Prüfbericht - Produkte
Test Report - Products

TÜVRheinland®

Prüfbericht-Nr.: *Test report no.:*	**CN21Q4Y0 001**	**Auftrags-Nr.:** *Order no.:*	168310213	Seite 1 von 19 *Page 1 of 19*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2021-03-10	
Auftraggeber: *Client:*	**Beijing Smartmi Electronic Technology Co., Ltd.** Room 201-203, Unit 6, Building A, No. 66, Zhufang Road, Qinghe, Haidian District, 100085 Beijing, China			
Prüfgegenstand: *Test item:*	Remote Control			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	KQXHSYKQ02ZM (Trade Mark: Smartmi)			
Auftrags-Inhalt: *Order content:*	FCC & IC approval			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.249 CFR47 FCC Part 2: Section 2.1093 CFR47 FCC Part 15: Subpart B Section 15.109 ICES-003 Issue 7 October 2020		RSS-210 Issue 10 December 2019 RSS-Gen Issue 5 March 2019 RSS-102 Issue 5 March 2015	
Wareneingangsdatum: *Date of sample receipt:*	2021-03-28	Please refer to photo documents		
Prüfmuster-Nr.: *Test sample no.:*	A003010337-004			
Prüfzeitraum: *Testing period:*	2021-03-15 – 2020-04-20			
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: *Test result*:*	Pass			
geprüft von: *tested by:*	X Bell Hu Signed by: Bell Hu	**genehmigt von:** *authorized by:*	X Winnie Hou Signed by: Winnie Hou	
Datum: *Date:* 2021-04-26		**Ausstellungsdatum:** *Issue date:* 2021-04-26		
Stellung / Position	Project Manager	**Stellung** / Position	Department Manager	

Sonstiges / *Other:*

FCC ID: 2AP98-YKQ02ZM IC: 26864-YKQ02ZM; HVIN: V06; PMN: Remote Control.

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specifications(s)		*F(ail) = failed a.m. test specifications(s)*	*N/A = not applicable*	*N/T = not tested*

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.

This test report only relates to the a. m. 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.

V05

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 FUNDAMENTAL & HARMONICS RADIATED EMISSION
RESULT: Pass

5.1.3 BANDWIDTH
RESULT: Pass

5.1.4 RADIATED SPURIOUS EMISSION & BAND EDGE
RESULT: Pass

5.1.5 CONDUCTED EMISSION ON AC MAINS
RESULT: N/A

5.1.6 RADIATED EMISSION
RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS
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

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of China

FCC Registration No.: 694916

IC Registration No.: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Radio Spectrum Testing				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Wireless Connectivity Tester	Rohde & Schwarz	CMW270	101375	2021-08-30
Signal Analyzer	Rohde & Schwarz	FSV 40	101441	2021-08-30
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	Rohde & Schwarz	WMS32 (V10.40.10)	N/A	N/A
Power Meter	Rohde & Schwarz	NRP2	107105	2021-12-20
Wideband Power Sensor	Rohde & Schwarz	NRP-Z81	105350	2021-12-20
Unwanted Emission Testing				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Signal Generator	Rohde & Schwarz	SMB100A	180840	2021-08-30
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	165339	2021-08-30
Signal Analyzer	Rohde & Schwarz	FSV 40	101440	2021-08-30
System Controller Interface	Rohde & Schwarz	SCI-100	S10010036	N/A
Filterbank	Rohde & Schwarz	CDMA	100751	2021-08-30
Filterbank	Rohde & Schwarz	GSM	100811	2021-08-30
OSP	Rohde & Schwarz	OSP 120	102041	N/A
OSP	Rohde & Schwarz	OSP 150	101385	N/A
Pre-amplifier	Rohde & Schwarz	SCU08F1	08320030	2021-08-30
Amplifier	Rohde & Schwarz	SCU-18F	180079	2021-08-30
Amplifier	Rohde & Schwarz	SCU40A	100450	2021-09-03
Trilog Broadband Antenna (30 MHz - 1 GHz)	Schwarzbeck	VULB9162	192	2021-09-02
Double-Ridged Antenna (1 - 18 GHz)	ETS-LINDGREN	3117	00218719	2021-09-02
Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18312	2021-09-02
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19066	2021-09-02
Biconical Broadband Antenna (30 MHz - 1 GHz)	Schwarzbeck	VUBA 9117	357	2021-09-02
Conducted Emission				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
EMI Test Receiver	R&S	ESR3	102428	2021-09-03
Artificial Mains Network	R&S	ENV216	102333	2021-08-19
Artificial Mains Network	R&S	ENV432	101411	2021-08-19
EMC32 test software	R&S	EMC32(Ver.10.50.01)	N/A	N/A

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 basics 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.

Parameter	Uncertainty
Radio Frequency	±1 x 10^{-7}
RF Power (conducted)	±2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	±6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	±6 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 dB
Temperature	±1 °C
Humidity	±5 %
Voltage (DC)	±1 %
Voltage (AC, <10kHz)	±2 %

2.6 Location of Original Data

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

2.7 Status of Facility Used for Testing

The **Error! Reference source not found.** Test facility located at No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of 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 Remote Control, which supports 2.4GHz band wireless technology.

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Remote Control
Type Designation	KQXHSYKQ02ZM
Trademark	Smartmi
FCC ID	2AP98-YKQ02ZM
IC	26864- YKQ02ZM
HVIN	V06
Operating Voltage	DC1.5V, powered by battery LR AAA
Testing Voltage	DC1.5V
Technical Specification	
Operating Frequency band	2402 – 2480 MHz
Channel Number	40 channels
Channel separation	2MHz
Modulation	GFSK
Antenna Type	Internal Antenna
Antenna Gain	-6.73 dBi

3.3 Independent Operation Modes

The basic operation modes are:

A. On, General 2.4GHz Transmitting mode
   1. Low channel
   2. Middle channel
   3. High channel

B. On, connecting

C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Operation Description
- ID Label and Location Info
- Schematics
- Block Diagram
- User Manual

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 and ANSI C63.4: 2014.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Notebook	Lenovo	ThinkPad 260	PC0GP71G
Smartmi Air Circulator Fan	Smartmi	ZLBPKQXHS02ZM	/

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)

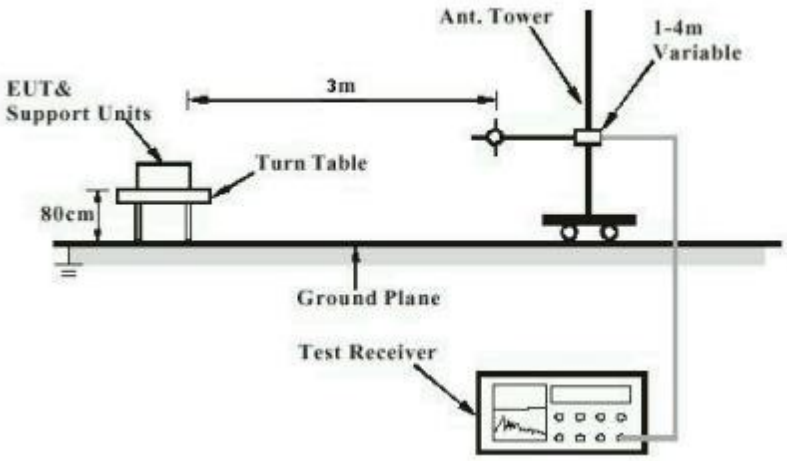


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

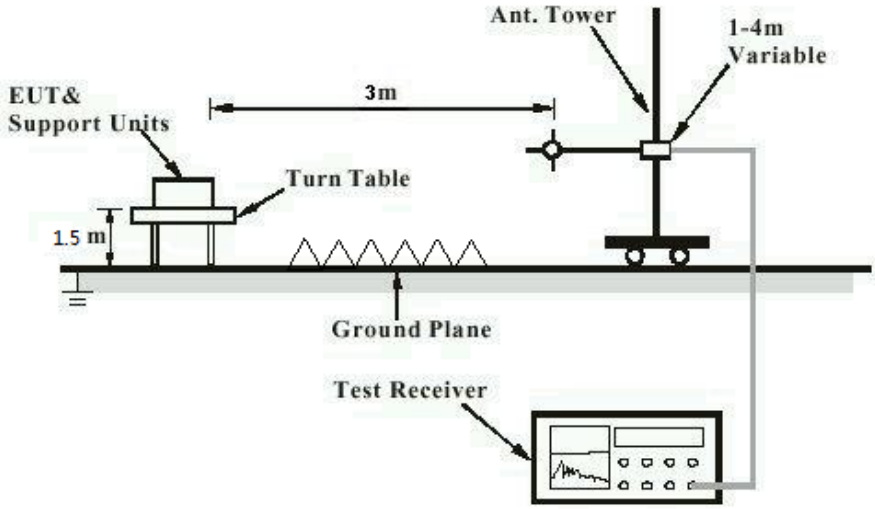


Diagram of Measurement Configuration for Mains Conduction Measurement

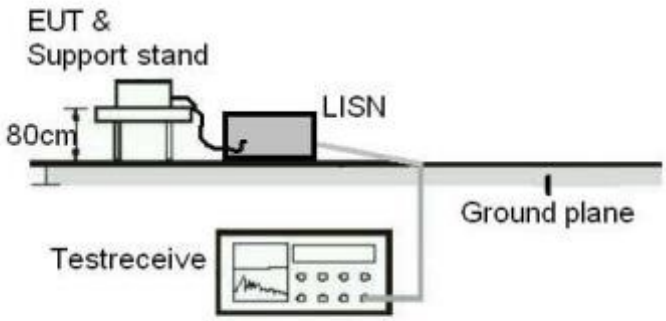
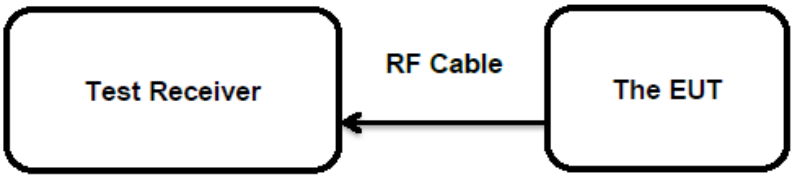


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.203 RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is -6.73dBi, 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.

5.1.2 Fundamental & Harmonics Radiated Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.249(a), RSS-210
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to FCC Part 15.209(a) RSS-210 Annex B.10(a)
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	30.03.2021
Input voltage	:	DC 1.5V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	42 %
Atmospheric pressure	:	100 kPa

For the measurement records, refer to the appendix A.

5.1.3 Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	RSS-Gen Section 6.7 &FCC Part 15.215
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	01.04.2021
Input voltage	:	DC 1.5V
Operation mode	:	A
Ambient temperature	:	23 ℃
Relative humidity	:	42 %
Atmospheric pressure	:	100 kPa

For the measurement records, refer to the appendix A.

5.1.4 Radiated Spurious Emission & Band Edge

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.249 (d) & FCC Part 15.205 RSS-210 Annex B.10(b)
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.249(d) RSS-Gen Clause 8.9 & 8.10
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	11.04.2021
Input voltage	:	DC 1.5V
Operation mode	:	A
Ambient temperature	:	24 ℃
Relative humidity	:	45 %
Atmospheric pressure	:	100 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.

5.1.5 Conducted Emission on AC Mains

RESULT: **N/A**

Test Specification

Test standard	:	FCC Part 15.207(a) &FCC Part 15.107(a) RSS-Gen Clause 8.8 & ICES-003
Basic standard	:	ANSI C63.10: 2013, ANSI C63.4: 2014
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) FCC Part 15.107(a) & ICES-003 Table 1 RSS-Gen Table 4
Kind of test site	:	Shielded Room

This device only powered by battery, not applicable.

5.1.6 Radiated Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.109(a) & ICES-003
Basic standard	:	ANSI C63.4-2014
Frequency range	:	30 - 6000MHz
Classification	:	Class B
Limit		FCC Part 15.109(a)
		ICES-003 Table 2 & Table 4
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2021-04-13
Input voltage	:	DC 1.5V
Operation mode	:	B
Earthing	:	Not connected
Ambient temperature	:	26 ℃
Relative humidity	:	54 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

Remark: The limit of below radiated emission test data is from FCC part 15.109, it also meet the limit of ICES-003 issue 7. Only worst-case mode reported.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT: **Pass**

Test Specification

Test standard : CFR47 FCC Part 2: Section 2.1093
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498
RSS-102 Issue 5 March 2015, section 2.5.1

➢ **FCC requirements**

a) EUT RF Exposure Evaluation standalone operations

Test Mode	Measured Power dBµV/m@3m	Antenna Gain (dBi)	Measured e.i.r.p (dBm)	Maximum Conducted power		Threshold power (mW) @5mm
				(dBm)	(mW)	
SRD*	92.44	-6.73	-2.79	3.94	2.48	10
* The highest radiated power for SRD is 92.44dBµV/m@3m, after converted to EIRP, it equals to -2.79dBm.						

➢ **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.1.

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

a) EUT RF Exposure Evaluation standalone operations:

Test Mode	Measured Power dBµV/m@3m	Antenna Gain (dBi)	Measured e.i.r.p (dBm)	Maximum Conducted power		Threshold power (mW) @5mm
				(dBm)	(mW)	
SRD*	92.44	-6.73	-2.79	3.94	2.48	4
* The highest radiated power for SRD is 92.44dBµV/m@3m, after converted to EIRP, it equals to -2.79dBm						

Compliant, SAR test is exempted.

7 List of Tables

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Appendix A: Test Results

APPENDIX A: TEST RESULTS **1**

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APPENDIX A.2: TEST RESULTS BANDWIDTH 16
APPENDIX A.3: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS 18

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

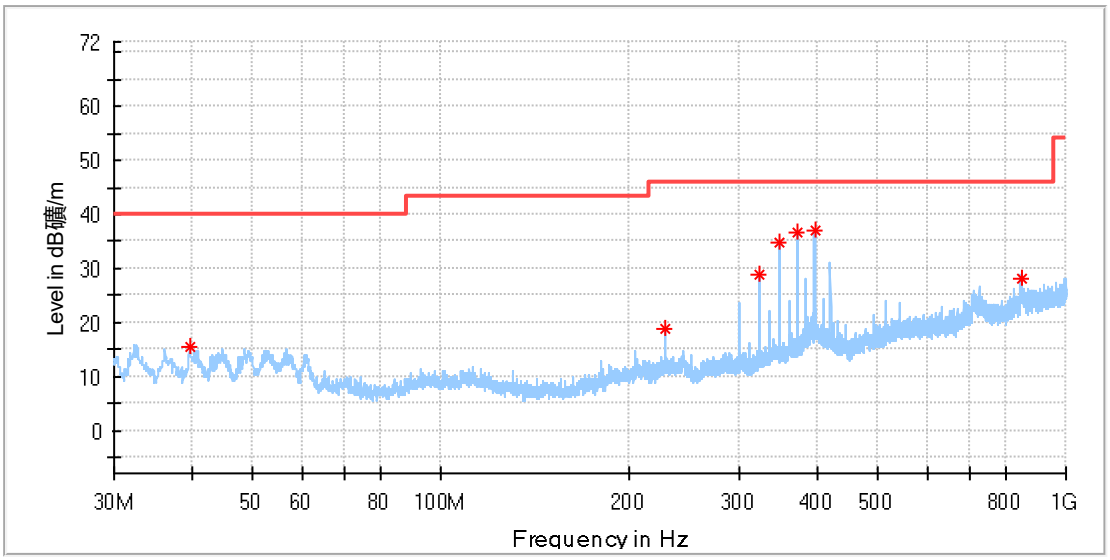
Appendix A.1: Fundamental & Harmonics Radiated Emission

Below 1GHz:

All channels tested, only worst-case reported.

EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	2.4GHz_Low channel
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

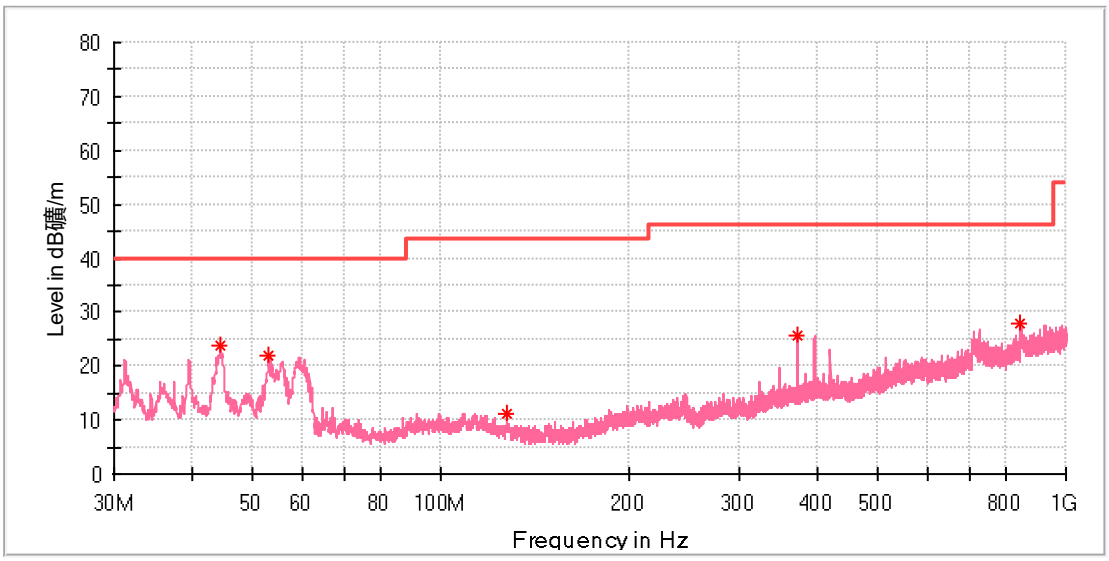


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
39.700000	15.41	40.00	24.59	100.0	H	97.0	-20.5
227.977000	18.77	46.00	27.23	100.0	H	0.0	-18.5
323.958500	28.95	46.00	17.05	100.0	H	0.0	-15.9
347.966000	34.91	46.00	11.09	100.0	H	355.0	-15.2
371.973500	36.82	46.00	9.18	100.0	H	332.0	-14.7
395.981000	37.13	46.00	8.87	100.0	H	156.0	-14.2
849.019500	28.15	46.00	17.85	100.0	H	194.0	-5.9

EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	2.4GHz_Low channel
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



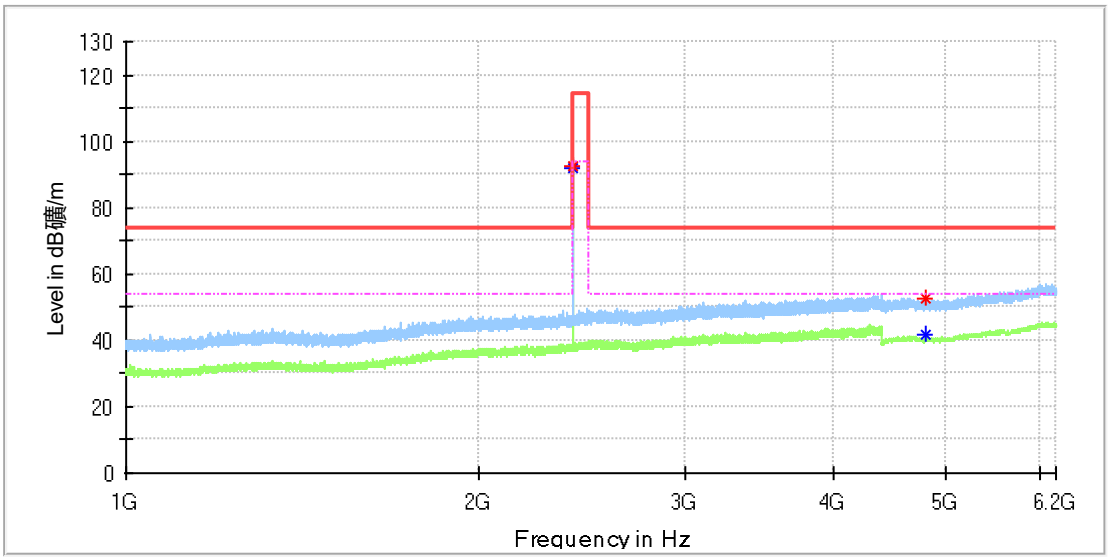
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.307500	23.85	40.00	16.15	100.0	V	268.0	-19.3
53.086000	22.07	40.00	17.93	100.0	V	7.0	-18.7
127.630500	11.17	43.50	32.33	100.0	V	179.0	-21.9
371.973500	25.86	46.00	20.14	100.0	V	230.0	-14.7
844.897000	28.03	46.00	17.97	100.0	V	79.0	-6.0

Above 1GHz:

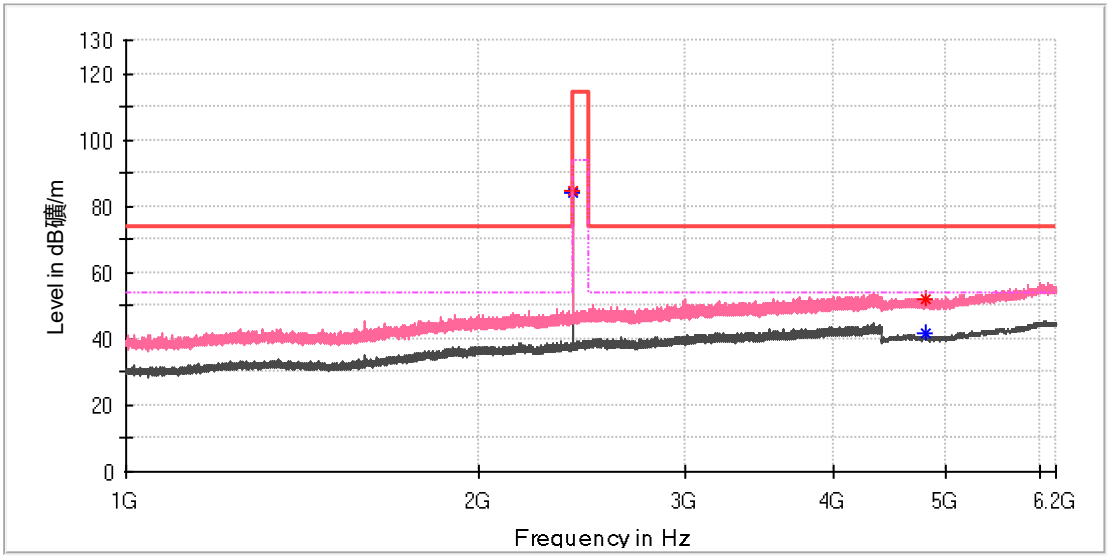
EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	2.4GHz_Low channel
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



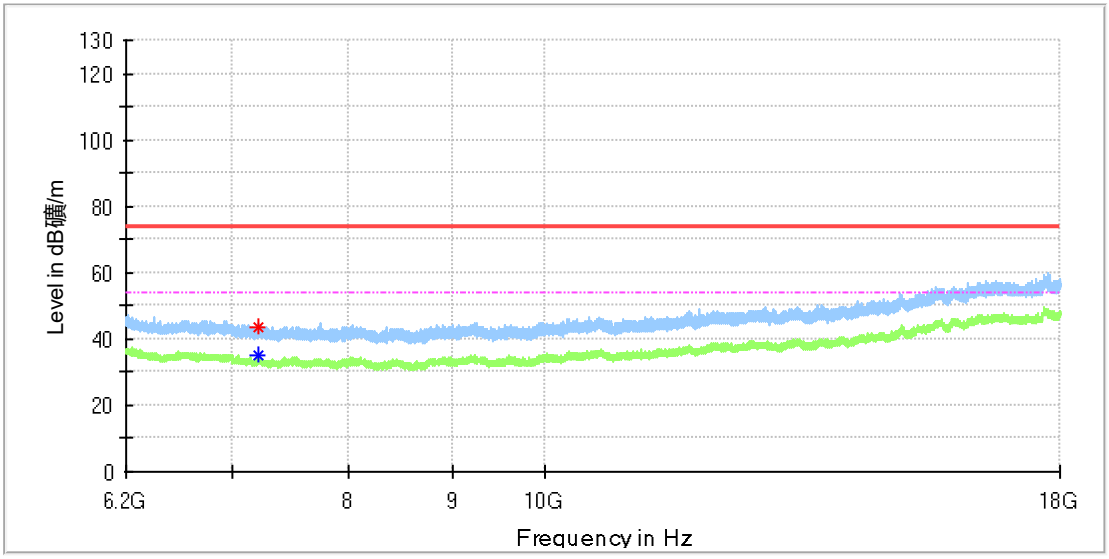
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2401.990000	---	91.80	94.00	2.20	100.0	H	40.0	7.0
2402.330000	92.44	---	114.00	21.56	100.0	H	40.0	7.0
4803.500000	---	41.77	54.00	12.23	100.0	H	38.0	11.8
4805.000000	52.45	---	74.00	21.55	100.0	H	17.0	11.8



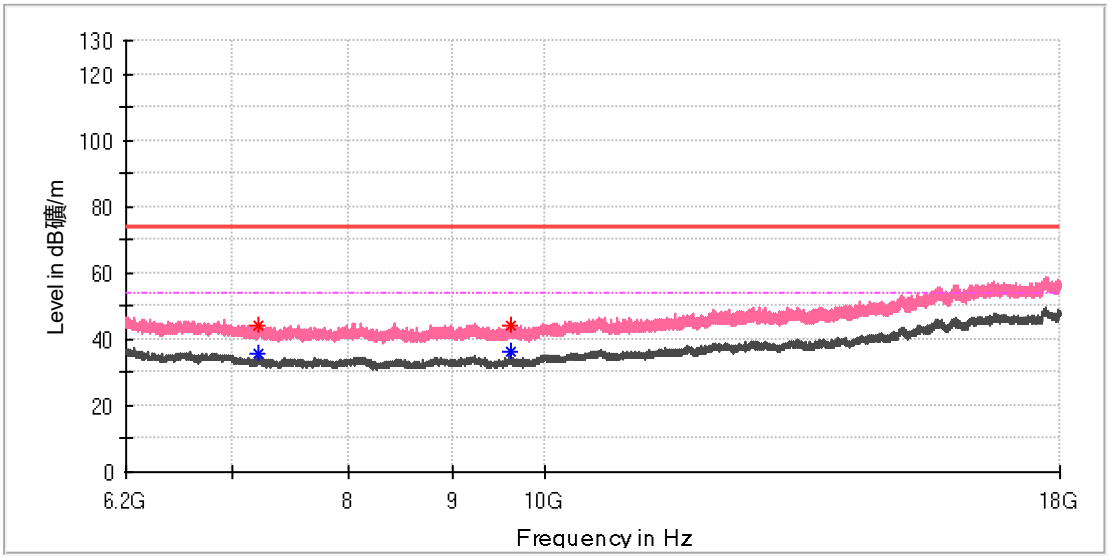
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2401.990000	---	83.96	94.00	10.04	100.0	V	38.0	7.0
2402.330000	84.69	---	114.00	29.31	100.0	V	38.0	7.0
4804.000000	---	41.90	54.00	12.10	100.0	V	143.0	11.8
4804.500000	51.78	---	74.00	22.22	100.0	V	11.0	11.8



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7206.441667	---	35.2	54.00	18.80	100.0	H	134.0	8.8
7206.441667	43.42	---	74.00	30.58	100.0	H	134.0	8.8

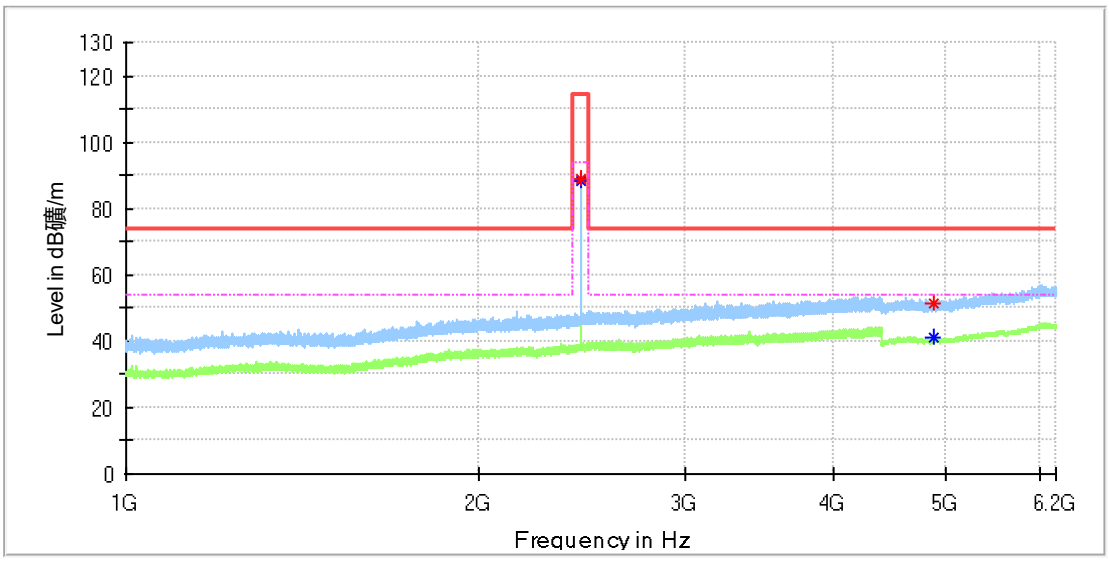


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7205.458333	44.09	--	74.00	29.91	100.0	V	161.0	8.8
7205.458333	---	35.87	54.00	18.13	100.0	V	161.0	8.8
9607.741667	43.93	--	74.00	30.07	100.0	V	248.0	10.4
9607.741667	---	36.08	54.00	17.92	100.0	V	248.0	10.4

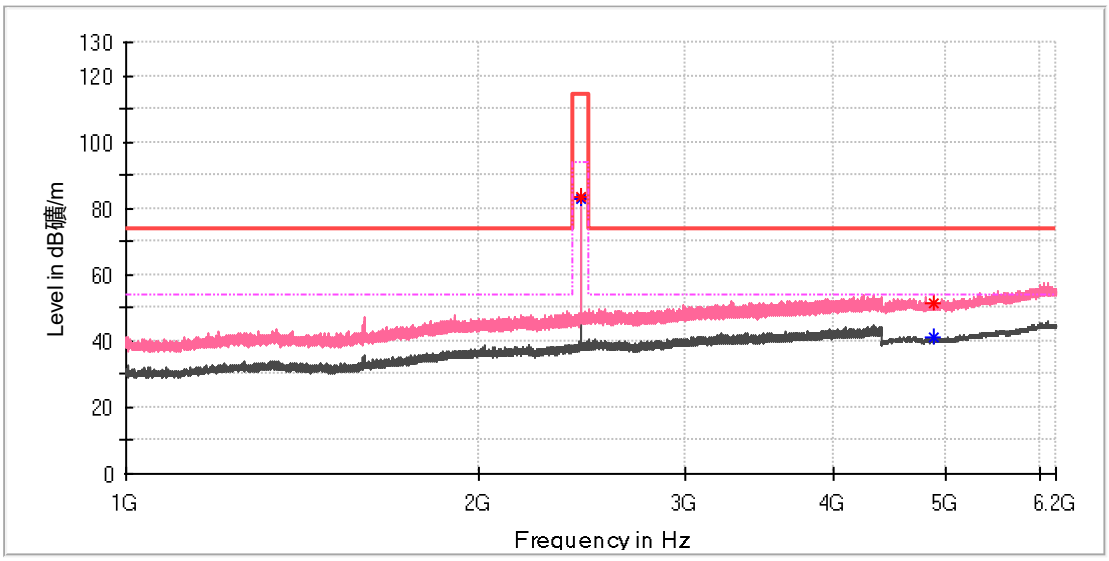
EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	Mid channel
Tested By:	Alano Qu
Reviewed By:	Terry Yin



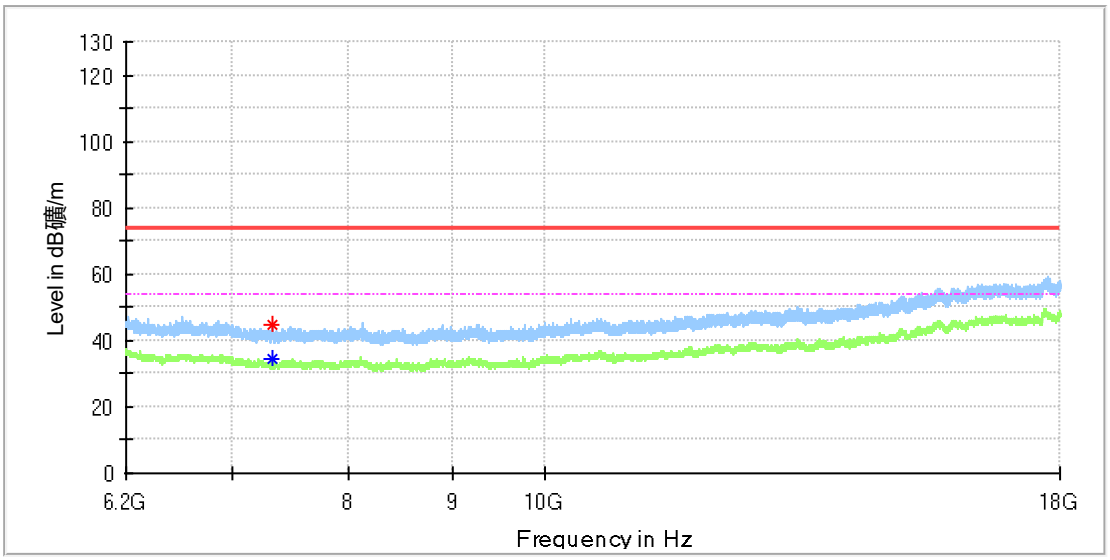
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2439.730000	88.94	---	114.00	25.06	100.0	H	34.0	7.4
2440.070000	---	88.37	94.00	5.63	100.0	H	34.0	7.4
4880.500000	51.30	---	74.00	22.70	100.0	H	42.0	11.8
4880.500000	---	41.17	54.00	12.83	100.0	H	42.0	11.8



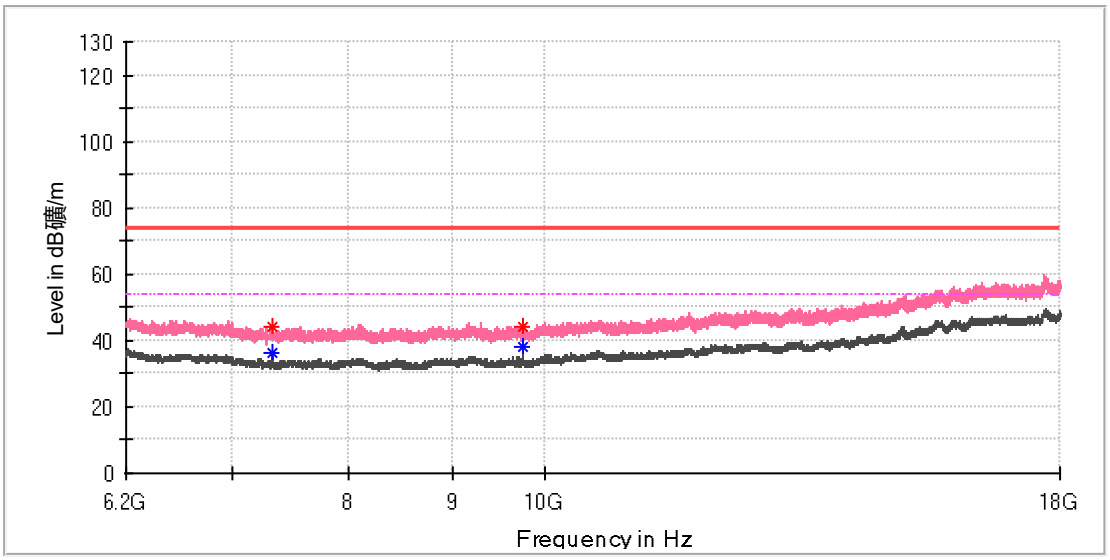
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2439.900000	---	82.60	94.00	11.40	100.0	V	21.0	7.4
2440.240000	83.34	---	114.00	30.66	100.0	V	40.0	7.4
4879.000000	51.56	---	74.00	22.44	100.0	V	55.0	11.8
4880.000000	---	40.98	54.00	13.02	100.0	V	138.0	11.8



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7319.525000	---	34.71	54.00	19.29	100.0	H	100.0	8.2
7330.341667	44.85	---	74.00	29.15	100.0	H	4.0	8.1

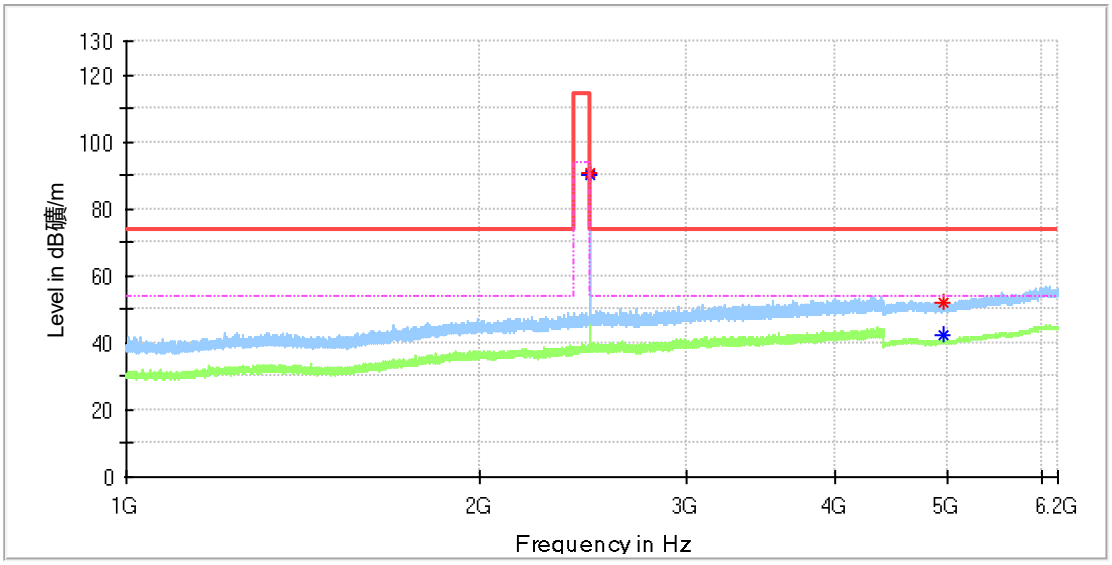


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7319.033333	43.95	---	74.00	30.05	100.0	V	309.0	8.2
7319.525000	---	35.99	54.00	18.01	100.0	V	6.0	8.2
9759.175000	44.21	---	74.00	29.79	100.0	V	289.0	10.4
9759.175000	---	37.89	54.00	16.11	100.0	V	289.0	10.4

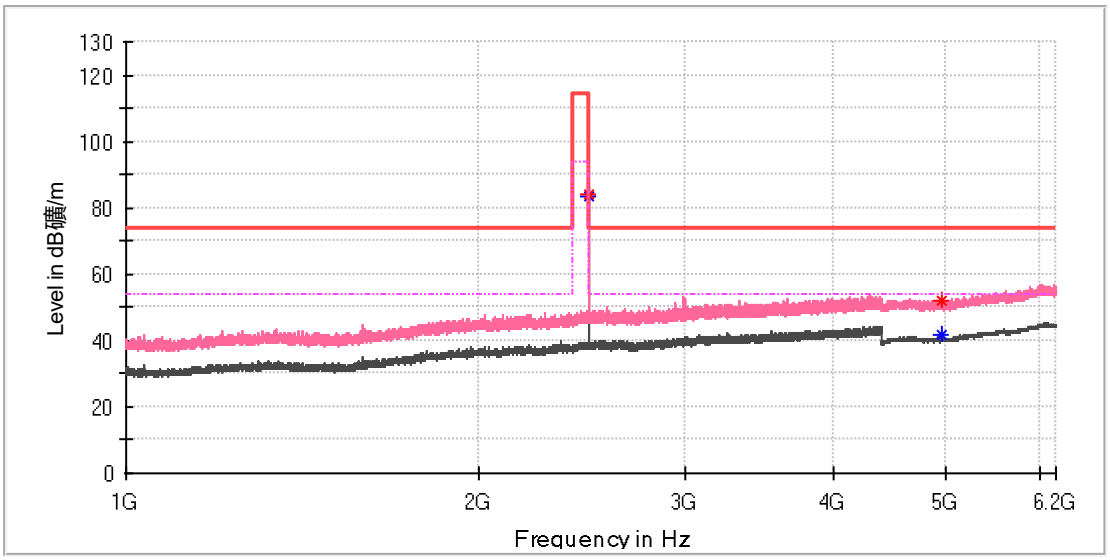
EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	High channel
Tested By:	Alano Qu
Reviewed By:	Terry Yin



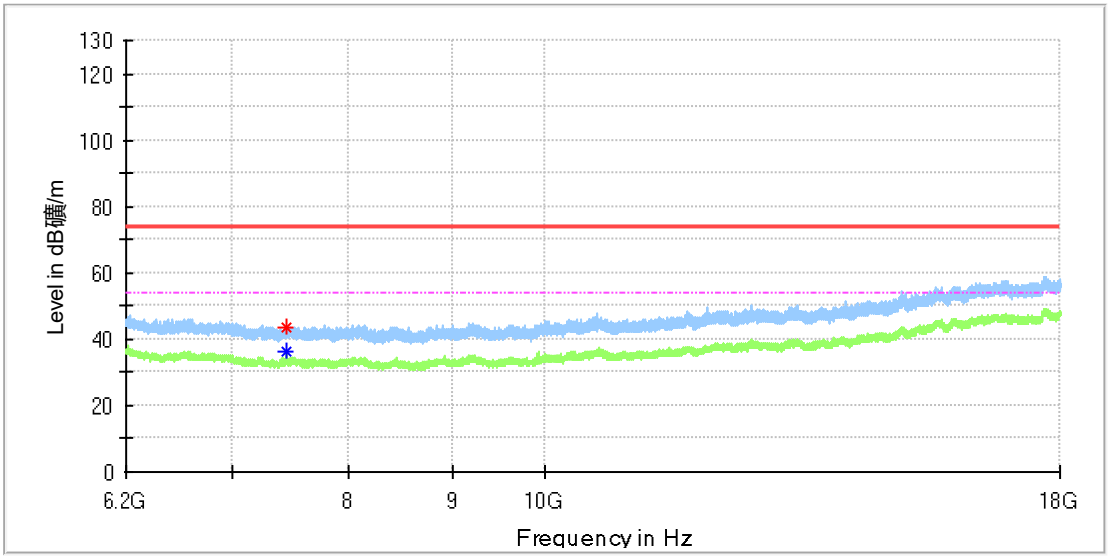
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2480.020000	---	90.10	94.00	3.90	100.0	H	35.0	7.4
2480.360000	90.72	---	114.00	23.28	100.0	H	35.0	7.4
4960.000000	---	42.33	54.00	11.67	100.0	H	325.0	11.8
4962.000000	51.92	---	74.00	22.08	100.0	H	39.0	11.8



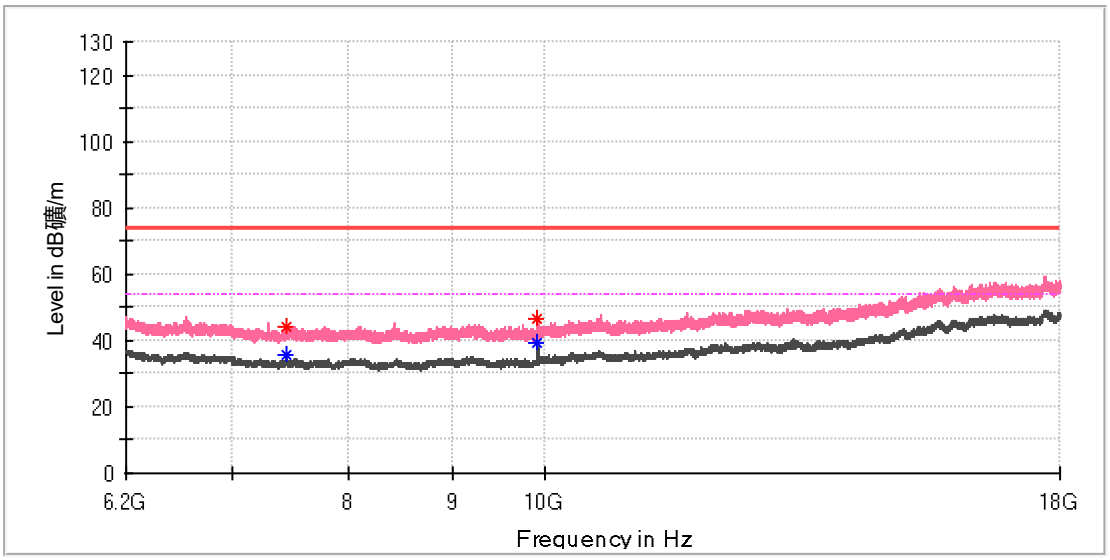
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2480.020000	---	83.35	94.00	10.65	100.0	V	324.0	7.4
2480.190000	84.07	---	114.00	29.93	100.0	V	324.0	7.4
4960.000000	---	41.68	54.00	12.32	100.0	V	26.0	11.8
4961.500000	51.97	---	74.00	22.03	100.0	V	93.0	11.8



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7440.475000	43.65	--	74.00	30.35	100.0	H	92.0	8.4
7440.475000	---	36.42	54.00	17.58	100.0	H	92.0	8.4



Critical_Freqs

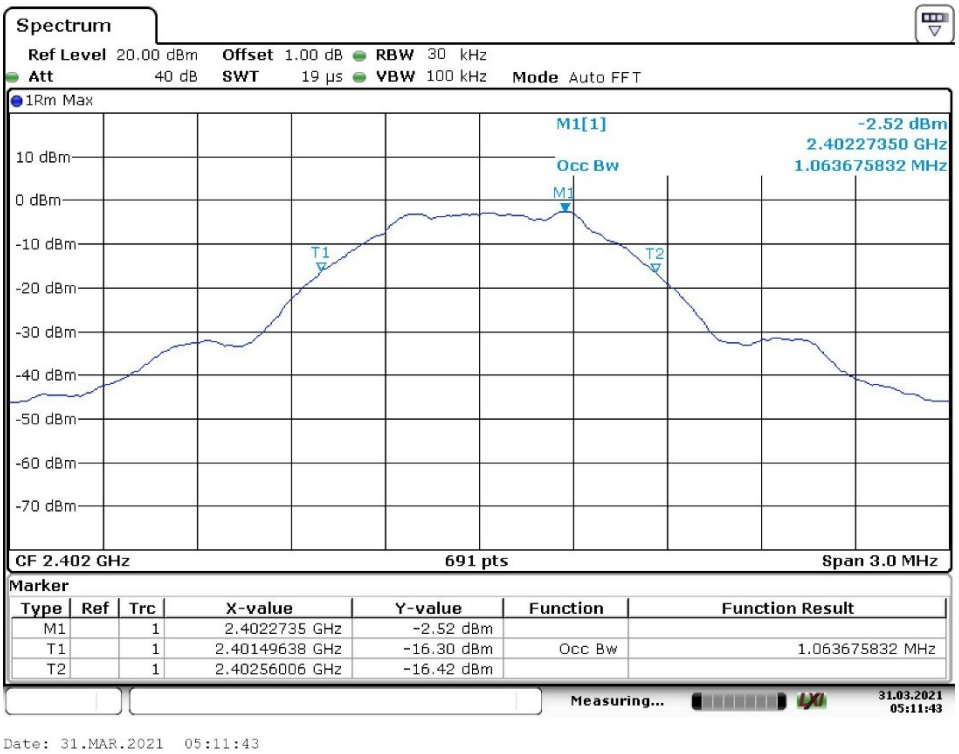
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.000000	44.09	--	74.00	29.91	100.0	V	267.0	8.4
7439.491667	---	35.93	54.00	18.07	100.0	V	3.0	8.4
9918.966667	---	39.07	54.00	14.93	100.0	V	291.0	10.8
9919.458333	46.29	--	74.00	27.71	100.0	V	291.0	10.8

Appendix A.2: Test Results Bandwidth

Test Result of 99% Bandwidth, General 2.4GHz

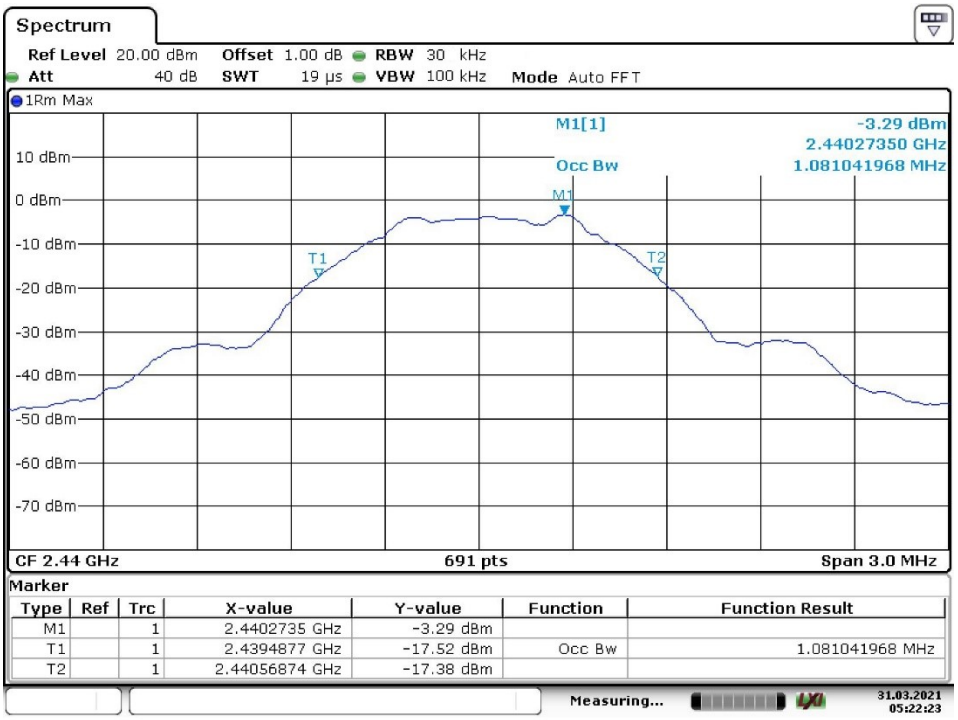
Test Mode Test Channel (MHz)	99% Bandwidth (kHz)
2402	1064
2440	1081
2480	1072

Low Channel



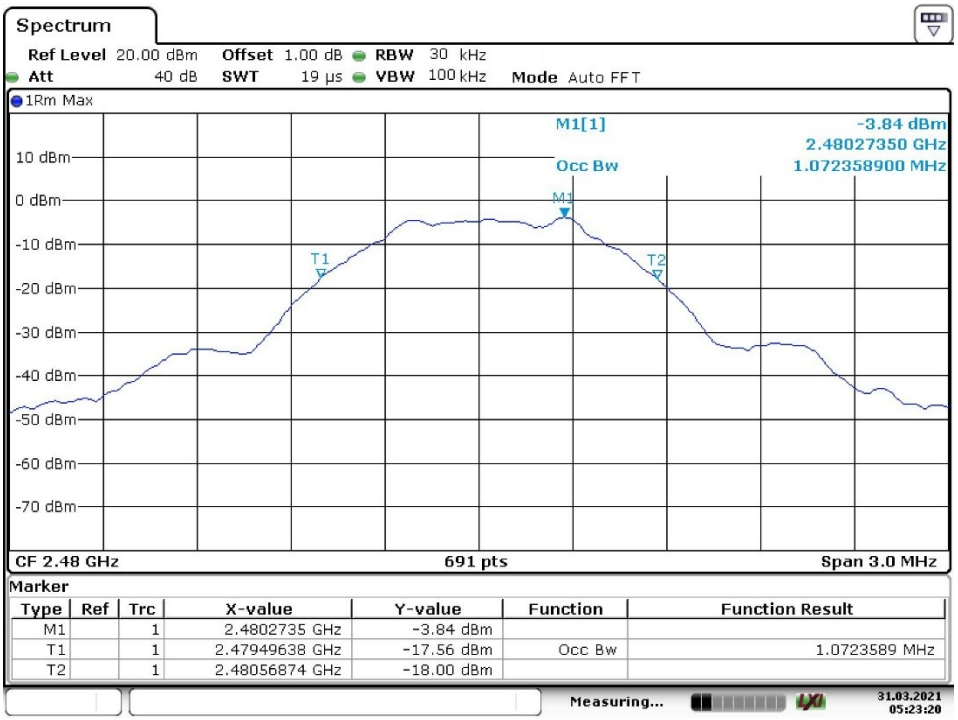
Date: 31.MAR.2021 05:11:43

Middle Channel



Date: 31.MAR.2021 05:22:23

High Channel

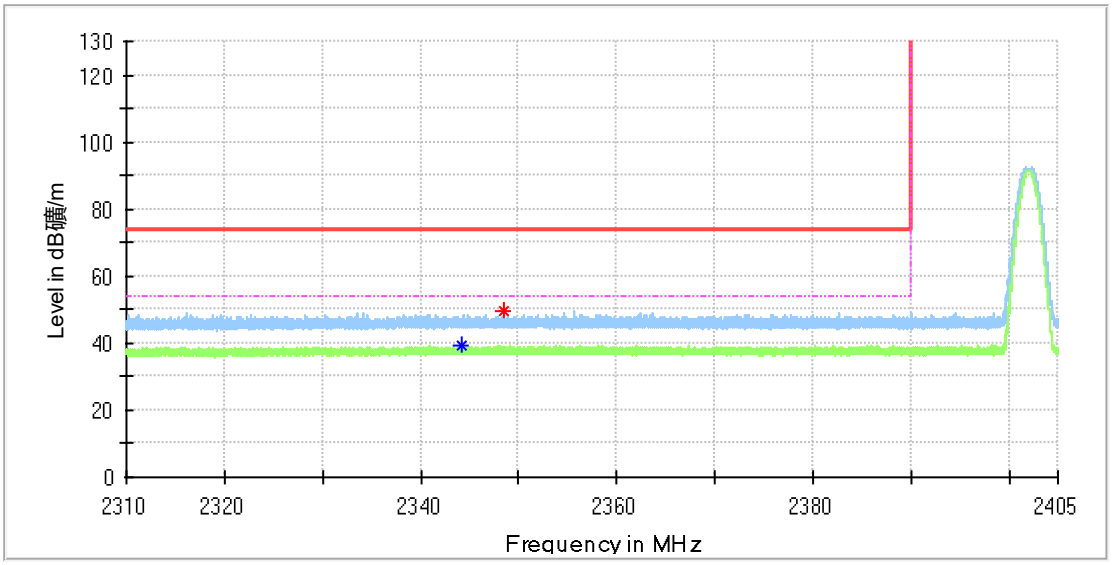


Date: 31.MAR.2021 05:23:21

Appendix A.3: Test Results of Radiated Emissions in Restricted Bands

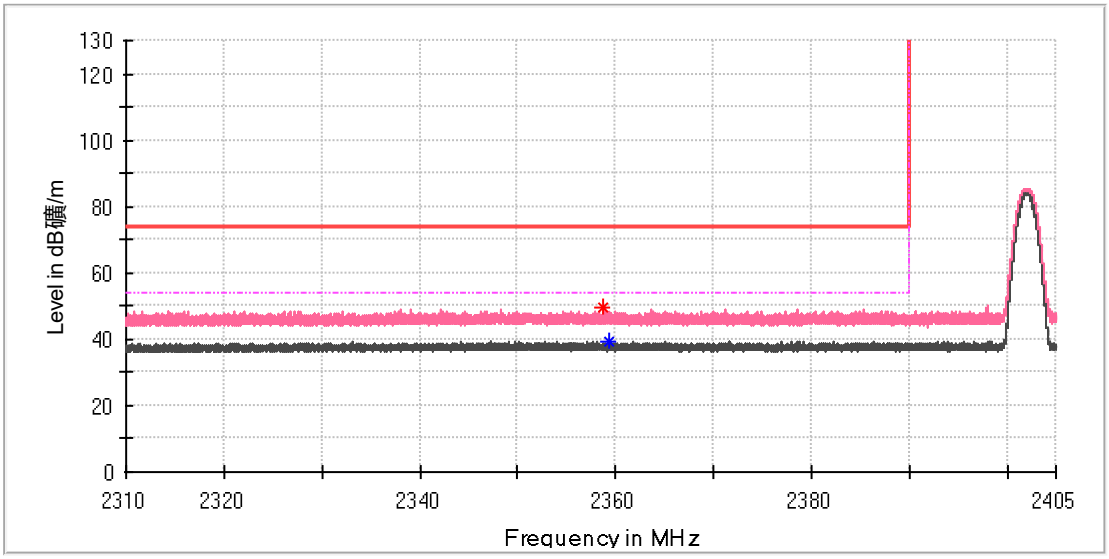
EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	2.4GHz_Low channel
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)
2344.143000	---	39.43	54.00	14.57	100.0	H	20.0	6.9
2348.427500	49.73	---	74.00	24.27	100.0	H	32.0	6.9

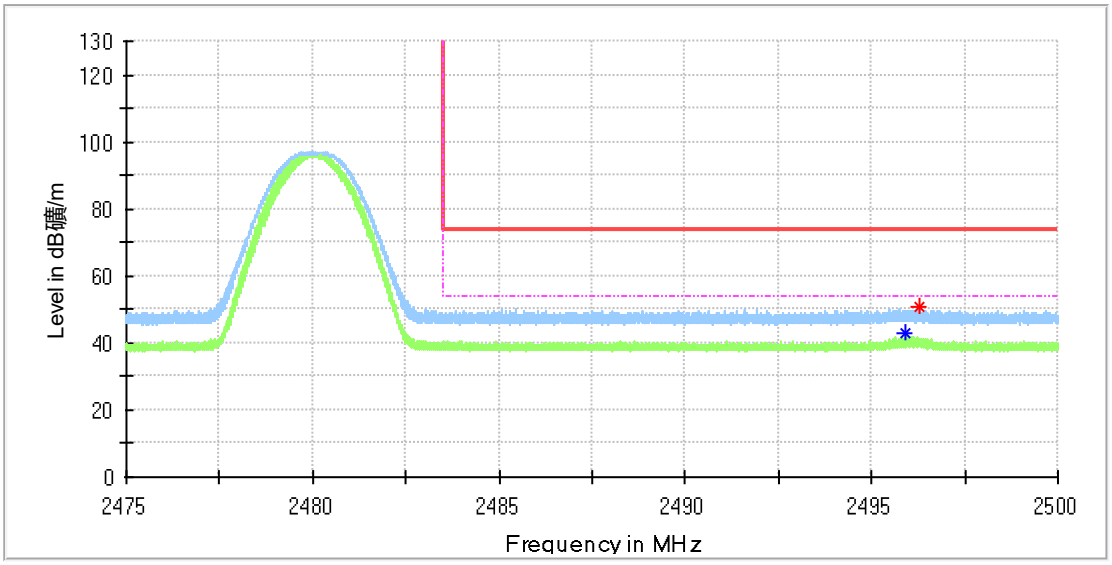


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2358.720750	49.48	---	74.00	24.52	100.0	V	207.0	6.9
2359.333500	---	39.30	54.00	14.70	100.0	V	207.0	6.9

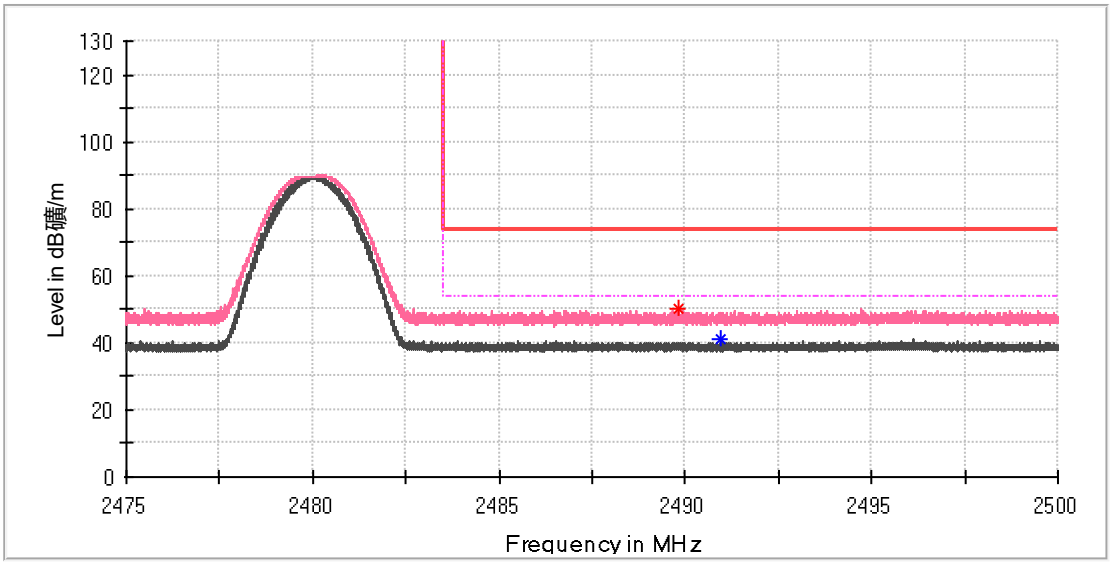
EUT Information

EUT Name:	Remote Control
Model:	KQXHSYKQ02ZM
Test Mode:	High channel
Tested By:	Alano Qu
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)
2495.898750	---	42.91	54.00	11.09	100.0	H	86.0	7.4
2496.277500	50.65	---	74.00	23.35	100.0	H	38.0	7.4



Critical_Freqs

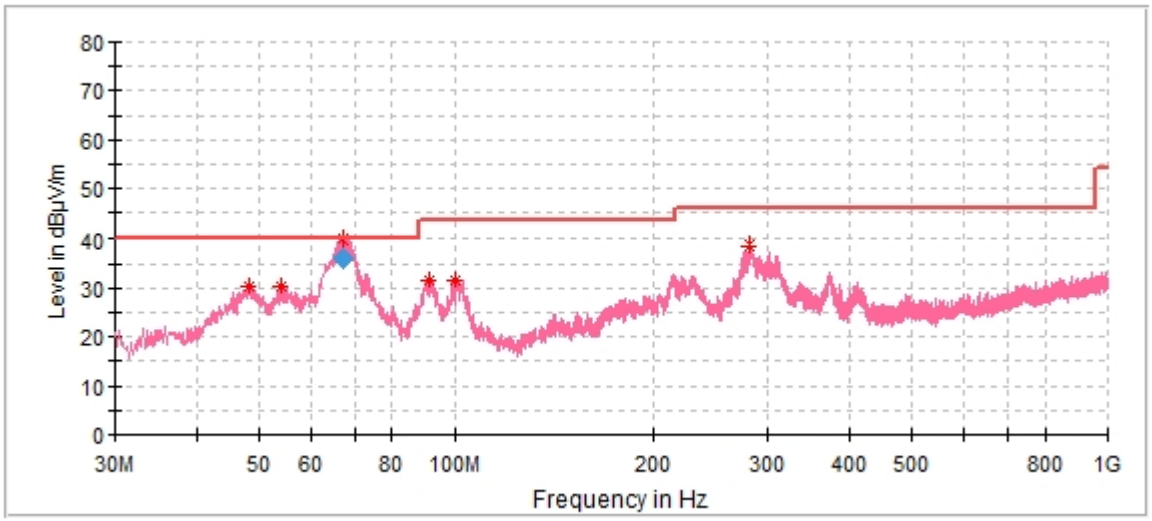
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2489.837500	50.20	---	74.00	23.80	100.0	V	16.0	7.4
2490.946250	---	41.28	54.00	12.72	100.0	V	226.0	7.4

Appendix A.4: Test Results of Radiated Emissions

It verified that there is only noise-floor for above 6GHz, so only 30MHz-6GHz range reported.

EUT Information

EUT Name:	Remote Control
Model	KQXHSYKQ02ZM
Order No:	168310213 20
Test Mode:	B
Test Voltage:	1.5V
Test By:	Mac Xie
Review By:	Gary Chen
Adapter:	3m Chamber

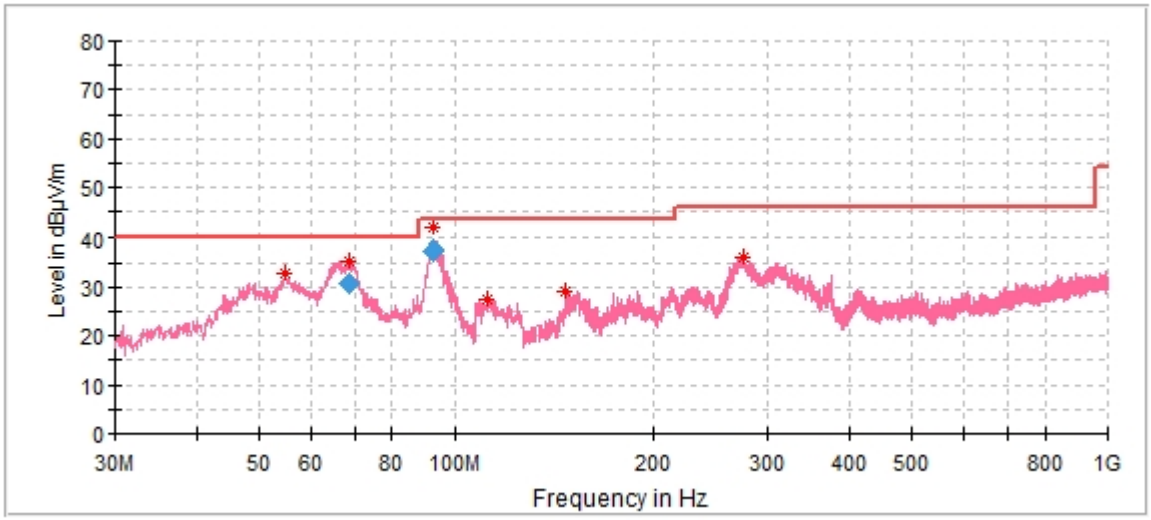


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
48.333000	30.46	40.00	9.54	100.0	V	171.0	21.3
54.153000	30.43	40.00	9.57	100.0	V	91.0	21.0
67.114000	39.89	40.00	0.11	100.0	V	165.0	19.4
91.110000	31.58	43.50	11.92	100.0	V	316.0	15.5
99.937000	31.62	43.50	11.88	100.0	V	99.0	17.2
282.200000	38.46	46.00	7.54	100.0	V	265.0	20.0

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
67.114000	36.07	40.00	3.93	1000.0	120.000	100.0	V	165.0	19.4



Critical_Freqs

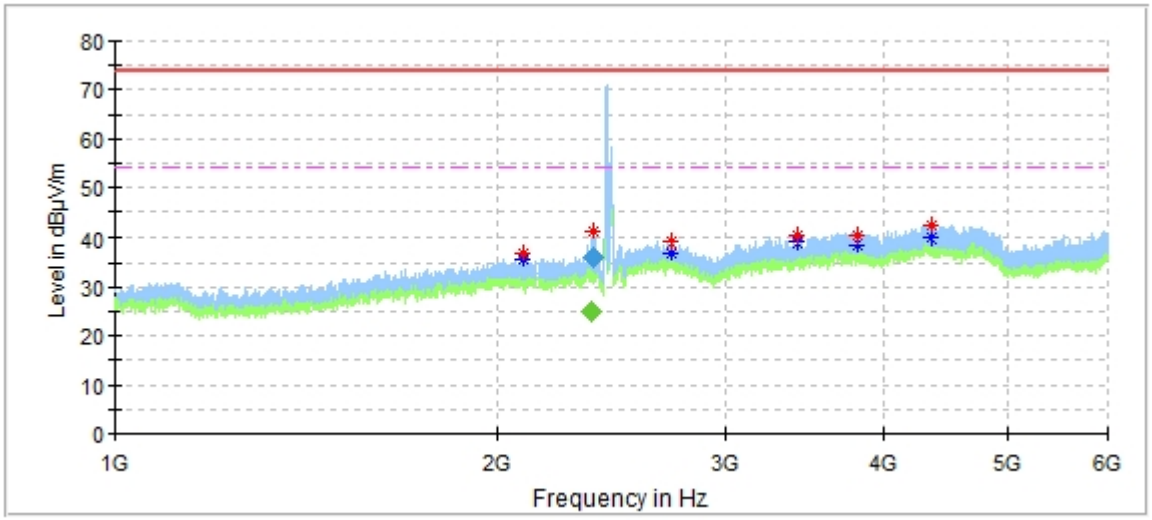
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.735000	32.63	40.00	7.37	100.0	V	207.0	21.0
68.569000	35.43	40.00	4.57	121.0	V	243.0	18.9
92.625000	41.97	43.50	1.53	106.0	V	0.0	15.9
112.353000	27.49	43.50	16.01	100.0	V	8.0	18.5
147.079000	29.10	43.50	14.40	100.0	V	229.0	20.3
274.634000	36.30	46.00	9.70	100.0	V	225.0	20.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
68.569000	30.95	40.00	9.05	1000.0	120.000	121.0	V	243.0	18.9
92.625000	37.41	43.50	6.09	1000.0	120.000	106.0	V	0.0	15.9

EUT Information

EUT Name:	Remote Control
Model	KQXHSYKQ02ZM
Order No:	168310213 20
Test Mode:	B
Test Voltage:	1.5V
Test By:	Mac Xie
Review By:	Gary Chen
Adapter:	3m Chamber

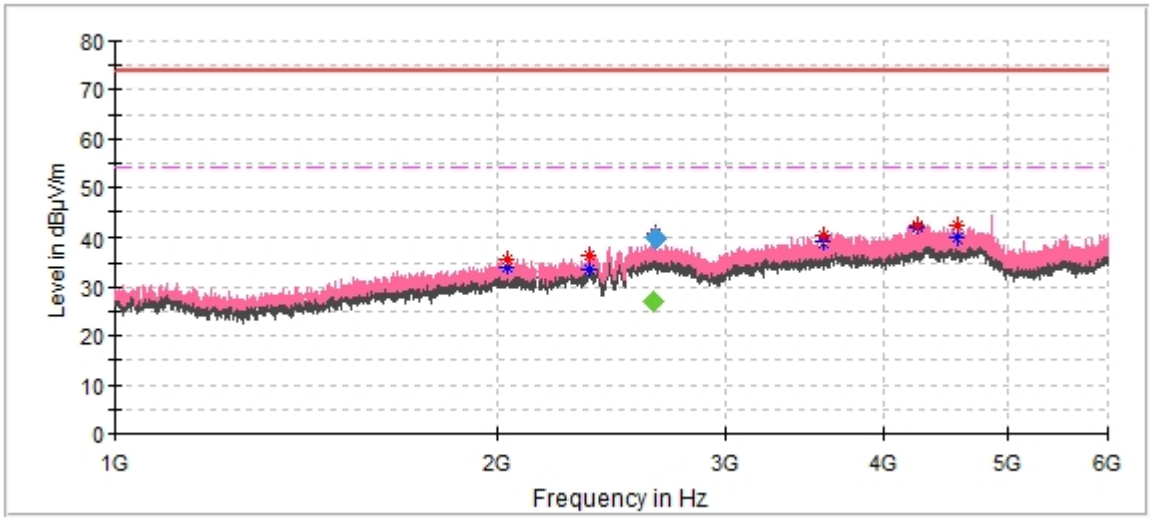


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2094.500000	36.88	---	74.00	37.12	100.0	H	167.0	-7.5
2094.500000	---	35.54	54.00	18.46	100.0	H	167.0	-7.5
2360.900000	---	25.25	54.00	28.75	100.0	H	84.0	-6.1
2368.100000	40.84	---	74.00	33.16	100.0	H	105.0	-6.0
2725.500000	38.95	---	74.00	35.05	100.0	H	312.0	-3.2
2725.500000	---	36.86	54.00	17.14	100.0	H	312.0	-3.2
3420.000000	40.27	---	74.00	33.73	200.0	H	104.0	-1.5
3420.000000	---	39.05	54.00	14.95	200.0	H	104.0	-1.5
3814.000000	40.09	---	74.00	33.91	100.0	H	189.0	0.0
3814.000000	---	38.46	54.00	15.54	100.0	H	189.0	0.0
4365.000000	42.45	---	74.00	31.55	100.0	H	167.0	2.1
4365.000000	---	39.87	54.00	14.13	100.0	H	167.0	2.1

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2360.900000	---	25.12	54.00	28.88	100.0	H	84.0	-6.1
2368.100000	36.18	---	74.00	37.82	100.0	H	105.0	-6.0



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2031.000000	35.77	---	74.00	38.23	200.0	V	183.0	-7.3
2031.000000	---	33.98	54.00	20.02	200.0	V	183.0	-7.3
2353.000000	36.59	---	74.00	37.41	100.0	V	261.0	-6.2
2353.000000	---	33.77	54.00	20.23	100.0	V	261.0	-6.2
2642.600000	---	27.26	54.00	26.74	100.0	V	143.0	-3.3
2643.800000	40.78	---	74.00	33.22	100.0	V	172.0	-3.3
3584.500000	40.21	---	74.00	33.79	100.0	V	61.0	-0.7
3584.500000	---	38.96	54.00	15.04	100.0	V	61.0	-0.7
4260.000000	42.26	---	74.00	31.74	200.0	V	346.0	1.9
4260.000000	---	41.78	54.00	12.22	200.0	V	346.0	1.9
4574.000000	42.09	---	74.00	31.91	100.0	V	324.0	1.9
4574.000000	---	39.74	54.00	14.26	100.0	V	324.0	1.9

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2642.600000	---	27.21	54.00	26.79	100.0	V	143.0	-3.3
2643.800000	39.86	---	74.00	34.14	100.0	V	172.0	-3.3