

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24Y591 001	Auftrags-Nr.: <i>Order no.:</i>	168487810	Seite 1 von 20 Page 1 of 20
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2024-06-06	
Auftraggeber: <i>Client:</i>	IKEA of Sweden AB Box 702, SE-343 81, Älmhult, Sweden			
Prüfgegenstand: <i>Test item:</i>	STYRBAR Remote control white			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	E2313			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 3 August 2023 RSS-Gen Issue 5 February 2021			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-06-06	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003737768-002 A003737768-003			
Prüfzeitraum: <i>Testing period:</i>	2024-06-06 to 2024-06-15			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	Hardy X <i>Hardy</i> <i>Suo</i>		genehmigt von: <i>authorized by:</i>	Lin X <i>Lin</i> <i>Lin</i>
Datum: <i>Date:</i>	2024-06-28		Ausstellungsdatum: <i>Issue date:</i>	2024-06-28
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / <i>Other:</i>	FCC ID: FHO-E2313 IC: 10912A-E2313, HVIN: E2313			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet <i>* Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</i>			
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 99% BANDWIDTH

RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Zigbee

Appendix B: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Registration No.: 694916

ISED Wireless Device Testing Laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (SRD-Tonscend)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	2023-09-22	2024-09-21
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2023-09-22	2024-09-21
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2023-09-22	2024-09-21
DC power supply	Keysight	E3642A	MY61276100	2023-09-22	2024-09-21
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2023-09-22	2024-09-21
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2023-09-22	2024-09-21
Test Software	Tonscend	JS1120-3	N/A	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A	N/A
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2021-06-22	2024-06-22
Unwanted Emission Testing (TS9975)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2023-07-26	2024-07-25
Signal Analyzer	R&S	FSV 40	101439	2023-07-26	2024-07-25
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2023-07-26	2024-07-25
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-07-26	2024-07-25
Amplifier	R&S	SCU-18F	180070	2023-07-26	2024-07-25
Amplifier	R&S	SCU40A	100475	2023-07-26	2024-07-25
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-07	2024-08-06

Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-07	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-28	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-08-07	2024-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2021-06-22	2024-06-22

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	±4.17 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

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2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a STYRBAR Remote control white which supports 2.4GHz ZigBee wireless technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	STYRBAR Remote control white
Type Designation:	E2313
FCC ID:	FHO-E2313
IC:	10912A-E2313
HVIN:	E2313
Operating Voltage:	Battery operated (3Vdc, 2 x AAA/HR03 LADDA batteries)
Testing Voltage:	Fully charged battery
Operating Temperature Range:	0 °C ~ +45 °C
Technical Specification of ZigBee	
Operating Frequency:	2405 MHz to 2480 MHz
Type of Modulation:	DSSS(OQPSK)
Channel Number:	16 channels
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.0 dBi (Provided by IKEA)

Table 4: RF Channel and Frequency of ZigBee

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
01	2405.0	05	2425.0	09	2445.0	13	2465.0
02	2410.0	06	2430.0	10	2450.0	14	2470.0
03	2415.0	07	2435.0	11	2455.0	15	2475.0
04	2420.0	08	2440.0	12	2460.0	16	2480.0

Test frequencies are lowest channel: 2405.0 MHz, middle channel: 2440.0 MHz and highest channel: 2480.0MHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Zigbee transmitting mode
- 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|--------------------|----------------------------------|
| - Application Form | - User Manual |
| - Block Diagram | - Schematics |
| - PCB Layout | - FCC/IC Label and Location Info |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model E2313 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Laptop	Lenovo	T480	PF-16A6N8

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

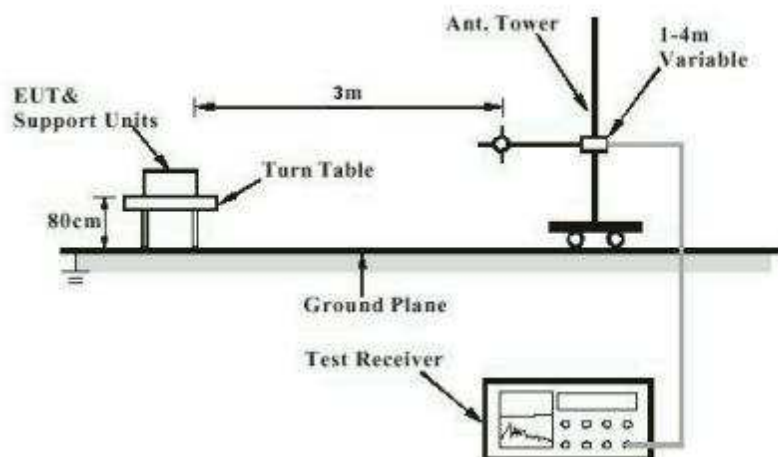


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

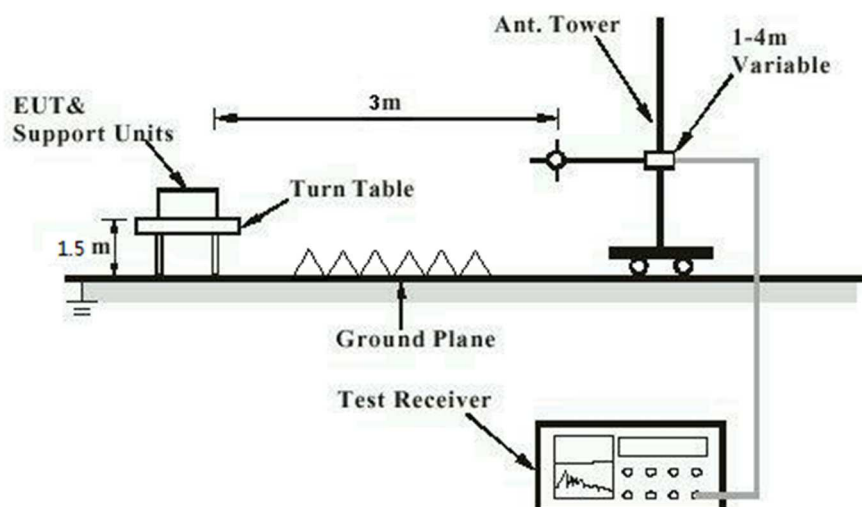
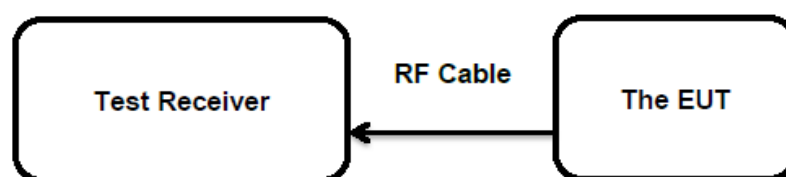


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an Integral antenna, the directional gain of antenna is 2.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G): 2.0 dBi

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5.1.3 Conducted Power Spectral Density

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(e) RSS-247 Section 5.2(b)
Basic standard	: ANSI C63.10: 2013
Limits	: < 8 dBm / 3kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-06-12
Input voltage	: Fully charged battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22.5 °C
Relative humidity	: 55.5 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.4 6dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(a)(2) RSS-247 Section 5.2(a)
Basic standard	: ANSI C63.10: 2013
Limits	: > 500 kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-06-12
Input voltage	: Fully charged battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22.5 °C
Relative humidity	: 55.5 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.5 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(a)
RSS-Gen Clause 6.7
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-06-12
Input voltage : Fully charged battery
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 22.5 °C
Relative humidity : 55.5 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

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5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) RSS-247 Section 5.5
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-06-12
Input voltage	: Fully charged battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22.5 °C
Relative humidity	: 55.5 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

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5.1.7 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Section 3.3
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Section 8.9 & 8.10
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2024-06-15
Input voltage	: Fully charged battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

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Appendix A: Test Results of ZigBee

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Appendix A.1: Test Results of Conducted Power Spectral Density

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
ZigBee	Ant1	2405	-4.27	≤8.00	PASS
		2445	-4.31	≤8.00	PASS
		2480	-4.51	≤8.00	PASS

ZigBee_Ant1_2405



ZigBee_Ant1_2445



ZigBee_Ant1_2480



Appendix A.2: Test Results of 6dB Bandwidth

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
ZigBee	Ant1	2405	1.660	2404.140	2405.800	0.5	PASS
		2445	1.060	2444.380	2445.440	0.5	PASS
		2480	1.650	2479.150	2480.800	0.5	PASS

ZigBee_Ant1_2405



ZigBee_Ant1_2445

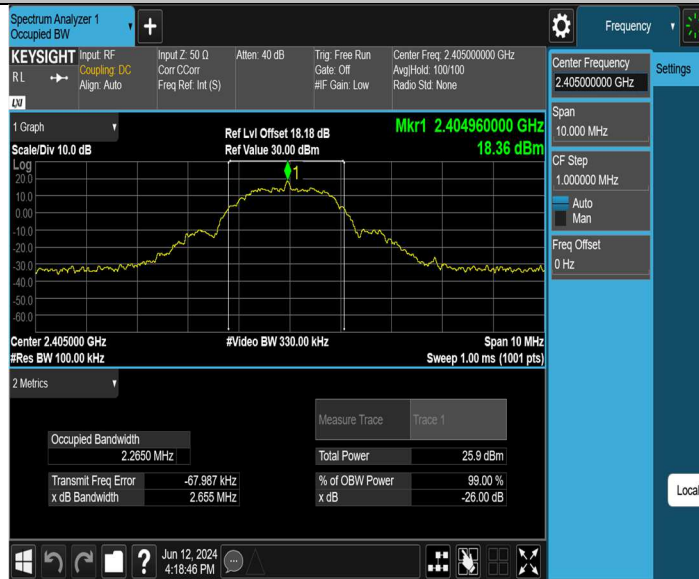




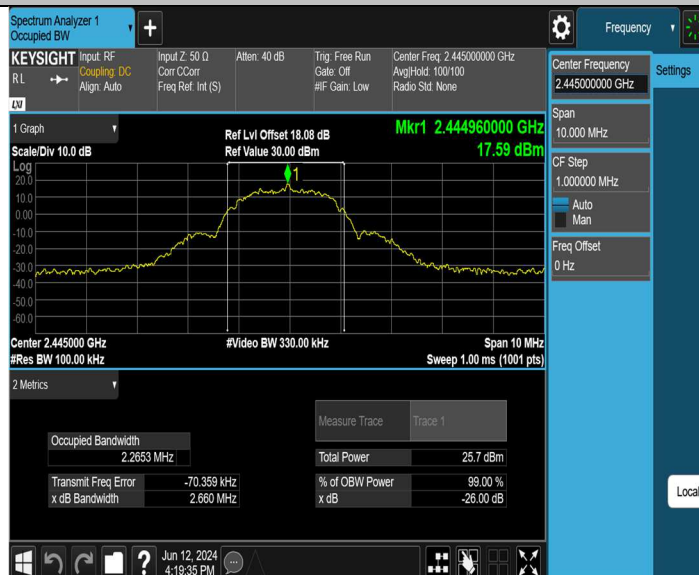
Appendix A.3: Test Results of 99% Bandwidth

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
ZigBee	Ant1	2405	2.2650	2403.7995	2406.0645	---	PASS
		2445	2.2653	2443.7970	2446.0623	---	PASS
		2480	2.2821	2478.7942	2481.0763	---	PASS

ZigBee_Ant1_2405



ZigBee_Ant1_2445

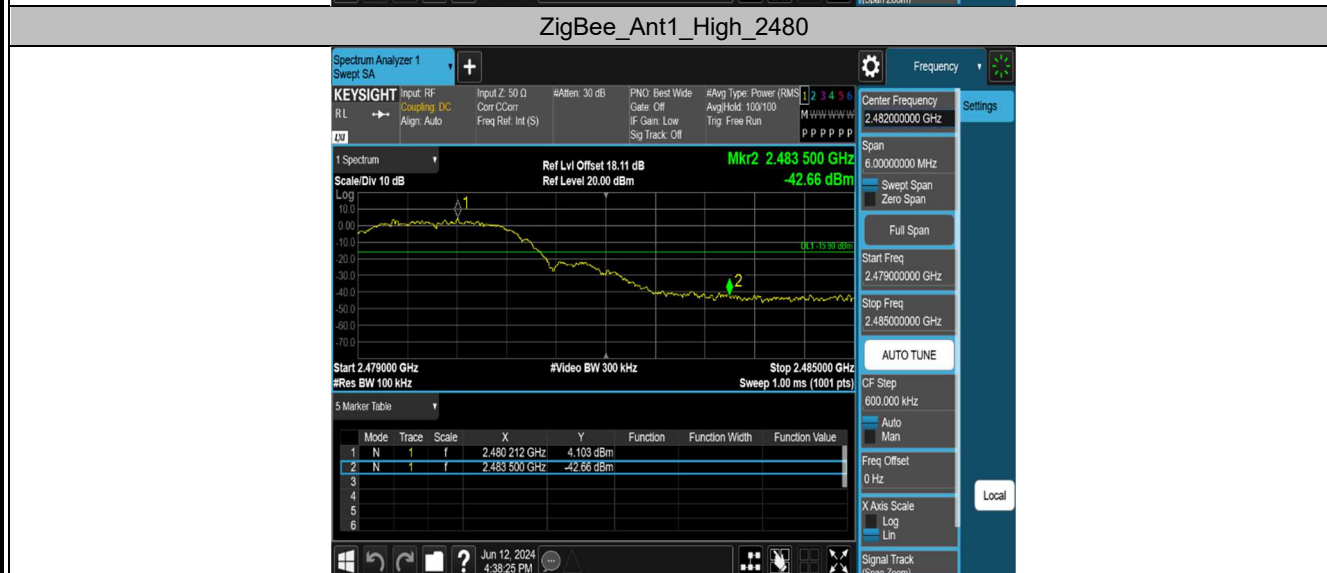




Appendix A.4: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Band Edge

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
ZigBee	Ant1	Low	2405	6.435	-45.53	≤-13.57	PASS
		High	2480	4.103	-42.66	≤-15.9	PASS



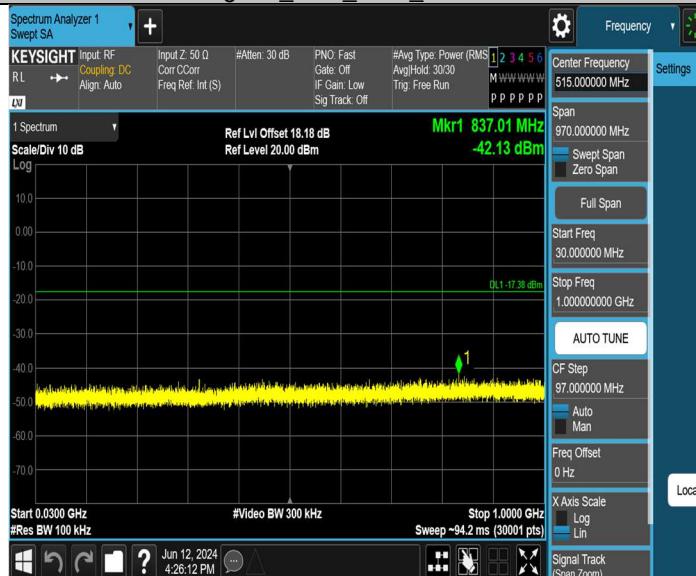
Conducted Spurious Emission

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
ZigBee	Ant1	2405	Reference	2.62	2.62	---	PASS
			30~1000	2.62	-42.13	≤-17.38	PASS
			1000~26500	2.62	-33.1	≤-17.38	PASS
		2445	Reference	1.99	1.99	---	PASS
			30~1000	1.99	-41.86	≤-18.01	PASS
			1000~26500	1.99	-33.15	≤-18.01	PASS
		2480	Reference	2.04	2.04	---	PASS
			30~1000	2.04	-42.4	≤-17.96	PASS
			1000~26500	2.04	-32.85	≤-17.96	PASS

ZigBee_Ant1_2405_0~Reference



ZigBee_Ant1_2405_30~1000



ZigBee_Ant1_2405_1000~26500



ZigBee_Ant1_2445_0~Reference



ZigBee_Ant1_2445_30~1000



ZigBee_Ant1_2445_1000~26500



ZigBee_Ant1_2480_0~Reference



ZigBee_Ant1_2480_30~1000



ZigBee_Ant1_2480_1000~26500



Appendix A.5: Test Results of Radiated Spurious Emissions

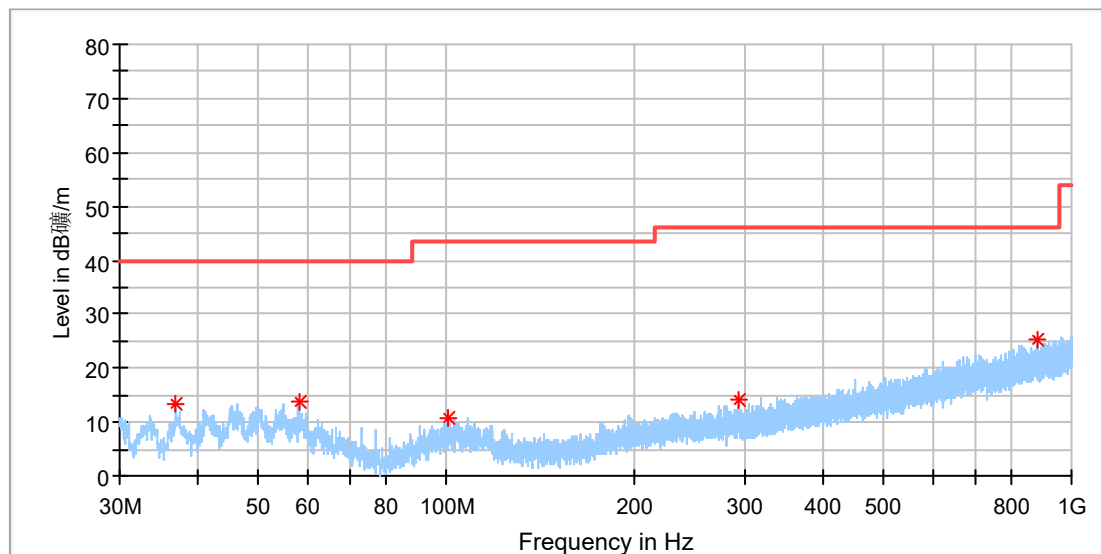
Note:

- 1) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30 MHz - 1GHz

EUT Information

EUT Name:	STYRBAR Remote control white
Model:	E2313
Test Mode:	Zigbee_Mid CH
Order No/Sample No:	168487810/A003737768-002
Test Voltage:	Battery
Remark:	Temp 22 Humi:52%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

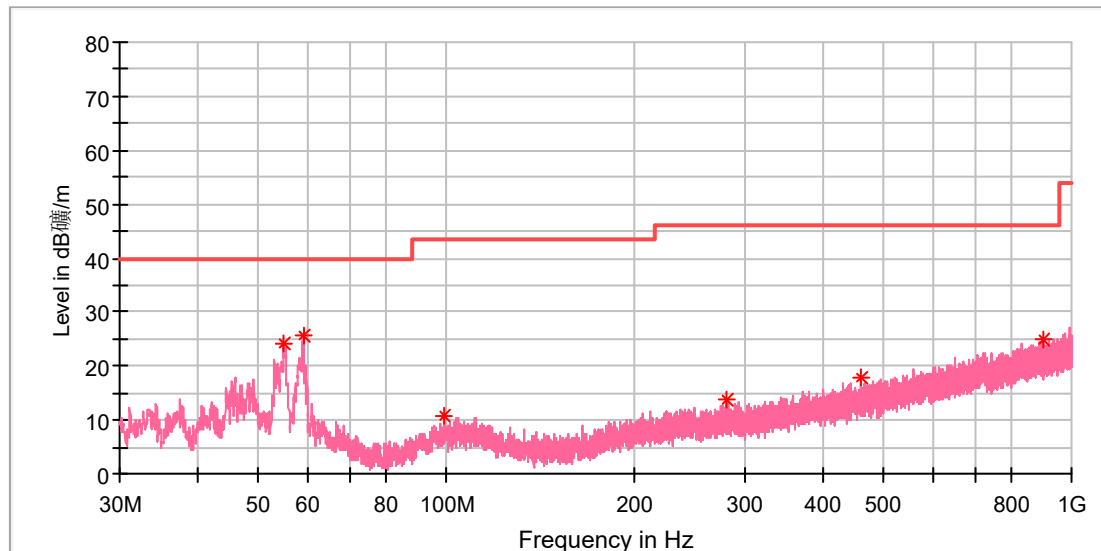
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.939231	13.38	40.00	26.62	100.0	H	118.0	-21.5
58.092692	13.80	40.00	26.20	100.0	H	241.0	-19.1
100.436923	10.86	43.50	32.64	100.0	H	32.0	-19.3
293.056539	14.22	46.00	31.78	100.0	H	49.0	-16.8
883.600000	25.12	46.00	20.88	100.0	H	0.0	-5.5

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Mid CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.996154	24.19	40.00	15.81	100.0	V	80.0	-18.7
58.950769	25.53	40.00	14.47	100.0	V	243.0	-19.2
99.019231	10.65	43.50	32.85	100.0	V	80.0	-19.5
280.521154	13.60	46.00	32.40	100.0	V	105.0	-17.1
461.724615	18.04	46.00	27.96	100.0	V	63.0	-13.0
898.933462	24.82	46.00	21.18	100.0	V	144.0	-5.4

Final_Result

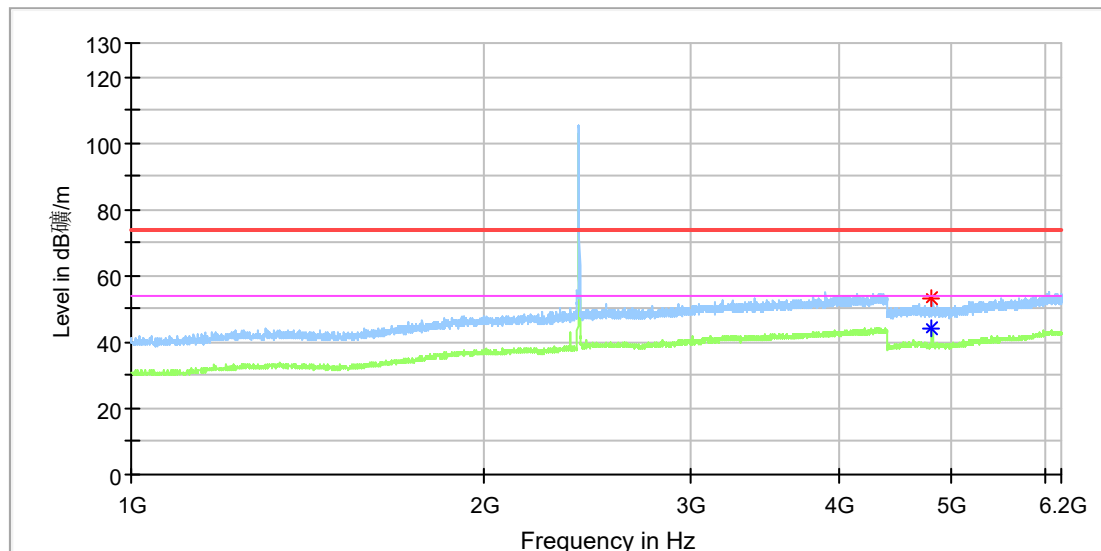
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

1GHz - 18GHz

Note: The highest waveform in the figure is ZigBee Fundamental.

EUT Information

EUT Name:	STYRBAR Remote control white
Model:	E2313
Test Mode:	Zigbee_Low CH
Order No/Sample No:	168487810/A003737768-002
Test Voltage:	Battery
Remark:	Temp 22 Humi:52%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

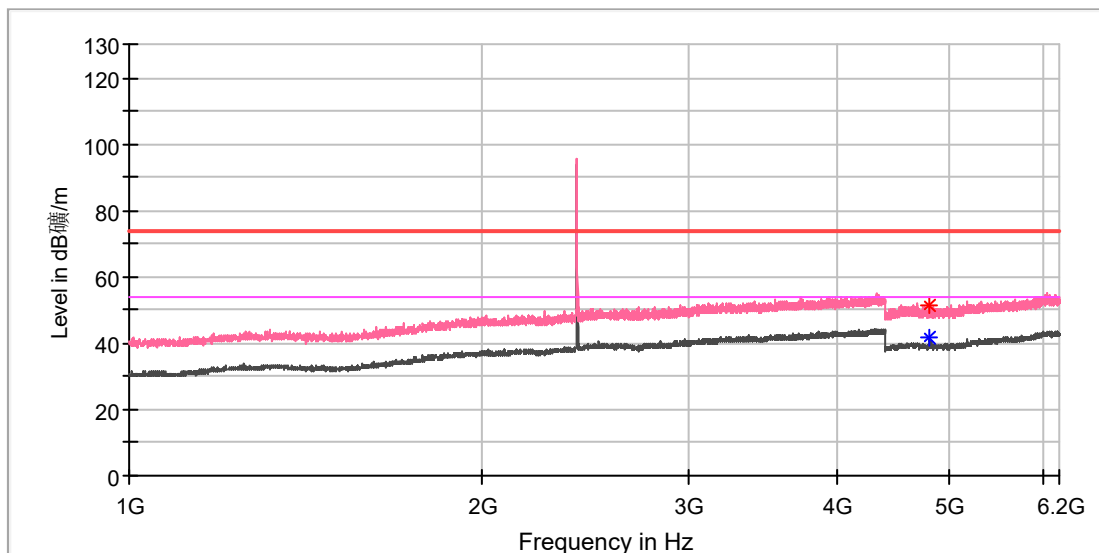
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4808.500000	53.42	---	74.00	20.58	150.0	H	0.0	11.8
4811.000000	---	44.40	54.00	9.60	150.0	H	0.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Low CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

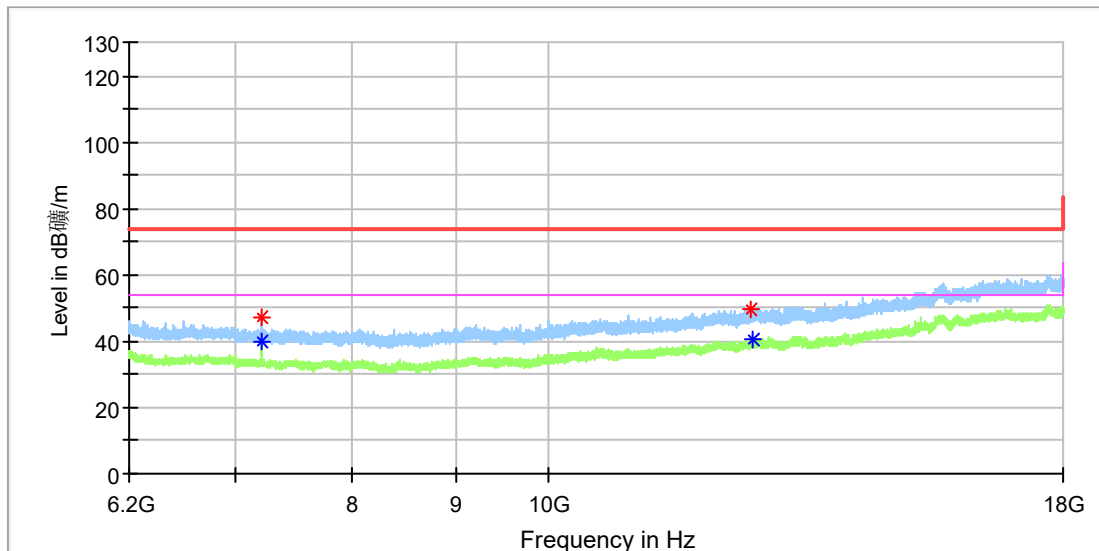
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4809.500000	---	41.93	54.00	12.07	150.0	V	193.0	11.8
4810.500000	51.64	---	74.00	22.36	150.0	V	188.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Low CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

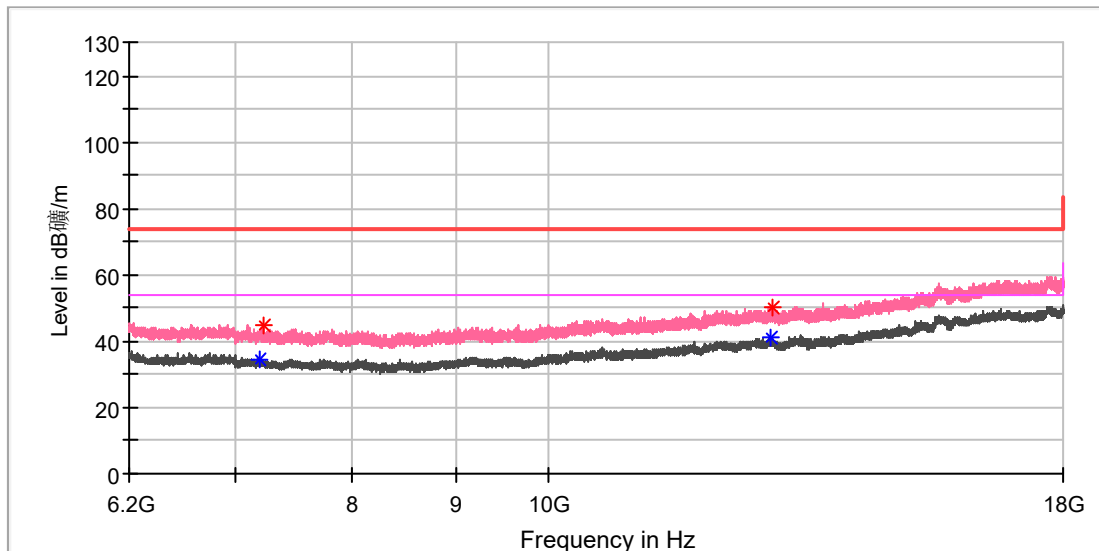
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7216.275000	47.02	---	74.00	26.98	150.0	H	149.0	8.7
7216.275000	---	40.04	54.00	13.96	150.0	H	149.0	8.7
12608.383333	49.30	---	74.00	24.70	150.0	H	100.0	14.9
12615.266667	---	40.73	54.00	13.27	150.0	H	66.0	14.9

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Low CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

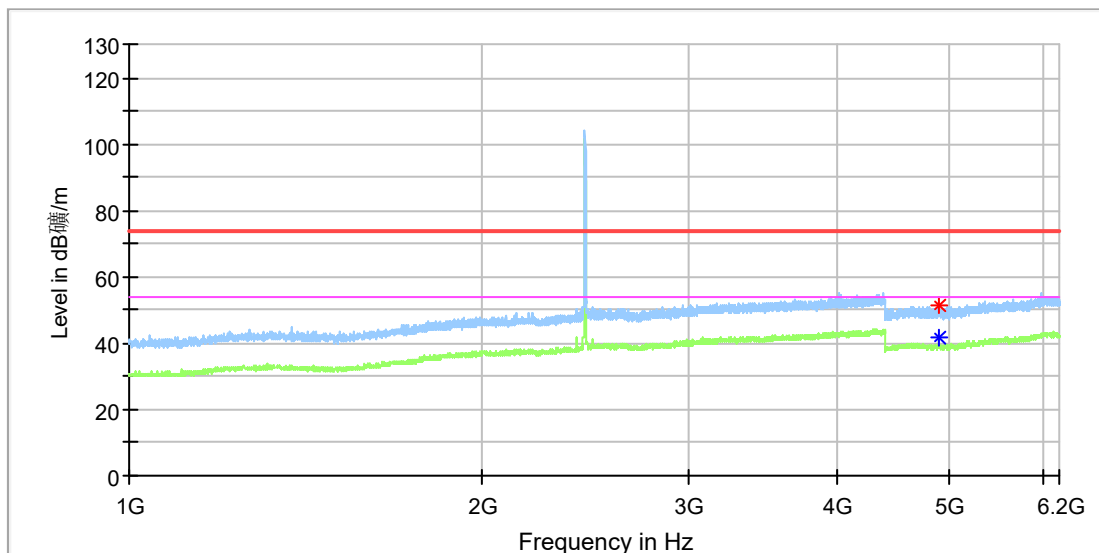
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7195.133333	---	34.68	54.00	19.32	150.0	V	243.0	8.8
7233.483333	44.61	---	74.00	29.39	150.0	V	325.0	8.6
12896.500000	---	41.03	54.00	12.97	150.0	V	357.0	15.5
12917.150000	50.39	---	74.00	23.61	150.0	V	185.0	15.5

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Mid CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

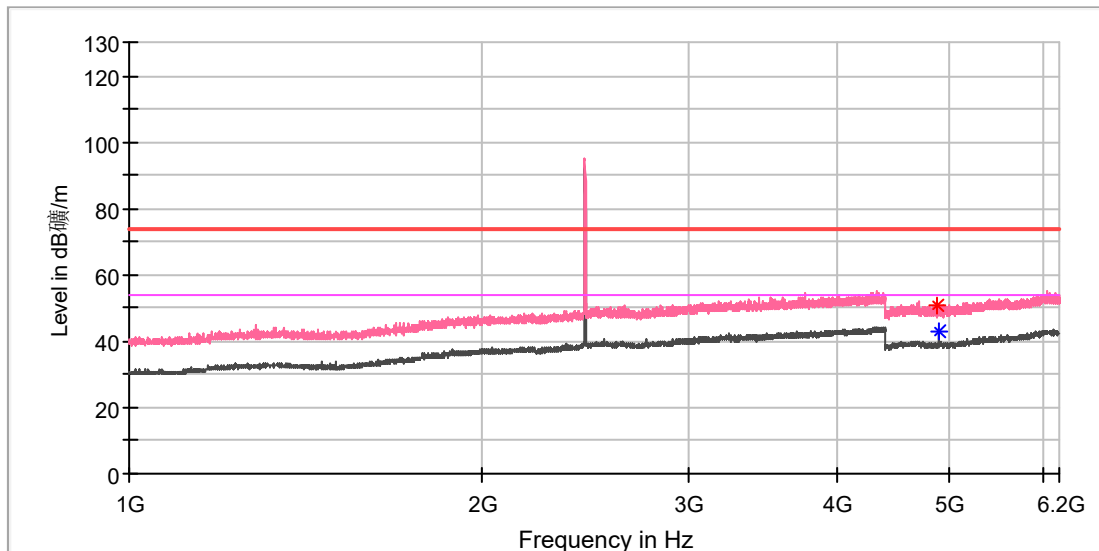
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4890.500000	---	41.79	54.00	12.21	150.0	H	261.0	11.8
4891.000000	51.36	---	74.00	22.64	150.0	H	169.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Mid CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

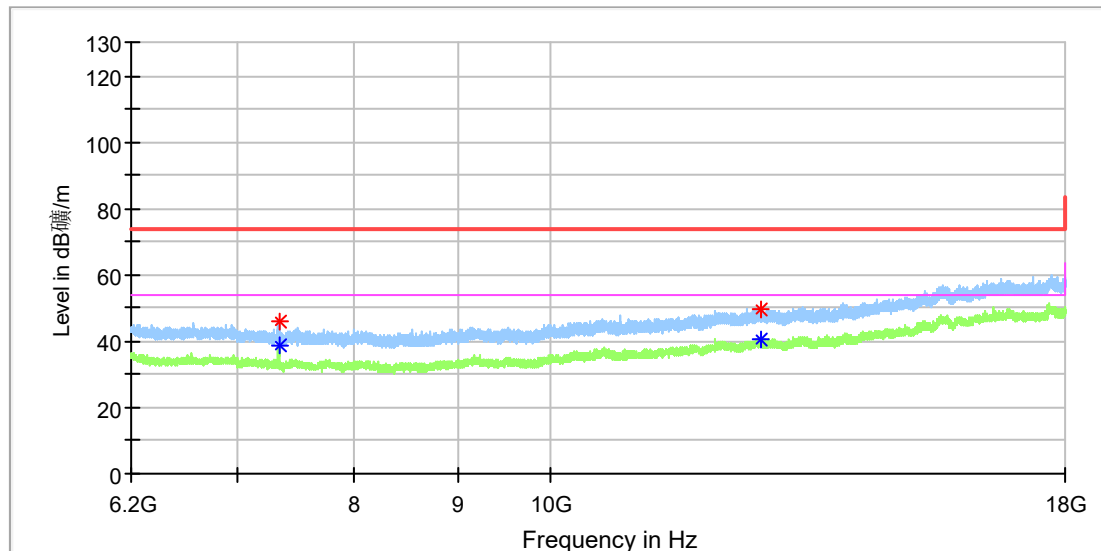
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4873.500000	50.51	---	74.00	23.49	150.0	V	107.0	11.8
4892.500000	---	42.82	54.00	11.18	150.0	V	355.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Mid CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

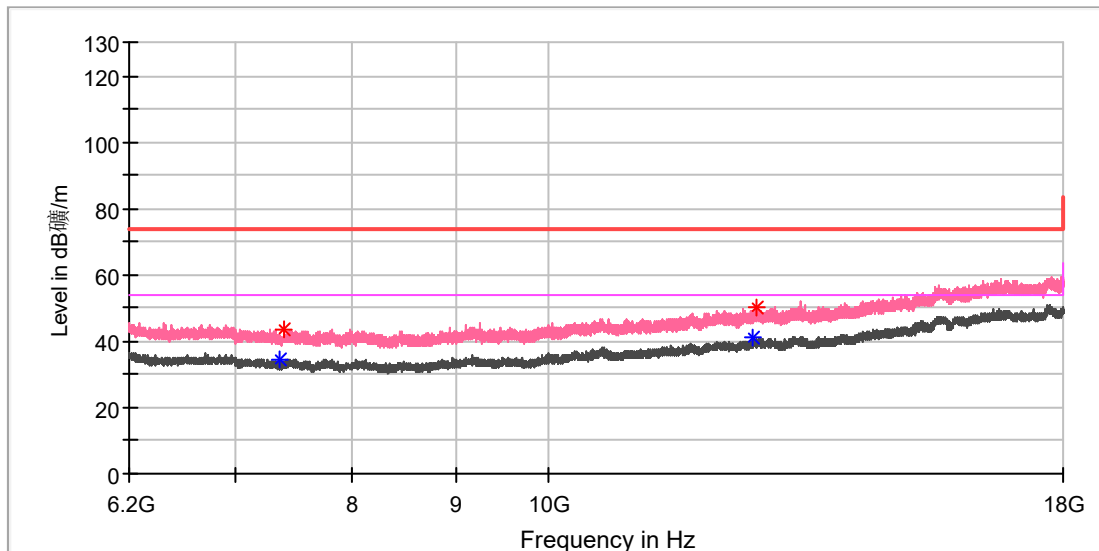
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7336.241667	46.08	---	74.00	27.92	150.0	H	332.0	8.1
7336.241667	---	38.60	54.00	15.40	150.0	H	332.0	8.1
12702.291667	---	40.63	54.00	13.37	150.0	H	0.0	15.1
12710.158333	49.58	---	74.00	24.42	150.0	H	320.0	15.1

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Mid CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

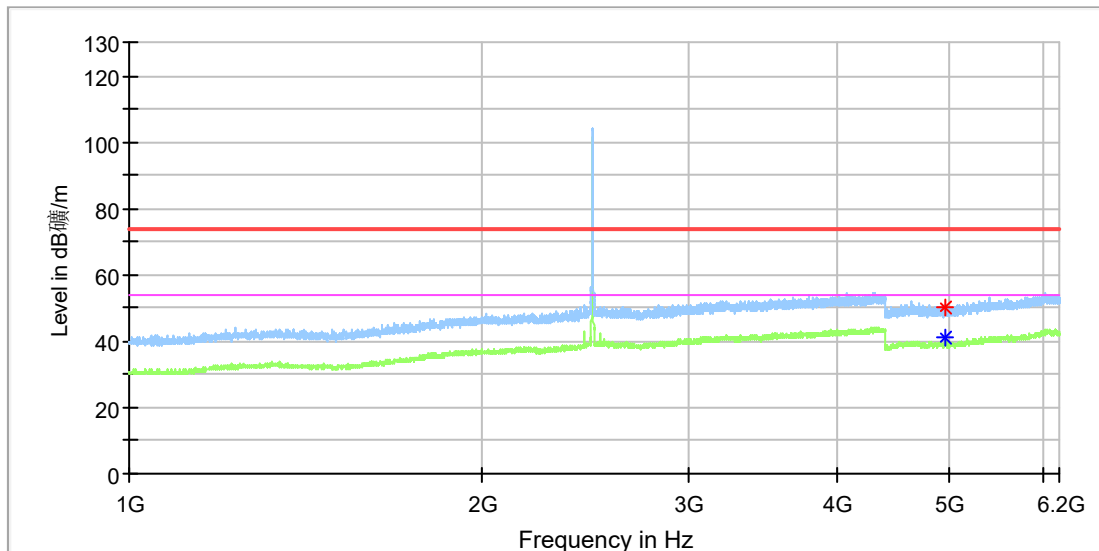
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7361.808333	---	34.39	54.00	19.61	150.0	V	2.0	8.2
7394.258333	43.28	---	74.00	30.72	150.0	V	47.0	8.3
12640.341667	---	40.98	54.00	13.02	150.0	V	0.0	15.0
12678.691667	50.34	---	74.00	23.66	150.0	V	59.0	15.1

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

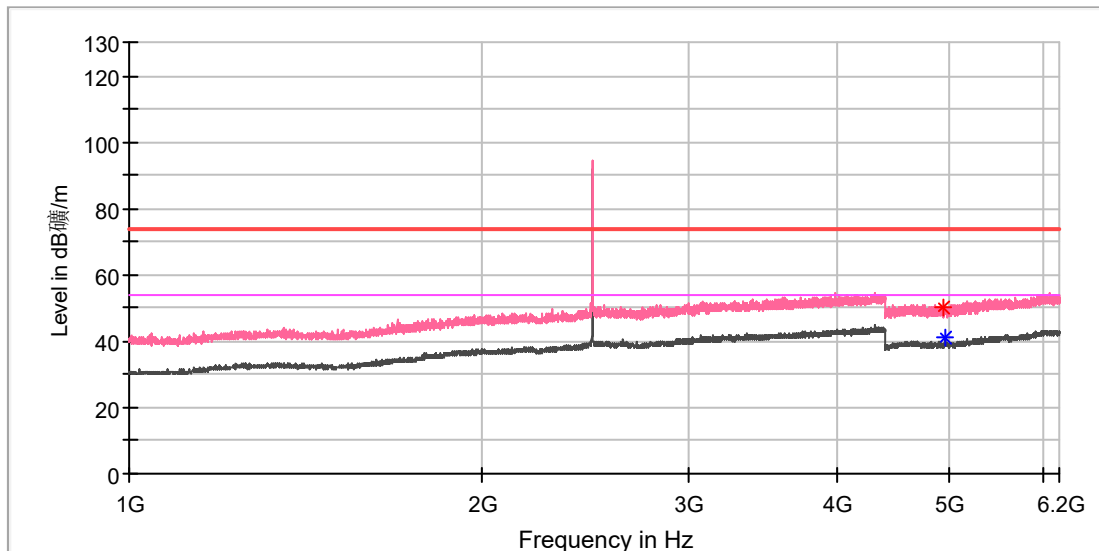
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4957.500000	50.41	---	74.00	23.59	150.0	H	317.0	11.8
4959.000000	---	40.92	54.00	13.08	150.0	H	222.0	11.8

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

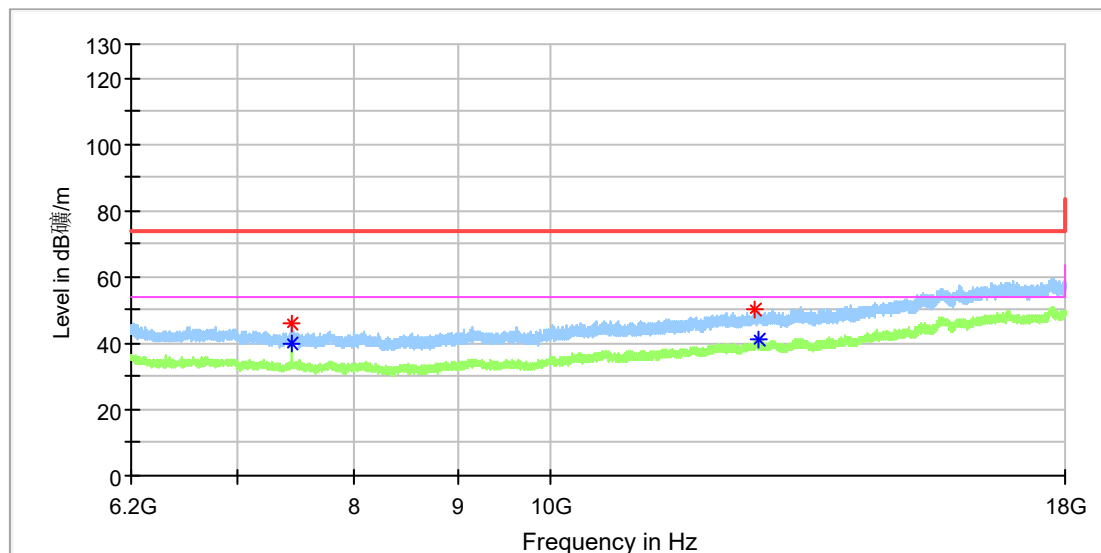
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4944.000000	50.33	---	74.00	23.67	150.0	V	281.0	11.8
4959.000000	---	40.92	54.00	13.08	150.0	V	111.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

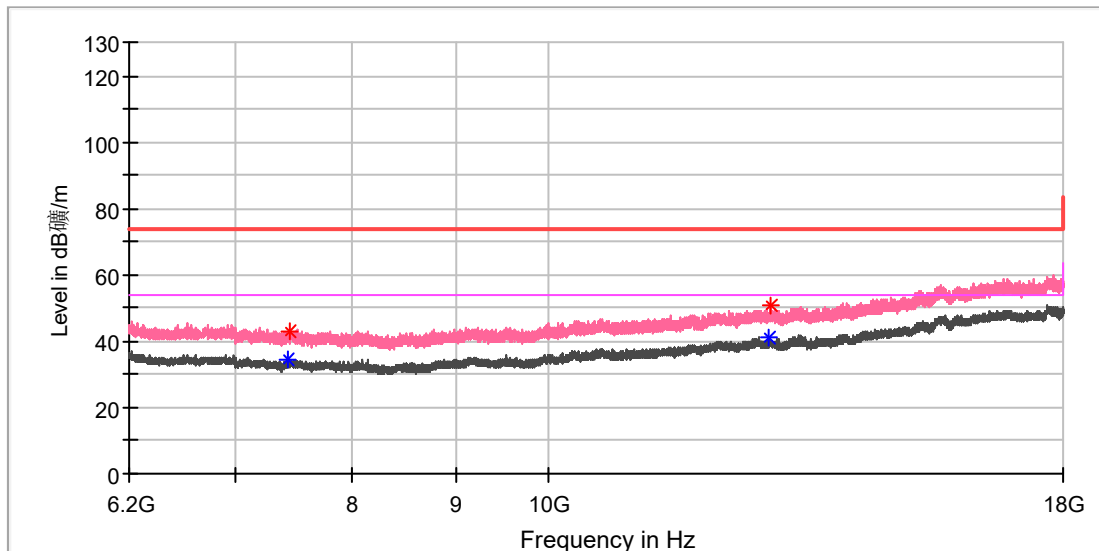
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7438.508333	46.25	---	74.00	27.75	150.0	H	105.0	8.4
7440.966667	---	39.76	54.00	14.24	150.0	H	33.0	8.4
12623.625000	50.04	---	74.00	23.96	150.0	H	81.0	14.9
12684.591667	---	40.86	54.00	13.14	150.0	H	105.0	15.1

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7429.166667	---	34.49	54.00	19.51	150.0	V	183.0	8.4
7440.966667	42.70	---	74.00	31.30	150.0	V	281.0	8.4
12873.883333	---	41.02	54.00	12.98	150.0	V	268.0	15.4
12896.991667	50.65	---	74.00	23.35	150.0	V	207.0	15.5

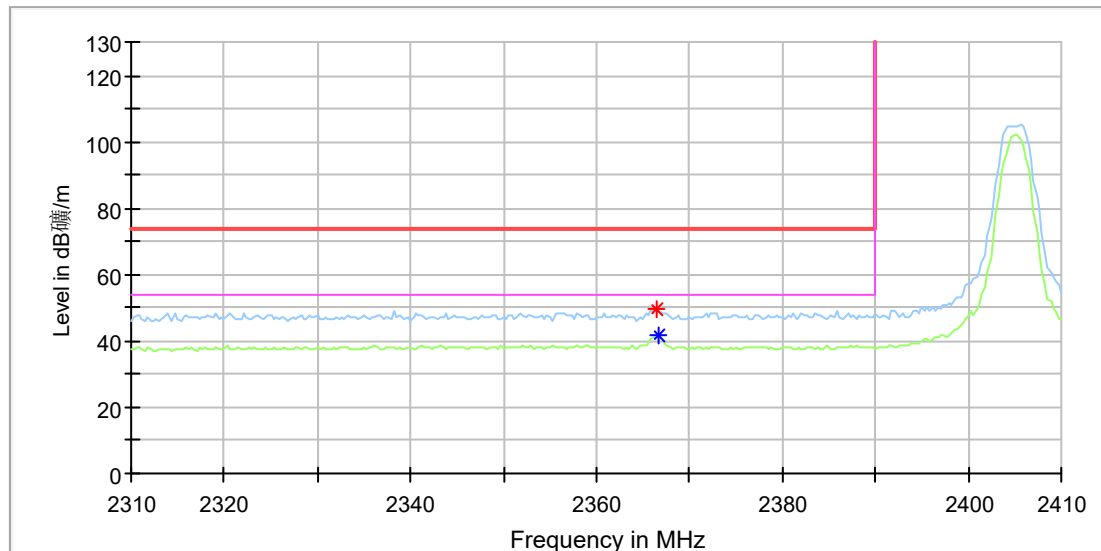
Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

Appendix A.6: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	STYRBAR Remote control white
Model:	E2313
Test Mode:	Zigbee_Low CH
Order No/Sample No:	168487810/A003737768-002
Test Voltage:	Battery
Remark:	Temp 22 Humi:52%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

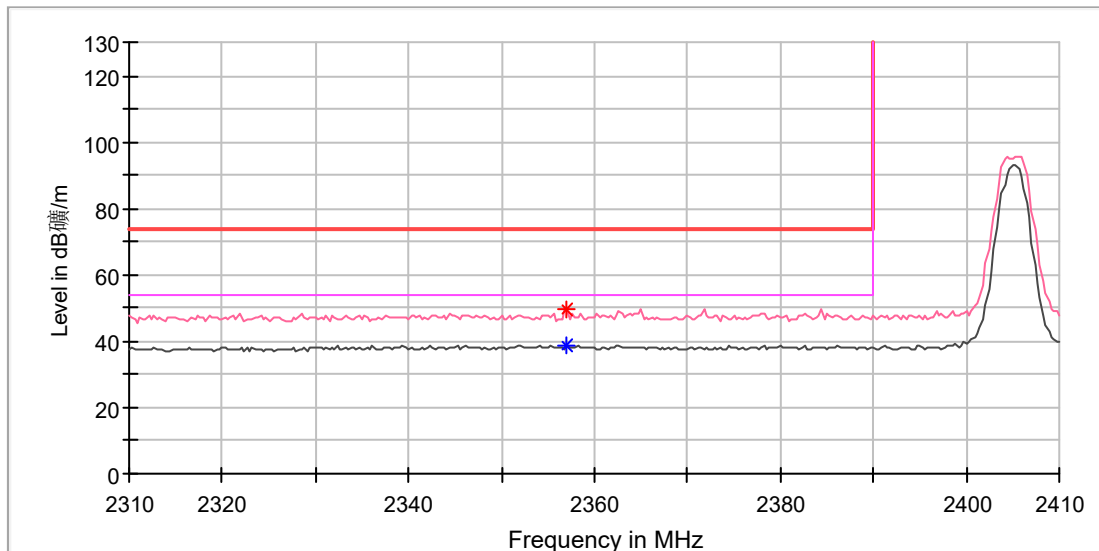
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2366.470588	49.41	---	74.00	24.59	150.0	H	296.0	6.9
2366.764706	---	41.88	54.00	12.12	150.0	H	289.0	6.9

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_Low CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

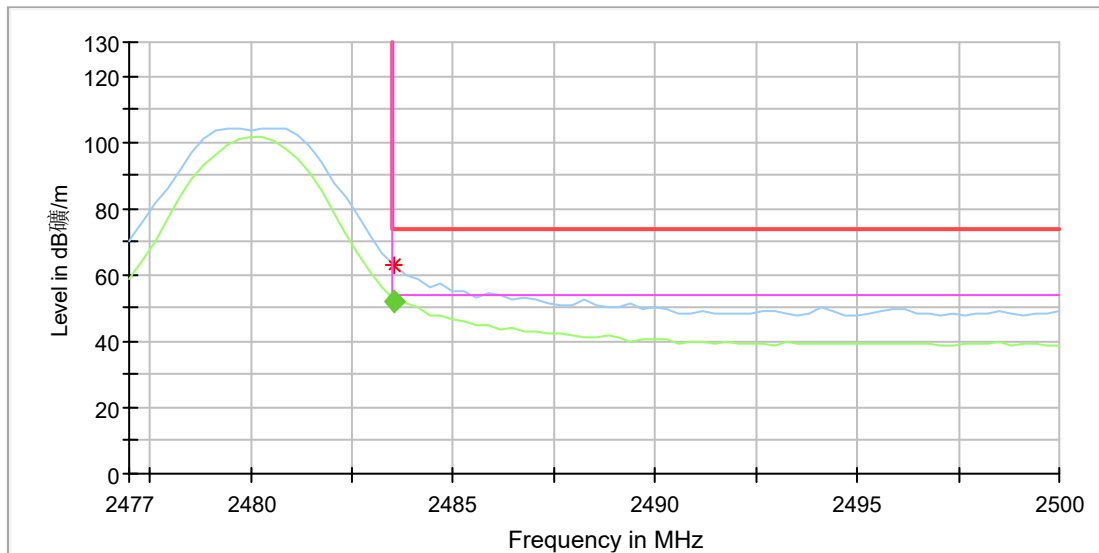
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2357.058824	---	38.75	54.00	15.25	150.0	V	124.0	6.9
2357.058824	49.74	---	74.00	24.26	150.0	V	124.0	6.9

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

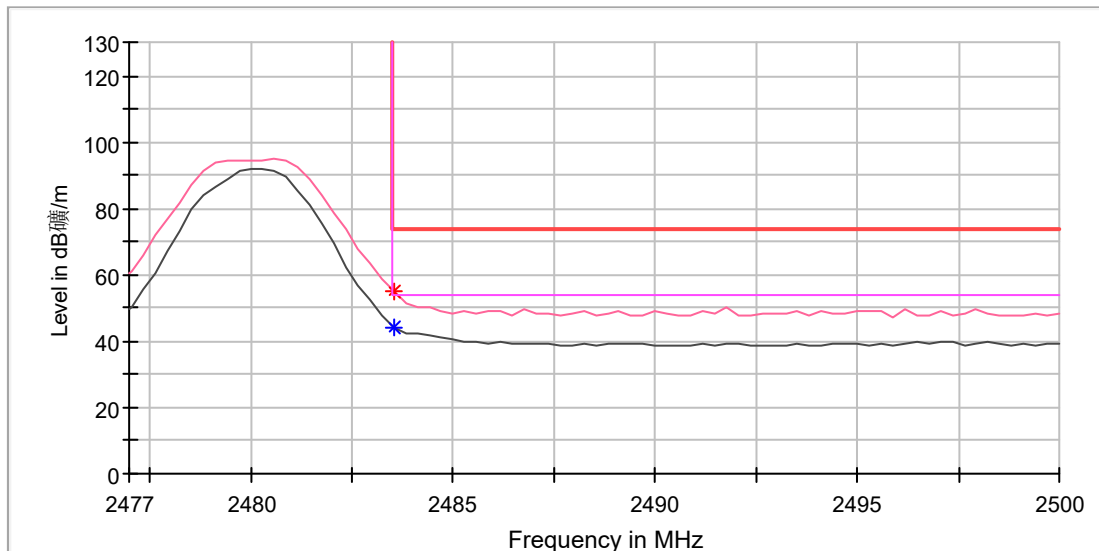
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.529412	63.09	---	74.00	10.91	150.0	H	247.0	7.4

Final_Result

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.529412	51.90	54.00	2.10	145.0	H	242.0	7.4

EUT Information

EUT Name: STYRBAR Remote control white
Model: E2313
Test Mode: Zigbee_High CH
Order No/Sample No: 168487810/A003737768-002
Test Voltage: Battery
Remark: Temp 22 Humi:52%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.529412	55.16	---	74.00	18.84	150.0	V	192.0	7.4
2483.529412	---	44.18	54.00	9.82	150.0	V	192.0	7.4

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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