FCC Test Report

Product Name	Intelligent Robot
Model No	Zenbo-K
FCC ID.	MSQ-ZENBO-K

Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Beitou, Taipei, Taiwan

Date of Receipt	Jun. 05, 2019
Issue Date	Jul. 04, 2019
Report No.	1960050R-RFUSP26V00
Report Version	V1.0

Testing Laboratory
3023

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
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Test Report

Issue Date: Jul. 04, 2019
Report No.: 1960050R-RFUSP26V00

Product Name	Intelligent Robot
Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Beitou, Taipei, Taiwan
Manufacturer	ASUSTeK COMPUTER INC.
Model No.	Zenbo-K
FCC ID.	MSQ-ZENBO-K
EUT Rated Voltage	AC 100-240V / 50-60Hz or DC 10.8V (Power by battery)
EUT Test Voltage	AC 120V / 60Hz
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2018 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 15.247 Meas Guidance v05
Test Result	Complied

Documented By : Jinn Chen

(Senior Adm. Specialist / Jinn Chen)

Tested By : Ivan Chuang

(Senior Engineer / Ivan Chuang)

Approved By :

(Director / Vincent Lin)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intelligent Robot
Trade Name	ASUS
Model No.	Zenbo-K
FCC ID.	MSQ-ZENBO-K
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW
Number of Channels	802.11b/g/n-20MHz: 11
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 72.2Mbps
Channel separation	802.11b/g/n: 5 MHz
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: DELTA, M/N: ADP-33AW X Input: AC 100-240V~1A, 50-60Hz Output: DC 19V, 1.75A Cable Out: Non-shielded, 2.25m

Antenna List

No.	Manufacturer	Part No.	ASUS No.	Antenna Type	Peak Gain
1	INPAQ	WA-F-LB-02-165	14008-02060100	PIFA antenna	1.3dBi for 2.4GHz

Note: The antenna of EUT is conforming to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

Note:

1. The EUT is an Intelligent Robot with built-in WLAN (802.11a/b/g/n/ac) with Bluetooth V4.0、V2.1+EDR transceiver, this report for 2.4GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 7.2Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n-20MBW 7.2Mbps)

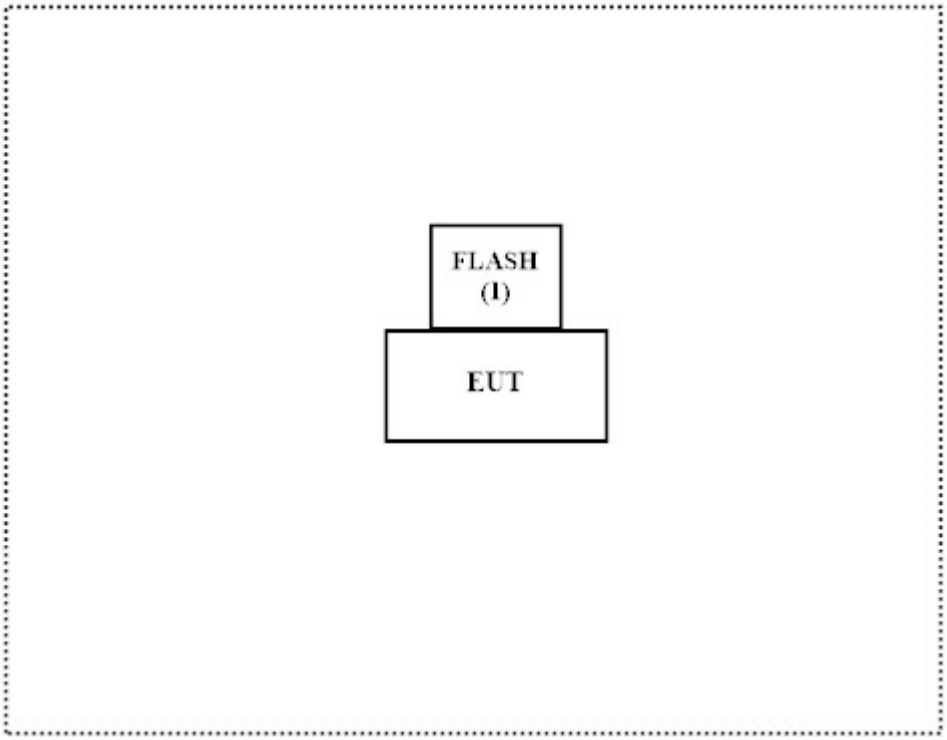
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	FLASH	Transcend	JetFlash 700	N/A	N/A

Signal Cable Type	Signal cable Description
N/A	

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Wlan Rf Test v1.0” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

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E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW0023

1.7. List of Test Item and Equipment

For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	101601	2019.05.13	2020.05.12
X	Two-Line V-Network	R&S	ENV216	101306	2019.03.11	2020.03.10
X	Two-Line V-Network	R&S	ENV216	101307	2019.04.03	2020.04.02
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2019.05.24	2020.05.23

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : QuieTek EMI System V2.1.113.

For Conducted measurements /ASR2

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2019.01.25	2020.01.24
X	Power Meter	Anritsu	ML2496A	1548003	2018.12.19	2019.12.18
X	Power Sensor	Anritsu	MA2411B	1531024	2018.12.19	2019.12.18
X	Power Sensor	Anritsu	MA2411B	1531025	2018.12.19	2019.12.18
	Bluetooth Tester	R&S	CBT	101238	2019.01.21	2020.01.20

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.5.

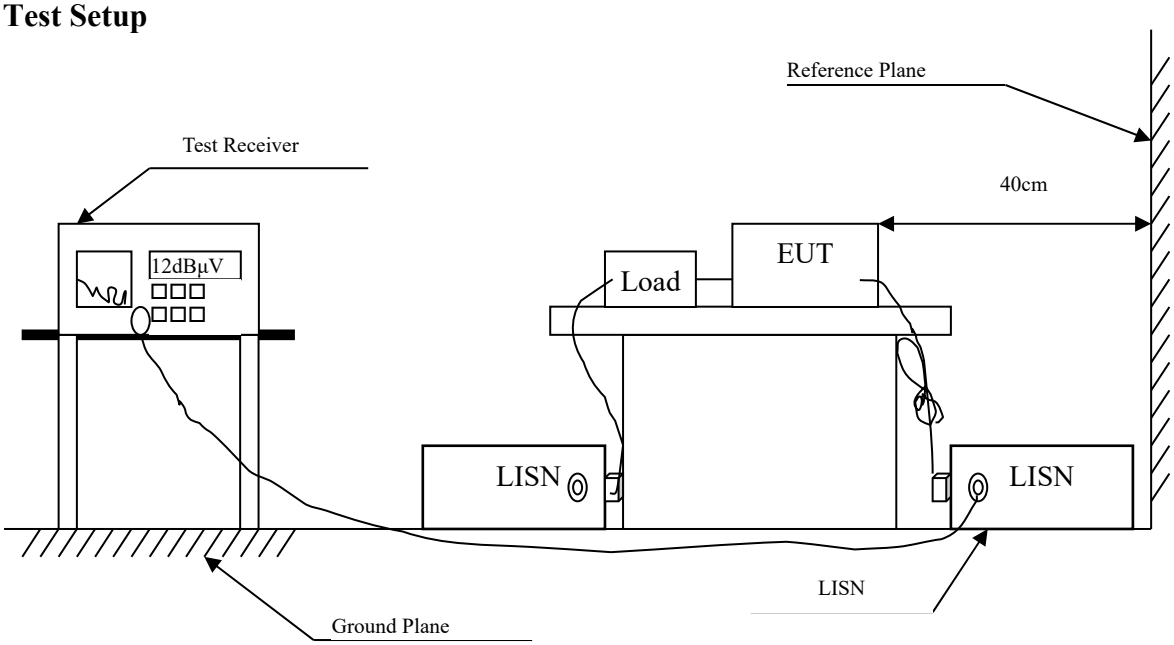
For Radiated measurements /ACB1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	49611	2019.02.22	2020.02.21
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2019.04.23	2020.04.22
X	Horn Antenna	ETS-Lindgren	3117	00203800	2018.12.11	2019.12.10
X	Horn Antenna	Com-Power	AH-840	101087	2019.05.30	2020.05.29
X	Pre-Amplifier	EMCI	EMC001330	980316	2019.06.14	2020.06.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2019.06.13	2020.06.12
X	Pre-Amplifier	EMCI	EMC05820SE	980285	2019.06.06	2020.06.05
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2019.05.28	2020.05.27
X	Filter	MICRO TRONICS	BRM50702	G251	2018.09.04	2019.09.03
	Filter	MICRO TRONICS	BRM50716	G188	2018.09.04	2019.09.03
X	EMI Test Receiver	R&S	ESR7	101602	2018.12.17	2019.12.16
X	Spectrum Analyzer	R&S	FSV40	101148	2019.02.20	2020.02.19
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2019.05.25	2020.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2019.05.28	2020.05.27

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : QuieTek EMI System V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

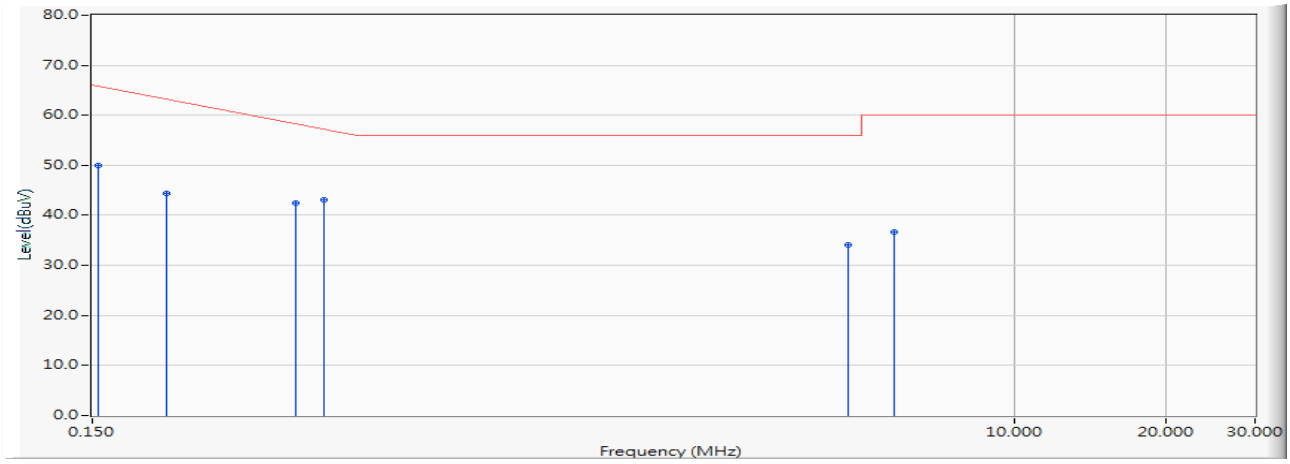
2.4. Uncertainty

± 2.35 dB

2.5. Test Result of Conducted Emission

Product : Intelligent Robot
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437MHz)
Test Date : 2019/06/25

Line 1



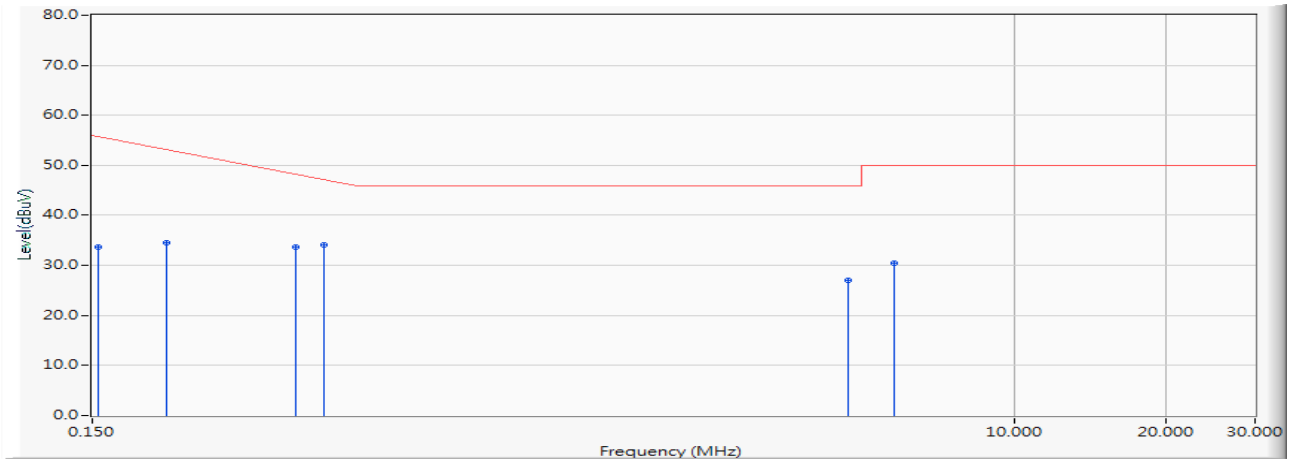
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.154	9.561	40.465	50.026	-15.860	65.886	QUASIPEAK
2		0.210	9.561	34.876	44.436	-19.850	64.286	QUASIPEAK
3		0.380	9.592	32.847	42.439	-16.990	59.429	QUASIPEAK
4	*	0.430	9.595	33.451	43.046	-14.954	58.000	QUASIPEAK
5		4.700	9.727	24.330	34.057	-21.943	56.000	QUASIPEAK
6		5.800	9.748	26.921	36.669	-23.331	60.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product	:	Intelligent Robot
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437MHz)
Test Date	:	2019/06/25

Line 1



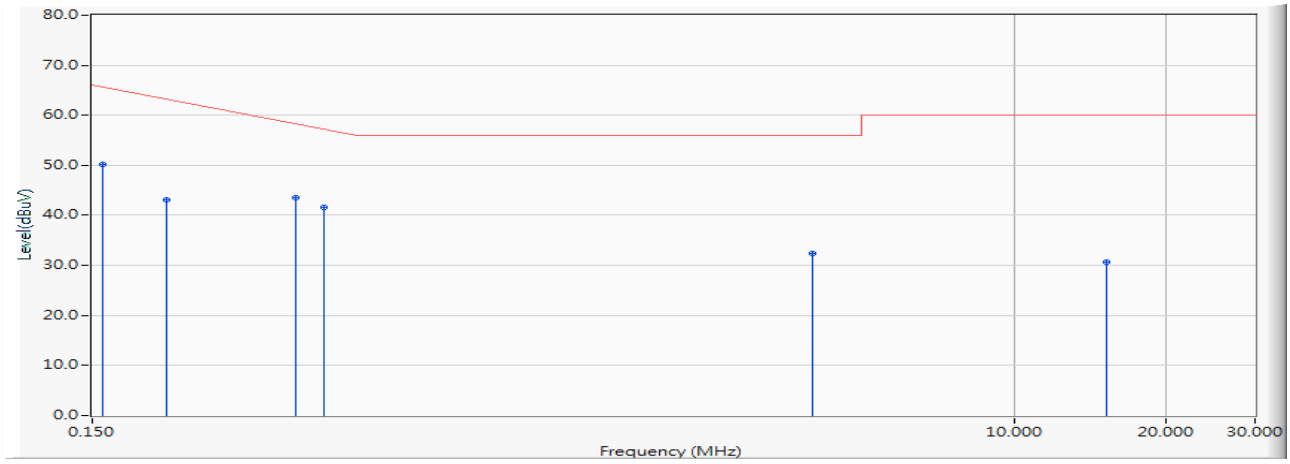
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.154	9.561	24.158	33.718	-22.168	55.886	AVERAGE
2		0.210	9.561	24.903	34.464	-19.822	54.286	AVERAGE
3		0.380	9.592	23.991	33.583	-15.846	49.429	AVERAGE
4	*	0.430	9.595	24.463	34.058	-13.942	48.000	AVERAGE
5		4.700	9.727	17.310	27.037	-18.963	46.000	AVERAGE
6		5.800	9.748	20.684	30.432	-19.568	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product	:	Intelligent Robot
Test Item	:	Conducted Emission Test
Power Line	:	Line 2
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437MHz)
Test Date	:	2019/06/25

Line 2



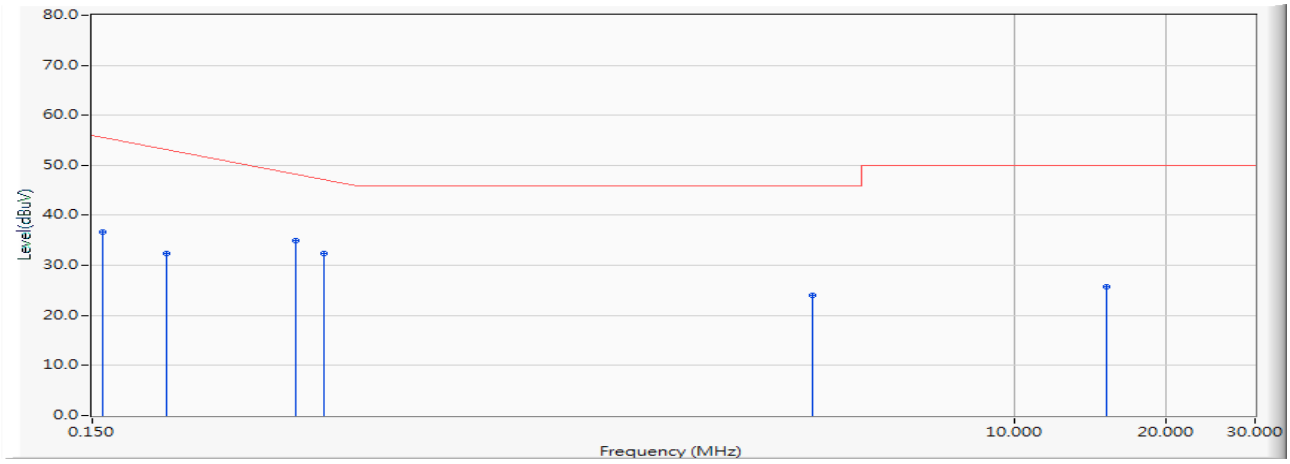
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.157	9.552	40.599	50.150	-15.650	65.800	QUASIPEAK
2		0.210	9.560	33.641	43.201	-21.085	64.286	QUASIPEAK
3		0.378	9.586	33.915	43.501	-15.985	59.486	QUASIPEAK
4		0.430	9.588	31.985	41.573	-16.427	58.000	QUASIPEAK
5		4.000	9.710	22.783	32.493	-23.507	56.000	QUASIPEAK
6		15.240	9.924	20.793	30.717	-29.283	60.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product	:	Intelligent Robot
Test Item	:	Conducted Emission Test
Power Line	:	Line 2
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437MHz)
Test Date	:	2019/06/25

Line 2



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.157	9.552	27.107	36.659	-19.141	55.800	AVERAGE
2		0.210	9.560	22.770	32.330	-21.956	54.286	AVERAGE
3	*	0.378	9.586	25.415	35.001	-14.485	49.486	AVERAGE
4		0.430	9.588	22.750	32.338	-15.662	48.000	AVERAGE
5		4.000	9.710	14.238	23.948	-22.052	46.000	AVERAGE
6		15.240	9.924	15.780	25.704	-24.296	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup

3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 8.3.1.3 PKPM1 Peak power meter method. The maximum average conducted output power using KDB 558074 section 8.3.2.3 Method (Measurement using a gated RF average-reading power meter)

3.4. Uncertainty

±0.86 dB

3.5. Test Result of Peak Power Output

Product : Intelligent Robot
Test Item : Peak Power Output Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2019/06/18

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	14.92	--	--	--	18.22	<30dBm	Pass
06	2437	15.02	14.98	14.95	14.93	18.21	<30dBm	Pass
11	2462	15.03	--	--	--	18.25	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Intelligent Robot
Test Item : Peak Power Output Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)
Test Date : 2019/06/18

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	15.21	--	--	--	--	--	--	--	21.32	<30dBm	Pass
06	2437	15.25	15.21	15.18	15.13	15.11	15.08	15.05	15.02	21.48	<30dBm	Pass
11	2462	15.29	--	--	--	--	--	--	--	21.55	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Intelligent Robot
Test Item : Peak Power Output Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)
Test Date : 2019/06/18

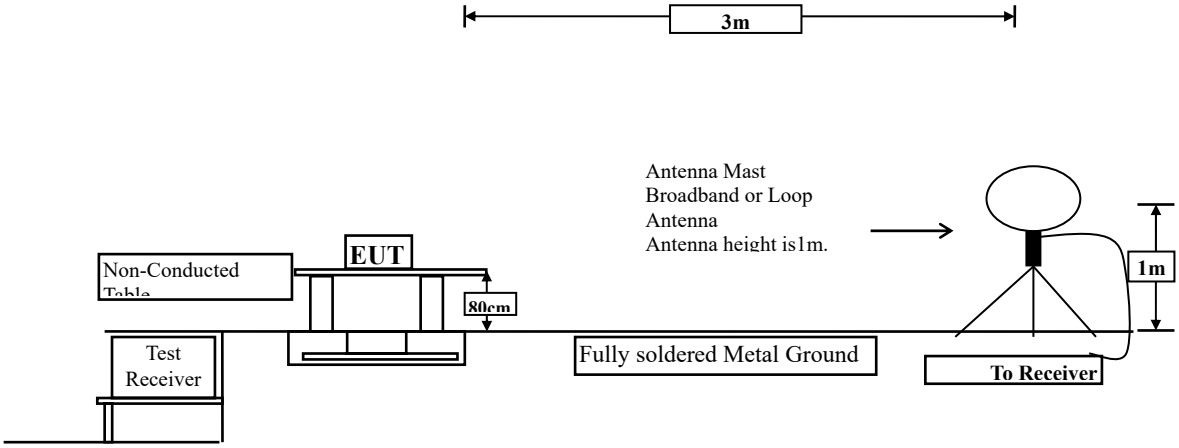
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2		
		Measurement Level (dBm)										
01	2412	14.95	--	--	--	--	--	--	--	21.57	<30dBm	Pass
06	2437	15.12	15.09	15.05	15.01	14.97	14.95	14.92	14.87	21.71	<30dBm	Pass
11	2462	15.13	--	--	--	--	--	--	--	21.65	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

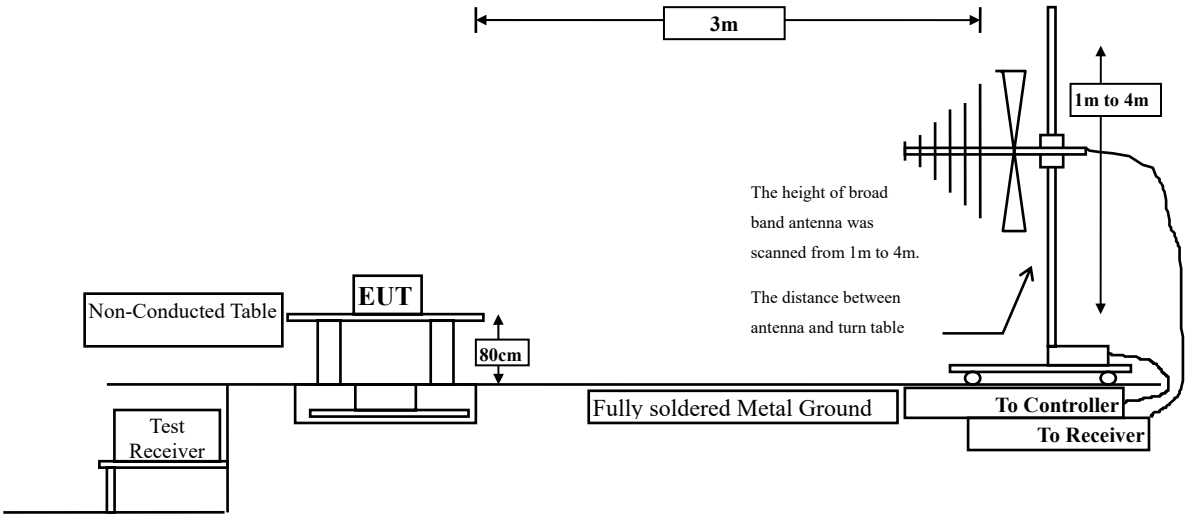
4. Radiated Emission

4.1. Test Setup

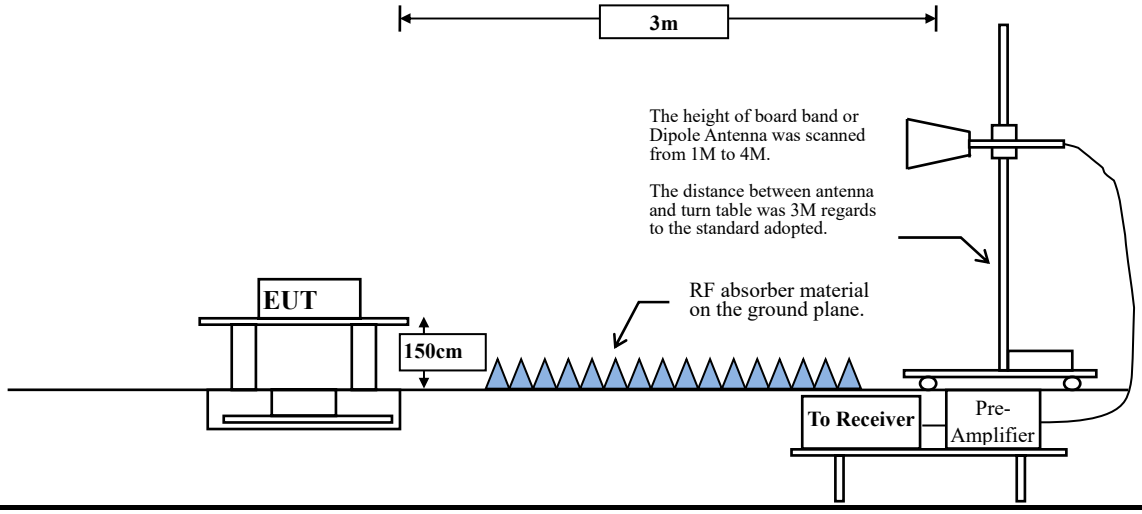
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
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.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.
The turn table is rotated 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.
The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.
Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

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

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	99.45	--	--	10
802.11g	94.12	1.4400	694	1k
802.11n20	93.75	1.3500	741	1k

Note: Duty Cycle Refer to Section 9

4.4. Uncertainty

Horizontal polarization：

30-300MHz: ±4.08dB；300M-1GHz: ±3.86dB；1-18GHz: ±3.77dB；18-40GHz: ±3.98dB

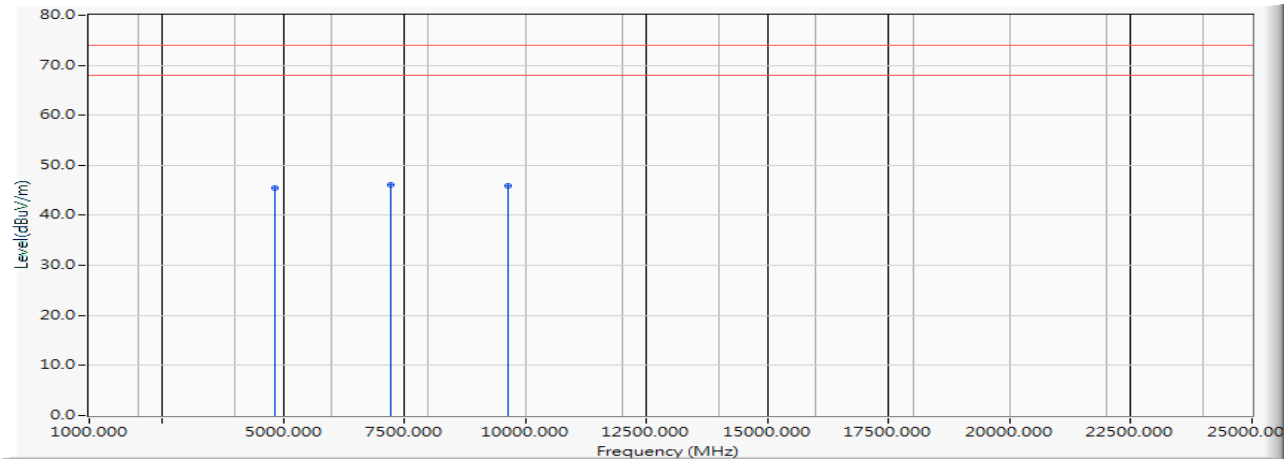
Vertical polarization：

30-300MHz: ±4.81dB；300M-1GHz: ±3.87dB；1-18GHz：±3.83dB；18-40GHz: ±3.98dB

4.5. Test Result of Radiated Emission

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2019/06/26

Horizontal



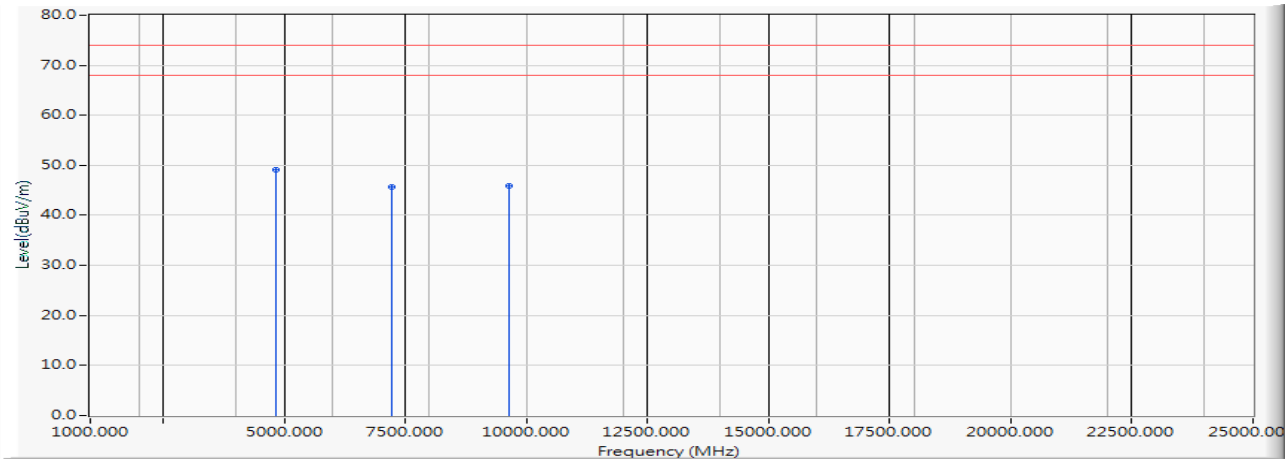
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-6.086	51.660	45.575	-28.425	74.000	PEAK
2	*	7236.000	-3.033	49.180	46.147	-27.853	74.000	PEAK
3		9648.000	-0.680	46.620	45.940	-28.060	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date	:	2019/06/26

Vertical



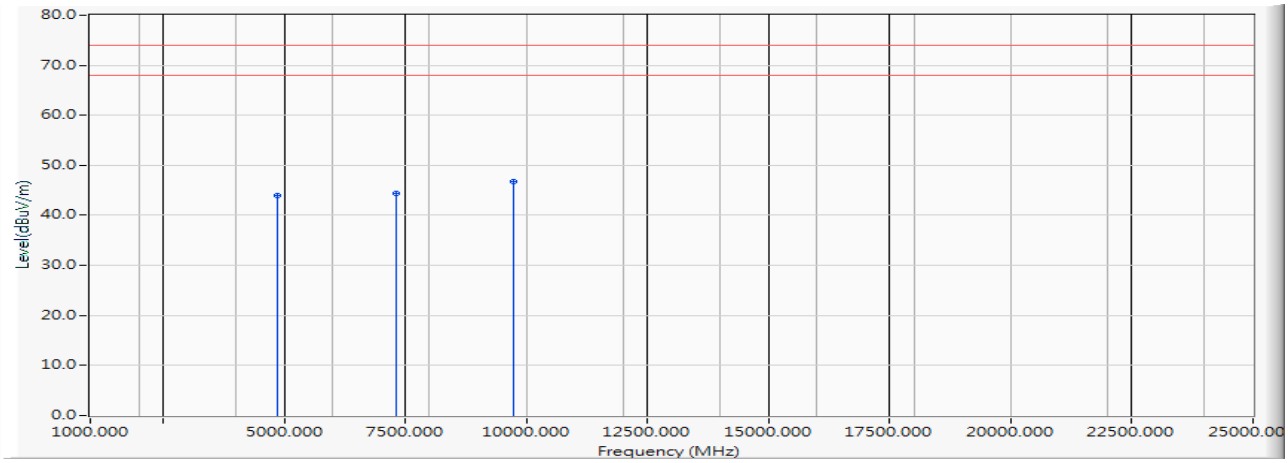
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4824.000	-6.086	55.270	49.185	-24.815	74.000	PEAK
2		7236.000	-3.033	48.620	45.587	-28.413	74.000	PEAK
3		9648.000	-0.680	46.510	45.830	-28.170	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)
Test Date	:	2019/06/26

Horizontal



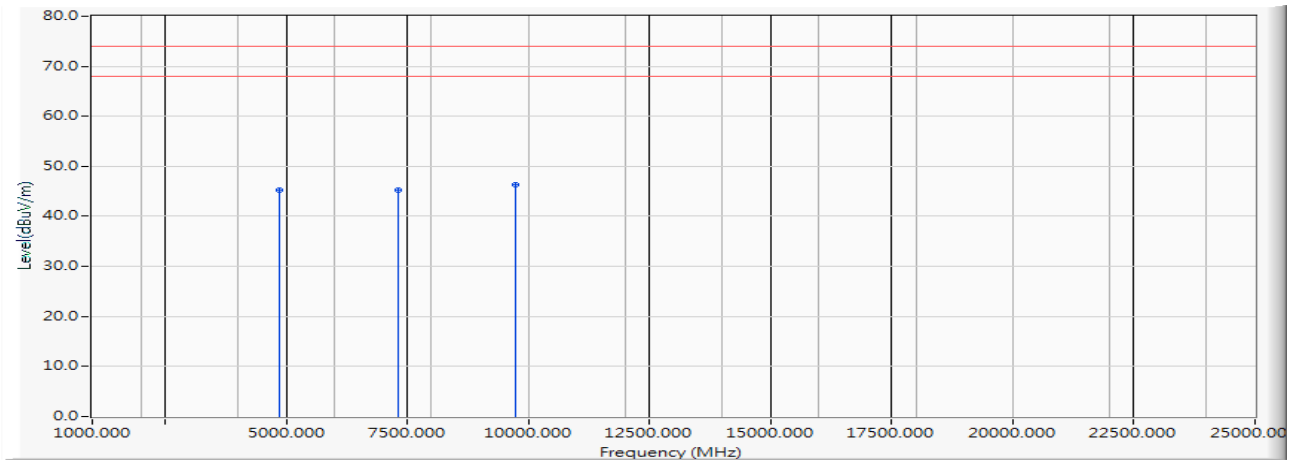
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	50.030	43.975	-30.025	74.000	PEAK
2		7311.000	-2.976	47.410	44.435	-29.565	74.000	PEAK
3	*	9748.000	-0.502	47.220	46.718	-27.282	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)
Test Date	:	2019/06/26

Vertical



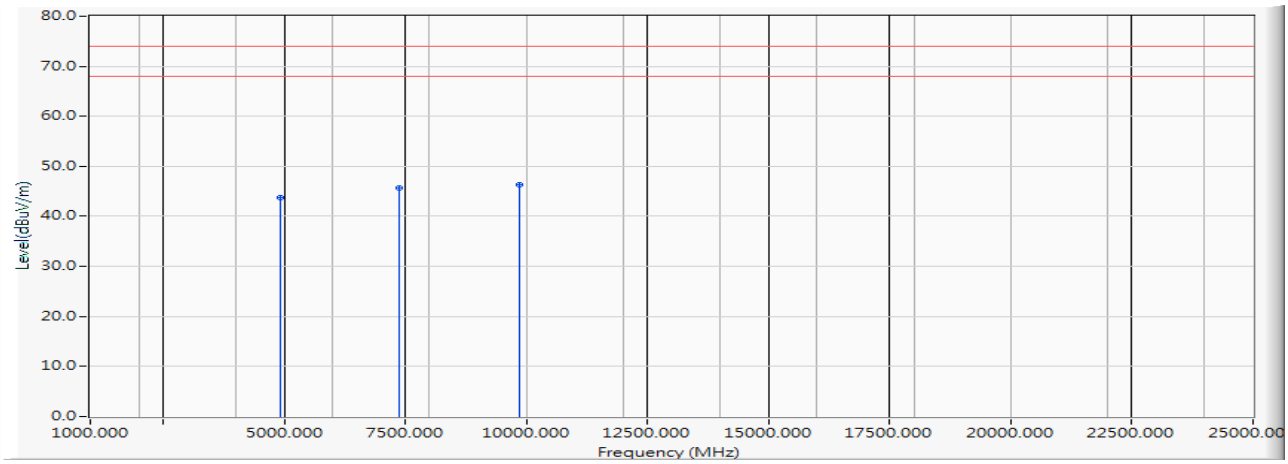
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	51.280	45.225	-28.775	74.000	PEAK
2		7311.000	-2.976	48.260	45.285	-28.715	74.000	PEAK
3	*	9748.000	-0.502	46.830	46.328	-27.672	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)
Test Date : 2019/06/26

Horizontal



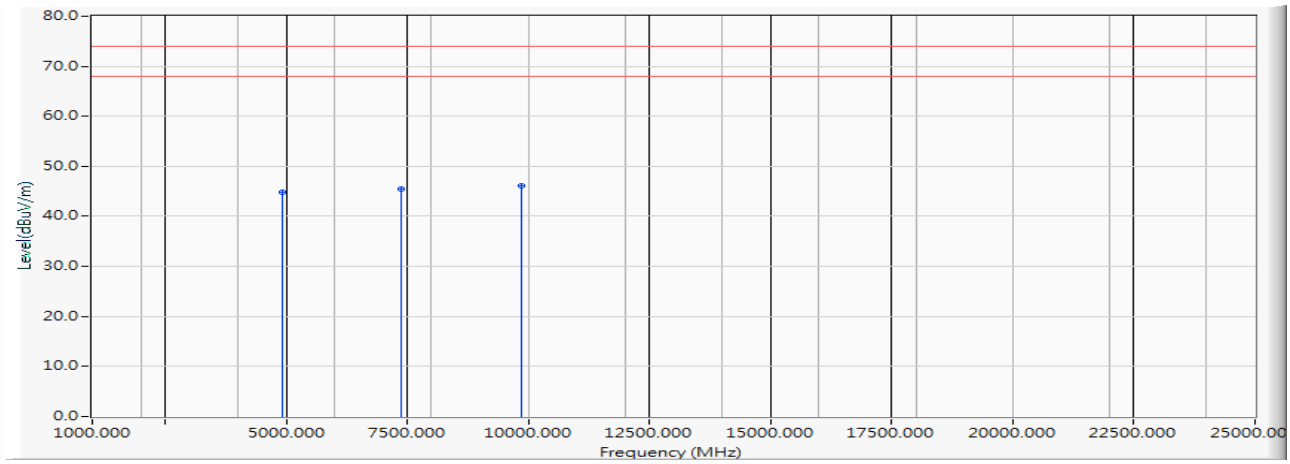
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	49.830	43.790	-30.210	74.000	PEAK
2		7386.000	-2.861	48.620	45.758	-28.242	74.000	PEAK
3	*	9848.000	-0.399	46.740	46.341	-27.659	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)
Test Date : 2019/06/26

Vertical



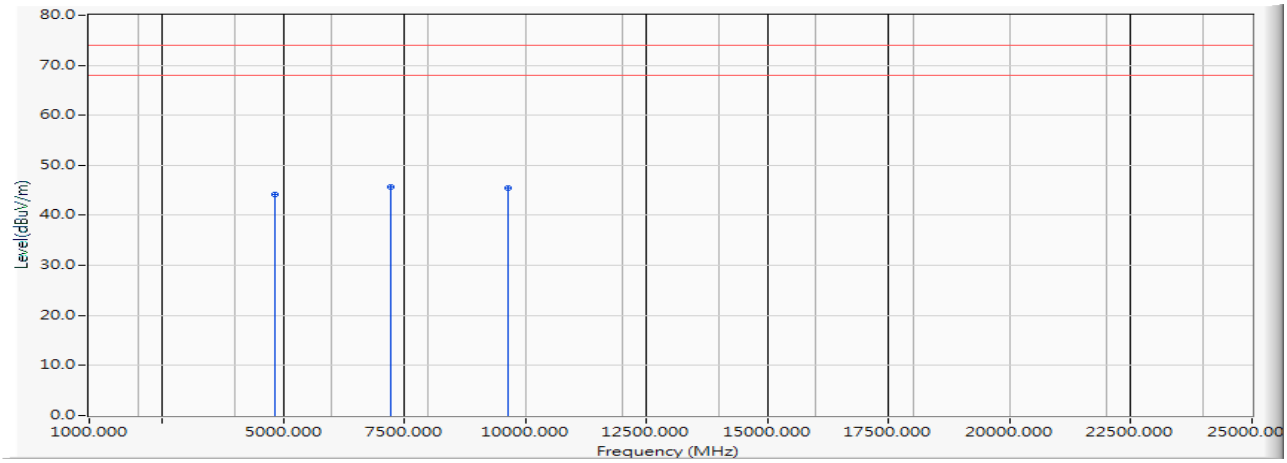
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	50.820	44.780	-29.220	74.000	PEAK
2		7386.000	-2.861	48.290	45.428	-28.572	74.000	PEAK
3	*	9848.000	-0.399	46.520	46.121	-27.879	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/26

Horizontal



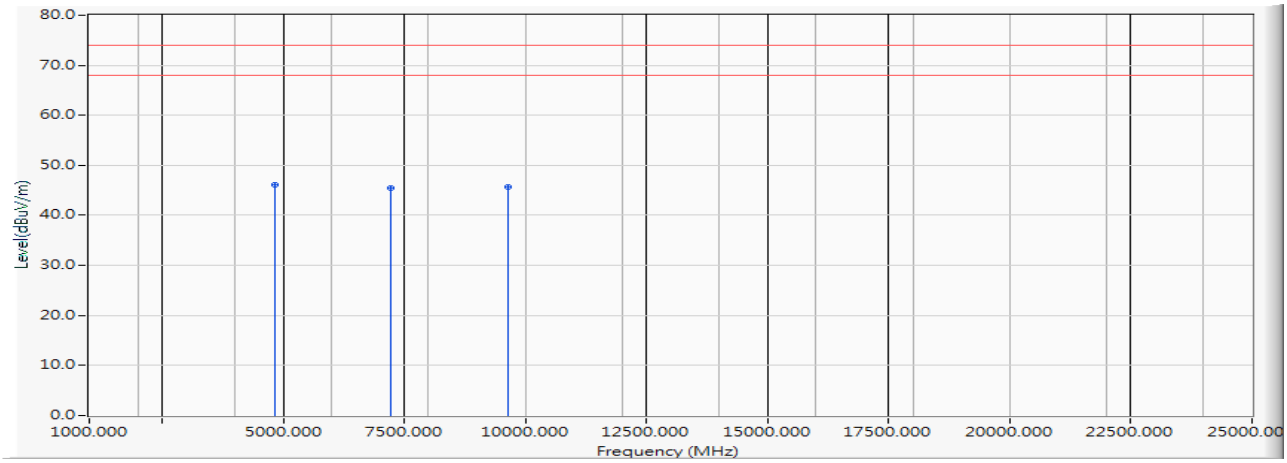
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-6.086	50.180	44.095	-29.905	74.000	PEAK
2	*	7236.000	-3.033	48.760	45.727	-28.273	74.000	PEAK
3		9648.000	-0.680	46.090	45.410	-28.590	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/26

Vertical



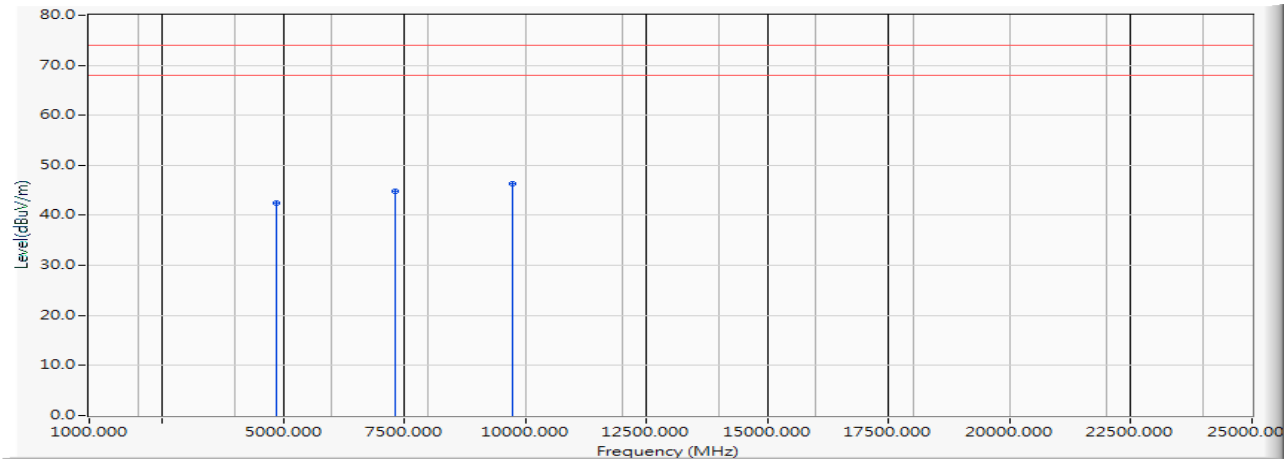
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4824.000	-6.086	52.290	46.205	-27.795	74.000	PEAK
2		7236.000	-3.033	48.550	45.517	-28.483	74.000	PEAK
3		9648.000	-0.680	46.440	45.760	-28.240	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)
Test Date	:	2019/06/26

Horizontal



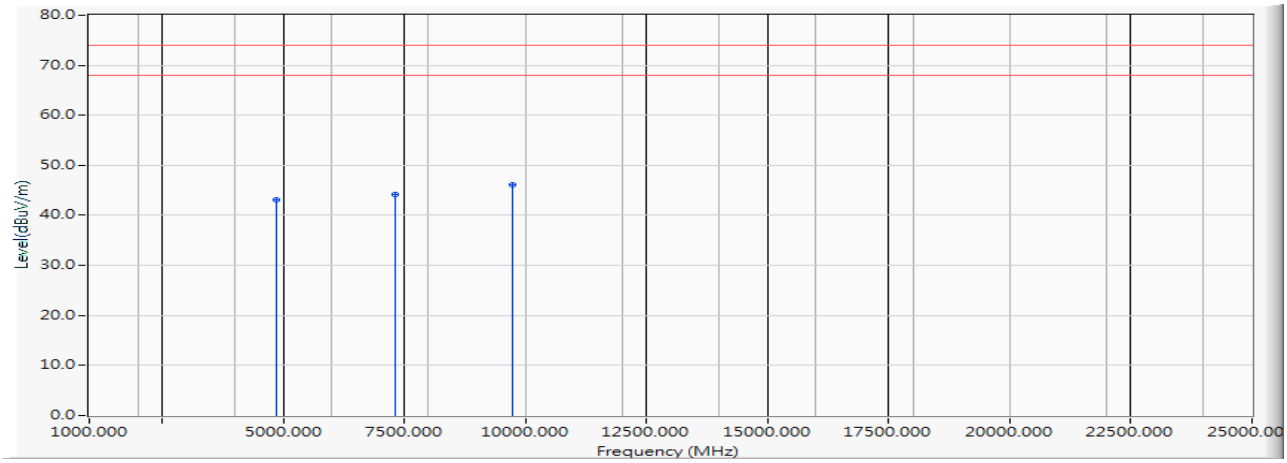
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	48.420	42.365	-31.635	74.000	PEAK
2		7311.000	-2.976	47.720	44.745	-29.255	74.000	PEAK
3	*	9748.000	-0.502	46.820	46.318	-27.682	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)
Test Date	:	2019/06/26

Vertical



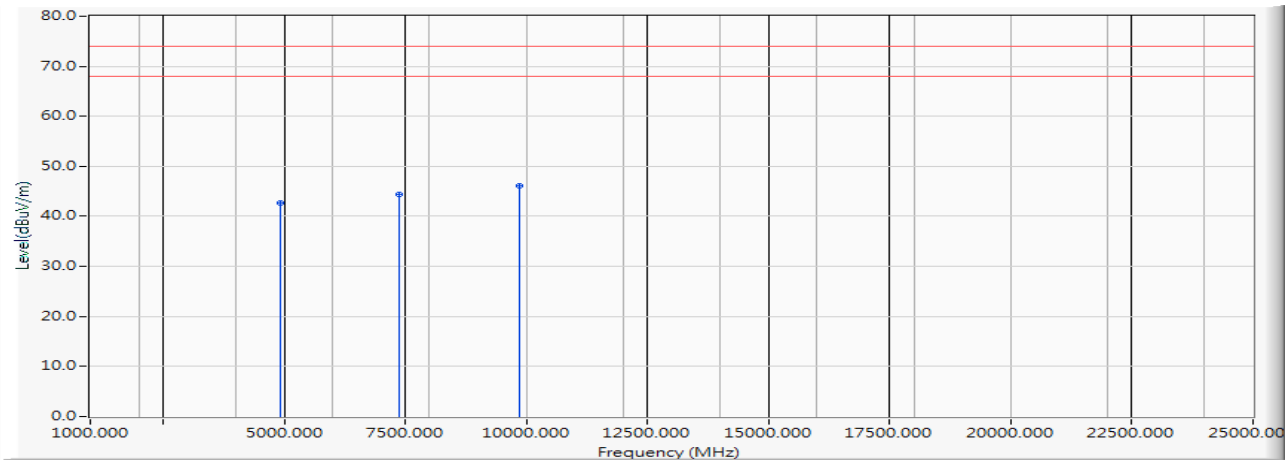
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	49.260	43.205	-30.795	74.000	PEAK
2		7311.000	-2.976	47.250	44.275	-29.725	74.000	PEAK
3	*	9748.000	-0.502	46.520	46.018	-27.982	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)
Test Date : 2019/06/26

Horizontal



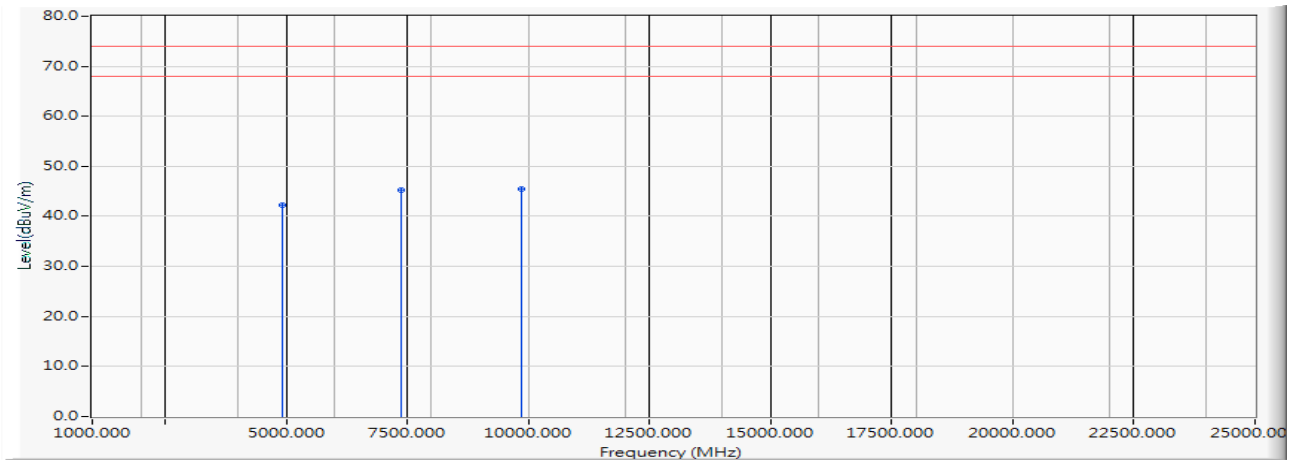
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	48.620	42.580	-31.420	74.000	PEAK
2		7386.000	-2.861	47.290	44.428	-29.572	74.000	PEAK
3	*	9848.000	-0.399	46.480	46.081	-27.919	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)
Test Date : 2019/06/26

Vertical



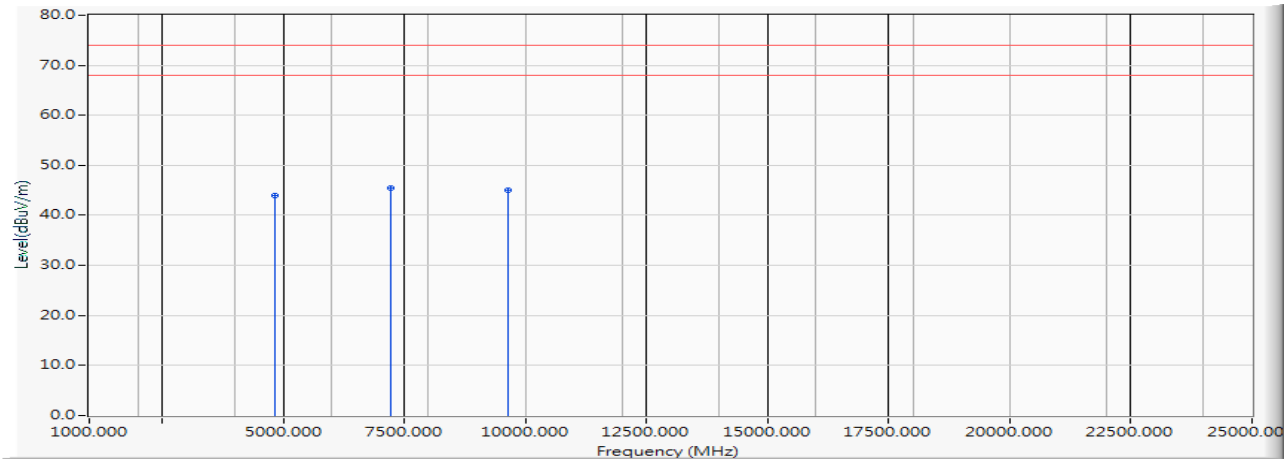
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	48.390	42.350	-31.650	74.000	PEAK
2		7386.000	-2.861	48.060	45.198	-28.802	74.000	PEAK
3	*	9848.000	-0.399	45.880	45.481	-28.519	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)(2412MHz)
Test Date : 2019/06/26

Horizontal



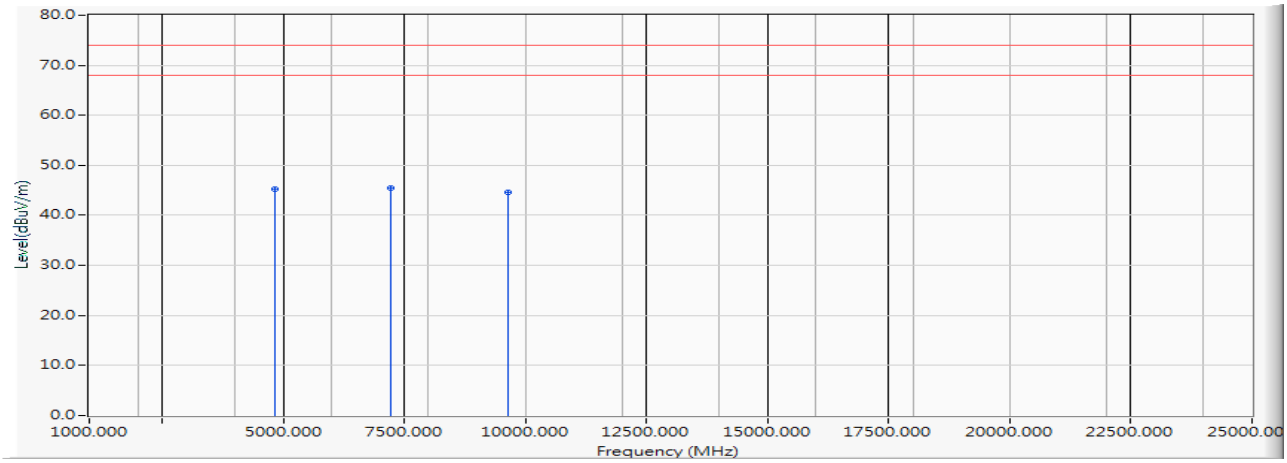
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-6.086	50.090	44.005	-29.995	74.000	PEAK
2	*	7236.000	-3.033	48.420	45.387	-28.613	74.000	PEAK
3		9648.000	-0.680	45.820	45.140	-28.860	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)(2412MHz)
Test Date : 2019/06/26

Vertical



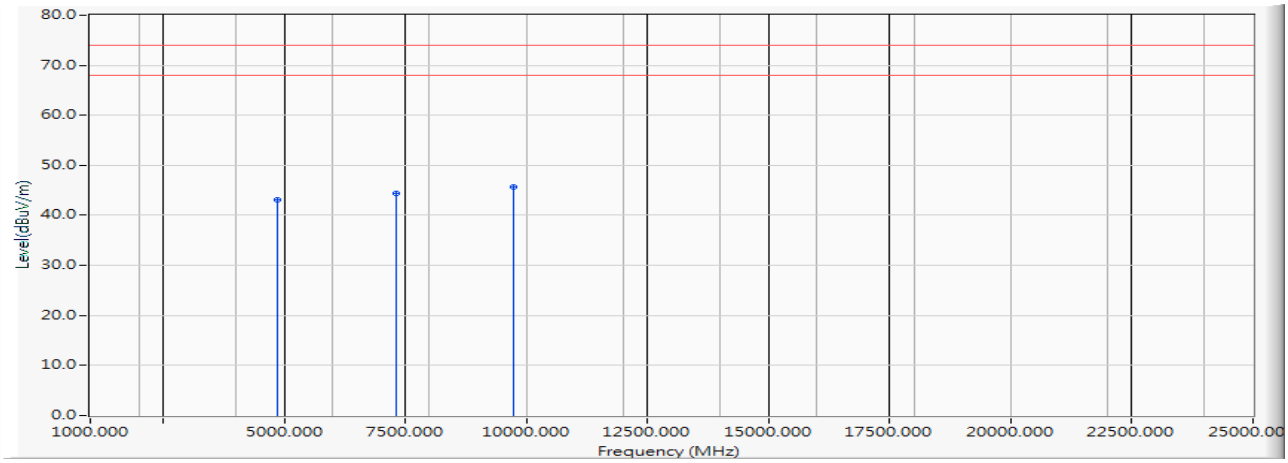
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-6.086	51.280	45.195	-28.805	74.000	PEAK
2	*	7236.000	-3.033	48.550	45.517	-28.483	74.000	PEAK
3		9648.000	-0.680	45.200	44.520	-29.480	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437 MHz)
Test Date	:	2019/06/26

Horizontal



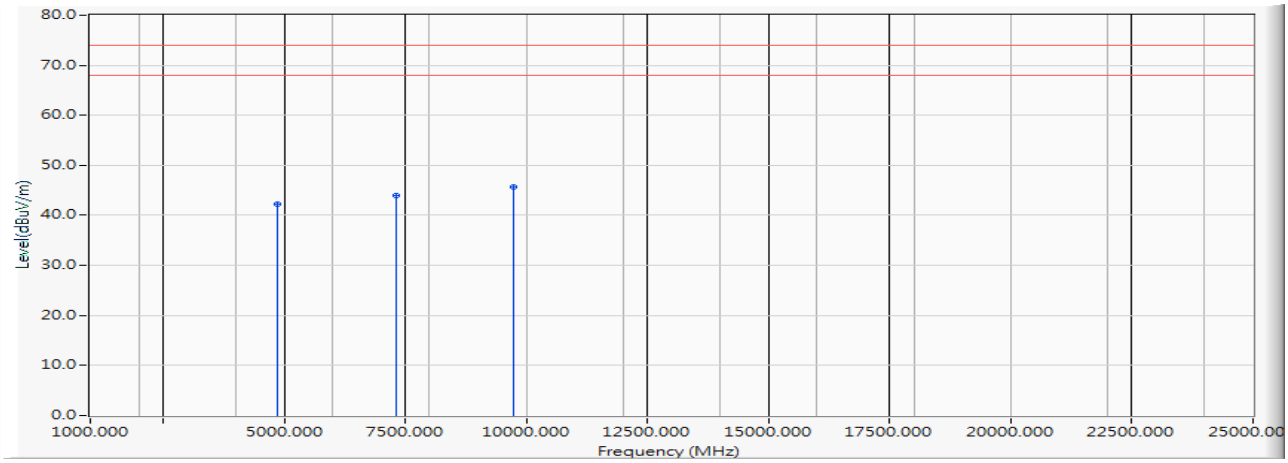
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	49.060	43.005	-30.995	74.000	PEAK
2		7311.000	-2.976	47.280	44.305	-29.695	74.000	PEAK
3	*	9748.000	-0.502	46.240	45.738	-28.262	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Intelligent Robot
Test Item	:	Harmonic Radiated Emission Data
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2437 MHz)
Test Date	:	2019/06/26

Vertical



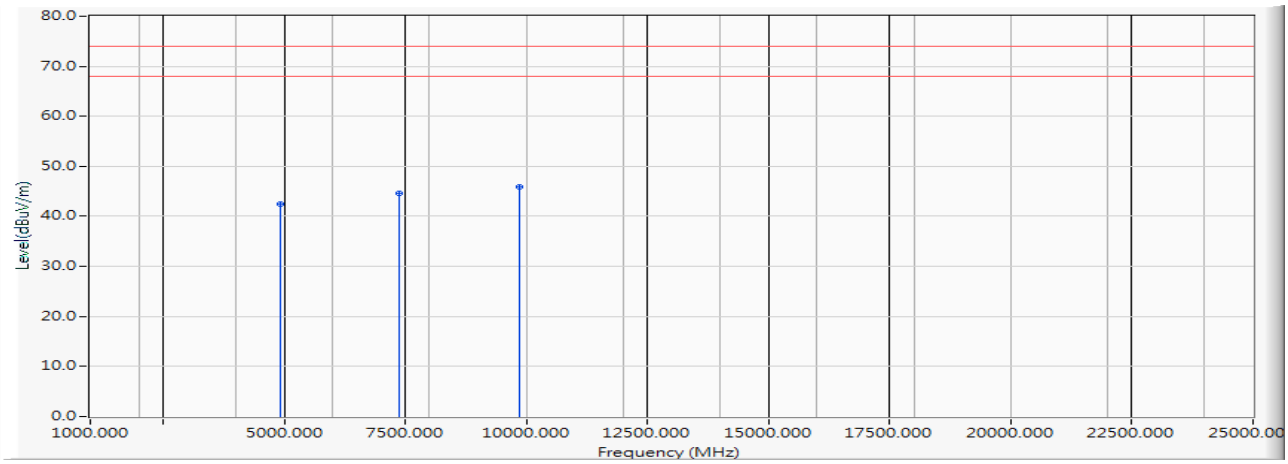
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-6.055	48.260	42.205	-31.795	74.000	PEAK
2		7311.000	-2.976	47.050	44.075	-29.925	74.000	PEAK
3	*	9748.000	-0.502	46.290	45.788	-28.212	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462 MHz)
Test Date : 2019/06/26

Horizontal



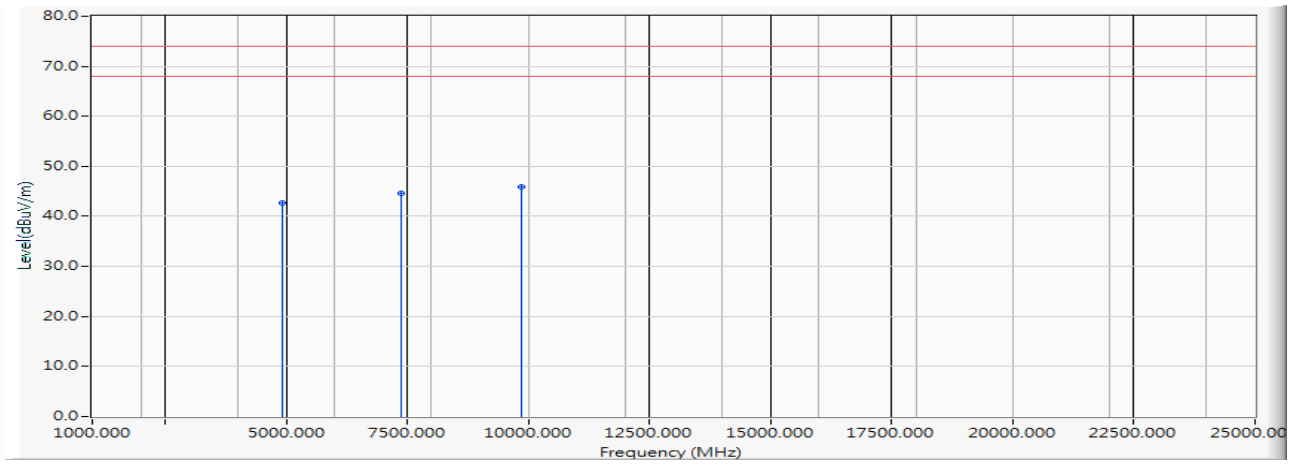
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	48.530	42.490	-31.510	74.000	PEAK
2		7386.000	-2.861	47.510	44.648	-29.352	74.000	PEAK
3	*	9848.000	-0.399	46.330	45.931	-28.069	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462 MHz)
Test Date : 2019/06/26

Vertical



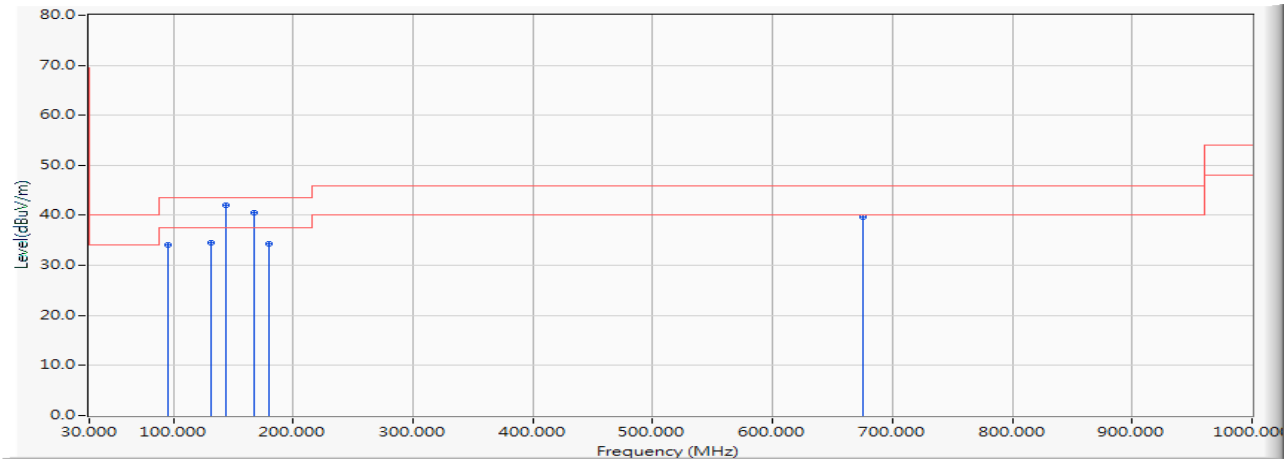
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-6.041	48.790	42.750	-31.250	74.000	PEAK
2		7386.000	-2.861	47.510	44.648	-29.352	74.000	PEAK
3	*	9848.000	-0.399	46.290	45.891	-28.109	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intelligent Robot
Test Item : General Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)
Test Date : 2019/06/18

Horizontal



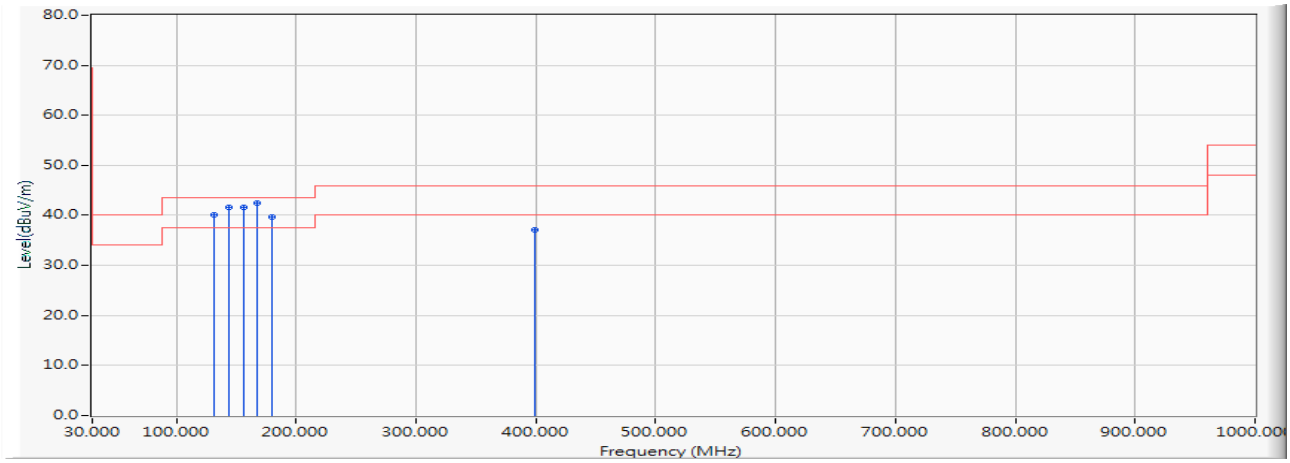
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		95.960	-16.776	50.873	34.097	-9.403	43.500	QUASIPEAK
2		131.850	-12.267	46.699	34.432	-9.068	43.500	QUASIPEAK
3	*	143.490	-11.340	53.364	42.024	-1.476	43.500	QUASIPEAK
4		167.740	-11.095	51.570	40.475	-3.025	43.500	QUASIPEAK
5		179.380	-12.456	46.674	34.218	-9.282	43.500	QUASIPEAK
6		676.020	-3.338	42.936	39.598	-6.402	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Intelligent Robot
Test Item : General Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)
Test Date : 2019/06/18

Vertical



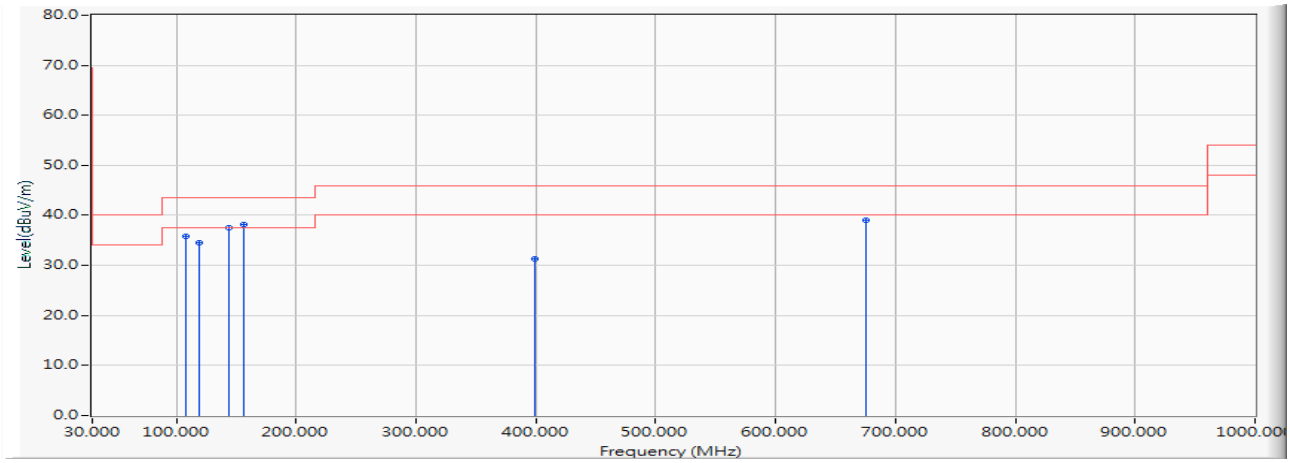
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		131.850	-12.267	52.393	40.126	-3.374	43.500	QUASIPEAK
2		143.490	-11.340	53.028	41.688	-1.812	43.500	QUASIPEAK
3		156.100	-10.938	52.586	41.648	-1.852	43.500	QUASIPEAK
4	*	167.740	-11.095	53.491	42.396	-1.104	43.500	QUASIPEAK
5		179.380	-12.456	52.208	39.752	-3.748	43.500	QUASIPEAK
6		399.570	-8.176	45.297	37.121	-8.879	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product	:	Intelligent Robot
Test Item	:	General Radiated Emission Data
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)
Test Date	:	2019/06/18

Horizontal



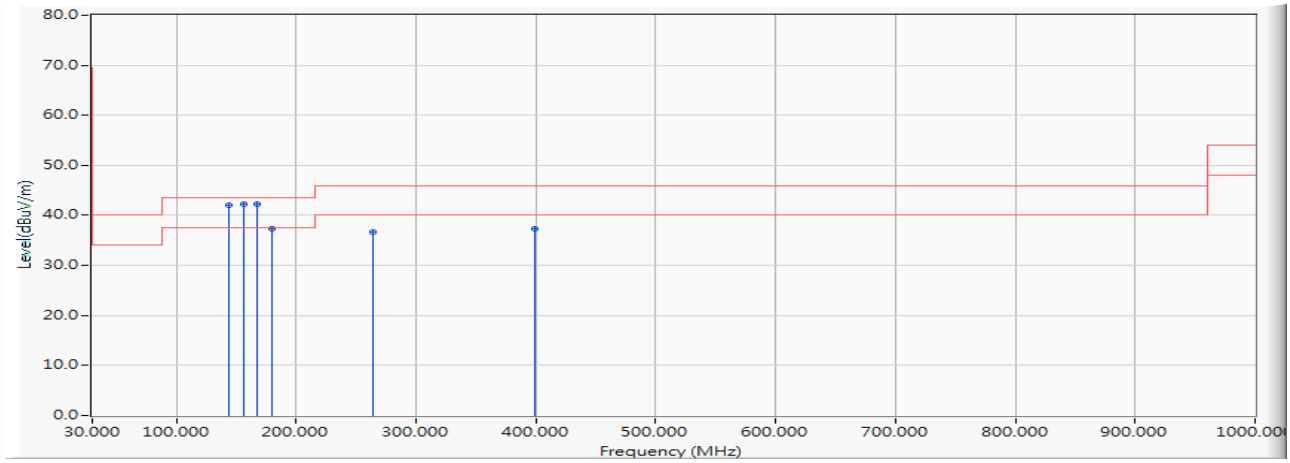
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		107.600	-14.851	50.648	35.797	-7.703	43.500	QUASIPEAK
2		119.240	-13.569	48.142	34.573	-8.927	43.500	QUASIPEAK
3		143.490	-11.340	48.816	37.476	-6.024	43.500	QUASIPEAK
4	*	156.100	-10.938	49.136	38.198	-5.302	43.500	QUASIPEAK
5		399.570	-8.176	39.474	31.298	-14.702	46.000	QUASIPEAK
6		676.020	-3.338	42.388	39.050	-6.950	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product	:	Intelligent Robot
Test Item	:	General Radiated Emission Data
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)
Test Date	:	2019/06/18

Vertical



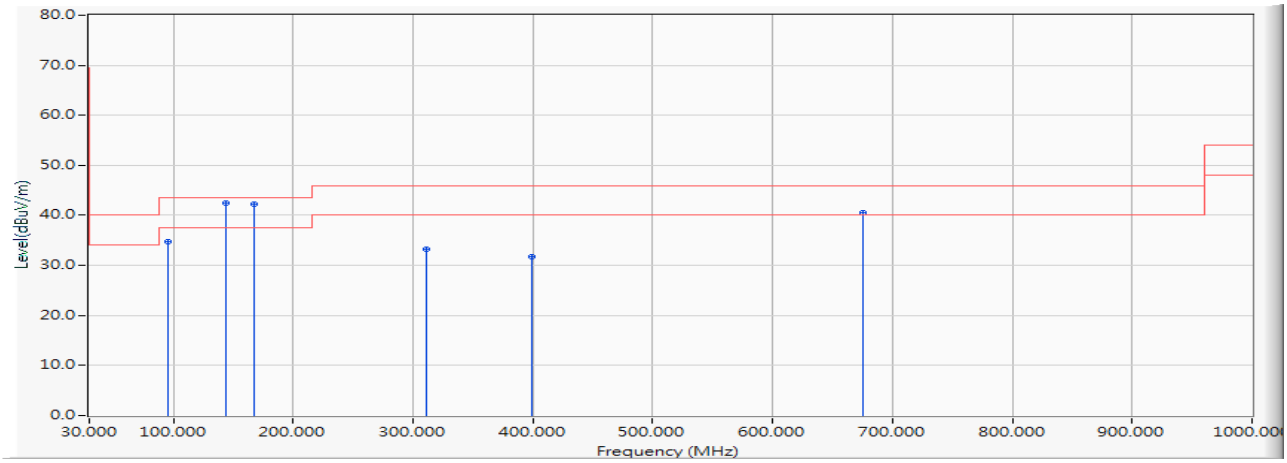
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		143.490	-11.340	53.403	42.063	-1.437	43.500	QUASIPEAK
2	*	156.100	-10.938	53.182	42.244	-1.256	43.500	QUASIPEAK
3		167.740	-11.095	53.306	42.211	-1.289	43.500	QUASIPEAK
4		179.380	-12.456	49.851	37.395	-6.105	43.500	QUASIPEAK
5		263.770	-11.804	48.489	36.685	-9.315	46.000	QUASIPEAK
6		399.570	-8.176	45.551	37.375	-8.625	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Intelligent Robot
Test Item : General Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)(2437 MHz)
Test Date : 2019/06/18

Horizontal



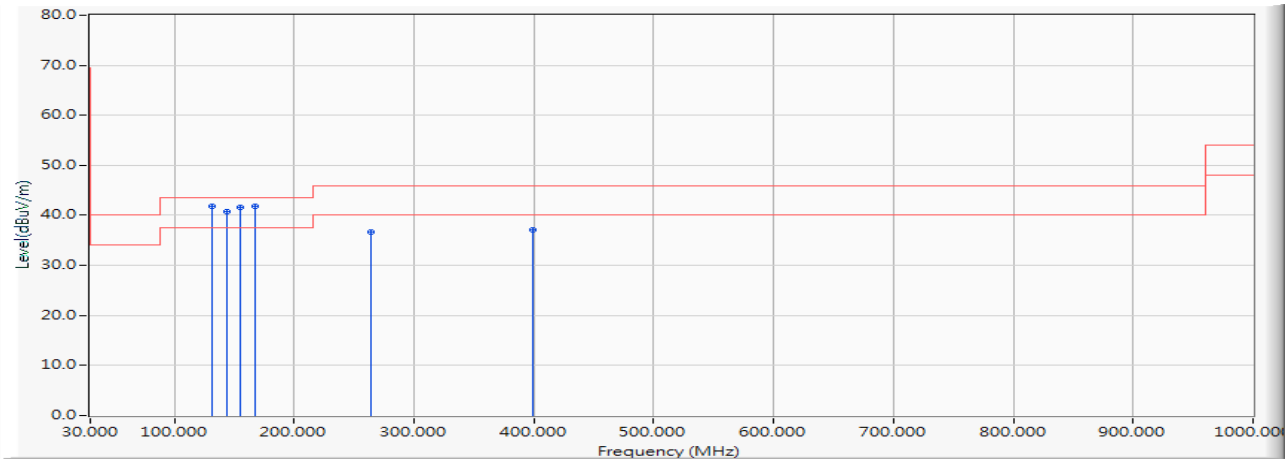
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		95.960	-16.776	51.609	34.833	-8.667	43.500	QUASIPEAK
2	*	143.490	-11.340	53.710	42.370	-1.130	43.500	QUASIPEAK
3		167.740	-11.095	53.310	42.215	-1.285	43.500	QUASIPEAK
4		311.300	-10.282	43.468	33.186	-12.814	46.000	QUASIPEAK
5		399.570	-8.176	39.997	31.821	-14.179	46.000	QUASIPEAK
6		676.020	-3.338	43.945	40.607	-5.393	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Intelligent Robot
Test Item : General Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)(2437 MHz)
Test Date : 2019/06/18

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	131.850	-12.267	54.125	41.858	-1.642	43.500	QUASIPEAK
2		143.490	-11.340	52.022	40.682	-2.818	43.500	QUASIPEAK
3		155.130	-10.964	52.546	41.582	-1.918	43.500	QUASIPEAK
4		167.740	-11.095	52.921	41.826	-1.674	43.500	QUASIPEAK
5		263.770	-11.804	48.408	36.604	-9.396	46.000	QUASIPEAK
6		399.570	-8.176	45.346	37.170	-8.830	46.000	QUASIPEAK

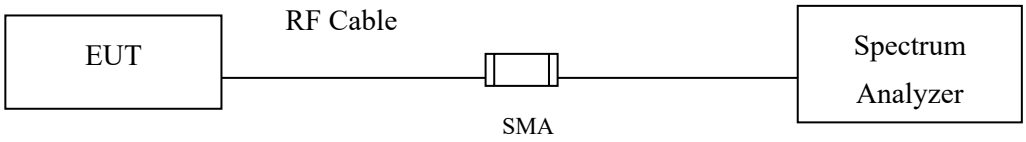
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF antenna conducted test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz 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 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.3. Test Procedure

Tested according to DTS test procedure of KDB558074 section 8.5 DTS emissions in non-restricted frequency bands for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

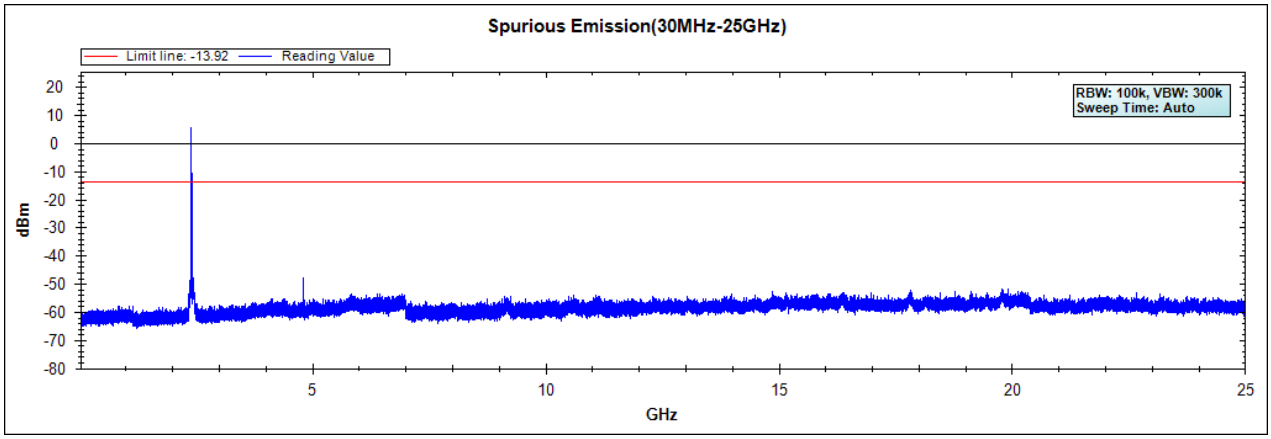
5.4. Uncertainty

±1.23dB

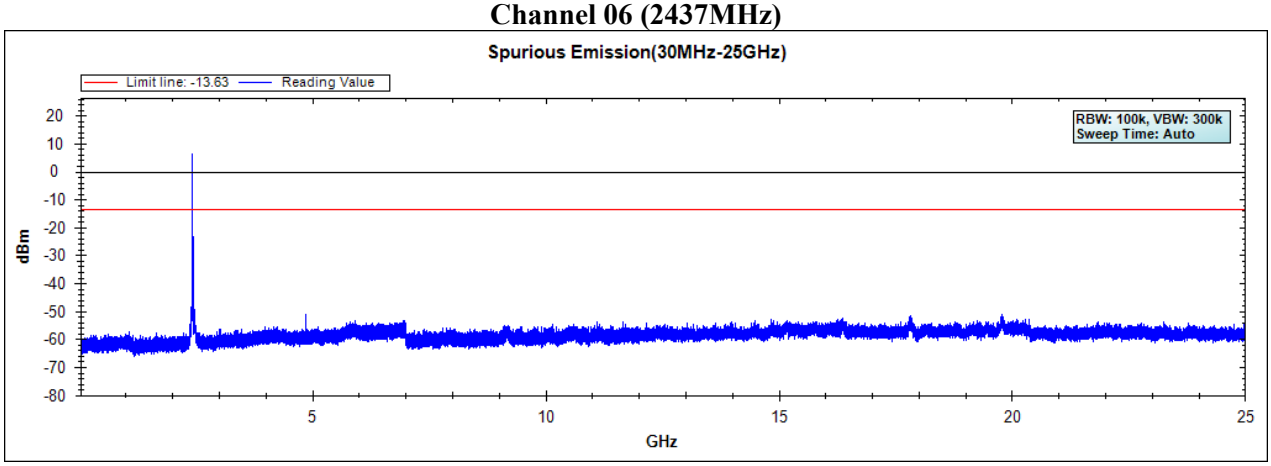
5.5. Test Result of RF antenna conducted test

Product	:	Intelligent Robot
Test Item	:	RF antenna conducted test
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)
Test Date	:	2019/06/06

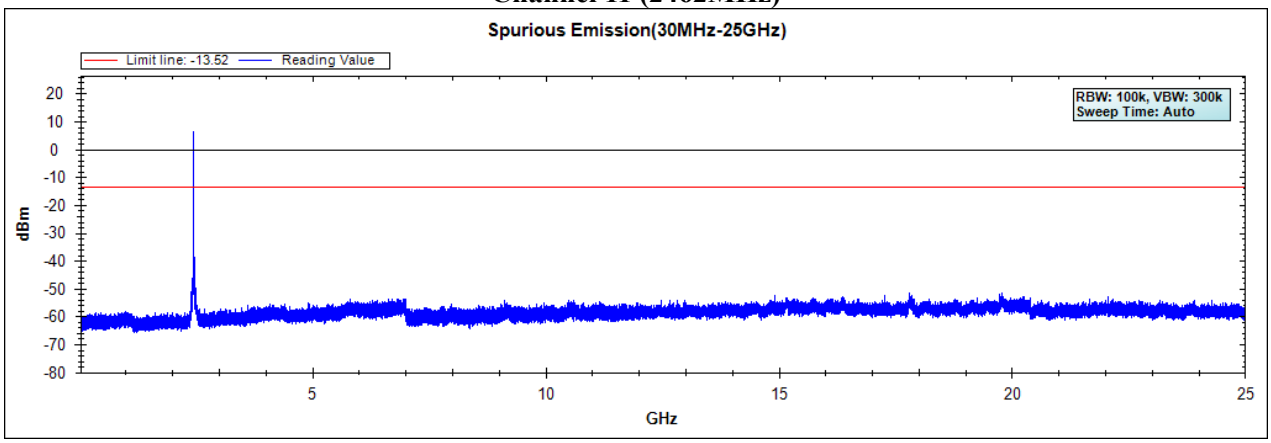
Channel 01 (2412MHz)



Channel 06 (2437MHz)



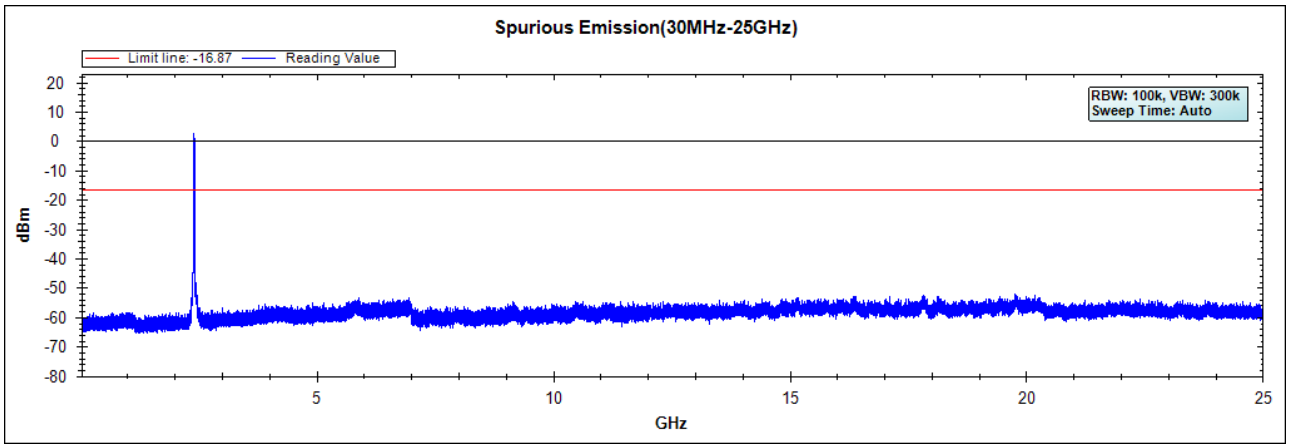
Channel 11 (2462MHz)



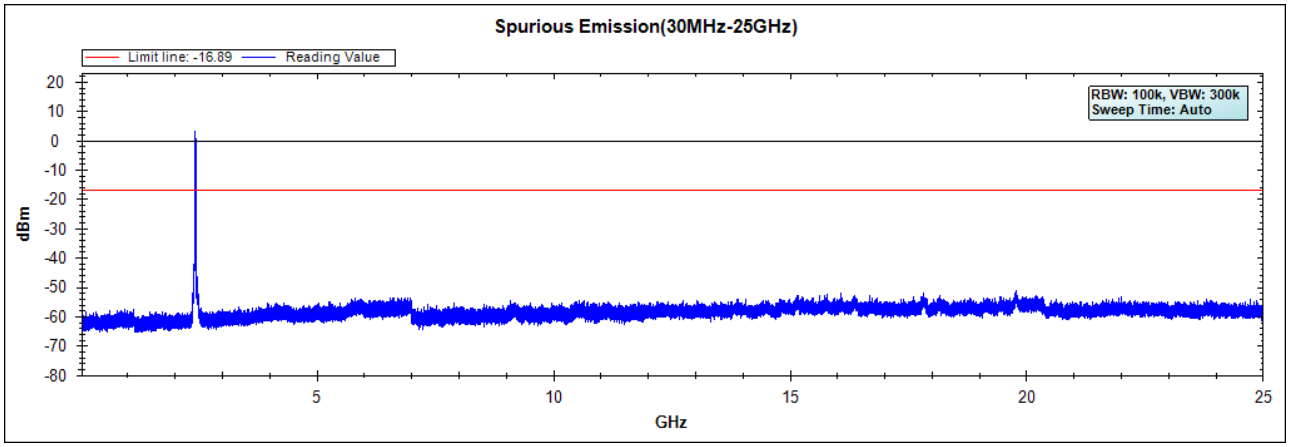
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Intelligent Robot
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)
Test Date	:	2019/06/06

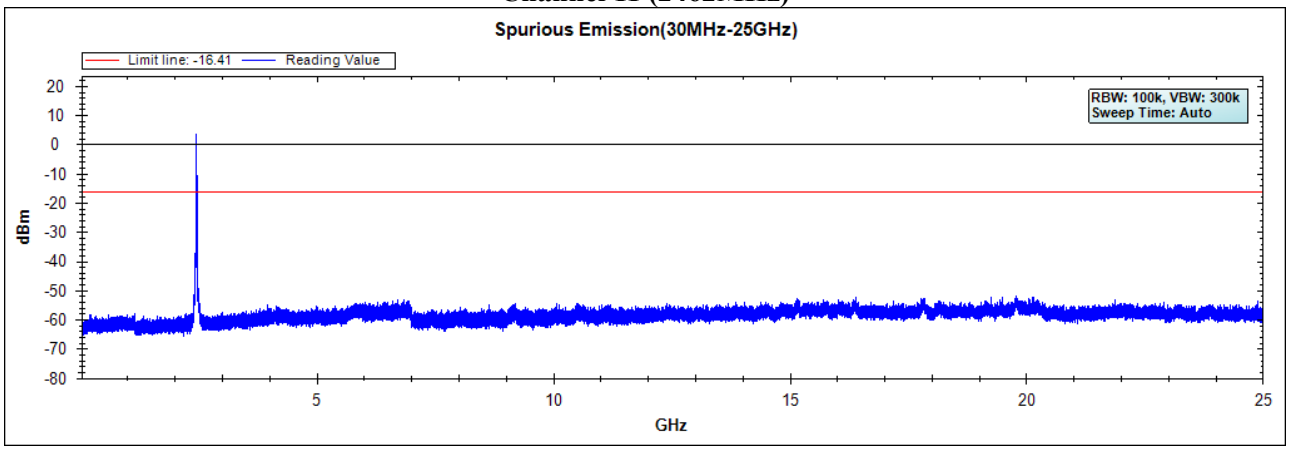
Channel 01 (2412MHz)



Channel 06 (2437MHz)



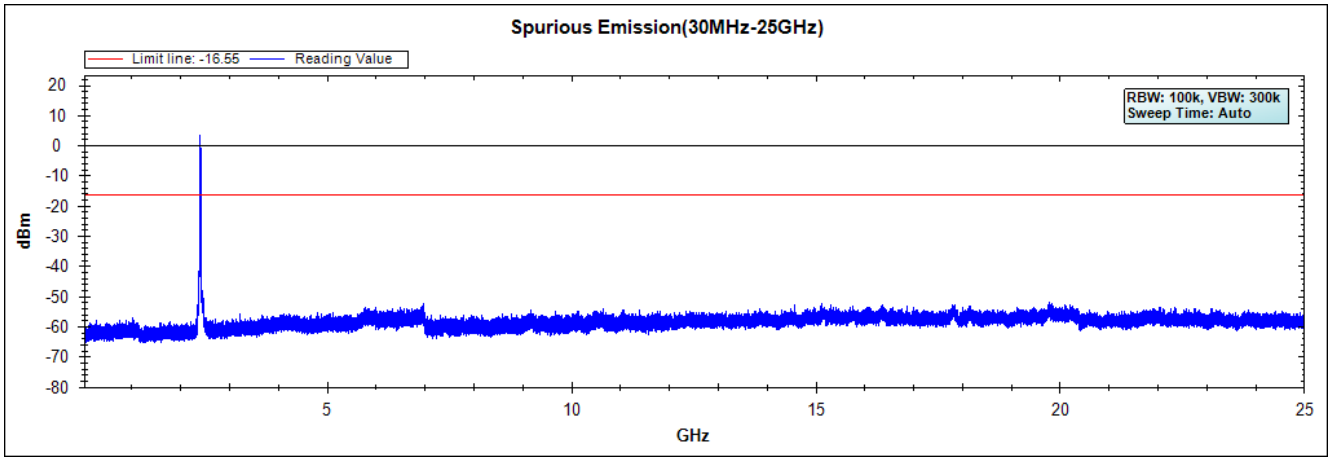
Channel 11 (2462MHz)



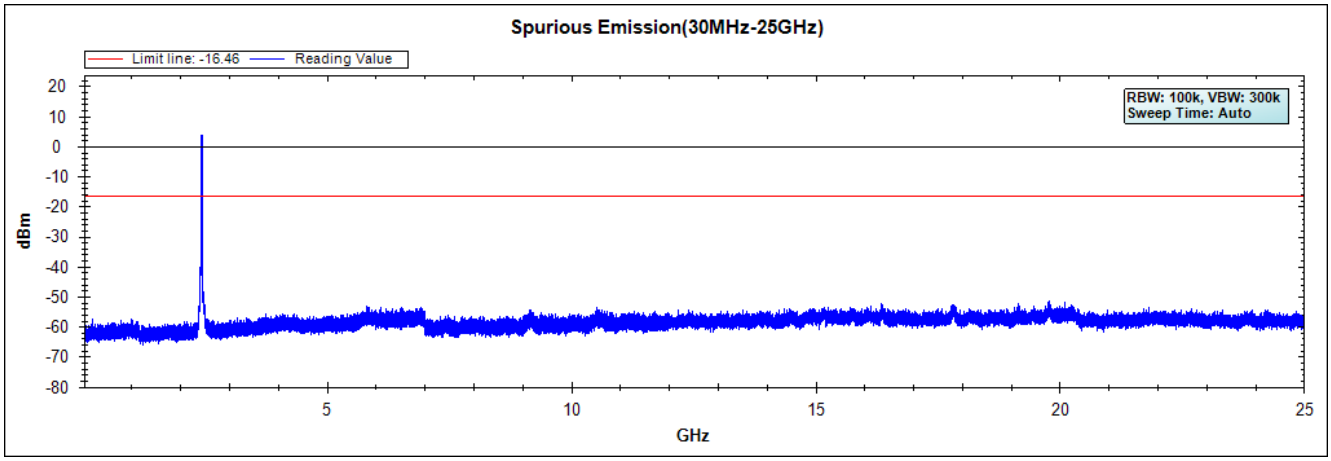
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Intelligent Robot
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit (802.11n-20MBW 7.2Mbps)
Test Date	:	2019/06/06

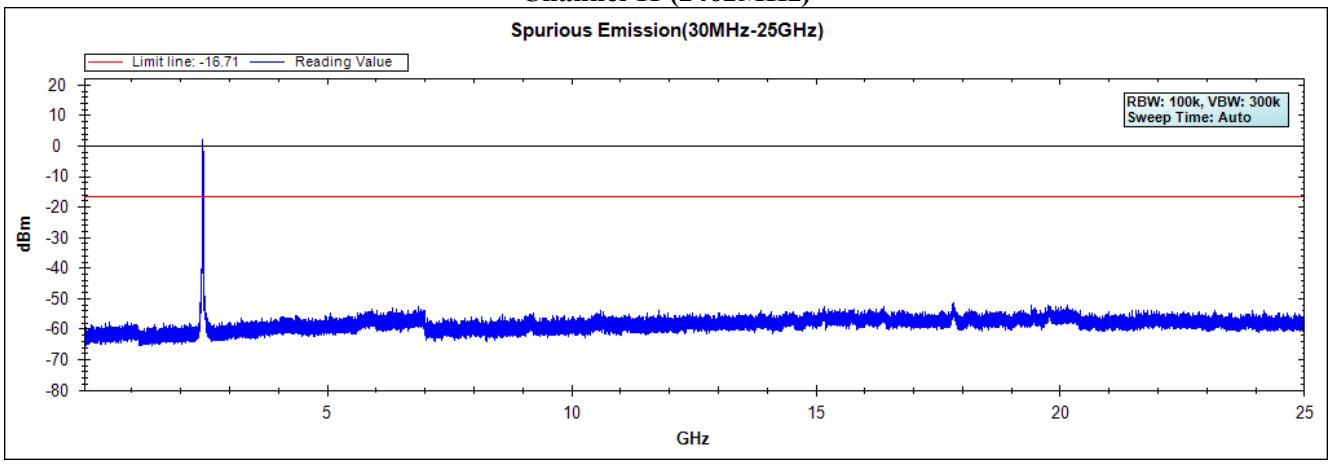
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

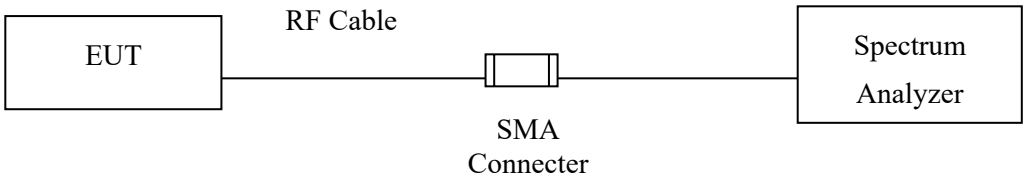


Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

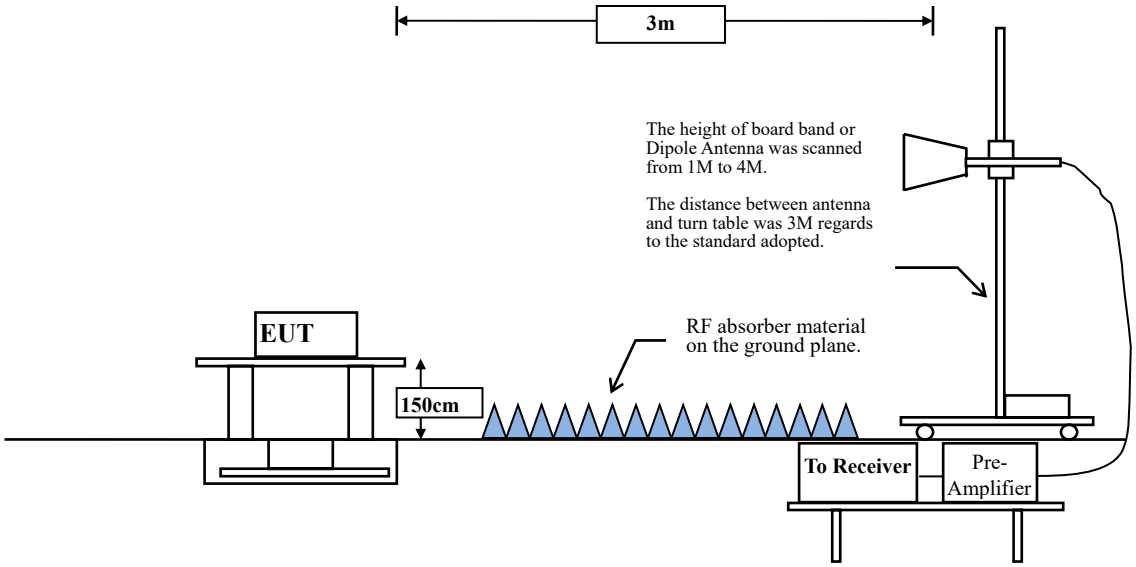
6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

RBW and VBW Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

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

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	99.45	--	--	10
802.11g	94.12	1.4400	694	1k
802.11n20	93.75	1.3500	741	1k

Note: Duty Cycle Refer to Section 9

6.4. Uncertainty

Conducted: ±1.23dB

Radiated:

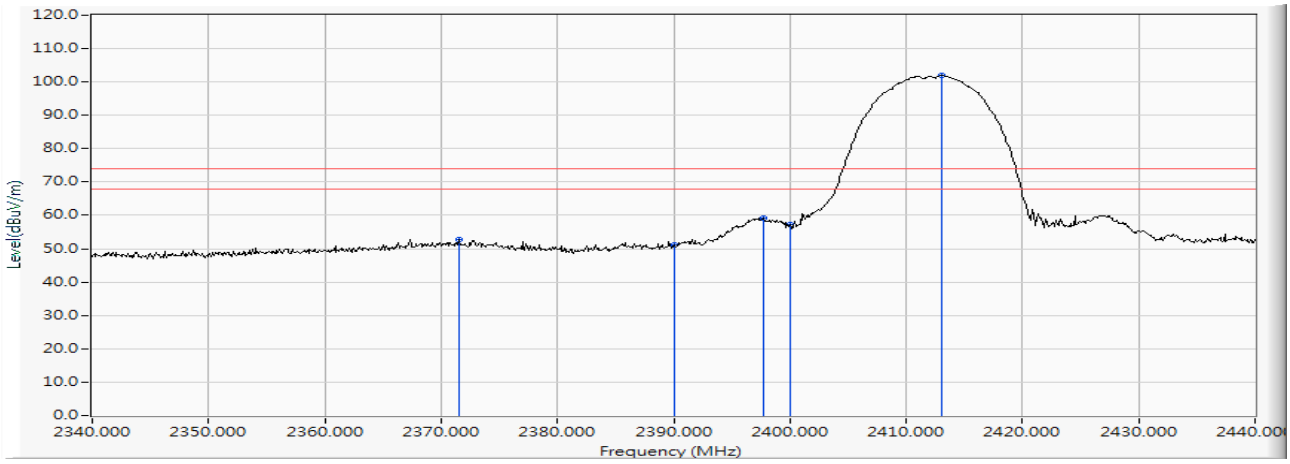
Horizontal polarization：1-18GHz: ±3.77dB

Vertical polarization：1-18GHz : ±3.83dB

6.5. Test Result of Band Edge

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



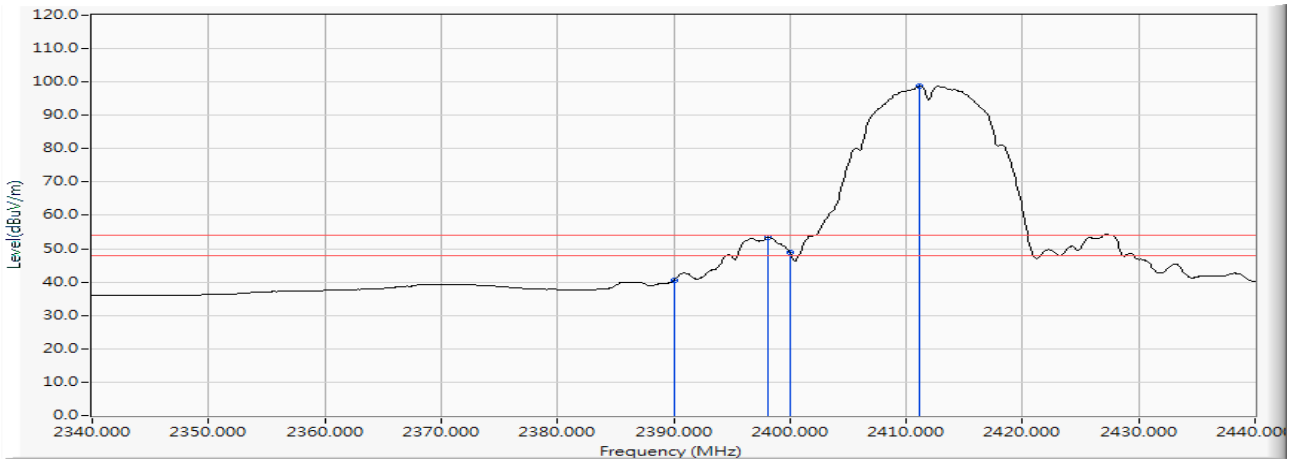
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2371.500	10.189	42.652	52.840	-21.160	74.000	PEAK
2		2390.000	10.262	40.818	51.080	-22.920	74.000	PEAK
3		2397.700	10.294	48.760	59.054	--	--	PEAK
4		2400.000	10.304	46.961	57.264	--	--	PEAK
5	*	2413.100	10.357	91.588	101.944	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



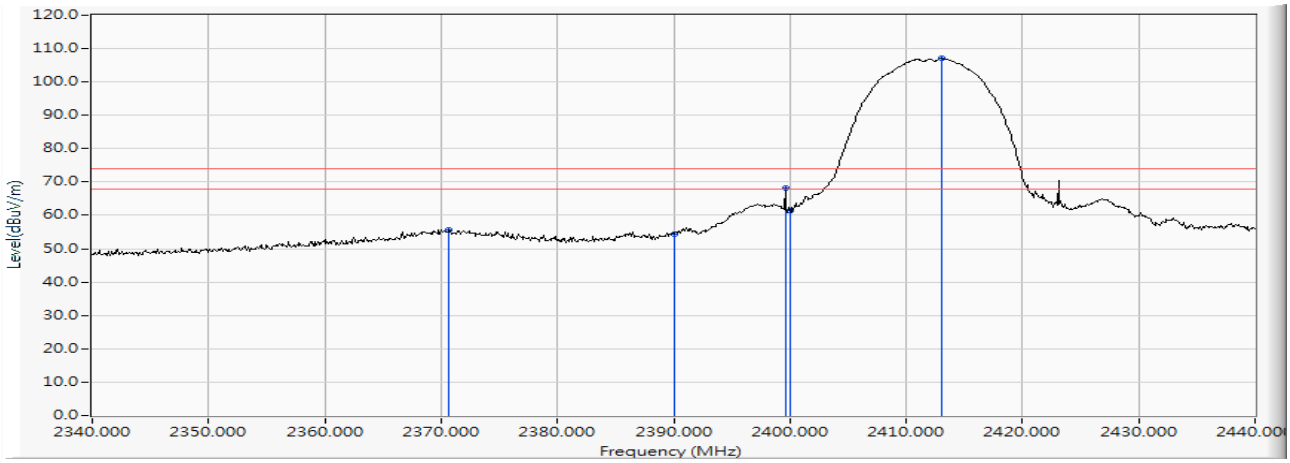
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	30.202	40.464	-13.536	54.000	AVERAGE
2		2398.100	10.295	43.128	53.423	--	--	AVERAGE
3		2400.000	10.304	38.653	48.956	--	--	AVERAGE
4	*	2411.200	10.349	88.462	98.811	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical



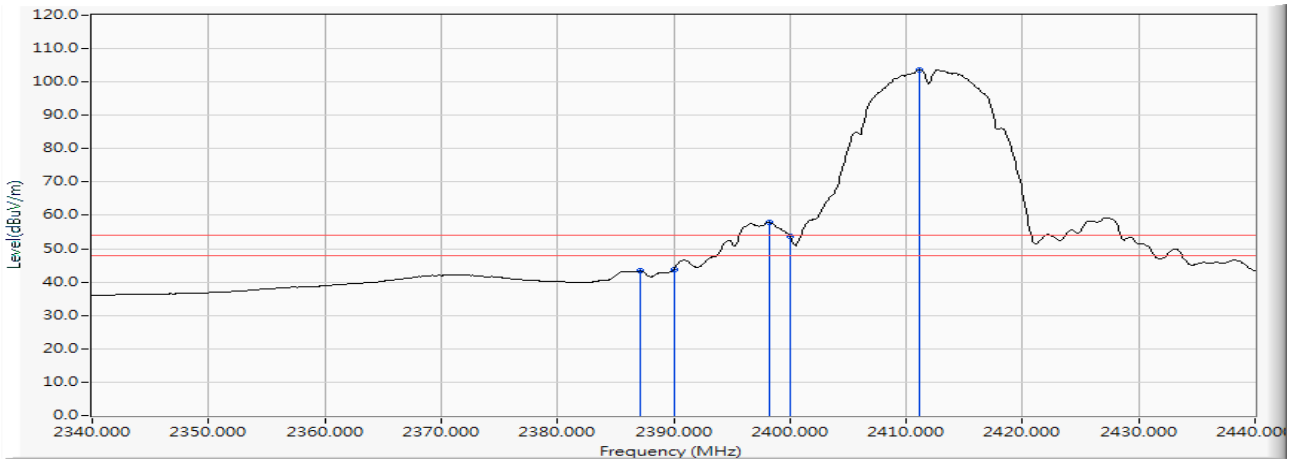
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2370.700	10.184	45.605	55.790	-18.210	74.000	PEAK
2		2390.000	10.262	44.190	54.452	-19.548	74.000	PEAK
3		2399.600	10.302	58.040	68.342	--	--	PEAK
4		2400.000	10.304	51.013	61.316	--	--	PEAK
5	*	2413.100	10.357	96.678	107.034	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical



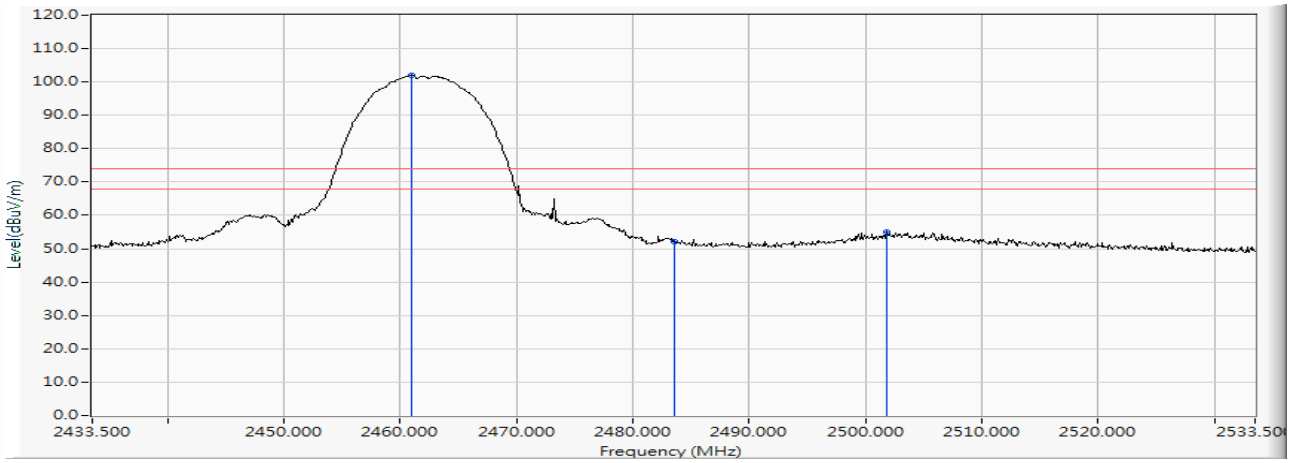
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2387.100	10.250	33.024	43.274	-10.726	54.000	AVERAGE
2		2390.000	10.262	33.631	43.893	-10.107	54.000	AVERAGE
3		2398.200	10.295	47.685	57.981	--	--	AVERAGE
4		2400.000	10.304	43.393	53.696	--	--	AVERAGE
5	*	2411.200	10.349	93.258	103.607	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



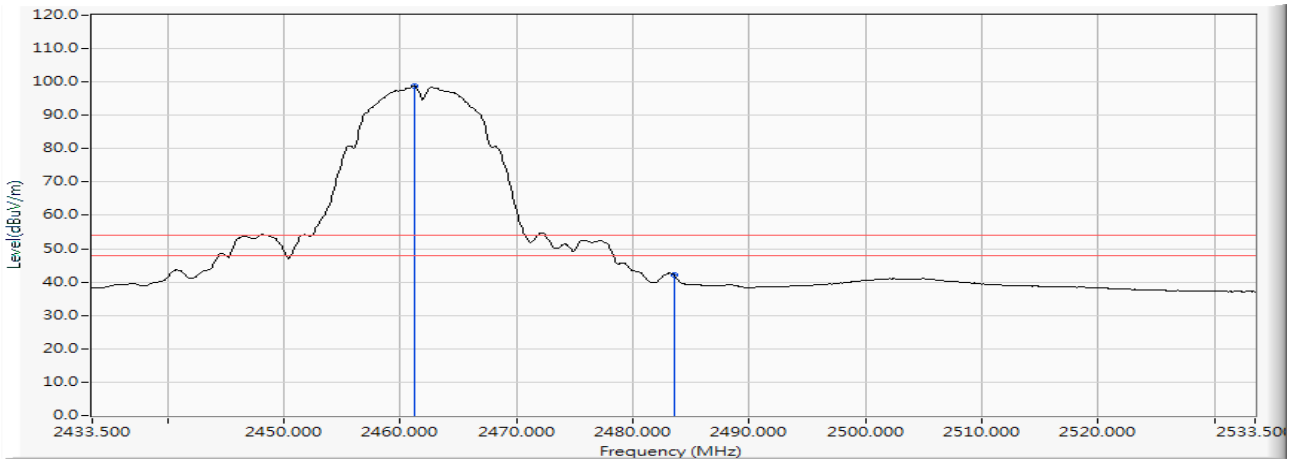
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2461.000	10.545	91.447	101.992	--	--	PEAK
2		2483.500	10.640	41.421	52.062	-21.938	74.000	PEAK
3		2501.800	10.700	44.224	54.924	-19.076	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



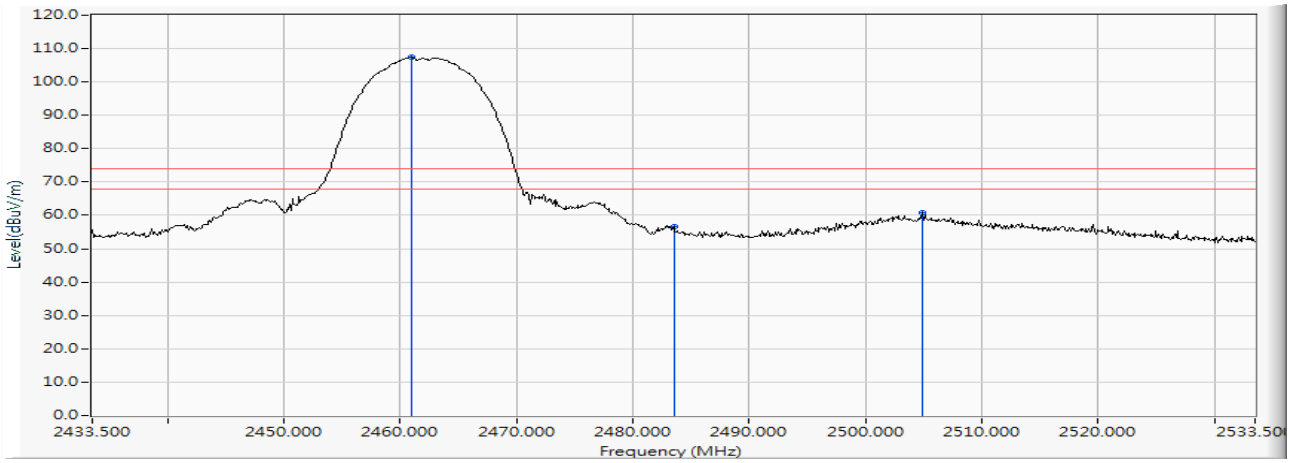
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2461.200	10.545	88.276	98.822	--	--	AVERAGE
2		2483.500	10.640	31.494	42.135	-11.865	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



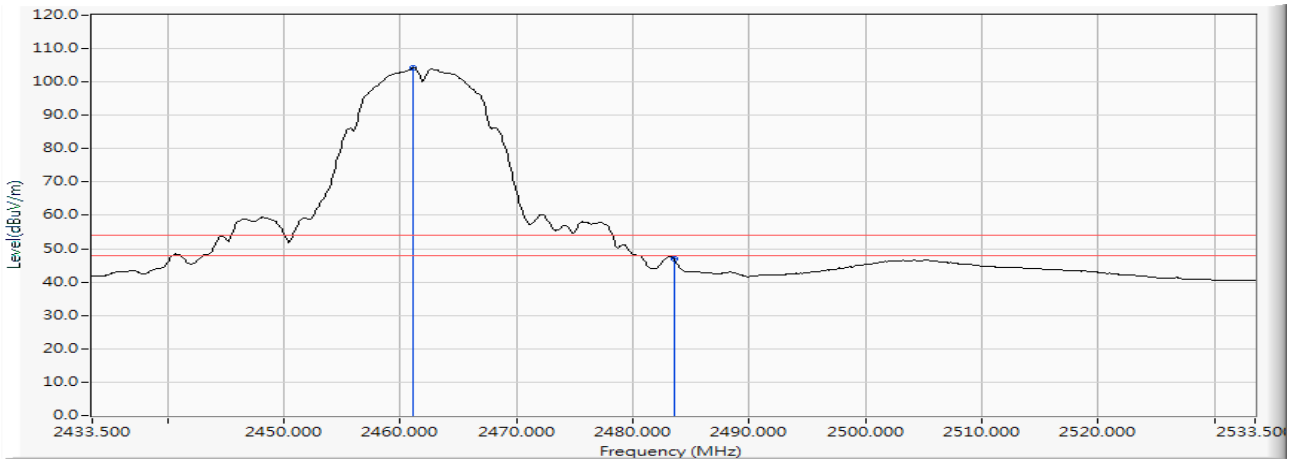
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2460.900	10.545	96.847	107.392	--	--	PEAK
2		2483.500	10.640	45.966	56.607	-17.393	74.000	PEAK
3		2504.900	10.705	50.233	60.939	-13.061	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



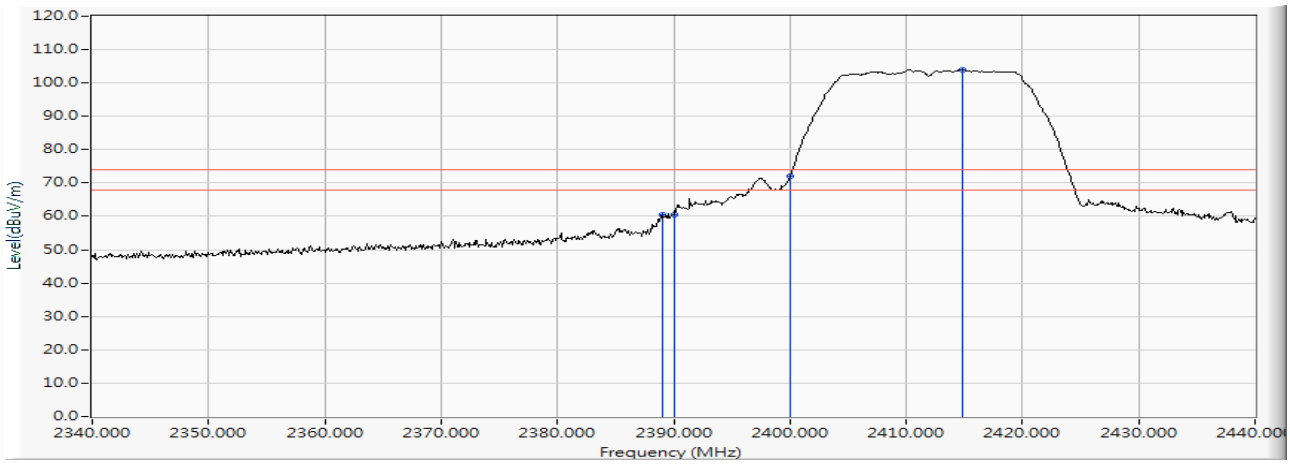
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2461.100	10.545	93.666	104.212	--	--	AVERAGE
2		2483.500	10.640	36.356	46.997	-7.003	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



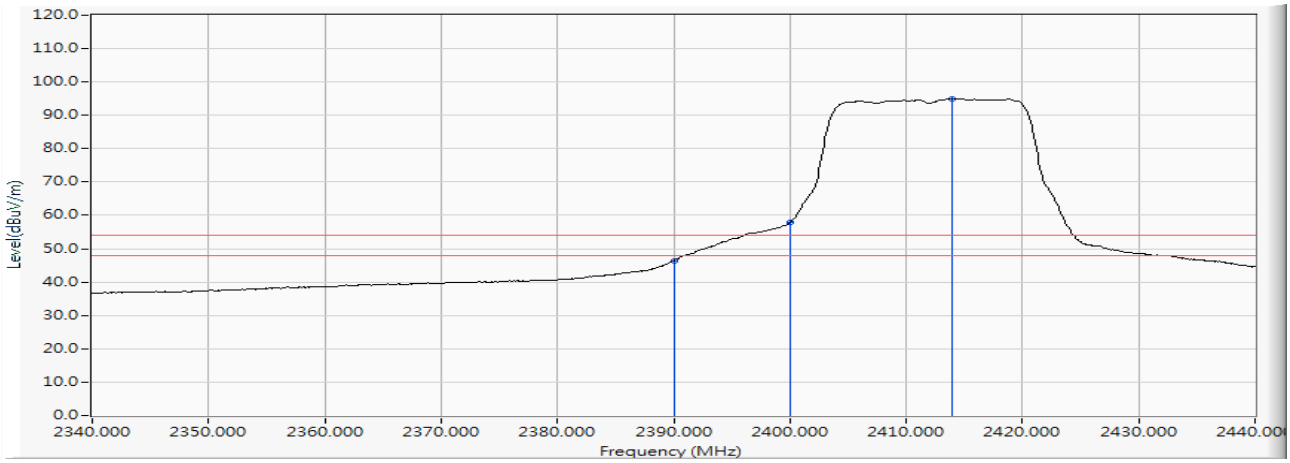
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2389.000	10.258	50.318	60.576	-13.424	74.000	PEAK
2		2390.000	10.262	50.128	60.390	-13.610	74.000	PEAK
3		2400.000	10.304	61.648	71.951	--	--	PEAK
4	*	2414.800	10.363	93.668	104.031	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



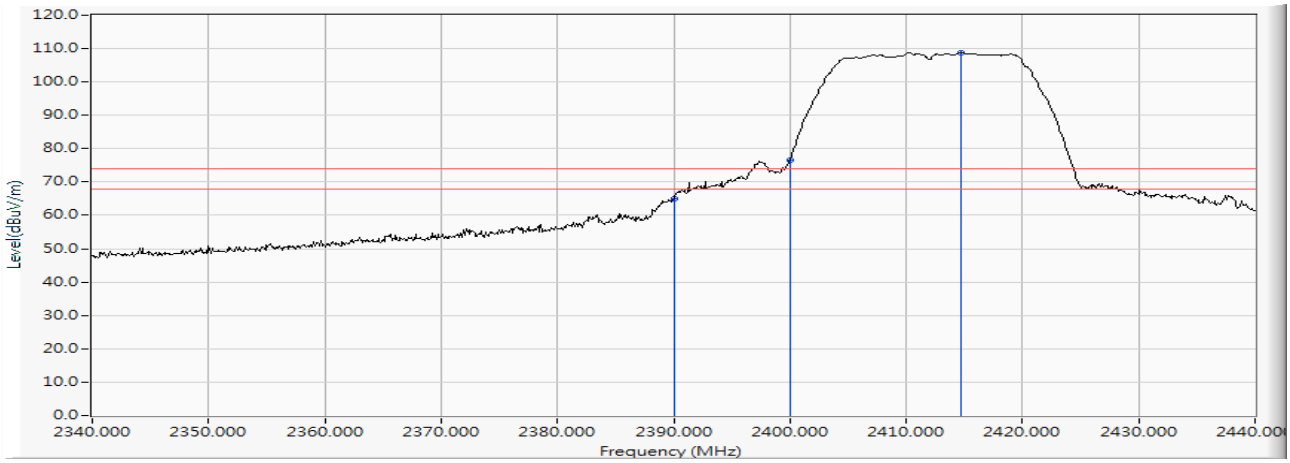
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	36.140	46.402	-7.598	54.000	AVERAGE
2		2400.000	10.304	47.541	57.844	--	--	AVERAGE
3	*	2414.000	10.360	84.663	95.023	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical



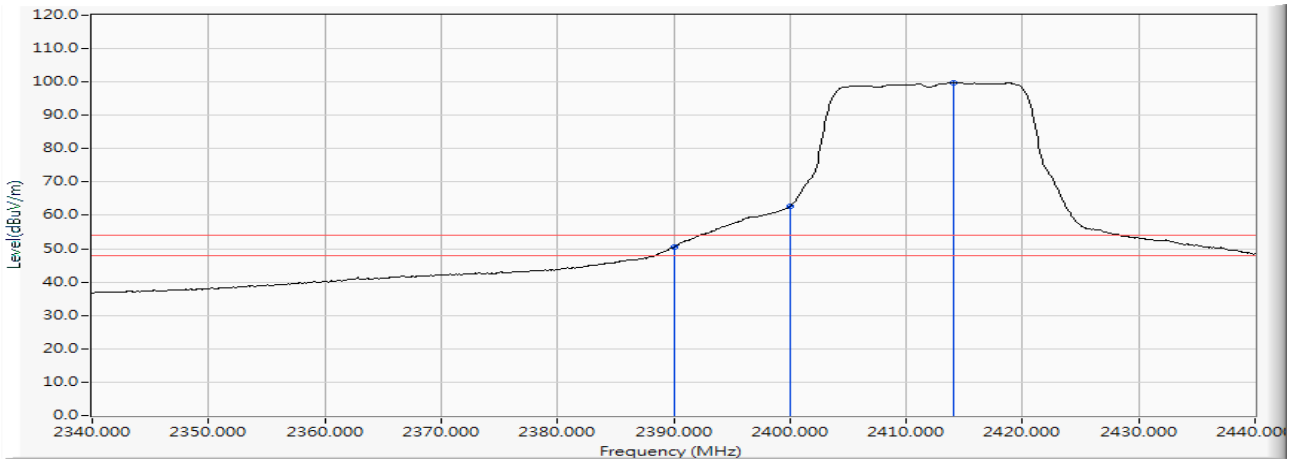
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	54.754	65.016	-8.984	74.000	PEAK
2		2400.000	10.304	66.422	76.725	--	--	PEAK
3	*	2414.700	10.362	98.465	108.828	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical



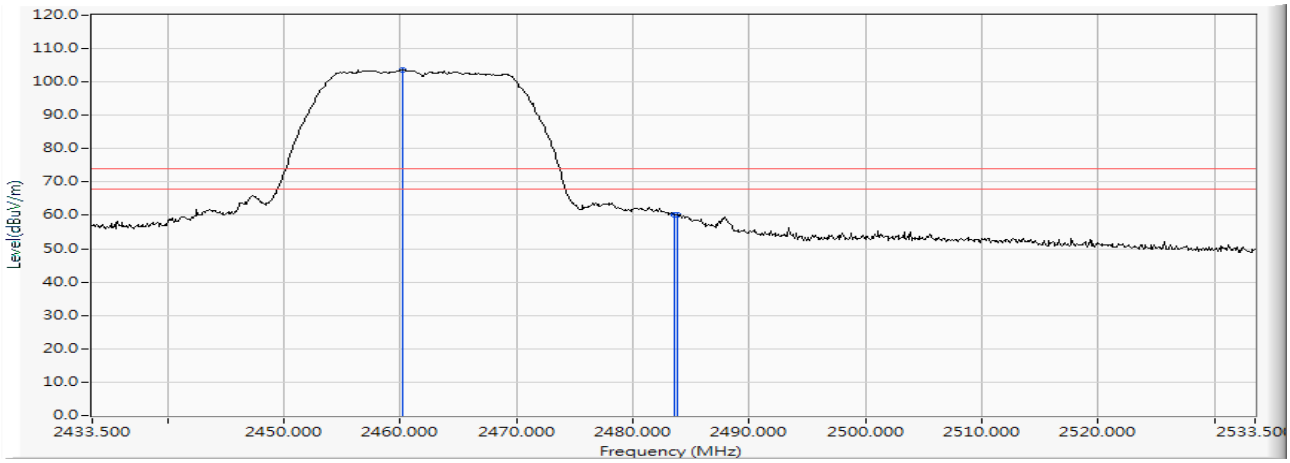
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	40.228	50.490	-3.510	54.000	AVERAGE
2		2400.000	10.304	52.305	62.608	--	--	AVERAGE
3	*	2414.100	10.360	89.429	99.789	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



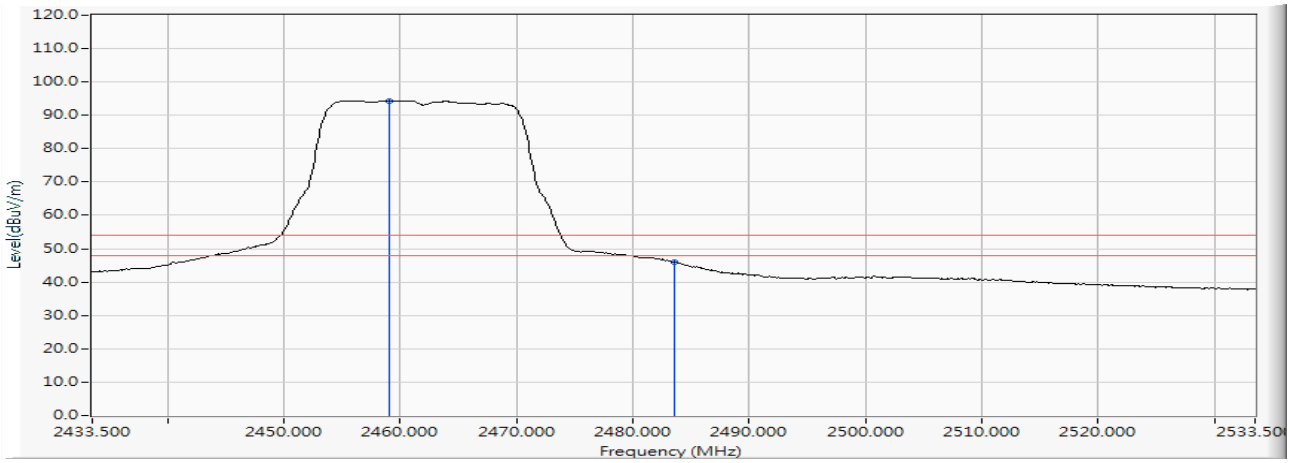
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2460.200	10.541	93.187	103.729	--	--	PEAK
2		2483.500	10.640	49.533	60.174	-13.826	74.000	PEAK
3		2483.800	10.643	49.561	60.203	-13.797	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



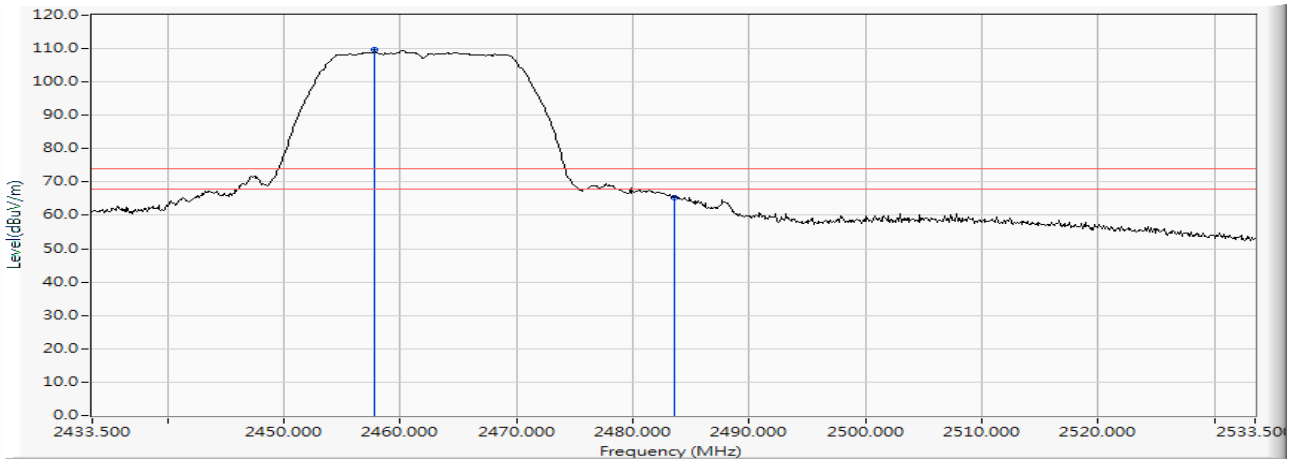
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2459.100	10.537	83.886	94.423	--	--	AVERAGE
2		2483.500	10.640	35.430	46.071	-7.929	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



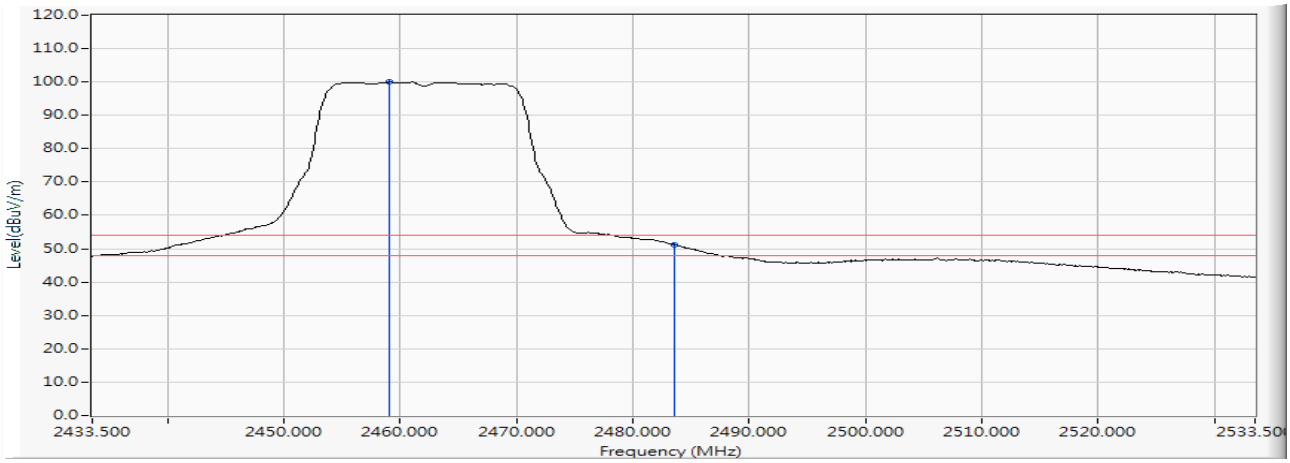
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2457.800	10.531	99.193	109.724	--	--	PEAK
2		2483.500	10.640	54.736	65.377	-8.623	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



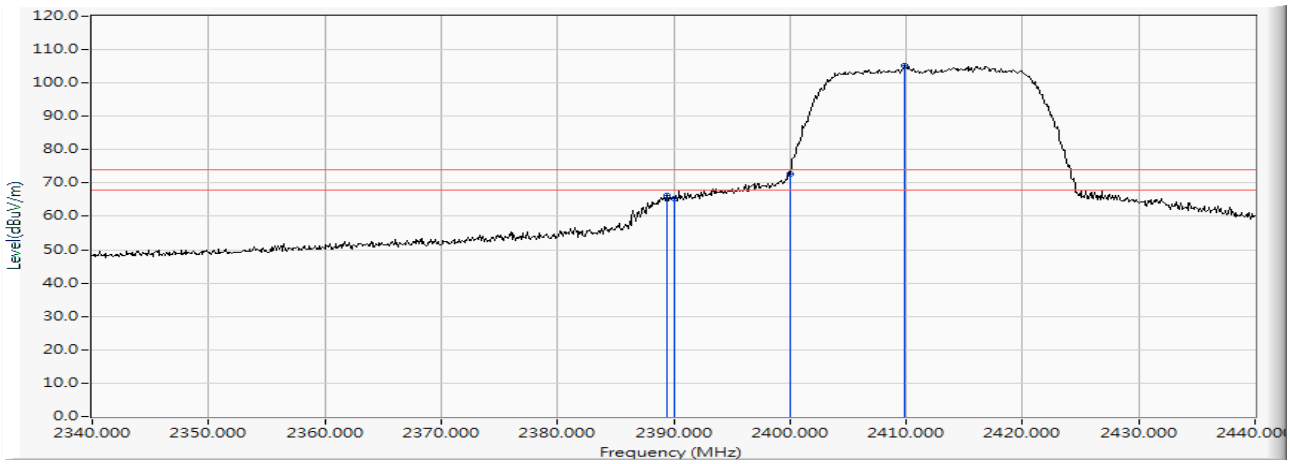
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2459.100	10.537	89.398	99.935	--	--	AVERAGE
2		2483.500	10.640	40.503	51.144	-2.856	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



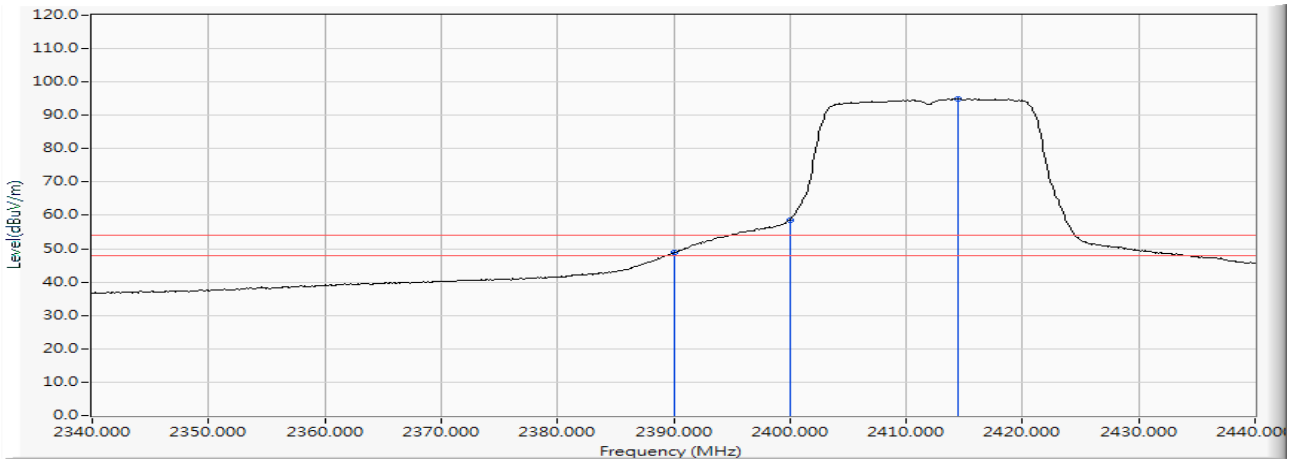
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2389.400	10.260	56.097	66.357	-7.643	74.000	PEAK
2		2390.000	10.262	55.106	65.368	-8.632	74.000	PEAK
3		2400.000	10.304	62.436	72.739	--	--	PEAK
4	*	2409.900	10.344	94.713	105.057	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2412MHz)
Test Date : 2019/06/19

Horizontal



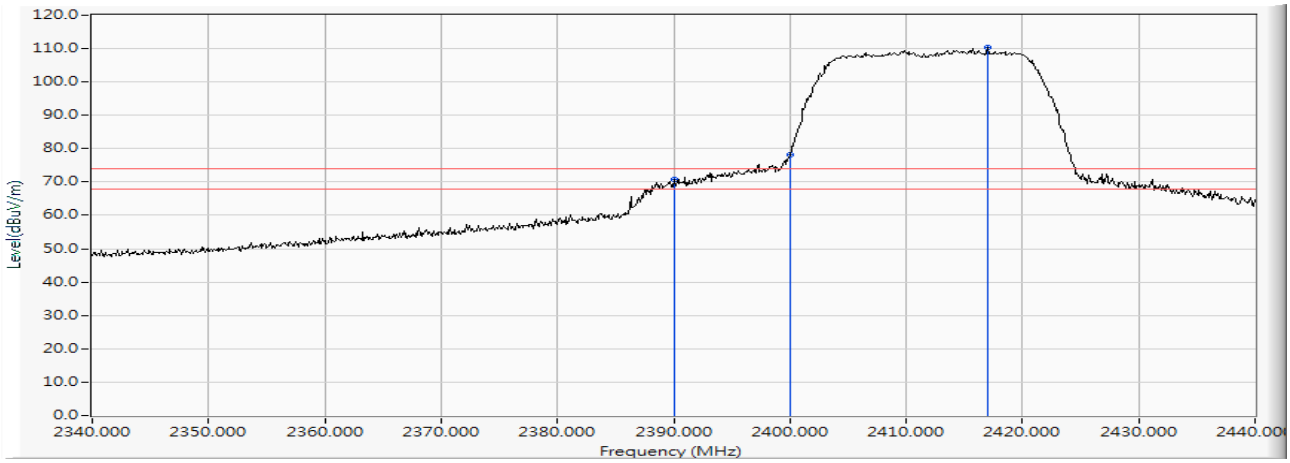
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	38.575	48.837	-5.163	54.000	AVERAGE
2		2400.000	10.304	48.392	58.695	--	--	AVERAGE
3	*	2414.400	10.361	84.588	94.950	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical



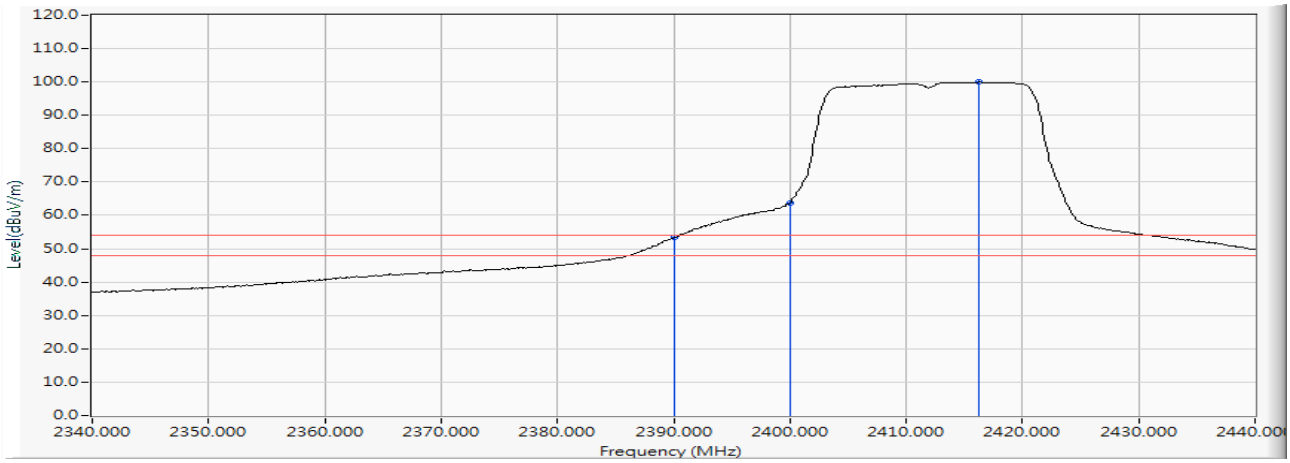
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	60.448	70.710	-3.290	74.000	PEAK
2		2400.000	10.304	67.910	78.213	--	--	PEAK
3	*	2417.000	10.372	99.867	110.239	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2412MHz)
Test Date : 2019/06/19

Vertical

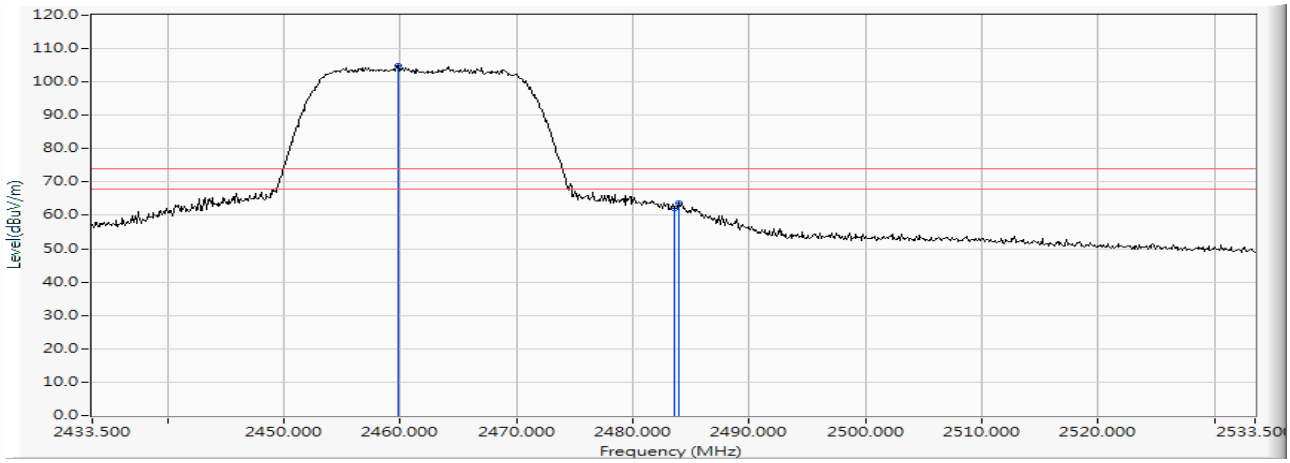


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	10.262	43.040	53.302	-0.698	54.000	AVERAGE
2		2400.000	10.304	53.459	63.762	--	--	AVERAGE
3	*	2416.300	10.369	89.569	99.938	--	--	AVERAGE

Note:
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



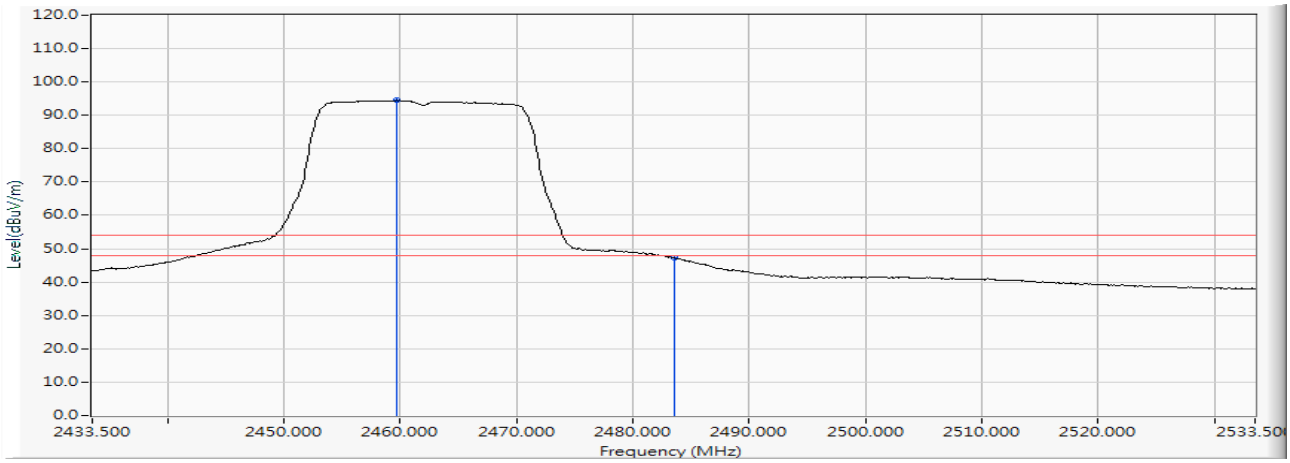
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2459.800	10.540	94.367	104.907	--	--	PEAK
2		2483.500	10.640	51.578	62.219	-11.781	74.000	PEAK
3		2483.900	10.644	53.168	63.811	-10.189	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462MHz)
Test Date : 2019/06/19

Horizontal



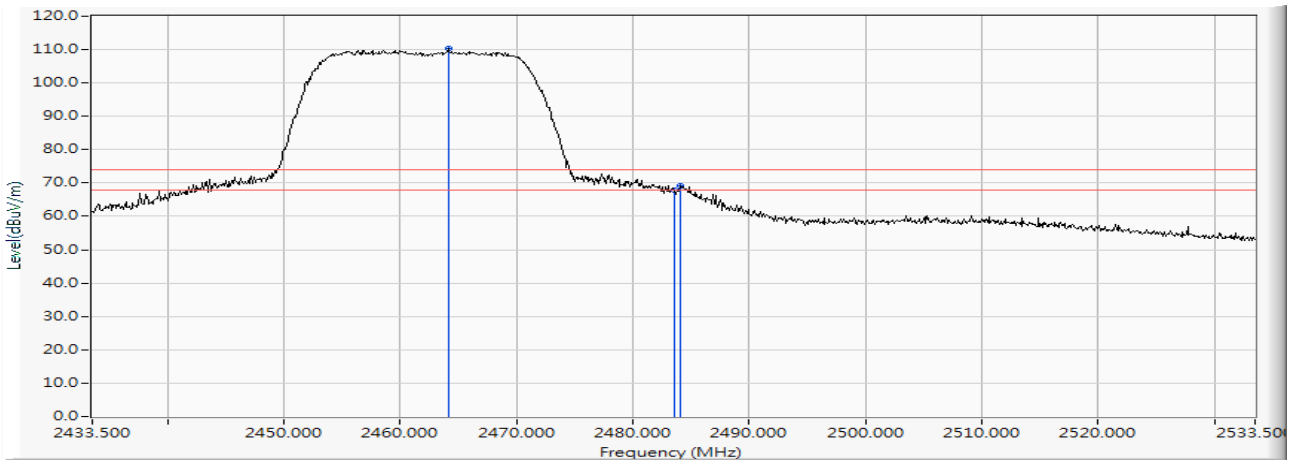
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2459.700	10.540	83.961	94.500	--	--	AVERAGE
2		2483.500	10.640	36.578	47.219	-6.781	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



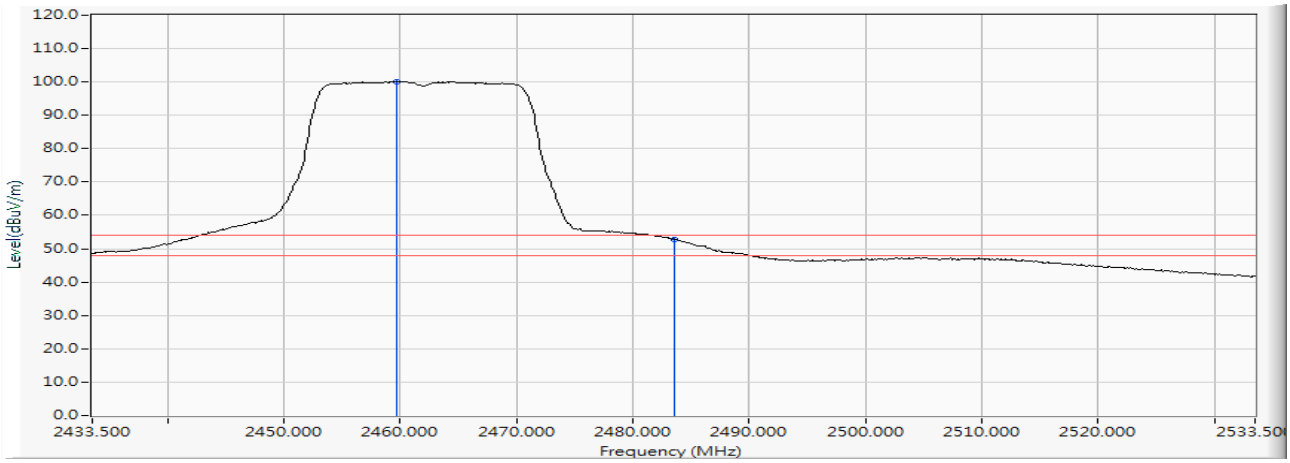
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2464.100	10.559	99.853	110.412	--	--	PEAK
2		2483.500	10.640	57.352	67.993	-6.007	74.000	PEAK
3		2484.100	10.644	58.584	69.228	-4.772	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intelligent Robot
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps) (2462MHz)
Test Date : 2019/06/19

Vertical



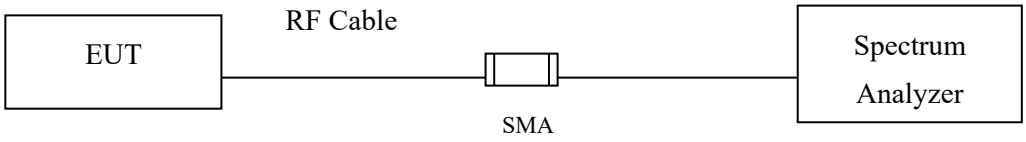
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2459.700	10.540	89.658	100.197	--	--	AVERAGE
2		2483.500	10.640	42.082	52.723	-1.277	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

Tested according to DTS test procedure of KDB558074 section 8.2 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the emission bandwidth, VBW≥3*RBW

7.4. Uncertainty

± 279.2Hz

7.5. Test Result of 6dB Bandwidth

Product : Intelligent Robot
Test Item : 6dB Bandwidth Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8150	>500	Pass
06	2437	8150	>500	Pass
11	2462	8150	>500	Pass

Figure Channel 01:

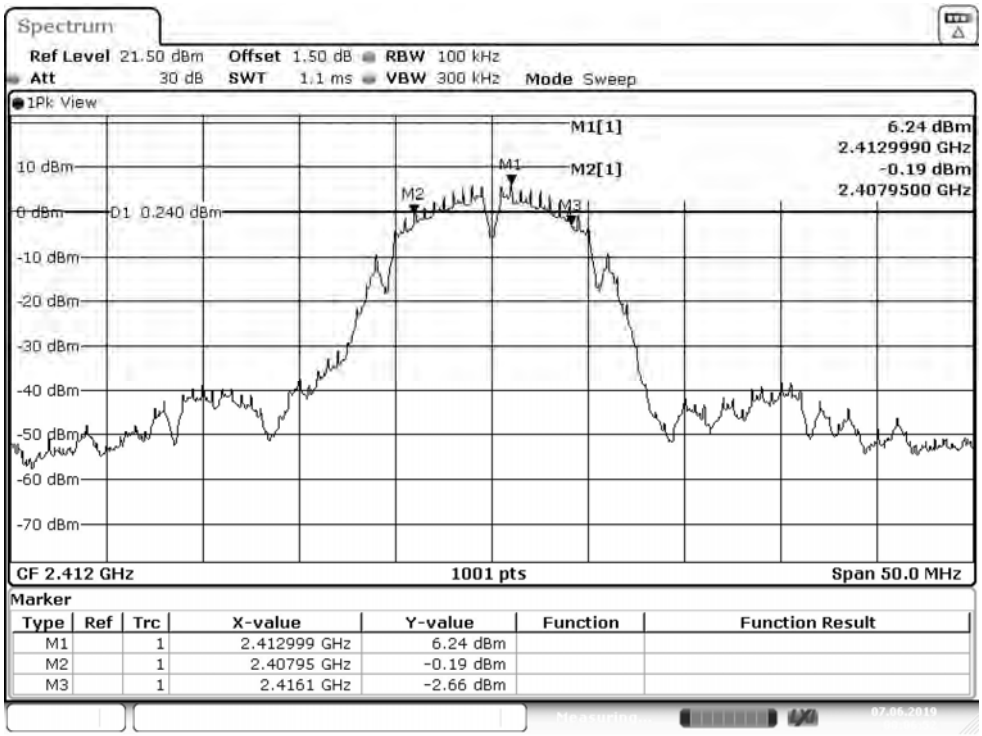


Figure Channel 06:

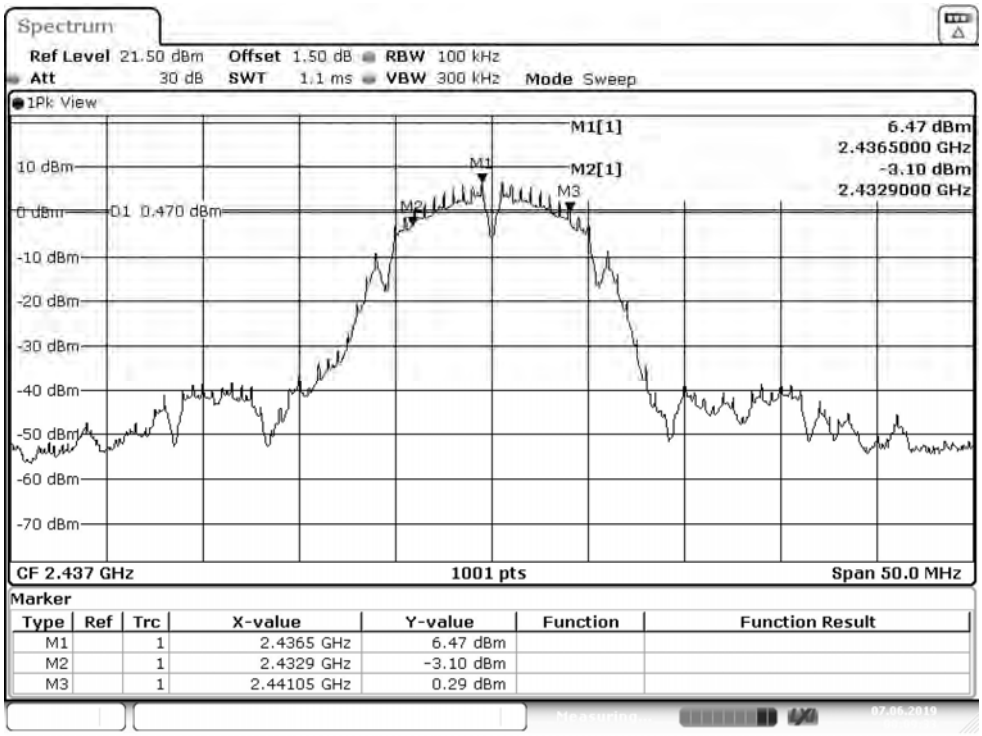
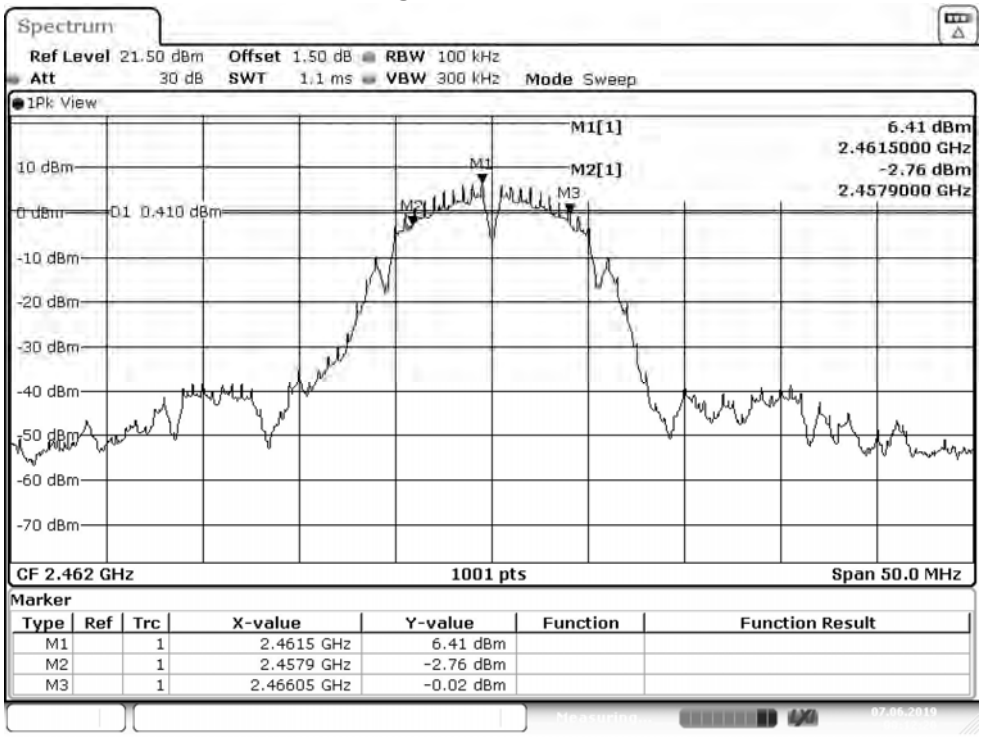


Figure Channel 11:



Product : Intelligent Robot
Test Item : 6dB Bandwidth Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16400	>500	Pass
06	2437	16450	>500	Pass
11	2462	16400	>500	Pass

Figure Channel 01:

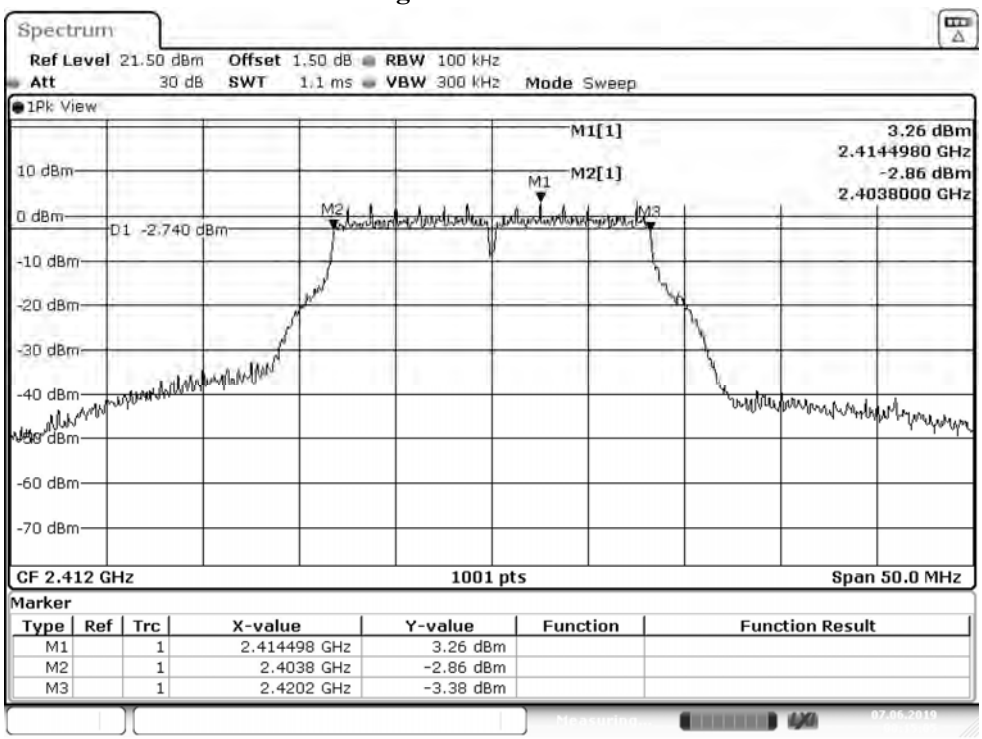


Figure Channel 06:

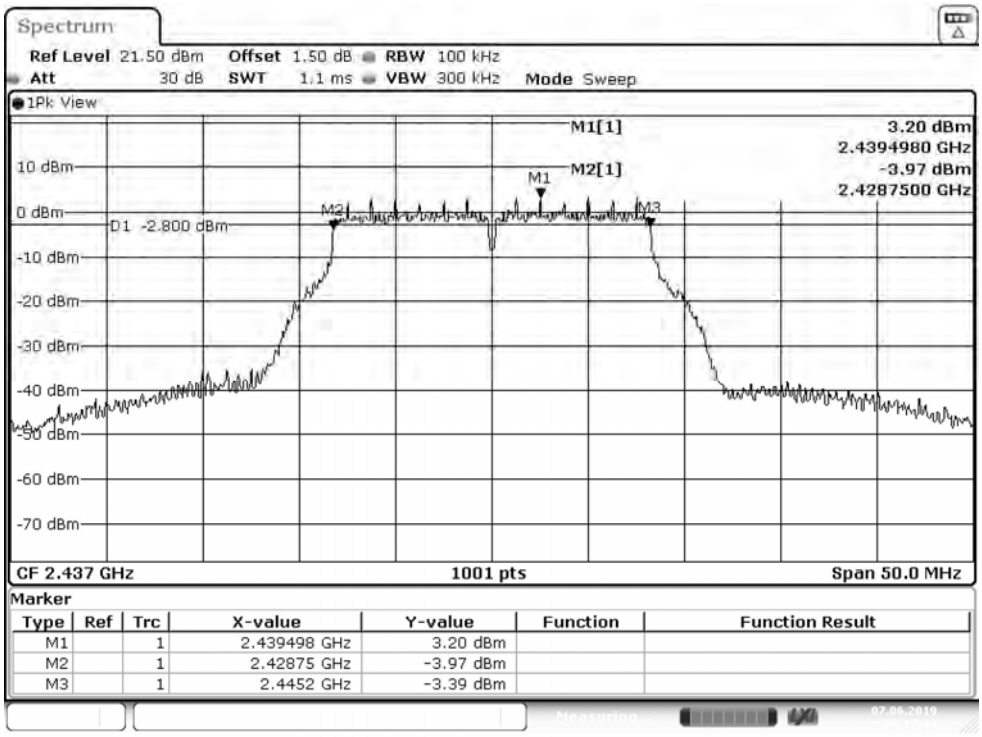
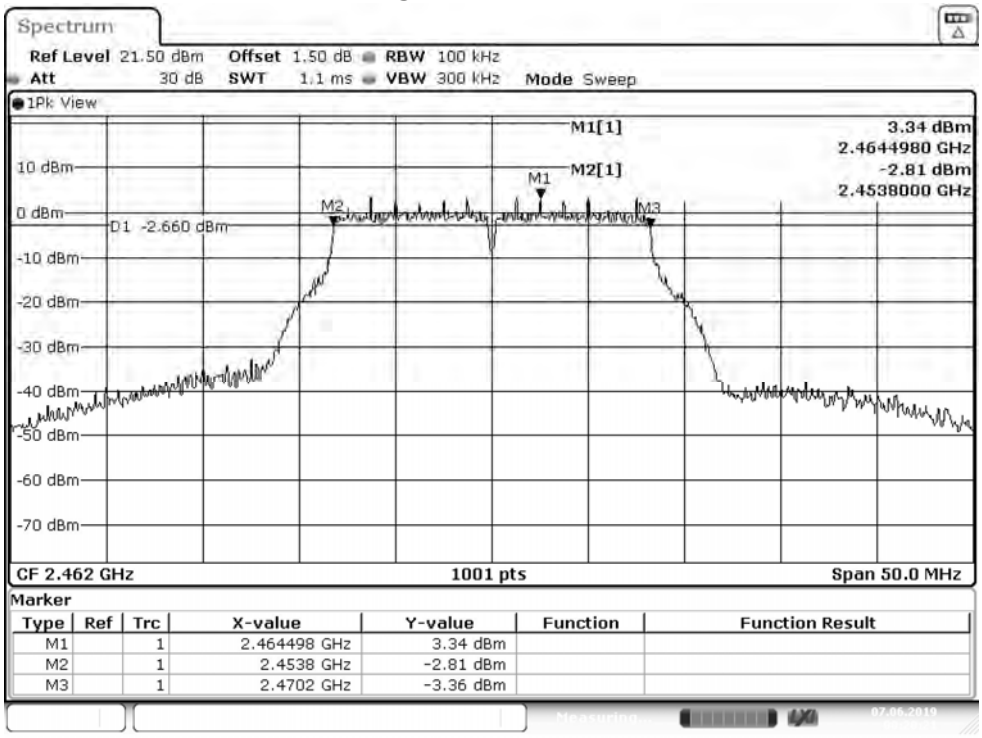


Figure Channel 11:



Product : Intelligent Robot
Test Item : 6dB Bandwidth Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17700	>500	Pass
06	2437	17700	>500	Pass
11	2462	17700	>500	Pass

Figure Channel 01:

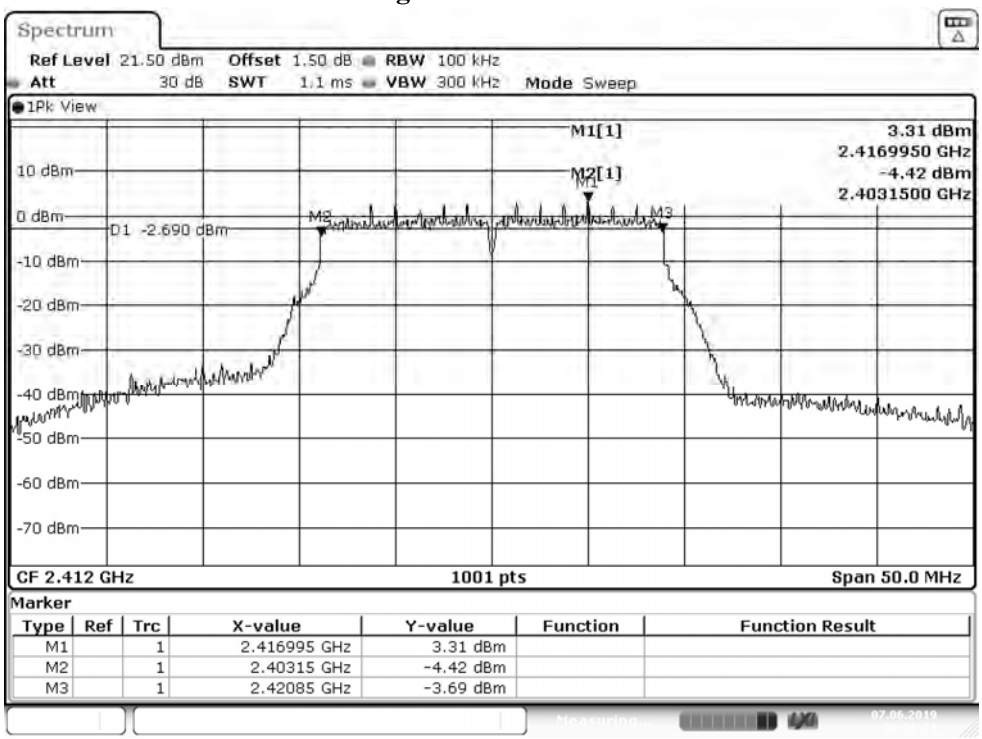


Figure Channel 06:

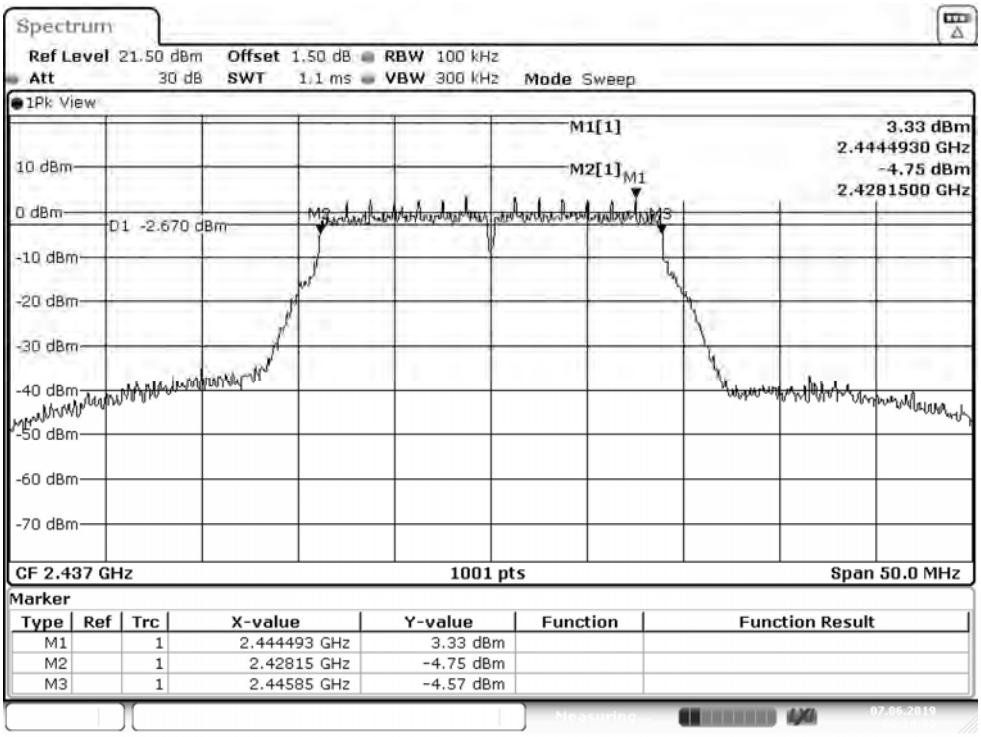
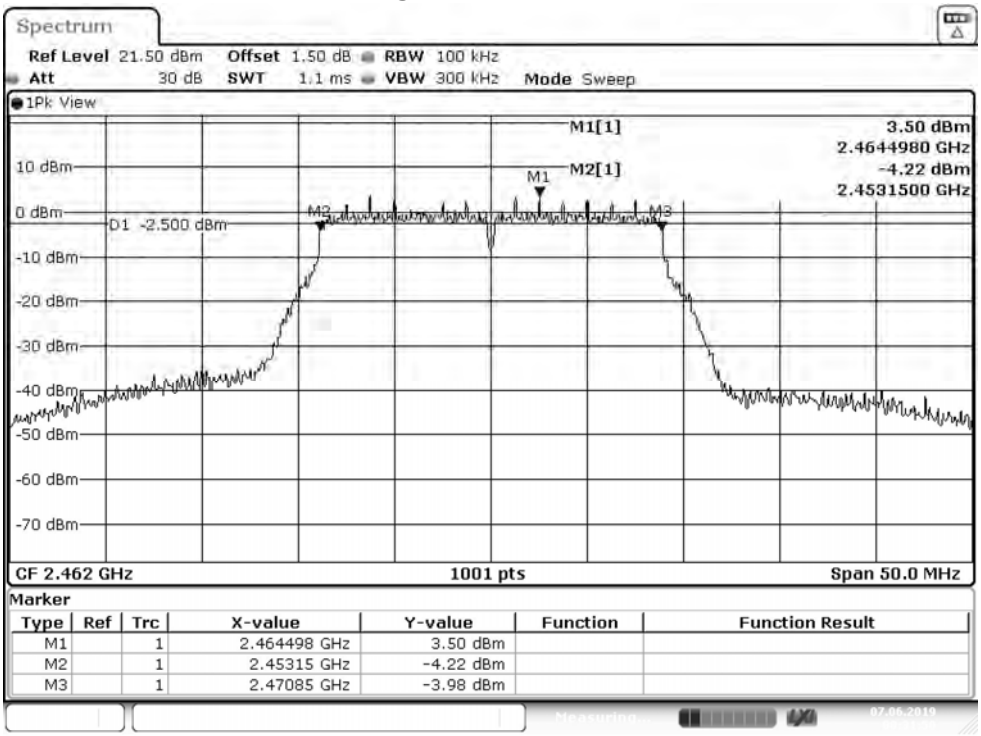
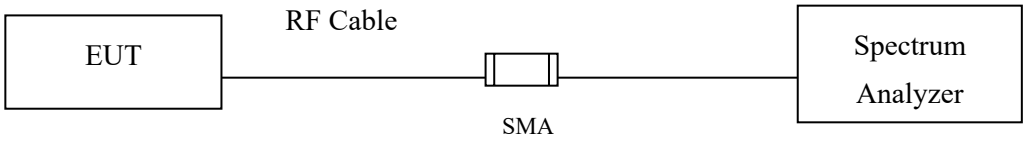


Figure Channel 11:



8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.3. Test Procedure

Tested according to DTS test procedure of KDB558074 section 8.4 for compliance to FCC 47CFR 15.247 requirements.

8.4. Uncertainty

± 1.23 dB

8.5. Test Result of Power Density

Product : Intelligent Robot
Test Item : Power Density Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	6.08	≦8dBm	Pass
06	2437	6.37	≦8dBm	Pass
11	2462	6.48	≦8dBm	Pass

Figure Channel 01:

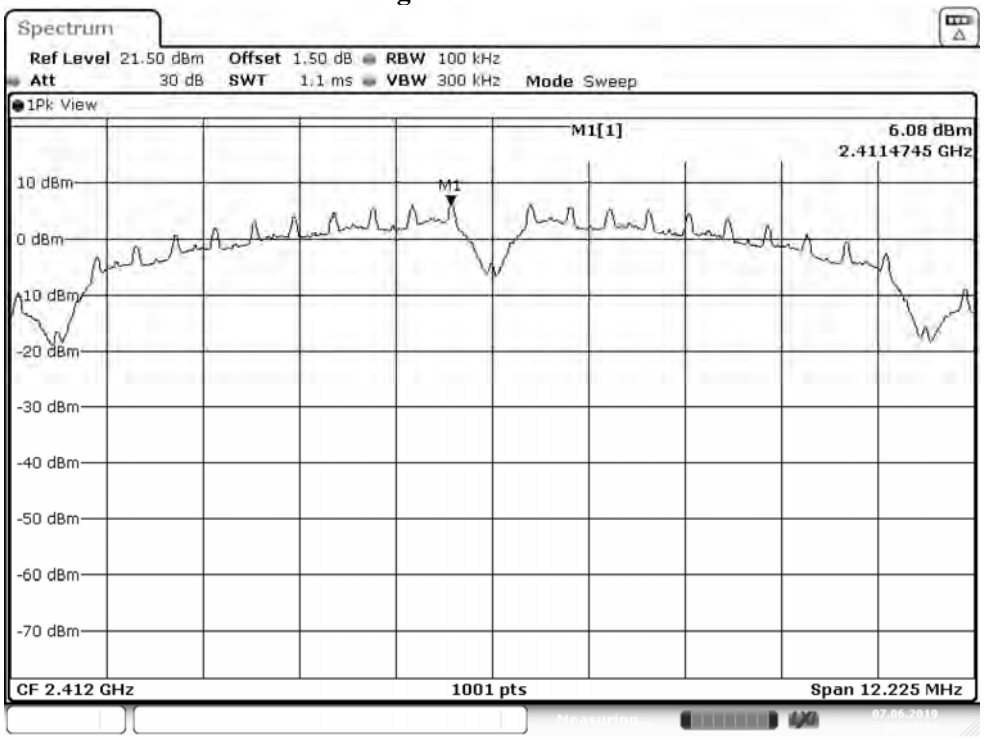


Figure Channel 06:

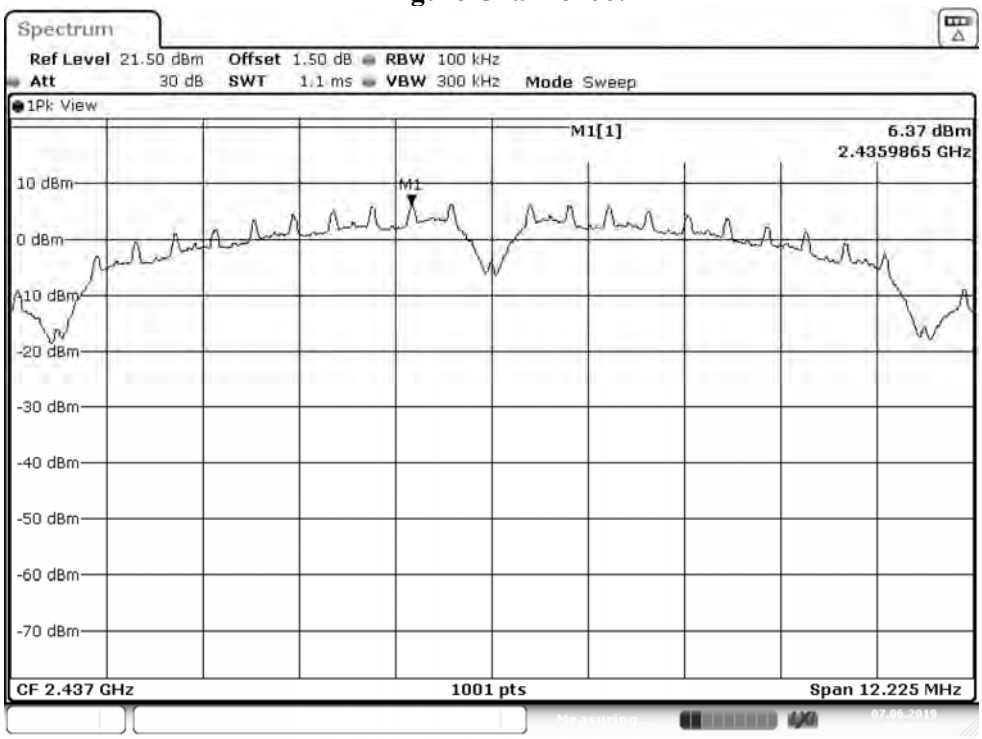
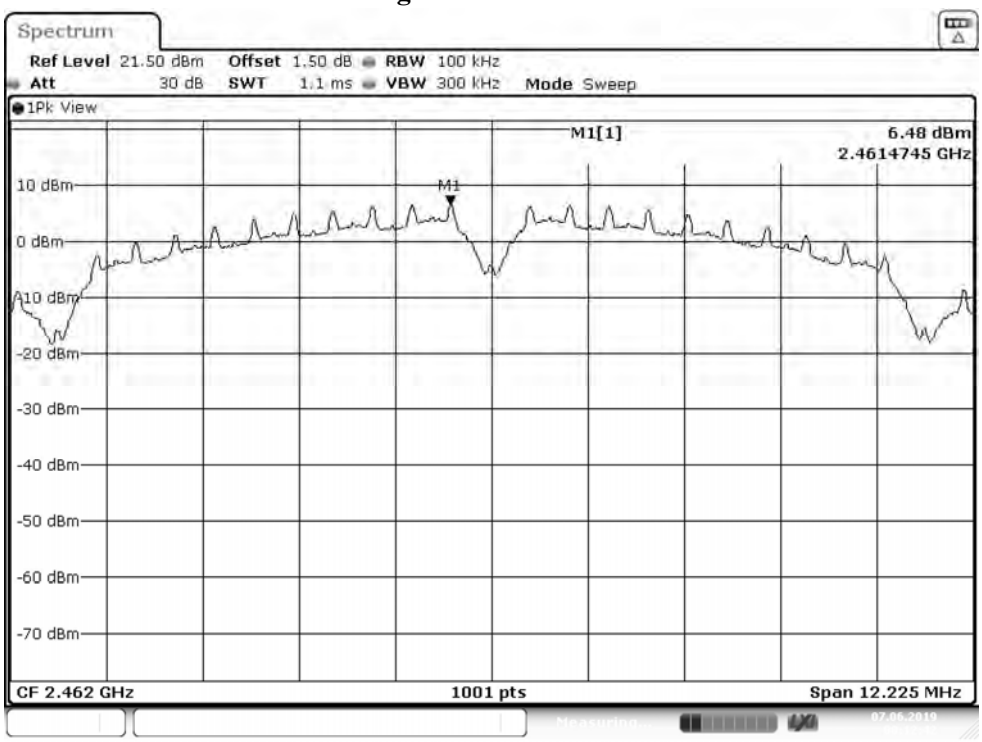


Figure Channel 11:



Product : Intelligent Robot
Test Item : Power Density Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	3.13	≦8dBm	Pass
06	2437	3.11	≦8dBm	Pass
11	2462	3.59	≦8dBm	Pass

Figure Channel 01:

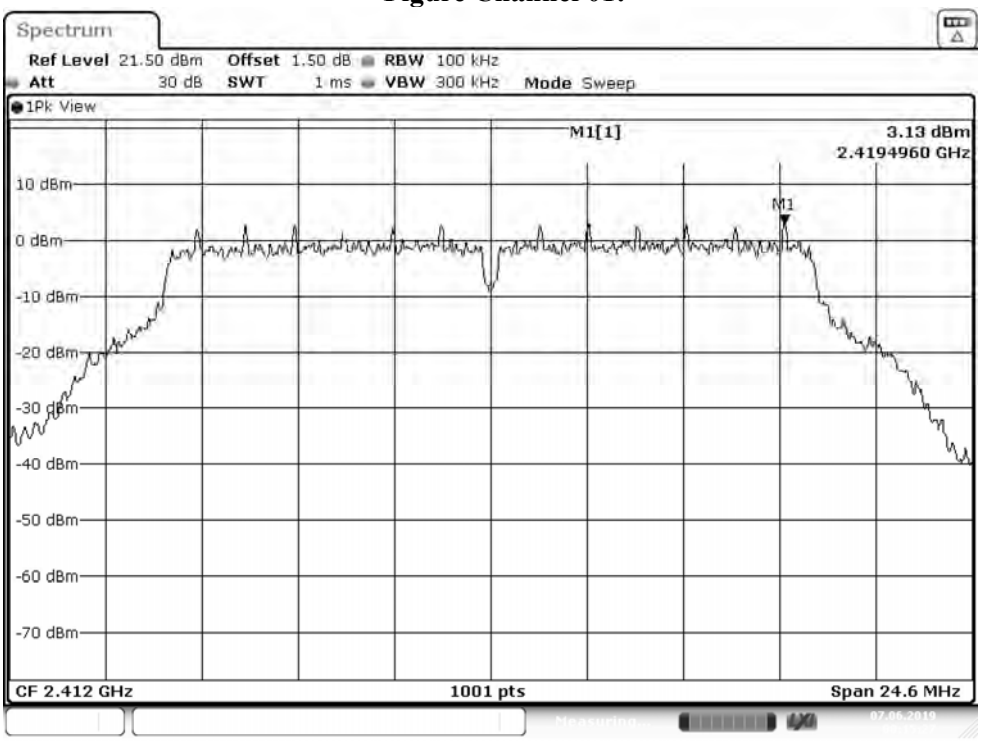


Figure Channel 06:

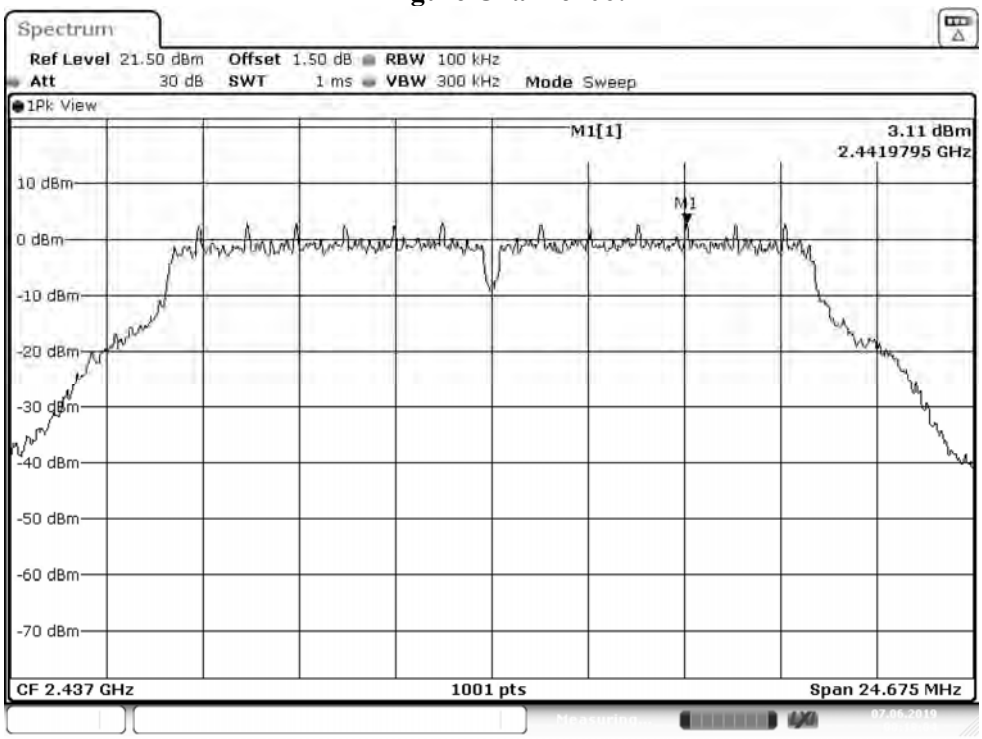
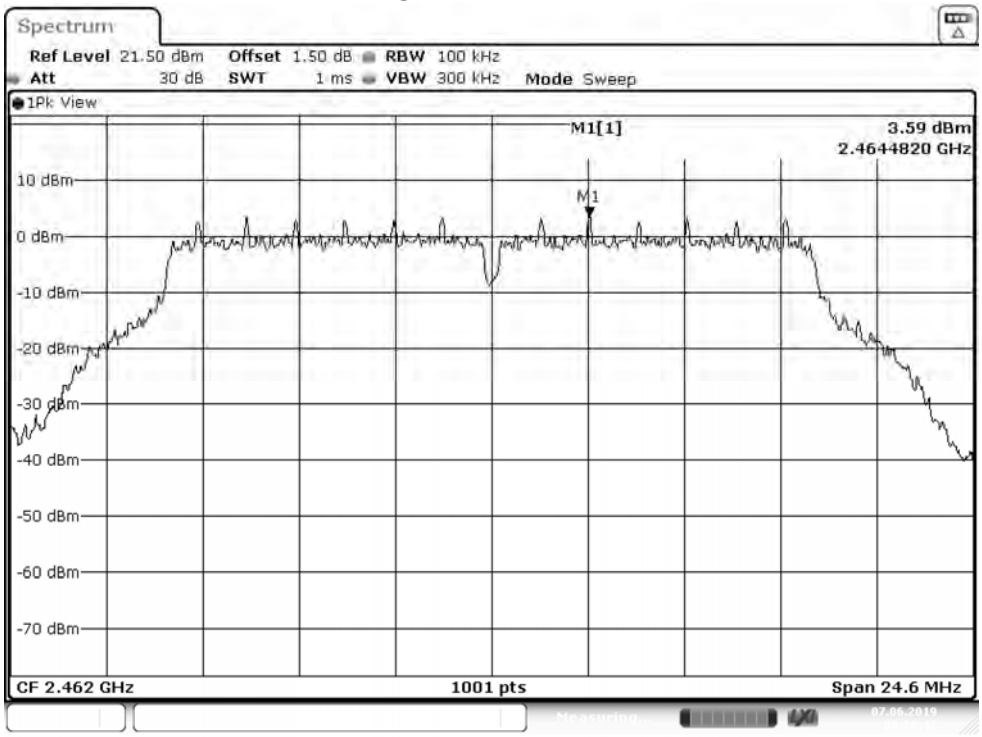


Figure Channel 11:



Product : Intelligent Robot
Test Item : Power Density Data
Test Mode : Mode 3: Transmit (802.11n-20MBW 7.2Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	3.45	≦8dBm	Pass
06	2437	3.54	≦8dBm	Pass
11	2462	3.29	≦8dBm	Pass

Figure Channel 01:

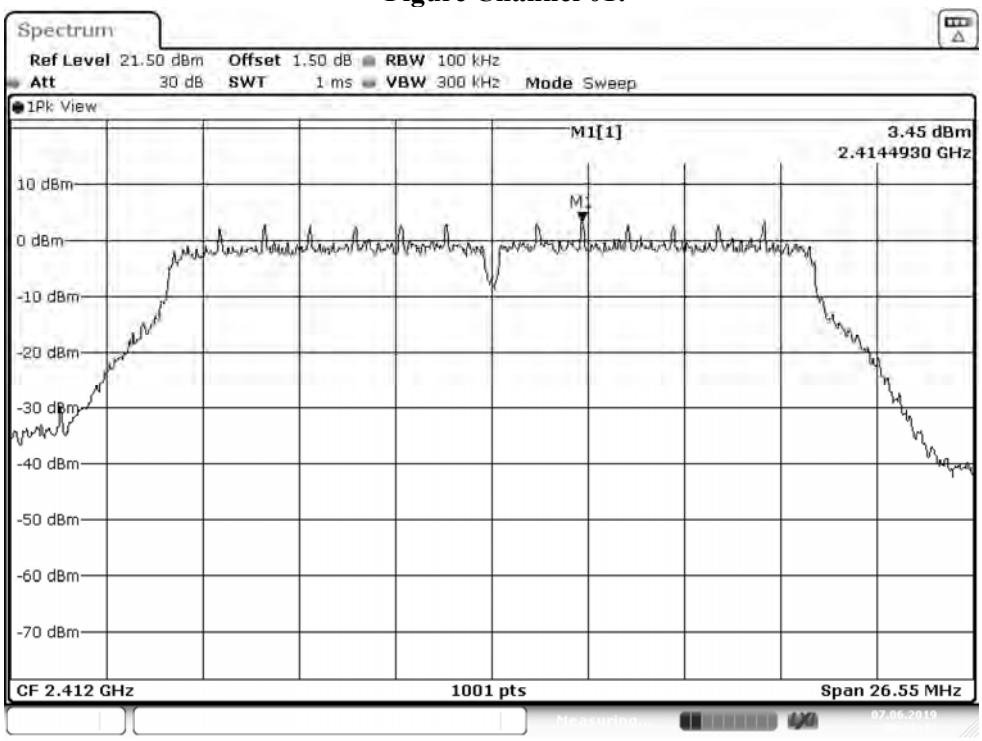


Figure Channel 06:

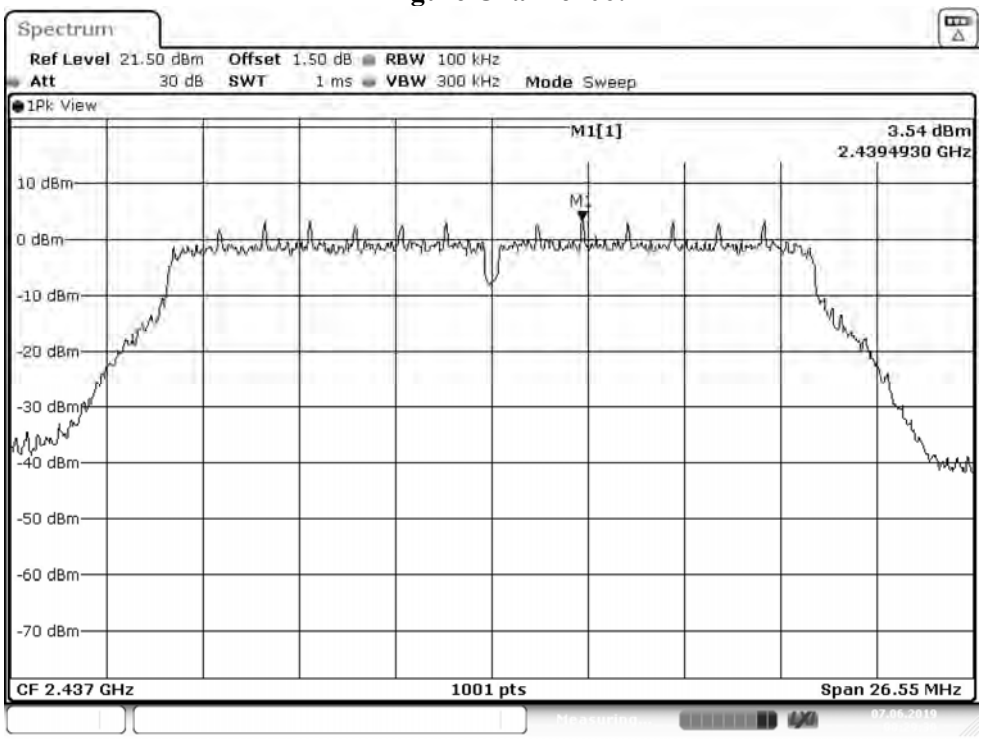
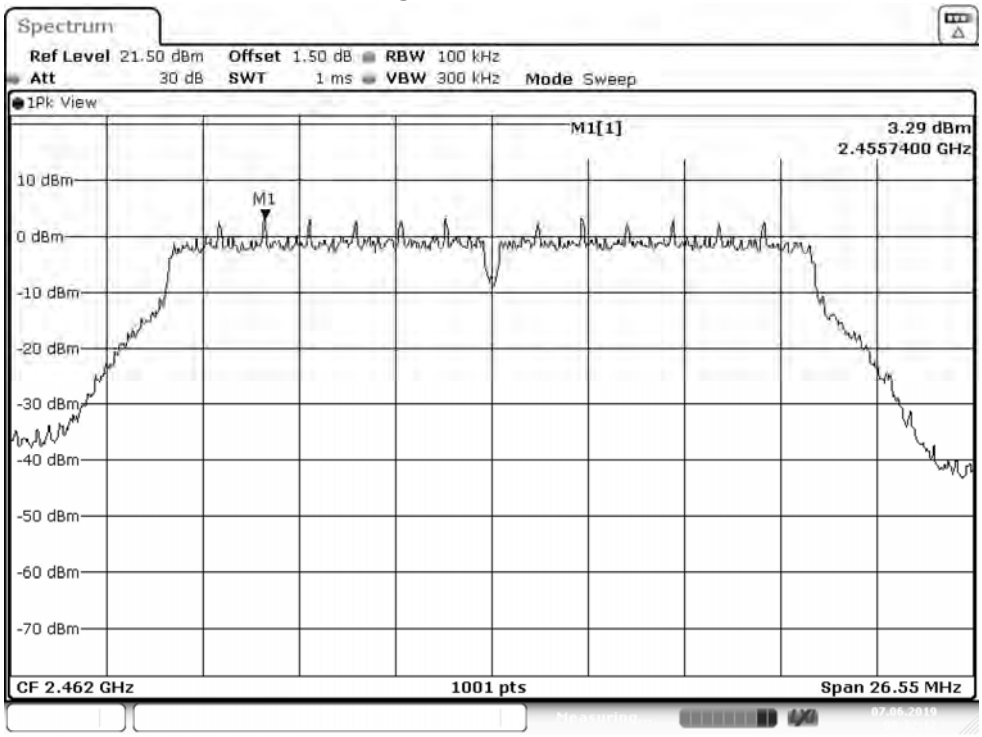
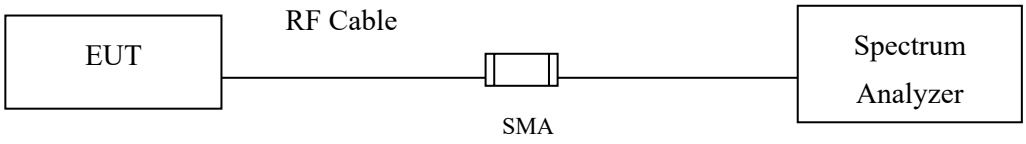


Figure Channel 11:



9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

9.3. Uncertainty

± 2.31msec

9.4. Test Result of Duty Cycle

Product : Intelligent Robot
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

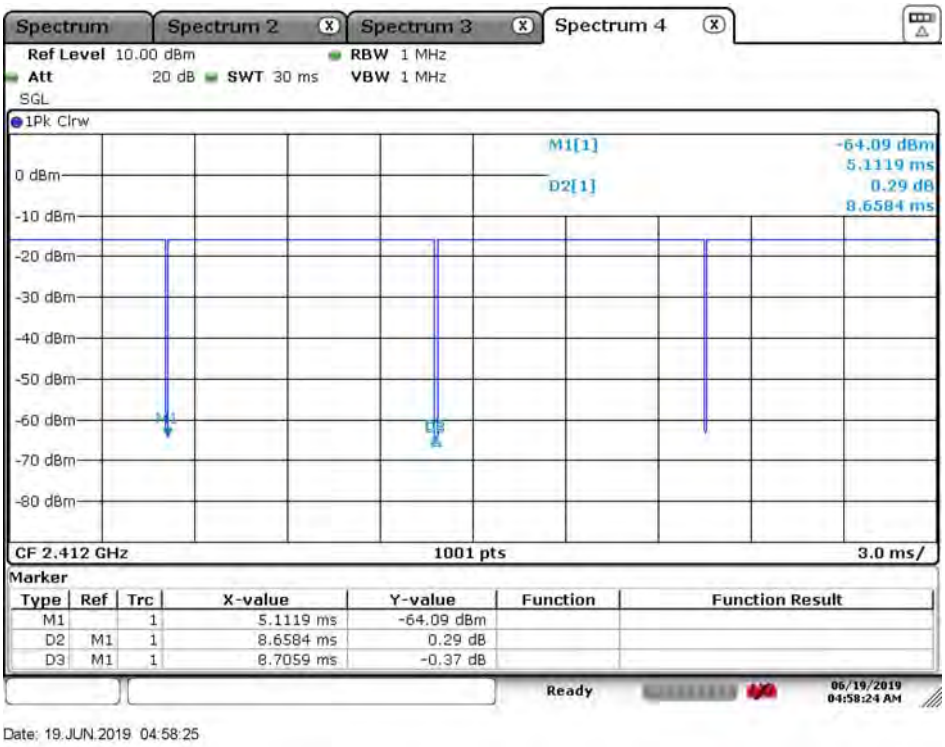
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

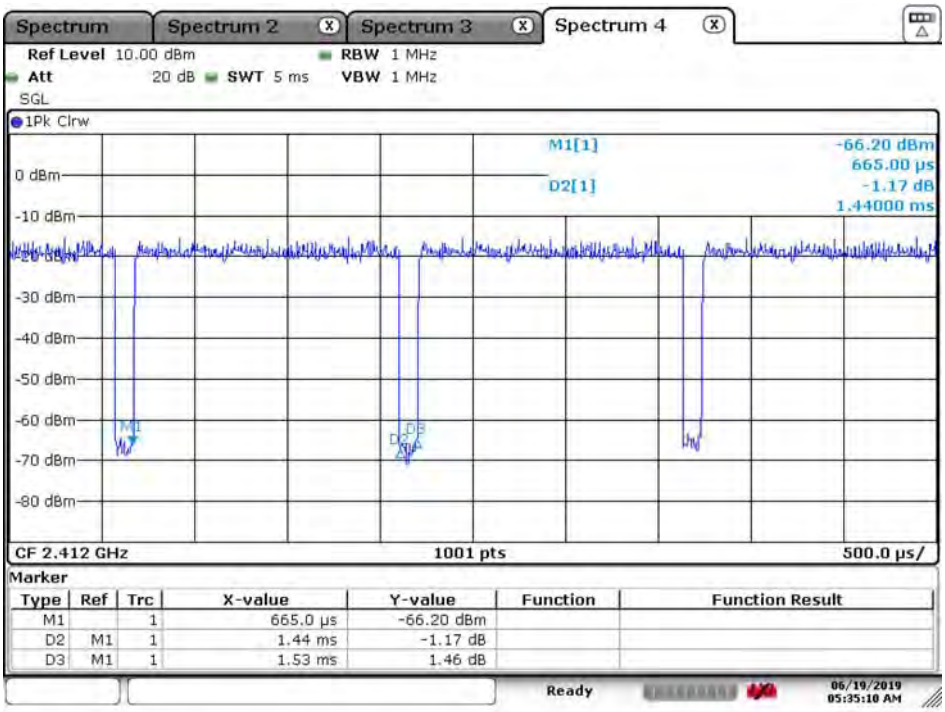
Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11b	8.6584	8.7059	99.45	0.02
802.11g	1.4400	1.5300	94.12	0.26
802.11n20	1.3500	1.4400	93.75	0.28

802.11b



802.11g



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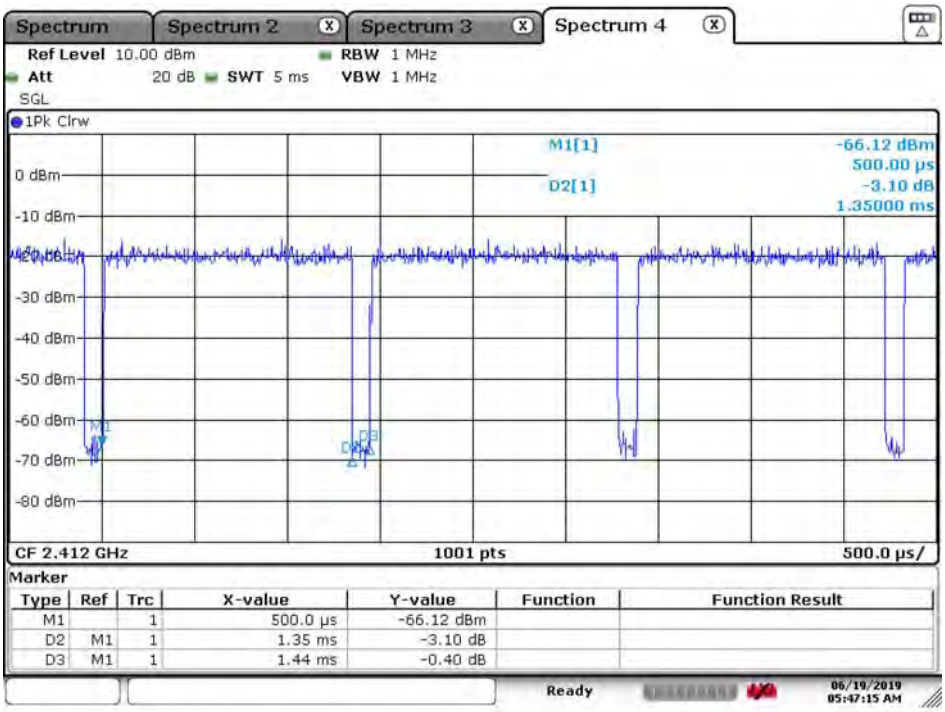
802.11n20



Date: 19.JUN.2019 05:47:15

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.