The tighter limit applies to the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) Fundamental and emission fall within operation band are exempted from this section.
(5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

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6.3. Test Procedure

Frequency Range 9kHz~30MHz:
The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level.
In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 & ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024 regulation.

(1) RBW = 9kHz with peak and average detector.

(2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 25GHz:
The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 & ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024 regulation.

Frequency below 1GHz:
Spectrum Analyzer is used for pre-testing with following setting:

(1)RBW = 120KHz

(2)VBW ≥ 3 x RBW.

(3)Detector = Peak.

(4)Sweep time = auto.

(5)Trace mode = max hold.

(6)Allow sweeps to continue until the trace stabilizes.

Note 1: When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Note 2: When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Frequency above 1GHz to 10th harmonic(up to 25 GHz):
Peak Detector:

(1)RBW = 1MHz

(2)VBW ≥ 3 x RBW.

(3)Detector = Peak.

(4)Sweep time = auto.

(5)Trace mode = max hold.

(6)Allow sweeps to continue until the trace stabilizes.

Note: When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

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Average Detector:

☐ **Option 1:**

(1)RBW = 1MHz

(2)VBW ≥ 1/ T

Antenna	TX_{on} (ms)	1/ TX_{on} (kHz)	VBW(>1/ TX_{on}) (Hz)
---	---	---	---

(3)Detector = Peak.

(4)Sweep time = auto.

(5)Trace mode = max hold.

(6)Allow sweeps to continue until the trace stabilizes.

☑ **Option 2:**

Average Emission Level= Peak Emission Level+ D.C.C.F.

6.4. Measurement Result Explanation

☑ Peak Emission Level(dBμV/m)=Antenna Factor(dB/m) + Cable Loss (dB)– Preamp Gain (dB)+ Reading(dBμV).

☐ Average Emission Level(dBμV/m)= Antenna Factor(dB/m) + Cable Loss (dB)– Preamp Gain (dB)+ Reading(dBμV).

☑ Average Emission Level(dBμV/m)= Peak Emission Level(dBμV/m)+ DCCF(dB)
Duty Cycle Correction Factor (DCCF)(dB)= 20log(TX_{on}/TX_{on+off}) presented in section 3.7.

☐ ERP(dBm)= Peak Emission Level(dBμV/m) -95.2dB-2.14dB

6.5. Test Results

Please refer to Appendix A.

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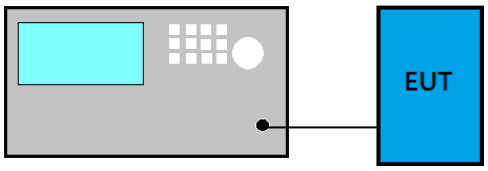
7. 20dB/Occupied Bandwidth

7.1. Block Diagram of Test Setup



7.2. Specification Limits

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

7.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10-2020 &
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024:

For 20dB Bandwidth

(1) Set Span range 2~5 times the OBW
(2) Set RBW close to1% to 5% of OBW.
(3) Set VBW≥3xRBW.
(4) Detector = Peak.
(5) Trace mode = Max hold.
(6) Sweep = Auto couple.
(7) Allow the trace to stabilize.
(8) Setting channel bandwidth function x dB to -20 dB to record the final bandwidth.

For 99% Occupied Bandwidth

(9) Set Span range 1.5~5 times the OBW
(10) Set RBW close to1% to 5% of OBW.
(11) Set VBW≥3xRBW.
(12) Detector = Peak.
(13) Trace mode = Max hold
(14) Sweep = Auto couple.
(15) Allow the trace to stabilize.

7.4. Test Results

Please refer to Appendix A

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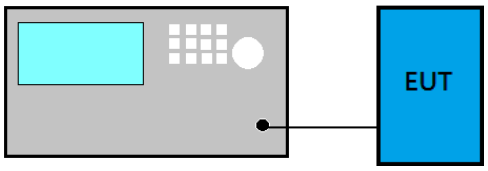
8. CARRIER FREQUENCY SEPARATION

8.1. Block Diagram of Test Setup



8.2. Specification Limits

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output no greater than 125mW.

8.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10-2020 &
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024:

(1) Span = Wide enough to capture the peaks of two adjacent channels
(2) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
(3) VBW≥ RBW
(4) Sweep = Auto
(5) Detector function = Peak
(6) Trace = Max hold
(7) Allow the trace to stabilize.

8.4. Test Results

Please refer to Appendix A

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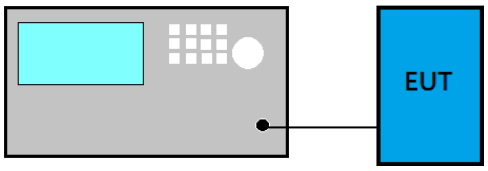
9. TIME OF OCCUPANCY

9.1. Block Diagram of Test Setup



9.2. Specification Limits

Frequency hopping systems in the 2400-2483.5MHz shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

9.3. Test Procedure

(1) Span: Zero span, centered on a hopping channel.
(2) RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected transmission time per hop.
(3) Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. Setting the sweep time to be slightly longer than the hopping period per channel (hopping period = 1/hopping rate) should achieve this.
(4) Use a video trigger, where possible with a trigger delay, so that the start of the transmission is clearly observed. The trigger level might need adjustment to reduce the chance of triggering when the system hops on an adjacent channel.
(5) Detector function: Peak.
(6) Trace: Clear-write, single sweep.
(7) Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers.

9.4. Test Results

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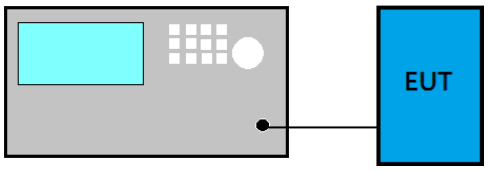
10. NUMBER OF HOPPING CHANNELS

10.1. Block Diagram of Test Setup



10.2. Specification Limits

Frequency hopping systems which use fewer than 20 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels.

10.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10-2020 &
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024:

(1) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
(2) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
(3) VBW ≥ RBW
(4) Sweep = Auto
(5) Detector function = Peak
(6) Trace: Max-hold.
(7) Allow the trace to stabilize.

10.4. Test Results

Please refer to Appendix A

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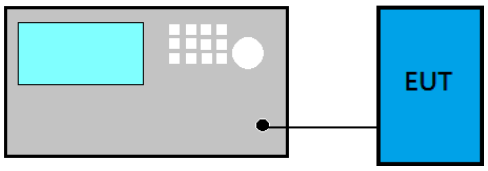
11. MAXIMUM PEAK OUTPUT POWER

11.1. Block Diagram of Test Setup



11.2. Specification Limits

The following transmitter output power and e.i.r.p requirements shall apply:

- If the hopset uses 75 or more hopping channels, the maximum peak conducted output power shall not exceed 1.0 W.
- If the hopset uses less than 75 hopping channels the maximum peak conducted output power shall not exceed 0.125 W.
- The e.i.r.p. shall not exceed 4 W, except as provided in sections 6.5 a) and b) of RSS-247 standard.

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

11.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10-2020 &
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024:

(a) Use the following spectrum analyzer settings

(1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
(2) RBW > 20 dB bandwidth of the emission being measured.
(3) VBW ≥ RBW
(4) Sweep: Auto
(5) Detector function: Peak
(6) Trace: Max hold

(b) Allow trace to stabilize.

(c) Use the marker-to-peak function to set the marker to the peak of the emission.

11.4. Test Results

Please refer to Appendix A

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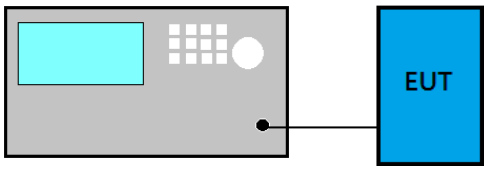
12. EMISSION LIMITATIONS

12.1. Block Diagram of Test Setup



12.2. Specification Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device (or hybrid system) is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power – based on either an RF conducted or a radiated measurement – provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 6.3.2, the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in Section 15.209(a)/RSS-Gen is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a)/RSS-Gen Section 8.10 table 6,, must also comply with the radiated emission limits specified in Section 15.209(a)/RSS-Gen Section 8.9 table 4 (See Section 15.205(c)).

12.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10-2020 & ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024:

(1) Set span wide enough to capture the peak level of the in-band emission and all spurious emissions; up to 10^{th} harmonic.
(2) RBW = 100 kHz
(3) VBW ≥ RBW
(4) Sweep = Auto
(5) Detector function = Peak
(6) Trace = Max hold

12.4. Test Results

Please refer to Appendix A

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13. DEVIATION TO TEST SPECIFICATIONS

【NONE】

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APPENDIX A

TEST DATA AND PLOTS

(Model: FEX12TB)

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APPENDIX B

TEST PHOTOGRAPHS

(Model: FEX12TB)