TEST REPORT

Product	:	Single mode Bluetooth(5.0) Module
Trade mark	:	Richmat
Model/Type reference	:	HJ8258
Serial Model	:	/
Report Number	:	EED39O80795501
FCC ID	:	2AJJGHJ8258
Date of Issue	:	June 21, 2022

Test Standards	Result
☒ 47 CFR Part 15 Subpart C	PASS

Prepared for:

Qingdao Richmat Intelligence Technology Inc
NO. 78 Kongquehe 4th Road Qingdao Clothing Industry park Jimo, Qingdao, Shandong Province 266000, China

Prepared by:

Centre Testing International (Suzhou) CO., LTD.
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Compiled by: Jenny. Yu Reviewed by: Lily. Wang

Approved by: Jeff Fang Date: June 21, 2022

Jeff Fang
Authorized Signatory

Check No.: 9719060622

Modification Record

No.	Last Report No.	Modification Description
1	EED39O80795501	First report

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1. Test Summary

Test item	Test Requirement	Test method	Result
Antenna Requirement*	47 CFR Part 15Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission*	47 CFR Part 15Subpart C Section 15.207	ANSI C63.10-2013	N/A
Maximum conducted output power*	47 CFR Part 15Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
DTS Bandwidth*	47 CFR Part 15Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
Maximum Power Spectral Density*	47 CFR Part 15Subpart C Section 15.247 (e)	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions*	47 CFR Part 15Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions*	47 CFR Part 15Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
Radiated Spurious Emissions	47 CFR Part 15Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

Remark:

1. The product is supplied by DC power.
2. Test according to ANSI C63.4-2014 & ANSI C63.10-2013.
3. Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
4. "* " Detailed test results, please reference reported EED32M00310701

2. Test Requirement

2.1. Test Environment

Operating Environment:	
Temperature:	26.1°C
Humidity:	59.3% RH
Atmospheric Pressure:	1006mbar

2.2. Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK	2402MHz ~2480 MHz	Channel 1	Channel 20	Channel 40
		2402MHz	2440MHz	2480MHz
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

3. General Information

3.1. Client Information

Applicant:	Qingdao Richmat Intelligence Technology Inc
Address of Applicant:	NO. 78 Kongquehe 4th Road Qingdao Clothing Industry park Jimo, Qingdao, Shandong Province 266000, China
Manufacturer:	Qingdao Richmat Intelligence Technology Inc
Address of Manufacturer:	NO. 78 Kongquehe 4th Road Qingdao Clothing Industry park Jimo, Qingdao, Shandong Province 266000, China
Factory:	Qingdao Richmat Intelligence Technology Inc
Address of Factory:	NO. 78 Kongquehe 4th Road Qingdao Clothing Industry park Jimo, Qingdao, Shandong Province 266000, China

3.2. General Description of EUT

Product Name:	Single mode Bluetooth(5.0) Module
Model No.(EUT)*:	HJ8258
Trade Mark:	Richmat
EUT Supports Radios application:	Bluetooth V5.0 BLE
Power Supply:	Model No: ZB-H290020-B Input: AC100-240V 1.6A, 50/60Hz Output: DC 29.0V 2.0A 58W
Sample Received Date:	June 06, 2022
Sample Tested Date:	June 06, 2022

3.3. Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	BLE 5.0
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	Mobile production
Test Software of EUT:	EMI_Tool (manufacturer declare)
Antenna Type:	PCB Antenna

Antenna Gain[①]:	5.3dBi
Test Voltage:	AC 120V/60Hz

Note: 1 The antenna gain is provided by the client and we Centre Testing International (Suzhou) CO., LTD. test lab is not responsible for the accuracy of the antenna gain information.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz
3	2406MHz	13	2426MHz	23	2446MHz	33	2466MHz
4	2408MHz	14	2428MHz	24	2448MHz	34	2468MHz
5	2410MHz	15	2430MHz	25	2450MHz	35	2470MHz
6	2412MHz	16	2432MHz	26	2452MHz	36	2472MHz
7	2414MHz	17	2434MHz	27	2454MHz	37	2474MHz
8	2416MHz	18	2436MHz	28	2456MHz	38	2476MHz
9	2418MHz	19	2438MHz	29	2458MHz	39	2478MHz
10	2420MHz	20	2440MHz	30	2460MHz	40	2480MHz

3.4. Tested System Details

Product	Manufacturer	Model No.
Handset	Richmat	Model Name.: HJH82B Ble, HJSR04 Ble

3.5. Description of Support Units

The EUT has been tested with associated equipment below.

1）support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
NB	ThinkPad	E490	FCC ID and DOC	CTI

3.6. Test Location

All test facilities used to collect the test data are located at Building 18, Zhihui New Town Ecological Industrial Park, No. 1206, Jinyang East Road, Lujia Town, Kunshan, Jiangsu, China.

3.7. Test Facility

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

A2LA-Lab Cert. No. 5734.01

Centre Testing International (Suzhou) CO., LTD. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration. Laboratories and any additional program requirements in the identified field of testing.

FCC-Designation No.:CN1290

Centre Testing International Group Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The American association for Centre Testing International Group Co., Ltd. EMC laboratory accreditation Designation No.:CN1290

3.8. Deviation from Standards

None.

3.9. Abnormalities from Standard Conditions

None.

3.10. Other Information Requested by the Customer

None.

3.11. Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Occupied Bandwidth	0.56%
2	RF Power conducted	0.59 dB
3	Power Spectral Density, conducted	2.37 dB
4	Unwanted Emission, conducted	2.68 dB
5	All Emission, radiated	4.41 dB(30MHz-1GHz)
		4.99 dB(1GHz-18GHz)
		5.307 dB(18GHz-40GHz)
6	Temperature test	0.54°C
7	Humidity test	1.62%
8	DC and low frequency voltages test	1.14%

4. Equipment List

966 Semi-anechoic Chamber					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
Receiver	R&S	ESU8	100537	2021-12-06	2022-12-05
Spectrum analyzer	R&S	FSV40	101185	2021-12-06	2022-12-05
Preamplifier (30MHz~1GHz)	R&S	SCU-08	100748	2022-05-24	2023-05-23
Preamplifier (1GHz~18GHz)	R&S	SCU-18D	1987397	2021-12-09	2022-12-08
Preamplifier (18GHz~40GHz)	/	MTLNA18040030235	12009007	2021-10-23	2022-10-22
Loop Antenna (9kHz~30MHz)	TESEQ	HLA6121	54575	2022-02-26	2023-02-25
Antenna (30MHz~1GHz)	SCHWARZBECK	VULB9163	9163-965	2021-10-15	2022-10-14
Antenna (1GHz~18GHz)	R&S	HF907	102524	2021-12-14	2022-12-13
Antenna (18GHz~40GHz)	R&S	BBHA9170	1032	2021-10-23	2022-10-22
Band rejection filter	Xi'an xingbo	XBLBQ-DZA81	200827-1-02	/	/

5. Radio Technical Requirements Specification

5.1. Reference Documents for Testing

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

5.2. Test Results List

Test requirement	Test method	Test item	Verdict	Note
Part15C Section 15.205/15.209	ANSI C63.10 Section 6.10.5	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix A)
Part15C Section 15.205/15.209	ANSI C63.10 Section 6.4,6.5,6.6	Radiated Spurious Emissions	PASS	Appendix B)

Appendix A): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	1/T	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel

Above 1GHz test procedure as below:

a. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
b. Test the EUT in the lowest channel , the Highest channel
c. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
d. Repeat above procedures until all frequencies measured was complete.

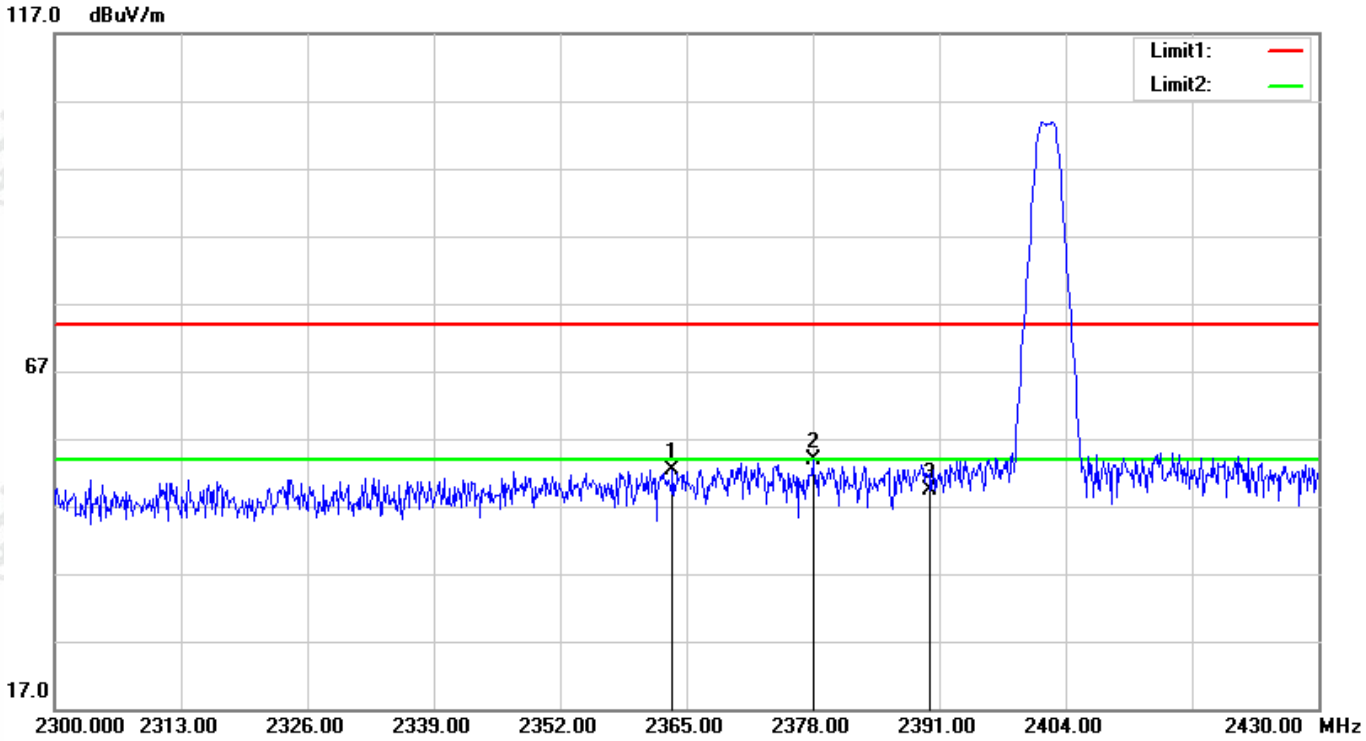
Limit:

Frequency	Limit (dBμV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test plot as follows:

Mode:	BLE_1M	Channel:	2402
Remark:	Horizontal	Test model No.:	HJH82B Ble

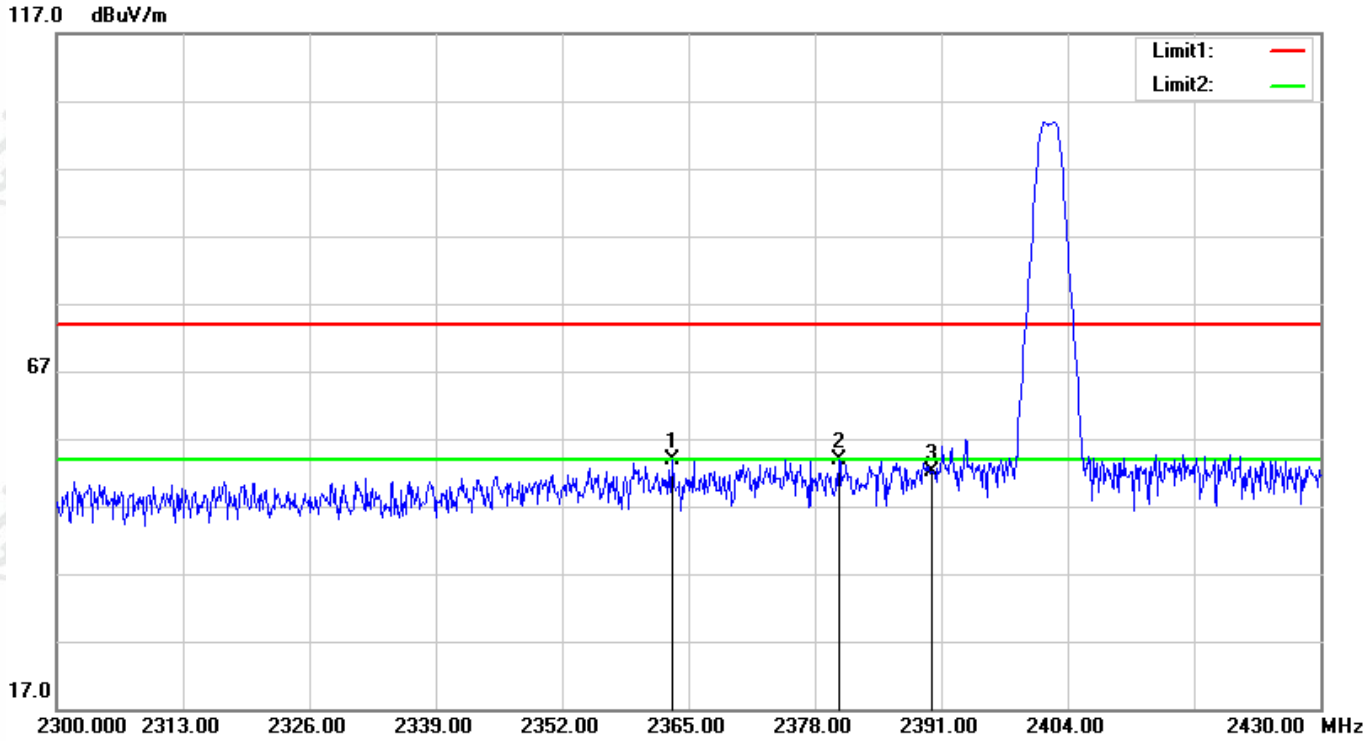
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2363.570	49.76	2.64	52.40	74.00	-21.60	100	304	peak
2	2378.000	51.20	2.68	53.88	74.00	-20.12	200	290	peak
3	2390.000	46.56	2.71	49.27	74.00	-24.73	183	360	peak

Mode:	BLE_1M	Channel:	2402
Remark:	Vertical	Test model No.:	HJH82B Ble

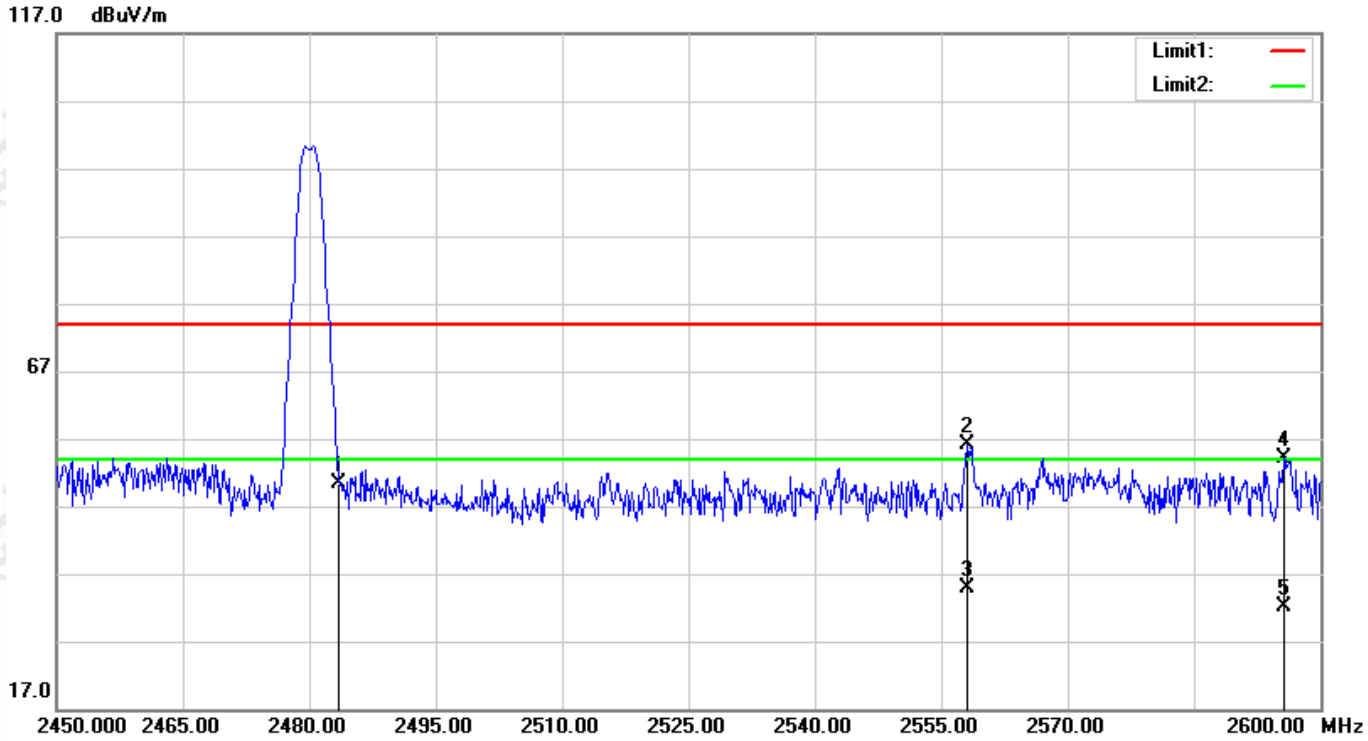
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2363.310	51.14	2.64	53.78	74.00	-20.22	100	291	peak
2	2380.470	51.29	2.69	53.98	74.00	-20.02	200	268	peak
3	2390.000	49.41	2.71	52.12	74.00	-21.88	200	263	peak

Mode:	BLE_1M	Channel:	2480
Remark:	Horizontal	Test model No.:	HJH82B Ble

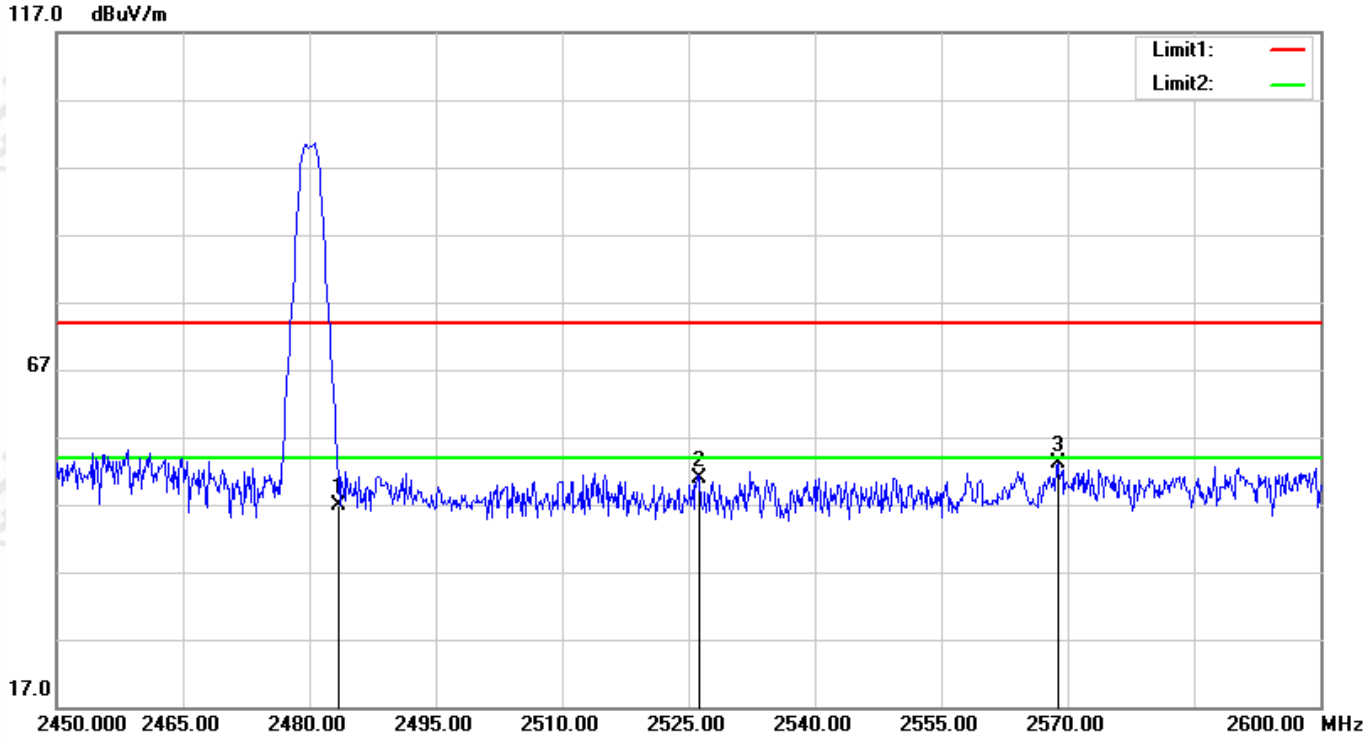
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.52	2.92	50.44	74.00	-23.56	100	252	peak
2	2558.000	53.02	3.07	56.09	74.00	-17.91	100	91	peak
3	2558.000	31.80	3.07	34.87	54.00	-19.13	100	91	AVG
4	2595.650	51.05	3.15	54.20	74.00	-19.80	100	336	peak
5	2595.650	29.04	3.15	32.19	54.00	-21.81	100	336	AVG

Mode:	BLE_1M	Channel:	2480
Remark:	Vertical	Test model No.:	HJH82B Ble

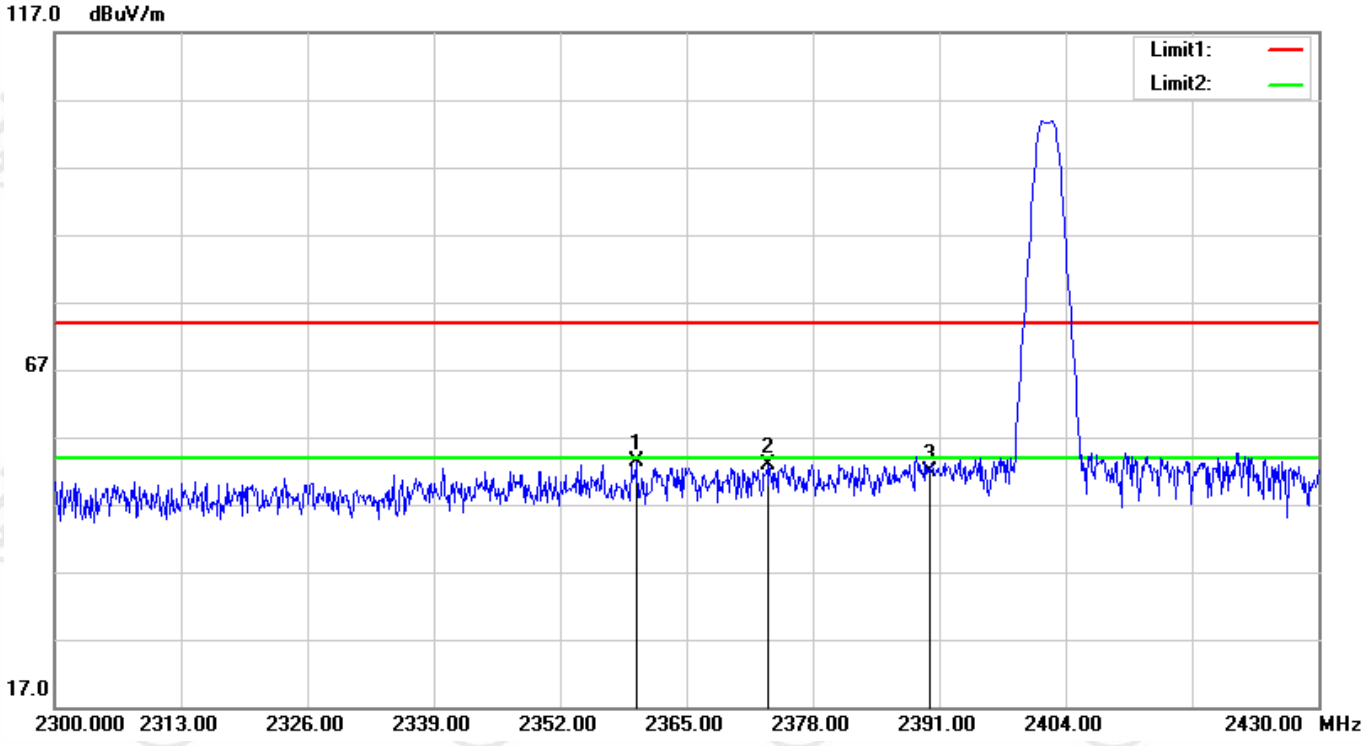
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	43.88	2.92	46.80	74.00	-27.20	100	263	peak
2	2526.350	47.92	3.01	50.93	74.00	-23.07	100	251	peak
3	2568.800	50.14	3.09	53.23	74.00	-20.77	100	358	peak

Mode:	BLE_2M	Channel:	2402
Remark:	Horizontal	Test model No.:	HJH82B Ble

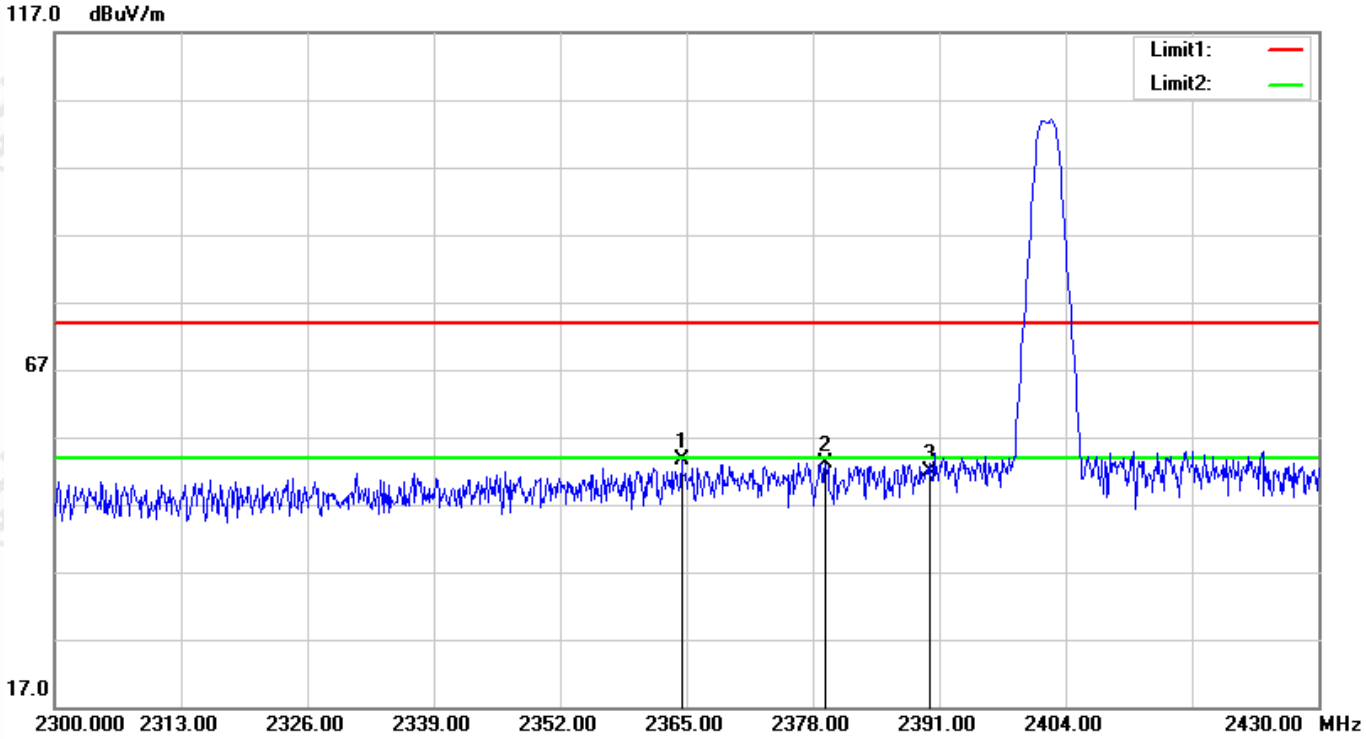
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2359.800	50.78	2.63	53.41	74.00	-20.59	200	305	peak
2	2373.320	50.21	2.67	52.88	74.00	-21.12	200	267	peak
3	2390.000	49.07	2.71	51.78	74.00	-22.22	200	272	peak

Mode:	BLE_2M	Channel:	2402
Remark:	Vertical	Test model No.:	HJH82B Ble

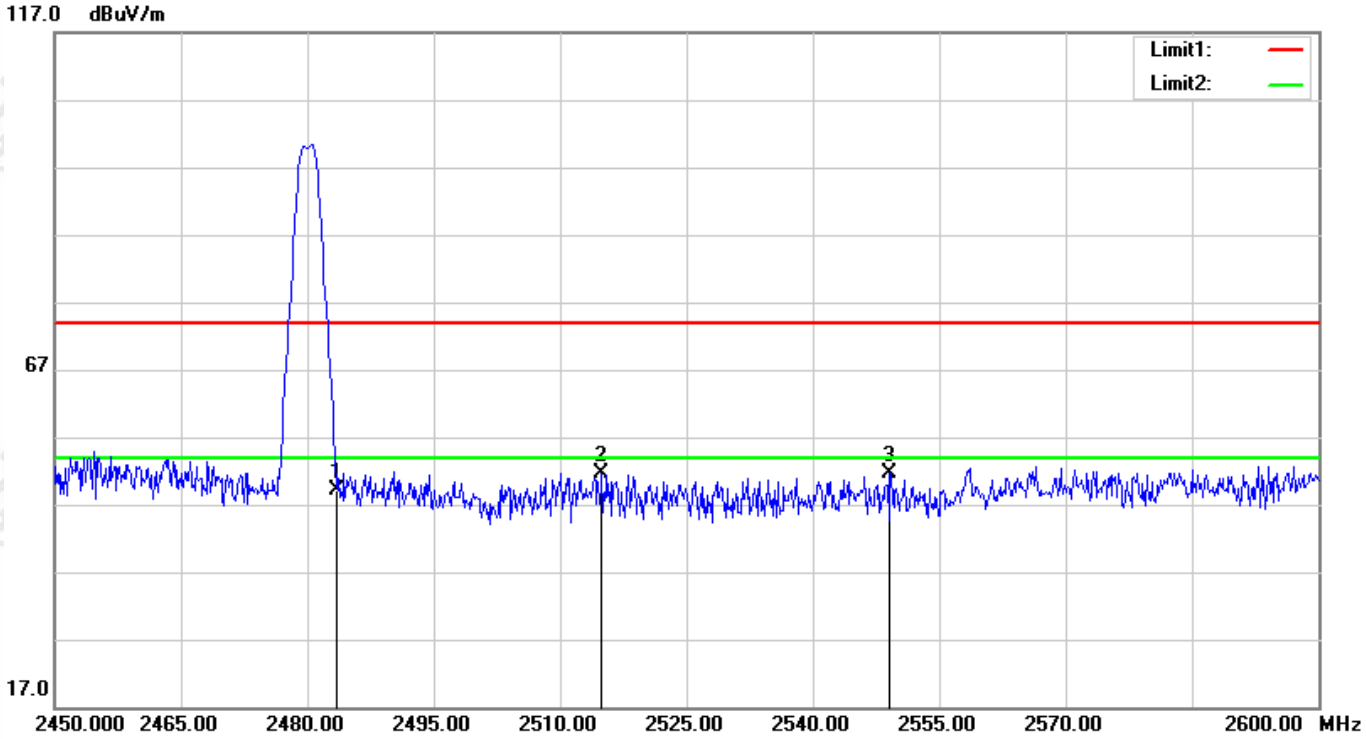
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2364.480	51.00	2.64	53.64	74.00	-20.36	200	300	peak
2	2379.300	50.50	2.68	53.18	74.00	-20.82	200	259	peak
3	2390.000	49.28	2.71	51.99	74.00	-22.01	200	306	peak

Mode:	BLE_2M	Channel:	2480
Remark:	Horizontal	Test model No.:	HJH82B Ble

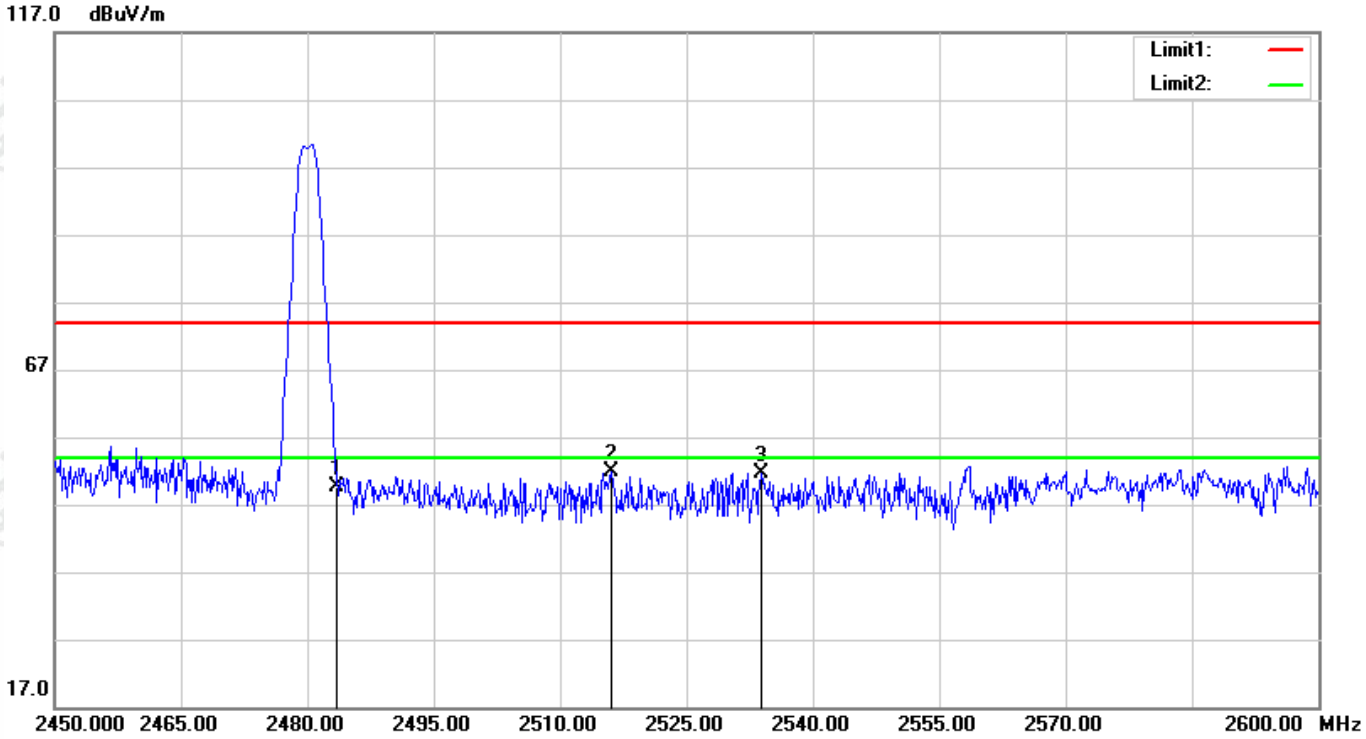
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.12	2.92	49.04	74.00	-24.96	100	267	peak
2	2514.950	48.65	2.98	51.63	74.00	-22.37	100	269	peak
3	2549.150	48.65	3.05	51.70	74.00	-22.30	100	93	peak

Mode:	BLE_2M	Channel:	2480
Remark:	Vertical	Test model No.:	HJH82B Ble

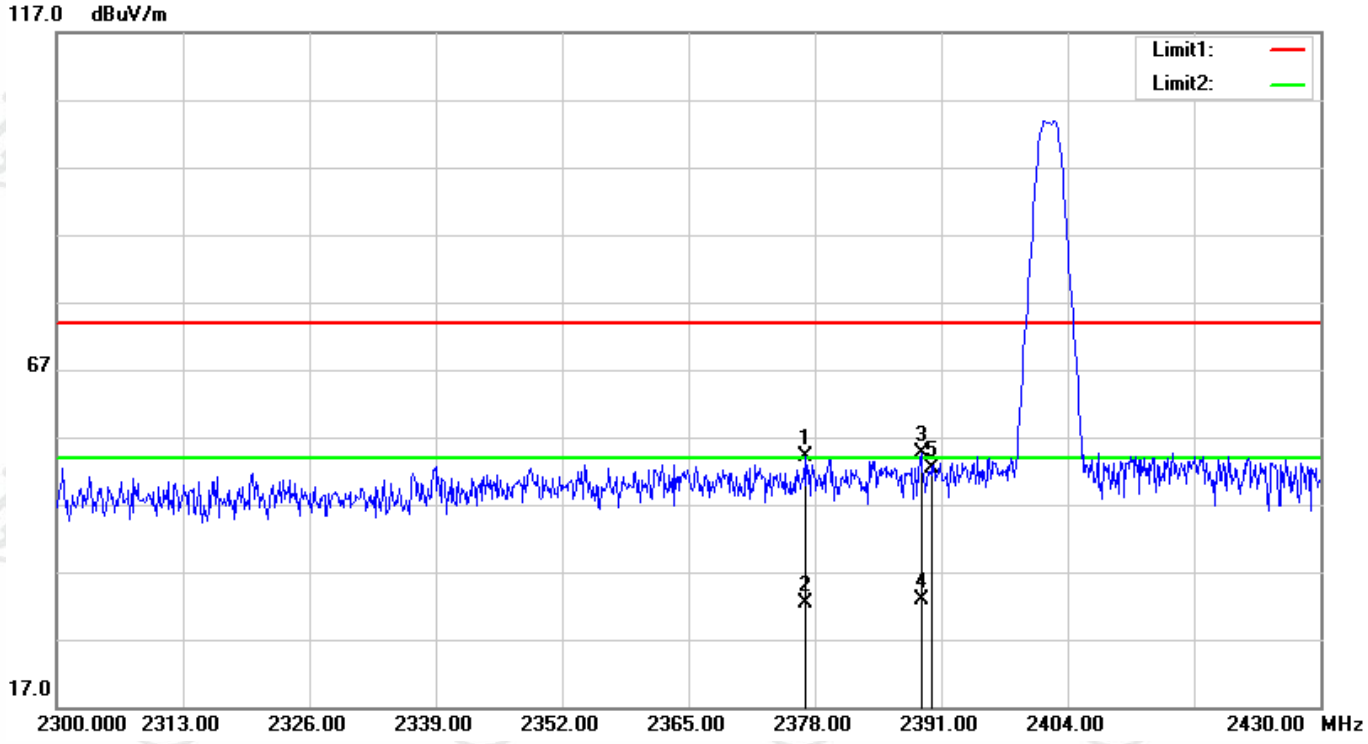
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.73	2.92	49.65	74.00	-24.35	100	267	peak
2	2516.000	48.85	2.98	51.83	74.00	-22.17	100	293	peak
3	2533.850	48.66	3.02	51.68	74.00	-22.32	100	272	peak

Mode:	BLE_125kbps	Channel:	2402
Remark:	Horizontal	Test model No.:	HJH82B Ble

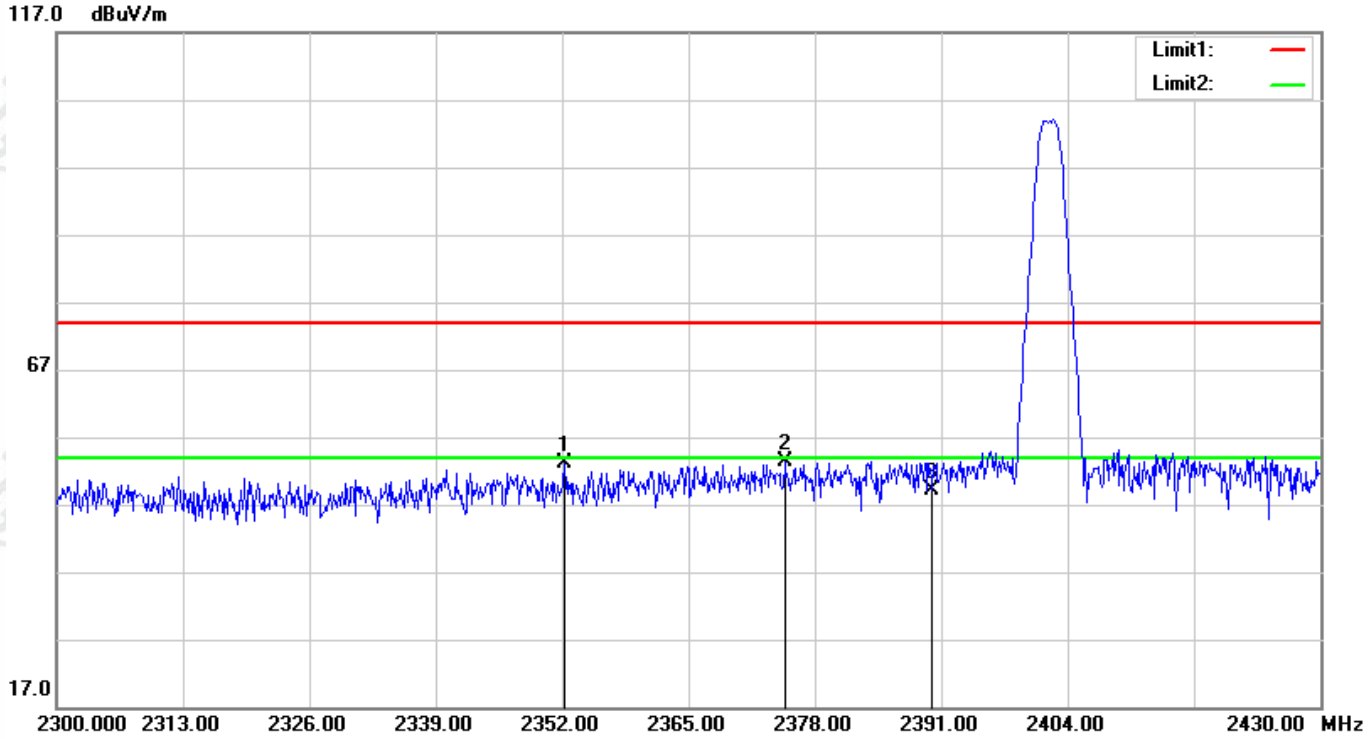
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2376.960	51.37	2.68	54.05	74.00	-19.95	200	281	peak
2	2376.960	29.79	2.68	32.47	54.00	-21.53	200	281	AVG
3	2388.920	51.89	2.71	54.60	74.00	-19.40	200	66	peak
4	2388.920	30.24	2.71	32.95	54.00	-21.05	200	66	AVG
5	2390.000	49.63	2.71	52.34	74.00	-21.66	200	306	peak

Mode:	BLE_125kbps	Channel:	2402
Remark:	Vertical	Test model No.:	HJH82B Ble

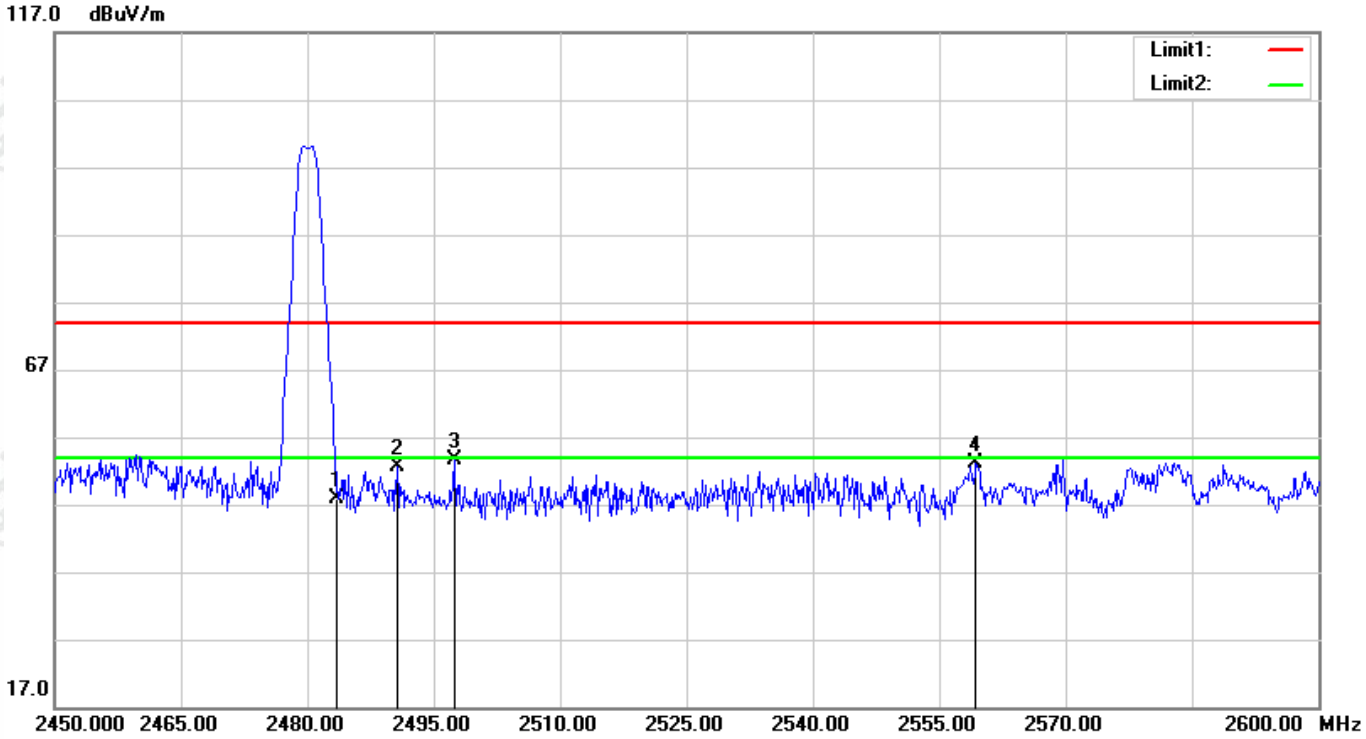
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2352.260	50.50	2.61	53.11	74.00	-20.89	200	306	peak
2	2374.880	50.70	2.67	53.37	74.00	-20.63	200	301	peak
3	2390.000	46.40	2.71	49.11	74.00	-24.89	185	360	peak

Mode:	BLE_125kbps	Channel:	2480
Remark:	Horizontal	Test model No.:	HJH82B Ble

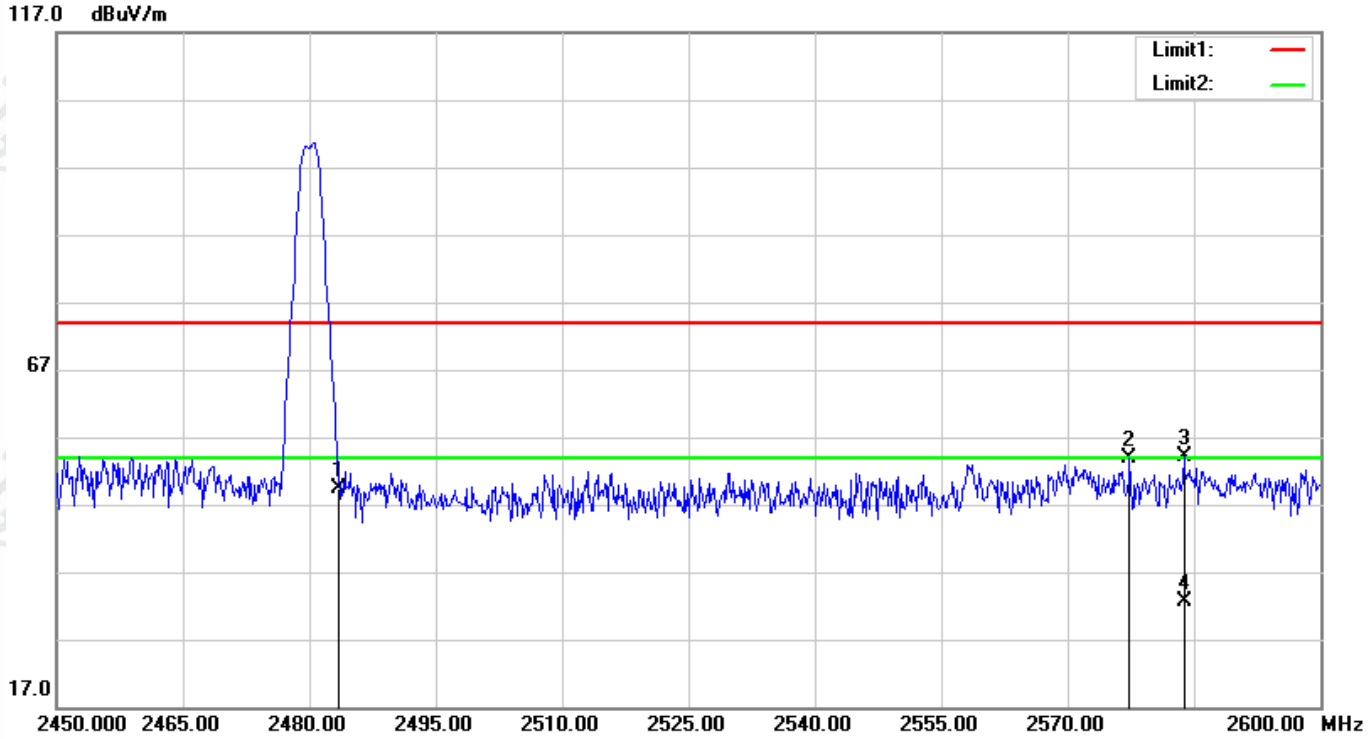
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	44.93	2.92	47.85	74.00	-26.15	100	276	peak
2	2490.650	49.74	2.93	52.67	74.00	-21.33	100	265	peak
3	2497.400	50.65	2.94	53.59	74.00	-20.41	200	268	peak
4	2559.350	49.96	3.07	53.03	74.00	-20.97	200	175	peak

Mode:	BLE_125kbps	Channel:	2480
Remark:	Vertical	Test model No.:	HJH82B Ble

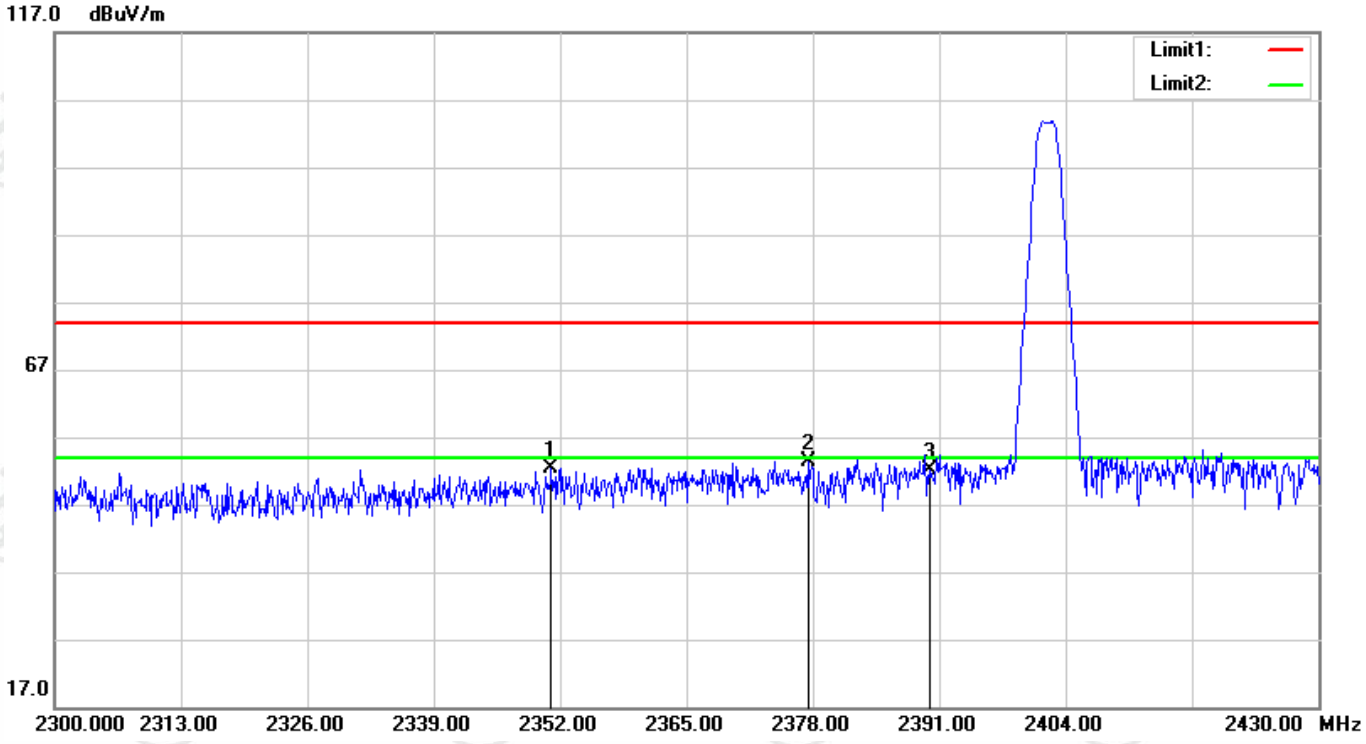
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.58	2.92	49.50	74.00	-24.50	100	271	peak
2	2577.350	50.74	3.11	53.85	74.00	-20.15	100	271	peak
3	2583.800	50.98	3.13	54.11	74.00	-19.89	100	105	peak
4	2583.800	29.56	3.13	32.69	54.00	-21.31	100	105	AVG

Mode:	BLE_500kbps	Channel:	2402
Remark:	Horizontal	Test model No.:	HJH82B Ble

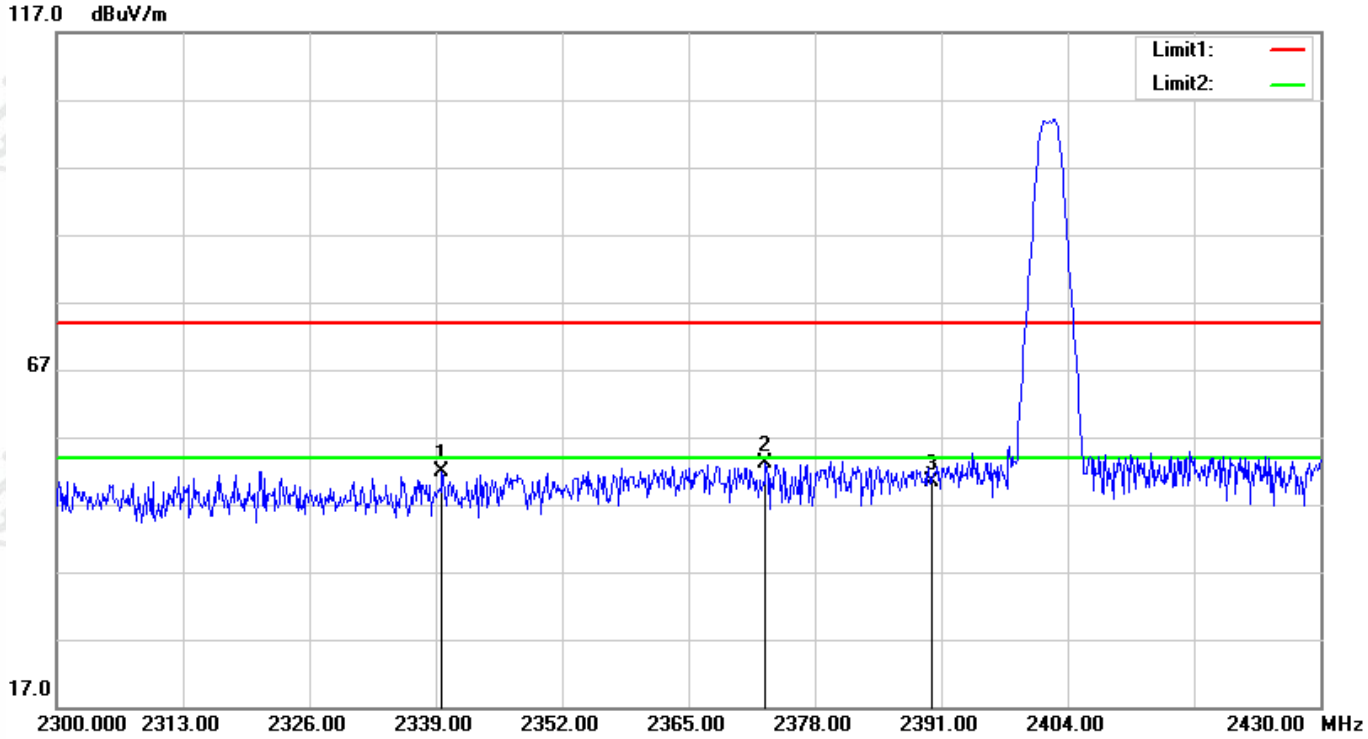
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2351.090	49.80	2.61	52.41	74.00	-21.59	200	303	peak
2	2377.480	50.70	2.68	53.38	74.00	-20.62	200	305	peak
3	2390.000	49.52	2.71	52.23	74.00	-21.77	200	288	peak

Mode:	BLE_500kbps	Channel:	2402
Remark:	Vertical	Test model No.:	HJH82B Ble

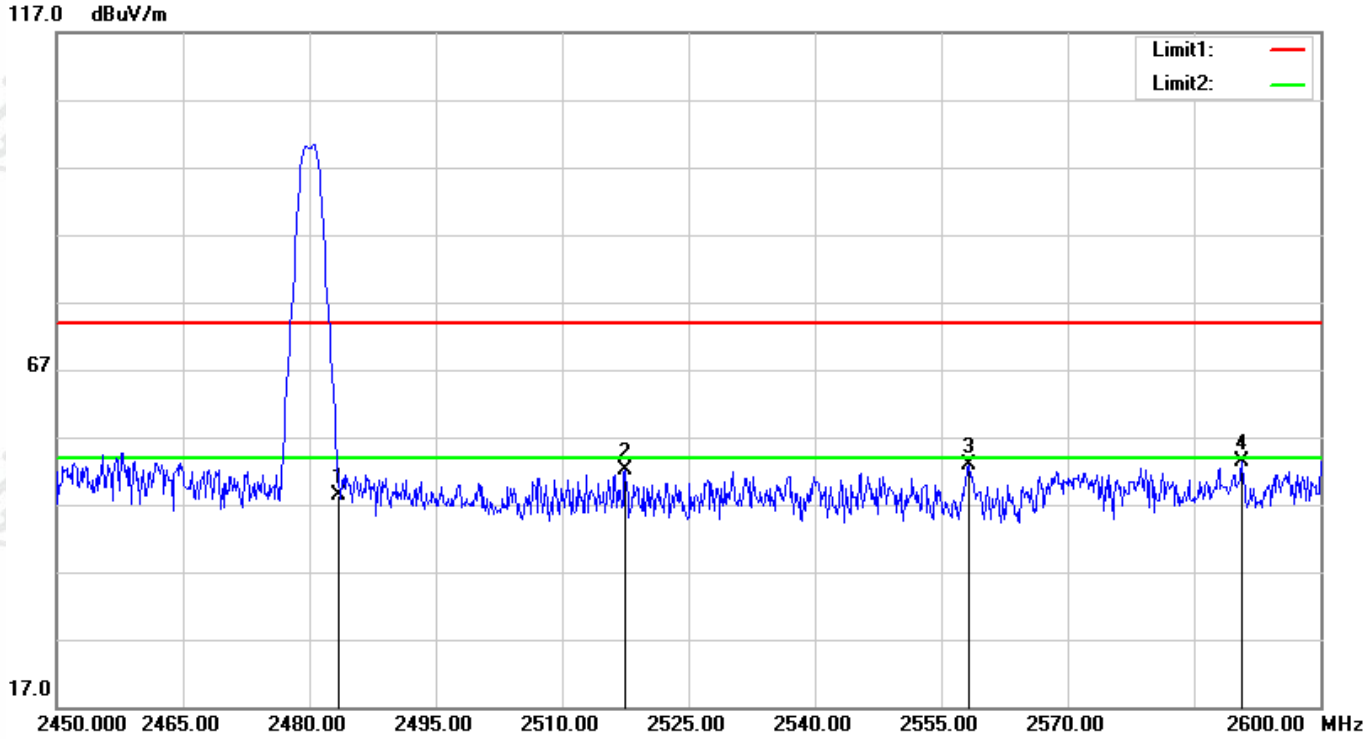
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2339.650	49.35	2.58	51.93	74.00	-22.07	100	295	peak
2	2372.930	50.37	2.67	53.04	74.00	-20.96	200	266	peak
3	2390.000	47.64	2.71	50.35	74.00	-23.65	200	296	peak

Mode:	BLE_500kbps	Channel:	2480
Remark:	Horizontal	Test model No.:	HJH82B Ble

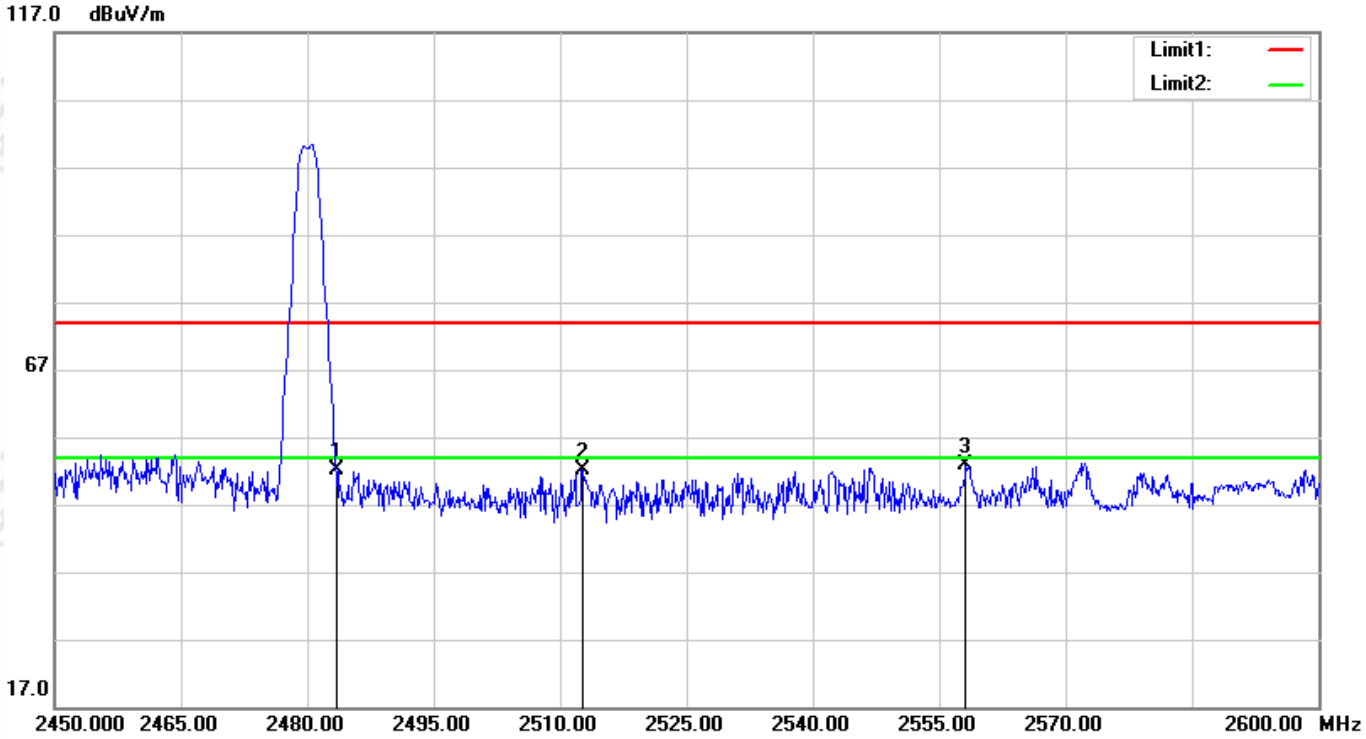
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.56	2.92	48.48	74.00	-25.52	100	270	peak
2	2517.500	49.25	2.99	52.24	74.00	-21.76	100	270	peak
3	2558.300	49.69	3.07	52.76	74.00	-21.24	200	360	peak
4	2590.700	50.33	3.14	53.47	74.00	-20.53	200	285	peak

Mode:	BLE_500kbps	Channel:	2480
Remark:	Vertical	Test model No.:	HJH82B Ble

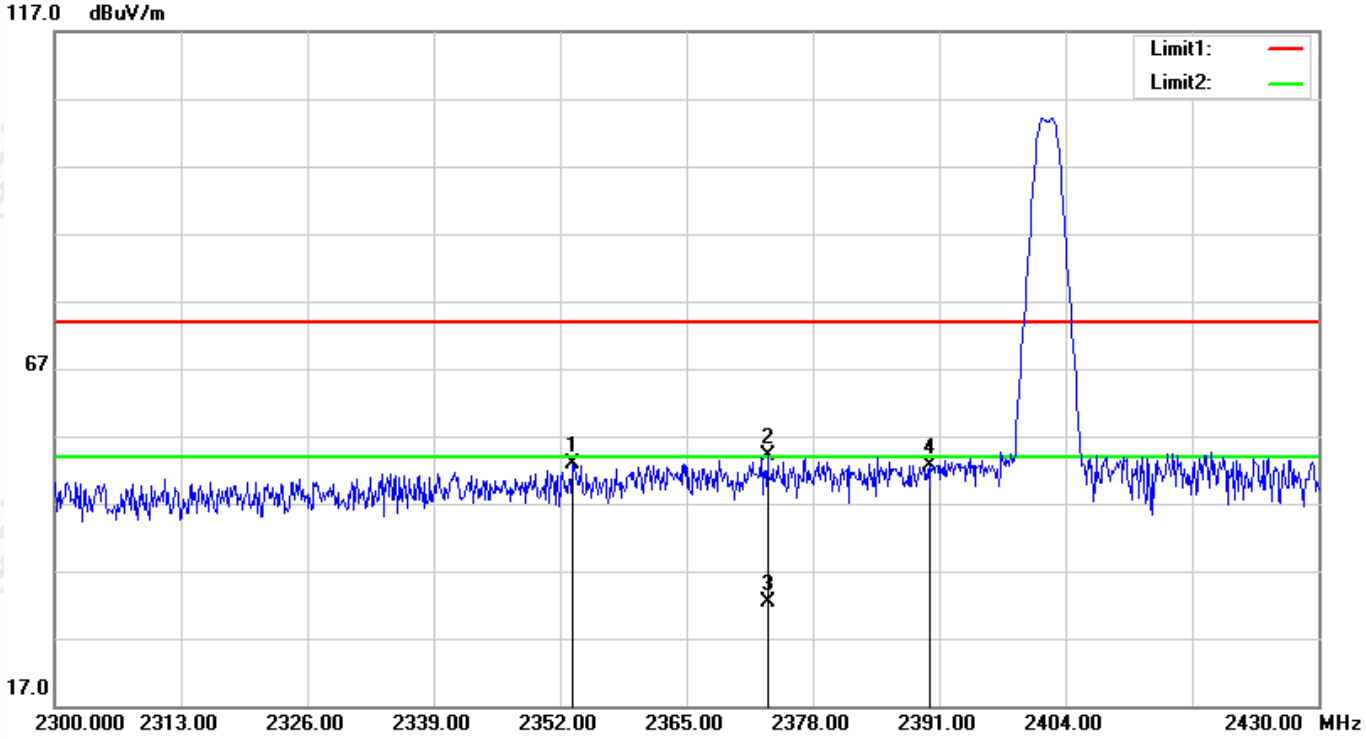
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.26	2.92	52.18	74.00	-21.82	100	259	peak
2	2512.700	49.16	2.98	52.14	74.00	-21.86	100	261	peak
3	2558.150	49.69	3.07	52.76	74.00	-21.24	100	46	peak

BLE_1M	Channel:	2402
Horizontal	Test model No.:	HJSR04 Ble

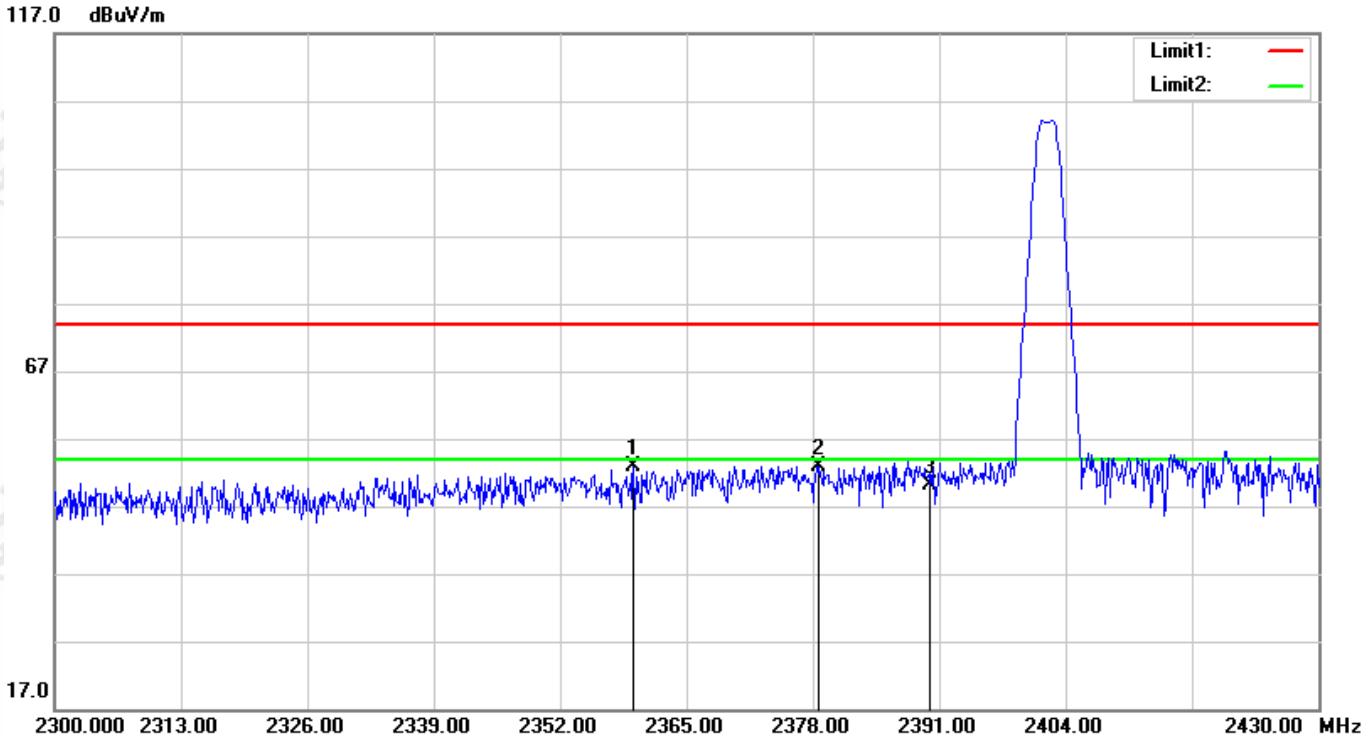
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2353.300	50.35	2.61	52.96	74.00	-21.04	200	298	peak
2	2373.320	51.48	2.67	54.15	74.00	-19.85	200	285	peak
3	2373.320	29.72	2.67	32.39	54.00	-21.61	200	285	AVG
4	2390.000	50.02	2.71	52.73	74.00	-21.27	200	288	peak

Mode:	BLE_1M	Channel:	2402
Remark:	Vertical	Test model No.:	HJSR04 Ble

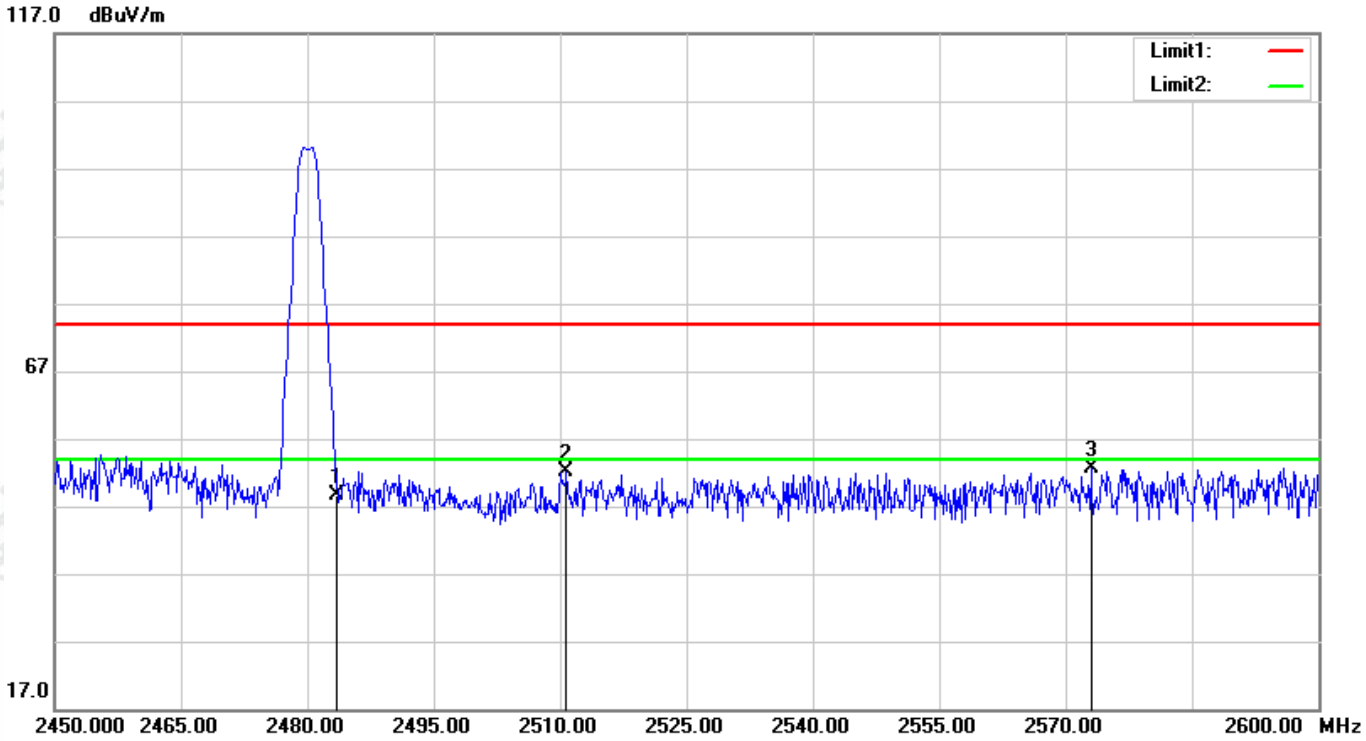
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2359.540	50.24	2.63	52.87	74.00	-21.13	100	291	peak
2	2378.520	50.31	2.68	52.99	74.00	-21.01	200	298	peak
3	2390.000	47.54	2.71	50.25	74.00	-23.75	200	301	peak

Mode:	BLE_1M	Channel:	2480
Remark:	Horizontal	Test model No.:	HJSR04 Ble

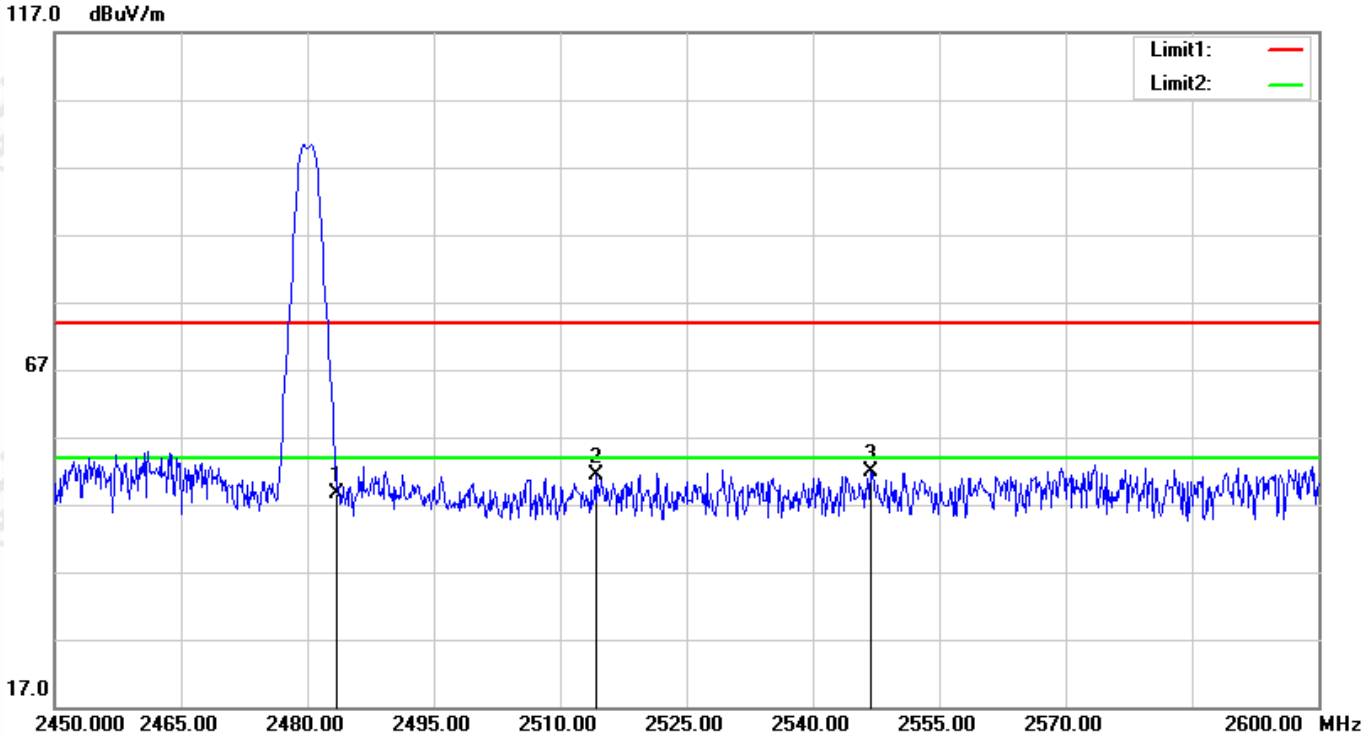
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.67	2.92	48.59	74.00	-25.41	100	274	peak
2	2510.750	49.26	2.97	52.23	74.00	-21.77	100	274	peak
3	2573.000	49.44	3.10	52.54	74.00	-21.46	100	105	peak

Mode:	BLE_1M	Channel:	2480
Remark:	Vertical	Test model No.:	HJSR04 Ble

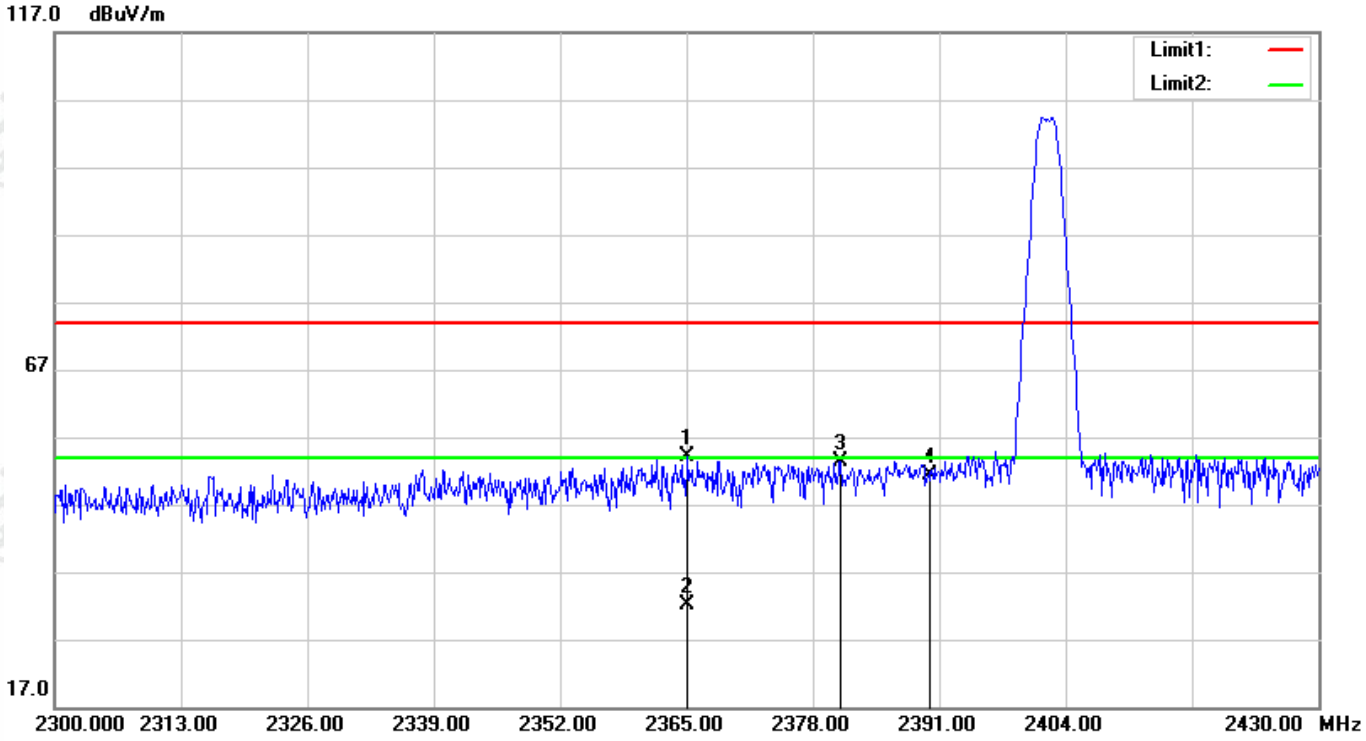
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.82	2.92	48.74	74.00	-25.26	100	279	peak
2	2514.200	48.30	2.98	51.28	74.00	-22.72	100	274	peak
3	2546.900	48.84	3.05	51.89	74.00	-22.11	100	85	peak

Mode:	BLE_2M	Channel:	2402
Remark:	Horizontal	Test model No.:	HJSR04 Ble

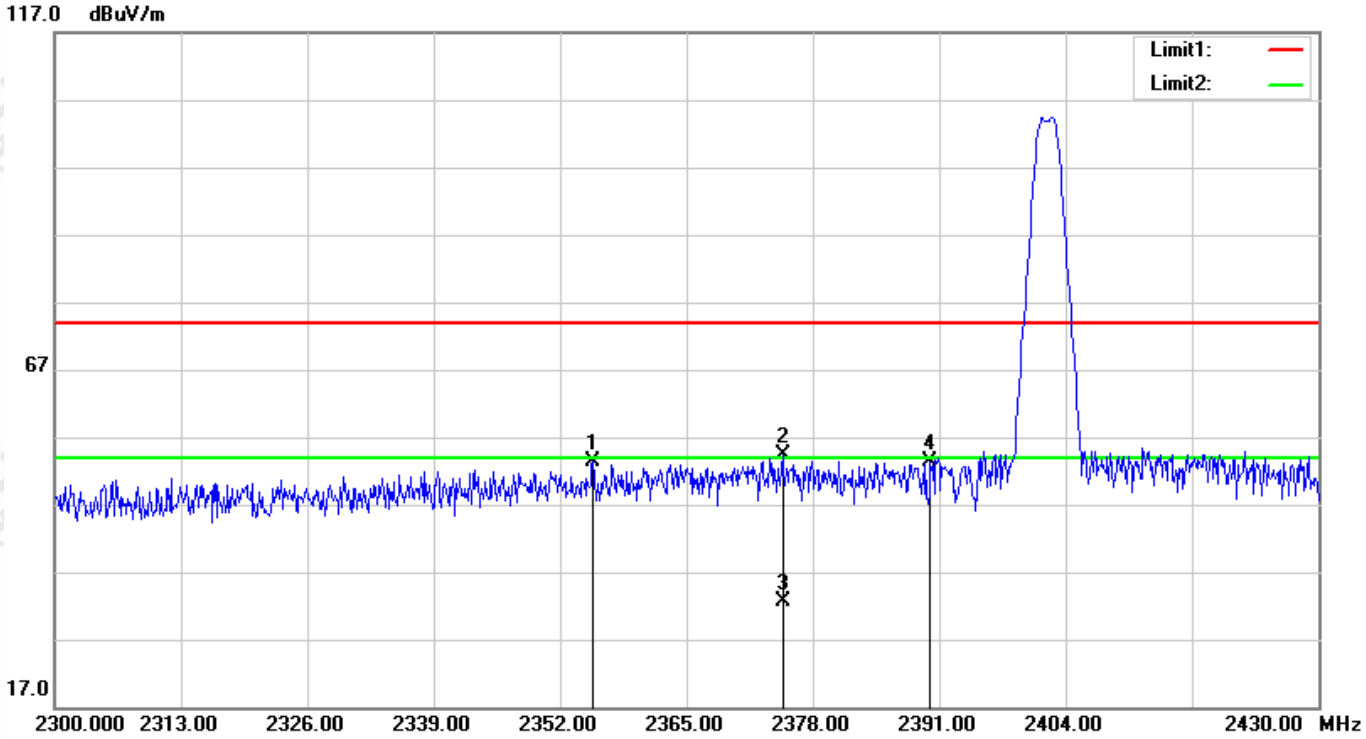
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2365.130	51.48	2.65	54.13	74.00	-19.87	200	300	peak
2	2365.130	29.54	2.65	32.19	54.00	-21.81	200	300	AVG
3	2380.860	50.80	2.69	53.49	74.00	-20.51	200	287	peak
4	2390.000	48.79	2.71	51.50	74.00	-22.50	200	256	peak

Mode:	BLE_2M	Channel:	2402
Remark:	Vertical	Test model No.:	HJSR04 Ble

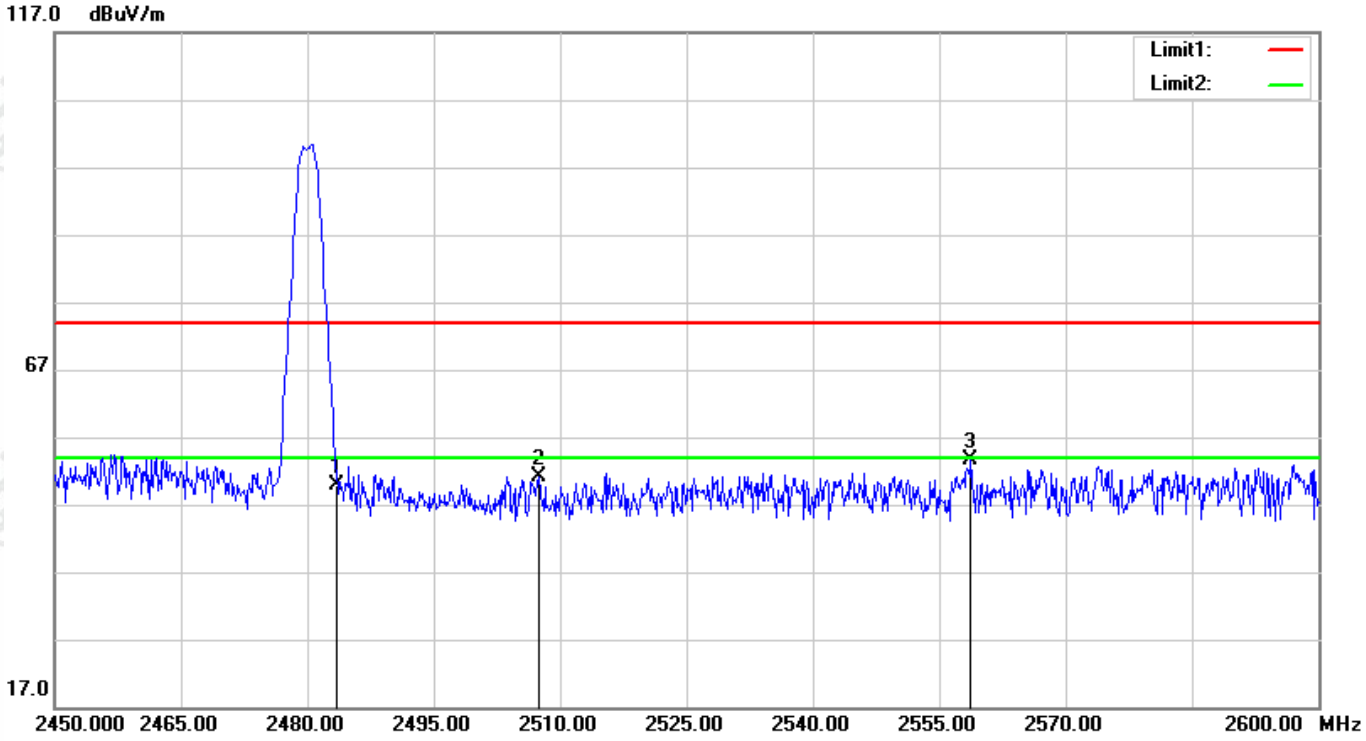
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2355.380	50.66	2.62	53.28	74.00	-20.72	200	302	peak
2	2374.880	51.68	2.67	54.35	74.00	-19.65	200	269	peak
3	2374.880	29.98	2.67	32.65	54.00	-21.35	200	269	AVG
4	2390.000	50.56	2.71	53.27	74.00	-20.73	200	302	peak

Mode:	BLE_2M	Channel:	2480
Remark:	Horizontal	Test model No.:	HJSR04 Ble

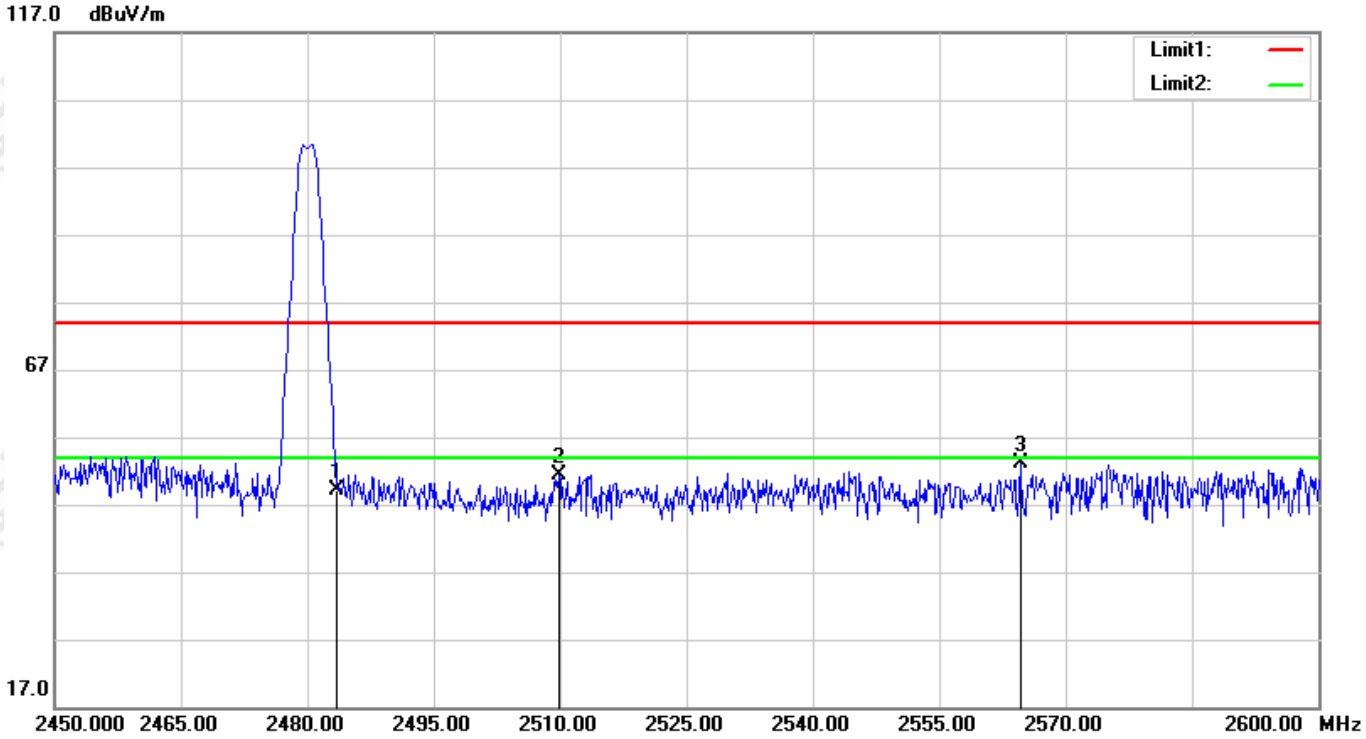
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.04	2.92	49.96	74.00	-24.04	100	245	peak
2	2507.450	48.13	2.97	51.10	74.00	-22.90	100	269	peak
3	2558.750	50.62	3.07	53.69	74.00	-20.31	160	360	peak

Mode:	BLE_2M	Channel:	2480
Remark:	Vertical	Test model No.:	HJSR04 Ble

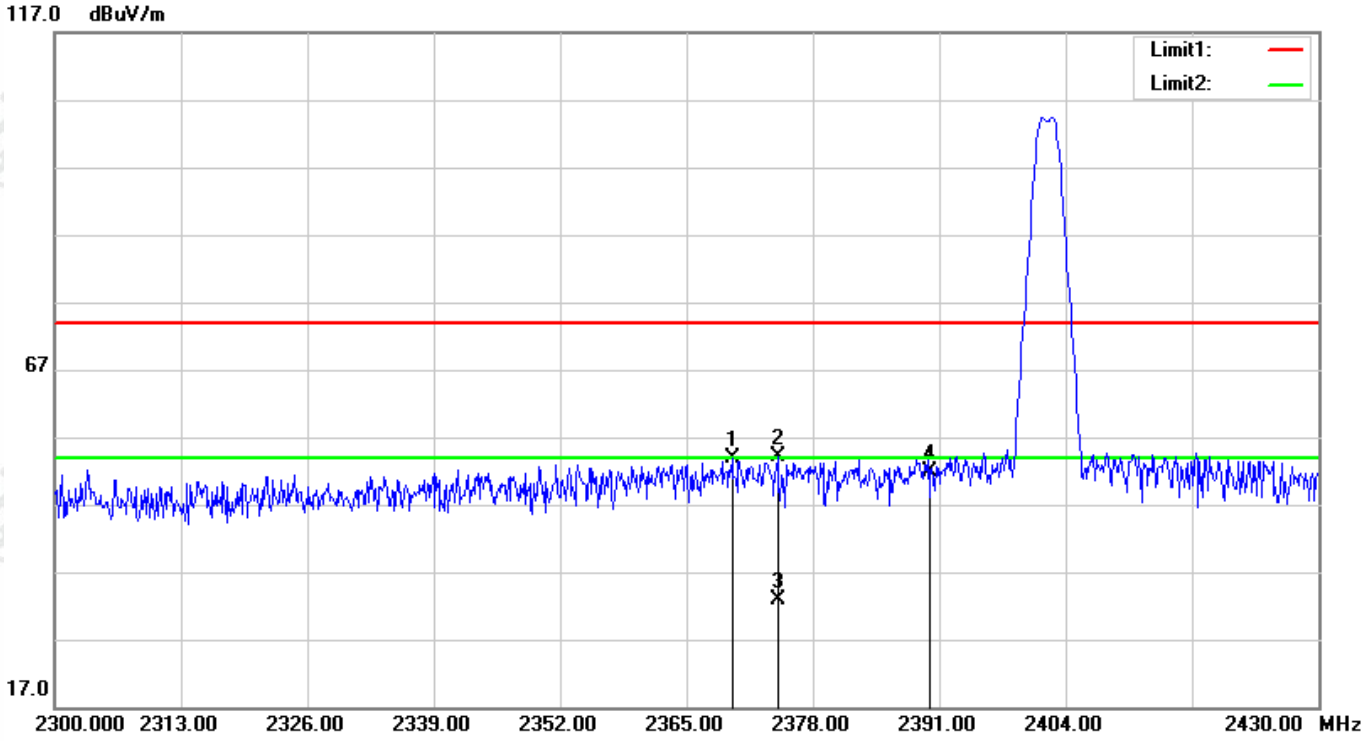
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.11	2.92	49.03	74.00	-24.97	200	273	peak
2	2509.850	48.44	2.97	51.41	74.00	-22.59	100	270	peak
3	2564.600	49.93	3.09	53.02	74.00	-20.98	100	106	peak

Mode:	BLE_125kbps	Channel:	2402
Remark:	Horizontal	Test model No.:	HJSR04 Ble

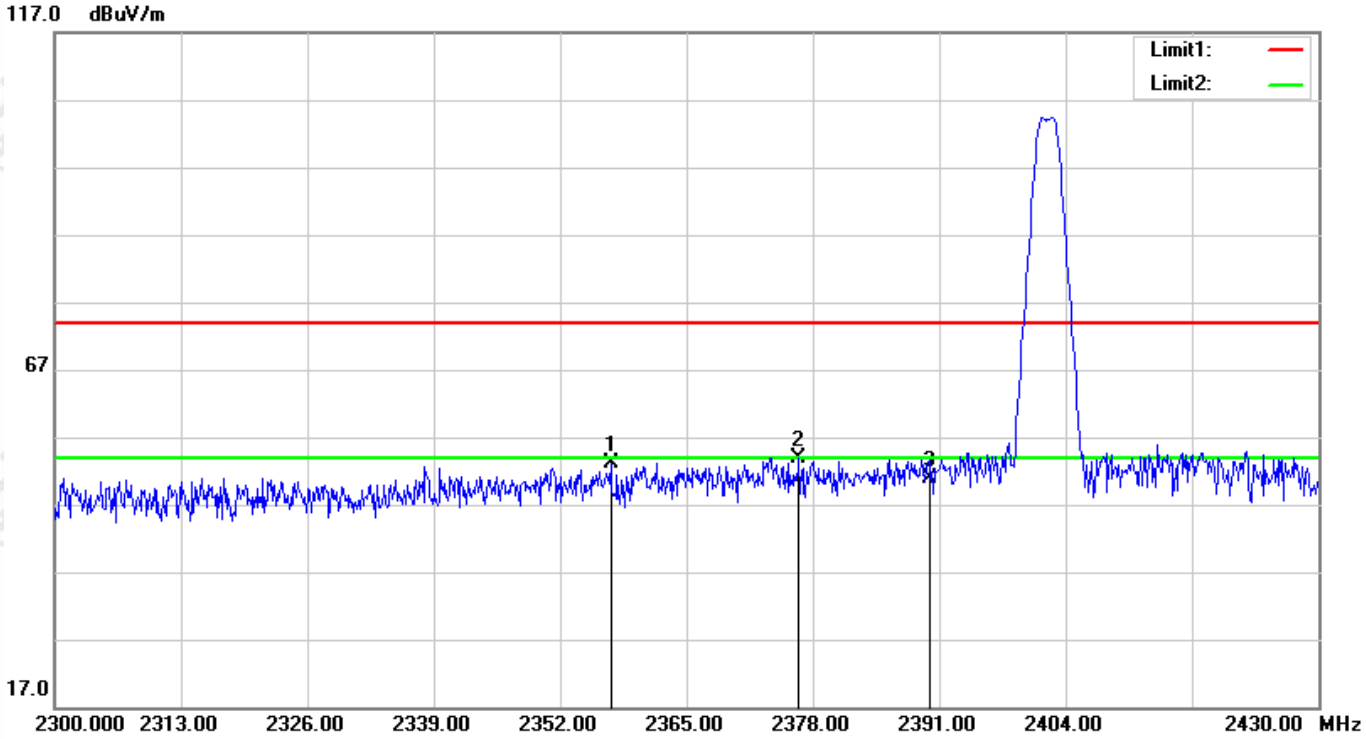
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2369.680	51.12	2.66	53.78	74.00	-20.22	200	287	peak
2	2374.360	51.34	2.67	54.01	74.00	-19.99	200	289	peak
3	2374.360	30.18	2.67	32.85	54.00	-21.15	200	289	AVG
4	2390.000	49.07	2.71	51.78	74.00	-22.22	100	301	peak

Mode:	BLE_125kbps	Channel:	2402
Remark:	Vertical	Test model No.:	HJSR04 Ble

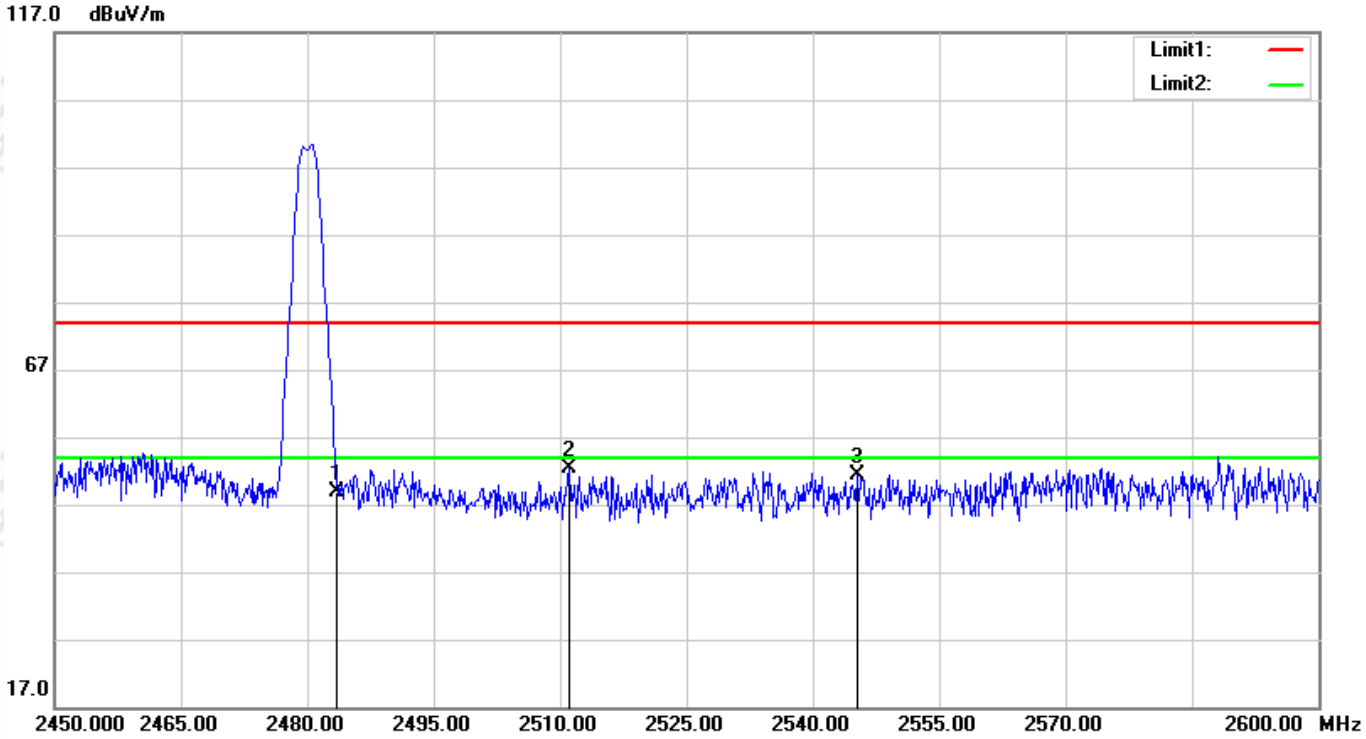
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2357.200	50.53	2.62	53.15	74.00	-20.85	200	303	peak
2	2376.570	51.19	2.68	53.87	74.00	-20.13	200	265	peak
3	2390.000	48.21	2.71	50.92	74.00	-23.08	100	69	peak

Mode:	BLE_125kbps	Channel:	2480
Remark:	Horizontal	Test model No.:	HJSR04 Ble

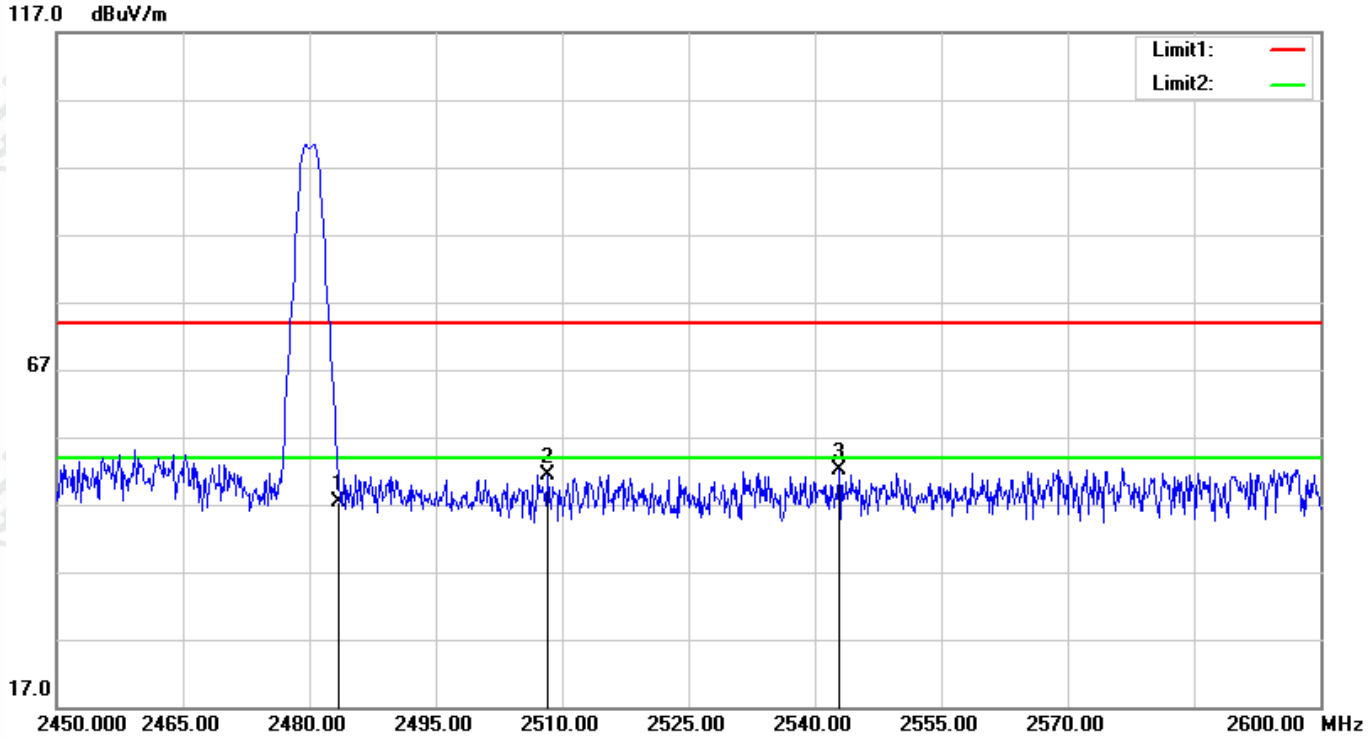
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.85	2.92	48.77	74.00	-25.23	100	263	peak
2	2511.050	49.32	2.97	52.29	74.00	-21.71	100	273	peak
3	2545.250	48.29	3.05	51.34	74.00	-22.66	100	88	peak

Mode:	BLE_125kbps	Channel:	2480
Remark:	Vertical	Test model No.:	HJSR04 Ble

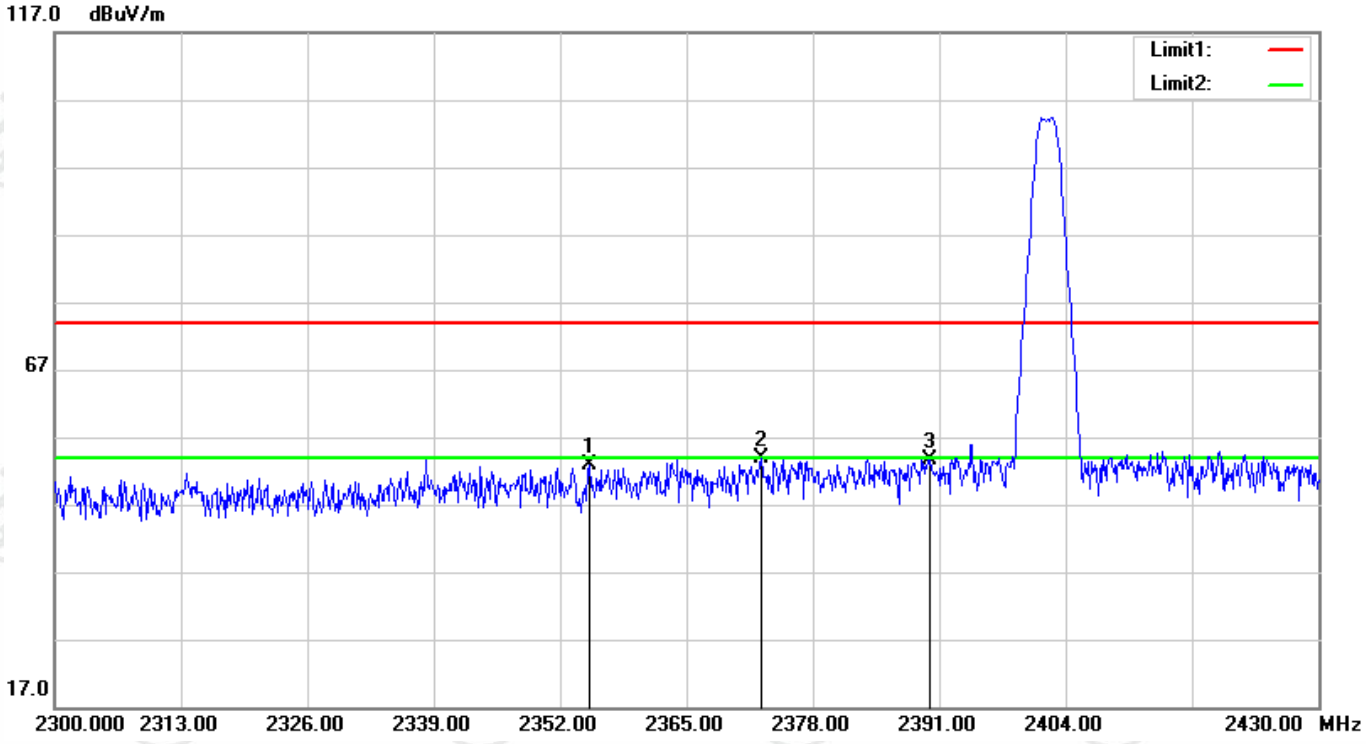
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	44.38	2.92	47.30	74.00	-26.70	100	262	peak
2	2508.350	48.38	2.97	51.35	74.00	-22.65	100	275	peak
3	2542.850	49.16	3.04	52.20	74.00	-21.80	100	100	peak

Mode:	BLE_500kbps	Channel:	2402
Remark:	Horizontal	Test model No.:	HJSR04 Ble

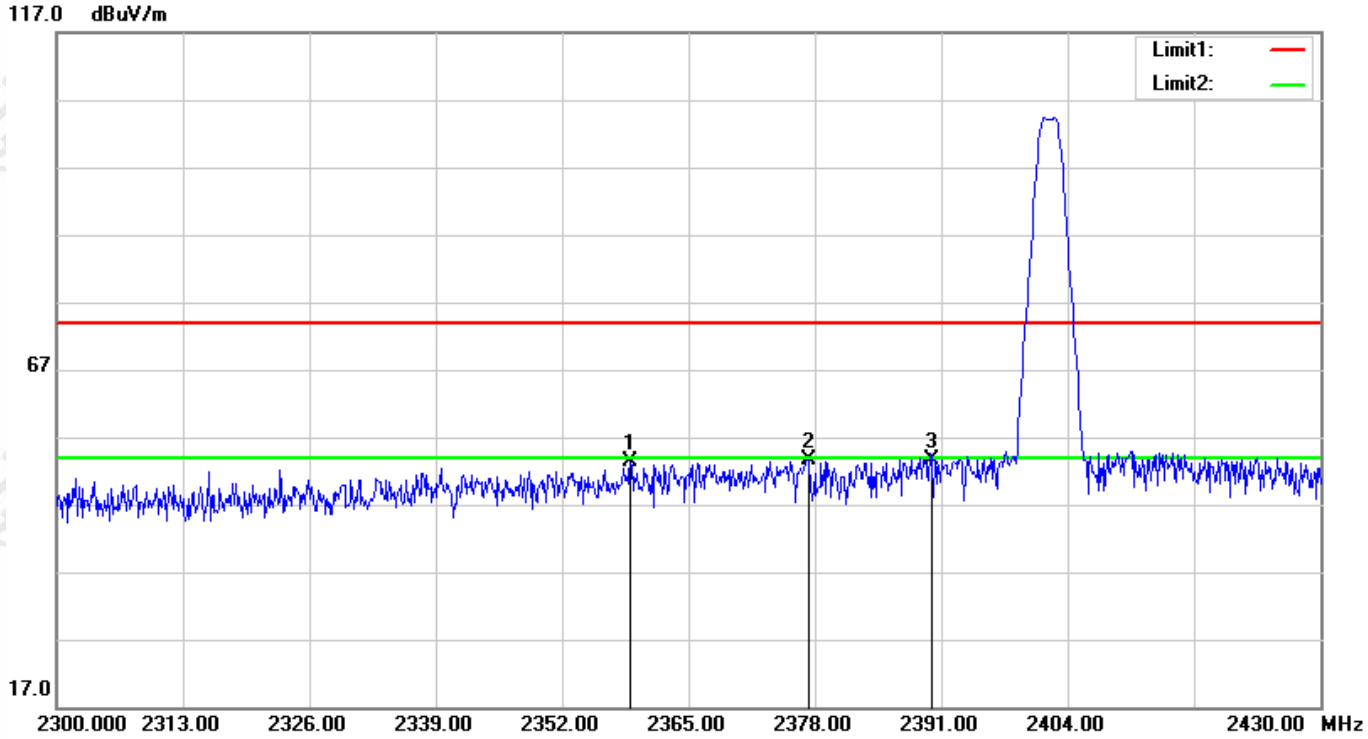
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2354.990	50.31	2.62	52.93	74.00	-21.07	200	301	peak
2	2372.670	51.21	2.67	53.88	74.00	-20.12	200	281	peak
3	2390.000	50.94	2.71	53.65	74.00	-20.35	100	36	peak

Mode:	BLE_500kbps	Channel:	2402
Remark:	Vertical	Test model No.:	HJSR04 Ble

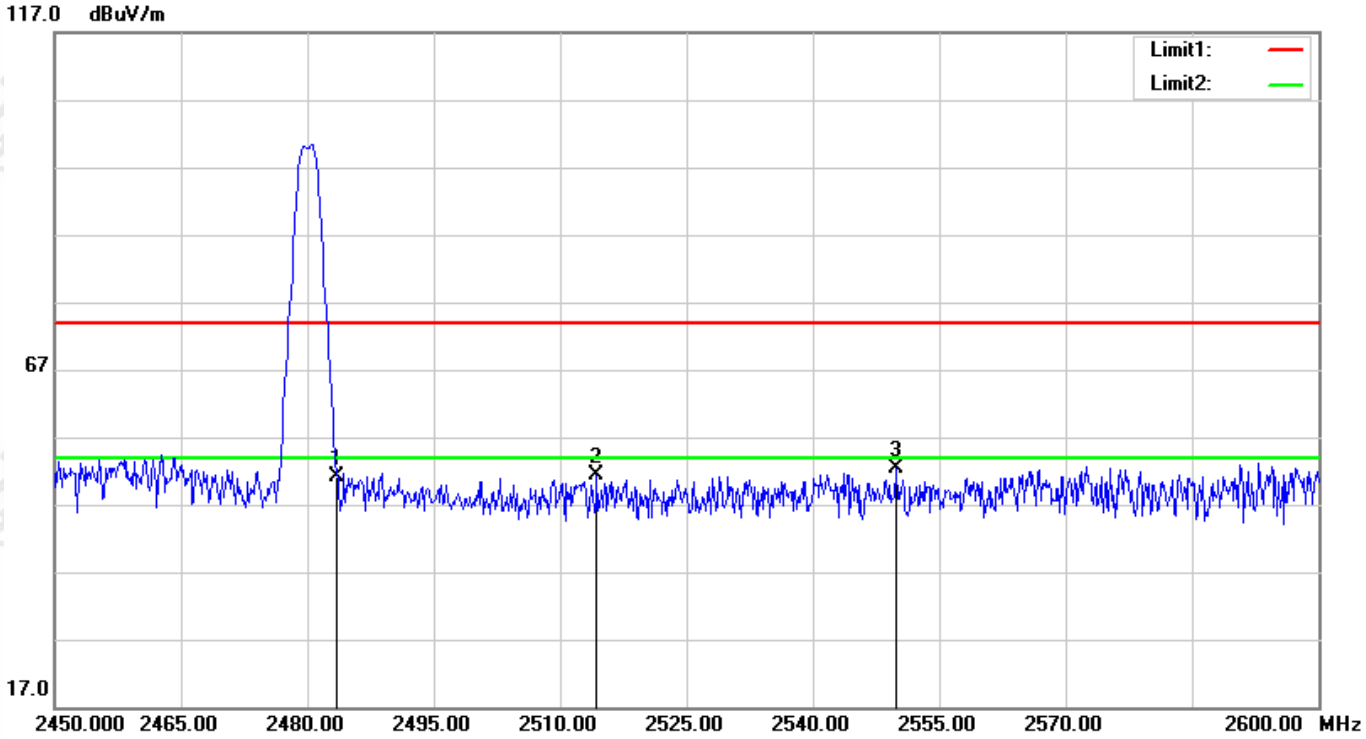
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2359.020	50.76	2.63	53.39	74.00	-20.61	200	302	peak
2	2377.350	50.93	2.68	53.61	74.00	-20.39	200	305	peak
3	2390.000	50.82	2.71	53.53	74.00	-20.47	200	262	peak

Mode:	BLE_500kbps	Channel:	2480
Remark:	Horizontal	Test model No.:	HJSR04 Ble

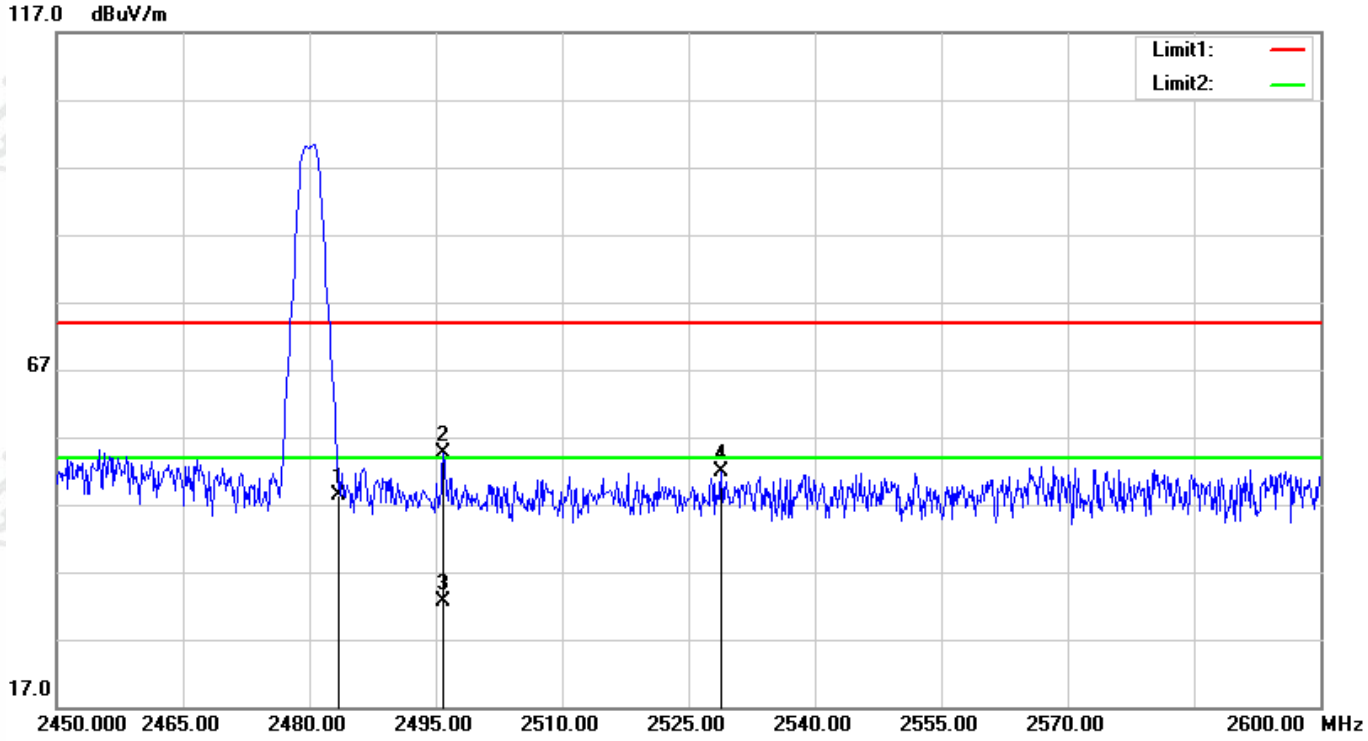
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.17	2.92	51.09	74.00	-22.91	100	257	peak
2	2514.350	48.37	2.98	51.35	74.00	-22.65	100	260	peak
3	2549.900	49.31	3.05	52.36	74.00	-21.64	100	87	peak

Mode:	BLE_500kbps	Channel:	2480
Remark:	Vertical	Test model No.:	HJSR04 Ble

Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.52	2.92	48.44	74.00	-25.56	200	326	peak
2	2495.900	51.72	2.94	54.66	74.00	-19.34	126	360	peak
3	2495.900	29.75	2.94	32.69	54.00	-21.31	126	360	AVG
4	2528.900	48.88	3.01	51.89	74.00	-22.11	100	257	peak

Note:

1)As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation. So, only the peak values are measured:

2) The field strength is calculated by adding the correct Factor. The basic equation with a sample calculation is as follows:

Final Test Level = Reading +Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix B): Radiated Spurious Emissions

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	1/T	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

a. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter (Above 18GHz the distance is 1 meter and table is 1.5 meter).

b. Test the EUT in the lowest channel, the middle channel, the Highest channel

c. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

d. Repeat above procedures until all frequencies measured was complete.

Limit:

Frequency	Field strength microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Radiated Spurious Emissions test Data:

Radiated Emission below 1GHz:

Mode:	BLE_2M	Channel:	2402
Test model No.:	HJH82B Ble		

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
62.9800	V	38.01	-19.48	18.53	40.00	-21.47	QP
165.8000	V	39.96	-22.47	17.49	43.50	-26.01	QP
331.6700	V	39.14	-16.63	22.51	46.00	-23.49	QP
499.4800	V	31.31	-11.35	19.96	46.00	-26.04	QP
831.2200	V	30.50	-9.45	21.05	46.00	-24.95	QP
998.0600	V	37.49	-7.35	30.14	54.00	-23.86	QP
62.0100	H	49.20	-19.19	30.01	40.00	-9.99	QP
167.7400	H	50.86	-22.41	28.45	43.50	-15.05	QP
332.6400	H	46.12	-16.59	29.53	46.00	-16.47	QP
499.4800	H	36.31	-11.35	24.96	46.00	-21.04	QP
830.2500	H	36.87	-9.46	27.41	46.00	-18.59	QP
997.0900	H	47.48	-7.36	40.12	54.00	-13.88	QP

Notes:

1) Through Pre-scan then find the BLE_2M -CH1 is the worst case mode and only the worst data was recorded.

Transmitter Emission above 1GHz:

Mode:	BLE_1M	Channel:	2402
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3992.000	52.39	7.83	60.22	74.00	-13.78	100	227	peak
2	3992.000	32.18	7.83	40.01	54.00	-13.99	100	227	AVG
3	7205.000	42.64	12.01	54.65	74.00	-19.35	100	30	peak
4	7205.000	22.77	12.01	34.78	54.00	-19.22	100	30	AVG
5	9602.000	40.52	14.87	55.39	74.00	-18.61	100	11	peak
6	9602.000	20.42	14.87	35.29	54.00	-18.71	100	11	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3975.000	50.98	7.75	58.73	74.00	-15.27	100	209	peak
2	3975.000	31.81	7.75	39.56	54.00	-14.44	100	209	AVG
3	4791.000	44.33	9.12	53.45	74.00	-20.55	100	252	peak
4	7205.000	42.64	12.01	54.65	74.00	-19.35	100	218	peak
5	7205.000	20.84	12.01	32.85	54.00	-21.15	100	218	AVG

Mode:	BLE_1M	Channel:	2440
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1663.000	53.83	-0.73	53.10	74.00	-20.90	100	33	peak
2	5318.000	43.05	9.63	52.68	74.00	-21.32	112	360	peak
3	6644.000	42.06	11.38	53.44	74.00	-20.56	119	360	peak
4	9602.000	38.34	14.87	53.21	74.00	-20.79	100	100	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4808.000	43.90	9.16	53.06	74.00	-20.94	100	268	peak
2	7205.000	45.08	12.01	57.09	74.00	-16.91	200	300	peak
3	7205.000	22.58	12.01	34.59	54.00	-19.41	200	300	AVG
4	9602.000	41.71	14.87	56.58	74.00	-17.42	100	282	peak
5	9602.000	18.71	14.87	33.58	54.00	-20.42	100	282	AVG

Mode:	BLE_1M	Channel:	2480
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2649.000	50.37	3.43	53.80	74.00	-20.20	100	148	peak
2	5318.000	41.32	9.63	50.95	74.00	-23.05	100	327	peak
3	12611.000	34.31	18.43	52.74	74.00	-21.26	200	252	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5318.000	42.78	9.63	52.41	74.00	-21.59	100	256	peak
2	8361.000	38.57	13.46	52.03	74.00	-21.97	200	77	peak
3	9602.000	38.69	14.87	53.56	74.00	-20.44	100	298	peak

Mode:	BLE_2M	Channel:	2402
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3992.000	49.49	7.83	57.32	74.00	-16.68	100	279	peak
2	3992.000	28.75	7.83	36.58	54.00	-17.42	100	279	AVG
3	4791.000	46.00	9.12	55.12	74.00	-18.88	100	318	peak
4	4791.000	23.79	9.12	32.91	54.00	-21.09	100	318	AVG
5	7205.000	44.17	12.01	56.18	74.00	-17.82	100	234	peak
6	7205.000	22.84	12.01	34.85	54.00	-19.15	100	234	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3992.000	52.41	7.83	60.24	74.00	-13.76	100	53	peak
2	3992.000	32.45	7.83	40.28	54.00	-13.72	100	53	AVG
3	4808.000	44.01	9.16	53.17	74.00	-20.83	200	31	peak
4	7205.000	45.17	12.01	57.18	74.00	-16.82	200	299	peak
5	7205.000	22.84	12.01	34.85	54.00	-19.15	200	299	AVG
6	9602.000	42.25	14.87	57.12	74.00	-16.88	100	279	peak
7	9602.000	21.77	14.87	36.64	54.00	-17.36	100	279	AVG

Mode:	BLE_2M	Channel:	2440
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2649.000	48.21	3.43	51.64	74.00	-22.36	185	360	peak
2	5301.000	43.05	9.61	52.66	74.00	-21.34	100	293	peak
3	8225.000	38.32	13.27	51.59	74.00	-22.41	200	329	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	50.21	0.96	51.17	74.00	-22.83	100	3	peak
2	2989.000	48.13	4.83	52.96	74.00	-21.04	116	360	peak
3	5335.000	42.16	9.65	51.81	74.00	-22.19	162	360	peak
4	8480.000	38.49	13.63	52.12	74.00	-21.88	167	360	peak

Mode:	BLE_2M	Channel:	2480
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2989.000	48.84	4.83	53.67	74.00	-20.33	161	360	peak
2	4791.000	44.92	9.12	54.04	74.00	-19.96	200	278	peak
3	4791.000	23.57	9.12	32.69	54.00	-21.31	200	278	AVG
4	6627.000	42.30	11.36	53.66	74.00	-20.34	200	0	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	52.30	0.96	53.26	74.00	-20.74	100	26	peak
2	6644.000	42.06	11.38	53.44	74.00	-20.56	200	0	peak
3	8429.000	37.99	13.56	51.55	74.00	-22.45	200	153	peak

Mode:	BLE_125kbps	Channel:	2402
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3975.000	53.29	7.75	61.04	74.00	-12.96	100	233	peak
2	3975.000	32.44	7.75	40.19	54.00	-13.81	100	233	AVG
3	6644.000	43.39	11.38	54.77	74.00	-19.23	184	360	peak
4	6644.000	21.21	11.38	32.59	54.00	-21.41	184	360	AVG
5	7205.000	46.05	12.01	58.06	74.00	-15.94	200	304	peak
6	7205.000	26.16	12.01	38.17	54.00	-15.83	200	304	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3975.000	53.79	7.75	61.54	74.00	-12.46	200	333	peak
2	3975.000	34.54	7.75	42.29	54.00	-11.71	200	333	AVG
3	4791.000	44.59	9.12	53.71	74.00	-20.29	100	176	peak
4	7205.000	46.50	12.01	58.51	74.00	-15.49	200	297	peak
5	7205.000	25.13	12.01	37.14	54.00	-16.86	200	297	AVG

Mode:	BLE_125kbps	Channel:	2440
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4791.000	47.84	9.12	56.96	74.00	-17.04	100	122	peak
2	4791.000	26.16	9.12	35.28	54.00	-18.72	100	122	AVG
3	8361.000	38.12	13.46	51.58	74.00	-22.42	134	360	peak
4	9602.000	40.02	14.87	54.89	74.00	-19.11	100	97	peak
5	9602.000	17.41	14.87	32.28	54.00	-21.72	100	97	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5335.000	44.33	9.65	53.98	74.00	-20.02	164	360	peak
2	6627.000	41.01	11.36	52.37	74.00	-21.63	167	360	peak
3	9602.000	42.46	14.87	57.33	74.00	-16.67	100	279	peak
4	9602.000	20.34	14.87	35.21	54.00	-18.79	100	279	AVG

Mode:	BLE_125kbps	Channel:	2480
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2156.000	50.96	1.94	52.90	74.00	-21.10	200	260	peak
2	6661.000	41.71	11.39	53.10	74.00	-20.90	174	360	peak
3	12730.000	33.49	18.42	51.91	74.00	-22.09	100	102	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1663.000	52.81	-0.73	52.08	74.00	-21.92	100	33	peak
2	4791.000	43.20	9.12	52.32	74.00	-21.68	100	246	peak
3	8225.000	38.24	13.27	51.51	74.00	-22.49	156	360	peak
4	11234.000	34.49	16.89	51.38	74.00	-22.62	100	84	peak

Mode:	BLE_500kbps	Channel:	2402
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3975.000	49.04	7.75	56.79	74.00	-17.21	100	203	peak
2	3975.000	28.27	7.75	36.02	54.00	-17.98	100	203	AVG
3	6644.000	44.64	11.38	56.02	74.00	-17.98	169	360	peak
4	6644.000	22.81	11.38	34.19	54.00	-19.81	169	360	AVG
5	7205.000	46.00	12.01	58.01	74.00	-15.99	200	301	peak
6	7205.000	26.58	12.01	38.59	54.00	-15.41	200	301	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3975.000	52.65	7.75	60.40	74.00	-13.60	100	53	peak
2	3975.000	30.81	7.75	38.56	54.00	-15.44	100	53	AVG
3	4808.000	45.22	9.16	54.38	74.00	-19.62	100	251	peak
4	4808.000	22.43	9.16	31.59	54.00	-22.41	100	251	AVG
5	7205.000	43.30	12.01	55.31	74.00	-18.69	100	268	peak
6	7205.000	23.01	12.01	35.02	54.00	-18.98	100	268	AVG

Mode:	BLE_500kbps	Channel:	2440
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3992.000	49.69	7.83	57.52	74.00	-16.48	100	354	peak
2	3992.000	27.19	7.83	35.02	54.00	-18.98	100	354	AVG
3	7205.000	42.72	12.01	54.73	74.00	-19.27	100	213	peak
4	7205.000	22.77	12.01	34.78	54.00	-19.22	100	213	AVG
5	9602.000	40.85	14.87	55.72	74.00	-18.28	100	155	peak
6	9602.000	18.02	14.87	32.89	54.00	-21.11	100	155	AVG

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3992.000	49.79	7.83	57.62	74.00	-16.38	100	208	peak
2	3992.000	27.43	7.83	35.26	54.00	-18.74	100	208	AVG
3	5335.000	41.69	9.65	51.34	74.00	-22.66	100	213	peak
4	9602.000	40.42	14.87	55.29	74.00	-18.71	100	103	peak
5	9602.000	18.98	14.87	33.85	54.00	-20.15	100	103	AVG

Mode:	BLE_500kbps	Channel:	2480
Test model No.:	HJH82B Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1663.000	53.43	-0.73	52.70	74.00	-21.30	100	14	peak
2	5318.000	41.30	9.63	50.93	74.00	-23.07	200	4	peak
3	6644.000	42.16	11.38	53.54	74.00	-20.46	200	359	peak
4	8633.000	37.91	13.81	51.72	74.00	-22.28	200	263	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4791.000	43.79	9.12	52.91	74.00	-21.09	200	301	peak
2	6644.000	40.28	11.38	51.66	74.00	-22.34	119	360	peak
3	8429.000	37.80	13.56	51.36	74.00	-22.64	143	360	peak
4	12713.000	33.74	18.42	52.16	74.00	-21.84	102	360	peak

Radiated Emission below 1GHz:

Mode:	BLE_1M	Channel:	2402
Test model No.:	HJSR04 Ble		

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
51.3400	V	40.24	-17.68	22.56	40.00	-17.44	QP
103.7200	V	39.99	-18.99	21.00	43.50	-22.50	QP
207.5100	V	37.36	-19.67	17.69	43.50	-25.81	QP
502.3900	V	34.45	-11.39	23.06	46.00	-22.94	QP
694.4500	V	35.06	-11.04	24.02	46.00	-21.98	QP
901.0600	V	33.23	-7.27	25.96	46.00	-20.04	QP
43.5800	H	40.83	-17.87	22.96	40.00	-17.04	QP
97.9000	H	39.29	-19.28	20.01	43.50	-23.49	QP
416.0600	H	35.09	-14.92	20.17	46.00	-25.83	QP
503.3600	H	33.07	-11.42	21.65	46.00	-24.35	QP
895.2400	H	32.40	-7.44	24.96	46.00	-21.04	QP
938.8900	H	34.83	-7.82	27.01	46.00	-18.99	QP

Notes:

1) Through Pre-scan then find the BLE_1M -CH1 is the worst case mode and only the worst data was recorded.

Transmitter Emission above 1GHz:

Mode:	BLE_1M	Channel:	2402
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	52.19	0.96	53.15	74.00	-20.85	100	22	peak
2	2989.000	48.32	4.83	53.15	74.00	-20.85	200	357	peak
3	6644.000	42.42	11.38	53.80	74.00	-20.20	184	360	peak
4	8429.000	37.64	13.56	51.20	74.00	-22.80	200	156	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1663.000	52.88	-0.73	52.15	74.00	-21.85	100	24	peak
2	1986.000	51.31	0.96	52.27	74.00	-21.73	100	24	peak
3	5335.000	41.02	9.65	50.67	74.00	-23.33	199	360	peak
4	8276.000	38.61	13.34	51.95	74.00	-22.05	100	209	peak

Mode:	BLE_1M	Channel:	2440
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.39	0.96	52.35	74.00	-21.65	100	9	peak
2	2649.000	47.85	3.43	51.28	74.00	-22.72	100	148	peak
3	3210.000	46.12	5.25	51.37	74.00	-22.63	100	358	peak
4	5318.000	42.43	9.63	52.06	74.00	-21.94	200	122	peak
5	6644.000	41.21	11.38	52.59	74.00	-21.41	199	360	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	50.84	0.96	51.80	74.00	-22.20	191	360	peak
2	2989.000	48.58	4.83	53.41	74.00	-20.59	133	360	peak
3	5318.000	41.61	9.63	51.24	74.00	-22.76	144	360	peak
4	6644.000	40.35	11.38	51.73	74.00	-22.27	200	0	peak

Mode:	BLE_1M	Channel:	2480
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	50.21	0.96	51.17	74.00	-22.83	100	16	peak
2	2989.000	45.68	4.83	50.51	74.00	-23.49	200	28	peak
3	6644.000	40.86	11.38	52.24	74.00	-21.76	154	360	peak
4	12730.000	34.35	18.42	52.77	74.00	-21.23	100	57	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.85	0.96	52.81	74.00	-21.19	100	4	peak
2	2649.000	48.70	3.43	52.13	74.00	-21.87	100	166	peak
3	2989.000	48.06	4.83	52.89	74.00	-21.11	106	360	peak
4	4808.000	43.03	9.16	52.19	74.00	-21.81	100	266	peak

Mode:	BLE_2M	Channel:	2402
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1765.000	52.89	0.09	52.98	74.00	-21.02	107	360	peak
2	2156.000	50.78	1.94	52.72	74.00	-21.28	100	276	peak
3	2989.000	47.50	4.83	52.33	74.00	-21.67	102	360	peak
4	4978.000	42.94	9.55	52.49	74.00	-21.51	200	360	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.30	0.96	52.26	74.00	-21.74	100	31	peak
2	2989.000	47.50	4.83	52.33	74.00	-21.67	149	360	peak
3	4808.000	44.73	9.16	53.89	74.00	-20.11	100	179	peak
4	8344.000	37.98	13.44	51.42	74.00	-22.58	100	340	peak

Mode:	BLE_2M	Channel:	2440
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1323.000	55.28	-2.82	52.46	74.00	-21.54	100	43	peak
2	2156.000	50.79	1.94	52.73	74.00	-21.27	200	301	peak
3	2972.000	46.95	4.78	51.73	74.00	-22.27	200	2	peak
4	5318.000	44.34	9.63	53.97	74.00	-20.03	100	258	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1323.000	55.25	-2.82	52.43	74.00	-21.57	200	57	peak
2	2156.000	50.24	1.94	52.18	74.00	-21.82	100	53	peak
3	2649.000	49.72	3.43	53.15	74.00	-20.85	100	159	peak
4	4791.000	44.48	9.12	53.60	74.00	-20.40	100	254	peak

Mode:	BLE_2M	Channel:	2480
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2666.000	47.83	3.53	51.36	74.00	-22.64	170	360	peak
2	4808.000	43.87	9.16	53.03	74.00	-20.97	200	273	peak
3	5318.000	43.45	9.63	53.08	74.00	-20.92	100	304	peak
4	6644.000	40.65	11.38	52.03	74.00	-21.97	191	360	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	52.15	0.96	53.11	74.00	-20.89	100	14	peak
2	2989.000	47.75	4.83	52.58	74.00	-21.42	153	360	peak
3	5318.000	43.66	9.63	53.29	74.00	-20.71	146	360	peak
4	6644.000	41.60	11.38	52.98	74.00	-21.02	200	0	peak

Mode:	BLE_125kbps	Channel:	2402
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	50.67	0.96	51.63	74.00	-22.37	200	25	peak
2	2649.000	48.04	3.43	51.47	74.00	-22.53	200	256	peak
3	4791.000	44.11	9.12	53.23	74.00	-20.77	200	281	peak
4	5318.000	42.64	9.63	52.27	74.00	-21.73	200	332	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1323.000	54.76	-2.82	51.94	74.00	-22.06	200	310	peak
2	1765.000	52.38	0.09	52.47	74.00	-21.53	100	4	peak
3	4791.000	44.98	9.12	54.10	74.00	-19.90	100	188	peak
4	4791.000	23.51	9.12	32.63	54.00	-21.37	100	188	AVG
5	6627.000	40.88	11.36	52.24	74.00	-21.76	186	360	peak

Mode:	BLE_125kbps	Channel:	2440
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.09	0.96	52.05	74.00	-21.95	100	22	peak
2	2989.000	46.74	4.83	51.57	74.00	-22.43	200	355	peak
3	4791.000	44.49	9.12	53.61	74.00	-20.39	200	277	peak
4	5301.000	43.25	9.61	52.86	74.00	-21.14	100	251	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.52	0.96	52.48	74.00	-21.52	100	32	peak
2	2989.000	48.20	4.83	53.03	74.00	-20.97	163	360	peak
3	5318.000	44.77	9.63	54.40	74.00	-19.60	100	262	peak
4	5318.000	23.00	9.63	32.63	54.00	-21.37	100	262	AVG

Mode:	BLE_125kbps	Channel:	2480
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.22	0.96	52.18	74.00	-21.82	165	360	peak
2	2666.000	49.09	3.53	52.62	74.00	-21.38	200	96	peak
3	5318.000	41.67	9.63	51.30	74.00	-22.70	100	262	peak
4	8429.000	38.32	13.56	51.88	74.00	-22.12	200	7	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2581.000	47.31	3.12	50.43	74.00	-23.57	100	22	peak
2	3312.000	46.15	5.53	51.68	74.00	-22.32	191	360	peak
3	5318.000	42.74	9.63	52.37	74.00	-21.63	100	251	peak
4	7205.000	40.58	12.01	52.59	74.00	-21.41	200	342	peak

Mode:	BLE_500kbps	Channel:	2402
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	52.20	0.96	53.16	74.00	-20.84	100	20	peak
2	2156.000	50.91	1.94	52.85	74.00	-21.15	200	310	peak
3	2989.000	48.06	4.83	52.89	74.00	-21.11	100	156	peak
4	4791.000	44.19	9.12	53.31	74.00	-20.69	100	252	peak
5	6644.000	41.37	11.38	52.75	74.00	-21.25	138	360	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1663.000	51.96	-0.73	51.23	74.00	-22.77	100	26	peak
2	4791.000	44.34	9.12	53.46	74.00	-20.54	200	276	peak
3	5318.000	43.31	9.63	52.94	74.00	-21.06	100	265	peak
4	8480.000	37.61	13.63	51.24	74.00	-22.76	100	143	peak

Mode:	BLE_500kbps	Channel:	2440
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1646.000	52.63	-0.86	51.77	74.00	-22.23	100	32	peak
2	1986.000	50.61	0.96	51.57	74.00	-22.43	161	360	peak
3	2989.000	49.19	4.83	54.02	74.00	-19.98	200	360	peak
4	5335.000	42.56	9.65	52.21	74.00	-21.79	134	360	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	50.23	0.96	51.19	74.00	-22.81	200	22	peak
2	2989.000	47.08	4.83	51.91	74.00	-22.09	200	360	peak
3	4791.000	42.99	9.12	52.11	74.00	-21.89	200	39	peak
4	8650.000	37.30	13.82	51.12	74.00	-22.88	200	273	peak

Mode:	BLE_500kbps	Channel:	2480
Test model No.:	HJSR04 Ble		

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1986.000	51.18	0.96	52.14	74.00	-21.86	167	360	peak
2	2989.000	48.13	4.83	52.96	74.00	-21.04	150	360	peak
3	5318.000	43.49	9.63	53.12	74.00	-20.88	100	331	peak
4	9602.000	38.15	14.87	53.02	74.00	-20.98	100	8	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1323.000	55.32	-2.82	52.50	74.00	-21.50	200	62	peak
2	2989.000	48.16	4.83	52.99	74.00	-21.01	148	360	peak
3	5335.000	42.31	9.65	51.96	74.00	-22.04	183	360	peak
4	8633.000	37.70	13.81	51.51	74.00	-22.49	100	318	peak

Note:

1)As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the pe ak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak values are measured:

2) The field strength is calculated by adding the correct Factor. The basic equation with a sample calculation is as follows:

Final Test Level = Reading +Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.