



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
5767ERM.004A1

Partial Test report

USA FCC Part 15.31(h)

Measurement standards

USA FCC Part 15.247, 15.205, 15.209

Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

CANADA RSS-247, RSS-Gen

Digital Transmission Systems, Frequency Hopping Systems and License-Exempt Local Area Network Devices in 902-928 MHz, 2400-2483.5 MHz, 5150-5350MHz, and 5470-5895 MHz bands.

USA FCC 15.517, 15.209

RF Measurement of Ultra-Wideband (UWB) devices operating within the band 3100 MHz and 10600 MHz.

RSS-220 — Spectrum Management and Telecommunications Radio Standards Specification - Devices Using Ultra-Wideband (UWB) Technology

(*) Identification of item tested	Digital IoT Sleep Devices
(*) Trademark	Hatch
(*) Model and /or type reference tested	HA25
(*) Derived model not tested	--
Other identification of the product	FCC ID: 2AFYZ-HA25 IC: 23920-HA25 HVIN: HA25
(*) Features	BT, BLE, UWB, Wi-Fi 2.4GHz
Manufacturer	Hatch Baby, Inc. 3790 El Camino Real #627 Palo Alto, CA 94306
Test method requested, standard	USA FCC Part 15.31(h) (11-18-2024 Edition): Measurement standards USA FCC Part 15.247 (11-18-2024 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz USA FCC Part 15.205 (11-18-2024 Edition): Restricted bands of operation. USA FCC Part 15.209 (01-26-2026) Edition: Radiated emission limits; general requirements. USA FCC Part 15.517 (01-03-2017) Technical requirements for indoor UWB systems USA FCC Part 15.209 (01-26-2026) Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 4 (July 2025). CANADA RSS-Gen Issue 5 (April 2018)/A1 (March 2019)/A2 (Feb 2021). RSS - 220 Issue 1, Amendment 1 Spectrum Management and Telecommunications Radio Standards Specification - Devices Using Ultra-Wideband (UWB) Technology ANSI C63.10-2020/Cor1-2023+C63.10a-2024+Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices.
Summary	See Appendix A
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager  Digitally signed by Domingo Galvez Duenas DN: cn=Domingo Galvez Duenas, ou=Regulatory Lab Manager, email=domingo.galvez@dekra.com, c=US
Date of issue	2026-05-12
Report template No	FDT08_25 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
BEL	Band Edge Left
BER	Band Edge Right
DC	Duty Cycle
Freq	Frequency
Freq Rng	Frequency Range
Lvl Meas Pk	Level Pre Measurement Peak
MP	Measurement Point
MU	Medium Utilization Factor
Max EIRP	Maximum Burst EIRP
Max RMS	Maximum Burst RMS
Max Tx Seq	Maximum Transmission Sequence Time
Min Tx Gap	Minimum Transmission Gap Time
Mod	Modulation
Occ Ch BW	Occupied Channel Bandwidth
PSD	Power Spectrum Density
Port	Active Port
T	Temperature
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate **2764.01** and **CAB ID US0215**.

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements, and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification Inc. at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a Digital IoT Sleep Devices with features including: BT, BLE, UWB, Wi-Fi 2.4GHz.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for the test have been selected by: The client.

The sample(s) is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	5767/03	Hatch Restore 3.5	HA25	A2SEVT3011	2026-02-26	Element Under Test
S/01	5767/04	Hatch Restore 3.5 Power adapter	LACW030	-	2026-02-26	Accessory
S/01	5530/06	Tag Connect to Ethernet	-	-	2025-12-18	Accessory
S/01	5530/08	Ethernet to PC Connector Box	-	-	2025-12-18	Accessory

Notes referenced to samples during the project:

Id	Note
S/01	Sample S/01, was used for the following test(s): All Radiated tests indicated in appendix A

Test sample description

Test Sample description (compulsory information for EMC and RF testing services)

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	N/A			[]	[]	[]	
				[]	[]	[]	
				[]	[]	[]	
				[]	[]	[]	
				[]	[]	[]	
Supplementary information to the ports..... :	-						
Rated power supply :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[x]	AC: 100-240Vac; 0.85A; 50/60Hz	[]	[]	[]	[]	[]
	[]	AC:	[]	[]	[]	[]	[]
	[x]	DC24Vdc, 1.5A					
[]	DC:						
Rated Power..... :	No Data Provided						
Clock frequencies..... :	No Data Provided						
Other parameters..... :	No Data Provided						
Software version..... :	No Data Provided						
Hardware version..... :	No Data Provided						
Dimensions in cm (W x H x D)..... :	No Data Provided						
Mounting position..... :	[X]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[]	Other: Cluster in the car with separate antennas built into the cockpit of vehicle					
Modules/parts :	Module/parts of test item		Type		Manufacturer		
	N/A						
							
							
							
Accessories (not part of the test item)..... :	Description		Type		Manufacturer		
							
							
Documents as provided by the applicant..... :	Description		File name		Issue date		
	Declaration Equipment Data		FDT30		2026-03-15		
							
							

Identification of the client

Hatch Baby, Inc.
790 El Camino Real #627
Palo Alto,
CA 94306

Testing period and place

Test Location	DEKRA Certification Inc. 405 Glenn Dr. Suite 12, Sterling, VA 20164 United States of America.
Date (start)	2026-03-06
Date (finish)	2026-03-20

Document history

Report number	Date	Description
5767ERM.004	2026-04-24	First release
5767ERM.004A1	2026-05-12	Second release. HVIN was updated on page 1. This modified test report cancels and replaces the test report 5767ERM.004.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the semi anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Yuqi Wang and Koji Nishimoto.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P

Summary

FCC PART 15 PARAGRAPH / RSS-247 (Bluetooth BR/EDR)				
15.247 Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
§ 2.1049 & § 15.247 (a) (1)	RSS-247 5.1 (b)	20dB Emission Bandwidth, Occupied Bandwidth & Carrier Frequency Separation	N/M	Refer 1
§ 15.247 (a) (1) (iii)	RSS-247 5.1 (d)	Number of hopping channels	N/M	Refer 1
§ 15.247 (a) (1) (iii)	RSS-247 5.1 (d)	Time of Occupancy (Dwell Time)	N/M	Refer 1
§ 15.247 (b) (3)	RSS-247 5.4 (b)	Maximum peak conducted output power and antenna gain	N/M	Refer 1
§ 15.247 (d)	RSS-247 5.5	Band-edge conducted emissions compliance (Transmitter)	N/M	Refer 1
§ 15.247 (d)	RSS-247 5.5	Emission limitations Conducted (Transmitter)	N/M	Refer 1
§ 15.247 (d)	RSS-247 5.5	Emission limitations Radiated (Transmitter)	P	N/A
Supplementary information and remarks:				
1) Only multi-transmitter radiated spurious emission test was requested.				

FCC PART 15 PARAGRAPH (Wi-Fi 2.4GHz)/ RSS 247				
15.247 Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
§ 2.1049 & §15.247 (a) (2)	RSS-247 5.2 (a)	99% Occupied Bandwidth & 6dB Bandwidth	N/M	Refer 1
§ 15.247 (b)	RSS-247 5.4 (d)	Maximum Output Power and antenna gain	N/M	Refer 1
§ 15.247 (d)	RSS-247 5.5	Band-edge conducted emissions compliance (Transmitter)	N/M	Refer 1
§ 15.247 (e)	RSS-247 5.2 (b)	Power Spectral Density	N/M	Refer 1
§15.247(d)	RSS-247 5.5	Emission limitations Conducted (Transmitter)	N/M	Refer 1
§15.247 (d)	RSS-247 5.5	Emission limitations Radiated (Transmitter)	P	N/A
Supplementary information and remarks:				
1) Only multi-transmitter radiated spurious emission test was requested.				

FCC PART 15.517/15.207/ RSS-220				
RSS-220	Requirement	Test case	Verdict	Remark
RSS-Gen	FCC15.207	Conducted Emissions	N/M	Refer 1
RSS-220	FCC 15.517	Radiated Emission	P	Refer 1
RSS-220	FCC 15.517	Radiated Emission in GPS band	N/M	Refer 1
RSS-220	FCC 15.517	10 dB Bandwidth	N/M	Refer 1
RSS-220	FCC 15.517	Peak level of Emission	N/M	Refer 1
<u>Supplementary information and remarks:</u> 1. Only multi-transmitter radiated spurious emission test was requested.				

List of equipment used during the test

Test Equipment for Radiated emission testing:

Radiated Measurements

Control No.	Equipment	Model	Manufacturer	Next Calibration
01057	3115 DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (750 MHz-18 GHz)	3115	ETS LINDGREN	2026-07-18
01056	3116C DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (18-40GHz)	3116C	ETS LINDGREN	2026-04-23
01066	3142E BICONILOG ANTENNA	3142E	ETS LINDGREN	2028-02-03
01213	CONTROL ROOM	CR	FRANKONIA	--
01010	ESR7 EMI TEST RECEIVER	ESR7	RHODE & SCHWARZ	2027-04-11
01111	ETHERNET SNMP THERMOMETER	HWg-STE Plain	HW GROUP	2026-10-24
01108	ETHERNET SNMP THERMOMETER	HWg-STE Plain	HW GROUP	2026-10-18
01566	FRANKONIA TRANSPARENT RF SQUARE TEST TABLE	RF Sq table	FRANKONIA	--
01014	FSV40 SIGNAL ANALYZER 40GHZ	FSV40	RHODE & SCHWARZ	2026-10-04
00981	LOW NOISE PREAMPLIFIER (1-18GHz)	BLMA0118-2A	BONN ELEKTRONIK	2027-02-21
00982	LOW NOISE PREAMPLIFIER (18-40GHz)	BLMA1840-1M	BONN ELEKTRONIK	2027-04-11
01179	SEMI-ANECHOIC CHAMBER	SAC 3plus 'L'	FRANKONIA	--
01314	WIRELESS MEASUREMENT SOFTWARE R&S EMC32	--	RHODE & SCHWARZ	--

Appendix A: Test results (Multi-transmitter)

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Product information

The following information is provided by the client

Information	Description
Modulation	BTLE: GFSK BTEDR: GFSK , PI-4DPQSK, 8DPSK WLAN: CCK, DSSS, OFDM UWB: Pulsed Tx with pseudo random bi-phase
Operating Frequency Range	BTLE: 2400 - 2483.5 MHz BTEDR: 2400 - 2483.5 MHz WLAN: 2400 – 2483.5 MHz UWB: 7.5 GHz
Nominal Channel Bandwidth	BTLE: 1 MHz, BTEDR: 1MHz WLAN: 20 MHz UWB: 1.4 GHz
RF Output Power	Class 1, 2 and 3 transmit output powers, and a dynamic control range of up to 21 dB UWB: < 6.3 dBm (peak), < -14 DBm (average)
Antenna type	BT, WLAN: Embedded UWB: PCB antenna
Antenna gain	BT, WLAN – 3.76 dBi, UWB – 7.8 dBi
Nominal Voltage	
- Supply Voltage	100-240 VAC
- Type of power source	AC voltage
Equipment type	Bluetooth LE Bluetooth Classic (BR & EDR) WLAN according to IEEE 802.11 b/g/n UWB

Description of test conditions

(*): Data provided by the client.

TEST CONDITIONS	DESCRIPTION				
TC/01 ⁽¹⁾	<u>Power supply (V):</u> 100-240 VAC				
	<u>Test Frequencies for Radiated tests:</u>				
	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode
	Wi-Fi 2.4 GHz SISO (HC)	2462	20	DSSS (1 MBPS)	b mode
	UWB	7490-8450	1400	Pulsed TX with pseudo random bi-phase	-
The test was performed with the equipment transmitting with Wi-Fi 2.4GHz and UWB radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.					
TC/02 ⁽¹⁾	<u>Power supply (V):</u> 100-240 VAC				
	<u>Test Frequencies for Radiated tests:</u>				
	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode
	BTEDR (HC)	2480	1	8DPSK (3DH5)	--
	UWB	7490-8450	1400	Pulsed TX with pseudo random bi-phase	-
The test was performed with the equipment transmitting with BTEDR and UWB radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.					

Note (1): Preliminary scan was performed to determine the worst case. The following tables and plots show the results for the worst case in SISO 2.4GHz, UWB and BTEDR.

LC= Low Channel

MC = Mid Channel

HC = High Channel

LIMITS

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
0.009-0.490	$2400/F(\text{kHz})$	-	300
0.490-1.705	$24000/F(\text{kHz})$	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

CANADA RSS-247 Issue 4 (July 2025):

2.4 RSS-Gen compliance

Equipment being certified under this standard shall also comply with the general requirements set out in Radio Standards Specification RSS-Gen, General Requirements for Compliance of Radio Apparatus. Where contradictions exist between this standard and RSS-Gen, this standard shall take precedence.

CANADA RSS-Gen Issue 5 (April 2018):

8.9 Transmitter emission limits:

Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

General field strength limits at frequencies above 30 MHz

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

General field strength limits at frequencies below 30 MHz

Frequency Range (MHz)	Field strength ($\mu\text{A/m}$)	Field strength ($\text{dB}\mu\text{A/m}$)	Measurement distance (m)
0.009-0.490 ⁽¹⁾	$6.37/F(\text{kHz})$	-	300
0.490-1.705	$63.7/F(\text{kHz})$	-	30
1.705 - 30.0	0.08	-	30

The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

RSS-Gen Issue 5, Secs 8.10:

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses.

c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

Table 7 – Restricted frequency bands

(MHz)	(MHz)	(MHz)	(GHz)
0.090-0.110	16.42-16.423	1435-1626.5	13.25-13.4
0.495-0.505	16.69475-16.69525	1645.5-1646.5	14.47-14.5
2.1735-2.1905	16.80425-16.80475	1660-1710	15.35-16.2
3.020 - 3.026	25.5-25.67	1718.8-1722.2	17.7-21.4
4.125-4.128	37.5-38.25	2200-2300	22.01-23.12
4.17725-4.17775	73-74.6	2310-2390	23.6-24.0
4.20725-4.20775	74.8-75.2	2483.5-2500	31.2-31.8
5.677 - 5.683	108-121.94	2655-2900	36.43-36.5
6.215-6.218	123-138	3260-3267	Above 38.6
6.26775-6.26825	149.9-150.05	3332-3339	
6.31175-6.31225	156.52475-156.52525	3345.8-3358	
8.291-8.294	156.7-156.9	3500-4400	
8.362-8.366	162.0125-167.17	4.5-5.15	
8.37625-8.38675	167.72-173.2	5.35-5.46	
8.41425-8.41475	240-285	7.25-7.75	
12.29-12.293	322-335.4	8.025-8.5	
12.51975-12.52025	399.9-410	9.0-9.2	
12.57675-12.57725	608-614	9.3-9.5	
13.36-13.41	960-1427	10.6-12.7	

RADIATED MEASUREMENTS:

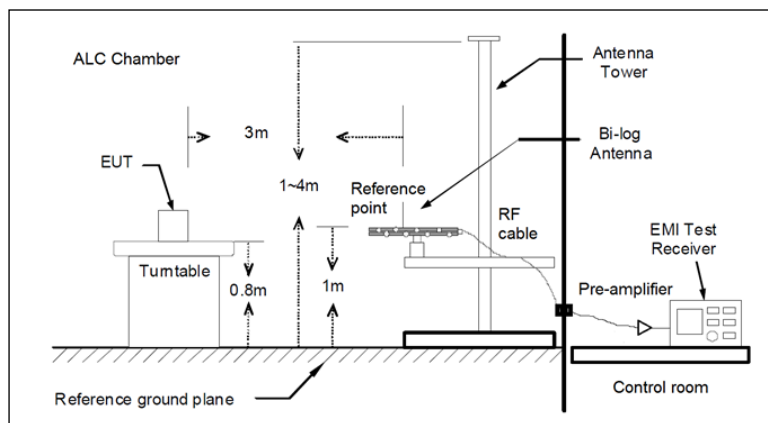
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency ranges 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antennas) and at 1m for the frequency range 18-40 GHz (Double ridge horn antennas).

For radiated emissions in the range 18-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

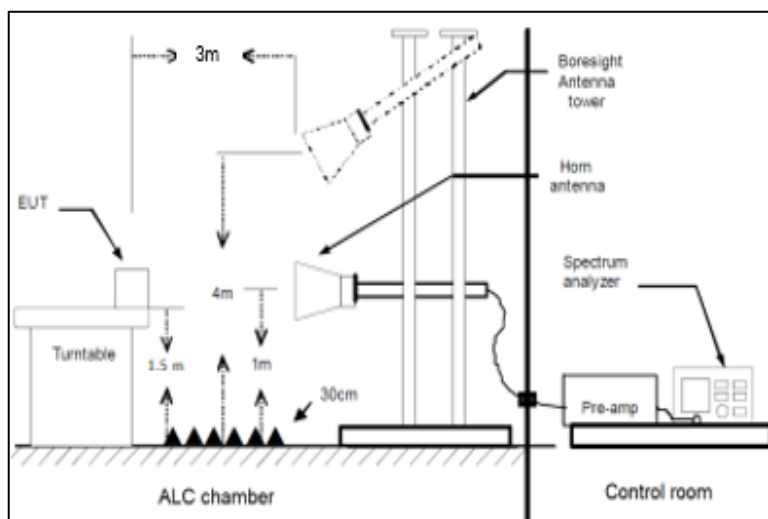
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

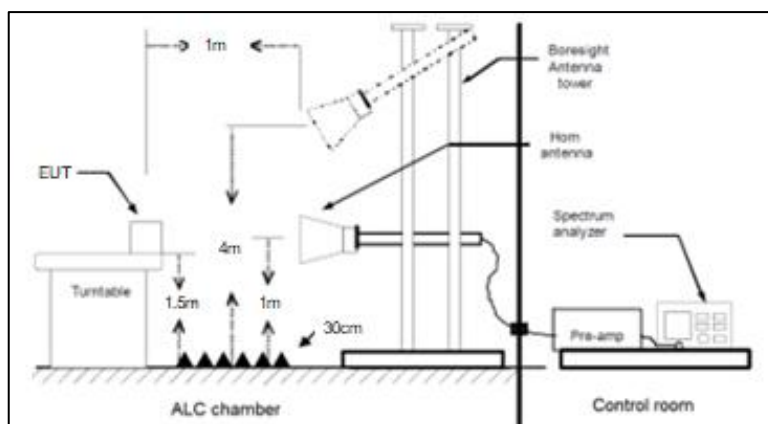
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.



Radiated measurements Setup $f < 1 \text{ GHz}$



Radiated measurements setup $1 < f < 18 \text{ GHz}$



Radiated measurements setup $f > 18 \text{ GHz}$

Part 15 Subpart C §15.209(a) and Part 15 Subpart C §15.517(c)

LIMITS

Frequency Range (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100 ⁽¹⁾	40	3
88 - 216	150 ⁽¹⁾	43.5	3
216 - 960	200 ⁽¹⁾	46	3
Above 960	500	54	3

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the close point of any part of the device or system.

Note 3: E field strength (dBμV/m) = 20 log E field strength (μV/m)

Note 4: E field strength (dBμV/m) = EIRP (dBm) + 95.2

The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Fundamental frequency (MHz)	EIRP in dBm
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-10600	-41.3
Above 10600	-61.3

RSS-220 5.3.1(d)

Radiated emissions above 960 MHz from a device shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz.

Frequency in MHz	EIRP in dBm
960 to 1610	-75.3
1610 to 4750	-70.0
4750 to 10600	-41.3
Above 10600	-61.3

RSS-220 5.3.1(e) In addition to the limits specified in paragraph (d) of this section, radiated emissions shall not exceed the following average limits when measured using a resolution bandwidth greater than or equal to 1 kHz. The measurements shall demonstrate compliance with the stated limits at whatever resolution bandwidth is used.

Frequency in MHz	EIRP in dBm
1164 to 1240	-85.3
1559 to 1610	-85.3

RSS-220 5.3.1(f)

Within the tables in paragraphs (d) and (e) above, the tighter emission limit applies at the band edges.

RSS-220 5.3.1(g)

The peak level of the transmissions shall not exceed the peak equivalent of the average limit contained within any 50 MHz bandwidth, as defined in section 4 of the Annex.

RSS-220 Annex 4(c)

Peak measurements shall be made in addition to average measurements. Transmissions shall not exceed 0 dBm e.i.r.p. in any 50 MHz bandwidth when the average limit is -41.3 dBm/MHz. This is the equivalent peak limit as calculated by combining the 6 dB peak-to-average conversion with a resolution bandwidth (RBW) scaling factor of $20 \log(1 \text{ MHz}/50 \text{ MHz})$. Only the 50 MHz bandwidth, centred on the frequency fM where the highest power occurs, needs to be measured to satisfy the peak requirements for all frequencies. A different resolution bandwidth and a correspondingly different peak limit may also be used, in which case the RBW may be set anywhere between 1 MHz and 50 MHz. The peak e.i.r.p. limit is then calculated as $20 \log(\text{RBW}/50) \text{ dBm}$ where the RBW is in MHz. This may be converted to a peak field strength level at 3 metres using $E(\text{dBuV/m}) = P(\text{e.i.r.p.}(\text{dBm})) + 95.2$. If the RBW is greater than 3 MHz, the application for certification shall contain a detailed description of the test procedure, the calibration of the test set-up and the instrumentation used in the testing.

RSS-220 Annex 4(m)

Emissions from digital circuitry (used only to enable the operation of the UWB transmitter and that does not control additional functions or capabilities) shall comply with the average and peak power limits applicable to the UWB transmitter. If it can be clearly demonstrated that an emission from a UWB transmitter is due solely to emissions from digital circuitry contained within the transmitter, and that the emission is not intended to be radiated from the

transmitter's antenna, the limits for emissions from digital circuitry prescribed in RSS-Gen apply to that emission rather than the UWB limits.

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-960 MHz (Bilog antenna), at 1m for the frequency range 960 MHz -18 GHz (Double ridge horn antennas) and at 0.5 m for the frequency range 18 GHz- 40 GHz (Double ridge horn antennas).

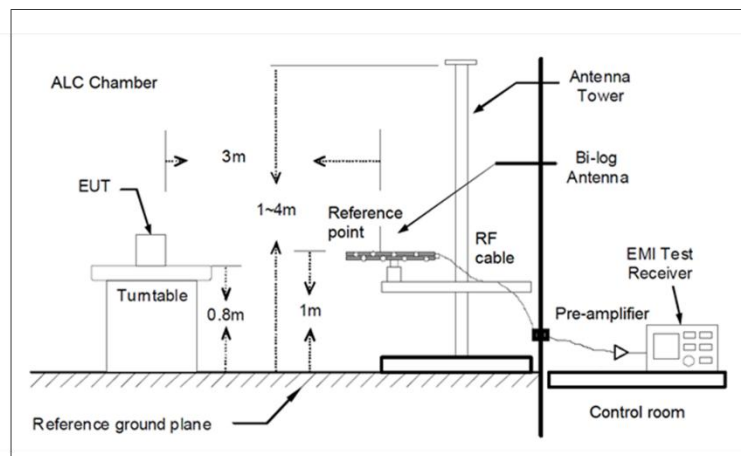
For radiated emissions in the range 960 MHz – 40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

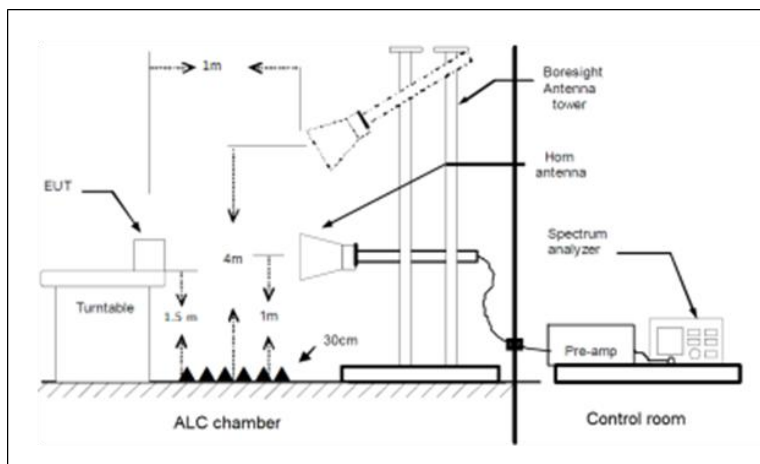
Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain

Radiated measurements Setup 30 MHz to 960 MHz



Radiated measurements setup $f > 960$ MHz



Frequency range 9KHz – 30 MHz

No radiofrequency signal generated in the device found below 10° sub-harmonic, no further investigation required.

Frequency range 30 MHz – 1000 MHz

The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

Test condition: TC/01

Sample: S/01

Results

Attachments

Operation Band MHz = [2462, 7490]

Frequency Range GHz = [0.03, 1]

Active Port = 1

Active Port = 1

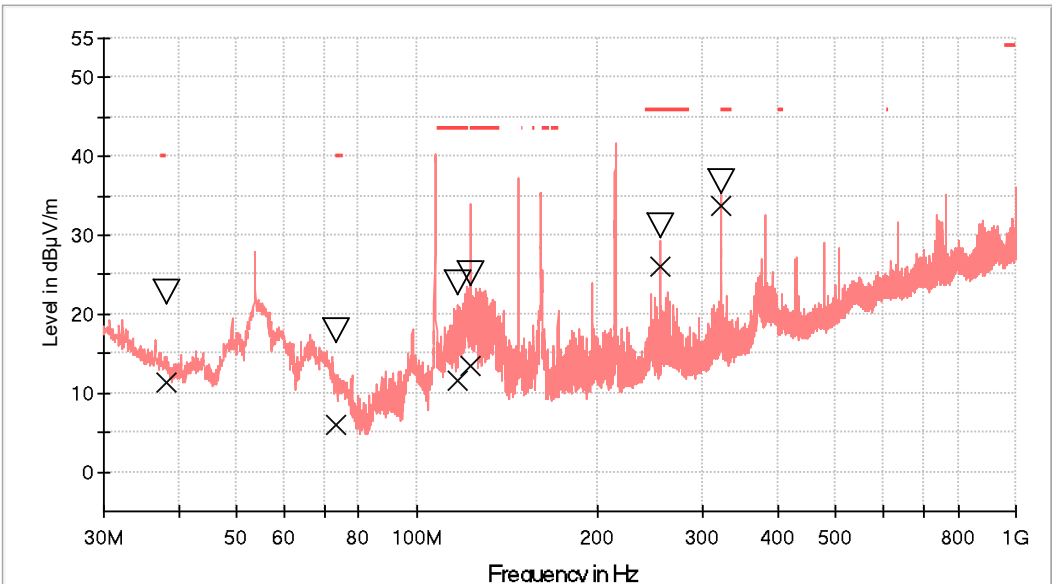
Modulation = 802.11b DSSS (1 Mbps)

Modulation = UWB

MIMO Mode = SISO

MIMO Mode = SISO

RF_FCC_15.247_E Field_30MHz_1GHz_z_SAC2



- TXlimits to Spurious Emission FCC15.247 (30MHz to 1GHz) Restricted Bands QPK Limit
- PK+_MAXH
- ▽ MaxPeak-PK+ (Single)
- x QuasiPeak-QPK (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBµV/m)
38.245000	22.9	11.4	H	28.6	40.0
73.213500	18.0	6.0	H	34.0	40.0
117.251500	24.0	11.5	H	32.0	43.5
123.071500	25.1	13.3	H	30.2	43.5
254.118500	31.2	26.1	H	19.9	46.0
322.018500	36.8	33.7	V	12.3	46.0

Operation Band MHz = [2462, 7490]

Frequency Range GHz = [1, 18]

Active Port = 1

Active Port = 1

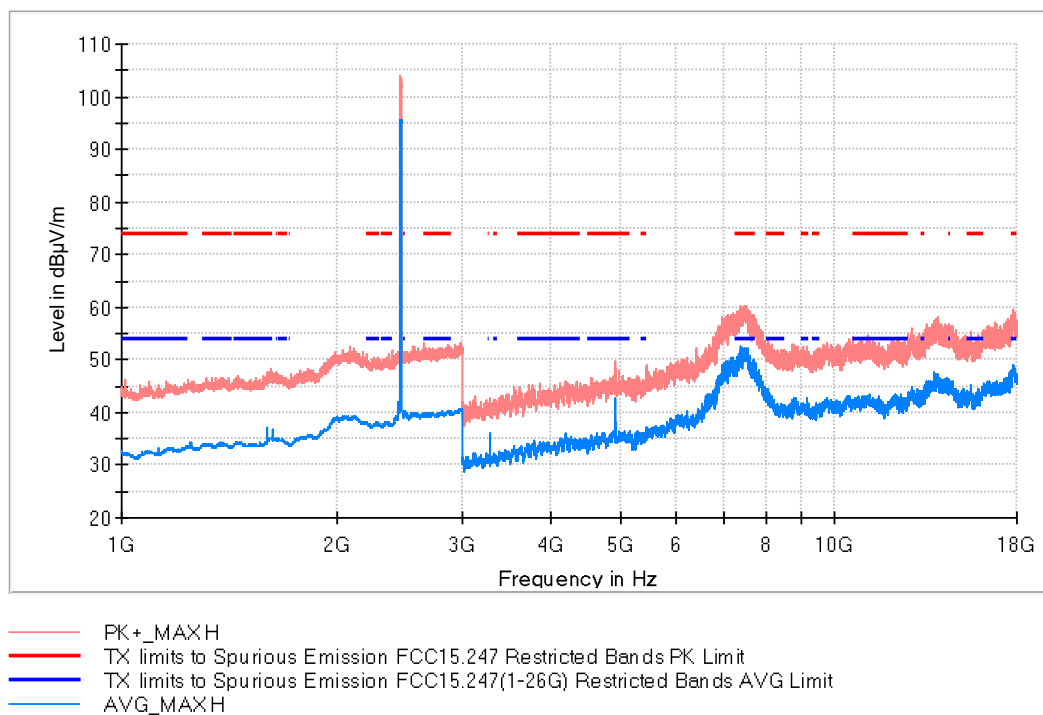
Modulation = 802.11b DSSS (1 Mbps)

Modulation = UWB

MIMO Mode = SISO

MIMO Mode = SISO

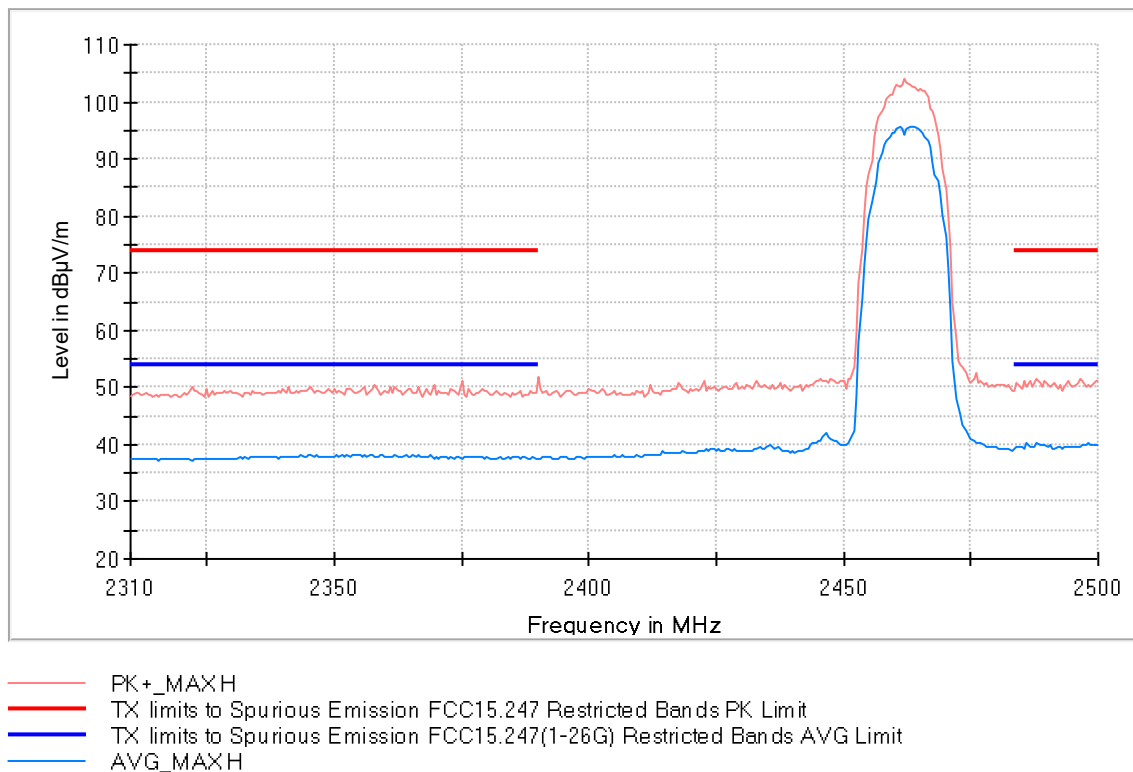
RF_FCC_15.247_E Field_1GHz_18GHz_HPF



Frequency (MHz)	PK+ MAXH (dBμV/m)	AVG MAXH (dBμV/m)	PoI	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
2463.000000	103.1	95.7	V	---	---	Wi-Fi 2.4G Fundamental
4924.000000	49.7	42.6	H	11.4	54.0	
7380.000000	59.6	52.7	H	---	---	UWB Fundamental
12178.500000	52.0	43.3	V	10.7	54.0	

Restricted Bands

Copy of RF_FCC_15.247_E Field_1GHz_18GHz_HPF



Operation Band MHz = [2462, 7490]

Frequency Range GHz = [18, 26]

Active Port = 1

Active Port = 1

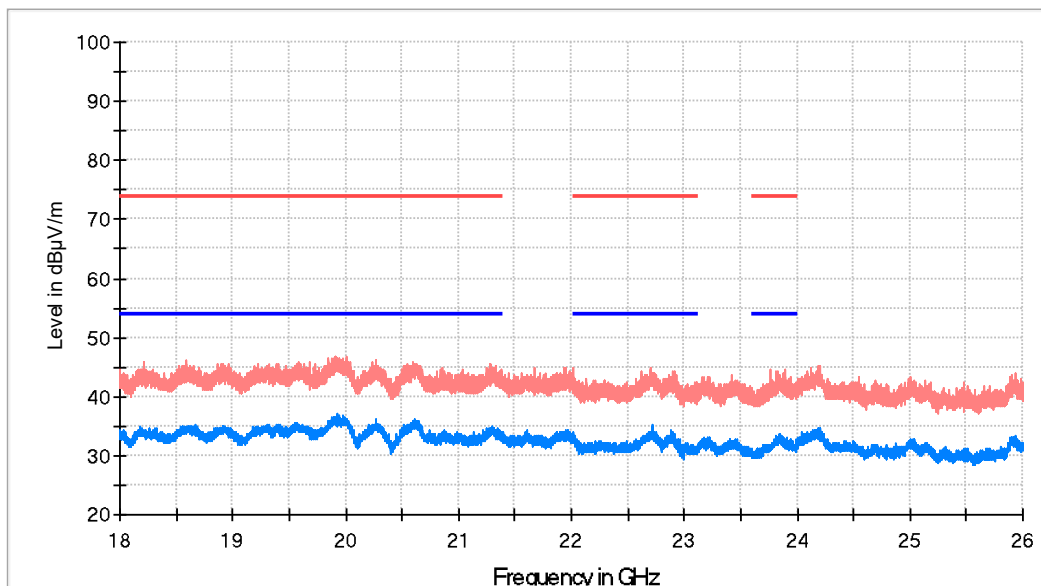
Modulation = 802.11b DSSS (1 Mbps)

Modulation = UWB

MIMO Mode = SISO

MIMO Mode = SISO

RF_FCC_15.247_E Field_18GHz_26GHz(SAC2)



— AVG_MAXH
— PK+_MAXH
— TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit
— TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
19917.500000	46.8	36.0	H	18.0	54.0
20600.500000	45.8	34.8	V	19.2	54.0
23767.000000	44.7	31.2	H	22.8	54.0

Test condition: TC/02

Sample: S/01

Results

Attachments

Operation Band MHz = [2480, 7490]

Frequency Range GHz = [1, 18]

Active Port = 1

Active Port = 1

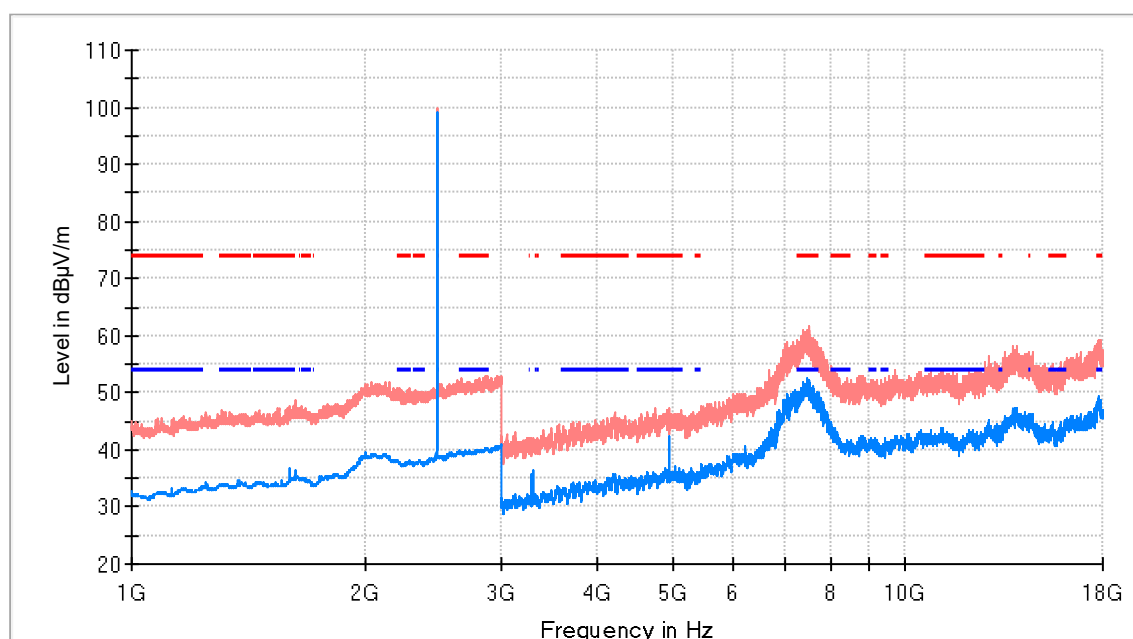
Modulation = BT (8DPSK 3-DH5)

Modulation = UWB

MIMO Mode = SISO

MIMO Mode = SISO

RF_FCC_15.247_E Field_1GHz_18GHz_HPF

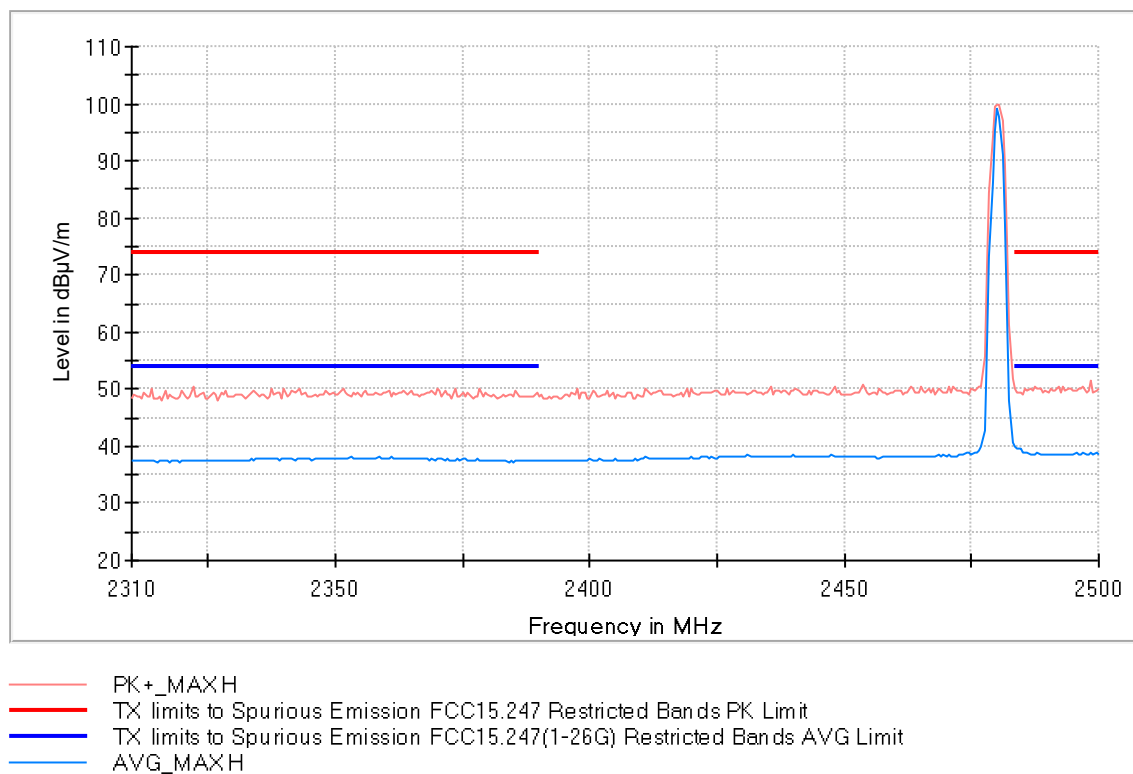


— PK+_MAXH
 — TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
 — TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — AVG_MAXH

Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
2480.000000	99.9	99.3	V	---	---	BT Fundamental
4959.500000	46.6	41.5	V	12.5	54.0	
7471.500000	58.5	52.4	H	---	---	UWB Fundamental
15856.000000	53.5	45.0	H	9.0	54.0	

Restricted Bands

Copy of RF_FCC_15.247_E Field_1GHz_18GHz_HPF



Operation Band MHz = [2480, 7490]

Frequency Range GHz = [18, 26]

Active Port = 1

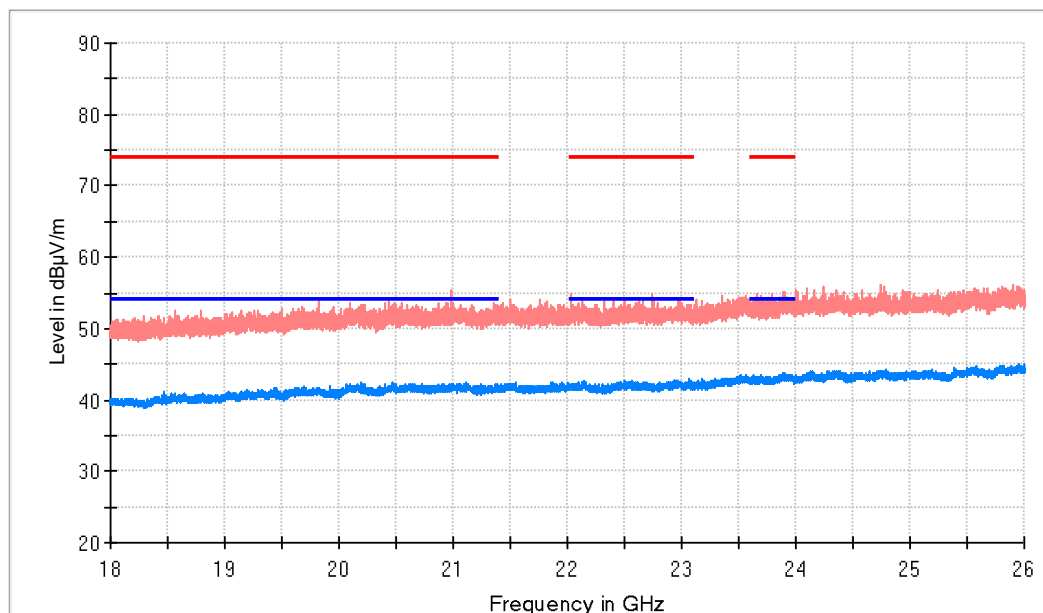
Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Modulation = UWB

MIMO Mode = SISO

MIMO Mode = SISO



— AVG_MAXH
— PK+_MAXH
— TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
— TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit

Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	PoI	Margin - AVG (dB)	Limit - AVG (dBμV/m)
20191.500000	51.3	42.4	H	11.6	54.0

Radiated emission electromagnetic field

(30MHz – 1GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
30 MHz - 1 GHz	20 dB	PK+	100 kHz

Final Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
30 MHz - 1 GHz	20 dB	QPK, PK+	120 kHz

(1GHz – 18GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
1 GHz - 18 GHz	20 dB	PK+ ; AVG	1 MHz

(18GHz – 26GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
18 GHz - 26 GHz	20 dB	PK+ ; AVG	1 MHz