

10.4. Test result

PASS. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test the emission levels are 20 dB below the limit was detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz.

Note2: For emissions below 1GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in left side GFSK, Tx 2441 MHz mode.

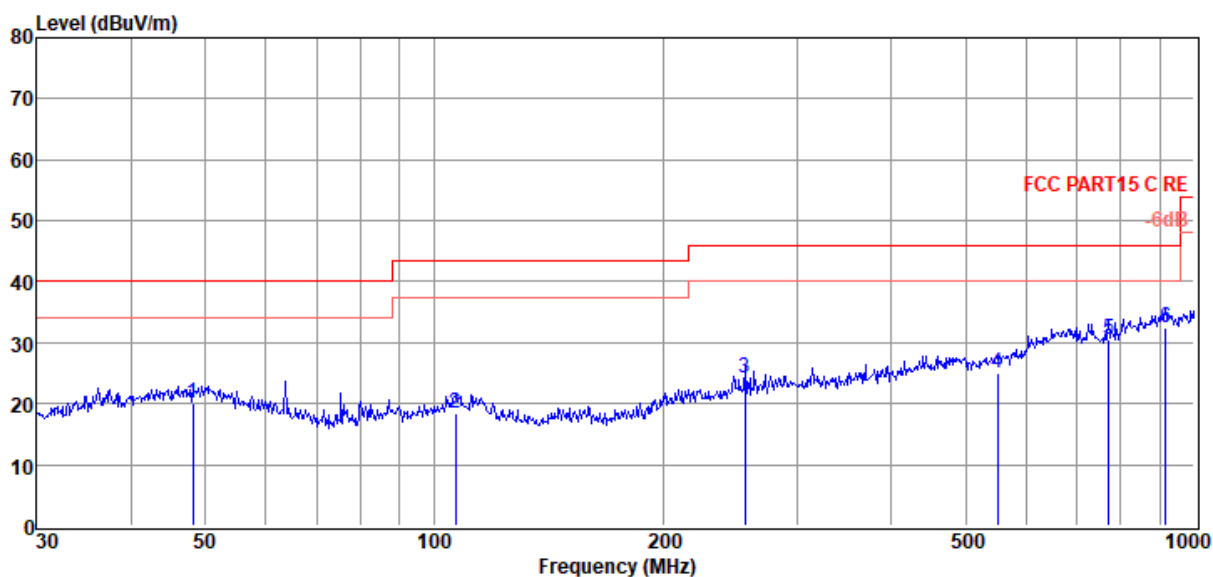
Note3: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

Radiated Emission test (below 1GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#
Test Date : 2019-12-13
EUT : HiFi Bluetooth Neckband Receiver
Power Supply : Battery
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa
Memo :

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC BELOW 1G.EM6
Tested By : Jacky
Model Number : LC-BT2
Test Mode : Tx mode
Antenna/Distance : 2018 VULB 9163 1#/3m/VERTICAL



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	48.16	1.73	14.40	3.85	19.98	40.00	-20.02	QP	VERTICAL
2	106.76	2.38	11.77	4.24	18.39	43.50	-25.11	QP	VERTICAL
3	256.52	6.06	13.00	5.03	24.09	46.00	-21.91	QP	VERTICAL
4	550.95	1.19	17.85	5.96	25.00	46.00	-21.00	QP	VERTICAL
5	771.45	3.56	20.54	6.54	30.64	46.00	-15.36	QP	VERTICAL
6	916.07	3.54	21.88	6.99	32.41	46.00	-13.59	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC BELOW 1G.EM6

Test Date : 2019-12-13

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

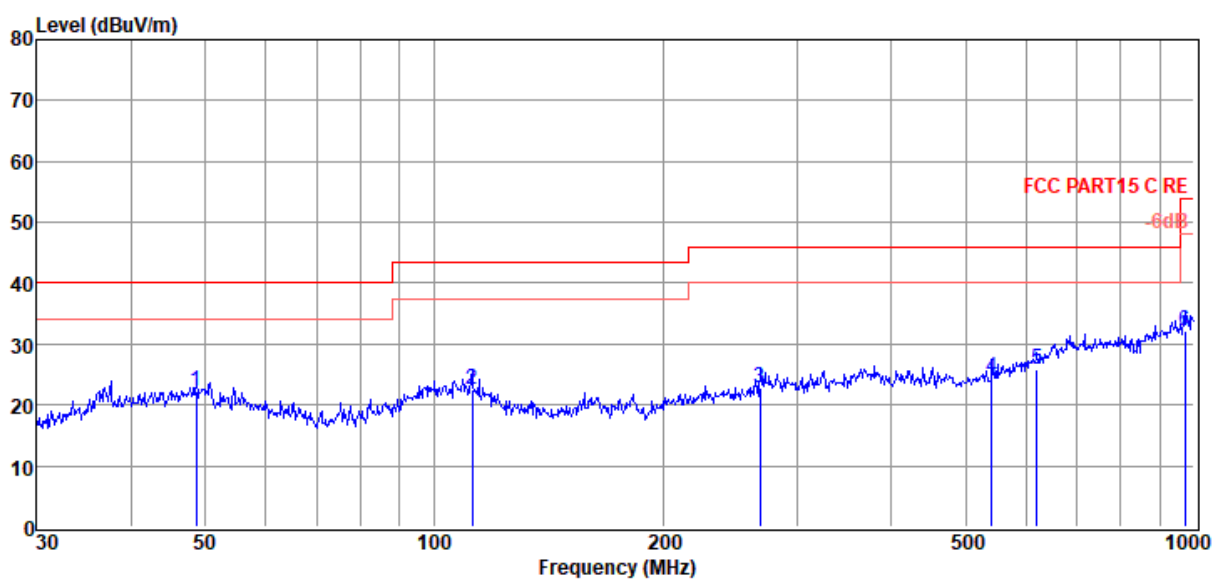
Power Supply : Battery

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa

Antenna/Distance : 2018 VULB 9163 1#/3m/HORIZONTAL

Memo :



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	48.67	3.94	14.46	3.86	22.26	40.00	-17.74	QP	HORIZONTAL
2	112.13	6.88	11.34	4.27	22.49	43.50	-21.01	QP	HORIZONTAL
3	268.49	4.43	13.29	5.07	22.79	46.00	-23.21	QP	HORIZONTAL
4	541.37	0.85	17.71	5.94	24.50	46.00	-21.50	QP	HORIZONTAL
5	620.71	0.73	18.85	6.15	25.73	46.00	-20.27	QP	HORIZONTAL
6	972.34	2.67	22.51	7.06	32.24	54.00	-21.76	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission test (above 1GHz)

Freq. (MHz)	Read level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit (dBμV/ m)	Margin (dB)	Detector type	Polarization
Tx mode 2402MHz									
4804.00	58.08	34.12	43.48	6.79	55.51	74.00	-18.49	Peak	HORIZONTAL
4804.00	51.50	34.12	43.48	6.79	48.93	54.00	-5.07	Average	HORIZONTAL
6406.00	44.27	35.53	43.03	7.85	44.62	74.00	-29.38	Peak	HORIZONTAL
7817.00	43.48	36.49	42.82	8.86	46.01	74.00	-27.99	Peak	HORIZONTAL
9619.00	43.35	37.50	42.47	9.64	48.02	74.00	-25.98	Peak	HORIZONTAL
12050.00	44.38	38.41	42.25	10.84	51.38	74.00	-22.62	Peak	HORIZONTAL
13376.00	42.45	39.50	40.89	11.85	52.91	74.00	-21.09	Peak	HORIZONTAL
4804.00	54.08	34.12	43.48	6.79	51.51	74.00	-22.49	Peak	VERTICAL
4804.00	49.00	34.12	43.48	6.79	46.43	54.00	-7.57	Average	VERTICAL
6185.00	43.41	35.35	43.07	7.72	43.41	74.00	-30.59	Peak	VERTICAL
7715.00	43.95	36.43	42.84	8.78	46.32	74.00	-27.68	Peak	VERTICAL
10299.00	43.29	37.68	42.38	10.09	48.68	74.00	-25.32	Peak	VERTICAL
11710.00	44.04	38.29	42.31	10.72	50.74	74.00	-23.26	Peak	VERTICAL
12866.00	43.46	38.79	41.40	11.41	52.26	74.00	-21.74	Peak	VERTICAL
Tx mode 2441MHz									
4884.00	51.23	34.28	43.46	6.84	48.89	74.00	-25.11	Peak	HORIZONTAL
7171.00	43.62	36.04	42.91	8.34	45.09	74.00	-28.91	Peak	HORIZONTAL
9874.00	43.18	37.70	42.42	9.82	48.28	74.00	-25.72	Peak	HORIZONTAL
12101.00	44.70	38.42	42.19	10.87	51.80	74.00	-22.20	Peak	HORIZONTAL
12951.00	43.98	38.86	41.31	11.47	53.00	74.00	-21.00	Peak	HORIZONTAL
13529.00	42.64	39.74	40.74	11.98	53.62	74.00	-20.38	Peak	HORIZONTAL
4884.00	49.52	34.28	43.46	6.84	47.18	74.00	-26.82	Peak	VERTICAL
7936.00	45.27	36.56	42.81	8.95	47.97	74.00	-26.03	Peak	VERTICAL
9840.00	43.64	37.67	42.43	9.79	48.67	74.00	-25.33	Peak	VERTICAL
12050.00	44.61	38.41	42.25	10.84	51.61	74.00	-22.39	Peak	VERTICAL
13410.00	43.04	39.56	40.86	11.88	53.62	74.00	-20.38	Peak	VERTICAL
13920.00	41.22	40.21	40.37	12.33	53.39	74.00	-20.61	Peak	VERTICAL
Tx mode 2480MHz									
4961.00	47.89	34.43	43.43	6.88	45.77	74.00	-28.23	Peak	HORIZONTAL
7936.00	44.34	36.56	42.81	8.95	47.04	74.00	-26.96	Peak	HORIZONTAL
9755.00	43.73	37.61	42.44	9.74	48.64	74.00	-25.36	Peak	HORIZONTAL
11115.00	43.09	38.12	42.34	10.54	49.41	74.00	-24.59	Peak	HORIZONTAL
12424.00	43.96	38.49	41.85	11.10	51.70	74.00	-22.30	Peak	HORIZONTAL
13359.00	43.14	39.48	40.91	11.83	53.54	74.00	-20.46	Peak	HORIZONTAL
4960.00	48.88	34.42	43.43	6.88	46.75	74.00	-27.25	Peak	VERTICAL
7256.00	44.02	36.11	42.90	8.42	45.65	74.00	-28.35	Peak	VERTICAL
9755.00	42.45	37.61	42.44	9.74	47.36	74.00	-26.64	Peak	VERTICAL
11251.00	42.92	38.15	42.34	10.58	49.31	74.00	-24.69	Peak	VERTICAL
12679.00	43.16	38.65	41.59	11.28	51.50	74.00	-22.50	Peak	VERTICAL
13393.00	42.30	39.53	40.88	11.86	52.81	74.00	-21.19	Peak	VERTICAL
Result: Pass									

Note: 1. 30MHz~25GHz: (Scan with all side GFSK, $\pi/4$ -DQPSK, 8DPSK, the worst case is left side GFSK Mode)

2. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

3. For emissions above 1GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

11. RF Conducted Spurious Emissions

11.1. Block diagram of test setup

Same as section 4.1

11.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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.

11.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

Center frequency	Test frequency
RBW:	100 kHz
VBW:	300 kHz
Span	Wide enough to capture the peak level of the in-band emission
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

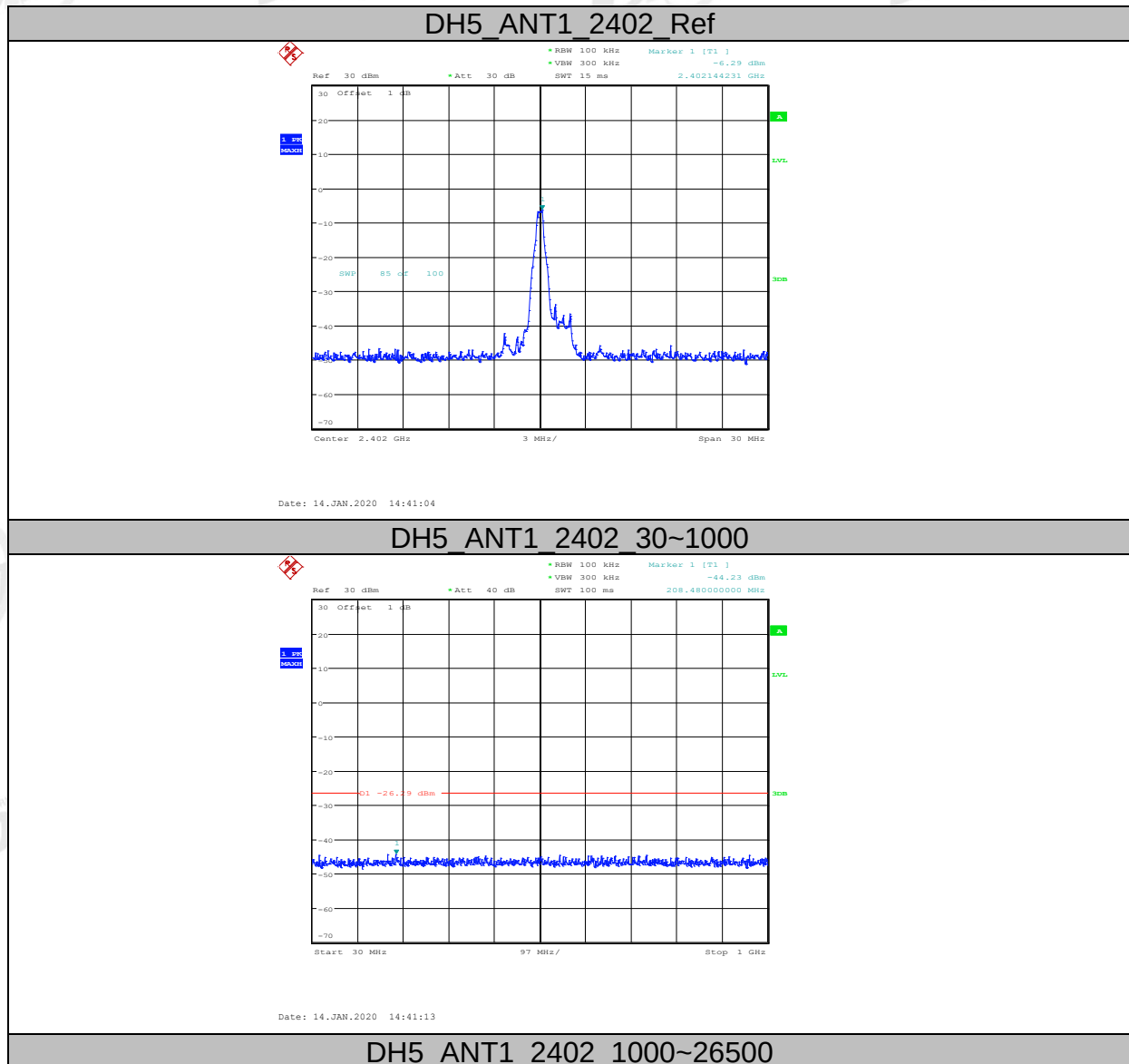
RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

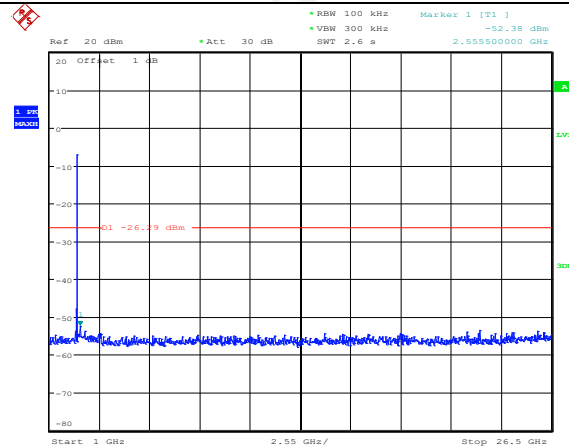
(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

11.4. Test Result

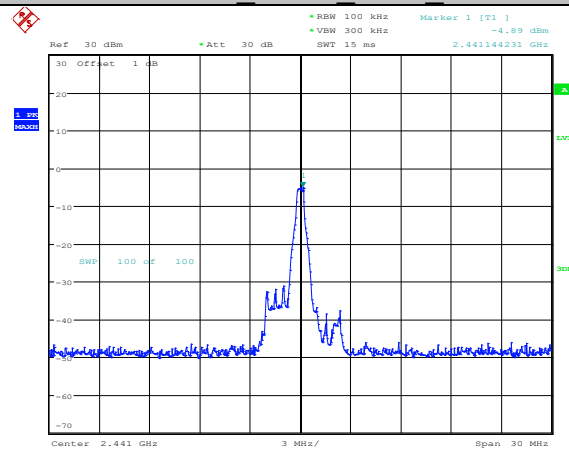
Mode	Freq. (MHz)	Conclusion
GFSK	Hopping off 2402	PASS
	Hopping off 2441	PASS
	Hopping off 2480	PASS
$\pi/4$ -DQPSK	Hopping off 2402	PASS
	Hopping off 2441	PASS
	Hopping off 2480	PASS
8DPSK	Hopping off 2402	PASS
	Hopping off 2441	PASS
	Hopping off 2480	PASS

11.5. Original test data

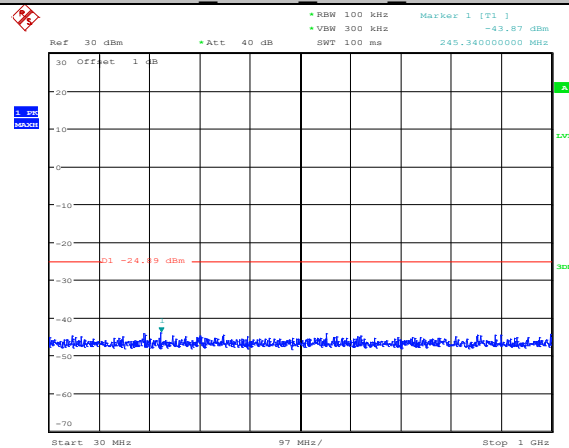




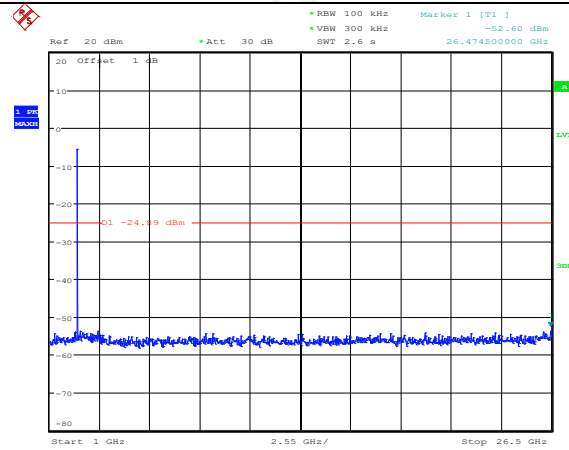
DH5_ANT1_2441_Ref



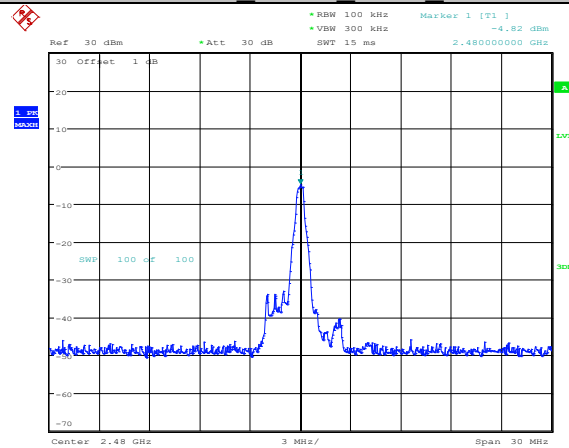
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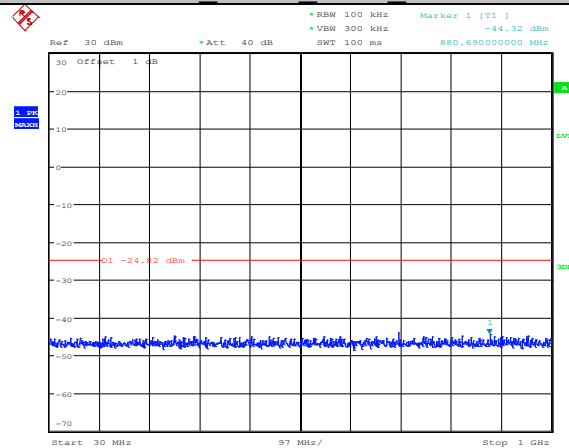
DH5_ANT1_2441_1000~26500



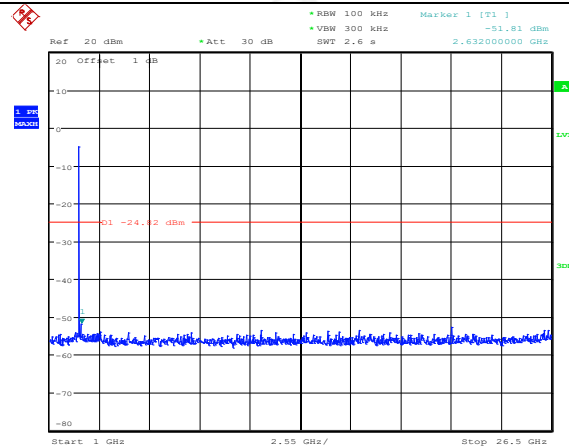
DH5_ANT1_2480_Ref



DH5_ANT1_2480_30~1000

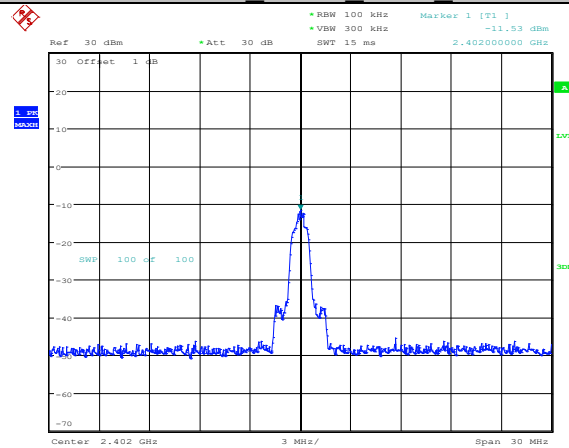


DH5_ANT1_2480_1000~26500



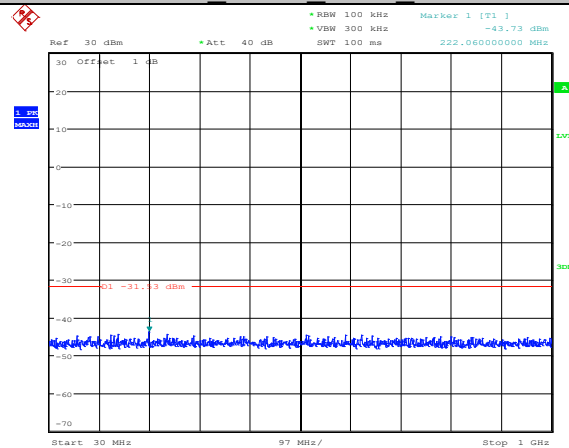
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2DH5 ANT1 2402 Ref



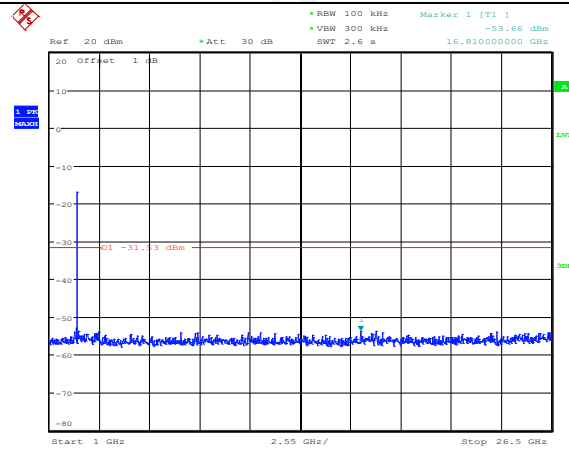
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2DH5 ANT1 2402 30~1000

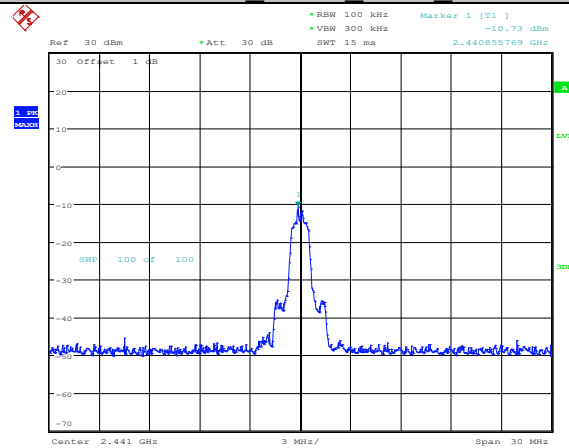


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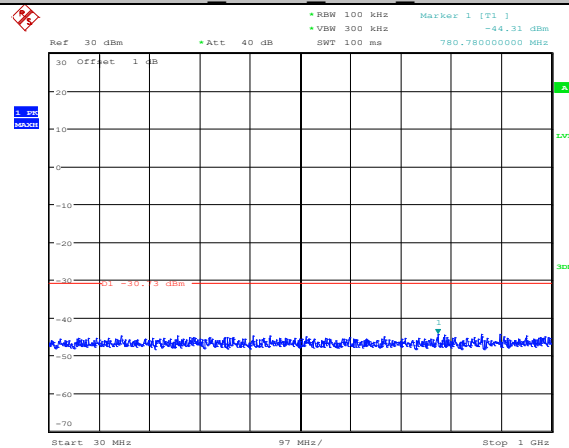
2DH5 ANT1 2402 1000~26500



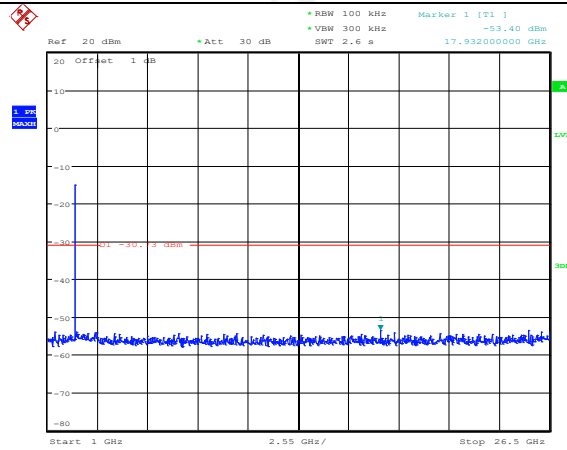
2DH5 ANT1 2441 Ref



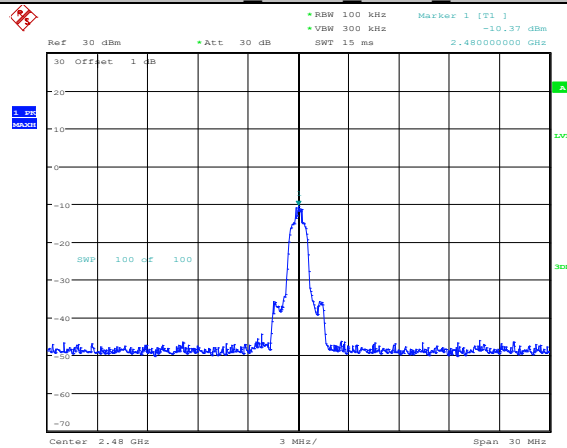
2DH5 ANT1 2441 30~1000



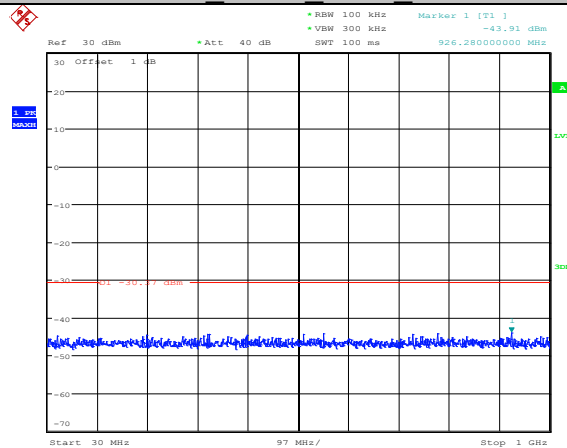
2DH5 ANT1 2441 1000~26500



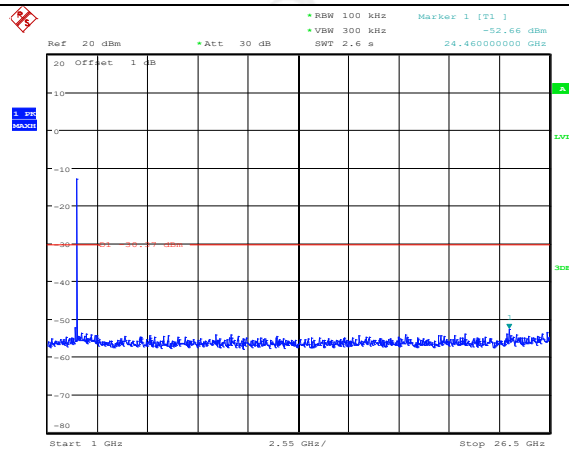
2DH5_ANT1_2480_Ref



2DH5_ANT1_2480_30~1000

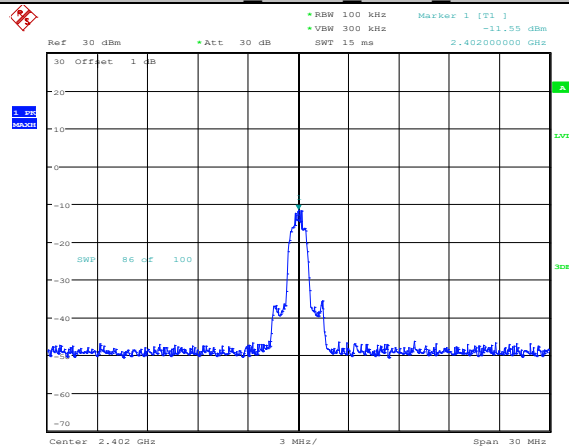


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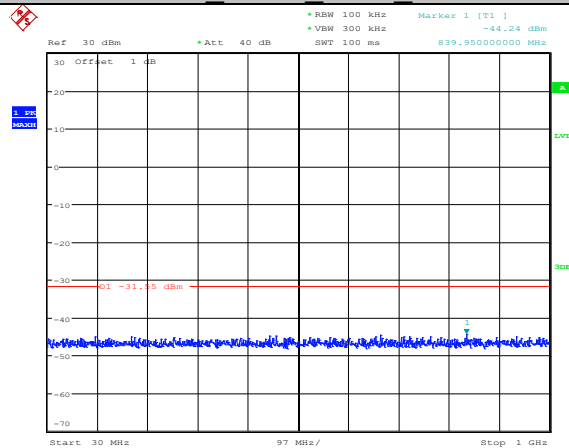
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3DH5 ANT1 2402 Ref



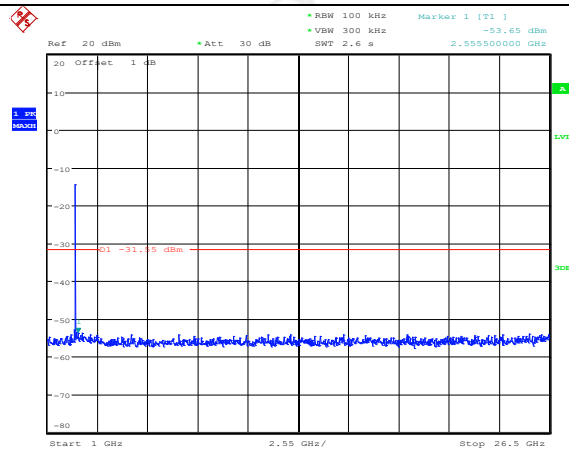
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3DH5 ANT1 2402 30~1000



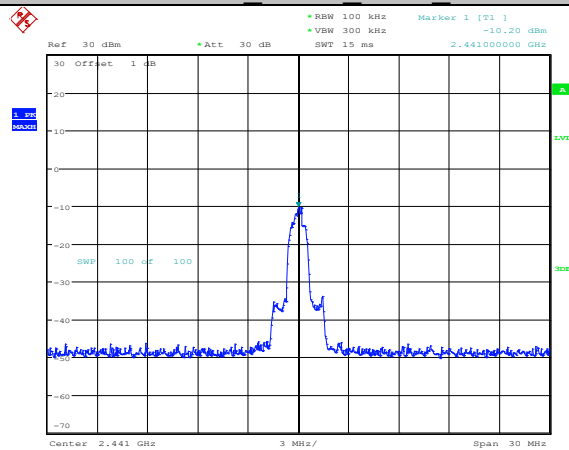
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3DH5 ANT1 2402 1000~26500



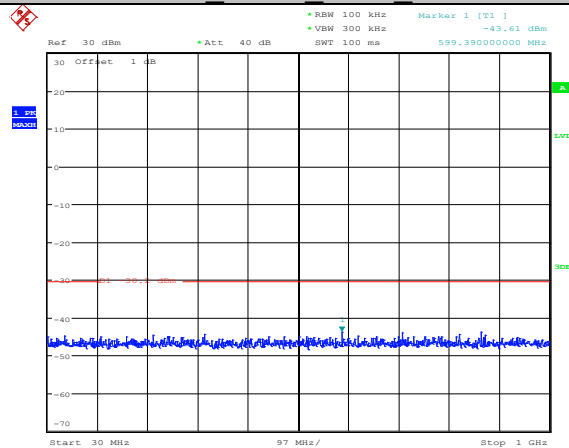
Date: 14.JAN.2020 14:49:34

3DH5 ANT1 2441 Ref



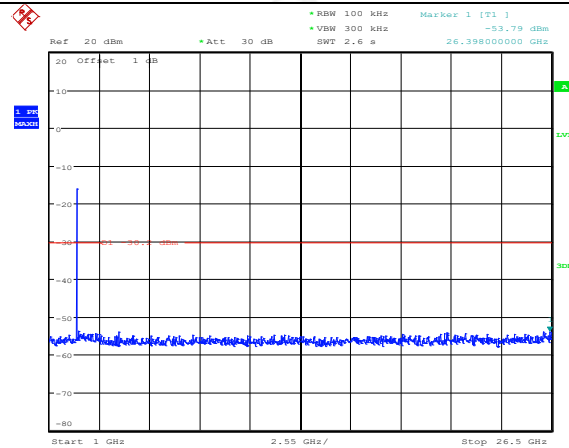
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3DH5 ANT1 2441 30~1000

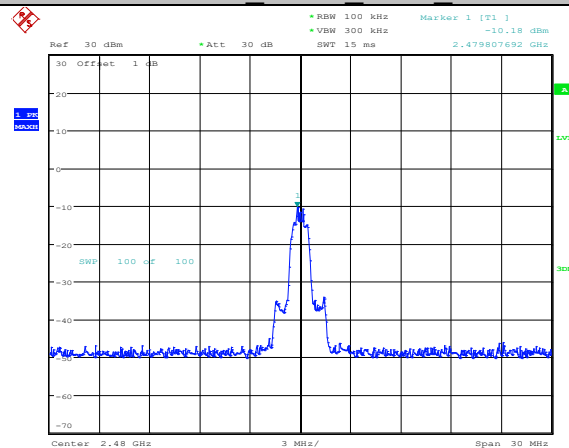


Date: 14.JAN.2020 14:51:11

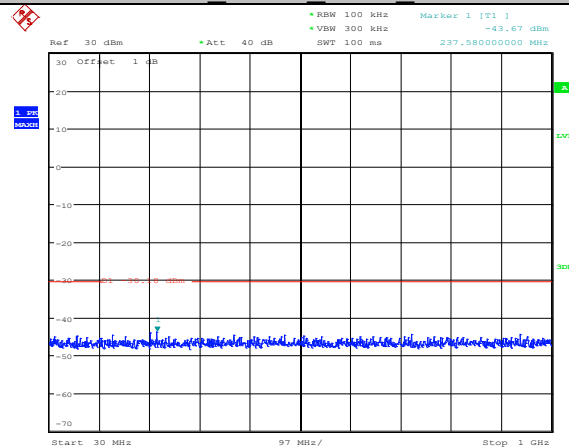
3DH5 ANT1 2441 1000~26500



Date: 14.JAN.2020 14:51:23

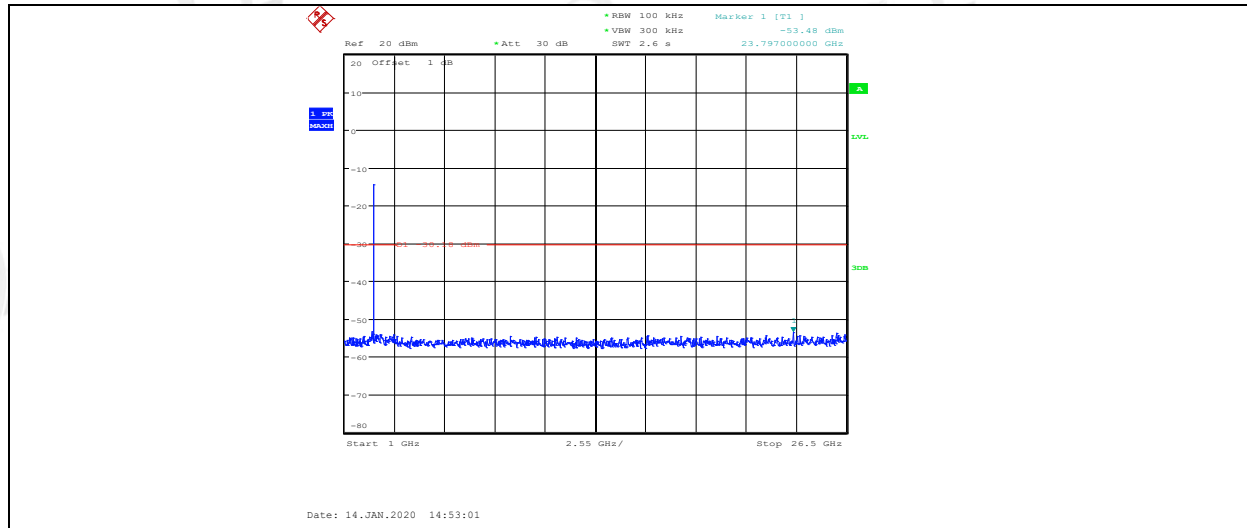
3DH5 ANT1 2480 Ref

Date: 14.JAN.2020 14:52:41

3DH5 ANT1 2480 30~1000

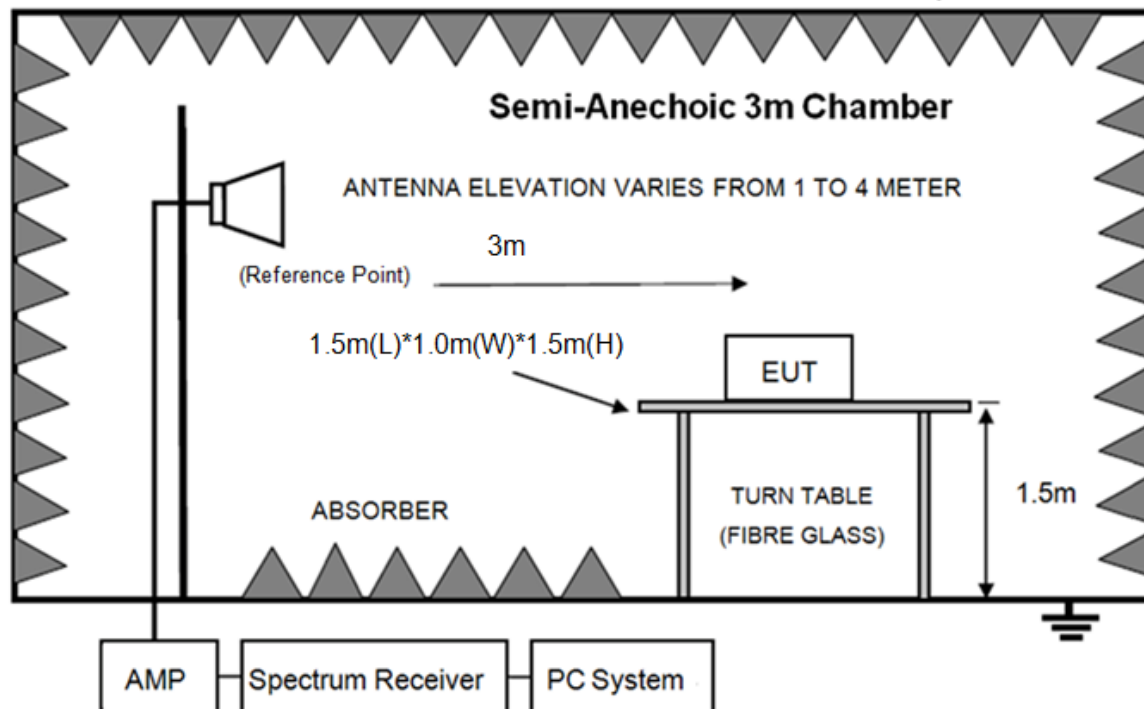
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3DH5 ANT1 2480 1000~26500



12. Band Edge Compliance (radiated method)

12.1. Block diagram of test setup



12.2. Limit

All restriction band should comply with 15.209, other emission should be at least 20dB below the fundamental.

12.3. Test Procedure

Same with clause 10.3 except change investigated frequency range from 2310 MHz to 2410 MHz and 2475 MHz to 2500 MHz.

Remark: All restriction band have been tested, and only the worst case is shown in report.

12.4. Test result

PASS. (See below detailed test result)

Remark: hopping on and hopping off mode all have been test, hopping off mode is worse and reported only. Scan with all side, the worst case is left side recorded in this report.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

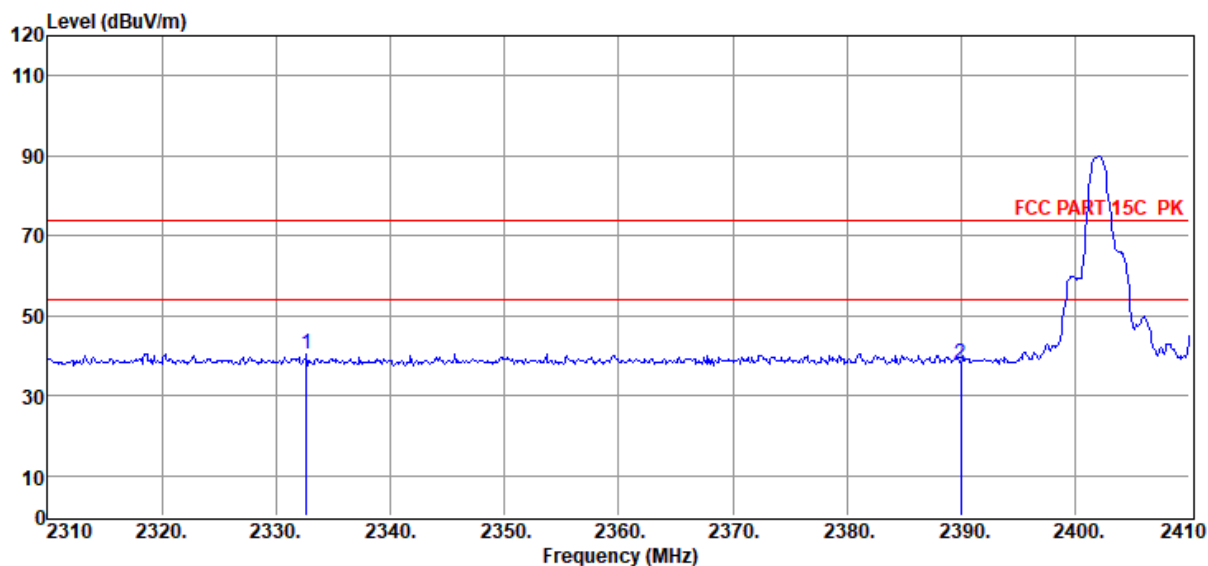
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : DH5 2402

Data: 138



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2332.70	49.85	29.33	43.18	4.28	40.28	74.00	-33.72	Peak	HORIZONTAL
2	2390.00	47.51	29.46	43.21	4.34	38.10	74.00	-35.90	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

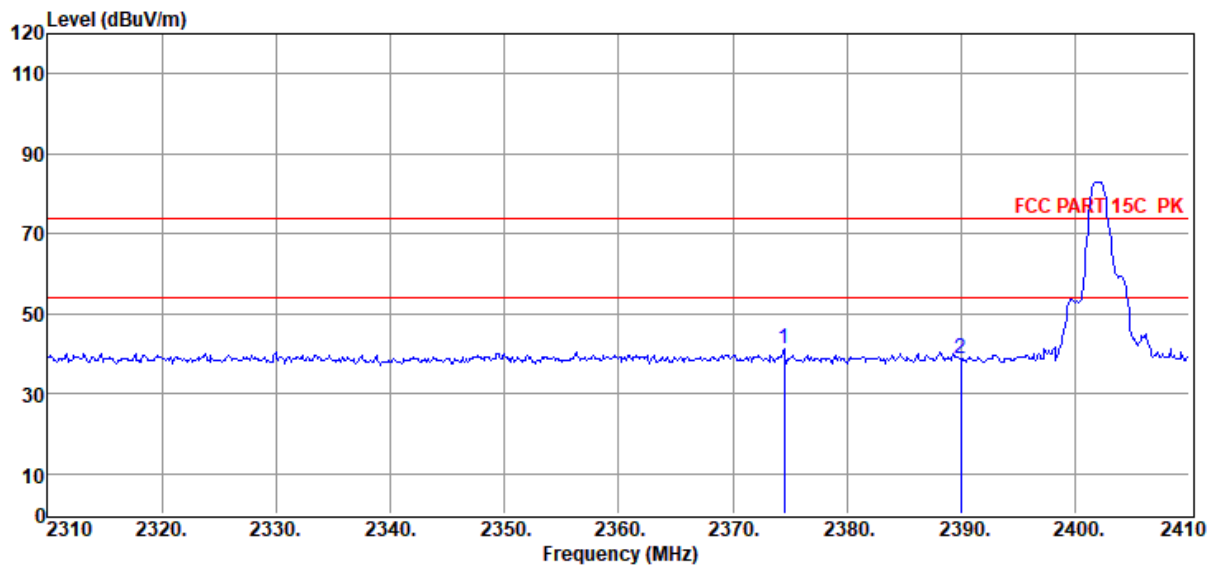
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : DH5 2402

Data: 139



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2374.50	50.52	29.42	43.20	4.32	41.06	74.00	-32.94	Peak	VERTICAL
2	2390.00	48.28	29.46	43.21	4.34	38.87	74.00	-35.13	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

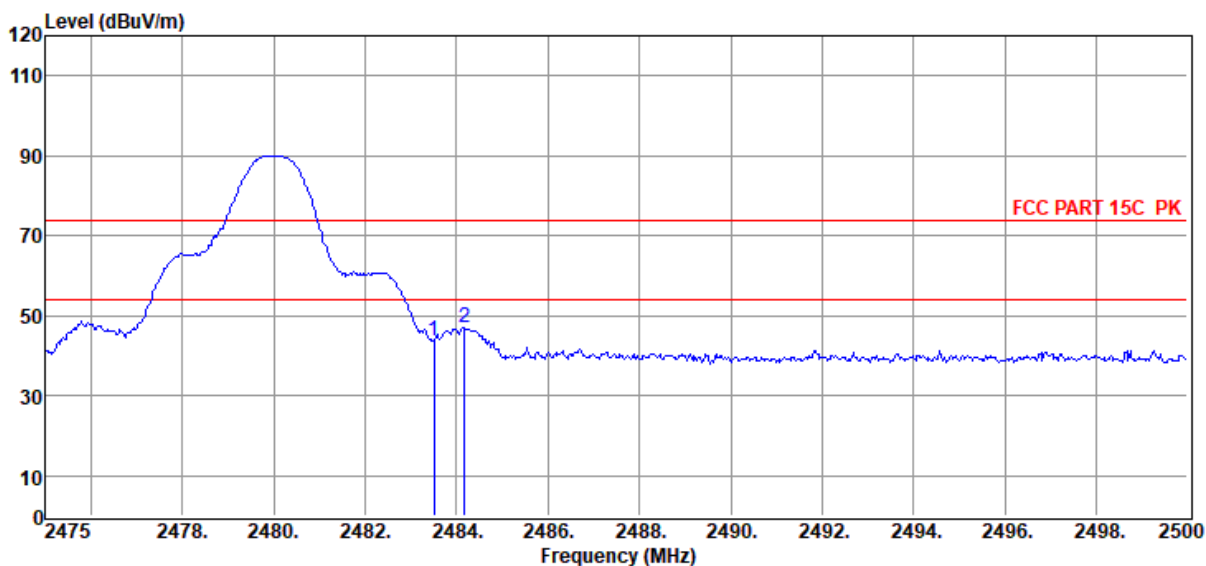
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : DH5 2480

Data: 140



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	52.80	29.66	43.25	4.43	43.64	74.00	-30.36	Peak	VERTICAL
2	2484.18	56.23	29.67	43.25	4.43	47.08	74.00	-26.92	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

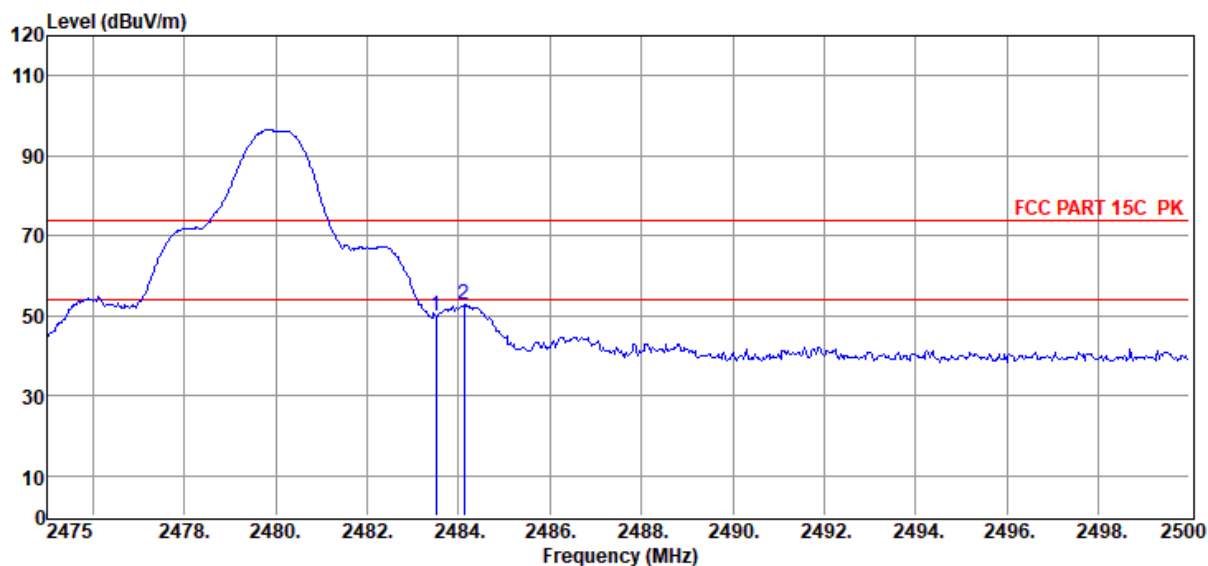
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : DH5 2480

Data: 141



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	59.18	29.66	43.25	4.43	50.02	74.00	-23.98	Peak	HORIZONTAL
2	2484.13	62.04	29.67	43.25	4.43	52.89	74.00	-21.11	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

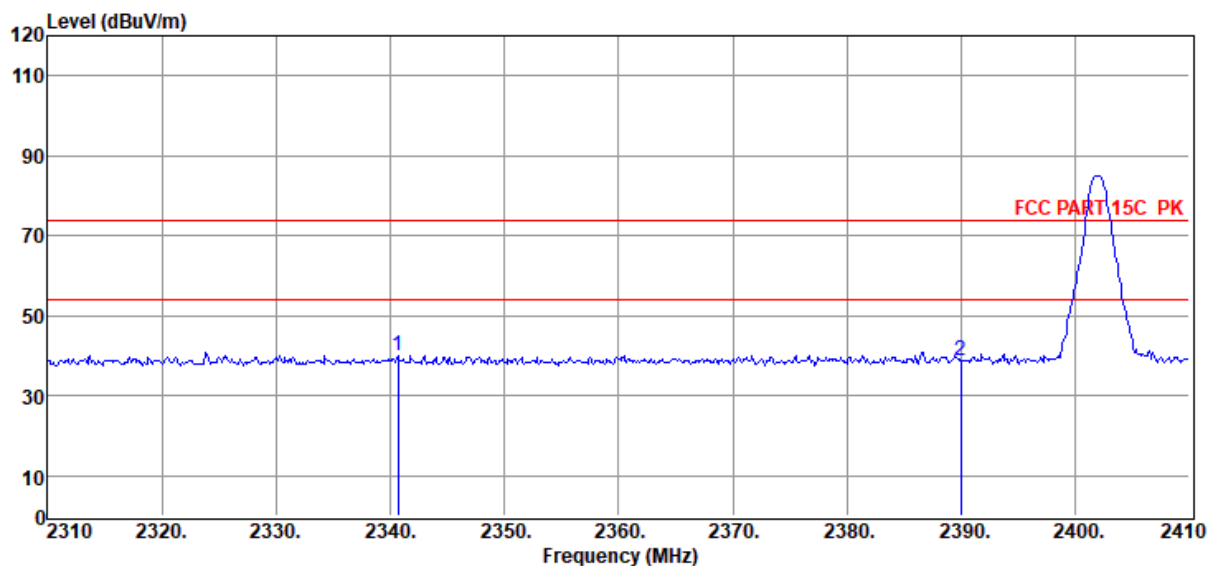
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : 2DH5 2402

Data: 142



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2340.70	49.56	29.35	43.18	4.29	40.02	74.00	-33.98	Peak	HORIZONTAL
2	2390.00	48.04	29.46	43.21	4.34	38.63	74.00	-35.37	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

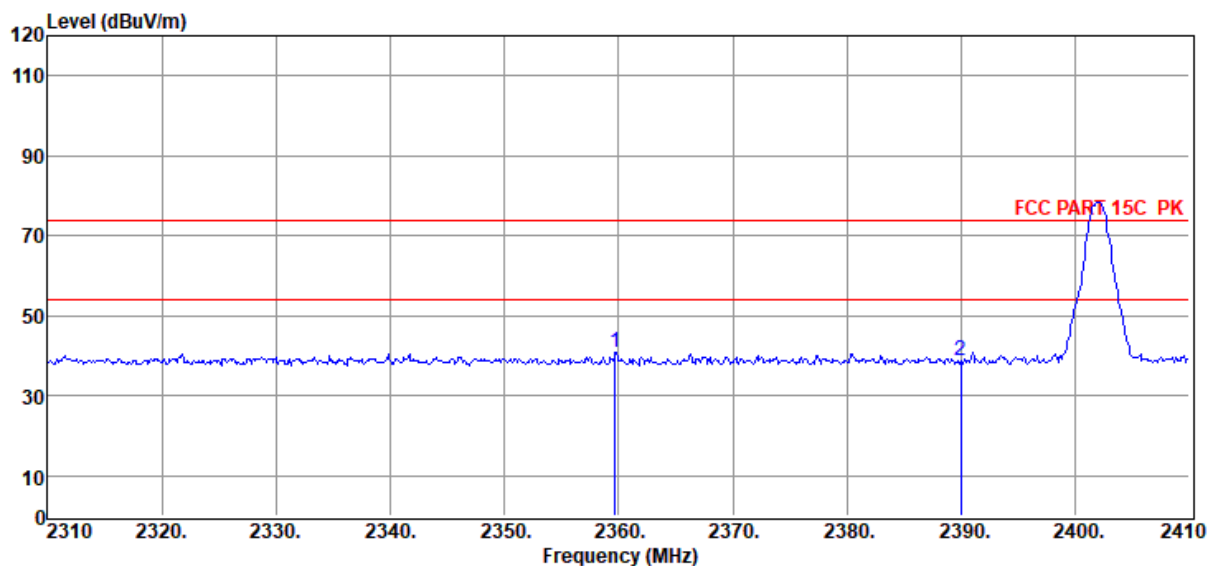
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : 2DH5 2402

Data: 143



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2359.70	50.52	29.39	43.19	4.31	41.03	74.00	-32.97	Peak	VERTICAL
2	2390.00	47.99	29.46	43.21	4.34	38.58	74.00	-35.42	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

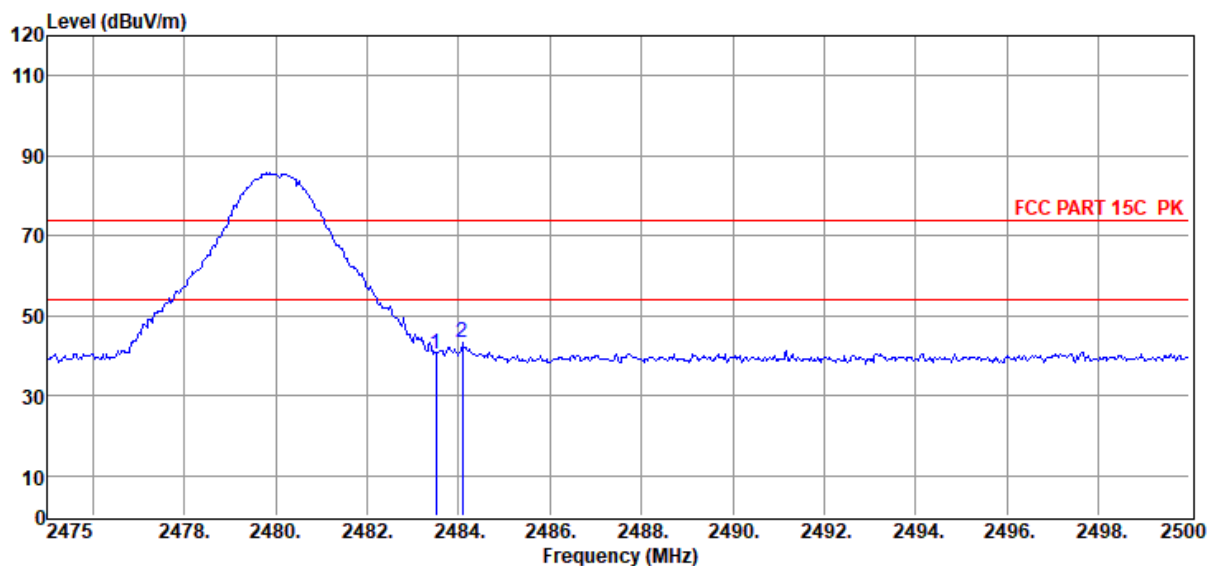
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : 2DH5 2480

Data: 144



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	49.74	29.66	43.25	4.43	40.58	74.00	-33.42	Peak	VERTICAL
2	2484.08	52.27	29.67	43.25	4.43	43.12	74.00	-30.88	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

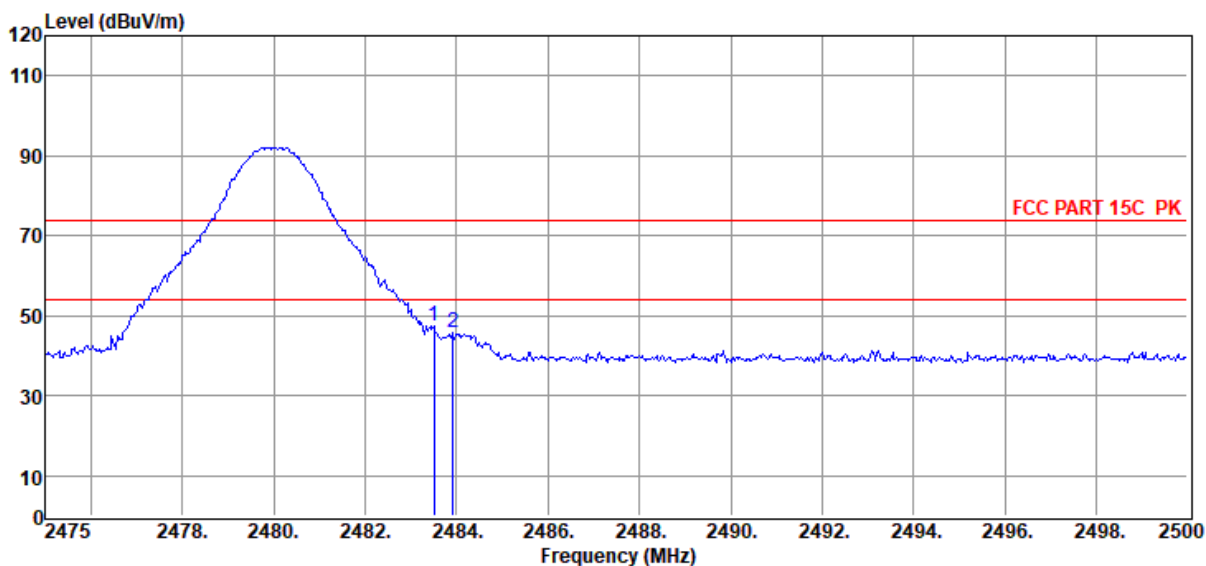
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : 2DH5 2480

Data: 145



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	56.49	29.66	43.25	4.43	47.33	74.00	-26.67	Peak	HORIZONTAL
2	2483.93	54.99	29.67	43.25	4.43	45.84	74.00	-28.16	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

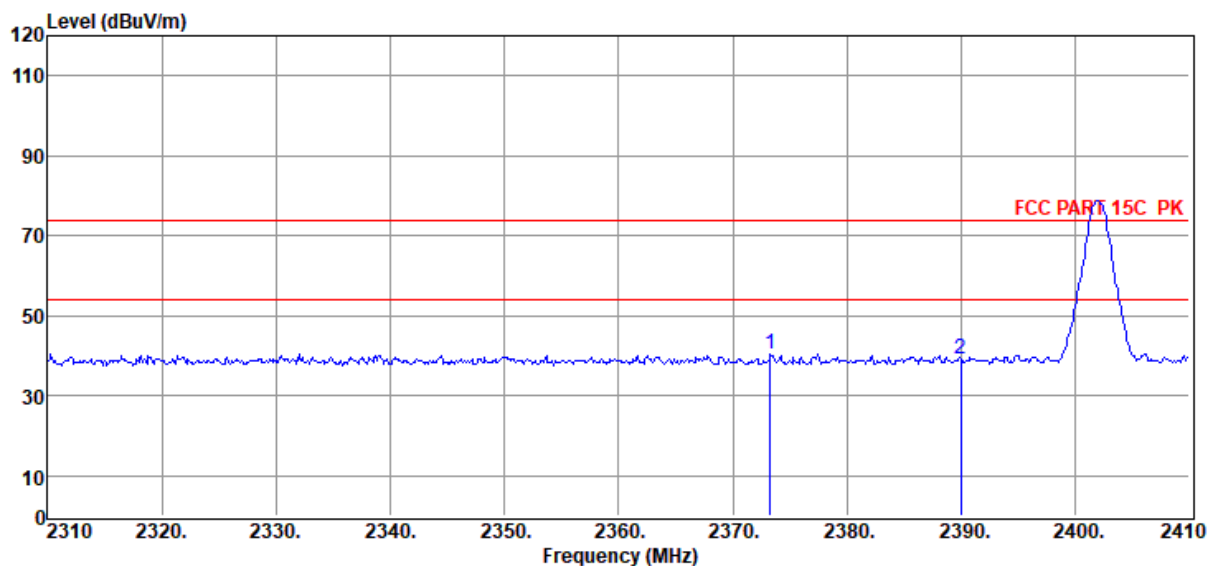
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : 3DH5 2402

Data: 146



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2373.30	49.86	29.42	43.20	4.32	40.40	74.00	-33.60	Peak	VERTICAL
2	2390.00	48.66	29.46	43.21	4.34	39.25	74.00	-34.75	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

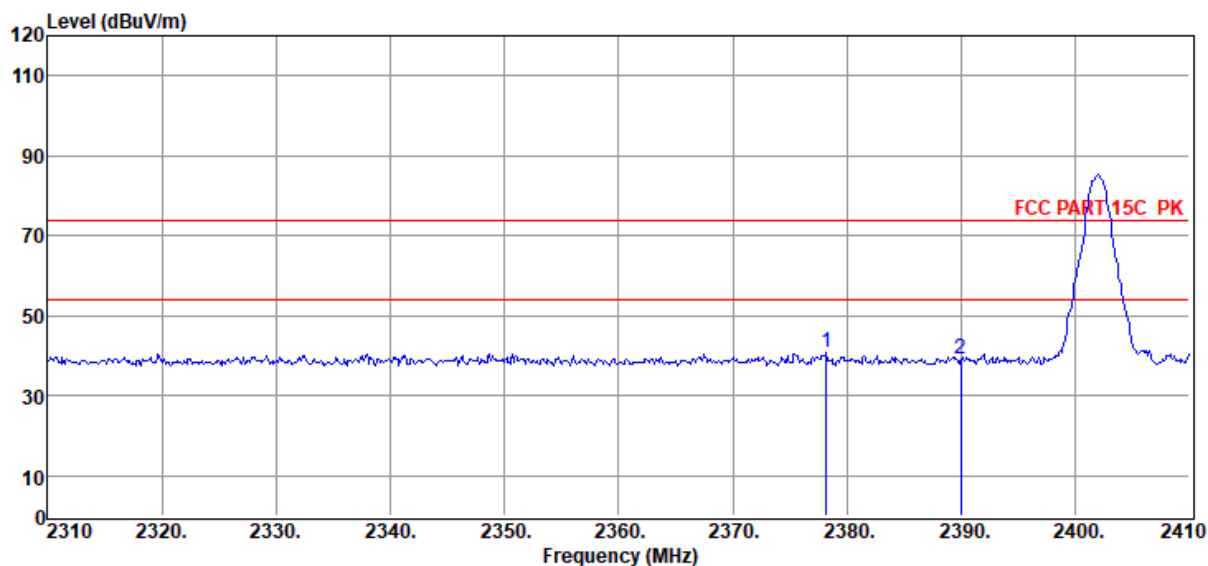
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : 3DH5 2402

Data: 147



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2378.20	50.45	29.43	43.20	4.33	41.01	74.00	-32.99	Peak	HORIZONTAL
2	2390.00	48.78	29.46	43.21	4.34	39.37	74.00	-34.63	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

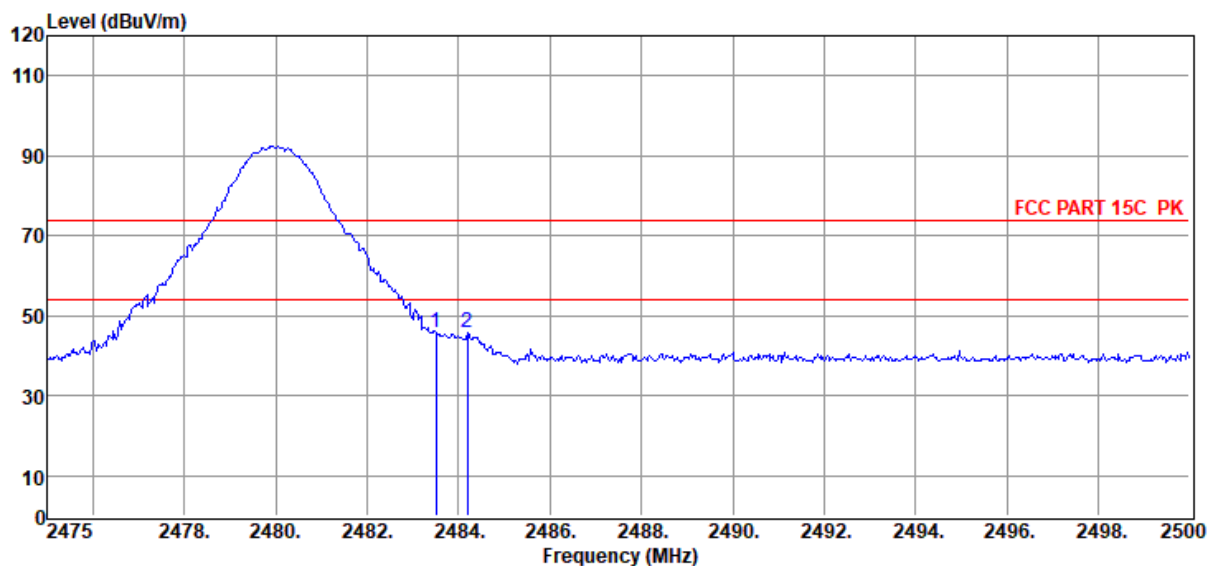
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/HORIZONTAL

Memo : 3DH5 2480

Data: 148



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	55.12	29.66	43.25	4.43	45.96	74.00	-28.04	Peak	HORIZONTAL
2	2484.20	55.09	29.67	43.25	4.43	45.94	74.00	-28.06	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2019 RE1# Report Data\Q19113001-1E LC-BT2\FCC
ABOVE 1G.EM6

Test Date : 2020-01-14

Tested By : Jacky

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : Battery

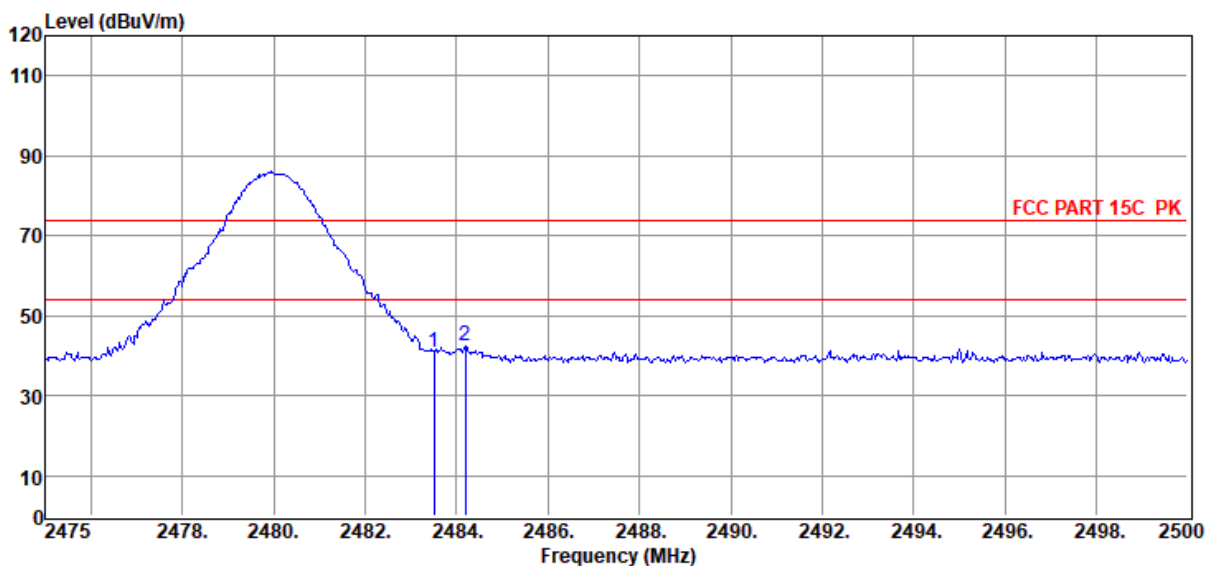
Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 HF 907/3m/VERTICAL

Memo : 3DH5 2480

Data: 149



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	49.85	29.66	43.25	4.43	40.69	74.00	-33.31	Peak	VERTICAL
2	2484.20	51.45	29.67	43.25	4.43	42.30	74.00	-31.70	Peak	VERTICAL

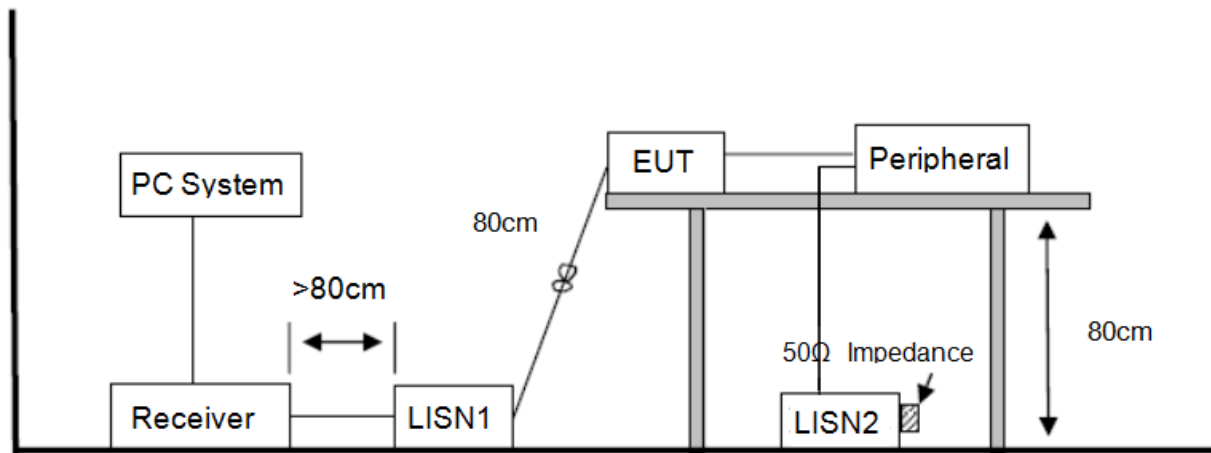
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

13. Power Line Conducted Emission

13.1. Block diagram of test setup



13.2. Power Line Conducted Emission Limits

Frequency	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

13.3. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

13.4. Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “----” means Peak detection; “----” means Average detection.

Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worse case.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room

D:\2019 CE report data\Q19113001-1E\20191204 CE.EM6

Test Date : 2020-01-17

Tested By : Telamon

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : AC 240V/50Hz

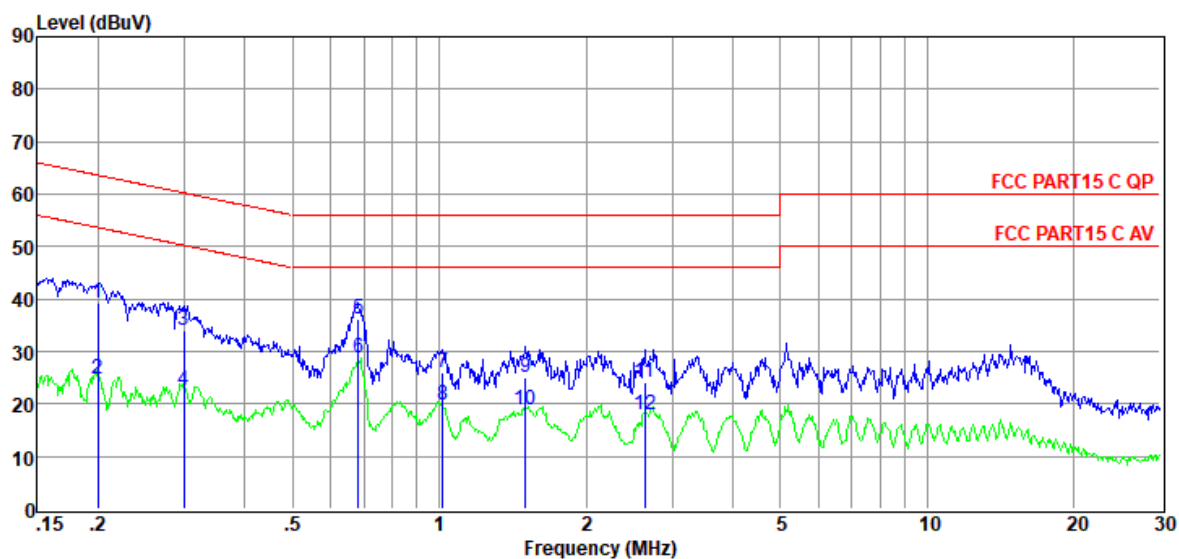
Test Mode : TX Mode

Condition : Temp:24.5°C, Humi:55.5%,

LISN : 2019 ENV216 1#/NEUTRAL

Press:100.1kPa

Memo :



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.20	19.88	9.60	0.02	9.86	39.36	63.62	-24.26	QP	NEUTRAL
2	0.20	5.17	9.60	0.02	9.86	24.65	53.62	-28.97	Average	NEUTRAL
3	0.30	14.51	9.60	0.02	9.86	33.99	60.24	-26.25	QP	NEUTRAL
4	0.30	3.24	9.60	0.02	9.86	22.72	50.24	-27.52	Average	NEUTRAL
5	0.68	16.75	9.60	0.03	9.86	36.24	56.00	-19.76	QP	NEUTRAL
6	0.68	9.29	9.60	0.03	9.86	28.78	46.00	-17.22	Average	NEUTRAL
7	1.02	6.45	9.60	0.03	9.86	25.94	56.00	-30.06	QP	NEUTRAL
8	1.02	0.25	9.60	0.03	9.86	19.74	46.00	-26.26	Average	NEUTRAL
9	1.50	5.47	9.60	0.04	9.86	24.97	56.00	-31.03	QP	NEUTRAL
10	1.50	-0.61	9.60	0.04	9.86	18.89	46.00	-27.11	Average	NEUTRAL
11	2.64	4.57	9.60	0.06	9.86	24.09	56.00	-31.91	QP	NEUTRAL
12	2.64	-1.56	9.60	0.06	9.86	17.96	46.00	-28.04	Average	NEUTRAL

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room

D:\2019 CE report data\Q19113001-1E\20191204 CE.EM6

Test Date : 2020-01-17

Tested By : Telamon

EUT : HiFi Bluetooth Neckband Receiver

Model Number : LC-BT2

Power Supply : AC 240V/50Hz

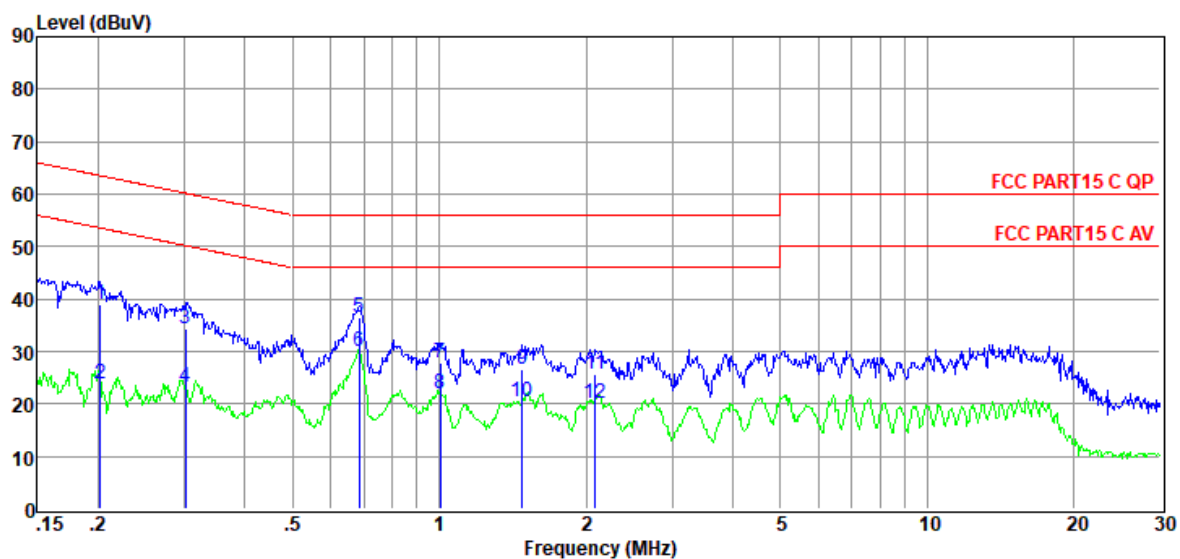
Test Mode : TX Mode

Condition : Temp:24.5°C, Humi:55.5%,

LISN : 2019 ENV216 1#/LINE

Press:100.1kPa

Memo :



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.20	19.63	9.60	0.02	9.86	39.11	63.54	-24.43	QP	LINE
2	0.20	4.26	9.60	0.02	9.86	23.74	53.54	-29.80	Average	LINE
3	0.30	14.99	9.60	0.02	9.86	34.47	60.19	-25.72	QP	LINE
4	0.30	3.70	9.60	0.02	9.86	23.18	50.19	-27.01	Average	LINE
5	0.69	16.97	9.60	0.03	9.86	36.46	56.00	-19.54	QP	LINE
6	0.69	10.52	9.60	0.03	9.86	30.01	46.00	-15.99	Average	LINE
7	1.01	8.37	9.60	0.03	9.86	27.86	56.00	-28.14	QP	LINE
8	1.01	2.40	9.60	0.03	9.86	21.89	46.00	-24.11	Average	LINE
9	1.48	6.97	9.60	0.04	9.86	26.47	56.00	-29.53	QP	LINE
10	1.48	0.80	9.60	0.04	9.86	20.30	46.00	-25.70	Average	LINE
11	2.09	6.25	9.60	0.05	9.86	25.76	56.00	-30.24	QP	LINE
12	2.09	0.68	9.60	0.05	9.86	20.19	46.00	-25.81	Average	LINE

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

14. Antenna Requirements

14.1. Limit

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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

14.2. Result

The antennas used for this product are Spring antenna and there is no other antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain is 2 dBi.

END OF REPORT