

TEST REPORT

Product Name : Remote control
Brand Name : LEDVANCE, SYLVANIA
Model : TSREMOTE
Series Model : N/A
FCC ID : 2AKGT-42644
Applicant : **LEDVANCE LLC**
Address : 181 Ballardvale Street, Suite 203, Wilmington Massachusetts
01887, United States.
Manufacturer : **LEDVANCE LLC**
Address : 181 Ballardvale Street, Suite 203, Wilmington Massachusetts
01887, United States.
Standard(s) : FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of Receipt : Jan. 26, 2026
Date of Test : Jan. 26, 2026 ~ Jan. 28, 2026
Issued Date : Jan. 28, 2026

Issued By: **Guangdong Asia Hongke Test Technology Limited**

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Reviewed by: 
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Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Guangdong Asia Hongke Test Technology Limited. If there is a need to alter or revise this document, the right belongs to Guangdong Asia Hongke Test Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.

Guangdong Asia Hongke Test Technology Limited

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.



Report Revise Record

Report Version	Issued Date	Notes
M0	Jan. 28, 2026	Initial Release

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

[ANSI C63.10: 2020](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB558074 D01 15.247 Meas Guidance v05r02](#): Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules

1.2 Test Summary

Test Item	Section in 47 CFR	Result
Antenna requirement	§15.203	Pass
On Time and Duty Cycle	/	/
AC Power Line Conducted Emission	§ 15.207(a)	N/A
Conducted Peak Output Power	§15.247 (b)(3)	Pass
Channel Bandwidth	§15.247 (a)(2)	Pass
Power Spectral Density	§15.247 (e)	Pass
Transmitter Radiated Spurious Emission	§15.205/15.209	Pass
Restricted Bands	§15.205/15.209	Pass
Conducted Unwanted emissions and Bandedge	§15.205, §15.247(d)	Pass
<i>Note: N/A: Not Applicable</i>		

1.3 Test Facility

Test Laboratory:

Guangdong Asia Hongke Test Technology Limited

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified or accredited by the following organizations:

FCC-Registration No.: 251906 Designation Number: CN1376

Guangdong Asia Hongke Test Technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 31737 CAB identifier: CN0165

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

1.4 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Guangdong Asia Hongke Test Technology Limited's quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Asia Hongke laboratory is reported:

Test	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz $\pm 3.10\text{dB}$	(1)
Radiated Emission	30MHz~1GHz $\pm 3.75\text{dB}$	(1)
Radiated Emission	1GHz~18GHz $\pm 3.88\text{dB}$	(1)
Radiated Emission	18GHz~40GHz $\pm 3.88\text{dB}$	(1)
RF power, conducted	30MHz~6GHz $\pm 0.16\text{dB}$	(1)
RF power density, conducted	$\pm 0.24\text{dB}$	(1)
Spurious emissions, conducted	$\pm 0.21\text{dB}$	(1)
Temperature	$\pm 1^\circ\text{C}$	(1)
Humidity	$\pm 3\%$	(1)
DC and low frequency voltages	$\pm 1.5\%$	(1)
Time	$\pm 2\%$	(1)
Duty cycle	$\pm 2\%$	(1)

The report uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	Remote control
Model/Type reference:	TSREMOTE
Serial Model:	N/A
Power Supply:	DC 3V(CR 2025 Battery)
Hardware Version:	/
Software Version:	/
Sample(s) Status:	AiTSZ-260127004-1(Normal sample) AiTSZ-260127004-2(Engineer sample)
Bluetooth LE:	
Supported type:	1 Mbps (LE 1M PHY), 2 Mbps (LE 2M PHY), 125 kbps (LE Coded PHY, S=8), 500 kbps (LE Coded PHY, S=2)
Modulation:	GFSK
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	PCB antenna
Antenna gain:	3.21dBi
Remark: The above DUT's information was declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

2.3 Description of Test Modes and Test Frequency

There are 40 channels provided to the EUT and Channel 00/19/39 were selected to test.

Operation Frequency List:

Channel	Frequency (MHz)
00	2402
02	2404
03	2406
⋮	⋮
20	2442
⋮	⋮
37	2476
38	2478
39	2480

Note: The line display in grey were the channel selected for testing

Exploratory testing was performed under each mode combination test channel; only the final measurement of the worst combination was made and recorded in this report.

Test case	Exploratory measurement			Final measurement Recorded In Report		
	Mode	Date rate	Channel	Mode	Date rate	Channel
Maximum output power	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest
Power spectral density	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest
-6dB bandwidth	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest
Conducted Spurious Emissions	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest
Conducted Band edge	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Highest
Radiated Band edge	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Highest
Radiated Emissions Above 1GHz	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest
Radiated Emissions Below 1GHz	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Lowest ☒ Middle ☒ Highest	GFSK	LE 1M LE 2M LE S=2 LE S=8	☒ Middle

Power setting during the test:

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters:

Test Software Version	Engineering Mode		
Frequency	2402MHz	2442MHz	2480MHz
BLE_1M	default	default	default
BLE_2M	default	default	default
BLE_S=2	default	default	default
BLE_S=8	default	default	default

2.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Serial No.	Provided by	Other
/	/	/	/	/	/
/	/	/	/	/	/

2.5 Equipment List for the Test

Radiation Emission measurement						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
☒ 1	EMI Measuring Receiver	R&S	ESR	101160	2025.09.23	2026.09.22
☒ 2	Low Noise Pre Amplifier	SCHWARZBECK	BBV 9745	00282	2025.09.23	2026.09.22
☒ 3	Low Noise Pre Amplifier	CESHENG	CSKJLNA231 016A	CSKJLNA23 1016A	2025.09.23	2026.09.22
☒ 4	Spectrum Analyzer	R&S	FSV40	101470	2025.09.23	2026.09.22
☒ 5	Passive Loop	ETS	6512	00165355	2024.08.29	2026.08.28
☒ 6	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9168	01434	2024.08.29	2027.08.28
☒ 7	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2024.08.29	2027.08.28
☒ 8	Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA91703 67	2024.08.28	2027.08.27
☒ 9	6dB Attenuator	JFW	50FPE-006	4360846-94 9-1	2025.09.23	2026.09.22
☒ 10	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A

RF Conducted measurement						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
☒ 1	Spectrum Analyzer	Agilent	N9020A	MY53421570	2025.09.23	2026.09.22
☐ 2	Power Sensor	Agilent	8481A	MY41097697	2025.09.23	2026.09.22
☐ 3	Vector Signal Generator	Agilent	N5182A	MY50143009	2025.09.23	2026.09.22
☐ 4	Analog signal generator	Agilent	E8257	MY51554256	2025.09.23	2026.09.22
☐ 5	Const Temp. & Humidity Chamber	Eastlab	YH-HW-408L	23051109	2025.09.23	2026.09.22
☐ 6	Wideband Radio communication tester	R&S	CMW500	1201.0002K50	2025.09.23	2026.09.22
☒ 7	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	2025.09.23	2026.09.22
☐ 8	RF Test box	TST	TSTPASS	21033016	2025.09.23	2026.09.22
☒ 9	RF Software	TST	TSTPASS	Version 2.0	N/A	N/A
☐ 10	RF Software	Cesheng	WCN Regulary	Ver 25.03.2901	N/A	N/A

Note: ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

3 TEST CONDITIONS AND RESULTS

3.1 Radiated Emissions and Band Edge

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

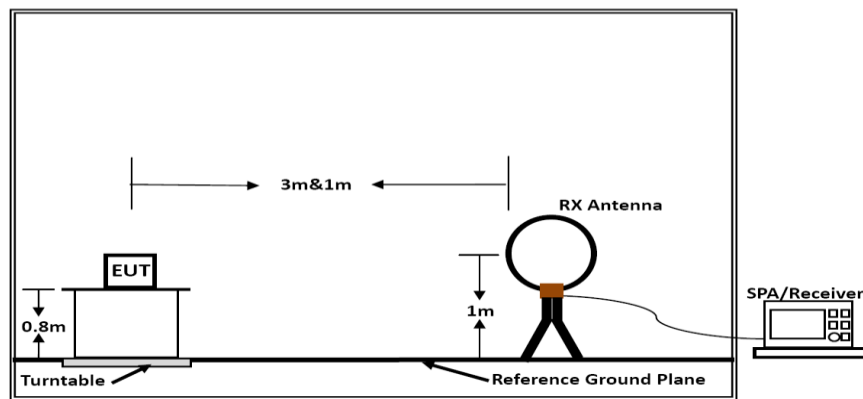
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz})) + 40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz})) + 40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

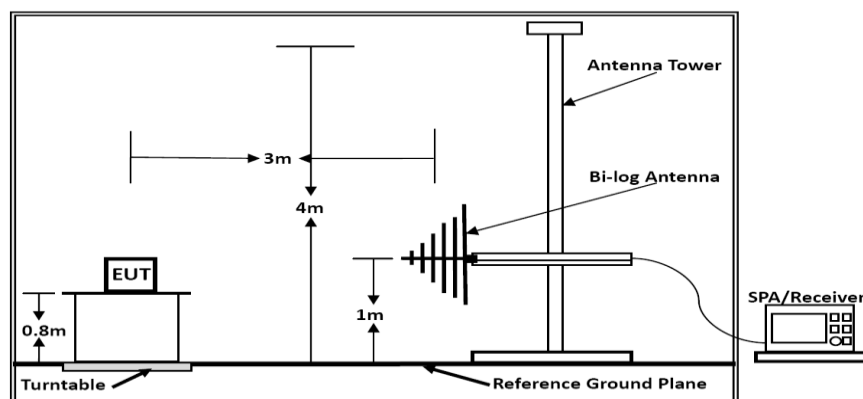
TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



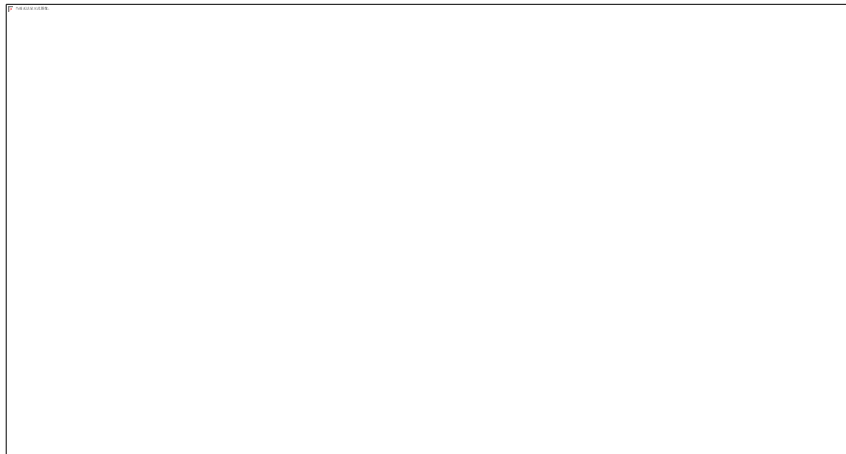
Below 30MHz

(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



Below 1GHz

(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Test Procedure

- Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 25GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

- Setting test receiver/spectrum as following table states:

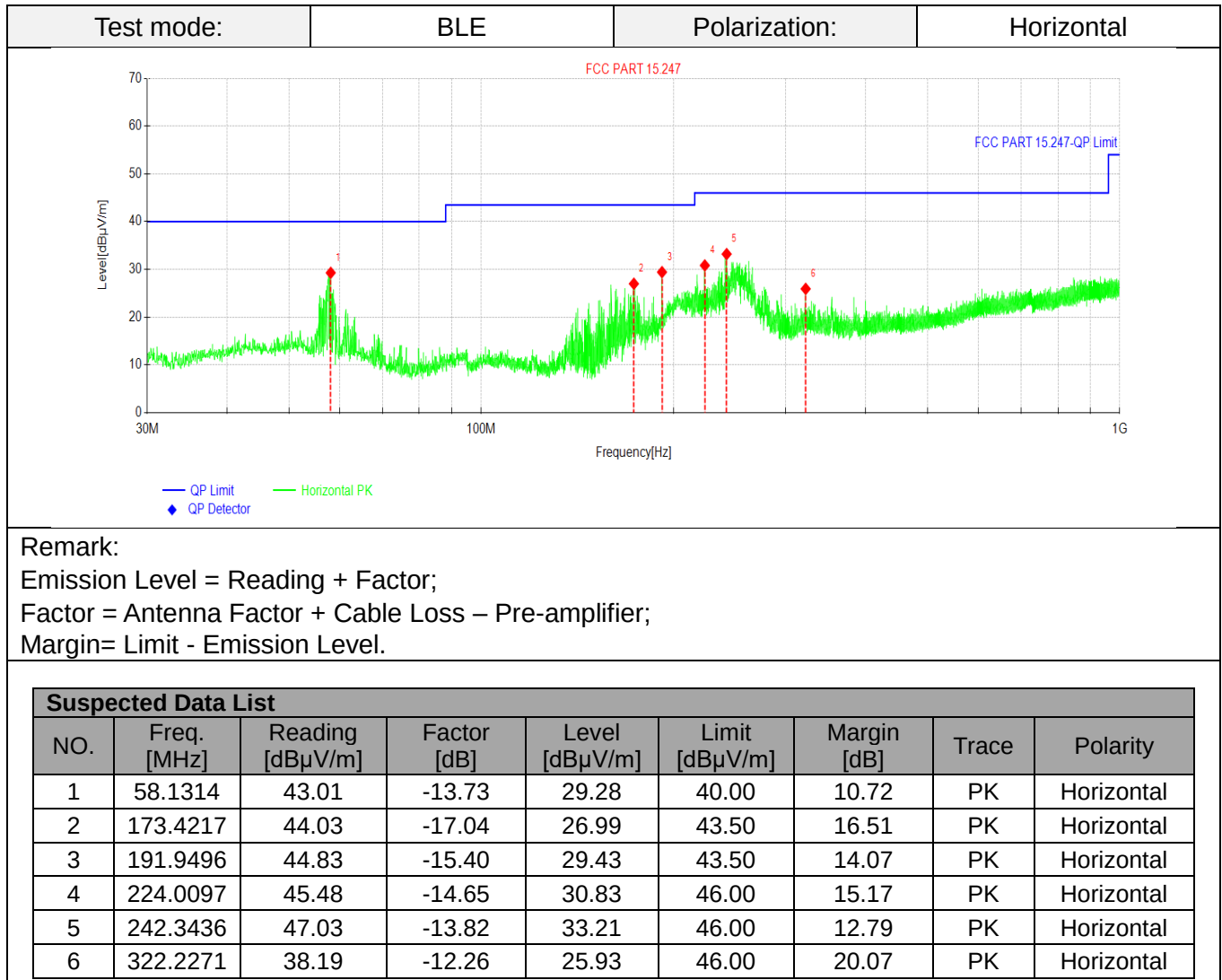
Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

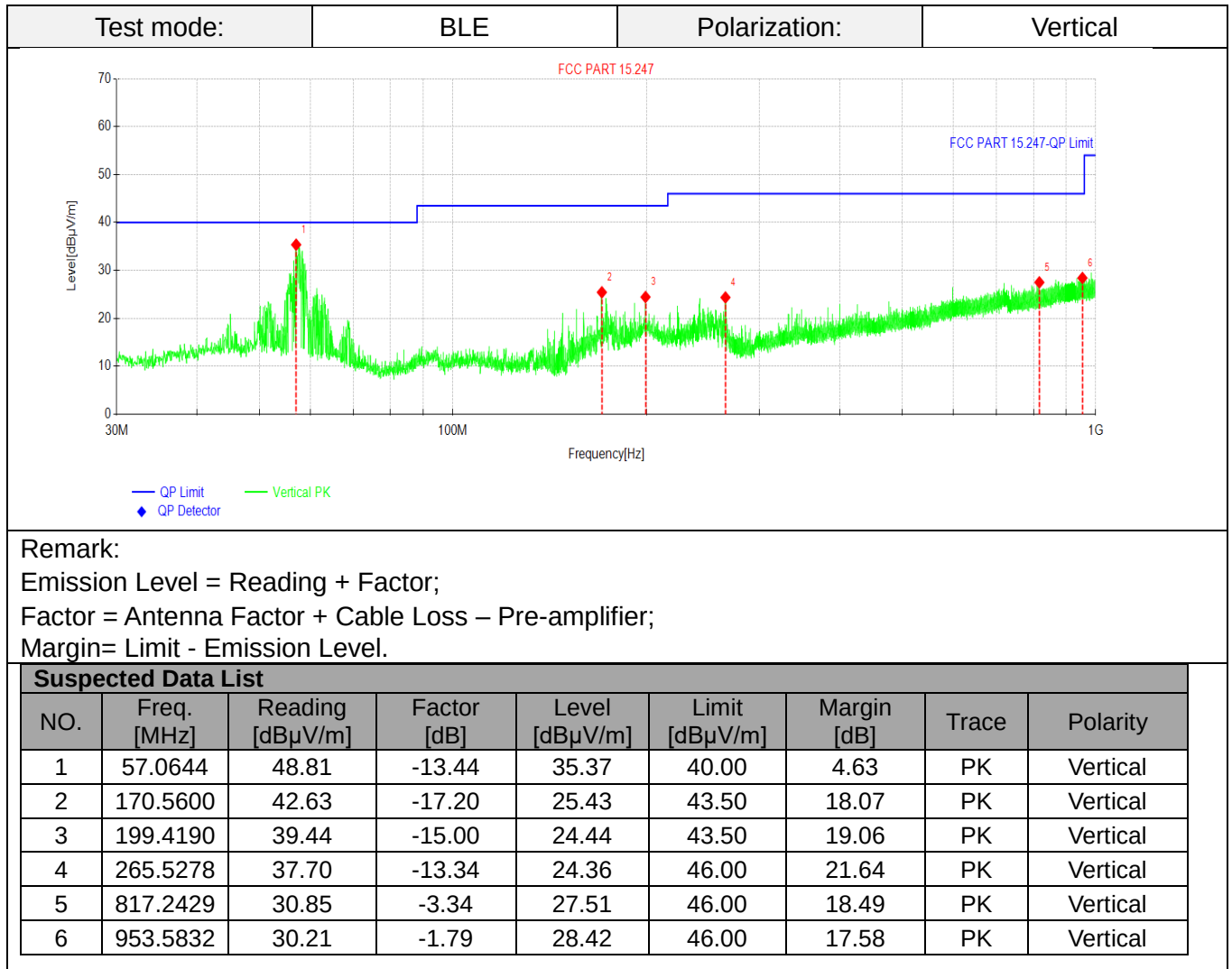
TEST RESULTS

Remark:

- For below 1GHz testing recorded worst at BLE 1M middle channel.
- Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and the emission levels from 9kHz to 30MHz are attenuated 20dB below the limit and not recorded in report.

For 30MHz-1GHz





For 1GHz to 25GHz

BLE Tx (LE 1M PHY)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4804.00	64.48	-7.98	56.50	74.00	17.50	Vertical
4804.00	64.34	-7.98	56.36	74.00	17.64	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4804.00	59.21	-7.98	51.23	54.00	2.77	Vertical
4804.00	59.48	-7.98	51.50	54.00	2.50	Horizontal
Test channel: Middle channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4884.00	64.75	-7.46	57.29	74.00	16.71	Vertical
4884.00	63.89	-7.46	56.43	74.00	17.57	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4884.00	59.05	-7.46	51.59	54.00	2.41	Vertical
4884.00	58.51	-7.46	51.05	54.00	2.95	Horizontal
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4960.00	63.03	-7.00	56.03	74.00	17.97	Vertical
4960.00	64.51	-7.00	57.51	74.00	16.49	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4960.00	58.31	-7.00	51.31	54.00	2.69	Vertical
4960.00	59.79	-7.00	52.79	54.00	1.21	Horizontal
Remark:						
1. Level = Reading + Factor.						
2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						

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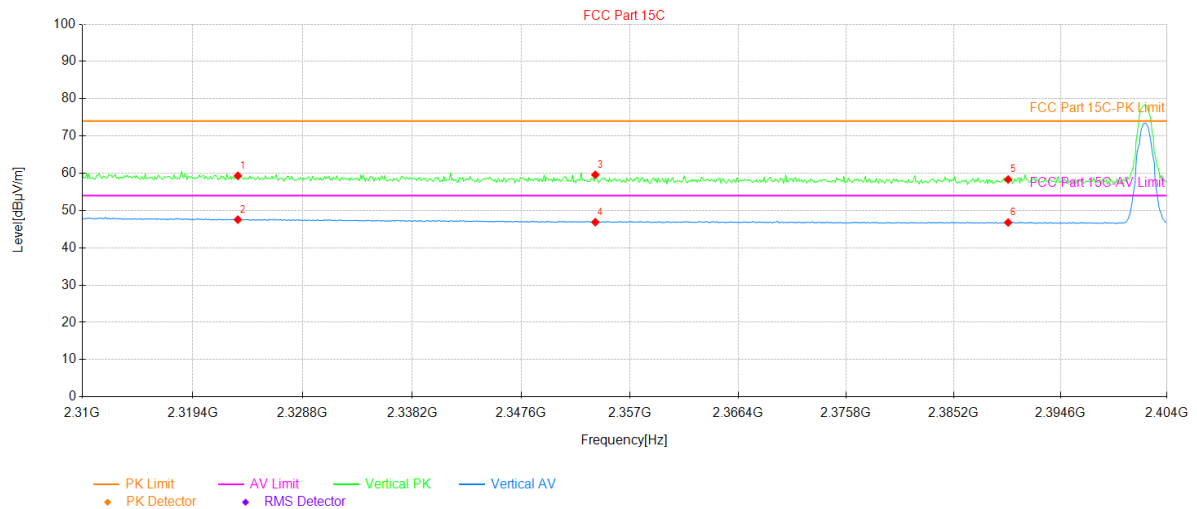
BEL Tx (LE Coded PHY, S=8)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4804.00	64.22	-7.98	56.24	74.00	17.76	Vertical
4804.00	64.11	-7.98	56.13	74.00	17.87	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4804.00	59.12	-7.98	51.14	54.00	2.86	Vertical
4804.00	59.29	-7.98	51.31	54.00	2.69	Horizontal
Test channel: Middle channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4884.00	64.29	-7.46	56.83	74.00	17.17	Vertical
4884.00	63.8	-7.46	56.34	74.00	17.66	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4884.00	59.17	-7.46	51.71	54.00	2.29	Vertical
4884.00	58.09	-7.46	50.63	54.00	3.37	Horizontal
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4960.00	63.46	-7.00	56.46	74.00	17.54	Vertical
4960.00	64.78	-7.00	57.78	74.00	16.22	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dBμV)	Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
4960.00	58.61	-7.00	51.61	54.00	2.39	Vertical
4960.00	59.83	-7.00	52.83	54.00	1.17	Horizontal
Remark: 1. Level = Reading + Factor. 2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						

REMARKS:

- Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Emission level- Limit value.
- Mean the PK detector measured value is below average limit.
- Other emission levels are attenuated 20dB below the limit and not recorded in report.
- RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

Radiation Restricted band

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE 1M PHY)
Test Voltage:	DC 3.0V	Polarization:	Vertical



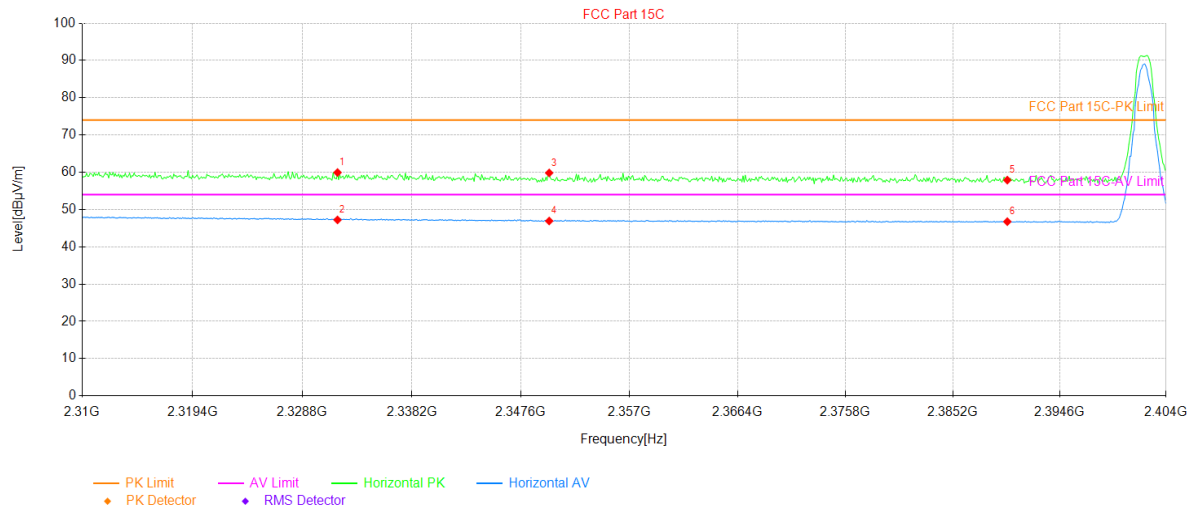
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2323.25	22.97	36.35	59.32	74.00	14.68	68	PK	PASS	Vertical
2	2323.25	11.21	36.35	47.56	54.00	6.44	272	AV	PASS	Vertical
3	2353.99	23.63	35.96	59.59	74.00	14.41	90	PK	PASS	Vertical
4	2353.99	10.92	35.96	46.88	54.00	7.12	221	AV	PASS	Vertical
5	2390.00	22.40	35.93	58.33	74.00	15.67	128	PK	PASS	Vertical
6	2390.00	10.87	35.93	46.80	54.00	7.20	30	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE 1M PHY)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



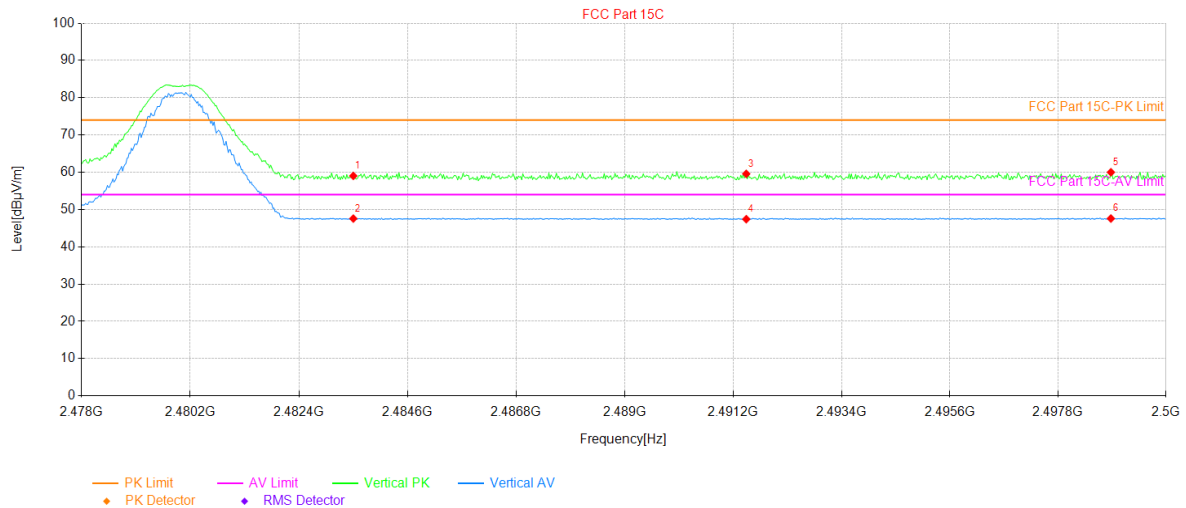
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2331.81	23.72	36.21	59.93	74.00	14.07	341	PK	PASS	Horizontal
2	2331.81	11.01	36.21	47.22	54.00	6.78	17	AV	PASS	Horizontal
3	2350.04	23.86	35.97	59.83	74.00	14.17	164	PK	PASS	Horizontal
4	2350.04	10.96	35.97	46.93	54.00	7.07	21	AV	PASS	Horizontal
5	2390.00	21.97	35.93	57.90	74.00	16.10	55	PK	PASS	Horizontal
6	2390.00	10.83	35.93	46.76	54.00	7.24	349	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE 1M PHY)
Test Voltage:	DC 3.0V	Polarization:	Vertical



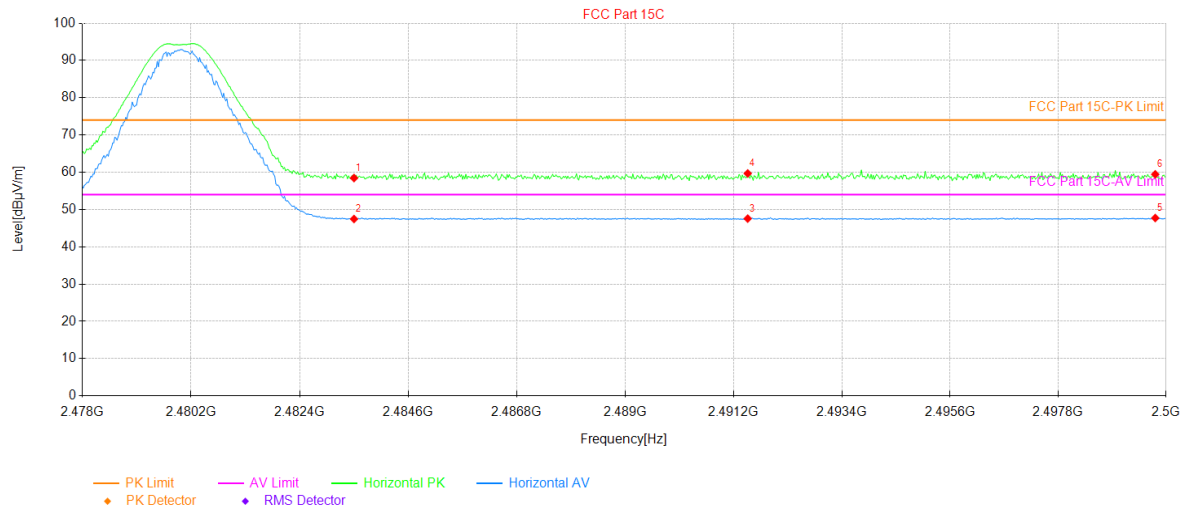
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	22.29	36.74	59.03	74.00	14.97	113	PK	PASS	Vertical
2	2483.50	10.83	36.74	47.57	54.00	6.43	45	AV	PASS	Vertical
3	2491.46	22.82	36.76	59.58	74.00	14.42	139	PK	PASS	Vertical
4	2491.46	10.66	36.76	47.42	54.00	6.58	15	AV	PASS	Vertical
5	2498.88	23.23	36.77	60.00	74.00	14.00	113	PK	PASS	Vertical
6	2498.88	10.82	36.77	47.59	54.00	6.41	173	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE 1M PHY)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



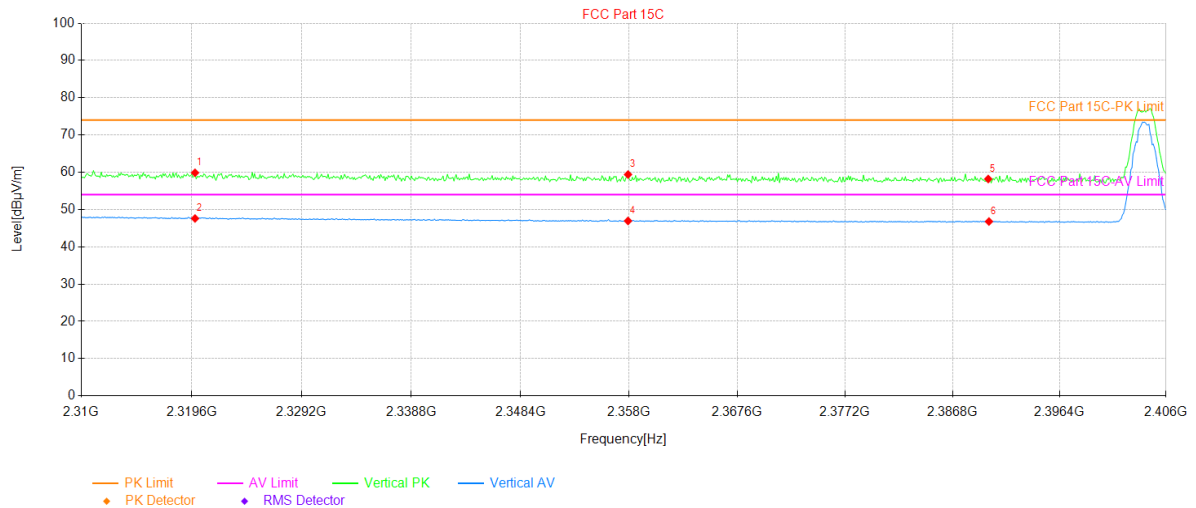
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	21.72	36.74	58.46	74.00	15.54	141	PK	PASS	Horizontal
2	2483.50	10.72	36.74	47.46	54.00	6.54	65	AV	PASS	Horizontal
3	2491.49	10.81	36.76	47.57	54.00	6.43	54	AV	PASS	Horizontal
4	2491.49	22.92	36.76	59.68	74.00	14.32	12	PK	PASS	Horizontal
5	2499.78	10.95	36.78	47.73	54.00	6.27	262	AV	PASS	Horizontal
6	2499.78	22.66	36.78	59.44	74.00	14.56	314	PK	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE 2M PHY)
Test Voltage:	DC 3.0V	Polarization:	Vertical



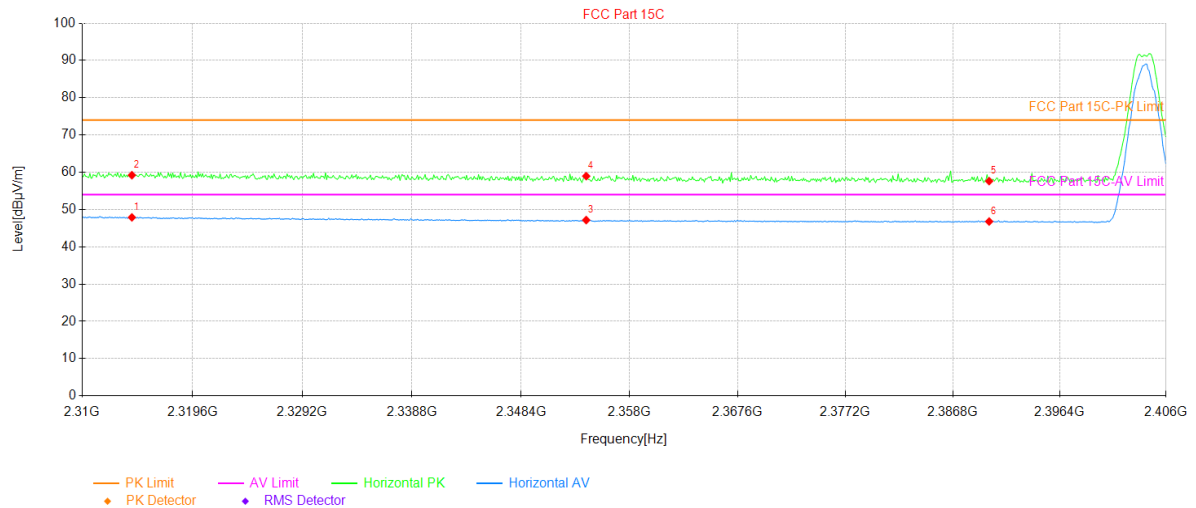
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2319.89	23.46	36.40	59.86	74.00	14.14	189	PK	PASS	Vertical
2	2319.89	11.21	36.40	47.61	54.00	6.39	25	AV	PASS	Vertical
3	2357.90	23.44	35.96	59.40	74.00	14.60	18	PK	PASS	Vertical
4	2357.90	10.99	35.96	46.95	54.00	7.05	341	AV	PASS	Vertical
5	2390.00	22.27	35.93	58.20	74.00	15.80	226	PK	PASS	Vertical
6	2390.06	10.86	35.93	46.79	54.00	7.21	208	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE 2M PHY)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



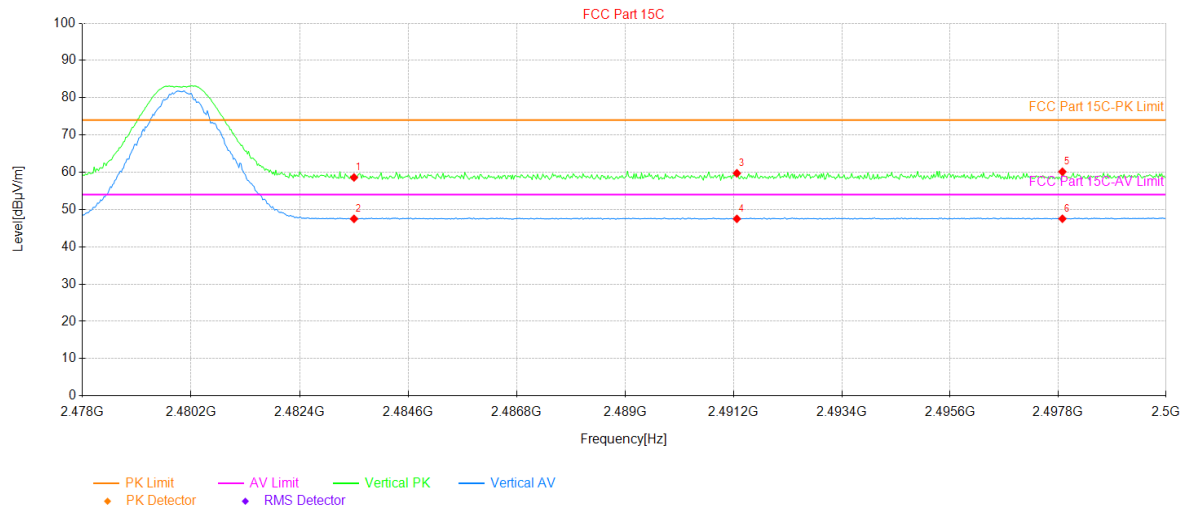
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2314.32	11.40	36.50	47.90	54.00	6.10	187	AV	PASS	Horizontal
2	2314.32	22.72	36.50	59.22	74.00	14.78	41	PK	PASS	Horizontal
3	2354.16	11.21	35.96	47.17	54.00	6.83	232	AV	PASS	Horizontal
4	2354.16	23.00	35.96	58.96	74.00	15.04	258	PK	PASS	Horizontal
5	2390.06	21.70	35.93	57.63	74.00	16.37	236	PK	PASS	Horizontal
6	2390.06	10.86	35.93	46.79	54.00	7.21	37	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE 2M PHY)
Test Voltage:	DC 3.0V	Polarization:	Vertical

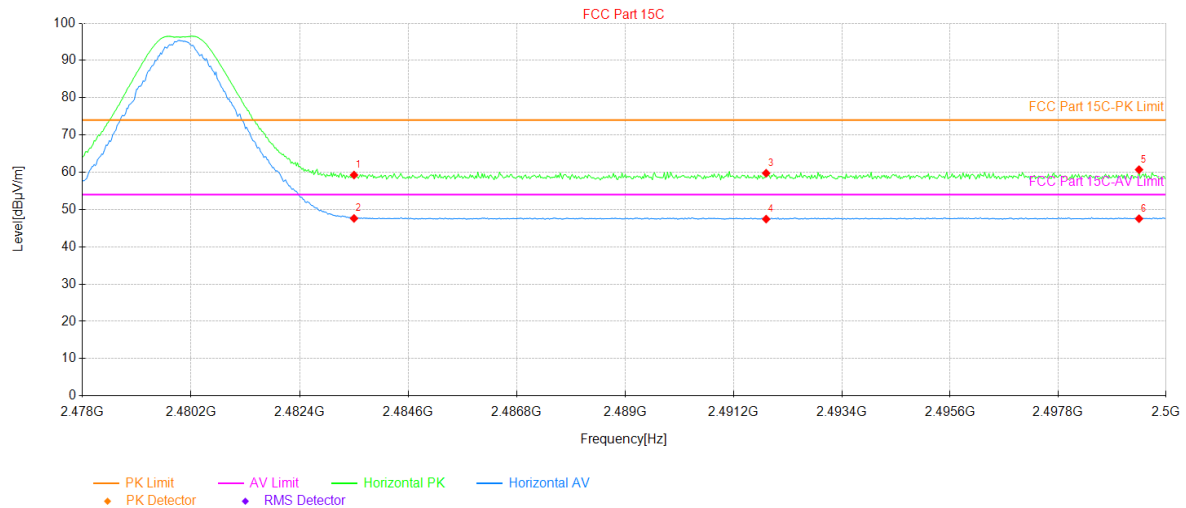


Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	21.87	36.74	58.61	74.00	15.39	24	PK	PASS	Vertical
2	2483.50	10.76	36.74	47.50	54.00	6.50	262	AV	PASS	Vertical
3	2491.27	22.96	36.76	59.72	74.00	14.28	16	PK	PASS	Vertical
4	2491.27	10.74	36.76	47.50	54.00	6.50	307	AV	PASS	Vertical
5	2497.89	23.37	36.77	60.14	74.00	13.86	176	PK	PASS	Vertical
6	2497.89	10.77	36.77	47.54	54.00	6.46	2	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE 2M PHY)
Test Voltage:	DC 3.0V	Polarization:	Horizontal

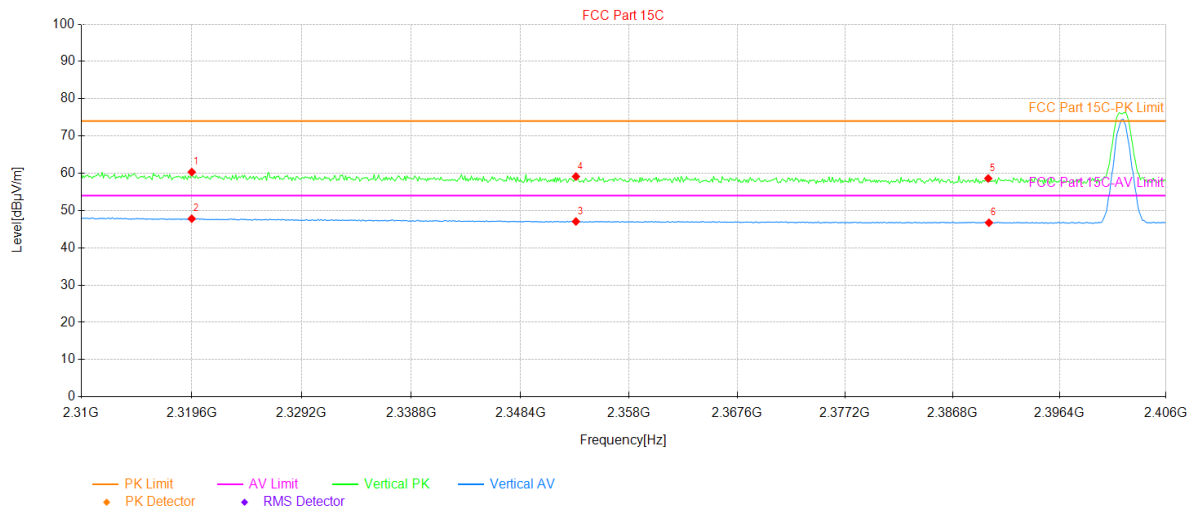


Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	22.52	36.74	59.26	74.00	14.74	360	PK	PASS	Horizontal
2	2483.50	10.88	36.74	47.62	54.00	6.38	355	AV	PASS	Horizontal
3	2491.86	22.99	36.76	59.75	74.00	14.25	325	PK	PASS	Horizontal
4	2491.86	10.68	36.76	47.44	54.00	6.56	284	AV	PASS	Horizontal
5	2499.45	23.92	36.78	60.70	74.00	13.30	108	PK	PASS	Horizontal
6	2499.45	10.77	36.78	47.55	54.00	6.45	8	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE Coded PHY, S=2)
Test Voltage:	DC 3.0V	Polarization:	Vertical



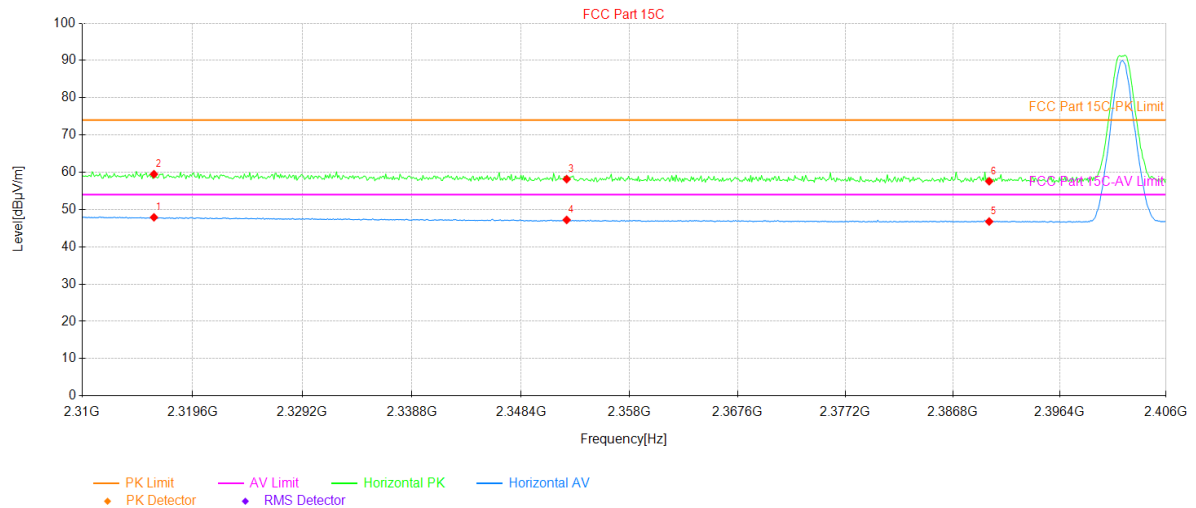
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2319.60	23.91	36.41	60.32	74.00	13.68	20	PK	PASS	Vertical
2	2319.60	11.40	36.41	47.81	54.00	6.19	0	AV	PASS	Vertical
3	2353.30	11.09	35.97	47.06	54.00	6.94	356	AV	PASS	Vertical
4	2353.30	23.16	35.97	59.13	74.00	14.87	0	PK	PASS	Vertical
5	2390.00	22.69	35.93	58.62	74.00	15.38	0	PK	PASS	Vertical
6	2390.06	10.80	35.93	46.73	54.00	7.27	235	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Pre-amplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE Coded PHY, S=2)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



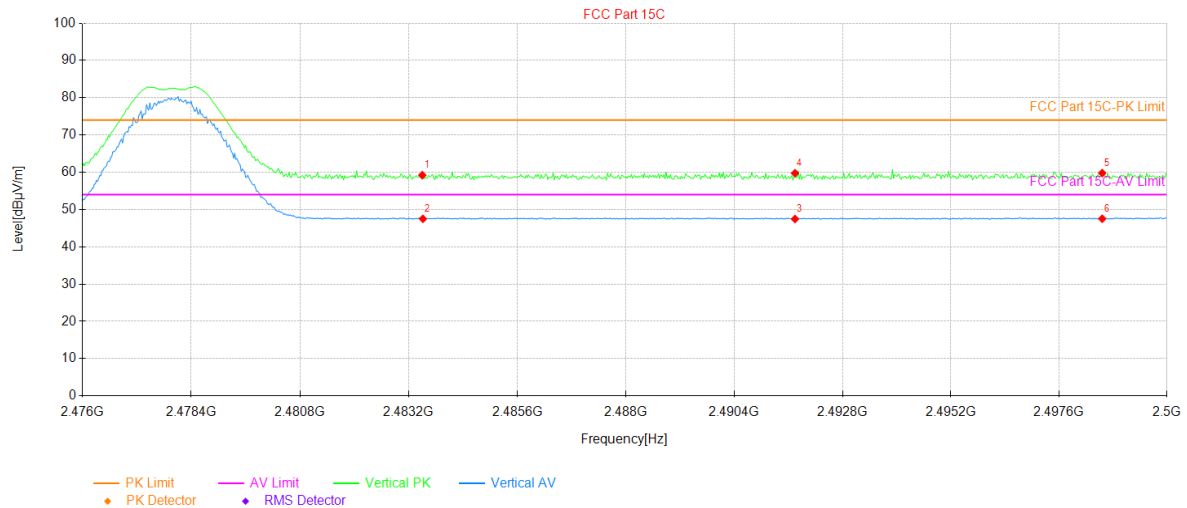
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2316.24	11.44	36.47	47.91	54.00	6.09	34	AV	PASS	Horizontal
2	2316.24	23.01	36.47	59.48	74.00	14.52	105	PK	PASS	Horizontal
3	2352.43	22.19	35.97	58.16	74.00	15.84	298	PK	PASS	Horizontal
4	2352.43	11.24	35.97	47.21	54.00	6.79	221	AV	PASS	Horizontal
5	2390.06	10.85	35.93	46.78	54.00	7.22	117	AV	PASS	Horizontal
6	2390.06	21.66	35.93	57.59	74.00	16.41	72	PK	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE Coded PHY, S=2)
Test Voltage:	DC 3.0V	Polarization:	Vertical



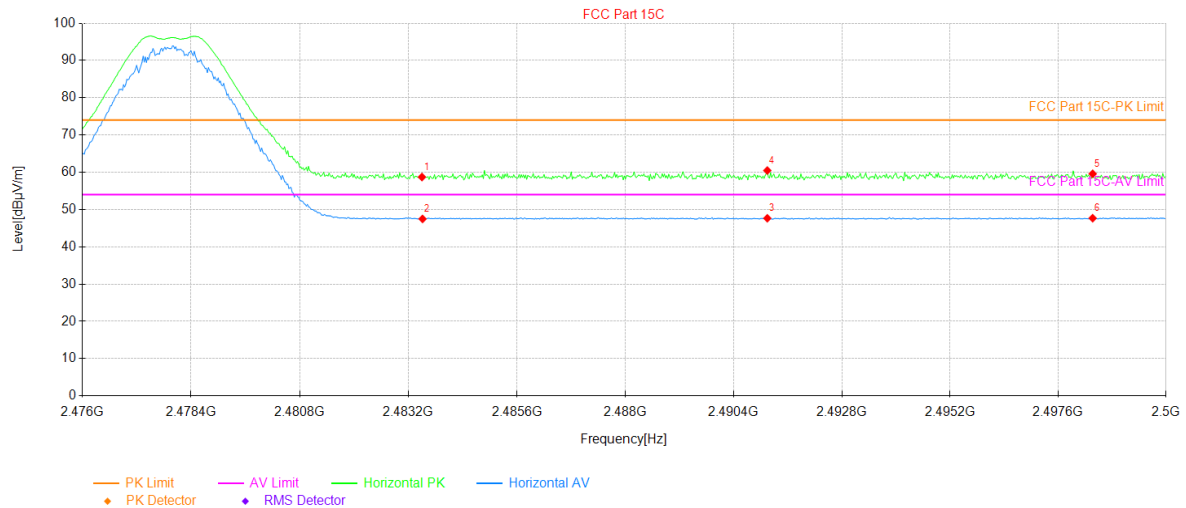
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	22.48	36.74	59.22	74.00	14.78	22	PK	PASS	Vertical
2	2483.51	10.77	36.74	47.51	54.00	6.49	274	AV	PASS	Vertical
3	2491.74	10.71	36.76	47.47	54.00	6.53	142	AV	PASS	Vertical
4	2491.74	22.99	36.76	59.75	74.00	14.25	266	PK	PASS	Vertical
5	2498.56	23.02	36.77	59.79	74.00	14.21	157	PK	PASS	Vertical
6	2498.56	10.77	36.77	47.54	54.00	6.46	352	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE Coded PHY, S=2)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



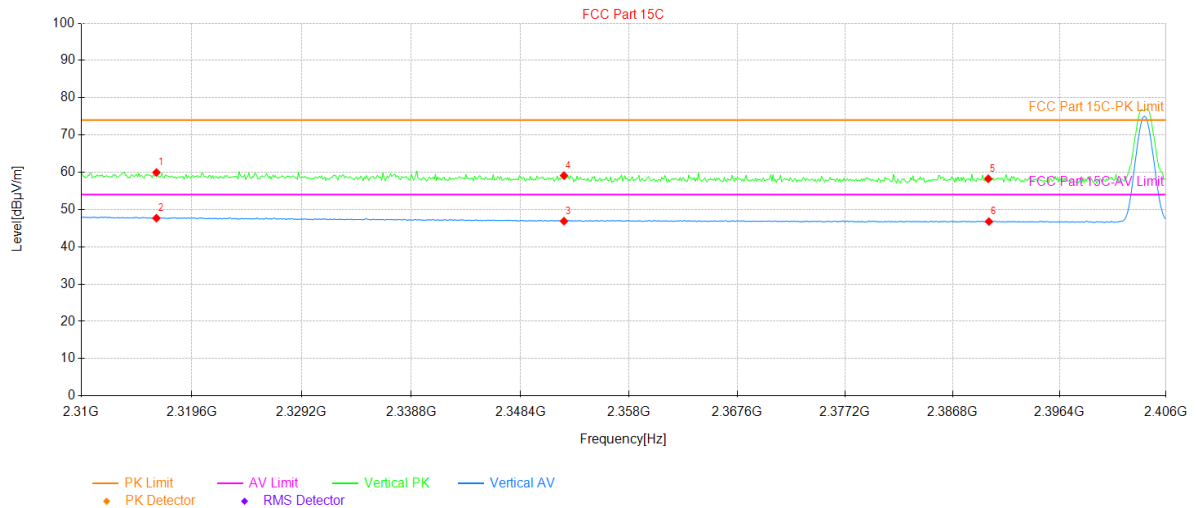
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	21.98	36.74	58.72	74.00	15.28	360	PK	PASS	Horizontal
2	2483.51	10.75	36.74	47.49	54.00	6.51	202	AV	PASS	Horizontal
3	2491.14	10.90	36.76	47.66	54.00	6.34	273	AV	PASS	Horizontal
4	2491.14	23.71	36.76	60.47	74.00	13.53	131	PK	PASS	Horizontal
5	2498.37	22.82	36.77	59.59	74.00	14.41	288	PK	PASS	Horizontal
6	2498.37	10.91	36.77	47.68	54.00	6.32	164	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE Coded PHY, S=8)
Test Voltage:	DC 3.0V	Polarization:	Vertical



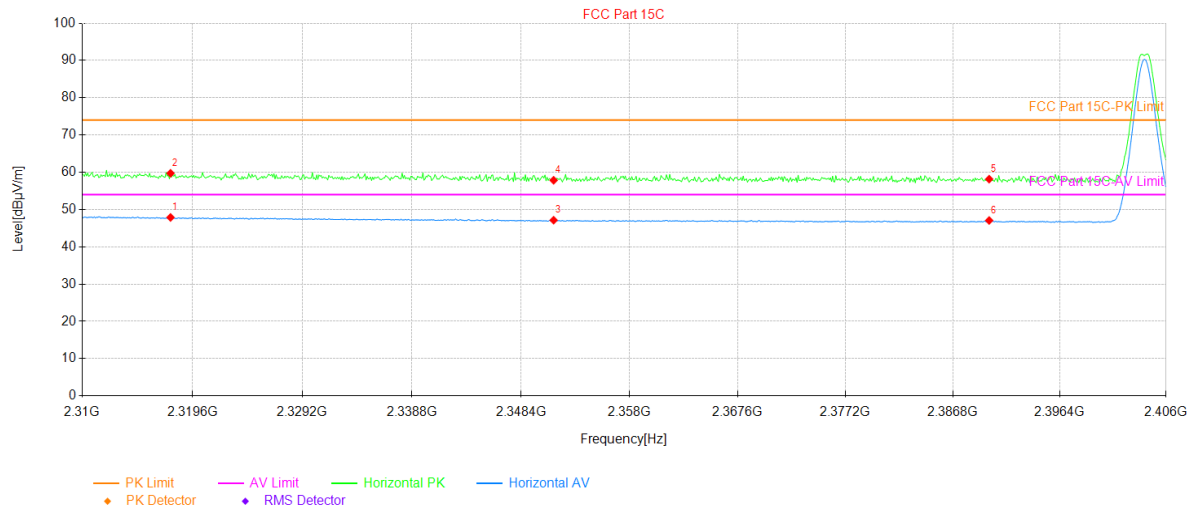
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2316.53	23.47	36.47	59.94	74.00	14.06	199	PK	PASS	Vertical
2	2316.53	11.22	36.47	47.69	54.00	6.31	207	AV	PASS	Vertical
3	2352.24	10.91	35.97	46.88	54.00	7.12	315	AV	PASS	Vertical
4	2352.24	23.13	35.97	59.10	74.00	14.90	16	PK	PASS	Vertical
5	2390.00	22.33	35.93	58.26	74.00	15.74	214	PK	PASS	Vertical
6	2390.06	10.84	35.93	46.77	54.00	7.23	0	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Lowest channel	Test mode:	BLE Tx (LE Coded PHY, S=8)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



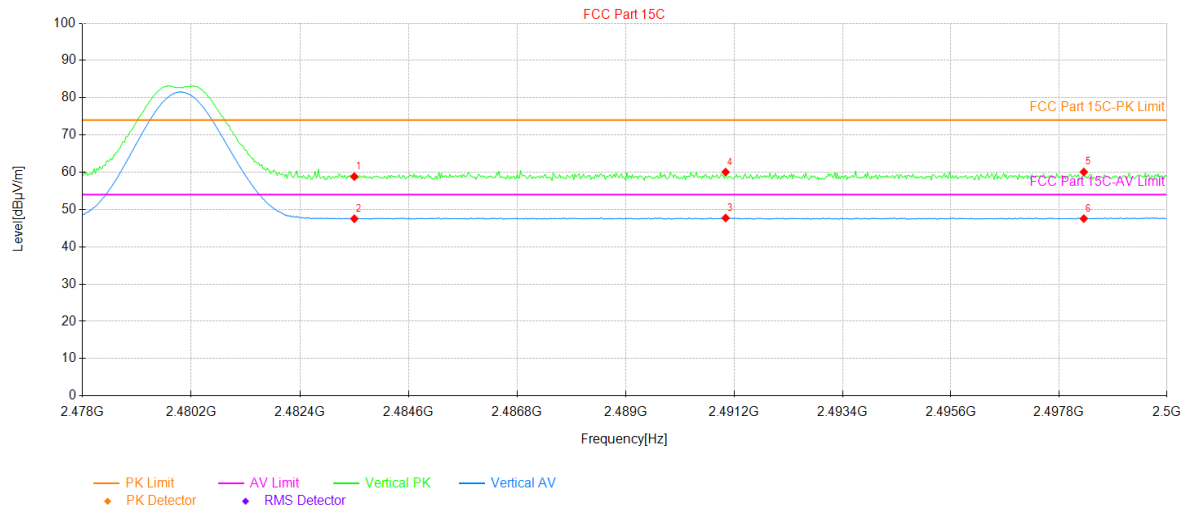
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2317.68	11.43	36.45	47.88	54.00	6.12	113	AV	PASS	Horizontal
2	2317.68	23.27	36.45	59.72	74.00	14.28	288	PK	PASS	Horizontal
3	2351.28	11.18	35.96	47.14	54.00	6.86	46	AV	PASS	Horizontal
4	2351.28	21.89	35.96	57.85	74.00	16.15	358	PK	PASS	Horizontal
5	2390.06	22.23	35.93	58.16	74.00	15.84	162	PK	PASS	Horizontal
6	2390.06	11.14	35.93	47.07	54.00	6.93	244	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE Coded PHY, S=8)
Test Voltage:	DC 3.0V	Polarization:	Vertical



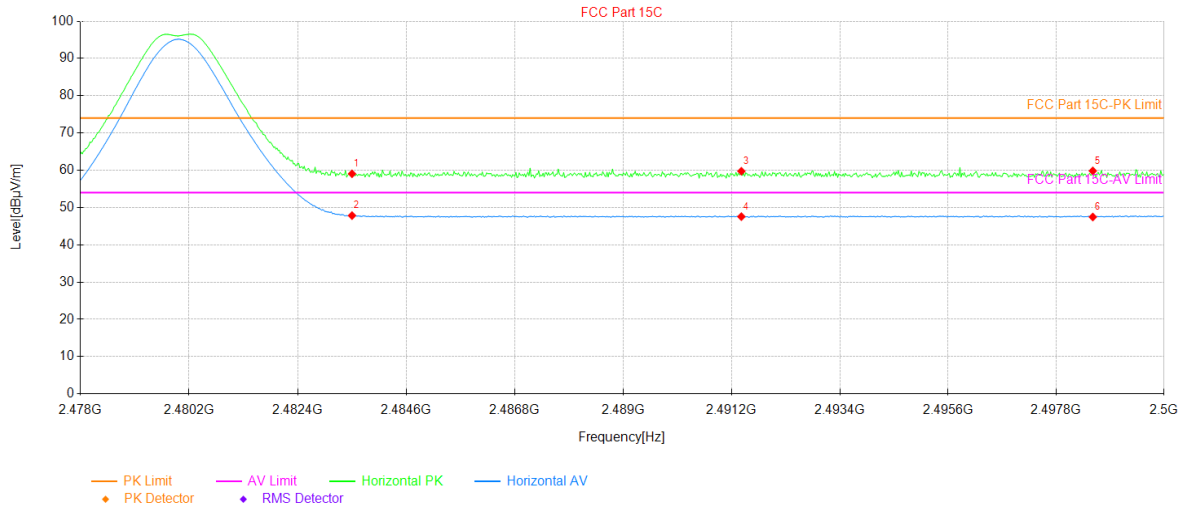
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	22.11	36.74	58.85	74.00	15.15	106	PK	PASS	Vertical
2	2483.50	10.80	36.74	47.54	54.00	6.46	46	AV	PASS	Vertical
3	2491.02	10.97	36.76	47.73	54.00	6.27	17	AV	PASS	Vertical
4	2491.02	23.30	36.76	60.06	74.00	13.94	243	PK	PASS	Vertical
5	2498.31	23.30	36.77	60.07	74.00	13.93	72	PK	PASS	Vertical
6	2498.31	10.80	36.77	47.57	54.00	6.43	225	AV	PASS	Vertical

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

Product Name:	Remote control	Product Model:	TSREMOTE
Test Channel:	Highest channel	Test mode:	BLE Tx (LE Coded PHY, S=8)
Test Voltage:	DC 3.0V	Polarization:	Horizontal



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Angle [°]	Detector	Verdict	Polarity
1	2483.50	22.32	36.74	59.06	74.00	14.94	87	PK	PASS	Horizontal
2	2483.50	11.10	36.74	47.84	54.00	6.16	106	AV	PASS	Horizontal
3	2491.40	22.98	36.76	59.74	74.00	14.26	206	PK	PASS	Horizontal
4	2491.40	10.80	36.76	47.56	54.00	6.44	296	AV	PASS	Horizontal
5	2498.55	23.06	36.77	59.83	74.00	14.17	158	PK	PASS	Horizontal
6	2498.55	10.70	36.77	47.47	54.00	6.53	240	AV	PASS	Horizontal

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

REMARKS:

- Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Emission level- Limit value.
- Mean the PK detector measured value is below average limit.
- Other emission levels are attenuated 20dB below the limit and not recorded in report.
- RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

3.2 Maximum Peak Conducted Output Power

Limit

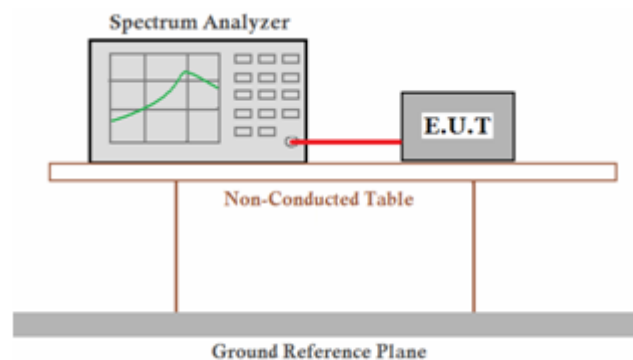
The maximum peak conducted output power shall not exceed 1.0 W.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Spectrum Analyzer. The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- Set the RBW $\geq$ DTS bandwidth.
- Set VBW $\geq 3 \times$ RBW
- Set span $\geq 3 \times$ RBW
- Sweep time = auto couple.
- Detector = peak.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use peak marker function to determine the peak amplitude level.

Test Configuration



Test Results

☒ Pass ☐ Not Applicable

Note:

For test data, please refer to Appendix A – BLE-1M PHY & Appendix A – BLE-2M PHY & Appendix A – BLE-S=2 PHY & Appendix A – BLE-S=8 PHY.

3.3 Power Spectral Density

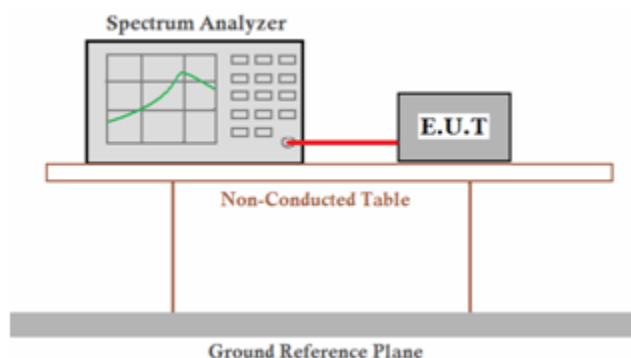
Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW ≥ 3 kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be 8dBm.

Test Configuration



Test Results

☒ Pass ☐ Not Applicable

Note:

For test data, please refer to Appendix A – BLE-1M PHY & Appendix A – BLE-2M PHY & Appendix A – BLE-S=2 PHY & Appendix A – BLE-S=8 PHY.

3.4 6dB Bandwidth

Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

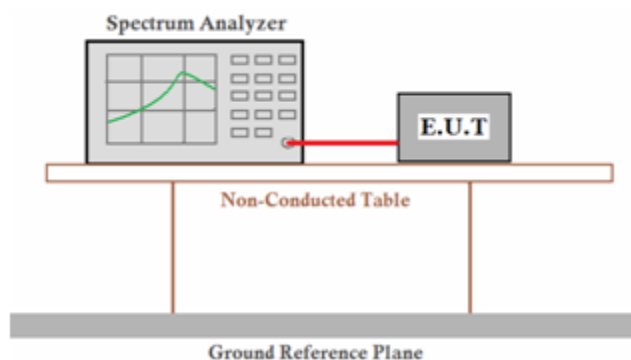
Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Spectrum Analyzer. Set EUT in transmitting mode.

- Set Spectrum Analyzer to OBW measurement mode and set bandwidth mode with X set to 6 dB.
- Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.

Allow trace to fully stabilize

Test Configuration



Test Results

☒ Pass ☐ Not Applicable

Note:

For test data, please refer to Appendix A – BLE-1M PHY & Appendix A – BLE-2M PHY & Appendix A – BLE-S=2 PHY & Appendix A – BLE-S=8 PHY.

3.5 Out-of-band Emissions

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Spectrum Analyzer. Place the EUT on the table and set it in transmitting mode.

Step 1: Reference level measurement using the following procedure:

- g) Set instrument center frequency to DTS channel center frequency.
- h) Set the span to ≥ 1.5 times the DTS bandwidth.
- i) Set the RBW = 100 kHz.
- j) Set the VBW $\geq [3 \times \text{RBW}]$.
- k) Detector = peak.
- l) Sweep time = auto couple.
- m) Trace mode = max hold.
- n) Allow trace to fully stabilize.
- o) Use the peak marker function to determine the maximum PSD level.

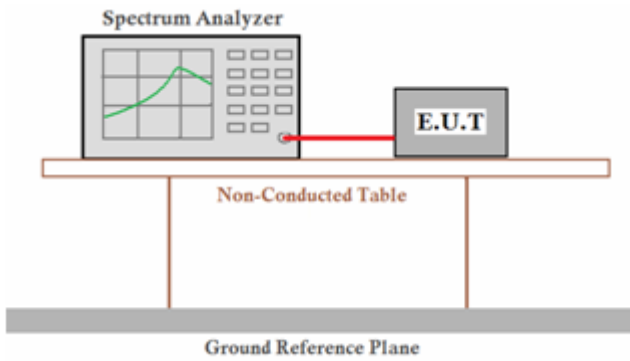
Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Step 2: Emission level measurement using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW $\geq [3 \times \text{RBW}]$.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements of PSD level measured in step 1 Reference level measurement.

Test Configuration



Test Results

Passed

☒ Pass ☐ Not Applicable

Note:

For test data, please refer to Appendix A – BLE-1M PHY & Appendix A – BLE-2M PHY & Appendix A – BLE-S=2 PHY & Appendix A – BLE-S=8 PHY.

3.6 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

FCC CFR Title 47 Part 15 Subpart C Section 15.247(b) (4):

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Result

The maximum gain of antenna was 3.21dBi with impedance 50Ω. The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

4 Test Setup Photographs of EUT

Please refer to BLE Test Setup Photos.

***** End of Report *****