

RF TEST REPORTReport Number : **612861818801** Date of Issue: Mar. 06, 2019Model No. : K xy seriesProduct Type : Radio Remote Control TransmitterApplicant : Shun Hu Technology Co., Ltd.Address : No. 21, Zhonggong Rd., Xihu Township,: Changhua County 514, TaiwanManufacturer : Shun Hu Technology Co., Ltd.Address : No. 21, Zhonggong Rd., Xihu Township,: Changhua County 514, TaiwanTest Result : ☒ **Positive** ☐ **Negative**Total pages including
Appendices : 62

TÜV SÜD Asia Ltd. is a subcontractor to TÜV SÜD, GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Asia Ltd., reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Asia Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Asia Ltd. issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Table of Content

1	General Information	3
1.1	Notes	3
1.2	Testing Laboratory	4
1.3	Application Details	4
1.4	Report History	4
1.5	Measurement Uncertainty	4
1.6	Applied Standard	5
1.7	Test Summary	5
2	Equipment Specification	6
2.1	General Description	6
2.2	Technical Data	6
2.3	Auxiliary Equipment Used during Test	7
2.4	Lists of Test Instruments	7
2.5	Type of Equipment	8
2.6	Frequency range	8
2.7	Modulation type	8
3	Measurements Result	11
3.1	Operation frequency	11
3.2	Unwanted emission in the spurious domain	12
3.3	TX effective radiated power	30
3.4	TX Duty Cycle	36
3.5	TX Occupied bandwidth	40
3.6	TX Transient	43
3.7	TX Adjacent Channel Power	45
3.8	TX behaviour under low voltage conditions	47
3.9	RX blocking	48
4	Estimation of Exposure of Human to Electromagnetic Fields	50
5	Photographs of EUT	51
6	Test Setup Photo	61

1 General Information

1.1 Notes

TÜV SÜD Asia Ltd., Taiwan Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Asia Ltd., Taiwan Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Asia Ltd., Taiwan Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Asia Ltd., Taiwan Branch issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Approved By:



Rogner Liu
EMC Supervise

Prepared By:



Jean Lu
EMC Engineer

1.2 Testing Laboratory

Test Site:

MRT Technology(Taiwan) Co., Ltd

Address: NO.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C)

Phone: +886-3-3288388

Fax: +886-3-3288918

1.3 Application Details

Sample Received Date	Test Start Date	Test End Date
Sep 17, 2018	Oct 11, 2018	Dec 5, 2018

1.4 Report History

Revision	Release Date	Description
00	Feb. 23, 2019	Draft

1.5 Measurement Uncertainty

Parameter	Uncertainty
Radio frequency	±0.5 ppm
RF power, conducted	±1.5 dB
Conducted spurious emission of transmitter, valid up to 6 GHz	±3 dB
Conducted emission of receivers	±3 dB
Radiated emission of transmitter, valid up to 6 GHz	±6 dB
Radiated emission of receiver, valid up to 6 GHz	±6 dB
RF level uncertainty for a given BER	±1.5 dB
Occupied BandWidth	±5 %
Temperature	±2.5 °C
Humidity	±10 %

1.6 Applied Standard

APPLIED PRODUCT STANDARD

ETSI EN 300 220-2 V3.1.1 (2017-02)
EN 62479: 2010

TEST METHODS

ETSI EN 300 220-1 V3.1.1 (2017-02)

1.7 Test Summary

Table 1. Summary of results

Conformance requirement according to ETSI EN 300 220-2 V2.4.1 (2012-05)		Result	Remark
Essential parameter	Corresponding technical requirements		
Transmitter requirements	4.2.1 Operation frequency	Pass	
	4.2.2 Unwanted emission in spurious domain	Pass	
	4.3.1 TX effective radiated power	Pass	
	4.3.2 TX Maximum e.r.p. spectral density	N/A	*(1)
	4.3.3 TX Duty cycle	Pass	
	4.3.4 TX Occupied bandwidth	Pass	
	4.3.5 TX out of band emissions	N/A	*(2)
	4.3.6 TX Transient	Pass	
	4.3.7 TX Adjacent channel power	Pass	
	4.3.8 TX behaviour under low voltage conditions	Pass	*(3)
	4.3.9 TX Adaptive power control	N/A	*(4)
	4.3.10 TX FHSS	N/A	*(5)
	4.3.11 TX Short term behaviour	N/A	*(6)
Receiver requirements	4.4.1 RX sensitivity	N/A	*(7)
	4.4.2 RX Blocking	Pass	
Spectrum Access	4.5.2 Clear Channel assessment threshold	N/A	*(7)
	4.5.3 Polite spectrum assess timing parameters	N/A	*(7)
	4.5.4 Adaptive Frequency Agility	N/A	*(8)

*(1): Acc. to annex B of the standard, the OFB of this EUT is H

*(2): OCW of this EUT is <25KHz

*(3): The EUT is a battery operated device.

*(4): Acc. to annex B of the standard, the OFB of this EUT is H

*(5): The EUT is not a FHSS device

*(6): Acc. to annex B of the standard, the OFB of this EUT is H

*(7): EUT without polite spectrum band

*(8): EUT without AFA

2 Equipment Specification

2.1 General Description

The EUT is a radio remote control transmitter operated in 434.040MHz~434.790MHz.
As per client declaration, all listed models are electrical identical, only the cosmetic is difference. Test performed on RL-xxx was considered as representative model.

2.2 Technical Data

Description:	Radio remote control transmitter
Model(s):	K xy series
Input Rated Voltage:	3 VDC (2 × 1.5V size AA alkaline batteries)
Maximum RF Transmit Power:	Max 8.56dBm

Table 2. Test Mode

Mode 1	Transmit by 434MHz
Mode 2	Receive by 434MHz



Figure 1.K xy series Appearance

2.3 Auxiliary Equipment Used during Test

Table 3. Auxiliary Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date	Cal Interval (month)
--	--	--	--	--	--

2.4 Lists of Test Instruments

Table 4. Lists of Test Instruments

Radiated Emissions – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2019/5/22
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2019/3/19
Active Loop Antenna	Schwarzbeck	FMZB 1519B	MRTTWA00002	1 year	2019/4/24
Broadband Horn antenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2019/4/24
Breitband Hornantenna	Schwarzbeck	BBHA 9170	MRTTWA00004	1 year	2019/4/23
Broadband Amplifier	Schwarzbeck	BBV 9721	MRTTWA00006	1 year	2019/4/23
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2019/4/23
Cable	HUBERSUHNER	SF106	MRTTWA00010	1 year	2019/5/18
Cable	Rosinol	K1K50-UP0264- K1K50-4M	MRTTWA00012	1 year	2019/7/30
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2019/5/22

Conducted Test Equipment – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2019/7/30
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2019/3/20

Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software
EMI	V3	EMI Test Software

2.5 Type of Equipment

TYPE OF EQUIPMENT	
☐	Stand-alone
☒	Combined equipment
☐	Plug-in radio
☐	Other

2.6 Frequency range

Operating Frequency Range	
Transmitter Frequency Range	
☒	434MHz
☐	Other - (include frequency ranges supported):
Receiver Frequency Range	
☒	434MHz
☐	Other - (include frequency ranges supported):

2.7 Modulation type

Modulation type	
☐	DSSS
☐	FHSS
☒	Other -GFSK

2.7.1 Temperature Range

EXTREME TEMPERATURE RANGE over which equipment is to be type tested		
☒	Extreme Temperature Range	-20°C to +80°C[outdoor and indoor usage]
☐	Extreme Temperature Range	0°C to +35°C[indoor usage only]
☐	Extreme Temperature Range	Other [declared by manufacturer]
☐	Normal Temperature Range	15°C to +35°C

2.7.2 Type of antenna

Type of antenna		
Type of Transmitter's antenna	☒	Integrated Antenna(s)
	☐	Antenna connector for dedicated antenna(s)
Temporary RF connector provided	☒	
No temporary RF connector provided	☐	

2.7.3 Power Source

POWER SOURCE	
Receiver	
☒	3.0VDC (2 × 1.5V size AA alkaline batteries)

2.7.4 Additional information

Transmitter operate modulation:

- ☒ Modulated
☐ Un-modulated

Receiver Classification:

- ☐ class 1
☒ class 2
☐ class 3

Duty Cycle:

- ☐ Continuous duty
☐ Intermittent duty,
☒ Continuous operation possible for testing purposes

About the UUT:

- ☒ The equipment submitted are representative production models.
☐ If not, the equipment submitted are pre-production models.
☐ If preproduction equipment are submitted, the final production equipment will be identical in all respects with the equipment tested.
☐ If not, supply full details: _____

3 Measurements Result

3.1 Operation frequency

3.1.1 Test condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.1.2 Test Result

Operating Frequency	
Operational Frequency band or bands	434.040MHz to 434.790MHz
Nominal Operating Frequency or Frequencies	434.0525MHz to 434.7775MHz
Operating Channel width(s) - OCW	11.5kHz
Result	Pass

3.1.3 Result

The equipment met the requirement of this clause.

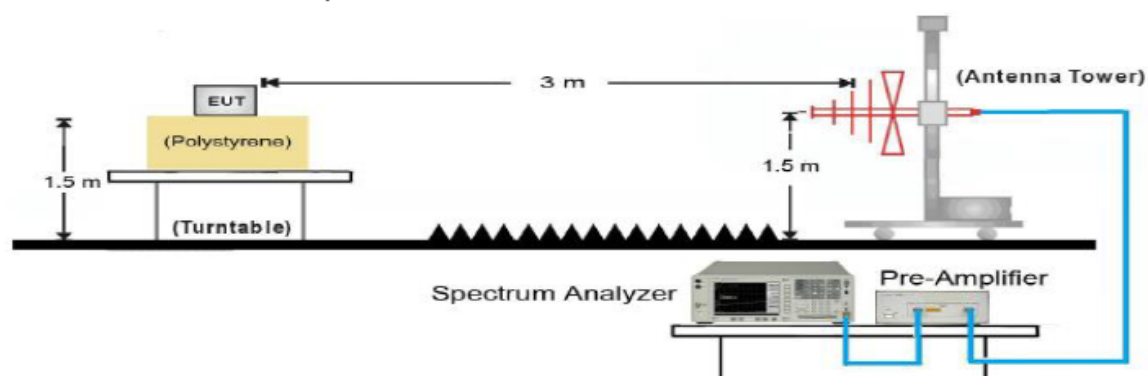
3.2 Unwanted emission in the spurious domain

3.2.1 Test condition

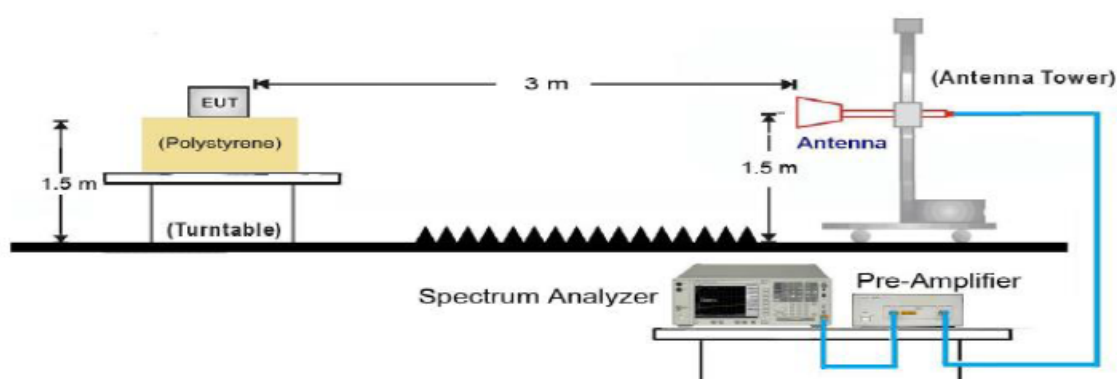
Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.2.2 Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



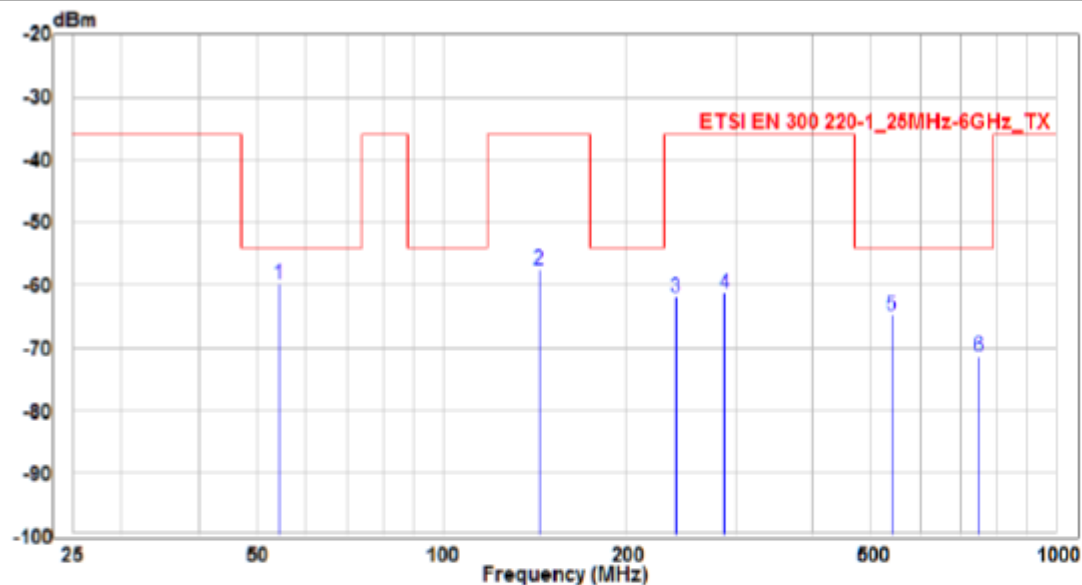
3.2.3 Limit

The power of any unwanted emission in the spurious domain shall not exceed the values given in below Table.

Radiated Spurious Emissions for Transmitter			
State	47 MHz to 74 MHz 87.5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 790 MHz	Other frequencies ≤1000 MHz	Frequencies >1000 MHz
Tx mode	-54 dBm	-36 dBm	-30 dBm
Rx and all other modes	-57 dBm	-57 dBm	-47 dBm

3.2.4 Test Result

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

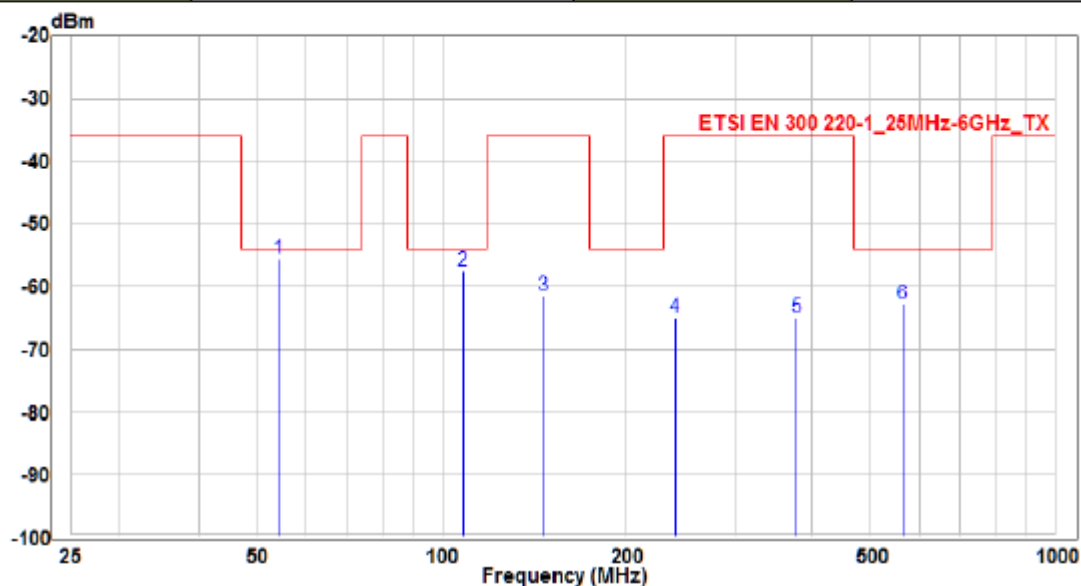


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	54.037	-81.35	21.49	-59.86	-5.86	-54	150	400	Peak
2		143.676	-71.7	14.06	-57.64	-21.64	-36	150	400	Peak
3		239.988	-82.17	20.13	-62.04	-26.04	-36	150	400	Peak
4		288.494	-82.54	21.21	-61.33	-25.33	-36	150	400	Peak
5		539.252	-90.5	25.61	-64.89	-10.89	-54	150	400	Peak
6		747.566	-100.02	28.61	-71.41	-17.41	-54	150	400	Peak

Note :

1. " *" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

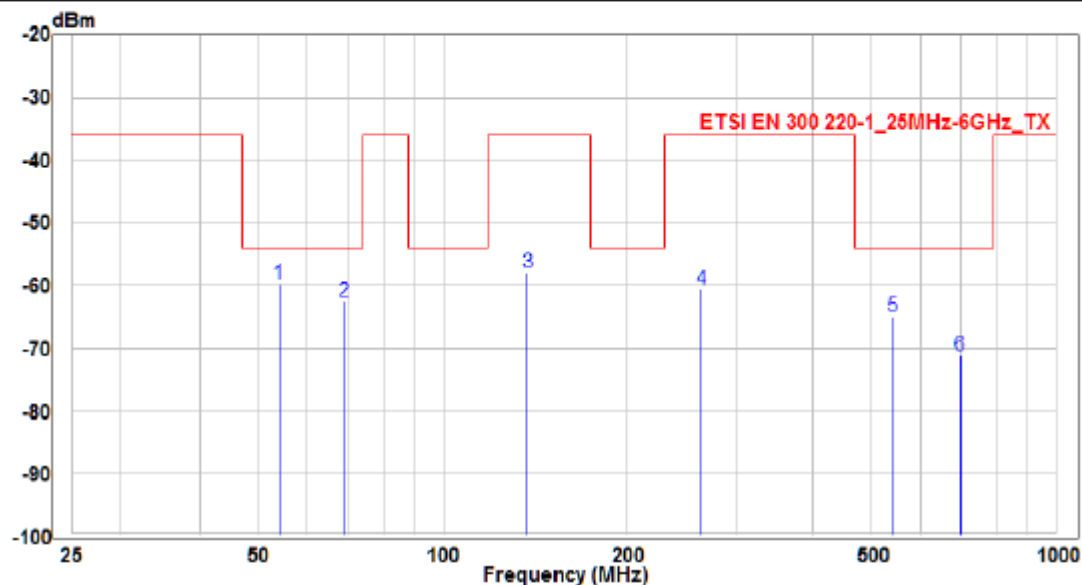


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	54.037	-75.14	19.61	-55.53	-1.53	-54	150	400	Peak
2		108.088	-79.85	22.34	-57.51	-3.51	-54	150	400	Peak
3		146.418	-81.72	20.09	-61.63	-25.63	-36	150	400	Peak
4		239.957	-85.89	20.9	-64.99	-28.99	-36	150	400	Peak
5		378.895	-90.17	25.08	-65.09	-29.09	-36	150	400	Peak
6		564.084	-90.52	27.62	-62.9	-8.9	-54	150	400	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery

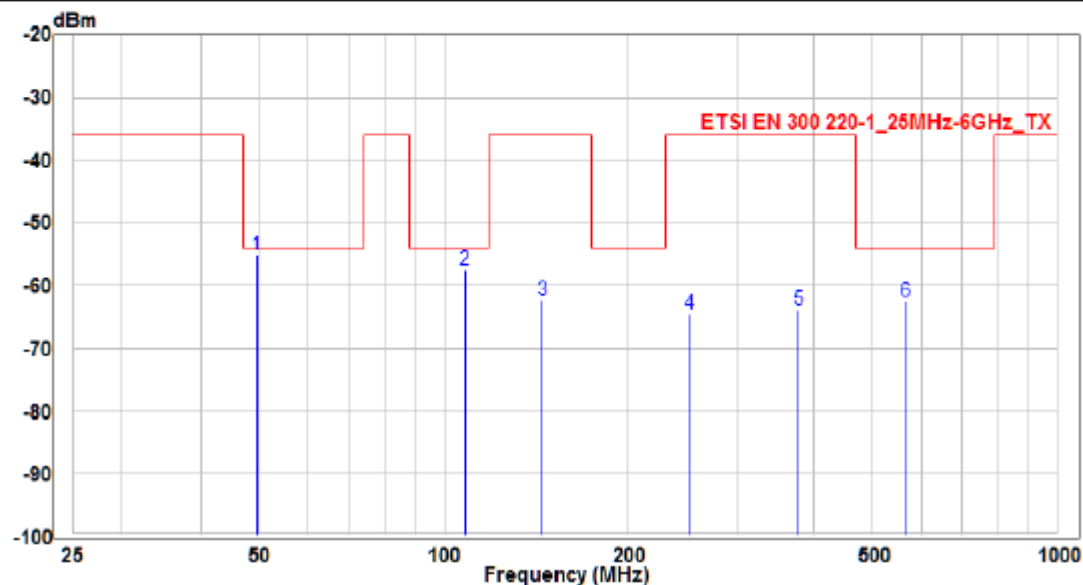


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	54.006	-81.22	21.5	-59.72	-5.72	-54	150	400	Peak
2		69.088	-77.87	15.31	-62.56	-8.56	-54	150	400	Peak
3		137.277	-72.34	14.25	-58.09	-22.09	-36	150	400	Peak
4		264.363	-81.69	20.99	-60.7	-24.7	-36	150	400	Peak
5		541.415	-90.63	25.64	-64.99	-10.99	-54	150	400	Peak
6		696.866	-98.95	27.69	-71.26	-17.26	-54	150	400	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery

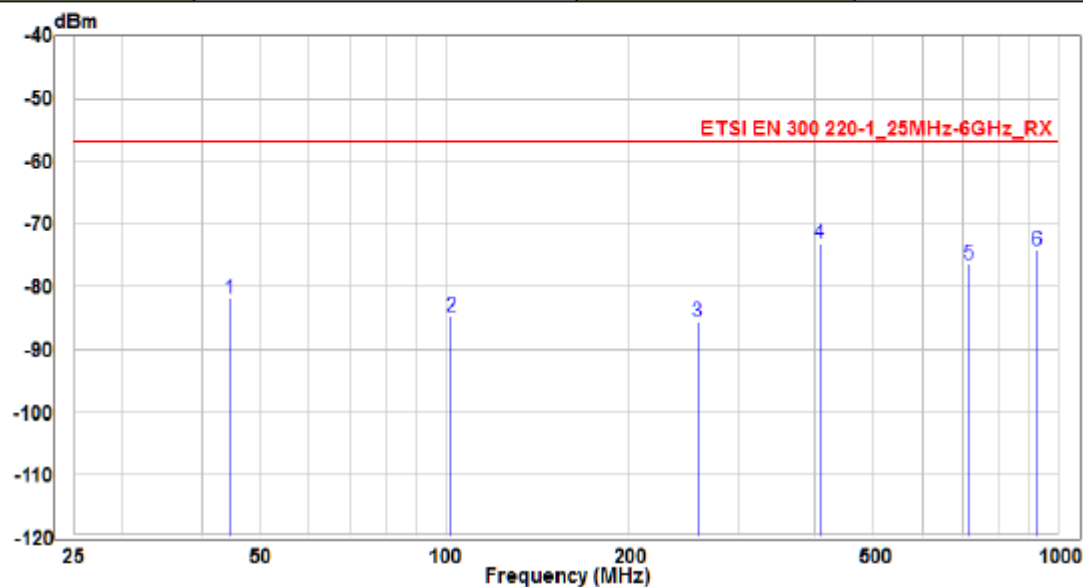


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	49.405	-74.84	19.61	-55.23	-1.23	-54	150	400	Peak
2		108.027	-79.8	22.3	-57.5	-3.5	-54	150	400	Peak
3		144.62	-82.12	19.76	-62.36	-26.36	-36	150	400	Peak
4		251.84	-85.87	21.31	-64.56	-28.56	-36	150	400	Peak
5		378.925	-88.93	25.08	-63.85	-27.85	-36	150	400	Peak
6		566.338	-90.35	27.78	-62.57	-8.57	-54	150	400	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH161	Test Voltage	By Battery

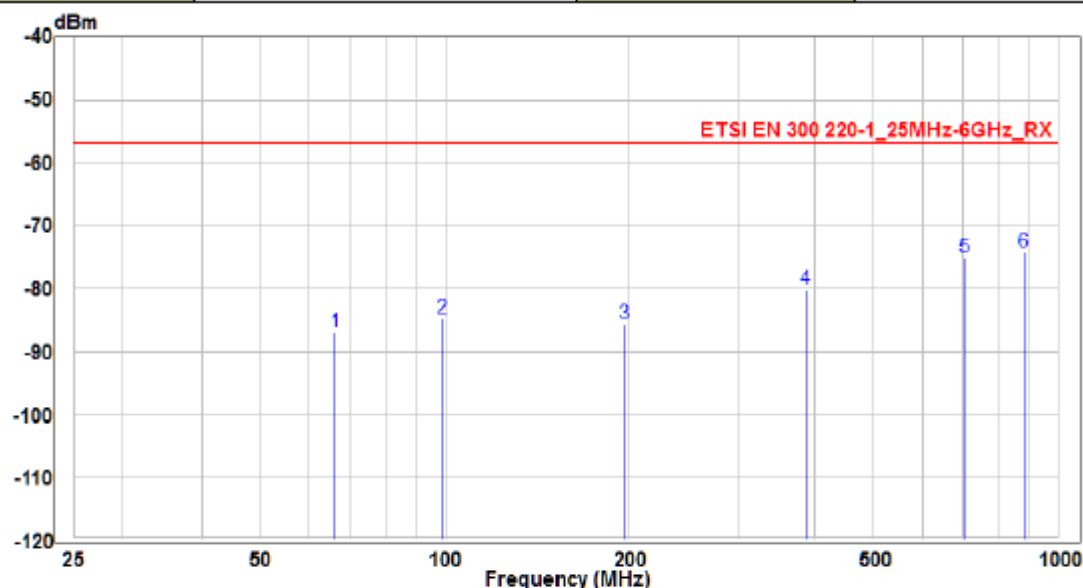


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	44.591	-106.56	24.64	-81.92	-24.92	-57	150	400	Peak
2	102.421	-102.55	17.81	-84.74	-27.74	-57	150	400	Peak
3	258.299	-106.63	20.85	-85.78	-28.78	-57	150	400	Peak
4	* 407.992	-96.34	23.06	-73.28	-16.28	-57	150	400	Peak
5	713.563	-104.17	27.62	-76.55	-19.55	-57	150	400	Peak
6	924.955	-104.45	30.26	-74.19	-17.19	-57	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH161	Test Voltage	By Battery

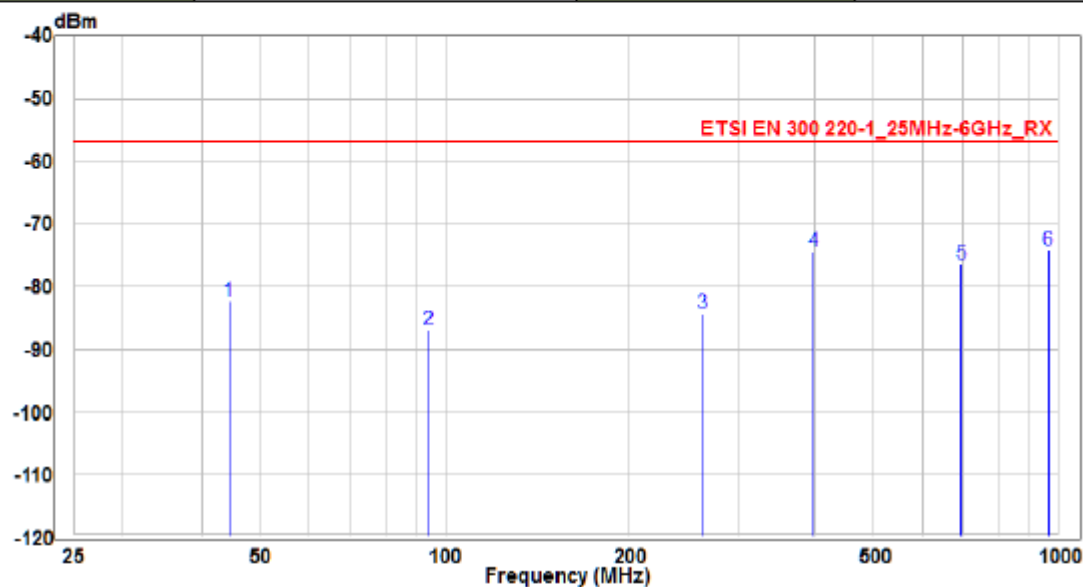


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	66.102	-107.31	20.18	-87.13	-30.13	-57	150	400	Peak
2	98.704	-107.67	22.79	-84.88	-27.88	-57	150	400	Peak
3	196.509	-106.55	20.8	-85.75	-28.75	-57	150	400	Peak
4	387.761	-105.21	25.06	-80.15	-23.15	-57	150	400	Peak
5	702.716	-104.77	29.53	-75.24	-18.24	-57	150	400	Peak
6	* 879.191	-105.75	31.39	-74.36	-17.36	-57	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH219	Test Voltage	By Battery

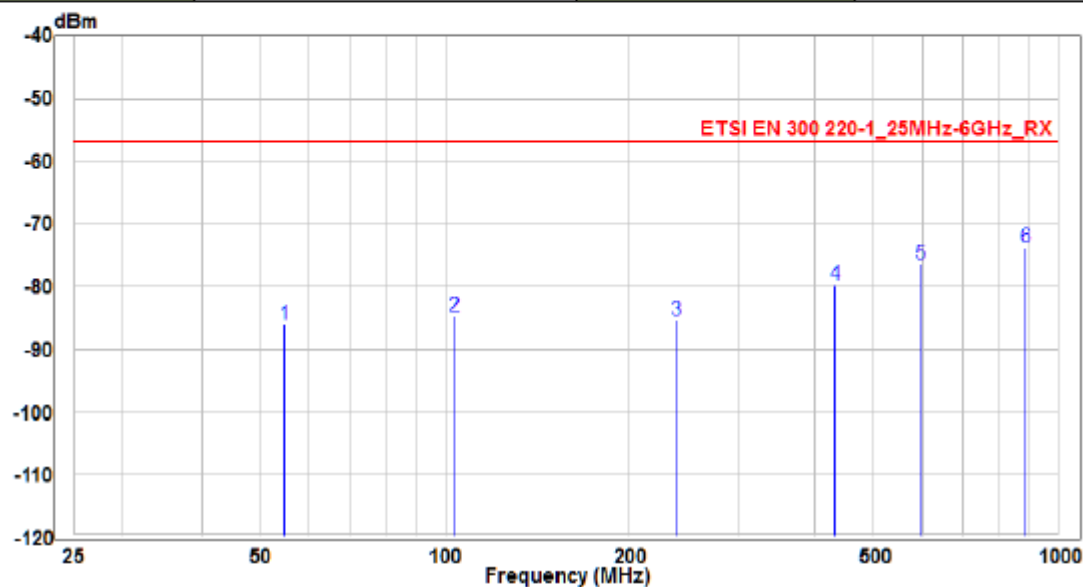


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	44.317	-107.21	24.76	-82.45	-25.45	-57	150	400	Peak
2	93.829	-104.53	17.59	-86.94	-29.94	-57	150	400	Peak
3	263.448	-105.17	20.75	-84.42	-27.42	-57	150	400	Peak
4	398.699	-97.47	22.92	-74.55	-17.55	-57	150	400	Peak
5	696.288	-103.95	27.47	-76.48	-19.48	-57	150	400	Peak
6	* 965.418	-104.59	30.31	-74.28	-17.28	-57	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/15
Factor	ERP_25MHz~1GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH219	Test Voltage	By Battery

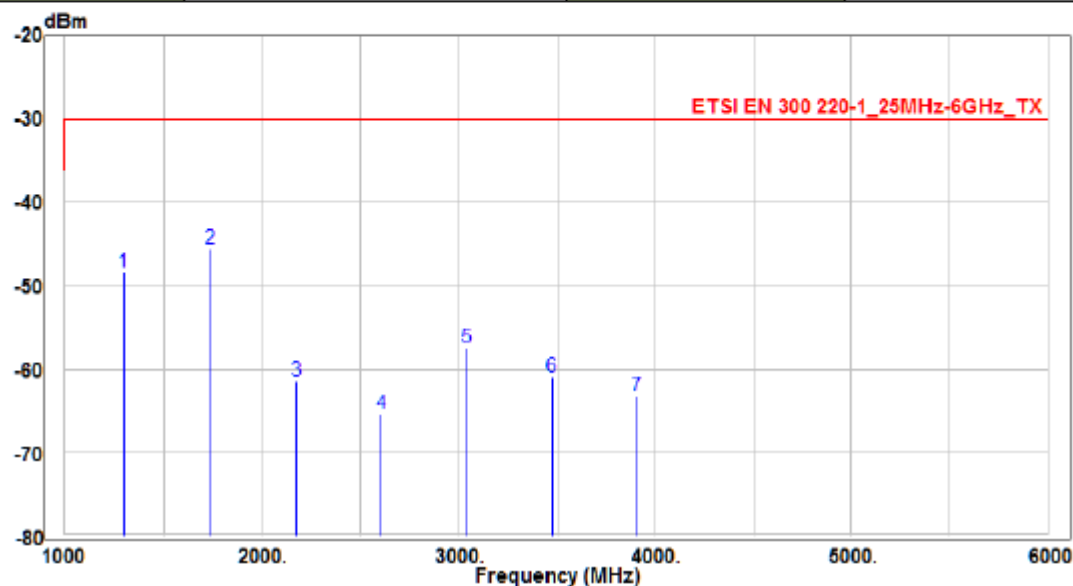


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	54.677	-105.44	19.35	-86.09	-29.09	-57	150	400	Peak
2	103.609	-107.38	22.45	-84.93	-27.93	-57	150	400	Peak
3	238.251	-106.07	20.63	-85.44	-28.44	-57	150	400	Peak
4	433.556	-105.28	25.46	-79.82	-22.82	-57	150	400	Peak
5	595.68	-104.73	28.25	-76.48	-19.48	-57	150	400	Peak
6	* 885.59	-105.27	31.48	-73.79	-16.79	-57	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

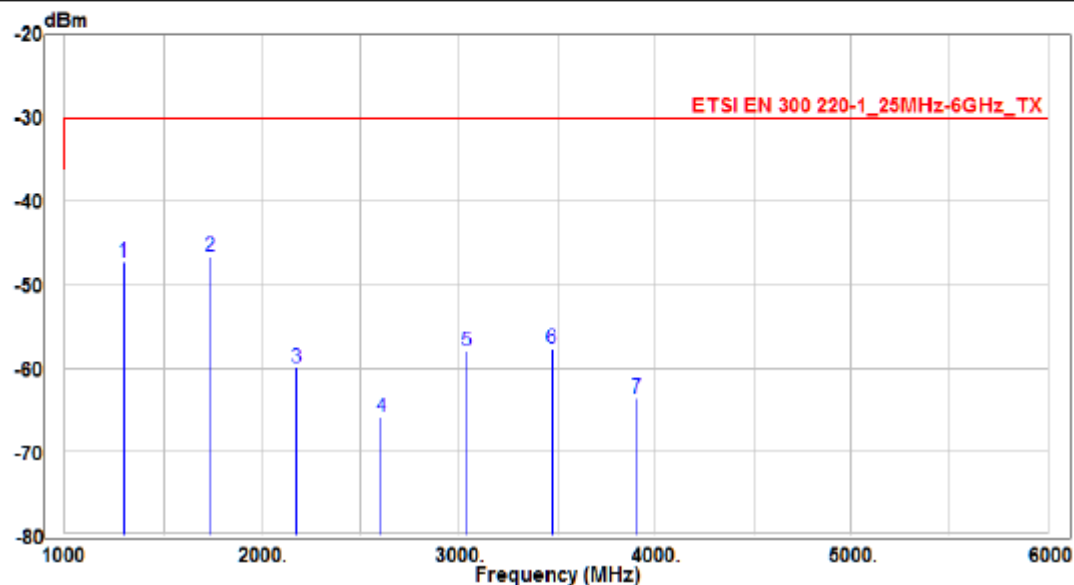


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1302.157	-51.68	3.36	-48.32	-18.32	-30	150	400	Peak
2	* 1736.21	-47.91	2.37	-45.54	-15.54	-30	150	400	Peak
3	2170.262	-65.63	4.19	-61.44	-31.44	-30	150	400	Peak
4	2604.315	-70.23	4.95	-65.28	-35.28	-30	150	400	Peak
5	3038.367	-62.7	5.3	-57.4	-27.4	-30	150	400	Peak
6	3472.42	-67.52	6.67	-60.85	-30.85	-30	150	400	Peak
7	3906.472	-71.99	8.76	-63.23	-33.23	-30	150	400	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

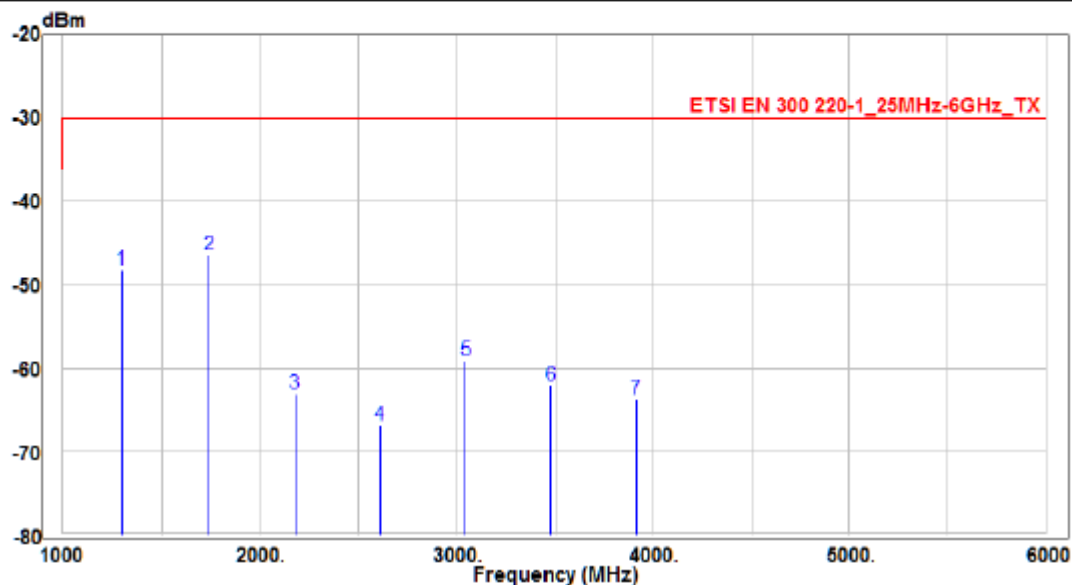


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1302.157	-50.57	3.32	-47.25	-17.25	-30	150	400	Peak
2	* 1736.21	-48.67	2.19	-46.48	-16.48	-30	150	400	Peak
3	2170.262	-65.45	5.63	-59.82	-29.82	-30	150	400	Peak
4	2604.315	-71.79	5.97	-65.82	-35.82	-30	150	400	Peak
5	3038.367	-62.85	4.93	-57.92	-27.92	-30	150	400	Peak
6	3472.42	-64.71	7.06	-57.65	-27.65	-30	150	400	Peak
7	3906.472	-71.58	8.15	-63.43	-33.43	-30	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery

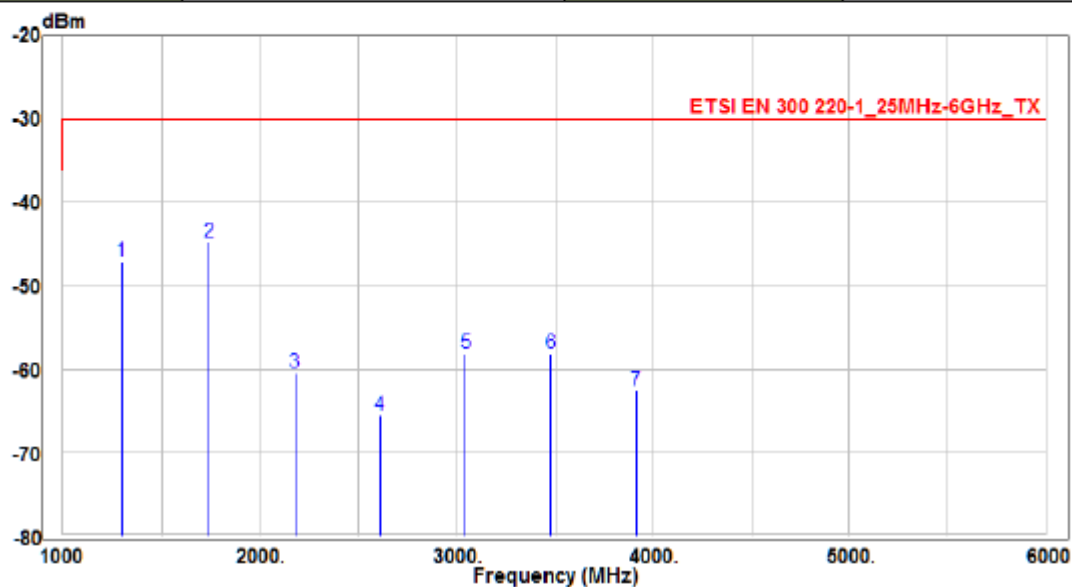


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1304.333	-51.58	3.32	-48.26	-18.26	-30	150	400	Peak
2	* 1739.11	-48.71	2.42	-46.29	-16.29	-30	150	400	Peak
3	2173.887	-67.23	4.16	-63.07	-33.07	-30	150	400	Peak
4	2608.665	-71.65	4.9	-66.75	-36.75	-30	150	400	Peak
5	3043.442	-64.36	5.31	-59.05	-29.05	-30	150	400	Peak
6	3478.22	-68.73	6.78	-61.95	-31.95	-30	150	400	Peak
7	3912.998	-72.42	8.79	-63.63	-33.63	-30	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery

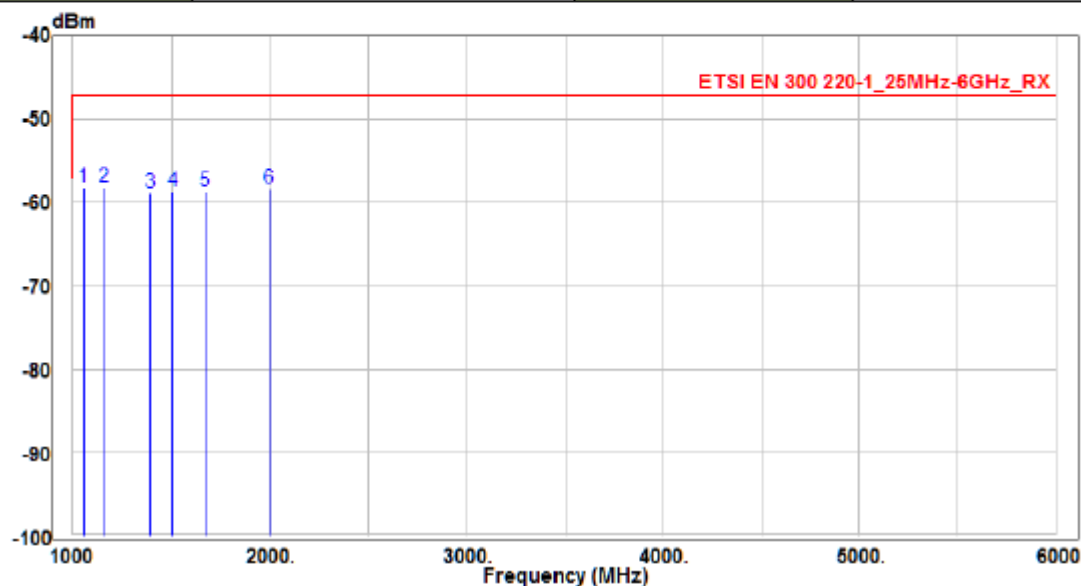


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1304.333	-50.25	3.29	-46.96	-16.96	-30	150	400	Peak
2	* 1739.11	-47	2.22	-44.78	-14.78	-30	150	400	Peak
3	2173.887	-66.04	5.61	-60.43	-30.43	-30	150	400	Peak
4	2608.665	-71.4	5.9	-65.5	-35.5	-30	150	400	Peak
5	3043.442	-63.06	4.96	-58.1	-28.1	-30	150	400	Peak
6	3478.22	-65.22	7.08	-58.14	-28.14	-30	150	400	Peak
7	3912.998	-70.75	8.22	-62.53	-32.53	-30	150	400	Peak

Note :

- "*" means the data is the worst emission level.
- C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
- Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH161	Test Voltage	By Battery

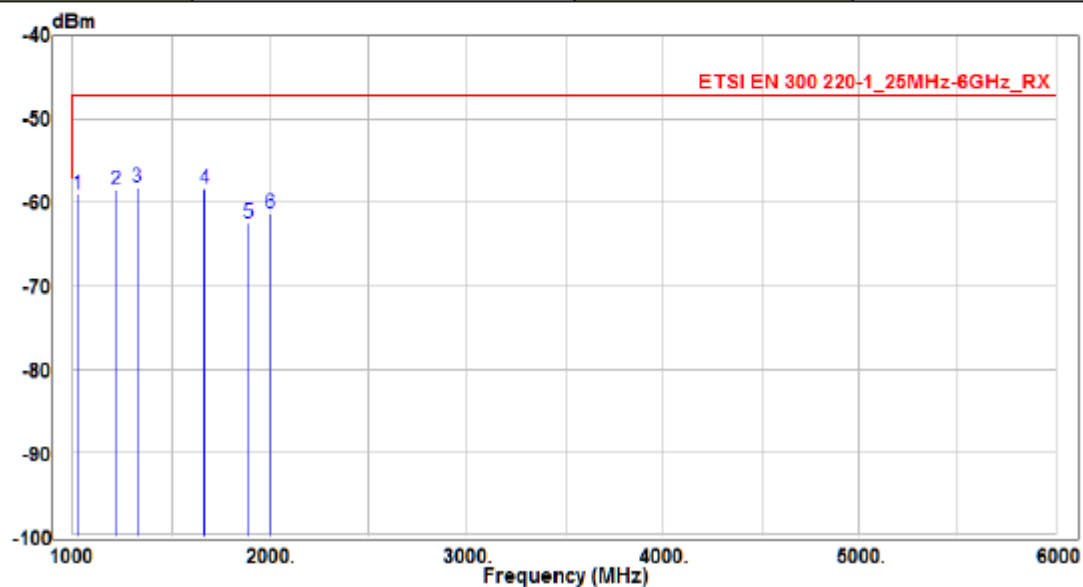


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1059.61	-59.62	1.45	-58.17	-11.17	-47	150	400	Peak
2	* 1164	-59.38	1.24	-58.14	-11.14	-47	150	400	Peak
3	1395.85	-59.87	1.05	-58.82	-11.82	-47	150	400	Peak
4	1499.91	-59.75	1.18	-58.57	-11.57	-47	150	400	Peak
5	1665.06	-59.68	0.98	-58.7	-11.7	-47	150	400	Peak
6	1994.11	-62.27	3.91	-58.36	-11.36	-47	150	400	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH161	Test Voltage	By Battery

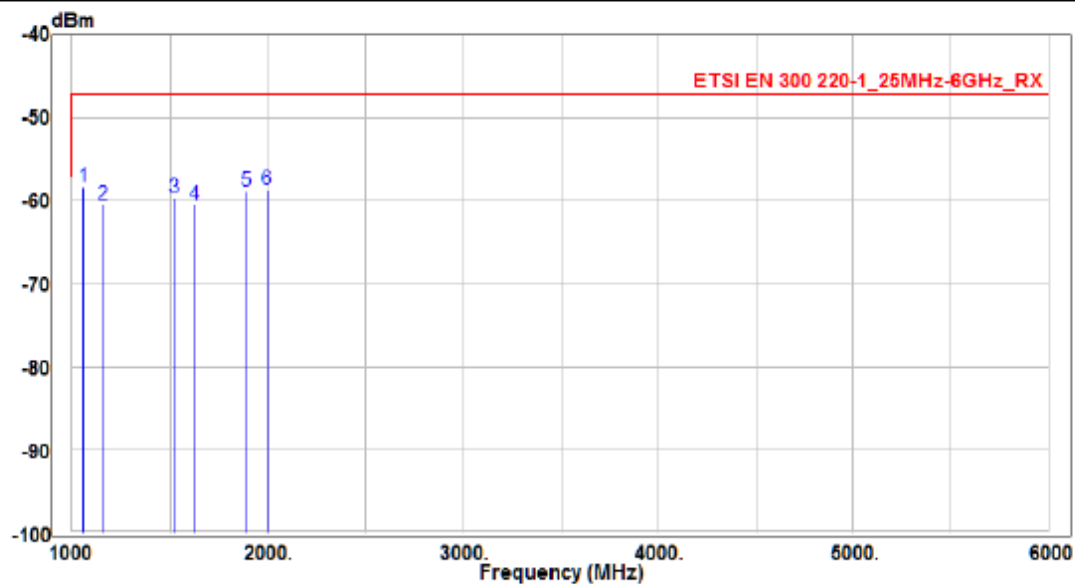


No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1031.8	-59.63	0.66	-58.97	-11.97	-47	150	400	Peak
2	1226.58	-59.53	1.03	-58.5	-11.5	-47	150	400	Peak
3	1332.1	-61.05	2.99	-58.06	-11.06	-47	150	400	Peak
4	1660.84	-59.45	1.14	-58.31	-11.31	-47	150	400	Peak
5	1884.65	-65.85	3.39	-62.46	-15.46	-47	150	400	Peak
6	1997.7	-65.32	4.05	-61.27	-14.27	-47	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH219	Test Voltage	By Battery

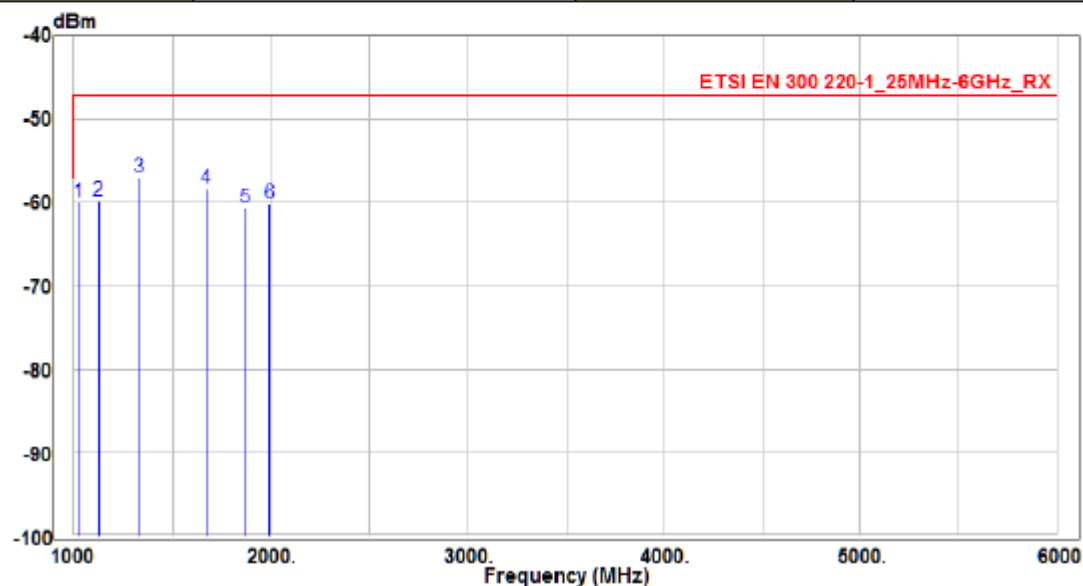


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	1063.36	-59.72	1.41	-58.31	-11.31	-47	150	400	Peak
2		1163.51	-61.69	1.23	-60.46	-13.46	-47	150	400	Peak
3		1515.06	-61.03	1.45	-59.58	-12.58	-47	150	400	Peak
4		1623.86	-61.58	1.21	-60.37	-13.37	-47	150	400	Peak
5		1884.15	-62.38	3.61	-58.77	-11.77	-47	150	400	Peak
6		1993.17	-62.49	3.88	-58.61	-11.61	-47	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/10/11
Factor	ERP_1GHz~18GHz (RX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE2-RX_CH219	Test Voltage	By Battery



No	Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1031.17	-60.69	0.68	-60.01	-13.01	-47	150	400	Peak
2	1128.69	-60.53	0.71	-59.82	-12.82	-47	150	400	Peak
3	* 1332.57	-59.96	2.99	-56.97	-9.97	-47	150	400	Peak
4	1665.99	-59.54	1.22	-58.32	-11.32	-47	150	400	Peak
5	1867.85	-63.76	3.24	-60.52	-13.52	-47	150	400	Peak
6	1990.98	-63.85	3.81	-60.04	-13.04	-47	150	400	Peak

Note :

1. " * " means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

3.2.5 Result

The equipment met the requirement of this clause.

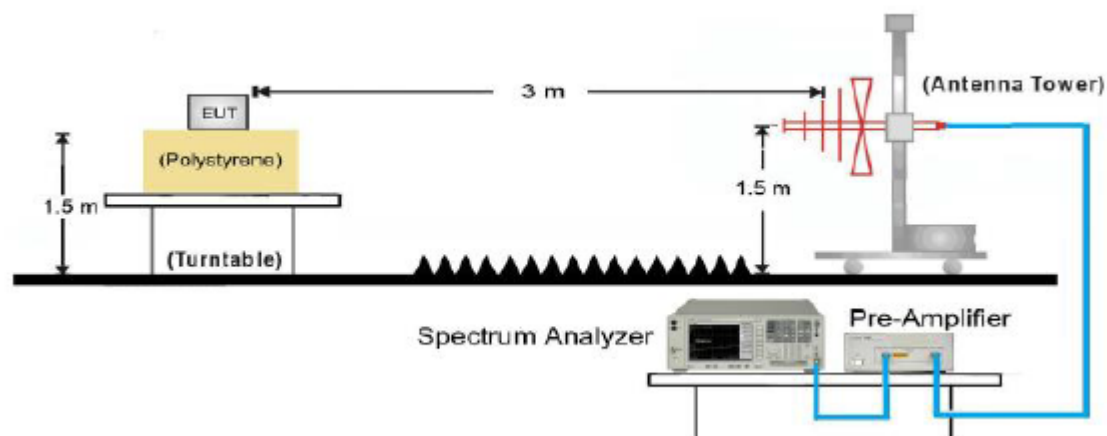
3.3 TX effective radiated power

3.3.1 Test condition

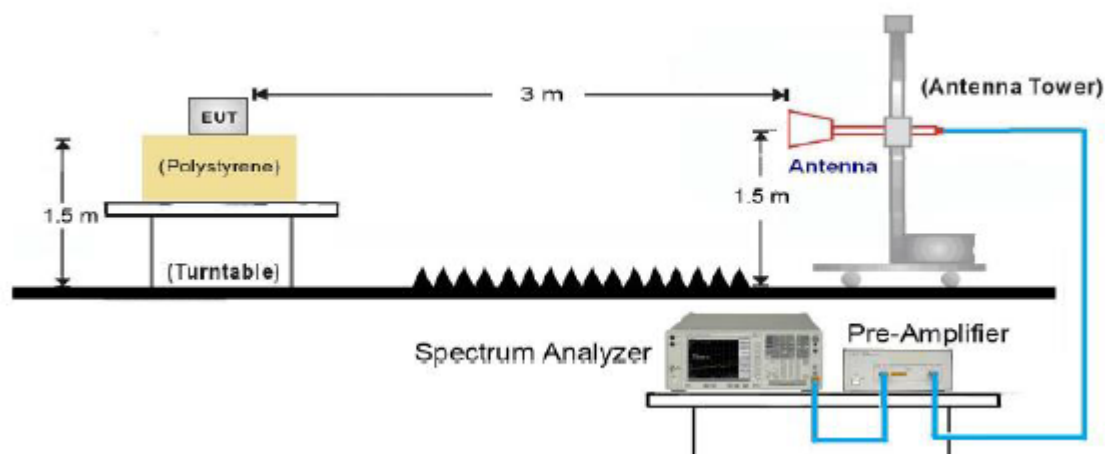
Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.3.2 Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



3.3.3 Limit

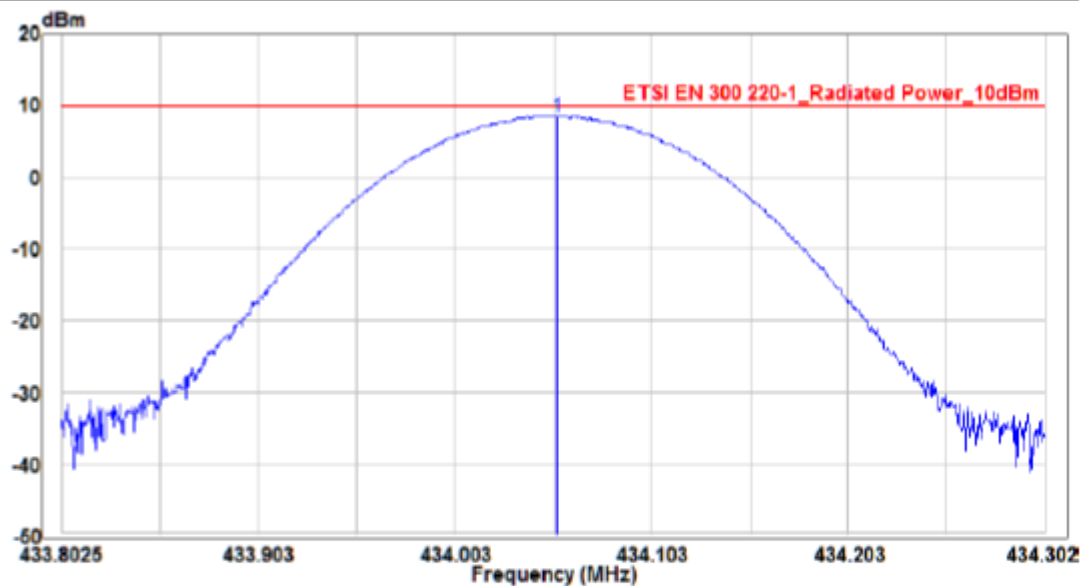
The effective radiated power shall not be greater than the value allowed in EN 300 220-2 annexes B or C for the chosen operational frequency band(s).

Table B.1 EU wide harmonised national radio interfaces from 25 MHz to 1 000 MHz

Operational Frequency Band		Maximum effective radiated power, e.r.p.	Channel access and occupation rules (e.g. Duty cycle or LBT + AFA)
A	26,857 MHz to 27,283 MHz	10 mW e.r.p.	No requirement
B	26,995 MHz, 27,045 MHz, 27,095 MHz, 27,145 MHz, 27,195 MHz	100 mW e.r.p.	$\leq 0,1$ % duty cycle
C	40,660 MHz to 40,700 MHz	10 mW e.r.p.	No requirement
D	169,400 MHz to 169,475 MHz	500 mW e.r.p.	$\leq 1,0$ % duty cycle
E	169,4000 MHz to 169,4875 MHz	10 mW	$\leq 0,1$ % duty
F	169,4875 MHz to 169,5875 MHz	10 mW	$\leq 0,001$ % duty cycle. Between 00.00 and 06.00 local time a duty cycle limit of 0,1 % may be used
G	169,5875 MHz to 169,8125 MHz	10 mW	$\leq 0,1$ % duty cycle
H	433,050 MHz to 434,790 MHz	10 mW	10 %
I	433,050 MHz to 434,790 MHz	1 mW e.r.p. -13 dBm/10 kHz PSD for bandwidth modulation larger than 250 kHz	No requirement
J	434,040 MHz to 434,790 MHz	10 mW	No requirement
K	863 MHz to 865 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
L	865 MHz to 868 MHz	25 mW e.r.p. Power density: -4,5 dBm/100 kHz. The power density can be increased to +6,2 dBm/100 kHz if the band of operation is limited to 865 MHz to 868 MHz	≤ 1 % duty cycle or polite spectrum access
M	868,000 MHz to 868,600 MHz	25 mW e.r.p.	≤ 1 % duty cycle or polite spectrum access
N	868,700 MHz to 869,200 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
O	869,400 MHz to 869,650 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
P	869,400 MHz to 869,650 MHz	500 mW e.r.p.	≤ 10 % duty cycle or polite spectrum access
Q	869,700 MHz to 870,000 MHz	5 mW e.r.p.	No requirement
R	869,700 MHz to 870,000 MHz	25 mW e.r.p.	≤ 1 % duty cycle or polite spectrum access

3.3.4 Test Result

EUT	Radio remote control transmitter	Test Date	2018/11/21
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

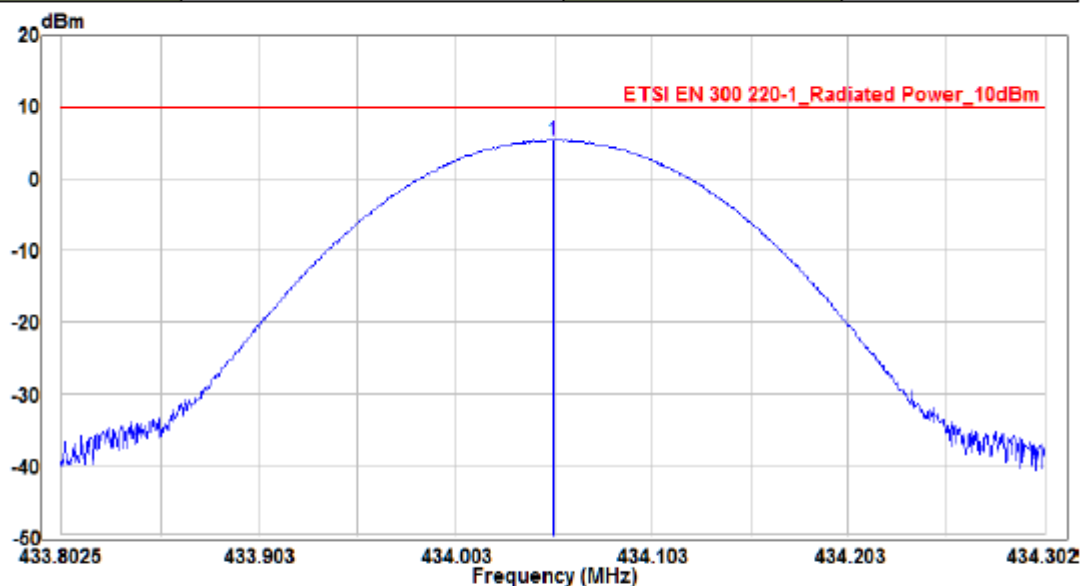


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.055	-15.17	23.73	8.56	-1.44	10	110	200	Peak

Note :

1. " *" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/11/21
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH161	Test Voltage	By Battery

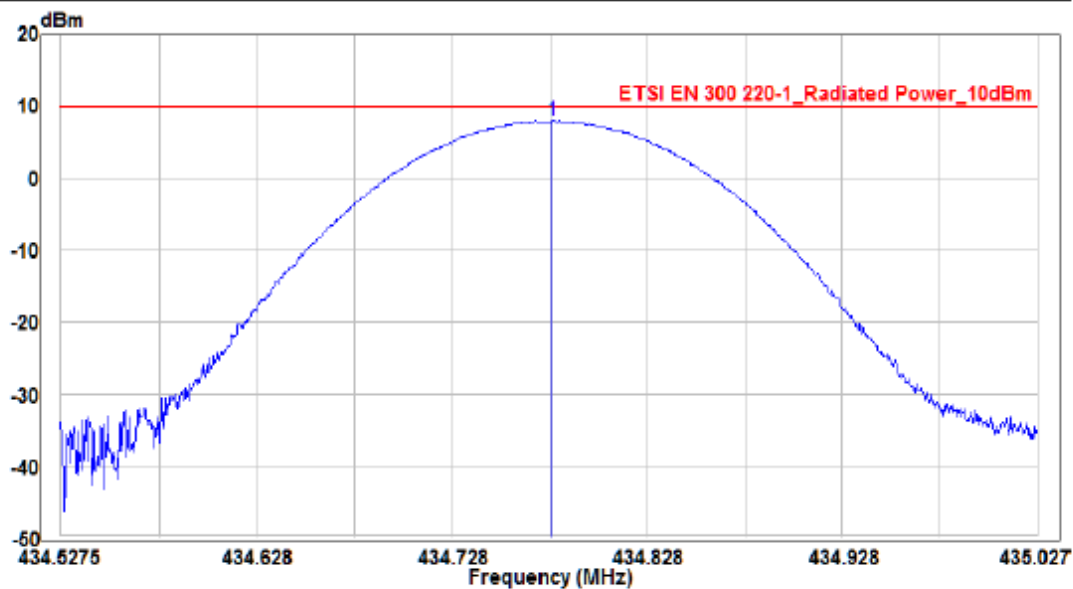


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.052	-20.59	26.02	5.43	-4.57	10	160	35	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/11/21
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery

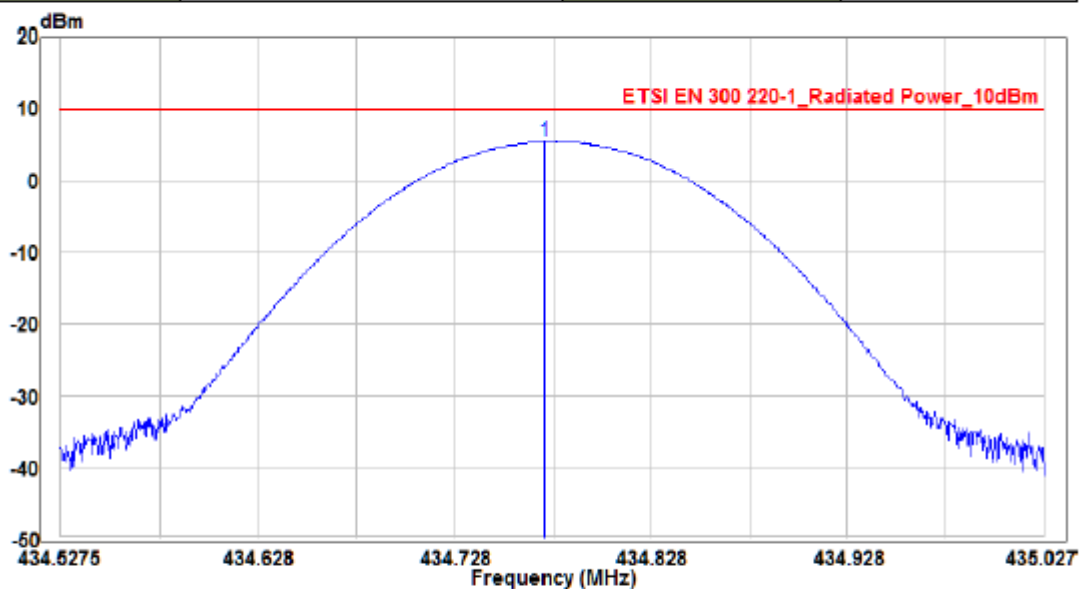


No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.779	-15.68	23.7	8.02	-1.98	10	115	205	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

EUT	Radio remote control transmitter	Test Date	2018/11/21
Factor	ERP_25MHz~1GHz (TX)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1-TX_CH219	Test Voltage	By Battery



No		Frequency (MHz)	Reading (dBm)	C.F (dB)	Measurement (dBm)	Margin (dB)	Limit (dBm)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.773	-20.48	25.99	5.51	-4.49	10	160	35	Peak

Note :

1. "*" means the data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB) + Cable Loss (dB).
3. Measurement (dBm) = Reading (dBm) + C.F (Correction Factor).

3.3.5 Result

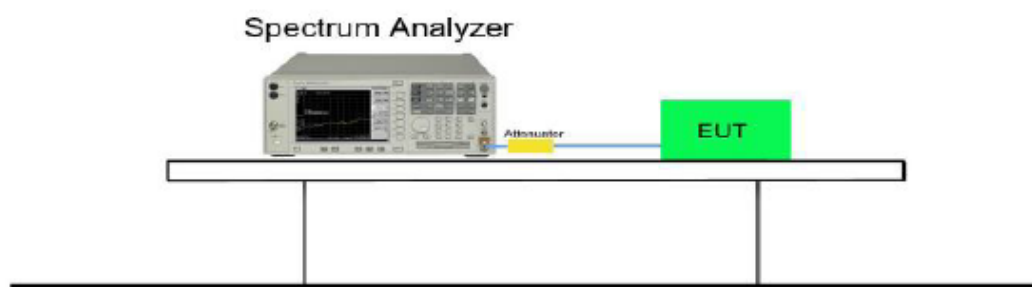
The equipment met the requirement of this clause.

3.4 TX Duty Cycle

3.4.1 Test condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.4.2 Test Setup



3.4.3 Limit

Duty cycle applies to all transmitters except EUT with polite spectrum access (described in clause 4.5) where permitted in EN 300 220-2 annex B, table B.1 or annex C, table C.1 or any National Radio Interface (NRI).

Table B.1 EU wide harmonised national radio interfaces from 25 MHz to 1 000 MHz

Operational Frequency Band		Maximum effective radiated power, e.r.p.	Channel access and occupation rules (e.g. Duty cycle or LBT + AFA)
A	26,957 MHz to 27,283 MHz	10 mW e.r.p.	No requirement
B	26,995 MHz, 27,045 MHz, 27,095 MHz, 27,145 MHz, 27,195 MHz	100 mW e.r.p.	$\leq 0,1$ % duty cycle
C	40,660 MHz to 40,700 MHz	10 mW e.r.p.	No requirement
D	169,400 MHz to 169,475 MHz	500 mW e.r.p.	$\leq 1,0$ % duty cycle
E	169,400 MHz to 169,4875 MHz	10 mW	$\leq 0,1$ % duty
F	169,4875 MHz to 169,5875 MHz	10 mW	$\leq 0,001$ % duty cycle. Between 00.00 and 06.00 local time a duty cycle limit of 0,1 % may be used
G	169,5875 MHz to 169,8125 MHz	10 mW	$\leq 0,1$ % duty cycle
H	433,050 MHz to 434,790 MHz	10 mW	10 %
I	433,050 MHz to 434,790 MHz	1 mW e.r.p. -13 dBm/10 kHz PSD for bandwidth modulation larger than 250 kHz	No requirement
J	434,040 MHz to 434,790 MHz	10 mW	No requirement
K	863 MHz to 865 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
L	865 MHz to 868 MHz	25 mW e.r.p. Power density: -4,5 dBm/100 kHz. The power density can be increased to +6,2 dBm/100 kHz if the band of operation is limited to 865 MHz to 868 MHz	≤ 1 % duty cycle or polite spectrum access
M	868,000 MHz to 868,600 MHz	25 mW e.r.p.	≤ 1 % duty cycle or polite spectrum access
N	868,700 MHz to 869,200 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
O	869,400 MHz to 869,650 MHz	25 mW e.r.p.	$\leq 0,1$ % duty cycle or polite spectrum access
P	869,400 MHz to 869,650 MHz	500 mW e.r.p.	≤ 10 % duty cycle or polite spectrum access
Q	869,700 MHz to 870,000 MHz	5 mW e.r.p.	No requirement
R	869,700 MHz to 870,000 MHz	25 mW e.r.p.	≤ 1 % duty cycle or polite spectrum access

3.4.4 Test Result

Frequency (MHz)	Measured Value	Limit
434.0525	20.40%	No requirement
434.7775	20.15%	No requirement

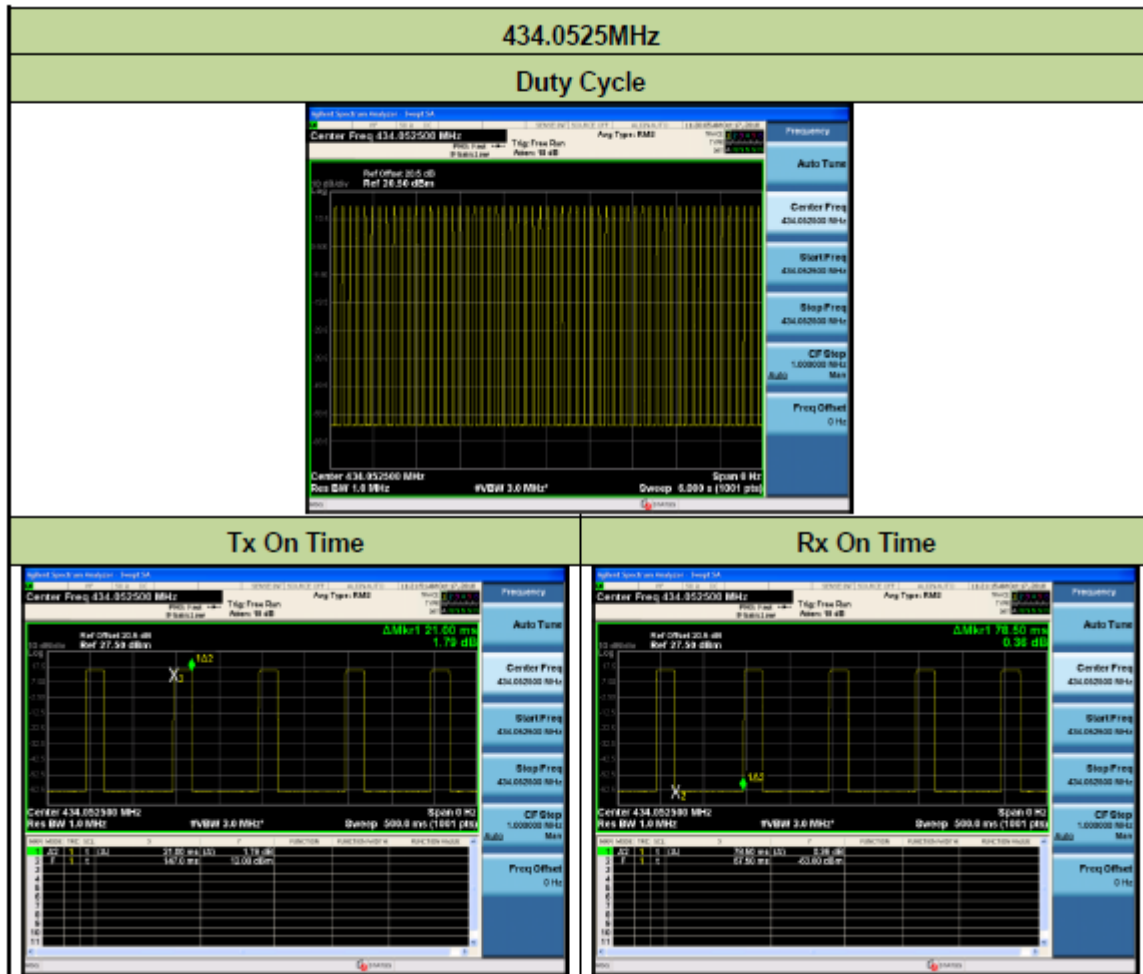
Note:

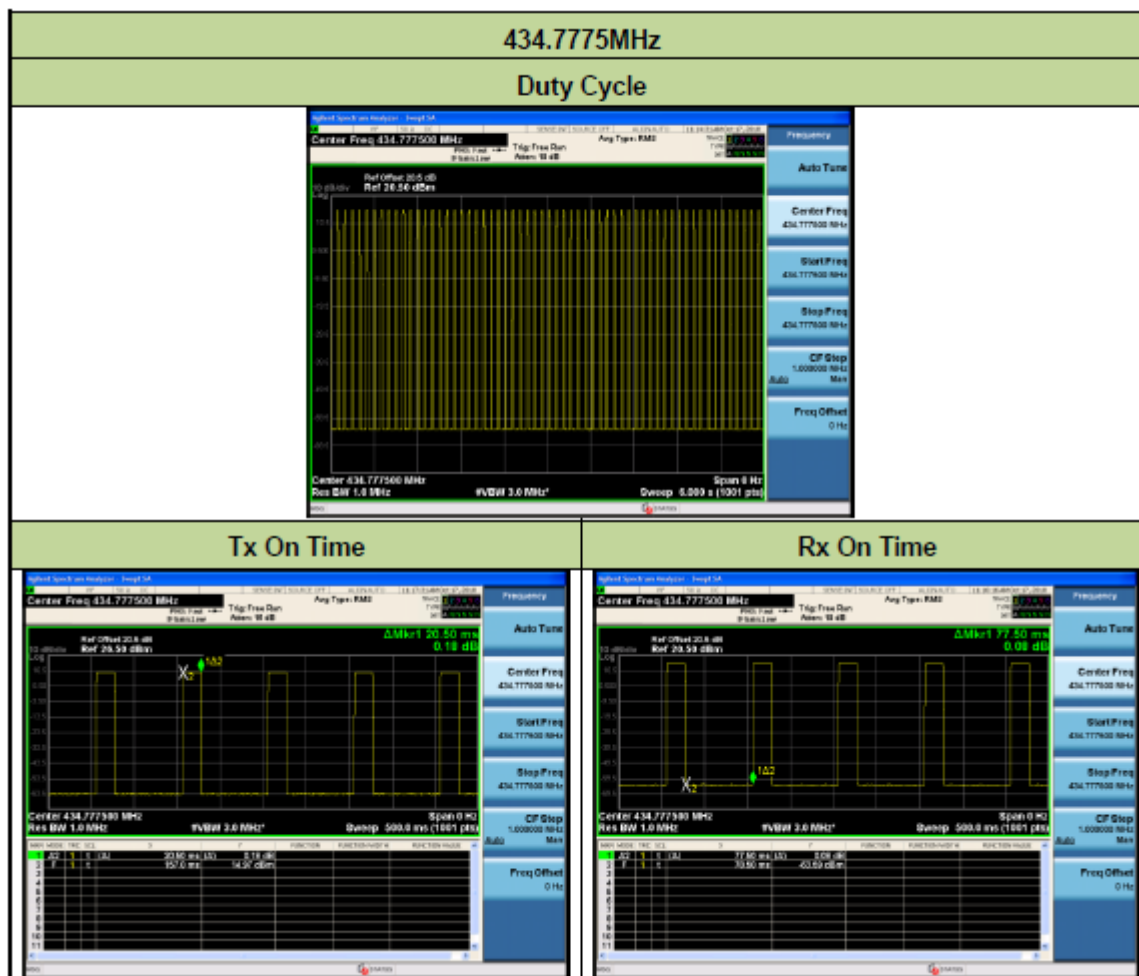
434.0525MHz:

$59\text{bin} \times 0.021\text{s(TX ON)} = 1.239\text{s}$, $1.239\text{s} \times 600 = 734.4\text{s}$, $((734.4\text{s}/3600\text{s}) \times 100\%) = 20.40\%$

434.7775MHz:

$59\text{bin} \times 0.0205\text{s(TX ON)} = 1.2095\text{s}$, $1.2095\text{s} \times 600 = 725.7\text{s}$, $((725.7\text{s}/3600\text{s}) \times 100\%) = 20.15\%$





3.4.5 Result

The equipment met the requirement of this clause.

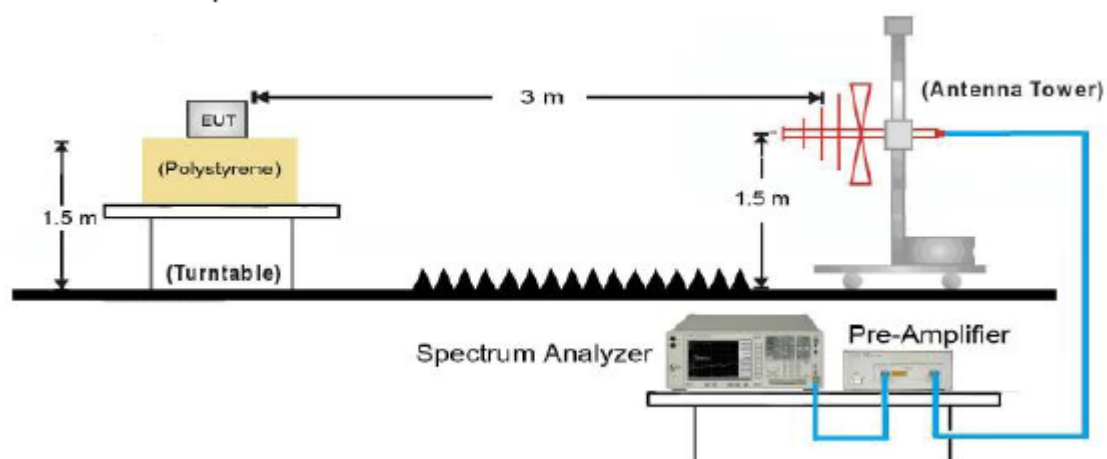
3.5 TX Occupied bandwidth

3.5.1 Test condition

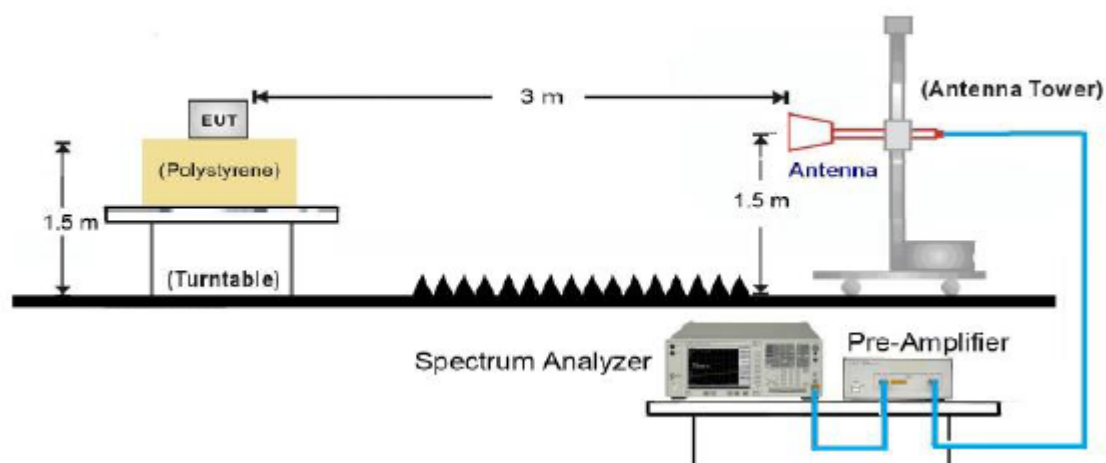
Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.5.2 Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



3.5.3 Limit

The Maximum Occupied Bandwidth at 99 % shall reside entirely within the Operating Channel defined by F_{low} and F_{high} .

The occupied bandwidth of the EUT according to ETSI EN 300 220-1, clause 5.6.2 shall comply with the limits in annex B or C.

Table B.1 EU wide harmonised national radio interfaces from 25 MHz to 1 000 MHz

Operational Frequency Band		Maximum effective radiated power, e.r.p.	Maximum occupied bandwidth
A	26,857 MHz to 27,283 MHz	10 mW e.r.p.	The whole band
B	26,995 MHz, 27,045 MHz, 27,095 MHz, 27,145 MHz, 27,195 MHz	100 mW e.r.p.	10 kHz
C	40,660 MHz to 40,700 MHz	10 mW e.r.p.	The whole band
D	169,400 MHz to 169,475 MHz	500 mW e.r.p.	50 kHz
E	169,4000 MHz to 169,4875 MHz	10 mW	The whole band
F	169,4875 MHz to 169,5875 MHz	10 mW	The whole band
G	169,5875 MHz to 169,8125 MHz	10 mW	The whole band
H	433,050 MHz to 434,790 MHz	10 mW	The whole band
I	433,050 MHz to 434,790 MHz	1 mW e.r.p. -13 dBm/10 kHz PSD for bandwidth modulation larger than 250 kHz	The whole band
J	434,040 MHz to 434,790 MHz	10 mW	25 kHz
K	863 MHz to 865 MHz	25 mW e.r.p.	The whole band except for audio & video applications limited to 300 kHz
L	865 MHz to 868 MHz	25 mW e.r.p. Power density: -4,5 dBm/100 kHz. The power density can be increased to +6,2 dBm/100 kHz if the band of operation is limited to 865 MHz to 868 MHz	The whole band except for audio & video applications limited to 300 kHz
M	868,000 MHz to 868,600 MHz	25 mW e.r.p.	The whole band except for audio & video applications limited to 300 kHz
N	868,700 MHz to 869,200 MHz	25 mW e.r.p.	The whole sub-band except for audio & video applications limited to 300 kHz
O	869,400 MHz to 869,650 MHz	25 mW e.r.p.	The whole band
P	869,400 MHz to 869,650 MHz	500 mW e.r.p.	The whole band
Q	869,700 MHz to 870,000 MHz	5 mW e.r.p.	The whole band
R	869,700 MHz to 870,000 MHz	25 mW e.r.p.	The whole band

3.5.4 Test Result

Test Freq (MHz)	99% Bandwidth (kHz)	Limit
434.0525	11.257	$\leq 25\text{kHz}$
434.7775	11.401	$\leq 25\text{kHz}$



3.5.5 Result

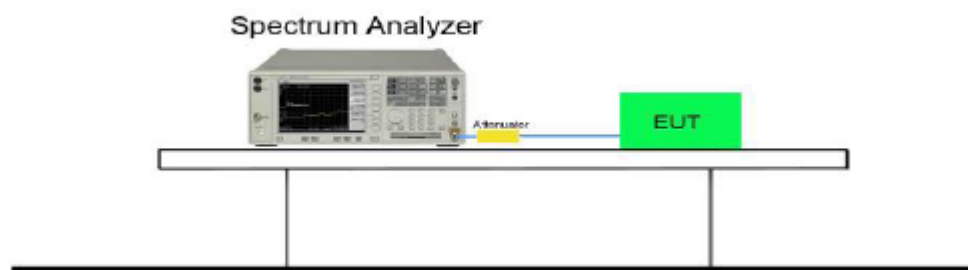
The equipment met the requirement of this clause.

3.6 TX Transient

3.6.1 Test Condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.6.2 Test Setup



3.6.3 Limit

Transmitter transient power is power falling into frequencies other than the operating channel as a result of the transmitter being switched on and off.

The transient power shall not exceed the values given in below table.

Table: Transmitter Transient Power limits

Absolute offset from centre frequency	RBW_{REF}	Peak power limit applicable at measurement points
≤ 400 kHz	1 kHz	0 dBm
> 400 kHz	1 kHz	-27 dBm

3.6.4 Test Result

CH161 434.0525MHz								
Item	Freq (MHz)	Offset from Freq (MHz)	Test Freq (MHz)	Reading (dBm)	RBWref / RBWmeas (kHz)	Correct Factor (dB)	Measured (dBm)	Limit (dBm)
Offset 1	434.0525	-12,5 kHz or -OCW	434.0400	13.388	1 / 30	-17	-3.612	0
Offset 2	434.0525	-0.5*OCW-400kHz	433.6469	-45.420	1 / 100	-20	-65.420	-27
Offset 3	434.0525	-0.5*OCW-1200kHz	432.8469	-53.606	1 / 300	-24.8	-78.406	-27
Offset 4	434.0525	+12,5 kHz or +OCW	434.0650	13.526	1 / 30	-17	-3.474	0
Offset 5	434.0525	+0.5*OCW+400kHz	434.4638	-45.945	1 / 100	-20	-65.945	-27
Offset 6	434.0525	+0.5*OCW+1200kHz	435.2581	-54.934	1 / 300	-24.8	-79.734	-27

CH219 434.7775MHz								
Item	Freq (MHz)	Offset from Freq (MHz)	Test Freq (MHz)	Reading (dBm)	RBWref / RBWmeas (kHz)	Correct Factor (dB)	Measured (dBm)	Limit (dBm)
Offset 1	434.7775	-12,5 kHz or -OCW	434.7650	13.411	1 / 30	-17	-3.589	0
Offset 2	434.7775	-0.5*OCW-400kHz	434.3718	-45.544	1 / 100	-20	-65.544	-27
Offset 3	434.7775	-0.5*OCW-1200kHz	433.5718	-53.836	1 / 300	-24.8	-78.636	-27
Offset 4	434.7775	+12,5 kHz or +OCW	434.7900	13.747	1 / 30	-17	-3.253	0
Offset 5	434.7775	+0.5*OCW+400kHz	435.1889	-45.955	1 / 100	-20	-65.955	-27
Offset 6	434.7775	+0.5*OCW+1200kHz	435.9832	-55.185	1 / 300	-24.8	-79.985	-27

3.6.5 Result

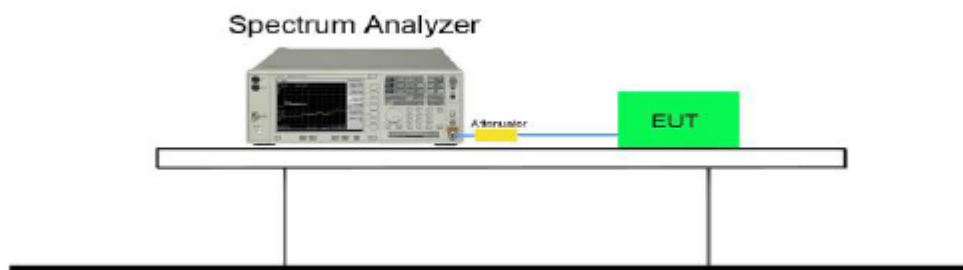
The equipment met the requirement of this clause.

3.7 TX Adjacent Channel Power

3.7.1 Test Condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.7.2 Test Setup



3.7.3 Limit

Automatic/Adaptive Power Control (APC) modifies the power transmitted by a device when communicating with a neighbour device. APC requires bi-directional communications to exchange information used to manage the transmitted power level.

Adaptive power control applies to all EUT with adaptive power control using annex C band AA.

Table C.1 National Radio Interfaces not EU wide harmonised

Operational Frequency Band	Maximum effective radiated power, e.r.p.	Maximum occupied bandwidth
AA 870,000 MHz to 875,800 MHz	500 mW e.r.p. restricted to vehicle-to-vehicle applications. 100 mW e.r.p. is restricted to in-vehicle applications.	500 kHz
Note: Adaptive Power Control (APC) is required. The APC is able to reduce a link's transmit power from its maximum to ≤ 5 mW.		

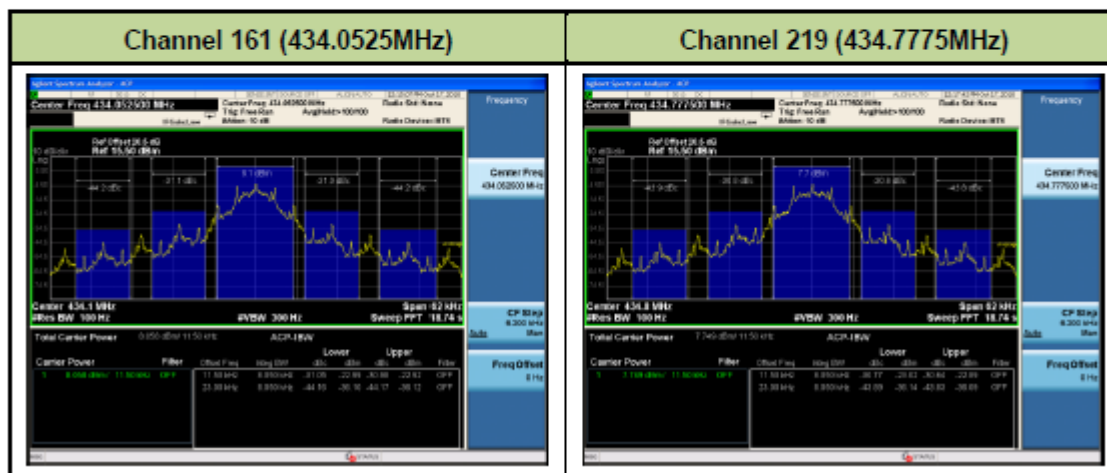
The peak power measured when active APC function at its minimum setting shall not exceed the value shown in below table.

Table: APC power limit

Parameter	Limit
Transmitted e.r.p.	+7 dBm

3.7.4 Test Result

Test Freq (MHz)	Adjacent Channel power Measured (dBm)	Adjacent Channel power integrated over 0,7 x OCW Limit (dBm)	Alternate Adjacent Channel power Measured (dBm)	Alternate Adjacent Channel power integrated over 0,7 x OCW (dBm)
434.0525	-22.99	-20	-36.10	-20
434.7775	-23.02		-36.14	



3.7.5 Result

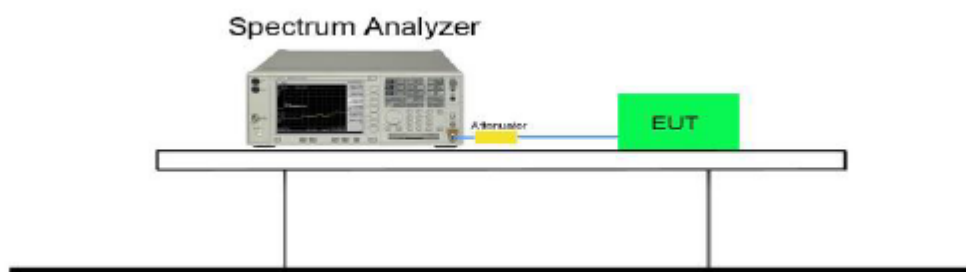
The equipment met the requirement of this clause.

3.8 TX behaviour under low voltage conditions

3.8.1 Test Condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.8.2 Test Setup



3.8.3 Limit

TX behaviour under low voltage condition applies to battery powered EUT.

The equipment shall either:

- remain in the Operating Channel OC without exceeding any applicable limits (e.g. Duty Cycle); or
 - reduce its effective radiated power below the Spurious Emission limits without exceeding any applicable limits (e.g. Duty Cycle); or
 - shut down, (ceasing function);
- as the voltage falls below the manufacturers declared operating voltage.

3.8.4 Test Result

Frequency Stability under lowest voltage	Note
DC 3V	PASS
DC 2.5V	PASS
DC 2V	PASS
DC 1.5V	Shut Down

3.8.5 Result

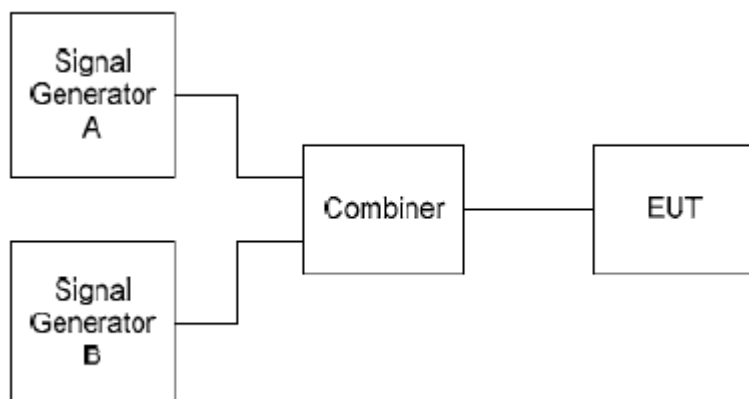
The equipment met the requirement of this clause.

3.9 RX blocking

3.9.1 Test Condition

Date of testing:	Oct 11, 2018~Dec 5, 2018
Transmitting frequency:	434MHz
Test Mode:	Mode 1 & Mode 2
Atmospheric pressure	100.8kPa
Ambient temperature:	25°C
Relative humidity:	60%

3.9.2 Test Setup



3.9.3 Limit

Table: Blocking level parameters for RX category 2

Requirement	Limits
	Receiver category 2
Blocking at ± 2 MHz from OC edge f_{high} and f_{low}	≥ -89 dBm
Blocking at ± 10 MHz from OC edge f_{high} and f_{low}	≥ -44 dBm
Blocking at ± 5 % of Centre Frequency or 15 MHz, whichever is the greater	≥ -44 dBm

3.9.4 Test Result

Blocking Test Data (Category 2)				
434.0525MHz				
Requirement	Test Freq (MHz)	Signal Generator A (Output power) (dBm)	blocking power level Limit (dBm)	Test Results
Blocking at ± 2 MHz from OC edge f_{high} and f_{low}	432.0525	-108	-69	Pass
	436.0525			Pass
Blocking at ± 10 MHz from OC edge f_{high} and f_{low}	424.0525	-108	-44	Pass
	444.0525			Pass
Blocking at ± 5 % of Centre Frequency or 15 MHz, whichever is the greater	412.3499	-108	-44	Pass
	455.7551			Pass
Note1: 434.0525MHz * 0.05 (5%) = 21.702625MHz > 15MHz				
Note2: Signal generator A is the minimum level which gives the wanted performance criterion of EUT.				
Note3: Signal generator A is the companion device.				

3.9.5 Result

The equipment met the requirement of this clause.

4 Estimation of Exposure of Human to Electromagnetic Fields

Client: Shun Hu Technology Co., Ltd.

Address: No. 21, Zhonggong Rd., Xihu Township, Changhua County 514, Taiwan

Product Description: Radio remote control transmitter

Manufacturers Model No.: K xy series, K202, K400, K402, K404, K600, K602, K604, K606, K800, K802, K804, K806, K808

The product: Radio remote control transmitter, Model(s): K xy series, K202, K400, K402, K404, K600, K602, K604, K606, K800, K802, K804, K806, K808, have an operation frequency of 434MHz and a transmitted power of 8.05dBm.

According with EN 62479: 2010, clause 4.2, Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level P_{max}. The peak output power mounted RF receiver is 6.38mW; it is less than the limit 20mW which list in the table A1, so the equipment complies with EMF basic restrictions in EN 62479: 2010.

5 Photographs of EUT

External

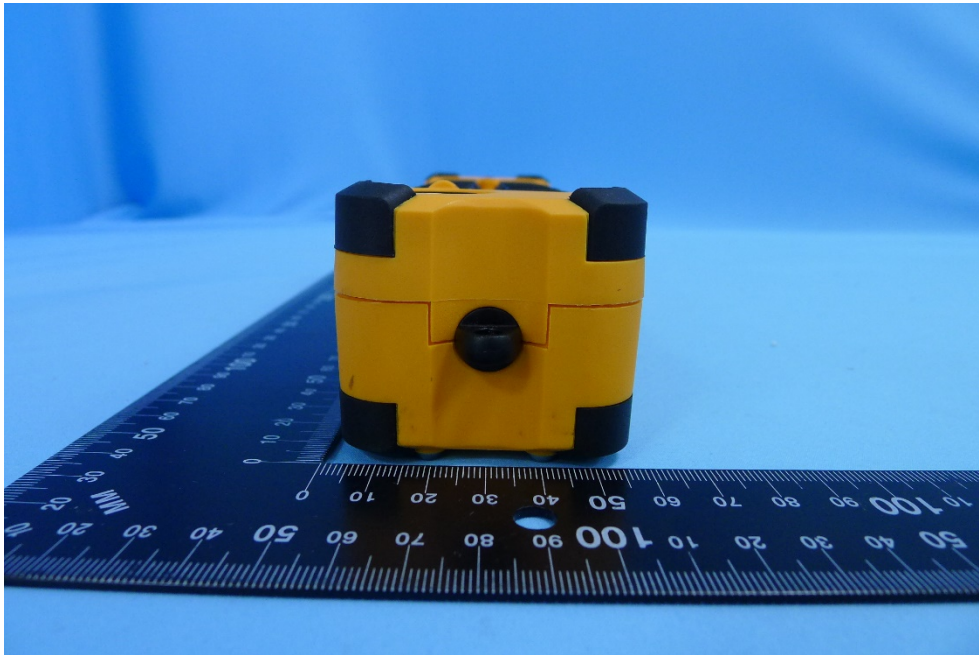
(1) EUT Photo



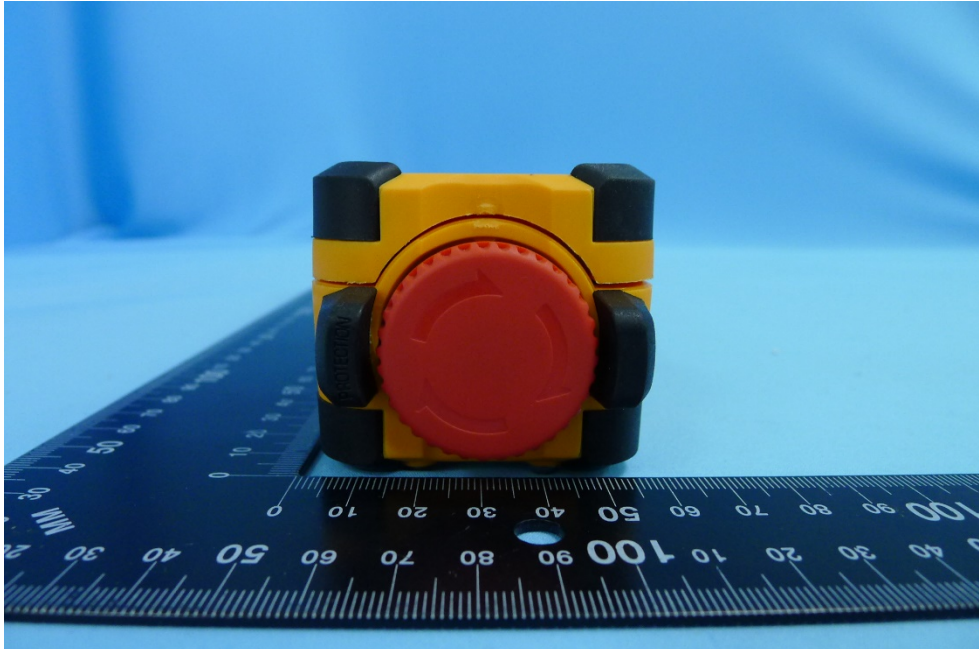
(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



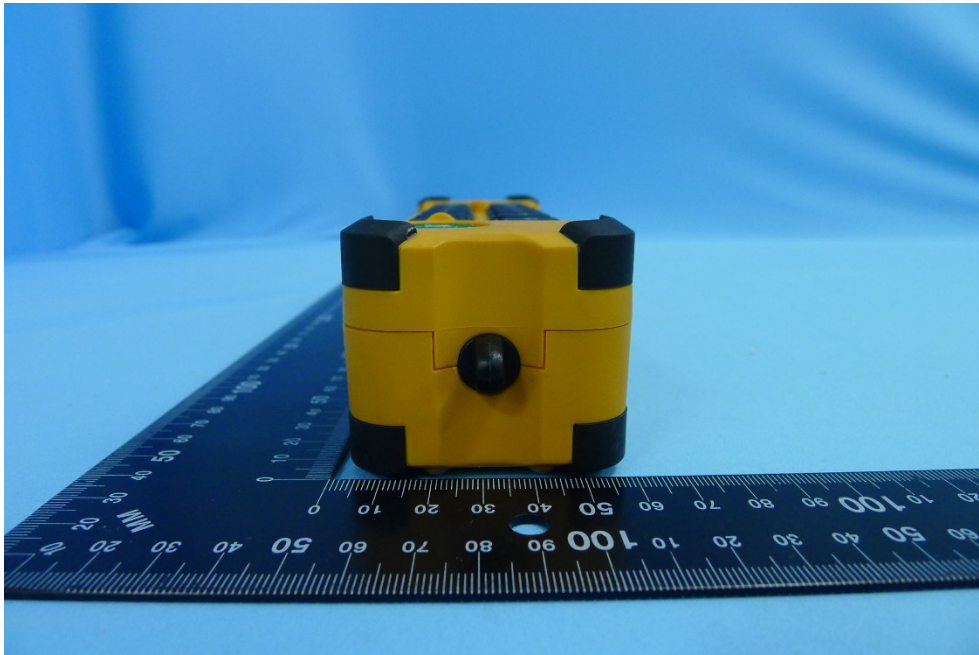
(7) EUT Photo



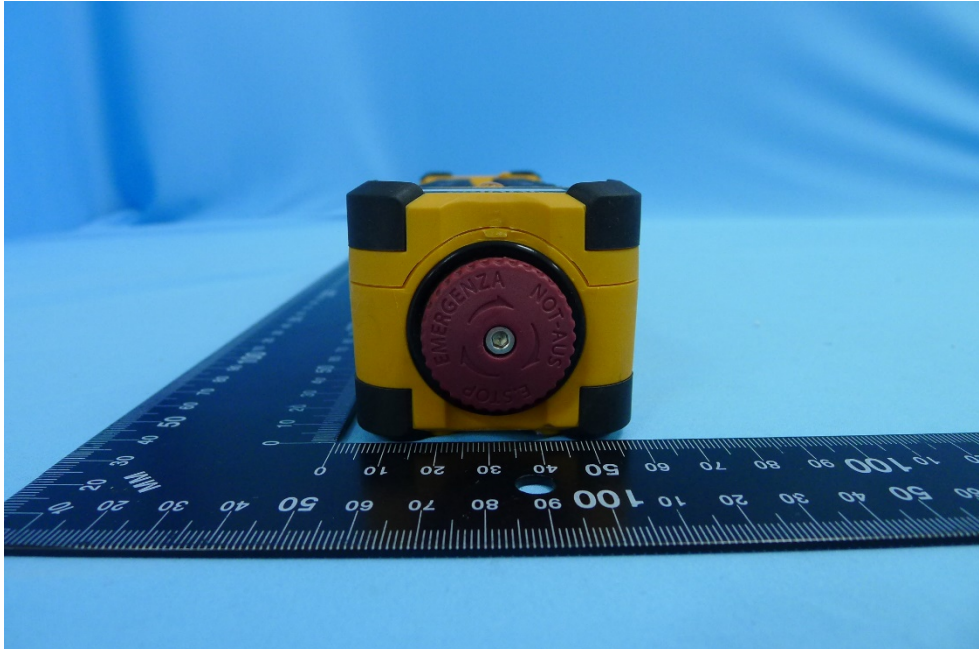
(8) EUT Photo



(9) EUT Photo



(10) EUT Photo



(11) EUT Photo

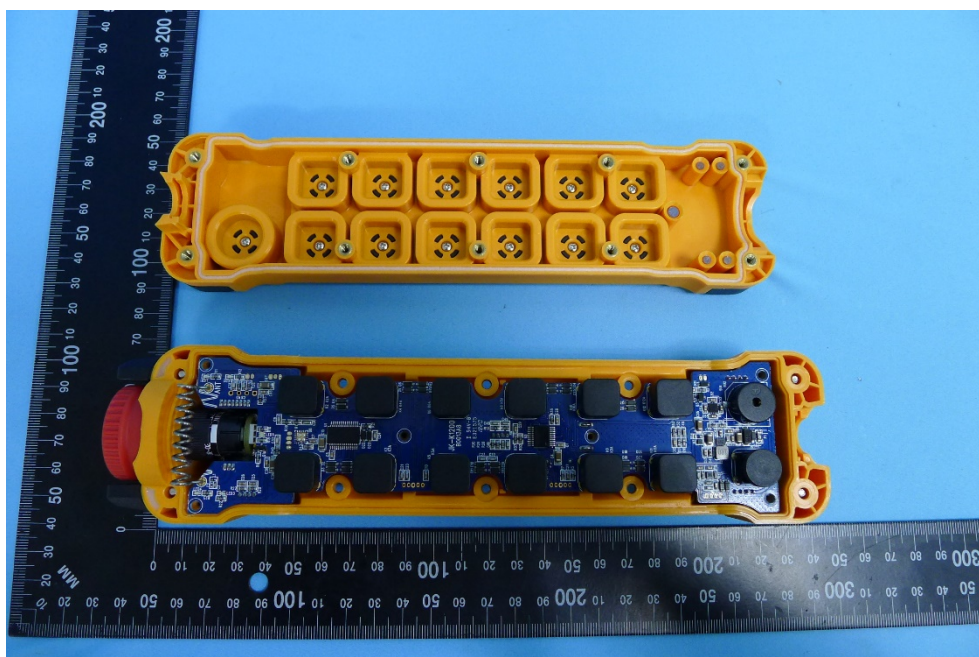


(12) EUT Photo

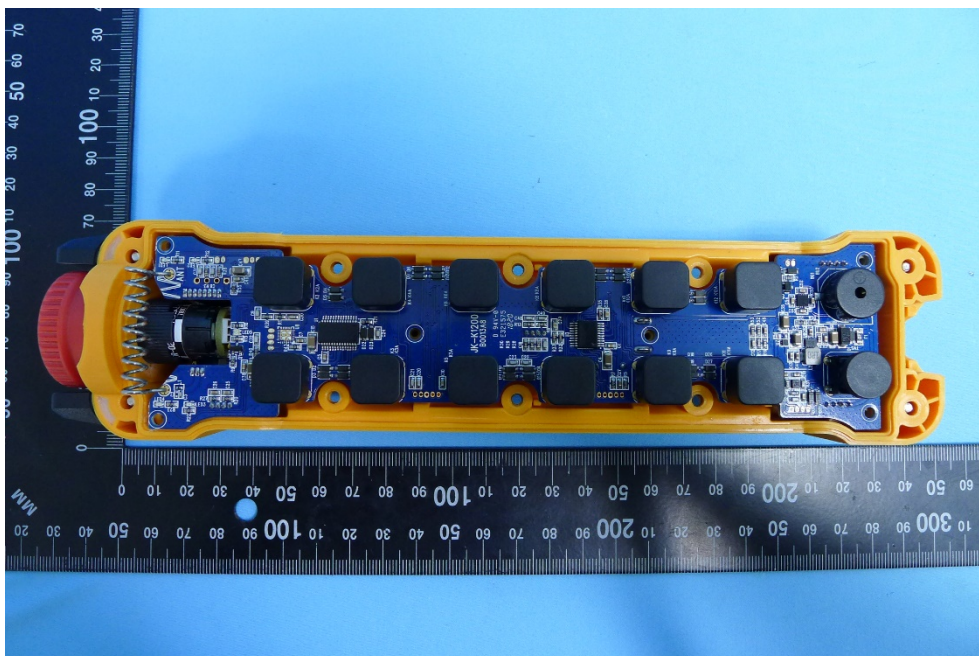


Internal

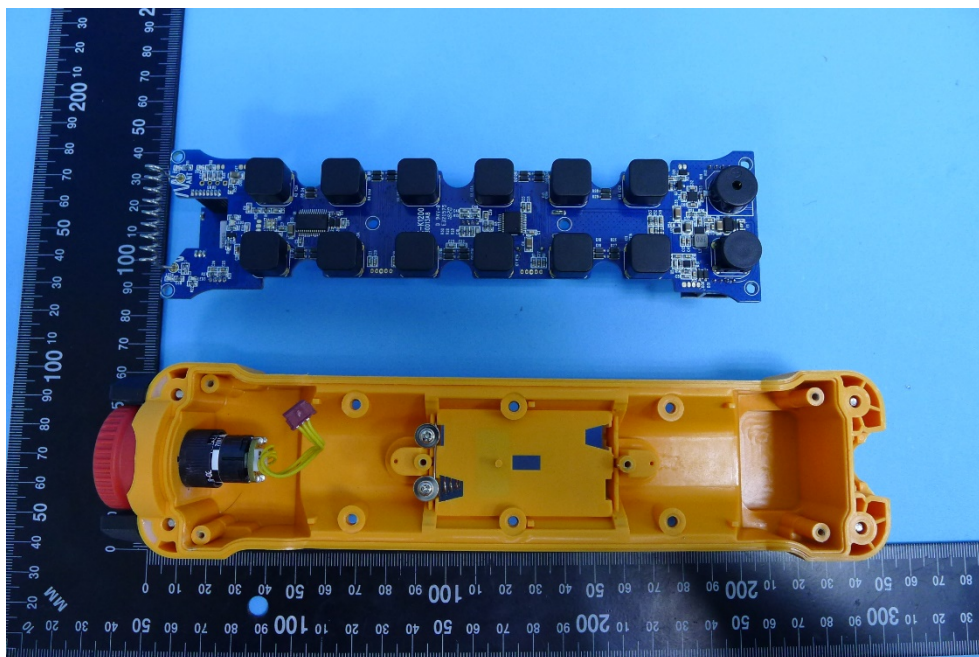
(1) EUT Photo



(2) EUT Photo



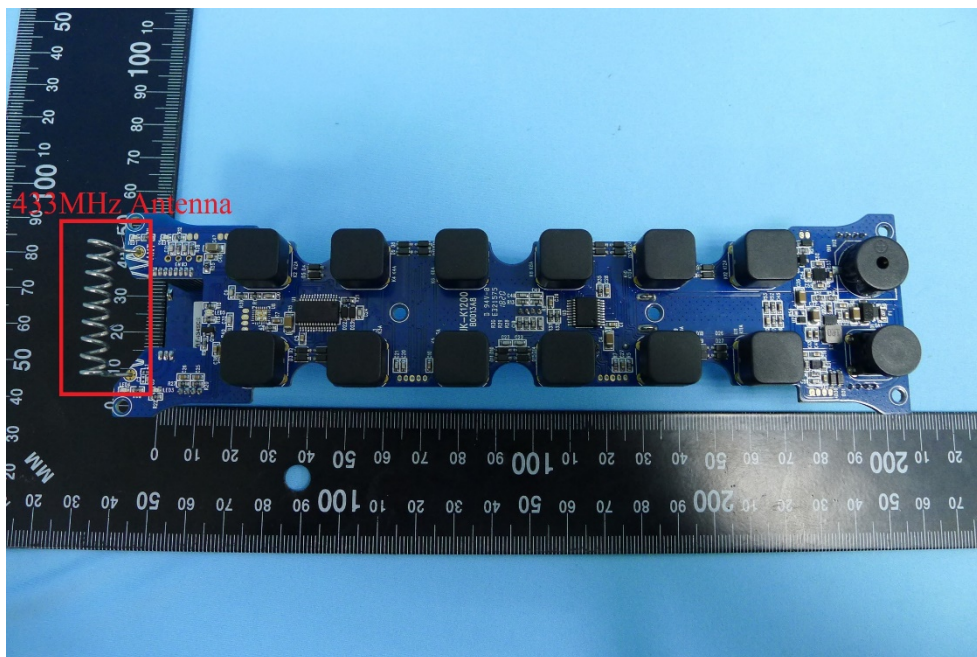
(3) EUT Photo



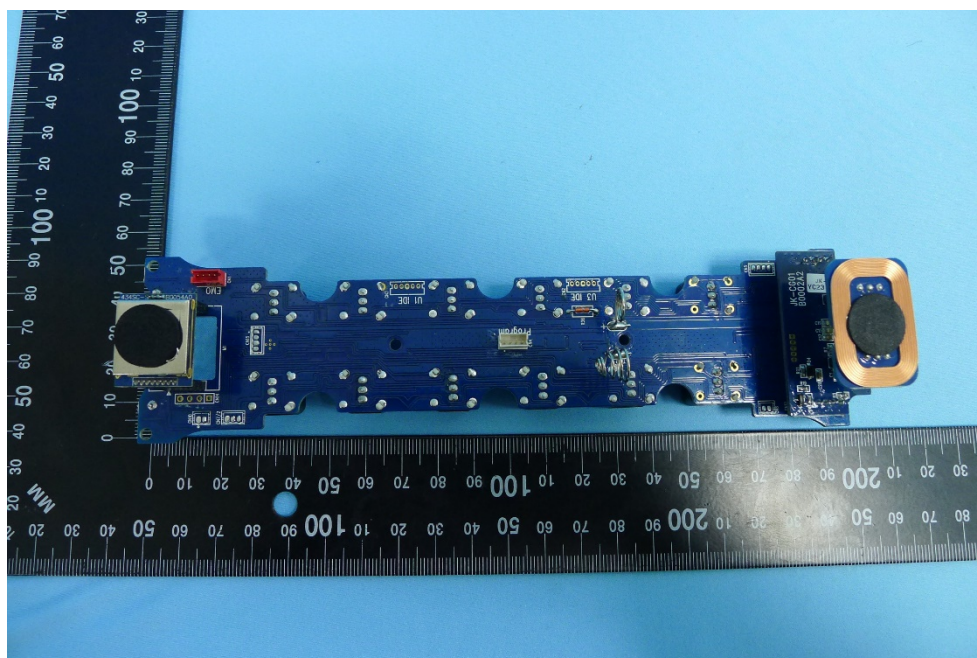
(4) EUT Photo



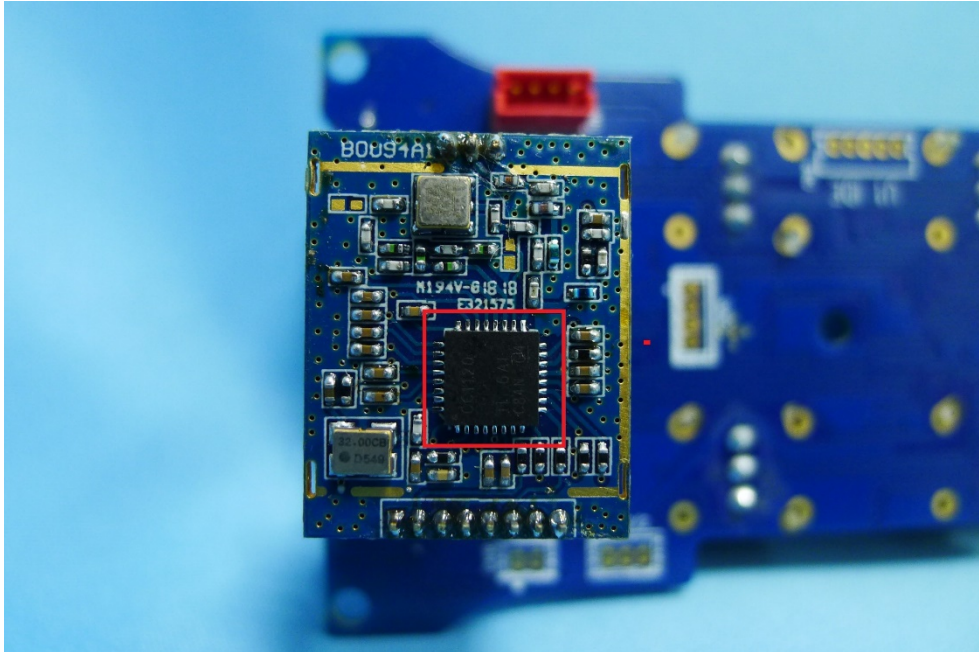
(5) EUT Photo



(6) EUT Photo



(7) EUT Photo



6 Test Setup Photo

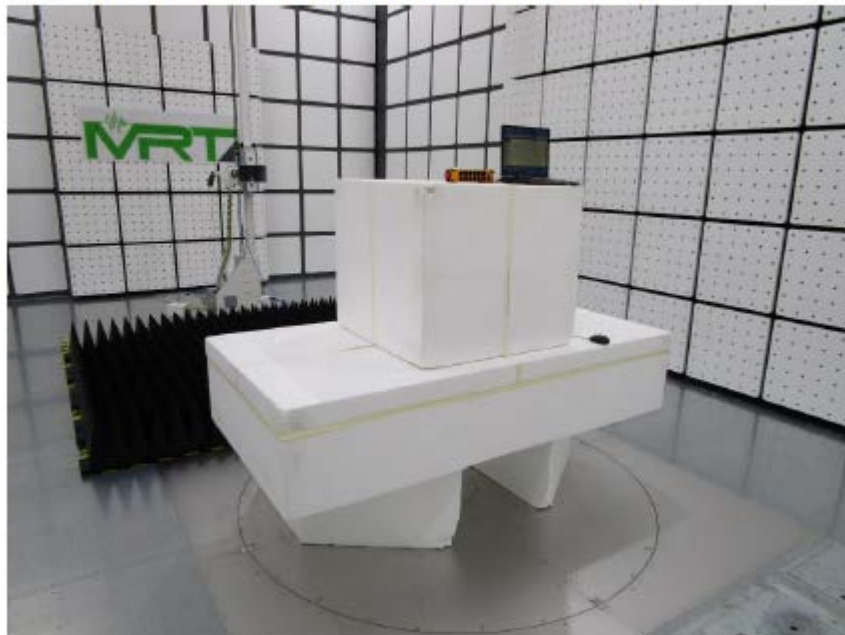
Test Mode: Mode 1 ~ 2

Description: Radiated Emission Test Setup for below 1GHz



Test Mode: Mode 1 ~ 2

Description: Radiated Emission Test Setup for above 1GHz



Test Mode: Mode 1 ~ 2

Description: Conducted Test Setup

