FCC PART 15 SUBPART C TEST REPORT

for

Wireless Mouse

Model No.: M-XGL10BB

FCC ID: YWO-M-XG10BB

of

Applicant: ELECOM CO., LTD

Address: Fushimimachi 4-1-1, Chuo-ku, Osaka City,

Osaka Japan 541-8765

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No.: 20037

A2LA Accredited No.: 2732.01





Report No.: W6M21912-19534-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C. TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wts@wts-lab.com



Registration number: W6M21912-19534-C-1

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FCC ID: YWO-M-XG10BB **1** General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

February 3, 2020 Spencer Yang Spencer Yang

Date WTS-Lab. Name Signature

Technical responsibility for area of testing:

February 3, 2020 Kevin Wang Cerin Wang

Date WTS Name Signature



Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB **1.2 Testing laboratory**

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207,

Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228 FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd. 6F, NO. 58, LANE 188, RUEY-KUANG RD. NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877 Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No. 20037

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.:

Name:	./.
Accredited number:	./.
Street:	./.
Town:	./.
Country:	./.
Telephone:	./.
Fax:	./.

1.3 Details of approval holder

Name: ELECOM CO., LTD.

Street: Fushimimachi 4-1-1, Chuo-ku,

Town: Osaka City, Osaka, Country: Japan 541-8765
Telephone: +81-6-6229-1418
Fax: +81-6-6229-8030

Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB **1.4** Application details

Date of receipt of test item: January 7, 2020

Date of test: from January 8, 2020 to January 30, 2020

1	.5	General	information	of Test item
		oenenai	IIIIOIIIIauoii	OI I COL ILCIII

	Type of test item:	Wireless Mous
--	--------------------	---------------

Model Number: M-XGL10BB

Multi-listing model number: M-XGM10BB, M-XGS10BB

Multi-listing model number: /.

Photos: see Annex

Technical data

Frequency band: 2402-2480 MHz

Frequency (ch A): 2402 MHz Frequency (ch B): 2441MHz Frequency (ch C): 2480 MHz

<u>Transmitter</u> <u>Unom</u>

Normal Mode

Power (ch 0): Conducted: -9.72 dBm Power (ch 39): Conducted: -10.29 dBm Power (ch 78): Conducted: -10.56 dBm

Power supply: Battery 1.5Vd.c.

Operation modes: Duplex

Modulation Type: GFSK

Antenna Type: PCB antenna

Antenna gain: -0.1621 dBi

Host device: none

Classification:

Fixed Device	
Mobile Device (Human Body distance > 20cm)	
Portable Device (Human Body distance < 20cm)	
Modular Radio Device	

FCC ID: YWO-M-XG10BB

Manufacturer: (if applicable)

 Name:
 ./.

 Street:
 ./.

 Town:
 ./.

 Country:
 ./.

Additional information: ./.

1.6 Test standards

Technical standard: FCC RULES PART 15 SUBPART C § 15.247 (2018-10)

FCC ID: YWO-M-XG10BB **Technical test**

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

or

The deviations were ascertained in the course of the tests performed.

2.2 Test environment

Temperature: 23 °C

Relative humidity content: 20 ... 75 % Air pressure: 86 ... 103 kPa Details of power supply Battery 1.5Vd.c.

Extreme conditions parameters: test voltage : -- extreme

min : -- V max : -- V

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty: AMN: 1.30 dB Voltage probe: 1.36 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty: 0.009-30 MHz: 2.02 dB 30-1000 MHz: 3.49 dB 1-18 GHz: 3.01 dB 18-40 GHz: 2.43 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty: 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty: 1.72 dB
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty: 0.98 dBc
Estimation Result of Uncertainty of Frequency Separation Measurement Hopping channel separation	Expanded Uncertainty: 554.14 Hz
Estimation Result of Uncertainty of Duty Cycle Measurement Dwell time	Expanded Uncertainty: 0.1 ms

The decision rule is: Measurement uncertainty is not taken into account.



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No.	Test equipment	Туре	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2019/6/4	2020/6/3
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Functi	on Test
ETSTW-CE 004	ZWEILEITER-V- NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2019/11/1	2020/10/31
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2019/9/24	2020/9/23
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function	on Test
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2019/7/23	2020/7/22
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2019/10/3	2020/10/2
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2019/7/18	2020/7/17
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2019/6/4	2020/6/3
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2019/5/29	2020/5/28
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function	on Test
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Functi	on Test
ETSTW-RE 018	MICPOWAVE HOPN		27212	AR	2019/7/25	2020/7/24
ETSTW-RE 027			00034563	ETS-Lindgren	2019/7/22	2020/7/21
ETSTW-RE 030	ETSTW-RE 030 Double-Ridged Guide Horn Antenna		00035224	ETS-Lindgren	2019/4/2	2020/4/1
ETSTW-RE 042			100172	R&S	2020/1/23	2021/1/22
ETSTW-RE 043	ETSTW-RE 043 Log-Periodic Dipole Antenna		100166	R&S	2019/4/23	2020/4/22
ETSTW-RE 044			100094	R&S	2019/5/13	2020/5/12
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	MY45111242 Agilent Pre-test Use		st Use
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2019/3/5	2020/3/4
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2019/2/27	2020/2/26
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2019/5/16	2020/5/15
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Functi	on Test
ETSTW-RE 072			3339A00375	НР	2019/9/23	2020/9/22
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2019/9/18	2020/9/17
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2019/5/9	2020/5/8
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2019/2/22	2020/2/21
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Functi	on test



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ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2020/1/13	2021/1/12
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Functi	on test
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2019/6/3	2020/6/2
ETSTW-RE 125	5GHz Notch filter	5NSL11- 5200/E221.3-O/O	1	K&L Microwave	2019/8/8	2020/8/7
ETSTW-RE 126	5GHz Notch filter	5NSL12- 5800/E221.3-O/O	1	K&L Microwave	2019/8/8	2020/8/7
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2019/2/26	2020/2/25
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2019/8/8	2020/8/7
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2019/8/8	2020/8/7
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-te	st Use
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2019/5/16	2020/5/15
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2019/4/2	2020/4/1
ETSTW-RF 002	Electromagnetic field probe	LF-30	K-0007	STT	2019/5/27	2020/5/26
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2019/5/16	2020/5/15
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2019/3/5	2020/3/4
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2019/3/26	2020/3/25
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2019/10/25	2020/10/24
ETSTW-GSM 019			3	WI	2020/1/13	2021/1/12
ETSTW-GSM 020	STW-GSM 020 Band Reject Filter		1	WI	2020/1/13	2021/1/12
ETSTW-GSM 021	1743/1752-32/5 WRCD1879.5/18 1021 Band Reject Filter -1875.5/1884.: 32/5SS		3	WI	2020/1/13	2021/1/12
ETSTW-GSM 022	Band Reject Filter WRCT901.9/903.1 904.25-50/8SS		1	WI	2020/1/13	2021/1/12
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2019/9/12	2020/9/11
ETSTW-GSM 024	Padio Communication		None	Anritsu	2019/3/5	2020/3/4
ETSTW-GSM 025	Band Reject Filter	BRM19835	001	Micro-Tronics	2019/8/9	2020/8/8
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test V	Use NCR
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2019/7/2	2020/7/1
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2019/2/25	2020/2/24
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2019/5/14	2020/5/13
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2019/9/18	2020/9/17
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2019/9/18	2020/9/17
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2019/2/25	2020/2/24
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2019/6/6	2020/6/5



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ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 066	ETSTW-Cable 066 SMA type cable		None	ASTROLAB	2019/9/24	2020/9/23
ETSTW-Cable 071	ETSTW-Cable 071 N TYPE CABLE		170239	EMCI	2019/6/6	2020/6/5
ETSTW-Cable 072 SMA type cable (8m)		SUCOFLEX 104	805800/4	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 074 SMA type cable (2m)		SUCOFLEX 104	802563/4	HUBER+SUHNER	2019/5/16	2020/5/15
WTSTW-SW 002 EMI TEST SOFTWARE		EZ_EMC	None	Farad	Version E	ETS-03A1
WTSTW-SW 006	WTSTW-SW 006 EMI TEST SOFTWARE		None	AUDIX	Version	9.161014
WTSTW-SW 008	WTSTW-SW 008 Signal studio		None	AUDIX	Version	2.0.0.1
ETSTW-TH 001 Thermohygrometer		608-H1	45204316	Testo	2019/9/9	2020/9/8
ETSTW-TH 002 Thermohygrometer		608-H1	45204317	Testo	2019/9/9	2020/9/8

Worldwide Testing Services(Taiwan) Co., Ltd.

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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.10-2013 6.2 using a LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.10-2013 6.3 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient, temperature of the UUT was 23°C with a humidity of 40 %.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of $dB\mu V$) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz) METER READING + ACF + CABLE LOSS (to the receiver) = FS

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.10-2013 6.2.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



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When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = 20 log (dwell time/T)

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

ANSI STANDARD C63.10-2013 B.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.



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3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	×	×	
Equivalent radiated Power	15.247(b)	×	×	
Spurious Emissions radiated – Transmitter operating	15.247(d)	×	×	
Spurious Emissions conducted – Transmitter operating	15.247			
Carrier Frequency Separation	15.247(a) (1)	×	×	
Number of Hopping Frequencies	15.247(a) (1)(i)	×	×	
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	×	×	
20 dB Bandwidth	15.247(a) (1)(i)	×	×	
Band-edge Compliance of RF Emission	15.247(d)	×	×	
Radiated Emission from Digital Part	15.109	×	×	
Power Line Conducted Emission	15.207(a)			

The follows is intended to leave blank.



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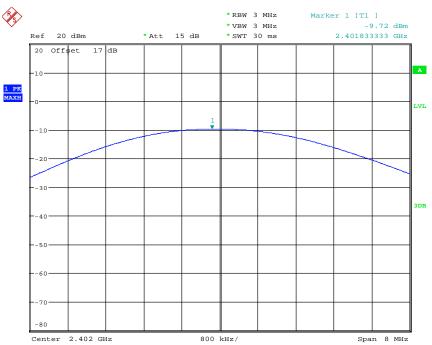
3.1 Peak Output Power (transmitter)

FCC Rule: 15.247

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Normal mode

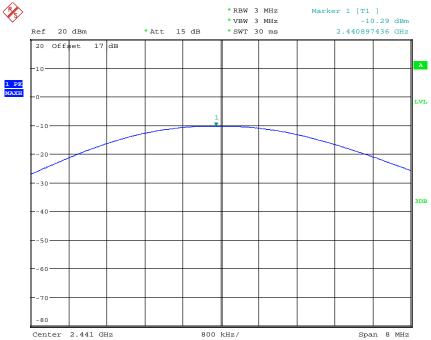


MAX OUTPUT POWER CH0
Date: 15.JAN.2020 13:52:11

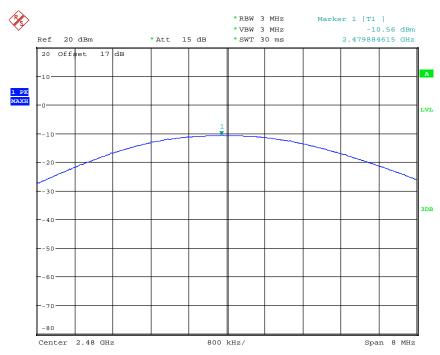


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MAX OUTPUT POWER CH39
Date: 15.JAN.2020 13:52:43



MAX OUTPUT POWER CH78
Date: 15.JAN.2020 13:53:03



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Maximum Peak Output Power

Limits:

Frequency	Number of hopping channels					
MHz	≥ 75	≥ 50	49 ≥ 25	74 ≥ 15		
902-928		30 dBm	24 dBm			
2400-2483.5 MHz	30 dBm			21 dBm		
5725-5850 MHz	30 dBm					

In case of employing transmitter antennas having antenna gain >dBi and using fixed poin-to point operation consider §15.247 (b)(4).

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 064

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3.2 RF Exposure Compliance Requirements

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

Bluetooth (2402-2480 MHz)

EIRP = -9.72 dBm+ (-0.1621 dBi [antenna gain claimed by manufacturer]) = -9.8821 dBm = 0.1 mW

3.3 Exemption Limits for Routine Evaluation according to FCC KDB Publication

RESULT:

Test standard : FCC KDB Publication

447498 D01 General RF Exposure Guidance v06

According to 447498 D01 General RF Exposure Guidance v06:

SAR evaluation, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.3.1 Exemption Limits for Routine Evaluation – SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table .

Table: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance

Bluetooth

-	Bitetooth									
	MHz	5	10	15	20	25	mm			
	2402	10.09	19.26	29.35	38.28	48.52	SAR Test Exclusion Threshold (mW)			

MHz	30	35	40	45	50	mm
2402	57.70	67.79	77.87	87.05	97.13	SAR Test Exclusion Threshold (mW)

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power.

Operating frequency band (Bluetooth): 2402-2480 MHz

Max. output power level at 5 mm separation distance at 2402 MHz according to table is: 10.09 mW

The product is exempt from SAR Evaluation/Testing because the output power of 0.1 mW is below the exemption limit of 10.09 mW.

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3.4 Out of Band Radiated Emissions

FCC Rule: 15.247(c), 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement. Limits:

For frequencies below 1GHz:

Max. reading – 20 dB

Guidance on Measurement of FHSS Systems:

"If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation." Here the correction was added to the limit instead subtracted from the reading.

Duty Cycle correction = 20 log (dwell time/100ms)
For frequencies above 1GHz (Peak measurements).
Limit = max. aver. reading-20dB +20dB(because Peak detector is used)

For frequencies above 1GHz (Average measurements).

Max. reading – 20 dB - duty cycle correction:

No duty cycle correction was added to the reading

Test equipment used: ETSTW-RE 004, ETSTW-RE 062, ETSTW-RE 142,

ETSTW-RE 147, ETSTW-RE 030, ETSTW-RE 064

Explanation: See attached diagrams in appendix.

FCC ID: YWO-M-XG10BB

3.5 Transmitter Radiated Emissions in restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 26000 MHz.

For radiated emission tests, the analyzer setting was as followings:

RES BW VID BW

Frequency <1 GHz 100 kHz 100 kHz (Peak measurements) Frequency >1 GHz 1 MHz 1 MHz (Peak measurements)

1 MHz 1 MHz (Average measurements)

Limits:

For frequencies below 1GHz:

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of FHSS Systems:

"If the emission is pulsed, modify the unit for continues operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation." Here the correction was added to the limit instead subtracted from the reading.

Duty cycle correction = $20 \log (dwell time/100ms)$

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

 $54.0dB\mu V/m$

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

 $54.0 dB \mu V/m + 20 dB = 74 dB \mu V/m$

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147, ETSTW-RE 064

Explanation: See attached diagrams in appendix.

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Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

3.6 Spurious emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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 § 15.209(a) is not required. In addition, 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))

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance to point 2.3.

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Marker-Delta-Method" or the "Duty-Cycle Correction Factor".

Summary table with radiated data of the test plots

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
		-	-				-	

						Liı	mit			
Frequency	Rea	ding	Factor	Re	sult	(dBu	V/m)	Margin	Table	Ant.
	(dB	uV)	(dB)	(dBu	ıV/m)	P	eak		Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	A	ve.	(dB)	(Deg.)	(cm)



Registration number: W6M21912-19534-C-1

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Polarization: Vertifcal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
							1	

Frequency		ding uV)	Factor (dB)		sult ıV/m)	(dBu	mit V/m) eak	Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Áve.	A	ve.	(dB)	(Deg.)	(cm)
							1		1	
							1		1	

Note

- 1. Correction Factor = Antenna factor + Cable loss Preamplifier
- 2. The formula of measured value as: Test Result = Reading + Correction Factor
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. After evaluated, the test result in this report adopt the worst case to measure, please see attached diagrams in appendix.

All other not noted test plots do not contain significant test results in relation to the limits.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

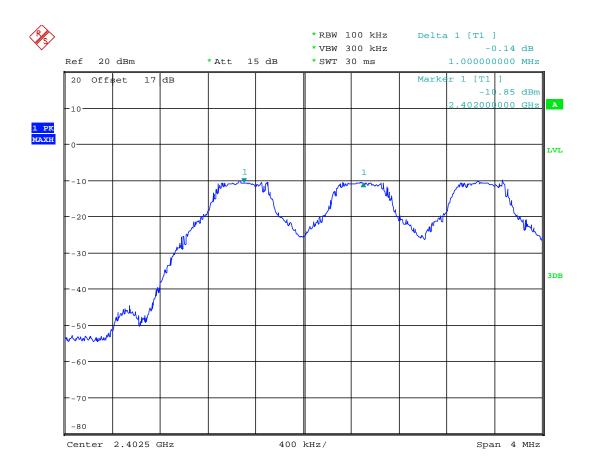
Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147, ETSTW-RE 064, ETSTW-RE 088, ETSTW-RE 018

FCC ID: YWO-M-XG10BB

3.7 Carrier Frequency Separation

Carrier Frequency Separation was measured with modulation (declared by manufacturer).

According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.



FREQUENCY SEPARATION CH0
Date: 15.JAN.2020 13:56:51

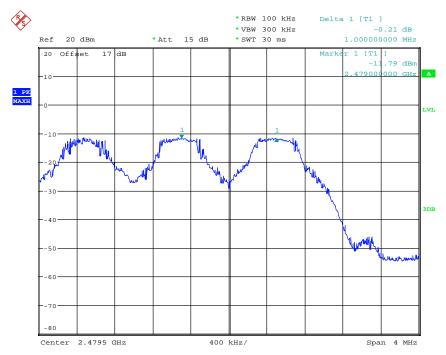


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



FREQUENCY SEPARATION CH39
Date: 15.JAN.2020 13:57:35



FREQUENCY SEPARATION CH78
Date: 15.JAN.2020 13:58:24



Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

Limits:

Frequency Range	Limits				
MHz	20 dB bandwidth < 25 kHz	20 dB bandwidth > 25 kHz			
902-928	25 kHz	20 dB bandwidth			
2400-2483.5 5725-5850.0	25 kHz	20 dB bandwidth			

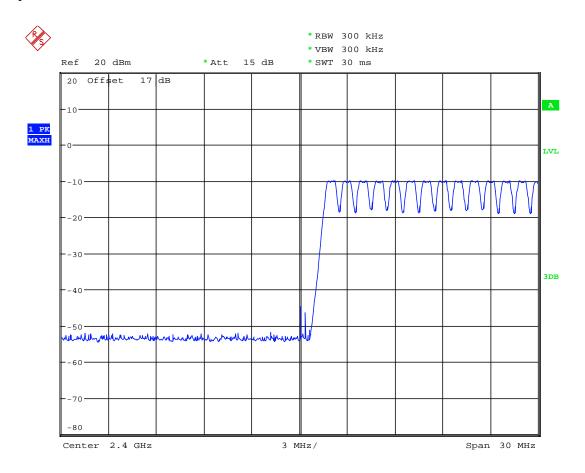
Test equipment used: ETSTW-RE 055, ETSTW-RE 064

FCC ID: YWO-M-XG10BB

3.8 Number of Hopping Frequencies

According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20dB bandwidth of the hopping channel 250 kHz or greater, the system shall use at least 25 hopping frequencies.

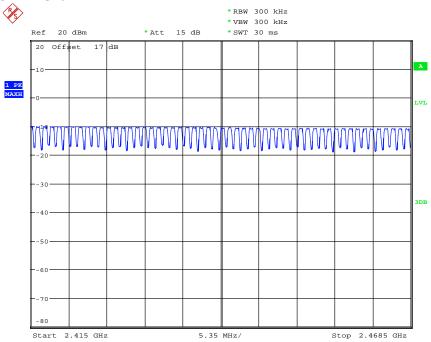


NUMBER OF HOPPING CH0-13
Date: 15.JAN.2020 13:54:03

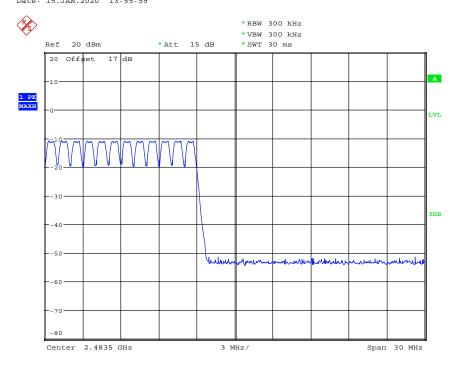


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



NUMBER OF HOPPING CH14-66
Date: 15.JAN.2020 13:55:59



NUMBER OF HOPPING CH67-78

Date: 15.JAN.2020 13:54:47



FCC ID: YWO-M-XG10BB

Limits:

Frequency Range	Limit				
MHz	20dB Bandwidth	Number of Channels			
002 020 MH-	Bandwidth < 250 kHz	≥ 50			
902-928 MHz	Bandwidth ≥ 250 kHz	≥ 25			
2400-2483.5	not defined	15			
5725-5850.0 MHz	1 MHz	75			

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.8.1 Pseudorandom Frequency Hopping Sequence

The generation of the hopping sequence is determined by the Bluetooth core specification and complies with the FCC requirements.

3.8.2 Coordination of hopping sequences to other transmitters

According to the Bluetooth core specification such a coordination is not possible. During scatternet function only one of the two hopping sequences will be used at a definite moment.

3.8.3 System Receiver Hopping Capability

According to the Bluetooth core specification. The system receivers shift frequencies in synchronization with the transmitted signals.

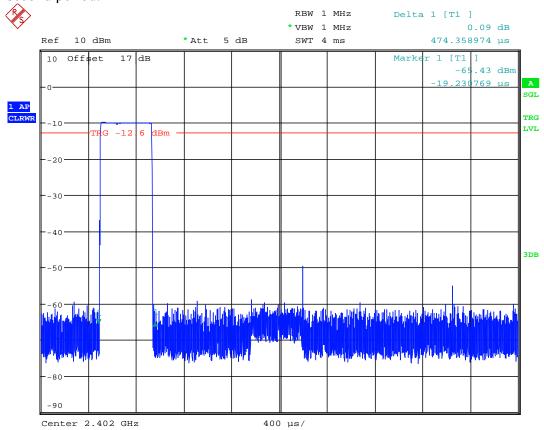
FCC ID: YWO-M-XG10BB

3.9 Time of Occupancy (Dwell Time)

Frequency hopping systems operating in the 5725-5850 MHz band shall use an average time of occupancy on any frequency not greater than 0.4 seconds within a 30 second period.

In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

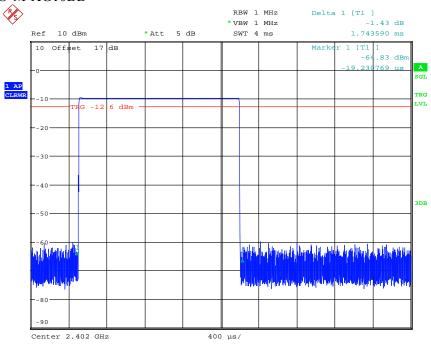


DWELL TIME CHO DH1 (0.474ms * 320events = 151.68ms)
Date: 15.JAN.2020 14:02:09

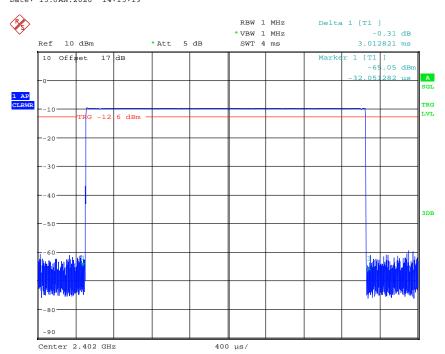


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



DWELL TIME CH0 DH3 (1.743 ms * 160 events = 278.88 ms) Date: 15. JAN.2020 14:15:19

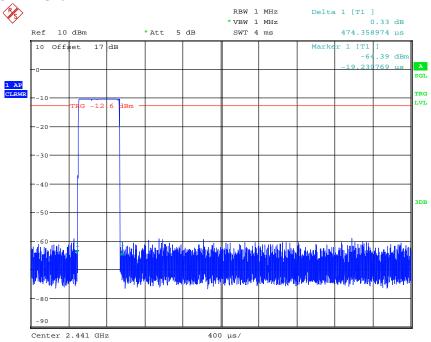


DWELL TIME CH0 DH5 (3.012ms * 106events = 319.272ms)
Date: 15.JAN.2020 14:16:08

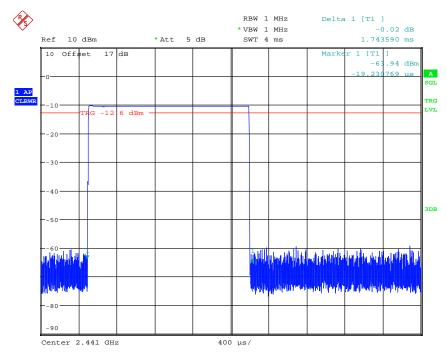


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



DWELL TIME CH39 DH1 (0.474 ms * 320 events = 151.68 ms) Date: $15.\text{JAN}.2020 \quad 14:02:27$

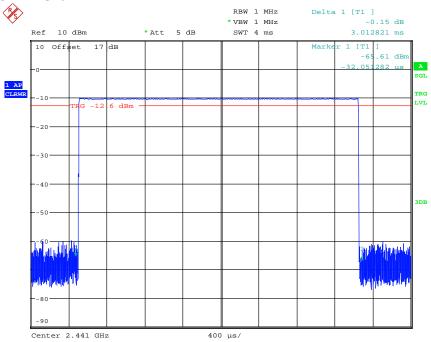


DWELL TIME CH39 DH3 (1.743ms * 160events = 278.88ms)
Date: 15.JAN.2020 14:15:03

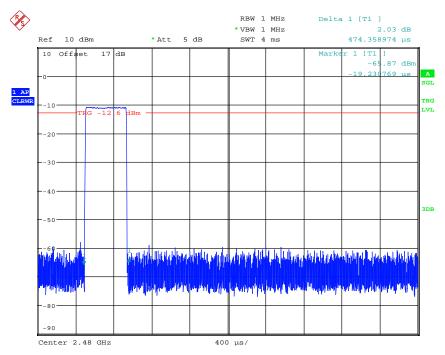


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



DWELL TIME CH39 DH5 (3.012ms * 106events = 319.272ms) Date: 15.JAN.2020 14:16:25

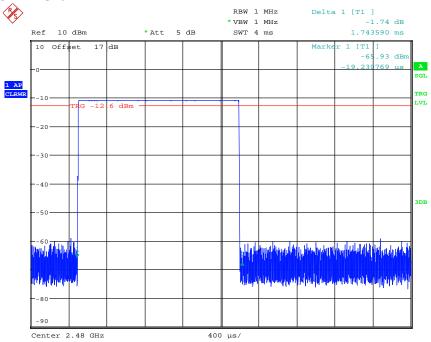


DWELL TIME CH78 DH1 ($0.474 \text{ms} \star 320 \text{events} = 151.68 \text{ms}$) Date: $15.\text{JAN}.2020 \quad 14:02:44$

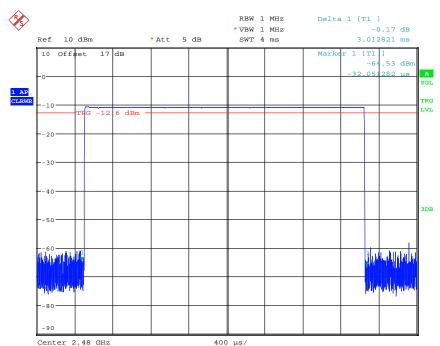


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



DWELL TIME CH78 DH3 (1.743ms * 160events = 278.88ms) Date: 15.JAN.2020 14:14:26



DWELL TIME CH78 DH5 (3.012ms * 106events = 319.272ms)
Date: 15.JAN.2020 14:16:54



Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

Limits and measurement periods:

Frequency MHz	Number of channels	Measurement Periode	Limit
902 – 928	≥50	20 s	0.4 s
902 – 928	49 ≥ 25	10 s	0.4 s
2400 – 2483.5	≥ 15	0.4 s * number of used channels	0.4 s
5725- 5850 ≥ 75		30 s	0.4s

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

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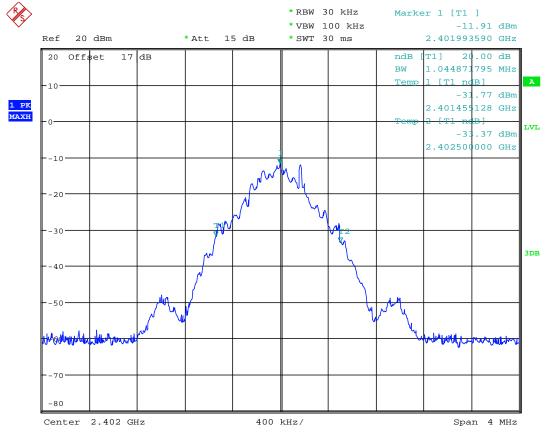
FCC ID: YWO-M-XG10BB **3.10 20dB Bandwidth**

Frequency hopping systems operating in the 5725-5850 MHz bands shall use a maximum 20dB bandwidth of 1 MHz.

The 20dB bandwidth is measured on the lowest, middle and highest hopping channel.

For frequency hopping systems operating in the 902-928 MHz band the maximum 20dB bandwidth of the hopping channel is 500 kHz.

Normal mode



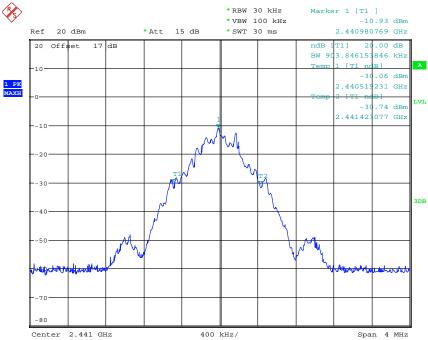
20DB BANDWIDTH CH0

Date: 15.JAN.2020 13:52:19

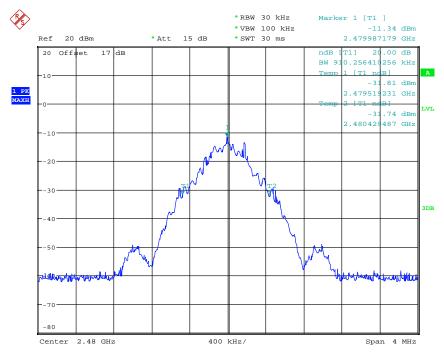


Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



20DB BANDWIDTH CH39
Date: 15.JAN.2020 13:52:51



20DB BANDWIDTH CH78

Date: 15.JAN.2020 13:53:11

FCC ID: YWO-M-XG10BB

Limits:

Frequency Range / MHz	Limit
902-928	≤ 500 kHz
2400-2483.5	not defined
5725-5850	≤ 1 MHz

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.10.1 System Receiver Input Bandwidth

It is determined in the Bluetooth core specification. The value matches to the bandwidth of transmitter signal.

Registration number: W6M21912-19534-C-1

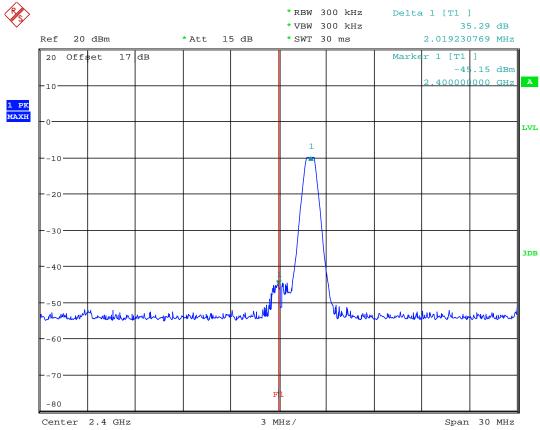
FCC ID: YWO-M-XG10BB

3.11 Band-edge Compliance of RF Emissions

According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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 § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

Normal mode



BANDEDGE CHO

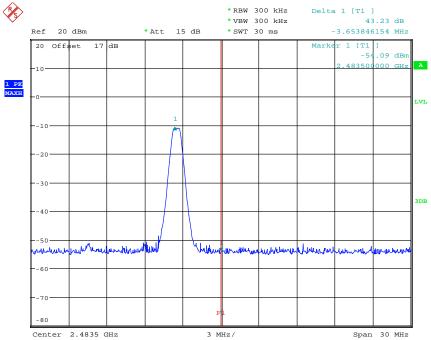
Date: 15.JAN.2020 13:52:31



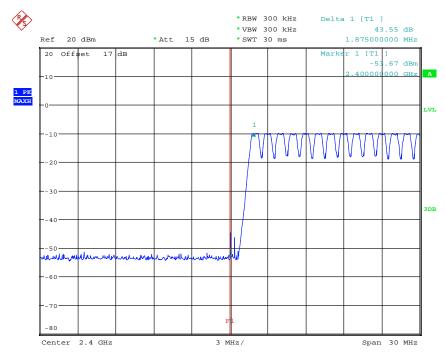
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Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB



BANDEDGE CH78
Date: 15.JAN.2020 13:53:23

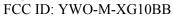


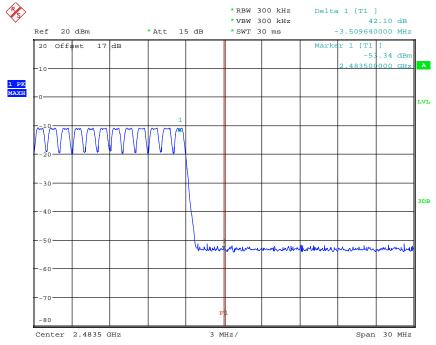
BANDEDGE CHO HOPPING MODE Date: 15.JAN.2020 13:54:04



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21912-19534-C-1





BANDEDGE CH78 HOPPING MODE Date: 15.JAN.2020 13:54:48

Limits:

Frequency Range / MHz	Limit
902 –928	
2400 – 2483.5	- 20 dB
5725 - 5850	

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

3.12 Radiated Emissions from Digital Part

FCC Rule: 15.109

Summary table with radiated data of the test plots

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Explanation: The test results are listed in the separated test report no.: W6M21912-19534-P-15B.

Test equipment used: ETSTW-RE 055, ETSTW-RE 064, ETSTW-RE 004, ETSTW-RE 030 ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

3.13 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Model:	M-XGL10BB	Date:	-	-		
Mode:		Temperature:		°C	Engineer:	
Polarization:		Humidity:		%		

1 Olalization.		110	mmuity.		/0			
Frequency	Reading (dBuV)		Factor (dB)		sult uV)		nit uV)	Margin
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)
							1	
							I	
							ŀ	

Polarization: --

Frequency	Reading (dBuV)		Factor (dB)		sult uV)		mit uV)	Margin
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)

Limits:

Frequency of Emission (MHz)	Conducted I	Limit (dBuV)
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Note:

- 1. The formula of measured value as: Test Result = Reading + Correction Factor
- 2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Up Line: QP Limit Line, Down Line: Ave Limit Line.
- 6. This test is not required because the EUT is battery-used.

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-RE 045.

Registration number: W6M21912-19534-C-1

FCC ID: YWO-M-XG10BB

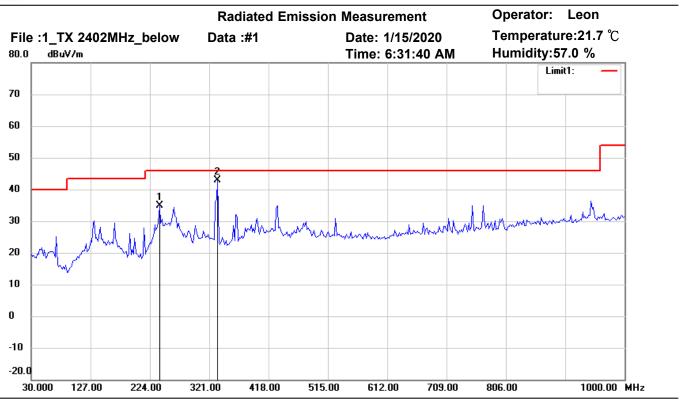
Appendix

Measurement diagrams

Spurious Emissions radiated_TX



Tel:+886-2-6606-8877 Fax:+886-2-6606-8875



Site: Chamber

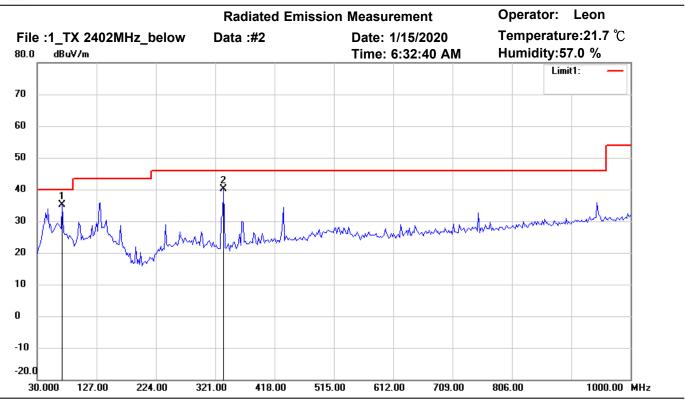
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	239.9398	43.55	peak	-8.55	35.00	46.00	100	236	-11.00	
*	335.1904	48.24	peak	-5.37	42.87	46.00	100	175	-3.13	



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Site: Chamber

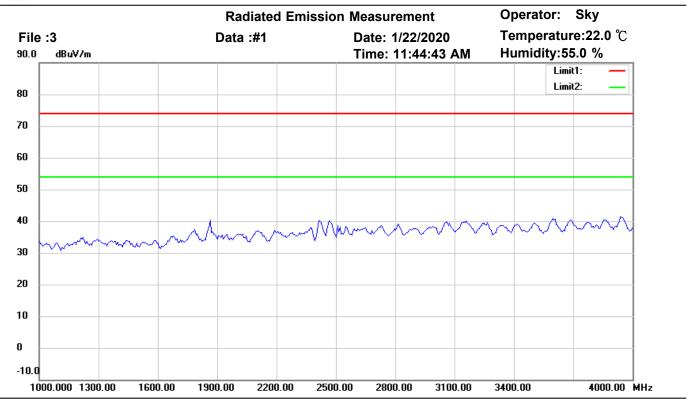
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	70.8215	49.39	peak	-14.26	35.13	40.00	100	72	-4.87	
	335.1904	45.47	peak	-5.37	40.10	46.00	100	163	-5.90	



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Site: Chamber

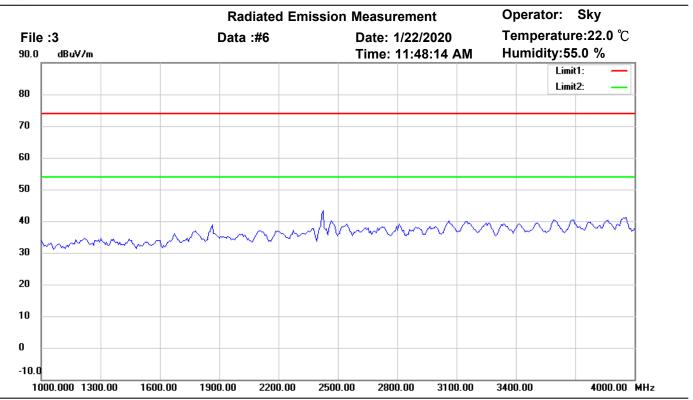
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

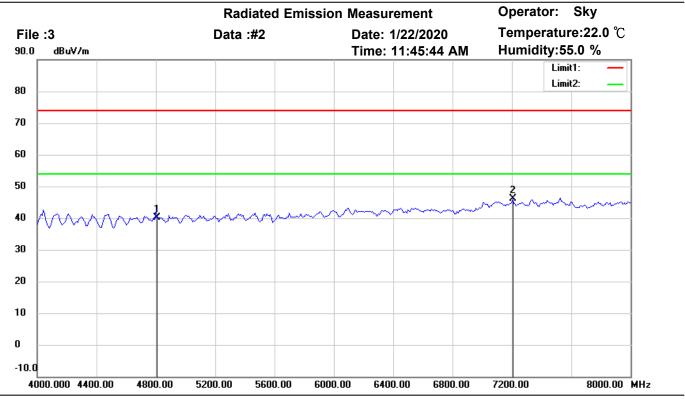
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

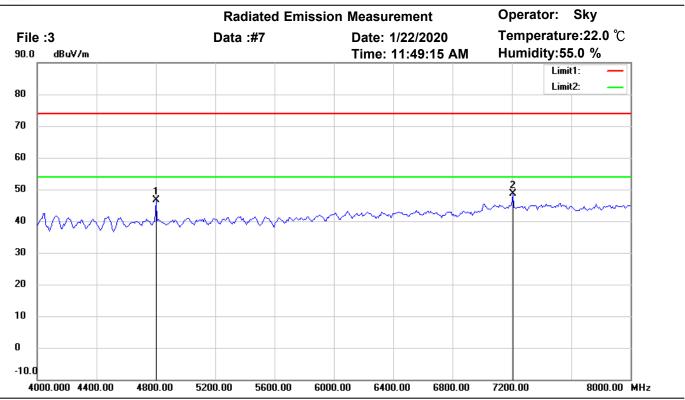
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4804.000	42.10	peak	-1.95	40.15	74.00	150	60	-33.85	
*	7206.000	42.99	peak	3.24	46.23	74.00	150	195	-27.77	



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Site: Chamber

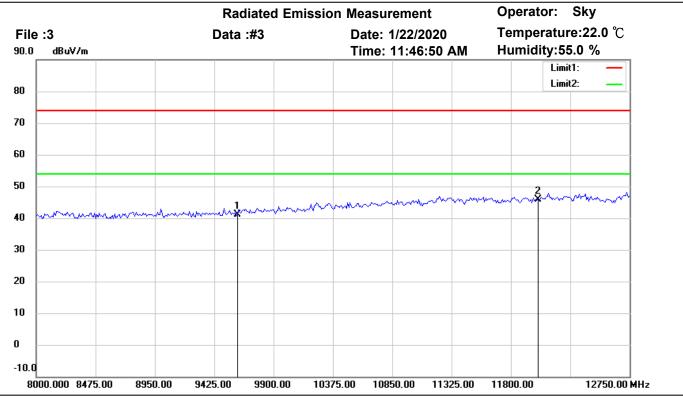
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4801.603	48.51	peak	-1.95	46.56	74.00	150	75	-27.44	
*	7206.000	45.42	peak	3.24	48.66	74.00	150	55	-25.34	



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Site: Chamber

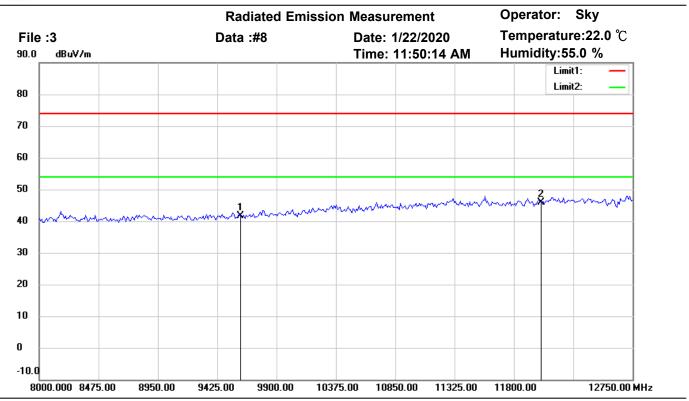
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9608.000	34.56	peak	6.53	41.09	74.00	150	10	-32.91	
*	12010.000	34.30	peak	11.62	45.92	74.00	150	310	-28.08	



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Site: Chamber

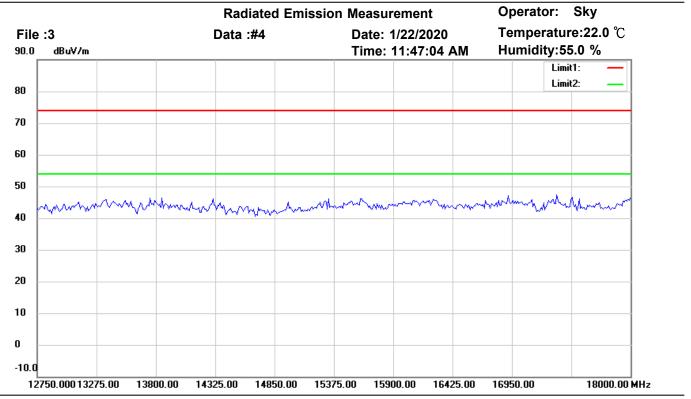
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9608.000	35.03	peak	6.53	41.56	74.00	150	310	-32.44	
*	12010.000	34.25	peak	11.62	45.87	74.00	150	40	-28.13	



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Site: Chamber

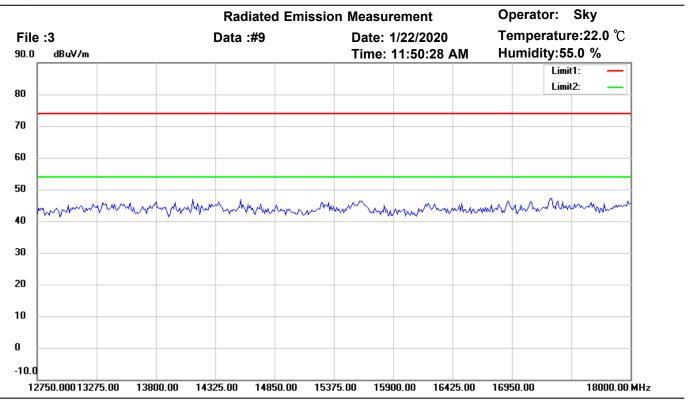
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

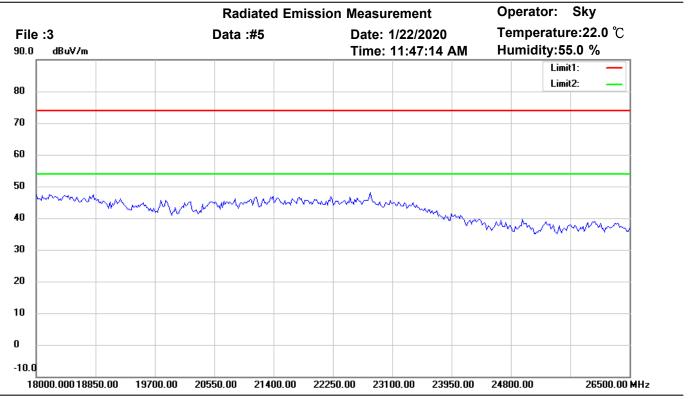
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

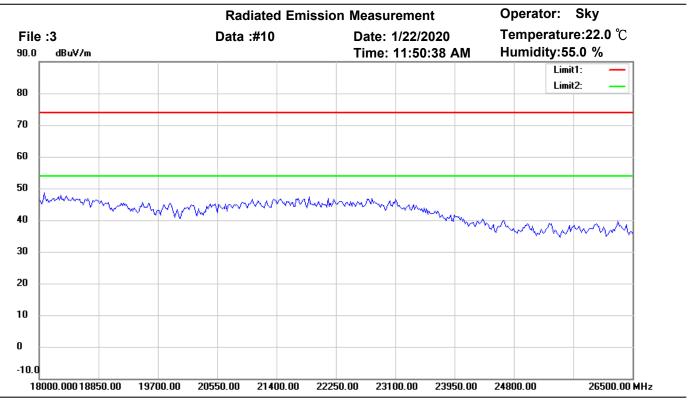
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

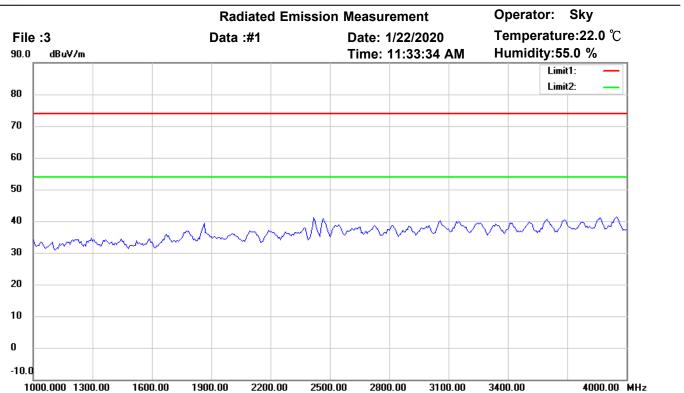
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

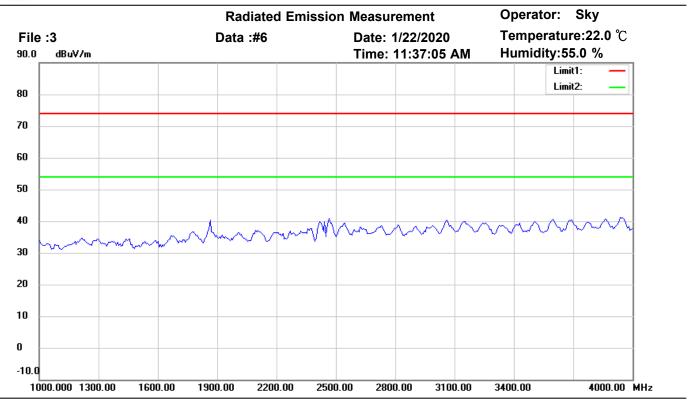
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

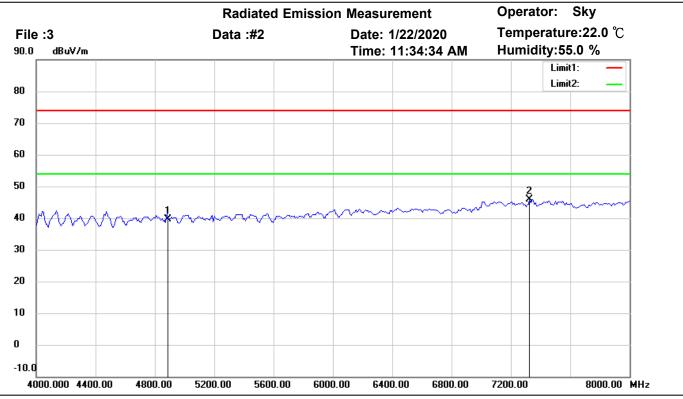
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

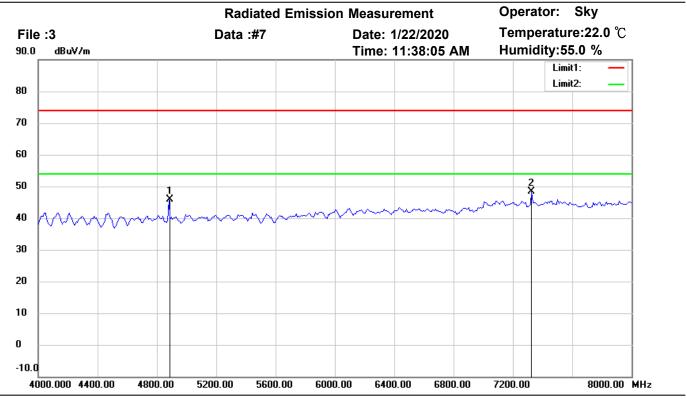
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2441MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4882.000	41.34	peak	-1.67	39.67	74.00	150	60	-34.33	
*	7323.000	42.40	peak	3.46	45.86	74.00	150	140	-28.14	



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Site: Chamber

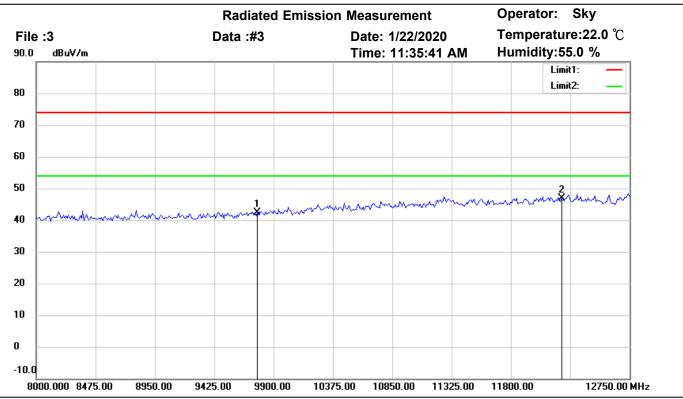
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2441MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4881.764	47.46	peak	-1.67	45.79	74.00	150	10	-28.21	
*	7323.000	44.84	peak	3.46	48.30	74.00	150	225	-25.70	



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Site: Chamber

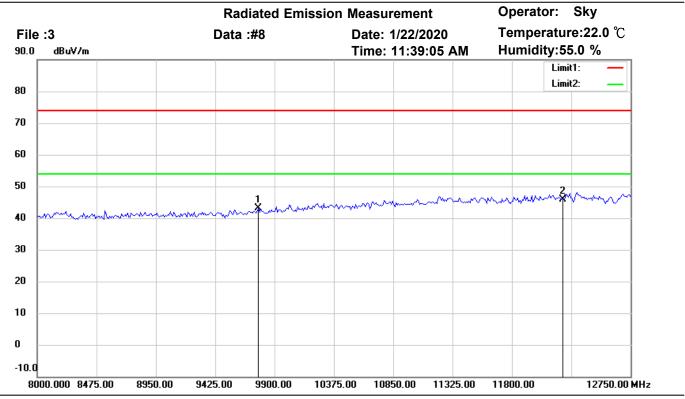
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2441MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9764.000	35.61	peak	6.77	42.38	74.00	150	75	-31.62	
*	12205.000	34.19	peak	12.81	47.00	74.00	150	110	-27.00	



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Site: Chamber

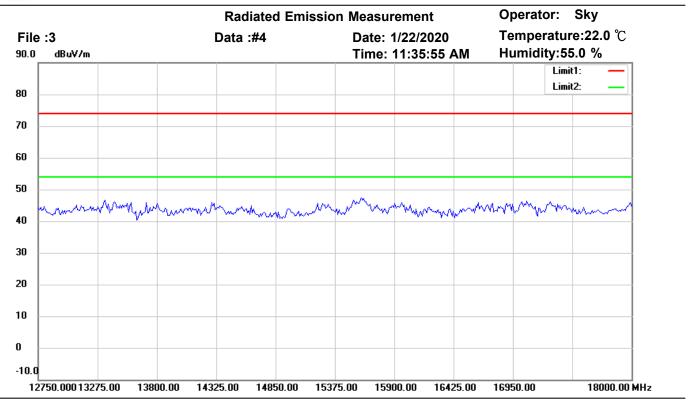
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2441MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9764.000	36.24	peak	6.77	43.01	74.00	150	225	-30.99	
*	12205.000	33.06	peak	12.81	45.87	74.00	150	10	-28.13	



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Site: Chamber

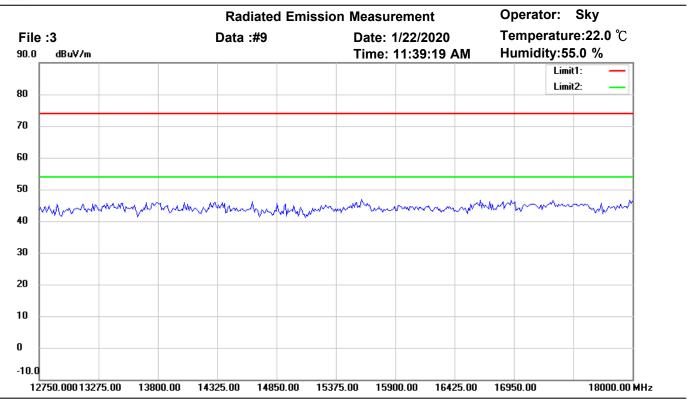
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

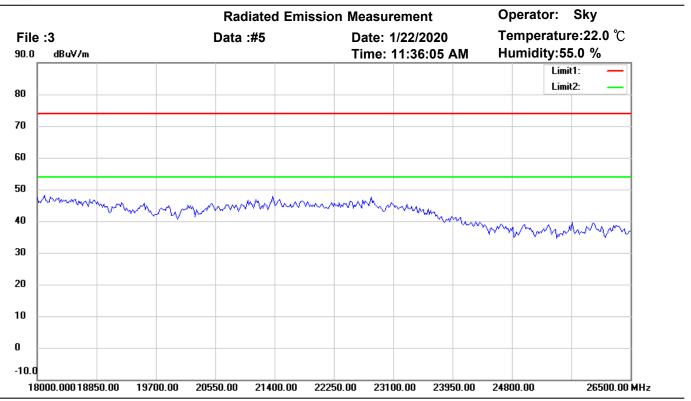
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

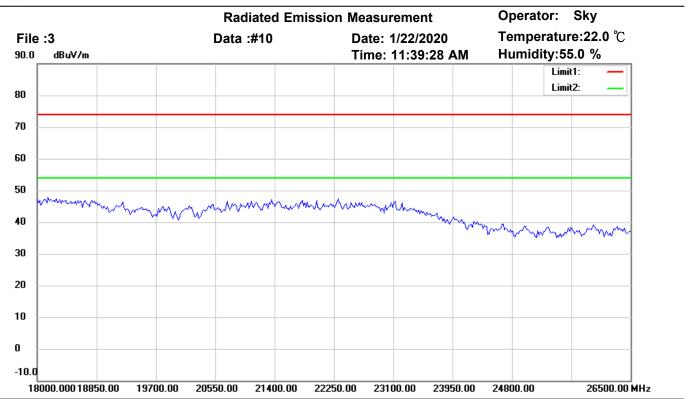
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

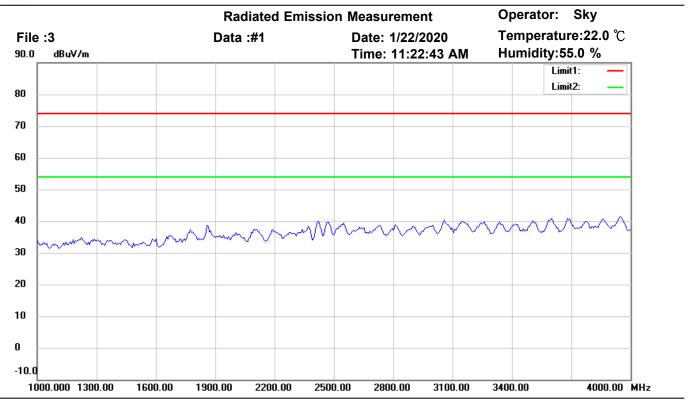
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2441MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

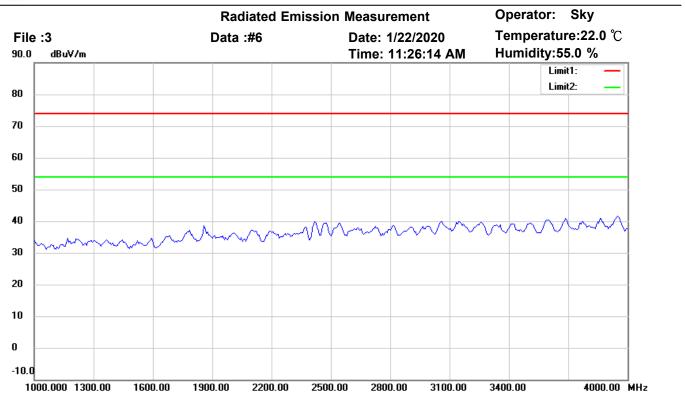
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

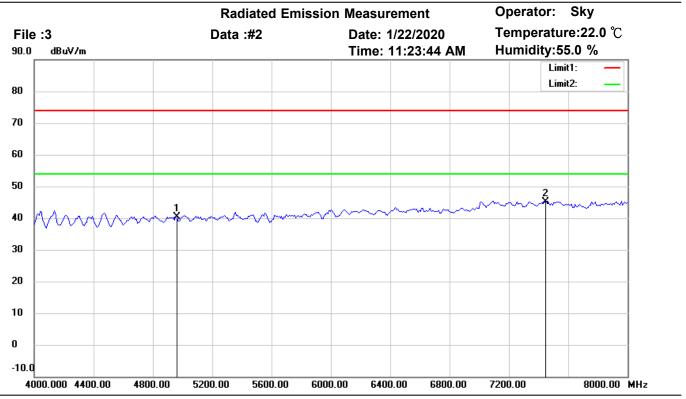
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

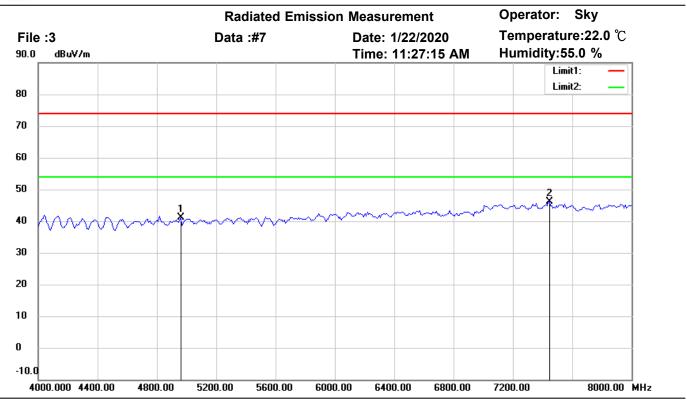
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4960.000	41.83	peak	-1.35	40.48	74.00	150	15	-33.52	
*	7440.000	41.42	peak	3.72	45.14	74.00	150	340	-28.86	



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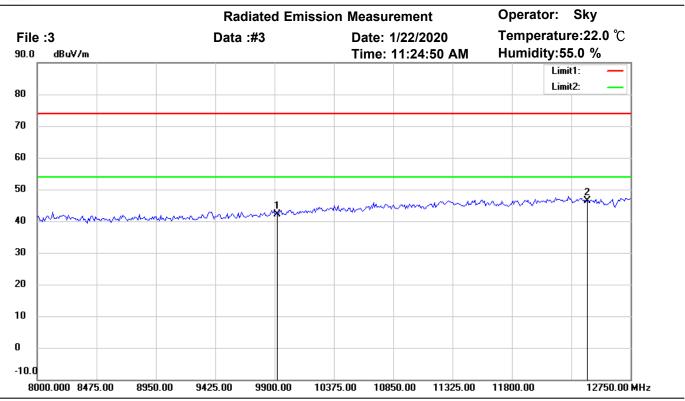
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4960.000	42.45	peak	-1.35	41.10	74.00	150	90	-32.90	
*	7440.000	42.42	peak	3.72	46.14	74.00	150	330	-27.86	



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Site: Chamber

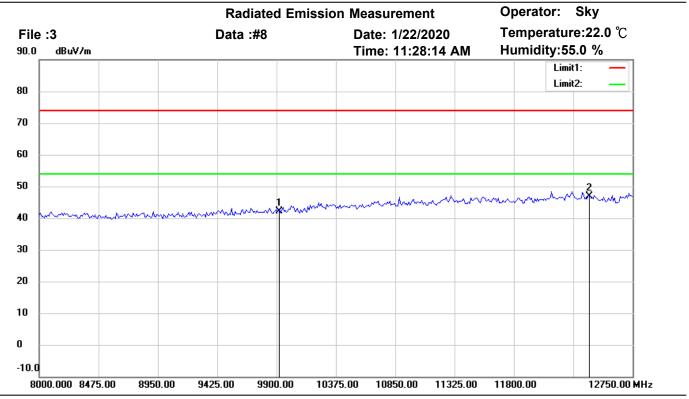
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9920.000	35.03	peak	7.16	42.19	74.00	150	215	-31.81	
*	12400.000	33.59	peak	12.75	46.34	74.00	150	75	-27.66	



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Site: Chamber

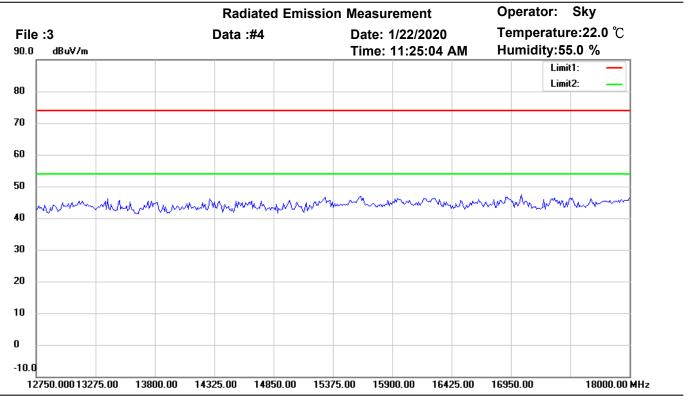
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9920.000	34.99	peak	7.16	42.15	74.00	150	225	-31.85	
*	12400.000	34.13	peak	12.75	46.88	74.00	150	10	-27.12	



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Site: Chamber

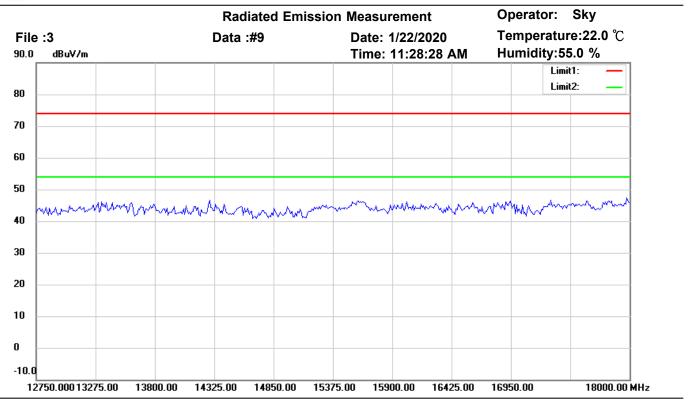
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

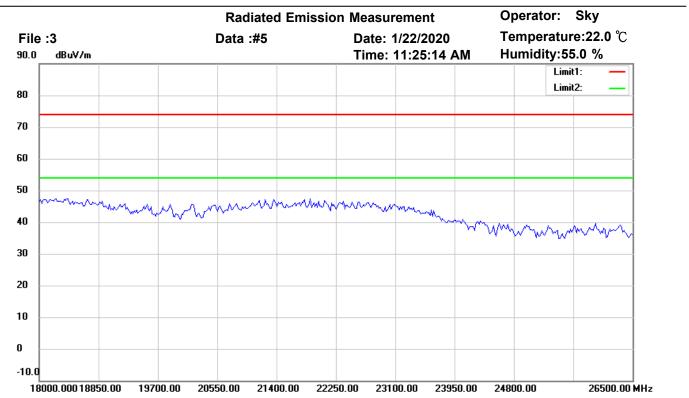
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

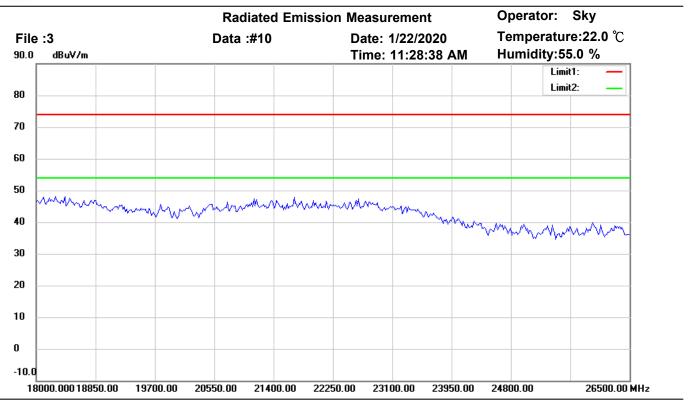
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	