

Test Mode	Channel	Verdict
BLE	НСН	PASS

HCH SPURIOUS EMISSION_30MHz~1GHz + Ö Frequency Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Pow Avg|Hold: 30/30 Trig: Free Run KEYSIGHT Input R tten: 20 dE eamp: Off #A Pre nter Fr quency ettings Align: Auto 515.000000 MHz рррррр

Scale/Div 10 dB Log	Ref Level 15.00 dBm	-47.90 dBm	Swept Span Zero Span
5.00			Full Span
-5.00		DL1-5.89 dBm	Start Freq 30.000000 MHz
-15.0			Stop Freq 1.000000000 GHz
-35.0			AUTO TUNE
-45.0		^ 1	CF Step 97.000000 MHz
-55.0		han a partial dill gardina to dei sport, far	Auto Man
-75.0	an de la serie de la companya de la La companya de la comp	en de secrete et la contra de la La contra de la contr	Freq Offset 0 Hz
Start 0.0300 GHz #Res BW 100 kHz	#Video BW 300 kHz	Stop 1.0000 GHz Sweep 94.0 ms (30001 pts)	X Axis Scale Log Lin
¶ n a ⊓ ?	Apr 24, 2023		Signal Track





8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209, ISED RSS-247 Clause 5.5, ISED RSS-GEN Clause 8.9&6.13 (Transmitter)

Radiation Disturbance Test Limit for ISED (9kHz-1GHz)

Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5 – General field strength limits at frequencies above 30 MHz		
Frequency (MHz)	Field strength (μV/m at 3 m)	
30 - 88	100	
88 - 216	150	
216 - 960	200	
Above 960	500	

Table 6 – General field strength limits at frequencies below 30 MHz			
Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement distance (m)	
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300	
490 - 1705 kHz	63.7/F (F in kHz)	30	
1.705 - 30 MHz	0.08	30	

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.



Please refer to FCC KDB 558074

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Radiation Disturbance Test Limit for FCC (Class B) (9kHz-1GHz)

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.





Radiation Disturbance Test Limit for FCC (Above 1G)

	dB(uV/m) (at 3 meters)	
Frequency (MHZ)	Peak	Average
Above 1000	74	54

Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ²Above 38.6c





TEST SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum analyser

RBW	200 Hz (From 9kHz to 0.15MHz) / 9kHz (From 0.15MHz to 30MHz)
VBW	200 Hz (From 9kHz to 0.15MHz) / 9kHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 12mm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector

6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ω . For example, the measurement frequency X kHz resulted in a level



of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1G



The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 12mm above ground.

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

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

6. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)



Above 1G



The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK:3 MHz AVG: See note6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.6m above ground.

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

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements; and 1 MHz resolution bandwidth with video bandwidth \geq 1/T but not less than the setting list in section 7.1 when use peak detector, max hold to be run for at least [50*(1/Duty Cycle)] traces for average measurements. For the Duty Cycle need to refer the results in section 7.1.

7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)



X axis, Y axis, Z axis positions:



Note: For this product can only working at X axis.



8.2. TEST ENVIRONMENT

Temperature	23.4 ℃	Relative Humidity	53.1%
Atmosphere Pressure	101.5kpa	Test Voltage	AC120V/60Hz

8.3. RESTRICTED BANDEDGE

TEST RESULT TABLE

Test Mode	Channel	Puw(dBm)	Verdict
	LCH	<limit< td=""><td>PASS</td></limit<>	PASS
	HCH	<limit< td=""><td>PASS</td></limit<>	PASS
	LCH	<limit< td=""><td>PASS</td></limit<>	PASS
DLE-2IVI	HCH	<limit< td=""><td>PASS</td></limit<>	PASS

Verdict

PASS

<u>TEST GRAPHS</u>

Solutions





PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2360.6451	39.16	9.92	49.08	74.00	24.92	Horizontal
2	2390.0000	37.45	10.35	47.80	74.00	26.20	Horizontal

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2360.4951	38.91	9.91	48.82	74.00	25.18	Vertical
2	2390.0000	39.39	10.35	49.74	74.00	24.26	Vertical

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	57.64	10.64	68.28	74.00	5.72	Horizontal
2	2550.9214	39.35	11.01	50.36	74.00	23.64	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	30.21	10.64	40.85	54.00	13.15	Horizontal

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	61.06	10.64	71.70	74.00	2.30	Vertical
2	2525.8757	38.50	11.20	49.70	74.00	24.30	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	32.23	10.64	42.87	54.00	11.13	Vertical

Note: 1. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.

2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).

3. Measurement = Reading Level + Correct Factor.

4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



For BLE-2M Part:

Test Mode	Test Mode Channel		Verdict	
BLE	LCH	Horizontal	PASS	



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2357.7385	39.23	9.90	49.13	74.00	24.87	Horizontal
2	2390.0000	37.61	10.35	47.96	74.00	26.04	Horizontal

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2346.2245	39.42	9.88	49.30	74.00	24.70	Vertical
2	2390.0000	37.91	10.35	48.26	74.00	25.74	Vertical

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	55.74	10.64	66.38	74.00	7.62	Horizontal
2	2530.7138	37.88	11.34	49.22	74.00	24.78	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	30.32	10.64	40.96	54.00	13.04	Horizontal

- 2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).
- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	61.21	10.64	71.85	74.00	2.15	Vertical
2	2546.6908	38.77	11.10	49.87	74.00	24.13	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2483.5000	31.03	10.64	41.67	54.00	12.33	Vertical

Note: 1. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.

2. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz (refer to clause 7.1.).

3. Measurement = Reading Level + Correct Factor.

4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



8.4. SPURIOUS EMISSIONS

TEST RESULTS TABLE

<u>l) For 1GHz~3GHz</u>			
Temperature	23.4 ℃	Relative Humidity	53.1%
Atmosphere Pressure	101.5kpa	Test Voltage	AC120V/60Hz

Test Mode	Channel	Puw(dBm) Ve	erdict	
	LCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
BLE-1M	MCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
	HCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
	LCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
BLE-2M	MCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
	HCH	<limit p<="" td=""><td>ASS</td></limit>	ASS	
II)For 3GHz~18GHz				
Temperature	23.4 ℃	Relative Humidity 53.1%		

Atmosphere Pressure101.5kpaTest VoltageAC120V/60Hz

Test Mode	Channel	Puw(dBm)	Verdict
	LCH	<limit< td=""><td>PASS</td></limit<>	PASS
BLE-1M	MCH	<limit< td=""><td>PASS</td></limit<>	PASS
	НСН	<limit< td=""><td>PASS</td></limit<>	PASS
	LCH	<limit< td=""><td>PASS</td></limit<>	PASS
BLE-2M	MCH	<limit< td=""><td>PASS</td></limit<>	PASS
	НСН	<limit< td=""><td>PASS</td></limit<>	PASS

III)For 18GHz~26.5GHz

Temperature	23.4 ℃	Relative Humidity	53.1%
Atmosphere Pressure	101.5kpa	Test Voltage	AC120V/60Hz

Test Mode	Channel	Puw(dBm)	Verdict
BLE-2M	HCH	<limit< td=""><td>PASS</td></limit<>	PASS

Remark:

1) Through pre-testing all the test modes and test channels, but only the data of the worst case is included in this test report.



IV)For 30MHz~1GHz

Temperature	20.1 ℃	Relative Humidity	62.3%
Atmosphere Pressure	101.9kpa	Test Voltage	AC120V/60Hz

Test Mode	Channel	Puw(dBm)	Verdict
BLE-2M	HCH	<limit< th=""><th>PASS</th></limit<>	PASS

Remark:

1) Through pre-testing all the test modes and test channels, but only the data of the worst case is included in this test report.

V)For 9KHz~30MHz

Temperature	20.1 ℃	Relative Humidity	62.3%
Atmosphere Pressure	101.9kpa	Test Voltage	AC120V/60Hz

Test Mode	Channel	Puw(dBm)	Verdict
BLE-2M	HCH	<limit< td=""><td>PASS</td></limit<>	PASS

Remark:

1) Through pre-testing all the test modes and test channels, but only the data of the worst case is included in this test report.



Part I: 1GHz~3GHz

For 1M Part:





ΡK	Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1793.0991	60.12	-17.85	42.27	74.00	31.73	Horizontal
2	2242.1553	62.10	-15.03	47.07	74.00	26.93	Horizontal
3	2349.9187	58.33	-14.76	43.57	74.00	30.43	Horizontal
4	2506.4383	56.40	-13.49	42.91	74.00	31.09	Horizontal
5	2562.4453	61.02	-13.70	47.32	74.00	26.68	Horizontal
6	2722.2153	62.63	-12.31	50.32	74.00	23.68	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1794.8494	58.63	-17.81	40.82	74.00	33.18	Vertical
2	2013.3767	57.95	-16.23	41.72	74.00	32.28	Vertical
3	2271.4089	62.60	-15.48	47.12	74.00	26.88	Vertical
4	2362.1703	61.01	-14.71	46.30	74.00	27.70	Vertical
5	2562.4453	59.06	-13.70	45.36	74.00	28.64	Vertical
6	2722.2153	59.24	-12.31	46.93	74.00	27.07	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	2114.3893	57.20	-15.87	41.33	74.00	32.67	Horizontal
2	2277.1596	63.05	-15.32	47.73	74.00	26.27	Horizontal
3	2336.4171	57.21	-14.83	42.38	74.00	31.62	Horizontal
4	2517.9397	56.75	-13.71	43.04	74.00	30.96	Horizontal
5	2602.7003	59.74	-13.21	46.53	74.00	27.47	Horizontal
6	2765.7207	63.80	-12.92	50.88	74.00	23.12	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1792.8491	59.26	-17.86	41.40	74.00	32.60	Vertical
2	1993.1241	59.71	-16.33	43.38	74.00	30.62	Vertical
3	2261.9077	62.11	-15.27	46.84	74.00	27.16	Vertical
4	2362.4203	62.40	-14.70	47.70	74.00	26.30	Vertical
5	2545.6932	58.84	-13.70	45.14	74.00	28.86	Vertical
6	2765.7207	58.72	-12.92	45.80	74.00	28.20	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1797.8497	61.00	-17.73	43.27	74.00	30.73	Horizontal
2	2147.3934	58.71	-15.62	43.09	74.00	30.91	Horizontal
3	2313.1641	64.34	-15.41	48.93	74.00	25.07	Horizontal
4	2348.4186	59.36	-14.75	44.61	74.00	29.39	Horizontal
5	2643.4554	59.44	-13.38	46.06	74.00	27.94	Horizontal
6	2808.7261	63.58	-13.09	50.49	74.00	23.51	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1199.775	63.87	-21.99	41.88	74.00	32.12	Vertical
2	1594.5743	57.03	-18.71	38.32	74.00	35.68	Vertical
3	1800.8501	58.60	-17.66	40.94	74.00	33.06	Vertical
4	2312.4141	64.92	-15.45	49.47	74.00	24.53	Vertical
5	2371.9215	61.07	-14.39	46.68	74.00	27.32	Vertical
6	2808.226	57.79	-13.09	44.70	74.00	29.30	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



For 2M Part:

HARMONICS AND SPURIOUS EMISSIONS

Test Mode	Channel	Polarization	Verdict
BLE	LCH	Horizontal	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1793.0991	58.02	-17.85	40.17	74.00	33.83	Horizontal
2	1997.6247	57.24	-16.29	40.95	74.00	33.05	Horizontal
3	2271.909	56.94	-15.47	41.47	74.00	32.53	Horizontal
4	2314.4143	62.25	-15.37	46.88	74.00	27.12	Horizontal
5	2645.2057	54.40	-13.33	41.07	74.00	32.93	Horizontal
6	2810.7263	55.63	-13.10	42.53	74.00	31.47	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.

4. Peak: Peak detector.

5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.

6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1795.8495	57.85	-17.78	40.07	74.00	33.93	Vertical
2	2149.6437	60.81	-15.63	45.18	74.00	28.82	Vertical
3	2315.1644	64.33	-15.34	48.99	74.00	25.01	Vertical
4	2351.4189	62.47	-14.76	47.71	74.00	26.29	Vertical
5	2583.698	58.30	-13.46	44.84	74.00	29.16	Vertical
6	2810.9764	55.66	-13.09	42.57	74.00	31.43	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1396.2995	60.82	-20.50	40.32	74.00	33.68	Horizontal
2	1794.8494	59.55	-17.81	41.74	74.00	32.26	Horizontal
3	1999.875	56.33	-16.28	40.05	74.00	33.95	Horizontal
4	2115.1394	59.20	-15.87	43.33	74.00	30.67	Horizontal
5	2277.6597	60.84	-15.29	45.55	74.00	28.45	Horizontal
6	2765.7207	58.23	-12.92	45.31	74.00	28.69	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1793.5992	59.70	-17.84	41.86	74.00	32.14	Vertical
2	1995.8745	60.89	-16.31	44.58	74.00	29.42	Vertical
3	2114.6393	61.36	-15.87	45.49	74.00	28.51	Vertical
4	2277.1596	64.22	-15.32	48.90	74.00	25.10	Vertical
5	2602.7003	58.71	-13.21	45.50	74.00	28.50	Vertical
6	2765.2207	57.81	-12.92	44.89	74.00	29.11	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1798.8499	57.40	-17.71	39.69	74.00	34.31	Horizontal
2	1995.3744	56.18	-16.32	39.86	74.00	34.14	Horizontal
3	2114.3893	59.12	-15.87	43.25	74.00	30.75	Horizontal
4	2277.1596	61.64	-15.32	46.32	74.00	27.68	Horizontal
5	2602.4503	55.90	-13.22	42.68	74.00	31.32	Horizontal
6	2765.7207	58.40	-12.92	45.48	74.00	28.52	Horizontal

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1992.374	58.45	-16.34	42.11	74.00	31.89	Vertical
2	2114.6393	61.56	-15.87	45.69	74.00	28.31	Vertical
3	2277.6597	65.11	-15.29	49.82	74.00	24.18	Vertical
4	2356.1695	61.61	-14.78	46.83	74.00	27.17	Vertical
5	2602.9504	58.72	-13.21	45.51	74.00	28.49	Vertical
6	2765.2207	57.75	-12.92	44.83	74.00	29.17	Vertical

Note: 1. Measurement = Reading Level + Correct 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.
- 4. Peak: Peak detector.
- 5. For below 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Part II: 3GHz~18GHz

For 1M Part:



PK Res	sult:						
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4127.0159	47.86	-6.66	41.20	74.00	32.80	Horizonta
2	6127.891	44.26	-1.96	42.30	74.00	31.70	Horizonta
3	9409.5512	43.75	3.23	46.98	74.00	27.02	Horizonta
4	12211.1514	40.51	6.97	47.48	74.00	26.52	Horizonta
5	15588.4486	38.81	12.96	51.77	74.00	22.23	Horizonta
6	17707.4634	38.95	17.83	56.78	74.00	17.22	Horizonta

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17707.4634	27.87	17.83	45.70	54.00	8.30	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Test Mode	Channel	Polarization	Verdict
BLE	LCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3187.5234	51.47	-9.90	41.57	74.00	32.43	Vertical
2	4796.4746	47.12	-3.64	43.48	74.00	30.52	Vertical
3	8494.4368	43.76	2.00	45.76	74.00	28.24	Vertical
4	11074.7593	42.34	5.35	47.69	74.00	26.31	Vertical
5	14678.9599	38.94	11.81	50.75	74.00	23.25	Vertical
6	17885.6107	37.22	19.15	56.37	74.00	17.63	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17885.6107	27.20	19.15	46.35	54.00	7.65	Vertical

- If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
 Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3823.2279	49.26	-7.38	41.88	74.00	32.12	Horizontal
2	4878.9849	46.78	-3.50	43.28	74.00	30.72	Horizontal
3	6114.7643	44.96	-2.25	42.71	74.00	31.29	Horizontal
4	9085.1356	43.54	3.12	46.66	74.00	27.34	Horizontal
5	14703.3379	39.91	11.64	51.55	74.00	22.45	Horizontal
6	17699.9625	37.63	17.62	55.25	74.00	18.75	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17699.9625	28.33	17.62	45.95	54.00	8.05	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3189.3987	52.09	-9.92	42.17	74.00	31.83	Vertical
2	3982.6228	48.70	-6.83	41.87	74.00	32.13	Vertical
3	8490.6863	44.72	1.94	46.66	74.00	27.34	Vertical
4	11912.9891	40.60	6.28	46.88	74.00	27.12	Vertical
5	14026.3783	40.70	10.89	51.59	74.00	22.41	Vertical
6	17561.1951	37.88	17.25	55.13	74.00	18.87	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17561.1951	27.24	17.25	44.49	54.00	9.51	Vertical

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4277.0346	47.59	-5.19	42.40	74.00	31.60	Horizontal
2	4882.7353	45.90	-3.49	42.41	74.00	31.59	Horizontal
3	7577.4472	43.98	0.86	44.84	74.00	29.16	Horizontal
4	9415.1769	44.23	3.19	47.42	74.00	26.58	Horizontal
5	14249.5312	39.17	11.93	51.10	74.00	22.90	Horizontal
6	17615.5769	37.13	17.63	54.76	74.00	19.24	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17615.5769	28.69	17.63	46.32	54.00	7.68	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3185.6482	51.97	-9.89	42.08	74.00	31.92	Vertical
2	4209.5262	49.09	-5.64	43.45	74.00	30.55	Vertical
3	8033.1291	43.02	2.12	45.14	74.00	28.86	Vertical
4	12439.93	41.46	7.09	48.55	74.00	25.45	Vertical
5	15603.4504	38.04	13.30	51.34	74.00	22.66	Vertical
6	17651.2064	37.34	17.73	55.07	74.00	18.93	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17651.2064	28.22	17.73	45.95	54.00	8.05	Vertical

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



For 2M Part:





PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4833.9792	46.79	-3.71	43.08	74.00	30.92	Horizontal
2	7866.2333	43.77	1.62	45.39	74.00	28.61	Horizontal
3	10035.8795	43.02	4.15	47.17	74.00	26.83	Horizontal
4	12664.9581	41.56	7.07	48.63	74.00	25.37	Horizontal
5	15631.5789	39.86	13.01	52.87	74.00	21.13	Horizontal
6	17746.8434	36.90	17.59	54.49	74.00	19.51	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17746.8434	26.50	17.59	44.09	54.00	9.91	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Test Mode	Channel	Polarization	Verdict
BLE	LCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3185.6482	51.68	-9.89	41.79	74.00	32.21	Vertical
2	4854.6068	46.71	-3.62	43.09	74.00	30.91	Vertical
3	7929.9912	44.77	1.15	45.92	74.00	28.08	Vertical
4	10337.7922	42.81	4.07	46.88	74.00	27.12	Vertical
5	14759.5949	40.13	11.31	51.44	74.00	22.56	Vertical
6	17673.7092	37.15	17.39	54.54	74.00	19.46	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17673.7092	26.98	17.39	44.37	54.00	9.63	Vertical

- If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
 Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4796.4746	46.67	-3.64	43.03	74.00	30.97	Horizontal
2	7382.4228	44.59	0.02	44.61	74.00	29.39	Horizontal
3	8927.616	44.20	2.78	46.98	74.00	27.02	Horizontal
4	11605.4507	41.75	5.67	47.42	74.00	26.58	Horizontal
5	14002.0002	40.23	10.50	50.73	74.00	23.27	Horizontal
6	17698.0873	37.25	17.61	54.86	74.00	19.14	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17698.0873	27.36	17.61	44.97	54.00	9.03	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3187.5234	51.92	-9.90	42.02	74.00	31.98	Vertical
2	3993.8742	48.72	-7.03	41.69	74.00	32.31	Vertical
3	5595.3244	47.64	-2.77	44.87	74.00	29.13	Vertical
4	7446.1808	44.40	1.02	45.42	74.00	28.58	Vertical
5	13617.5772	40.86	9.00	49.86	74.00	24.14	Vertical
6	17894.9869	35.73	19.26	54.99	74.00	19.01	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17894.9869	25.77	19.26	45.03	54.00	8.97	Vertical

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4280.7851	47.10	-5.13	41.97	74.00	32.03	Horizontal
2	5402.1753	45.04	-2.94	42.10	74.00	31.90	Horizontal
3	9233.2792	43.58	2.92	46.50	74.00	27.50	Horizontal
4	10815.977	42.71	4.26	46.97	74.00	27.03	Horizontal
5	14776.4721	39.55	11.83	51.38	74.00	22.62	Horizontal
6	17660.5826	37.54	17.75	55.29	74.00	18.71	Horizontal

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17660.5826	26.93	17.75	44.68	54.00	9.32	Horizontal

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.







No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	3195.0244	50.60	-9.88	40.72	74.00	33.28	Vertical
2	4959.62	47.40	-4.18	43.22	74.00	30.78	Vertical
3	9043.8805	43.12	3.08	46.20	74.00	27.80	Vertical
4	11609.2012	41.61	5.80	47.41	74.00	26.59	Vertical
5	14333.9167	39.29	11.01	50.30	74.00	23.70	Vertical
6	17906.2383	36.39	19.14	55.53	74.00	18.47	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17906.2383	26.79	19.14	45.93	54.00	8.07	Vertical

- 2. If peak result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak result: Peak detector, RBW: 1 MHz, VBW: 3 MHz.
- 4. Average result: Peak detector, RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
- 5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
- 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Part III: 18GHz~26.5GHz



SPURIOUS EMISSIONS 18GHz TO 26.5GHz (WORST-CASE CONFIGURATION)

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	18947.8448	51.09	-6.12	44.97	74.00	29.03	Peak
2	20200.02	49.96	-5.31	44.65	74.00	29.35	Peak
3	21718.2718	50.93	-5.75	45.18	74.00	28.82	Peak
4	23107.3107	50.30	-3.47	46.83	74.00	27.17	Peak
5	24098.5099	50.36	-2.70	47.66	74.00	26.34	Peak
6	25337.0837	50.95	-3.29	47.66	74.00	26.34	Peak

Note: 1. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit. 2. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Test Mode	Channel	Polarization	Verdict
BLE-2M	HCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	18612.0612	51.53	-6.41	45.12	74.00	28.88	Peak
2	20015.5516	49.66	-5.06	44.60	74.00	29.40	Peak
3	20857.9858	50.15	-5.95	44.20	74.00	29.80	Peak
4	22317.5818	50.77	-5.13	45.64	74.00	28.36	Peak
5	23783.1283	49.50	-2.94	46.56	74.00	27.44	Peak
6	25249.525	52.01	-3.35	48.66	74.00	25.34	Peak

Note: 1. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit. 2. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

- 3. Measurement = Reading Level + Correct Factor.
- 4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Part IV: 30MHz~1GHz

	Test Mode	Channel	Polarization	Verdict
	BLE-2M	HCH	Horizontal	PASS
			1	L
[(\n)]		MaxPeak Avera	Ige <u>Limit1</u>	Trace1
evel[dB	50			
2		Marymon		
	10			
				┶╾╍┶╼┶┶┶┷┻
	301	Frec	uency[MHz]	16

SPURIOUS EMISSIONS 30M TO 1GHz (WORST-CASE CONFIGURATION)

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	43.5834	12.45	20.35	32.8	40	7.20	Peak
2	51.3454	6.57	20.85	27.42	40	12.58	Peak
3	145.9442	17.83	15.35	33.18	43.5	10.32	Peak
4	152.4933	18.69	15.51	34.2	43.5	9.30	Peak
5	158.5573	18.66	15.83	34.49	43.5	9.01	Peak
6	228.9	12.08	19.73	31.81	46	14.19	Peak

Note: 1. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit. 2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



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No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	31.4554	12.47	17.49	29.96	40	10.04	Peak
2	40.9152	11.48	20.06	31.54	40	8.46	Peak
3	44.3111	14.31	20.42	34.73	40	5.27	Peak
4	49.1623	7.28	20.95	28.23	40	11.77	Peak
5	59.835	8.94	19.66	28.6	40	11.40	Peak
6	158.3148	11.78	15.82	27.6	43.5	15.90	Peak

Note: 1. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit. 2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



Part V: 9kHz~30MHz

SPURIOUS EMISSIONS BEIOW SUMINZ (WORST CASE CONFIGURATION-FACE ON)									
Test Mode	Channel	Frequency Range	Verdict						
BLE-2M	HCH	9kHz~150kHz	PASS						



No.	Frequency	Reading Level	Correct Factor	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dBuA/m]	[dBuA/m]	[dB]	
1	0.0122	37.93	-61.89	-23.96	46.28	-75.46	-5.22	70.24	Peak
2	0.0137	34.57	-61.87	-27.3	45.37	-78.8	-6.13	72.67	Peak
3	0.0242	31.32	-61.77	-30.45	40.1	-81.95	-11.4	70.55	Peak
4	0.0307	30.9	-61.71	-30.81	37.89	-82.31	-13.61	68.70	Peak
5	0.0873	27.12	-61.81	-34.69	28.8	-86.19	-22.7	63.49	Peak
6	0.0973	20.66	-61.81	-41.15	27.85	-92.65	-23.65	69.00	Peak

Note: 1. Measurement = Reading Level + Correct Factor.

- 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
- 3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.



SPURIOUS EMISSIONS Below 30MHz (WORST CASE CONFIGURATION-FACE ON)

Test Mode	Channel	Frequency Range	Verdict
BLE-2M	HCH	150kHz~490kHz	PASS



No.	Frequency	Reading Level	Correct Factor	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dBuA/m]	[dBuA/m]	[dB]	
1	0.1753	27.31	-61.85	-34.54	22.74	-86.04	-28.76	57.28	Peak
2	0.1826	27.22	-61.85	-34.63	22.38	-86.13	-29.12	57.01	Peak
3	0.1942	25.99	-61.86	-35.87	21.84	-87.37	-29.66	57.71	Peak
4	0.257	26.1	-61.89	-35.79	19.57	-87.29	-31.93	55.36	Peak
5	0.2727	25.88	-61.9	-36.02	19.02	-87.52	-32.48	55.04	Peak
6	0.3431	23.04	-61.9	-38.86	16.98	-90.36	-34.52	55.84	Peak

- 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
- 3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.



SPURIOUS EMISSIONS Below 30MHz (WORST CASE CONFIGURATION-FACE ON)

Test Mode	Channel	Frequency Range	Verdict
BLE-2M	HCH	490kHz~30MHz	PASS



No.	Frequency	Reading Level	Correct Factor	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dBuA/m]	[dBuA/m]	[dB]	
1	0.5269	41.89	-21.87	20.02	33.21	-31.48	-18.29	13.19	Peak
2	0.5785	30.82	-21.88	8.94	32.38	-42.56	-19.12	23.44	Peak
3	1.0656	34.43	-21.85	12.58	27.06	-38.92	-24.44	14.48	Peak
4	1.5895	28.84	-21.84	7	23.58	-44.5	-27.92	16.58	Peak
5	2.1208	22.79	-21.8	0.99	29.54	-50.51	-21.96	28.55	Peak
6	2.6594	16.54	-21.79	-5.25	29.54	-56.75	-21.96	34.79	Peak

- 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
- 3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.



9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a), ISED RSS-Gen Clause 8.8

	Limit (dBuV)					
	Quasi-peak	Average				
0.15 -0.5	66 - 56 *	56 - 46 *				
0.50 -5.0	56.00	46.00				
5.0 -30.0	60.00	50.00				

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 12mm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST ENVIRONMENT

Temperature	21.9°C	Relative Humidity	52.2%
Atmosphere Pressure	102.1kpa	Test Voltage	AC120V/60Hz



LINE L RESULTS (WORST-CASE CONFIGURATION)



Final_Result

Frequency [MHz]	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Filter	Corr. [dB]
0.203730		24.25	53.46	29.21	1000.0	9.000	L1	OFF	9.6
0.203730	36.29		63.46	27.17	1000.0	9.000	L1	OFF	9.6
0.324623		30.60	49.59	18.99	1000.0	9.000	L1	OFF	9.6
0.330593	37.42		59.44	22.02	1000.0	9.000	L1	OFF	9.6
0.473873		31.37	46.45	15.08	1000.0	9.000	L1	OFF	9.6
0.473873	33.92		56.45	22.52	1000.0	9.000	L1	OFF	9.6
20.797245	32.56		60.00	27.44	1000.0	9.000	L1	OFF	9.8
20.797245		27.24	50.00	22.76	1000.0	9.000	L1	OFF	9.8
20.945003	32.57		60.00	27.43	1000.0	9.000	L1	OFF	9.8
21.007688		27.10	50.00	22.90	1000.0	9.000	L1	OFF	9.8
21.007688	32.44		60.00	27.56	1000.0	9.000	L1	OFF	9.8
21.328575		26.32	50.00	23.68	1000.0	9.000	L1	OFF	9.8

Note: 1. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

- 2. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 3. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.
- 4. The extension cord/outlet strip was calibrated with the LISN as required by ANSI C63.10:2013 Clause 6.2.2.
- 5. Pre-testing all test modes and channels and find the HCH of BLE-2M which is the worst case, so only the worst case is included in this test report.



LINE N RESULTS (WORST-CASE CONFIGURATION)



Final_Result

Frequency [MHz]	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Filter	Corr. [dB]
0.332085		32.95	49.40	16.45	1000.0	9.000	Ν	OFF	9.6
0.332085	38.49		59.40	20.91	1000.0	9.000	Ν	OFF	9.6
0.467903		28.90	46.55	17.65	1000.0	9.000	Ν	OFF	9.6
0.467903	34.25		56.55	22.31	1000.0	9.000	Ν	OFF	9.6
20.240543	30.03		60.00	29.97	1000.0	9.000	Ν	OFF	9.8
20.522625		26.68	50.00	23.32	1000.0	9.000	Ν	OFF	9.8
20.522625	32.02		60.00	27.98	1000.0	9.000	Ν	OFF	9.8
20.661428		27.34	50.00	22.66	1000.0	9.000	Ν	OFF	9.8
20.746500	32.64		60.00	27.36	1000.0	9.000	Ν	OFF	9.8
20.746500		27.47	50.00	22.53	1000.0	9.000	Ν	OFF	9.8
21.194250		26.99	50.00	23.01	1000.0	9.000	Ν	OFF	9.8
21.194250	32.36		60.00	27.64	1000.0	9.000	N	OFF	9.8

Note: 1. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

- 2. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 3. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.
- 4. The extension cord/outlet strip was calibrated with the LISN as required by ANSI C63.10:2013 Clause 6.2.2.
- 5. Pre-testing all test modes and channels and find the HCH of BLE-2M which is the worst case, so only the worst case is included in this test report.



10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §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 shall be considered sufficient to comply with the provisions of this section. 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.

Please refer to FCC §15.247(b)(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.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi

END OF REPORT