



FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

Kitchen Scale

MODEL NUMBER: NE9T6N

PROJECT NUMBER: 4789716049

REPORT NUMBER: 4789716049-1

FCC ID: 2AX7N-6398

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Prepared for

Grey Rhyolite LCC

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	11/21/2020	Initial Issue	
V1	12/7/2020	Updated Section 5.1/6/7.3	Chris Zhong

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Grey Rhyolite LCC
Address: 111 Westport Plaza Drive St Louis, MO, 63146

Manufacturer Information

Company Name: Zhongshan Camry Electronic Co., Ltd.
Address: Baishawan Industrial Park, East District, Zhongshan City, Guangdong Province

EUT Description

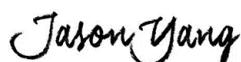
Product Name Kitchen Scale
Model Name NE9T6N
Data of Receipt Sample Nov. 8, 2020
Date Tested Nov. 8, 2020~ Nov. 18, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS

Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB Bandwidth	FCC Part 15.247 (a) (2)	Complied
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3)	Complied
3	Power Spectral Density	FCC Part 15.247 (e)	Complied
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Complied
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Complied
6	Conducted Emission Test For AC Power Port	FCC Part 15.207	NA
7	Antenna Requirement	FCC Part 15.203	Complied

Remark:
1) The measurement result for the sample received is <Pass> according to < ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15C > when <Accuracy Method>

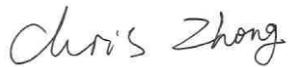
Prepared By:

Jason Yang
Engineer

Reviewed By:

Tom Tang
Engineer Project Associate

Authorized By:

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Laboratory Leader

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>A2LA (Certificate No.: 4829.01) UL-CCIC COMPANY LIMITED has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1247) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.</p> <p>IC (IC Designation No.: 25056) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.</p>
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Note 1: All tests measurement facilities use to collect the measurement data are located at No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, People's Republic of China

Note 2: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. These measurements below 30MHz had been correlated to measurements performed on an OFS.

Note 3: The test anechoic chamber in UL-CCIC COMPANY LIMITED had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.1dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	3.4dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.4dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	3.9dB (1GHz-18Gz) 4.2dB (18GHz-26.5Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Equipment	Kitchen Scale	
Model Name	NE9T6N	
Product Description	Operation Frequency	2402 MHz ~ 2480 MHz
	Modulation Technology	Data Rate
	Modulation Type	GFSK
Antenna Type:	PCB Antenna	
Antenna Gain:	2dBi	
Test Power Grade:	10(manufacturer declare)	
Test Software of EUT:	Telink BDT (manufacturer declare)	
Power Supply:	DC 3.0 V	

5.2. MAXIMUM OUTPUT POWER

Bluetooth Mode	Frequency (MHz)	Channel Number	Max Output Power (dBm)
BLE	2402-2480	0-39[40]	11.13

5.3. CHANNEL LIST

Channel	Frequency (MHz)						
0	2402	11	2424	22	2446	33	2468
1	2404	12	2426	23	2448	34	2470
2	2406	13	2428	24	2450	35	2472
3	2408	14	2430	25	2452	36	2474
4	2410	15	2432	26	2454	37	2476
5	2412	16	2434	27	2456	38	2478
6	2414	17	2436	28	2458	39	2480
7	2416	18	2438	29	2460		
8	2418	19	2440	30	2462		
9	2420	20	2442	31	2464		
10	2422	21	2444	32	2468		

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 0, CH 19, CH 39	2402MHz, 2440MHz, 2480MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		Telink BDT		
Modulation Type	Transmit Antenna Number	Test Channel		
		CH 00	CH 19	CH 39
GFSK	1	10	10	10

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	PCB	2.0

Test Mode	Transmit and Receive Mode	Description
BLE	<input checked="" type="checkbox"/> 1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.

5.7. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage:	VL	N/A
	VN	DC 3.0V
	VH	N/A

Note: VL= Lower Extreme Test Voltage

VN= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	Laptop	ThinkPad	E550c	Supply by UL Lab
2	Fixed Frequency Board	NA	NA	Supply by Customer

I/O PORT

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	NA	NA	NA	NA	N/A

ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	NA	NA	NA	NA

TEST SETUP

The EUT can work in an engineer mode with a software through a table PC.

SETUP DIAGRAM FOR TESTS





5.9. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9010B	MY57110128	2019-05-29	2020-05-10	2021-05-09
<input checked="" type="checkbox"/>	EMI test receiver	R&S	ESR26	1267603	2018-12-13	2019-12-22	2020-12-21
<input checked="" type="checkbox"/>	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	513-265	N/A	2018-06-15	2021-06-14
<input checked="" type="checkbox"/>	Receiver Antenna (30MHz-1GHz)	SunAR RF Motion	JB1	126704	N/A	2019-01-28	2022-01-27
<input checked="" type="checkbox"/>	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2019-01-26	2020-01-26	2021-01-25
<input checked="" type="checkbox"/>	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170	126706	2019-02-06	2020-02-05	2021-02-04
<input checked="" type="checkbox"/>	Pre-amplification (To 1GHz)	R&S	SCU-03D	134666	2019-02-06	2020-02-05	2021-02-04
<input checked="" type="checkbox"/>	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-1G18-50	14140-13467	2019-03-18	2020-02-20	2021-02-19
<input checked="" type="checkbox"/>	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	134668	2019-02-06	2020-02-05	2021-02-04
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	1	2019-05-29	2020-05-10	2021-05-09
<input checked="" type="checkbox"/>	Highpass Filter	Wainwright	WHKX10-2700-3000-18000-40SS	2	2019-05-29	2020-05-10	2021-05-09
Software							
Used	Description		Manufacturer	Name		Version	
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Tonscend	JS32		V1.0	
Other instruments							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9010B	MY57110128	2019-05-29	2020-05-10	2021-05-09
<input checked="" type="checkbox"/>	Power Meter	Keysight	U2021XA	MY57110002	2019-06-12	2020-05-10	2021-05-09

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Peak Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.2.2
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r02	8.4
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.5
5	Out-of-band emissions in restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.6
6	Band-edge	KDB 558074 D01 15.247 Meas Guidance v05r02	8.7

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

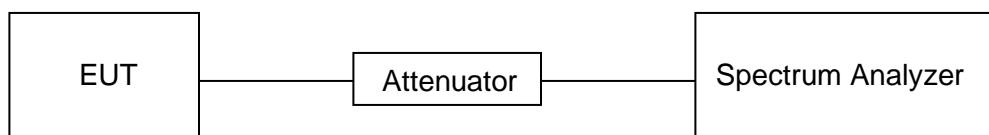
LIMITS

None; for reporting purposes only

PROCEDURE

FCC KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

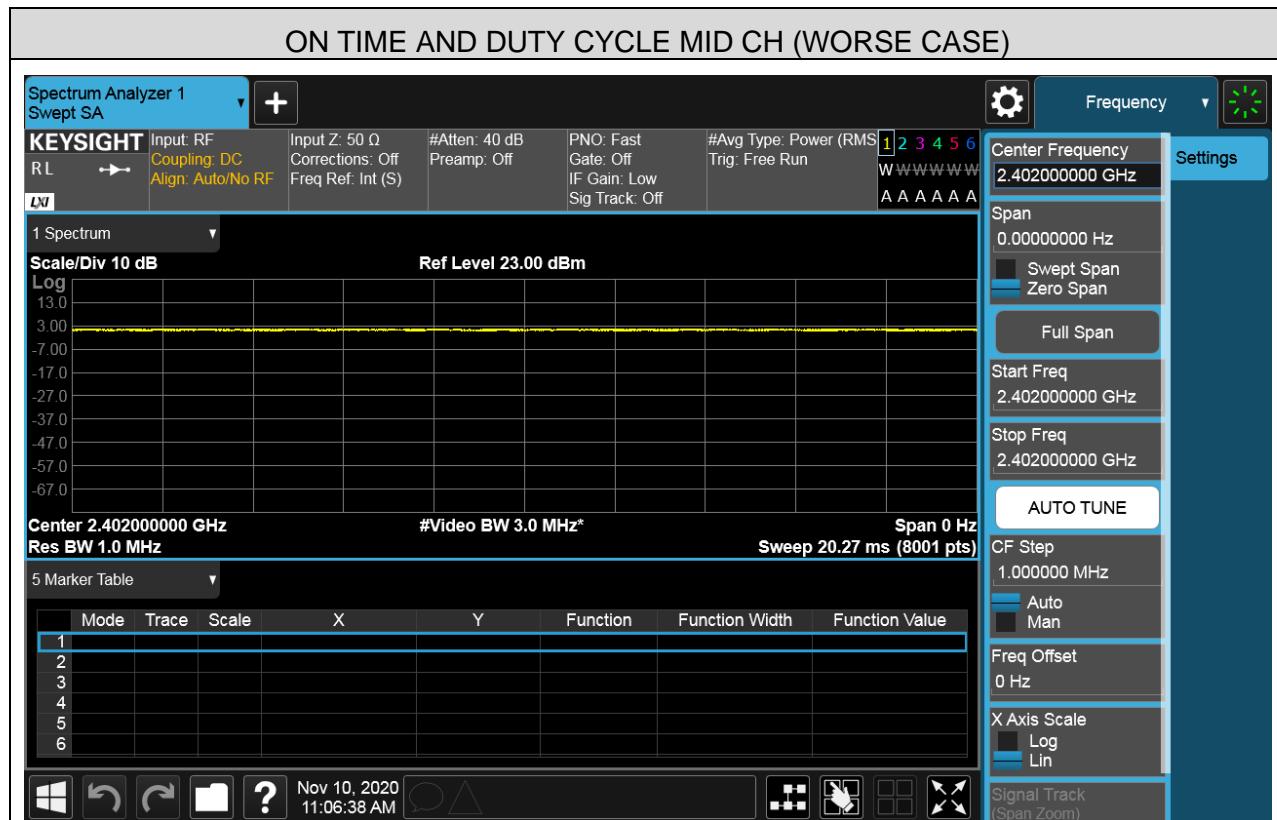
RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final Setting VBW (Hz)
BLE	100	100	1	100	0	0.01	10

Note: 1) Duty Cycle Correction Factor=10log(1/x).

2) Where: x is Duty Cycle (Linear)

3) Where: T is On Time (transmit duration)



7.2. 6 dB BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2)	6 dB Bandwidth	$\geq 500\text{kHz}$	2400-2483.5

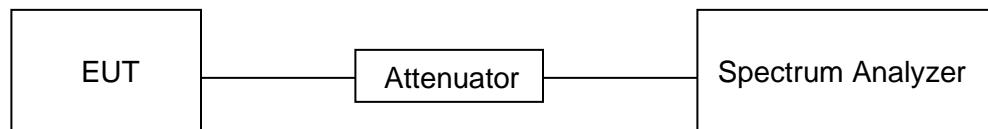
TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth :100kHz
VBW	For 6dB Bandwidth : $\geq 3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

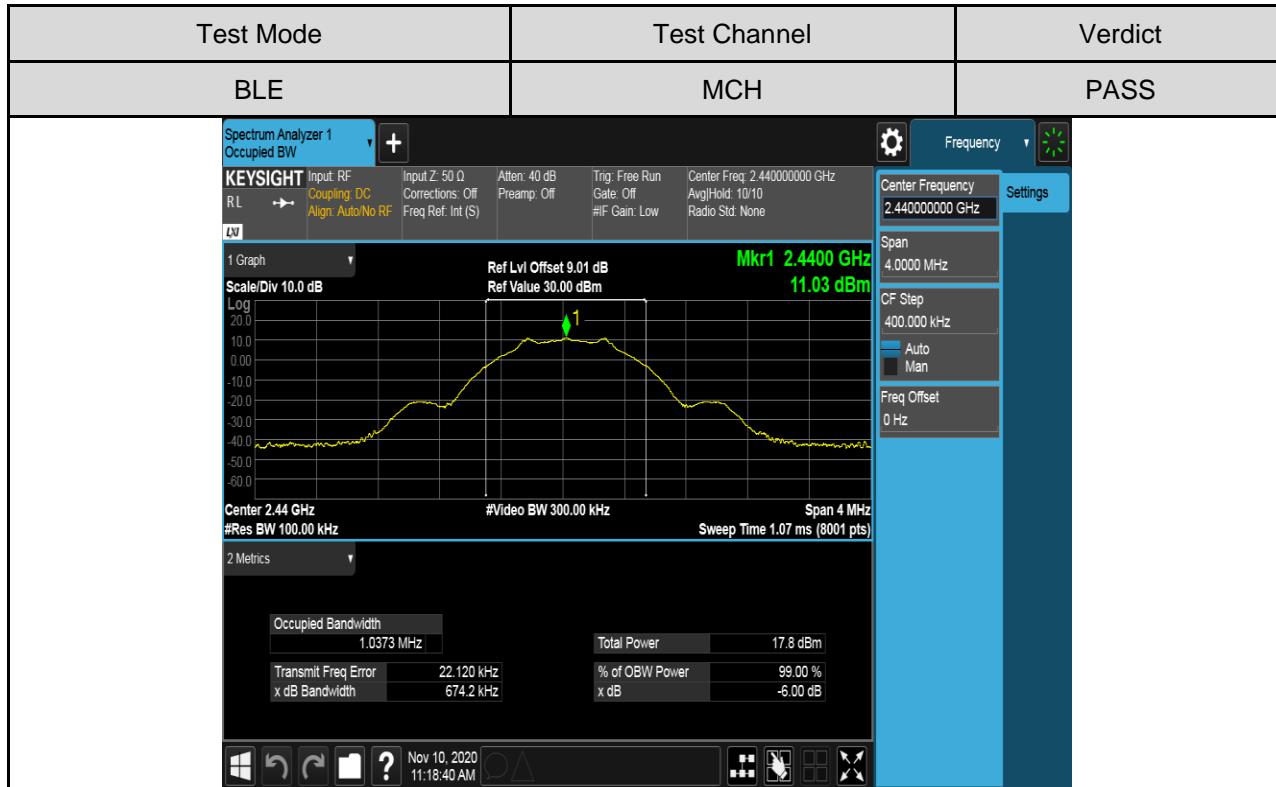
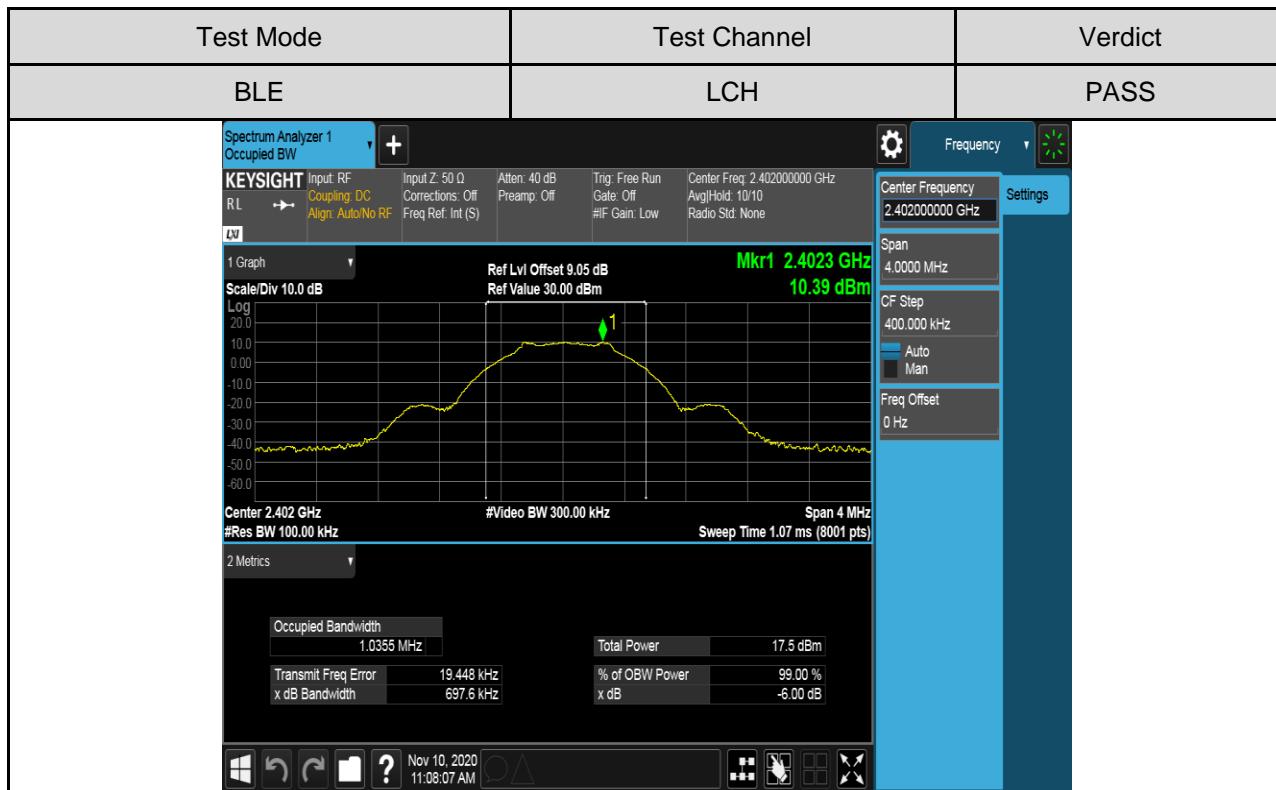
TEST SETUP



RESULTS

Test Mode	Test Channel	6dB bandwidth(MHz)	Result
BLE	LCH	0.6976	Pass
	MCH	0.6742	Pass
	HCH	0.6872	Pass

Test Graphs



Test Mode	Test Channel	Verdict
BLE	HCH	PASS

7.3. CONDUCTED OUTPUT POWER

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.

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

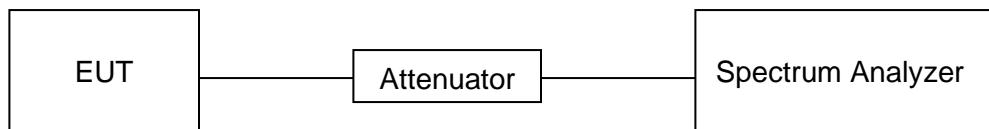
Measure the power of each channel.

Peak Detector used for Peak result.

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

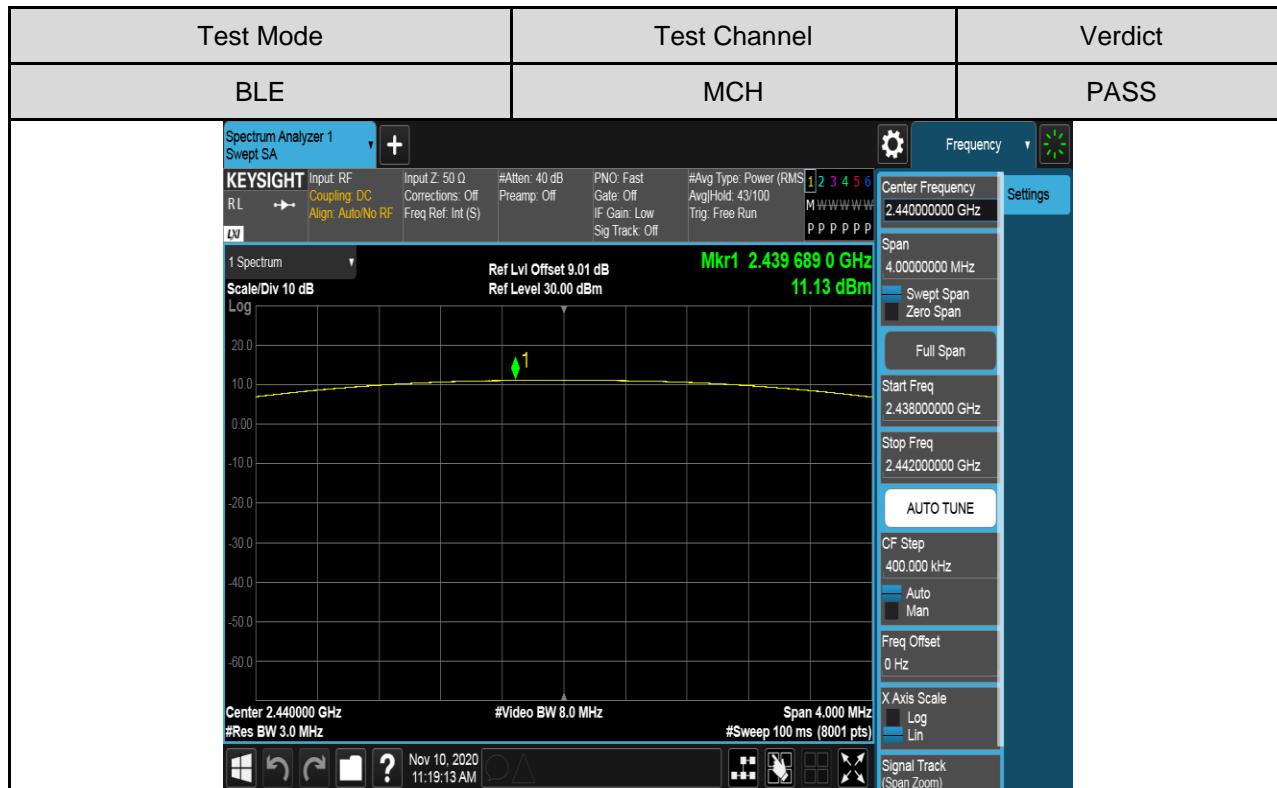
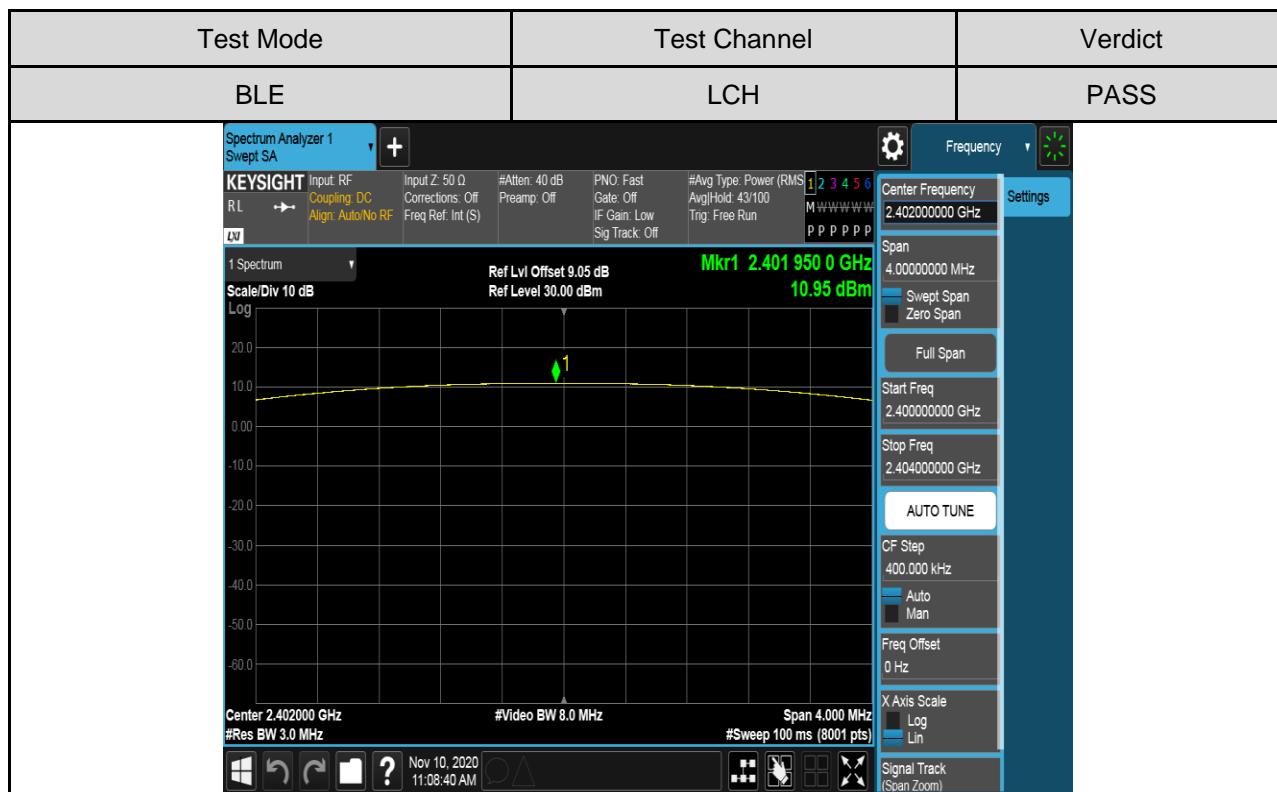
TEST SETUP



RESULTS

Test Mode	Test Channel	Maximum Peak Conducted Output Power(dBm)	LIMIT
		dBm	
BLE	LCH	10.95	30
	MCH	11.13	30
	HCH	10.78	30

Test Graphs



Test Mode	Test Channel	Verdict
BLE	HCH	PASS
 <p>Spectrum Analyzer 1 Swept SA</p> <p>KEYSIGHT Input: RF RL: Coupling: DC Align: Auto/No RF Input Z: 50.0 Corrections: Off PNO: Fast Preamp: Off Freq Ref. Int (S) #Atten: 40 dB Gate: Off IF Gain: Low Sig Track: Off</p> <p>#Avg Type: Power (RMS) Avg Hold: 43/100 Trig: Free Run</p> <p>1 Spectrum Scale/Div 10 dB Ref Lvl Offset 8.69 dB Ref Level 30.00 dBm</p> <p>Log</p> <p>Mkr1 2.479 813 5 GHz 10.78 dBm</p> <p>Center 2.480000 GHz #Res BW 3.0 MHz #Video BW 8.0 MHz Span 4.000 MHz #Sweep 100 ms (8001 pts)</p> <p>Nov 10, 2020 11:22:00 AM</p> <p>Settings</p> <p>Center Frequency 2.48000000 GHz Span 4.00000000 MHz Swept Span Zero Span</p> <p>Full Span</p> <p>Start Freq 2.47800000 GHz Stop Freq 2.48200000 GHz</p> <p>AUTO TUNE</p> <p>CF Step 400.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>X Axis Scale Log Lin</p> <p>Signal Track (Span Zoom)</p>		

7.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
Trace	Max hold
Sweep time	Auto couple.

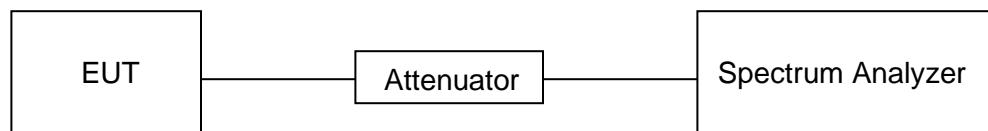
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST ENVIRONMENT

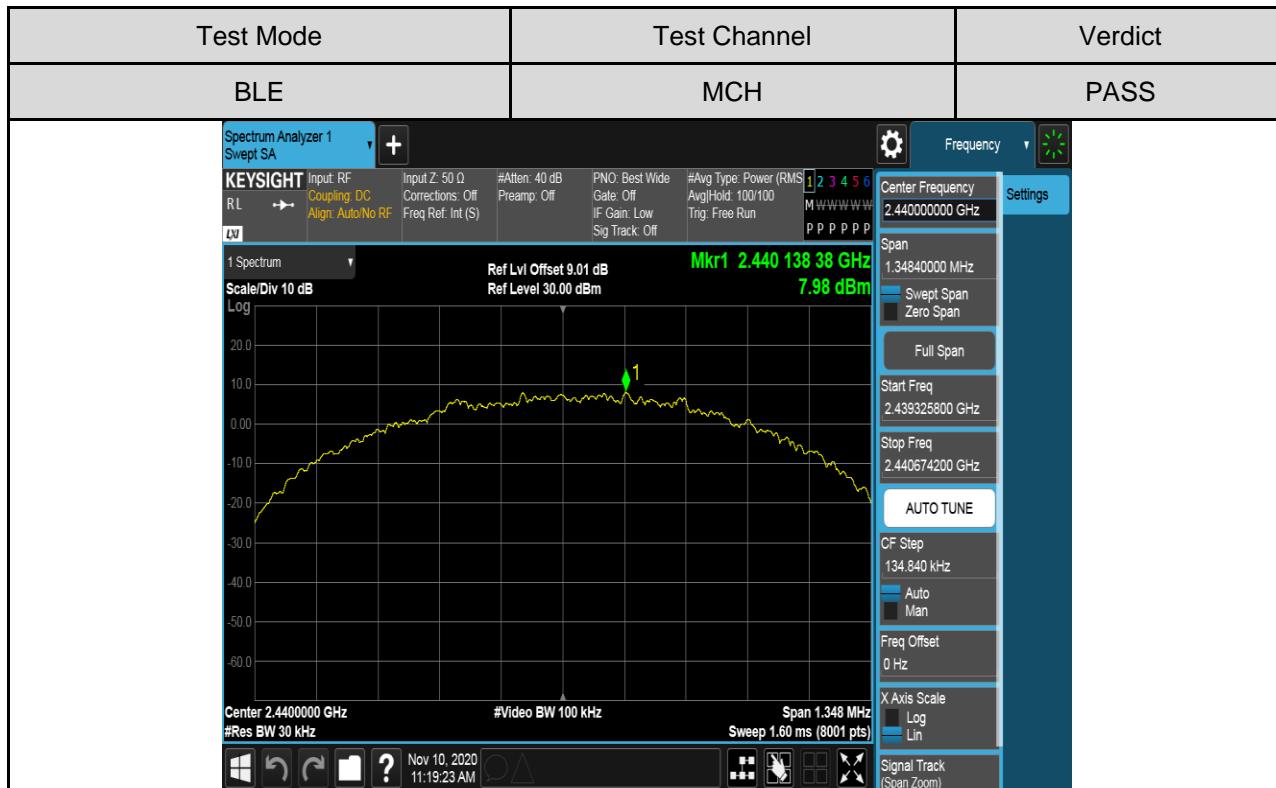
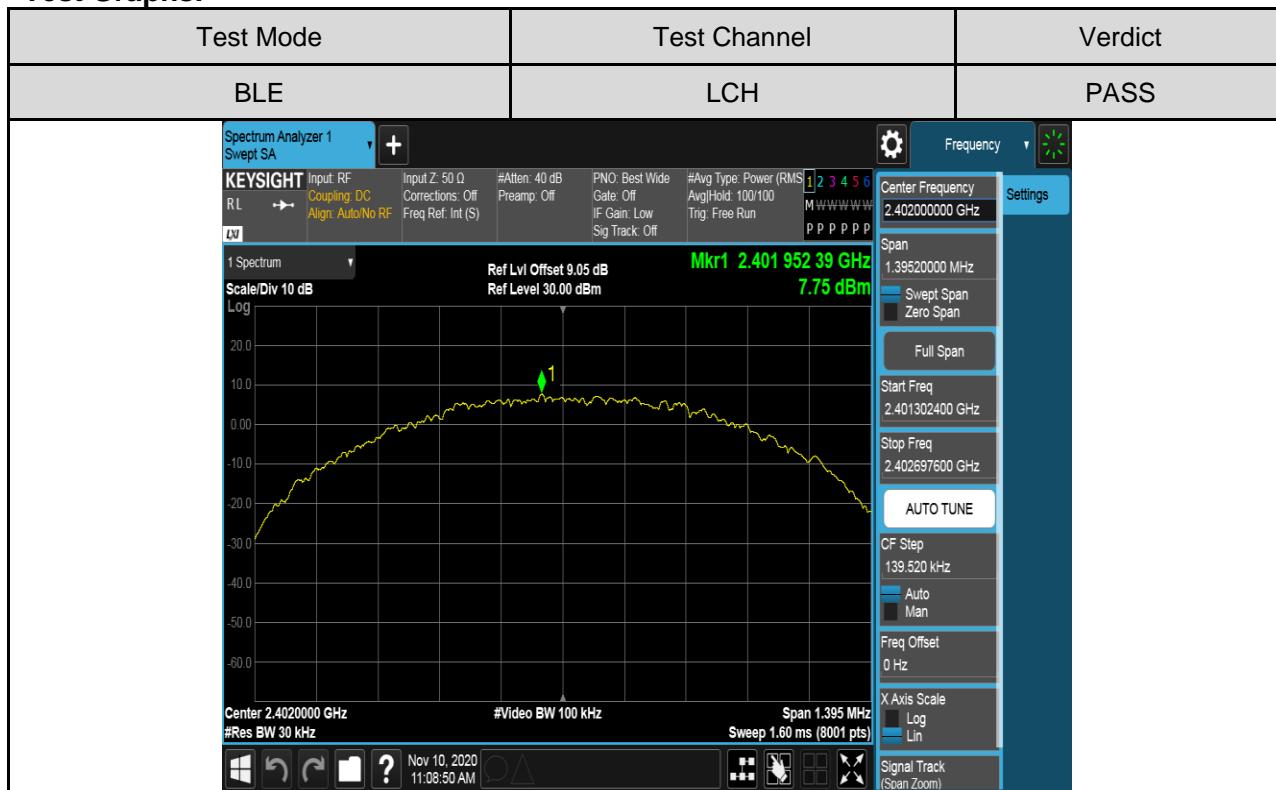
Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

TEST SETUP



RESULTS

Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30kHz)	Result
BLE	LCH	7.75	Pass
	MCH	7.98	Pass
	HCH	7.62	Pass

Test Graphs:


Test Mode	Test Channel	Verdict
BLE	HCH	PASS
		

7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

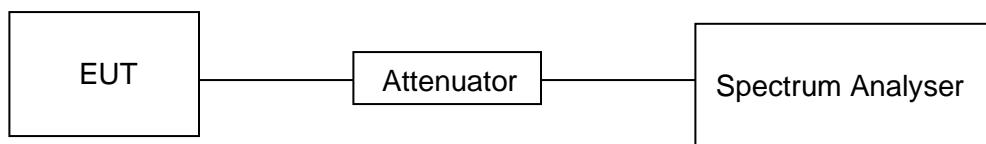
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times$ RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	$\geq 3 \times$ RBW
measurement points	\geq span/RBW
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

TEST SETUP



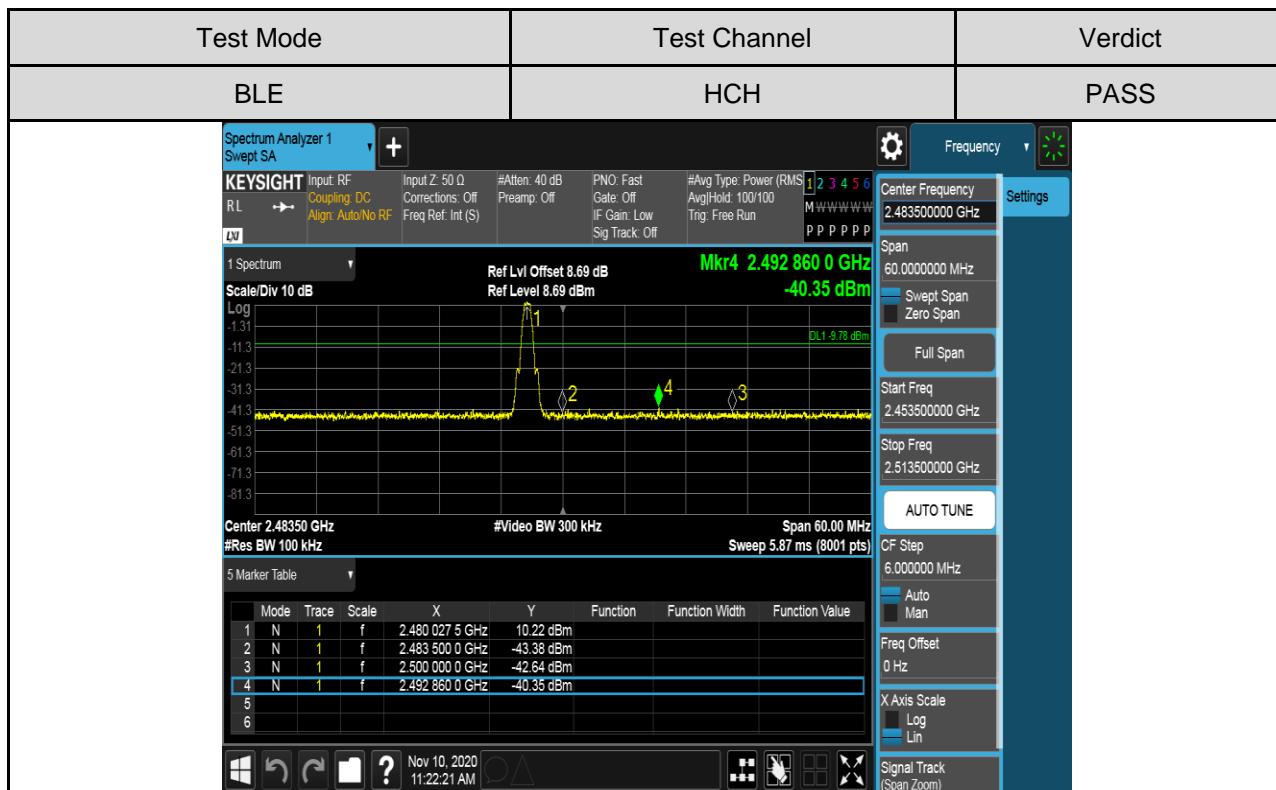
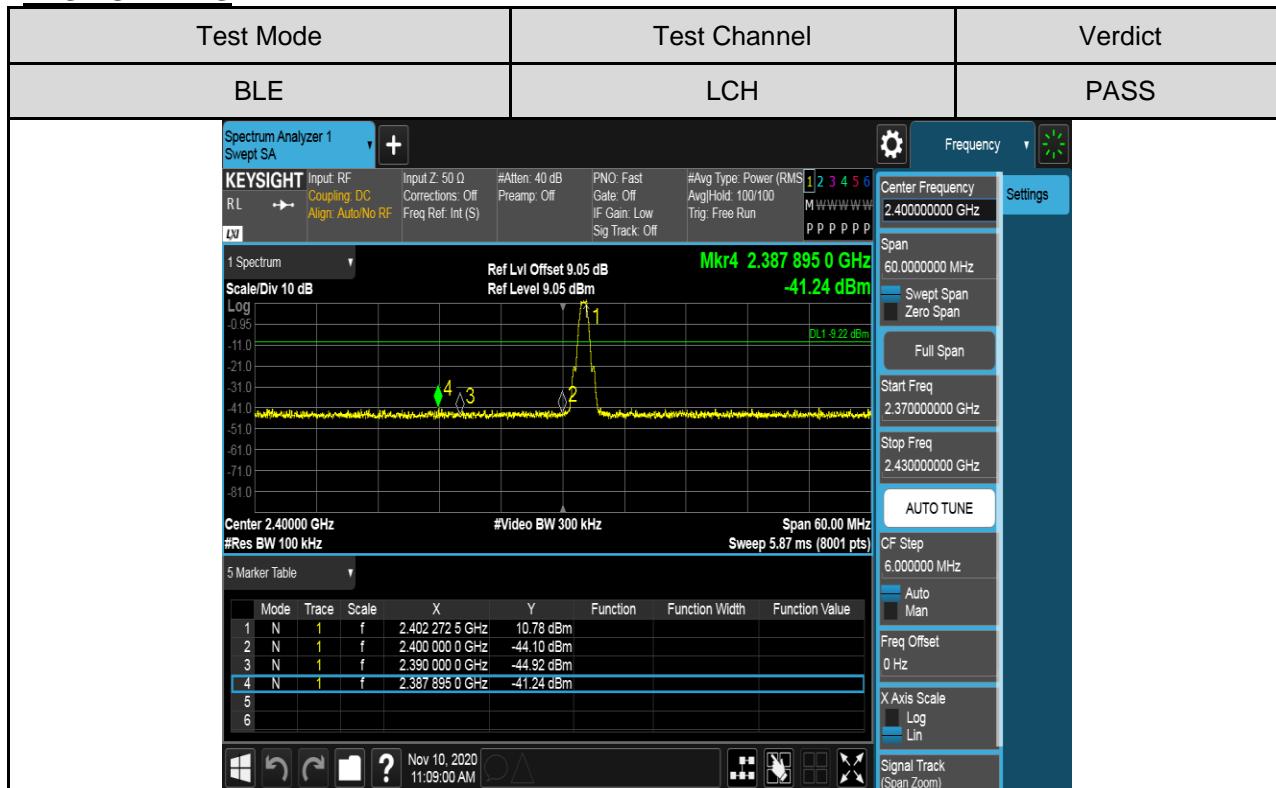
TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

Part I :Conducted Bandedge**RESULTS TABLE**

Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	LCH	10.782	-41.240	-9.22	PASS
	HCH	10.220	-40.348	-9.78	PASS

TEST GRAPHS



Part II :Conducted Emission

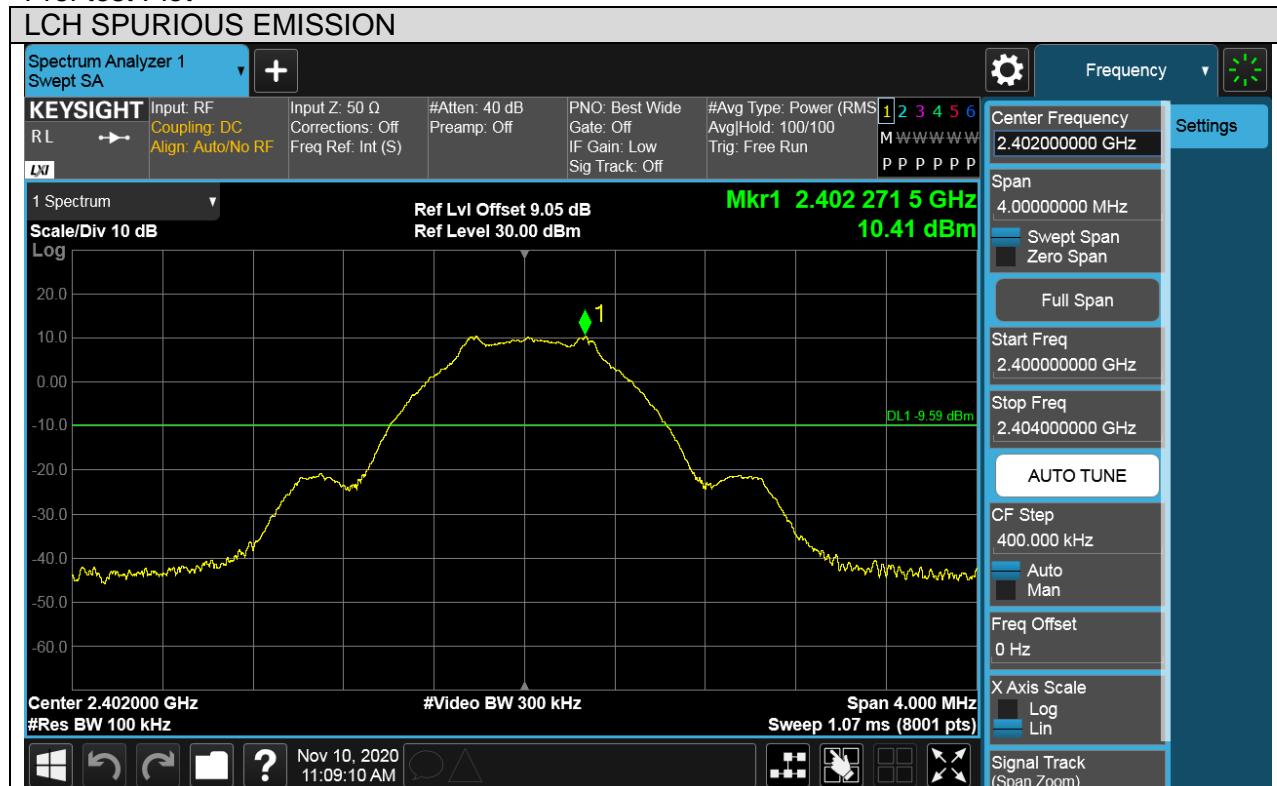
Test Result Table

Test Mode	Channel	Pref(dBm)	Puw(dBm)	Verdict
BLE	LCH	10.41	<Limit	PASS
	MCH	10.98	<Limit	PASS
	HCH	10.44	<Limit	PASS

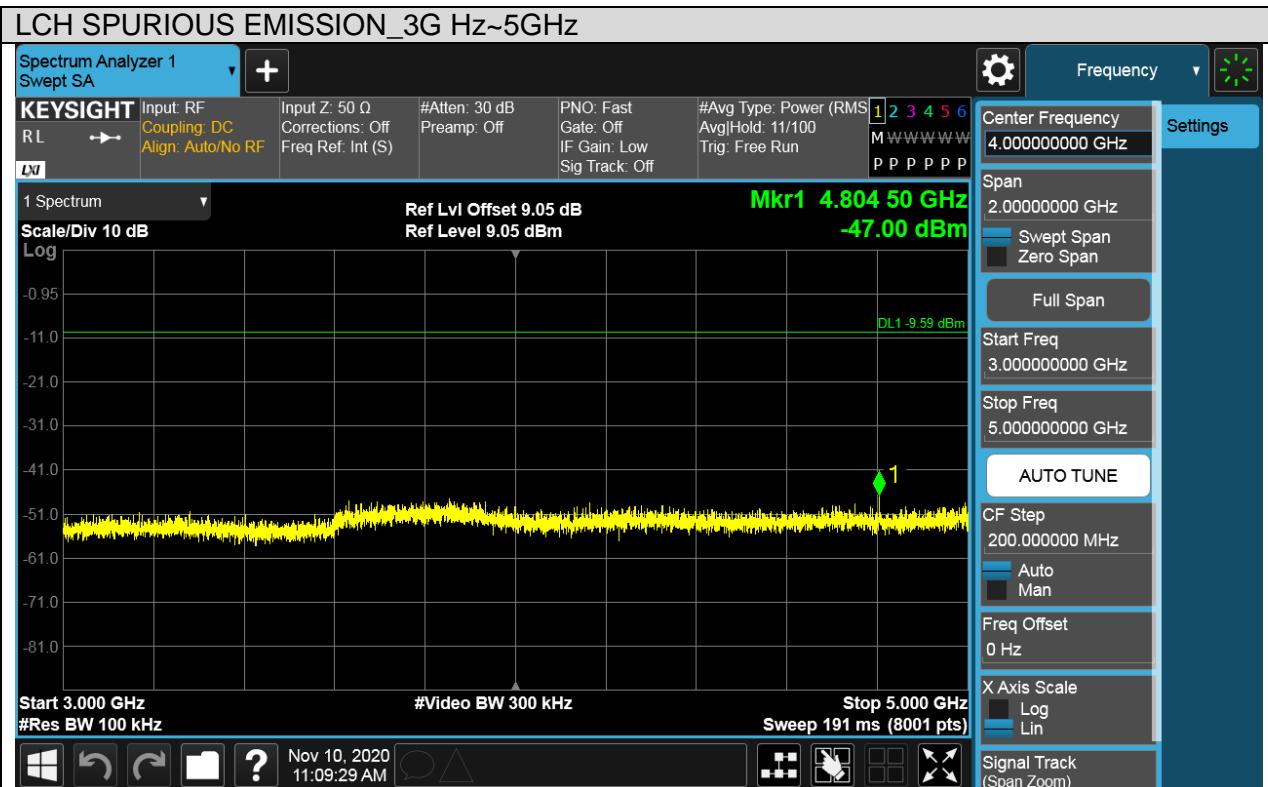
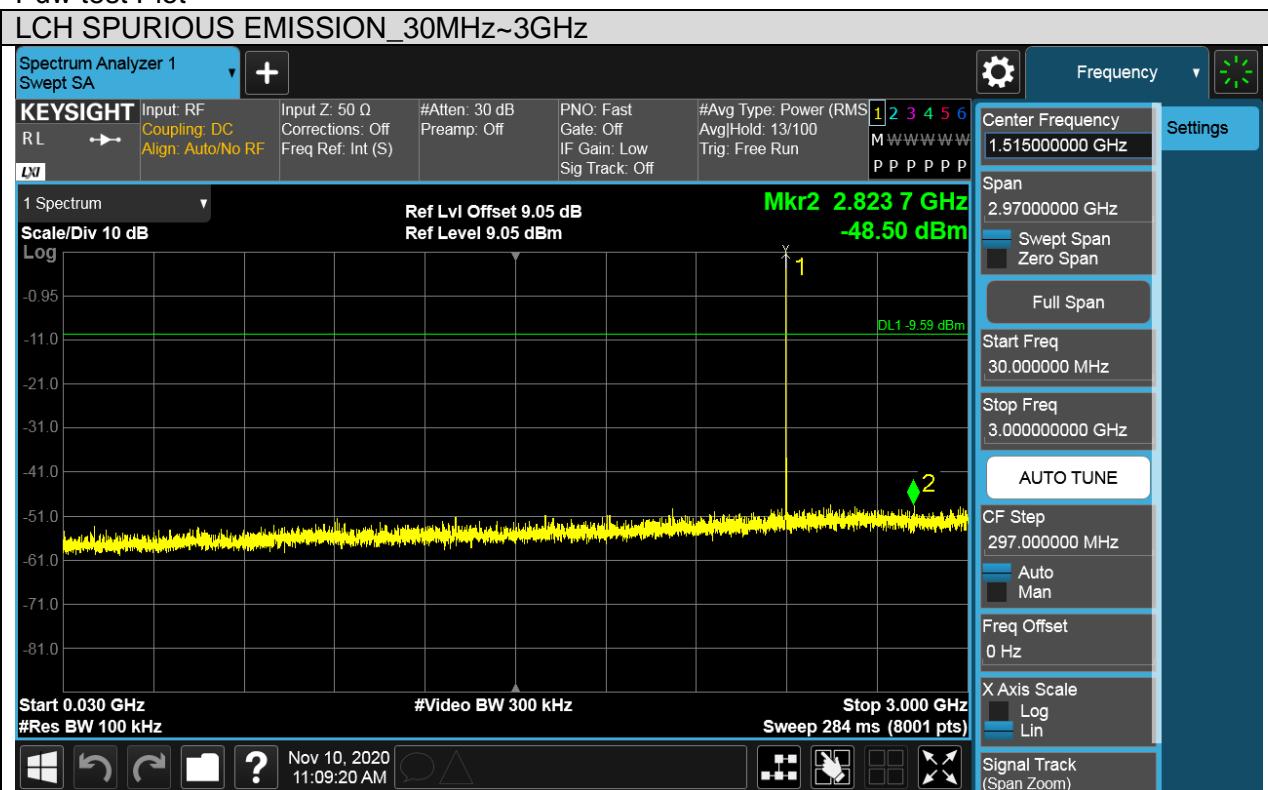
Test Plots

Test Mode	Channel	Verdict
BLE	LCH	PASS

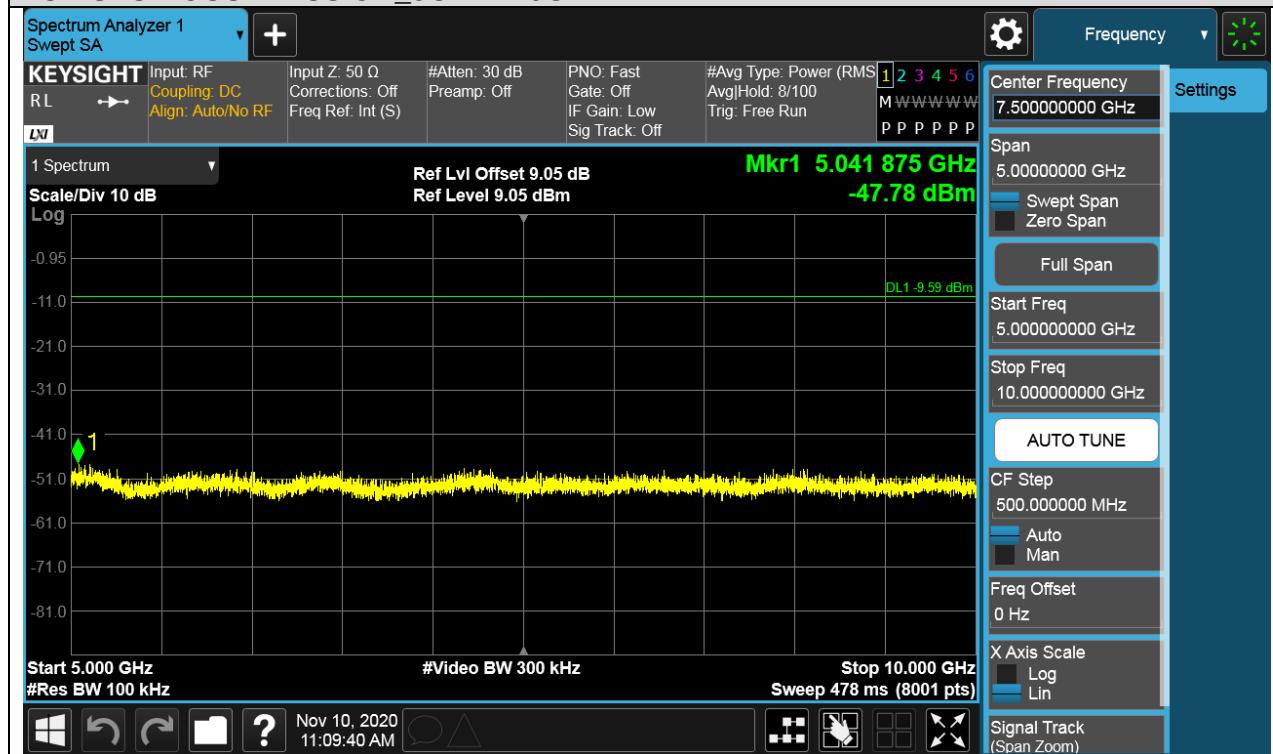
Pref test Plot



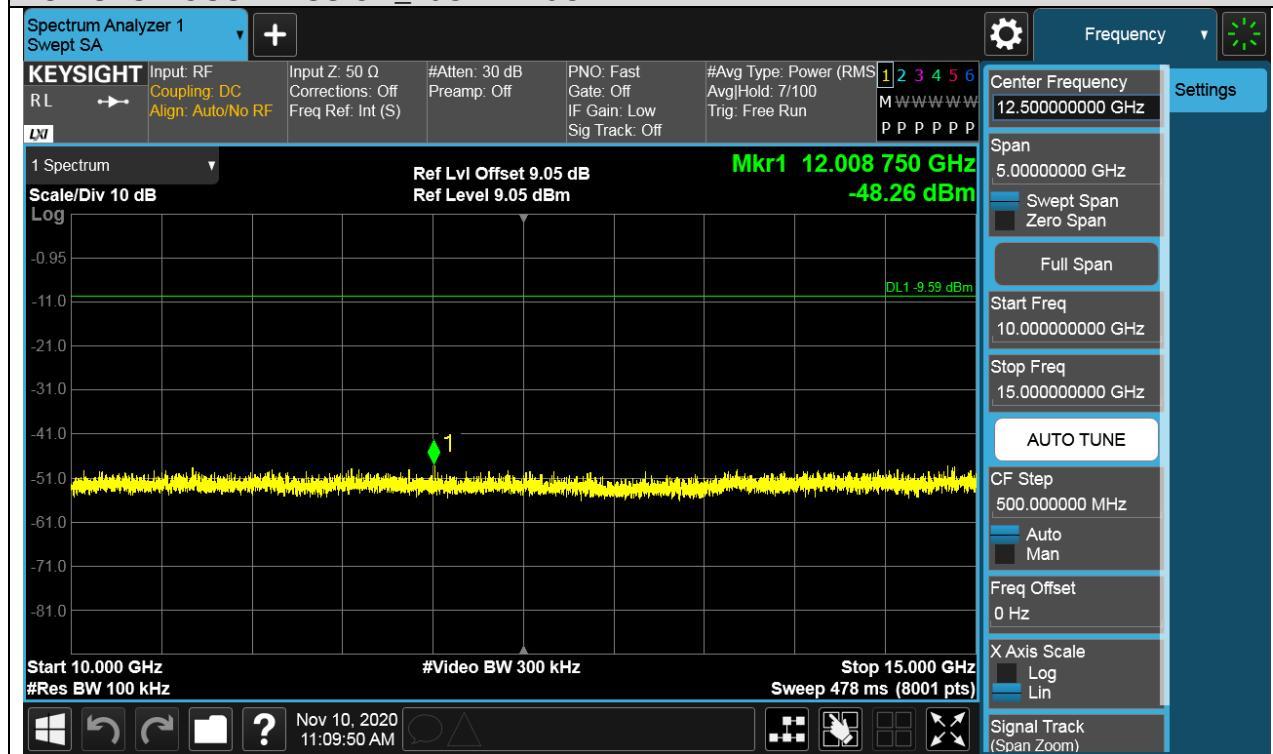
Puw test Plot



LCH SPURIOUS EMISSION_5G Hz~10GHz

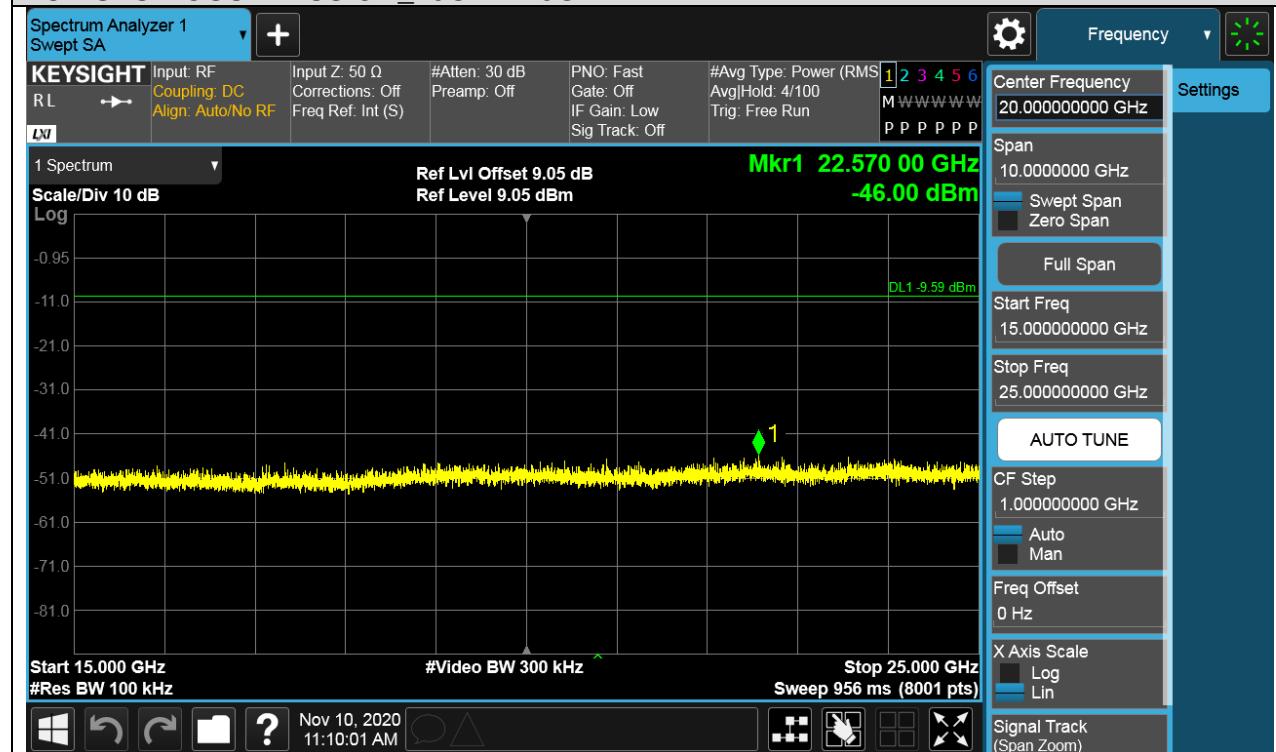


LCH SPURIOUS EMISSION_10G Hz~15GHz





LCH SPURIOUS EMISSION_15GHz~25GHz

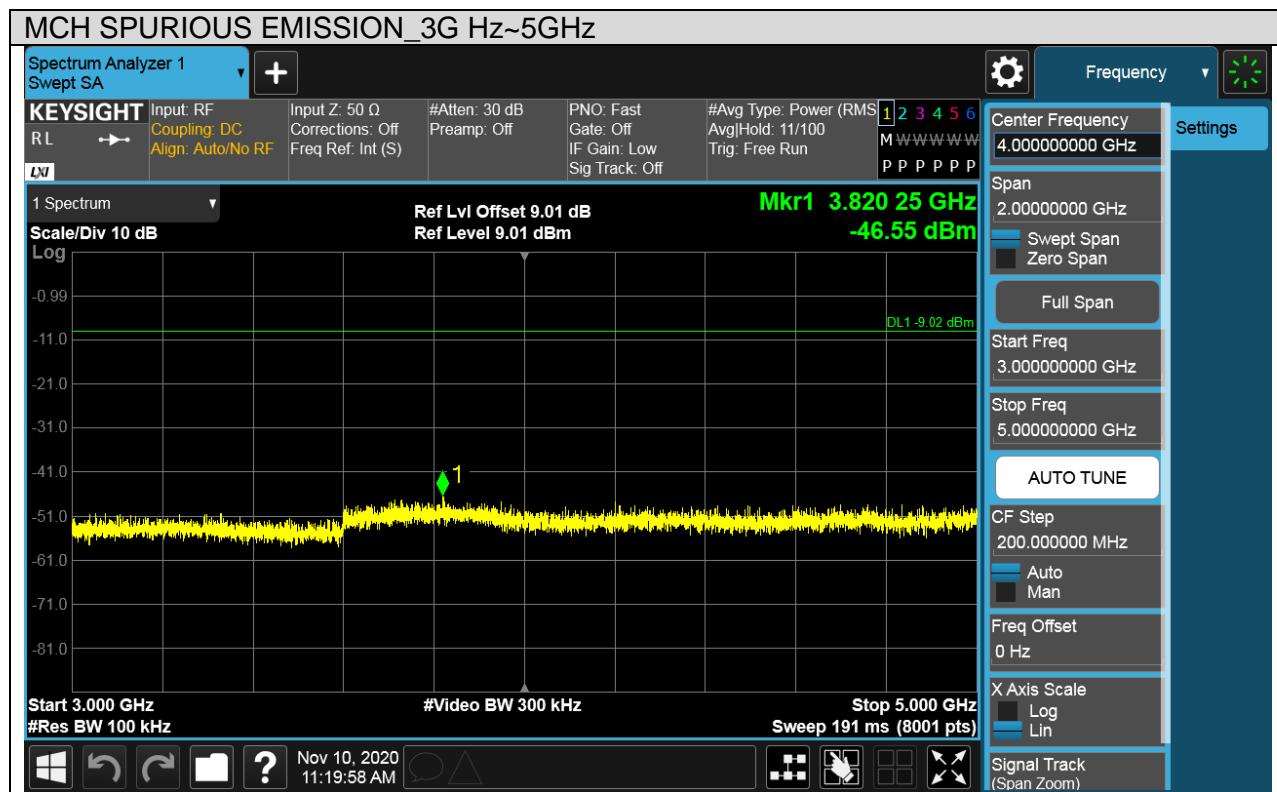
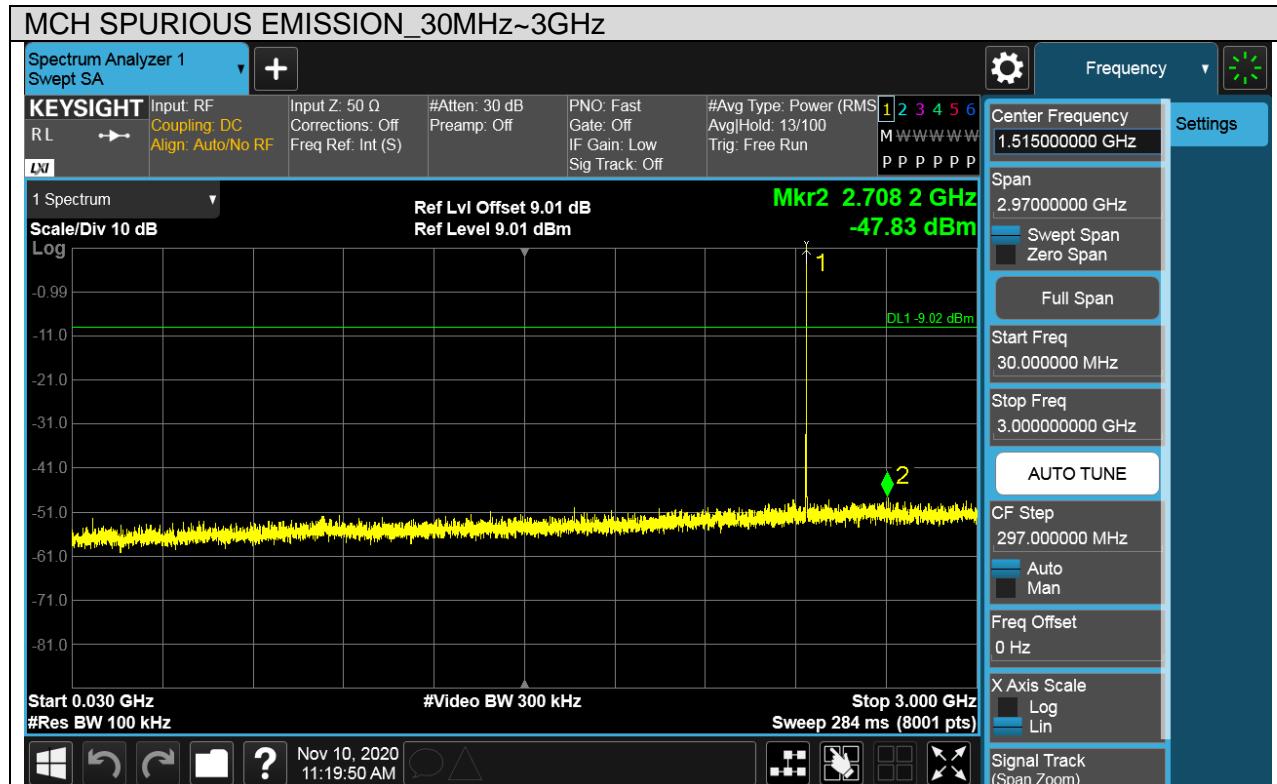


Test Mode	Channel	Verdict
BLE	MCH	PASS

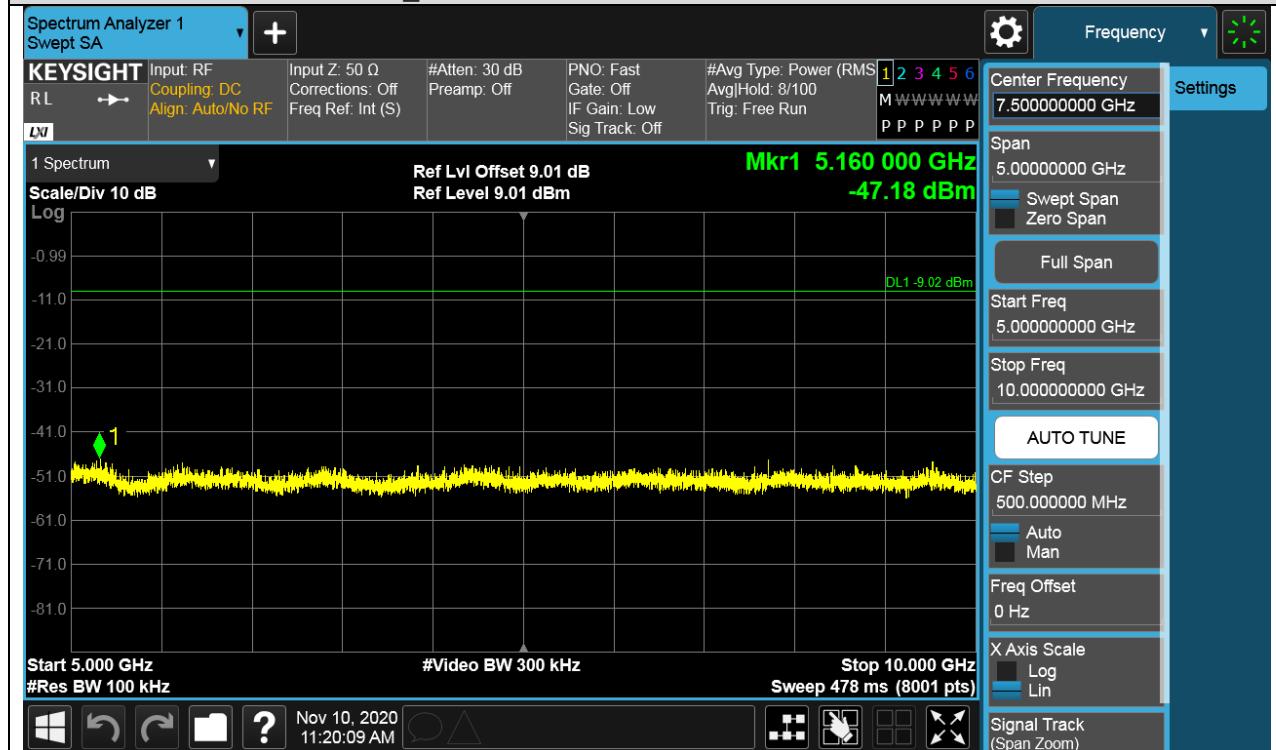
Pref test Plot



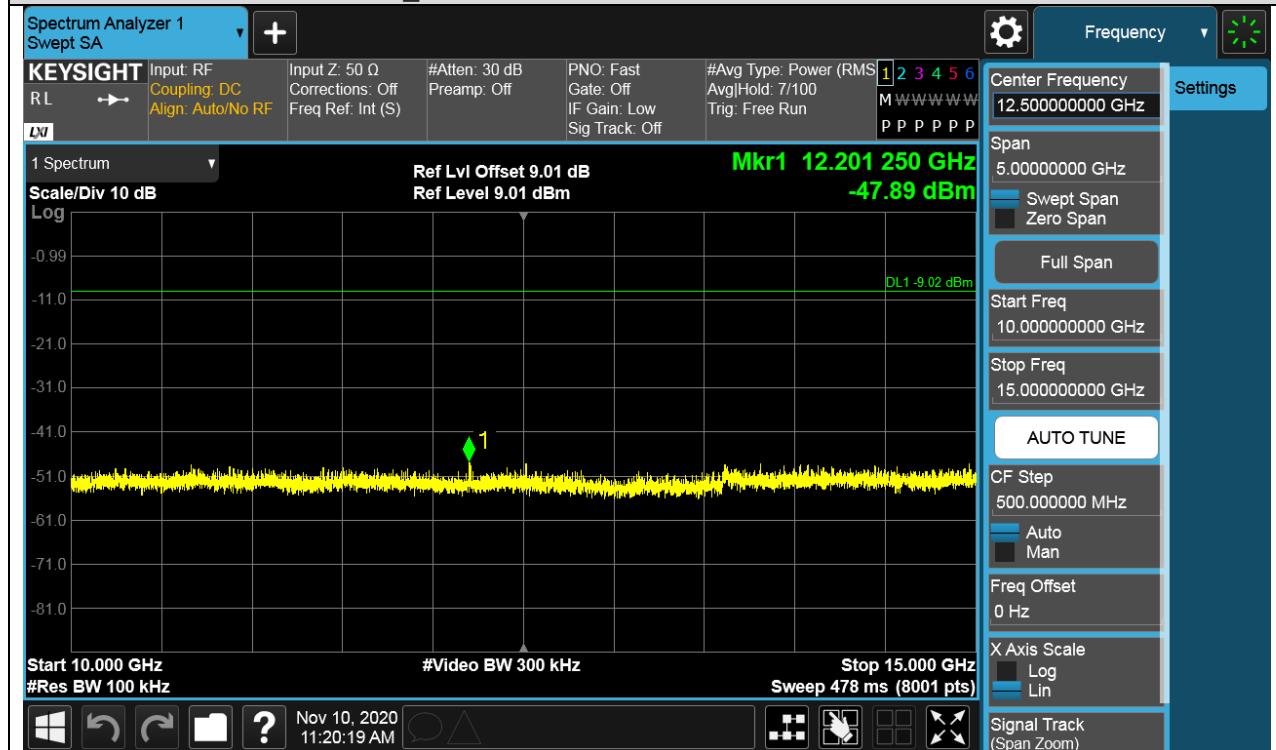
Puw test Plot



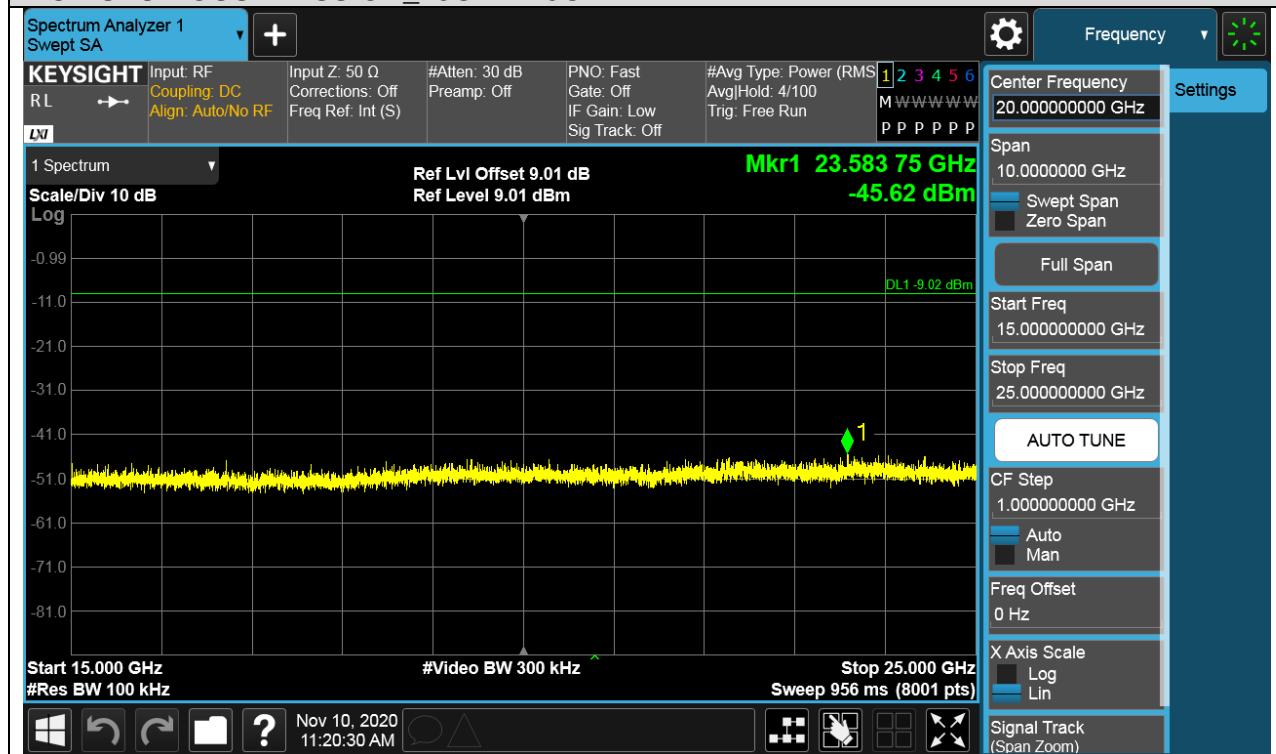
MCH SPURIOUS EMISSION_5G Hz~10GHz



MCH SPURIOUS EMISSION_10G Hz~15GHz

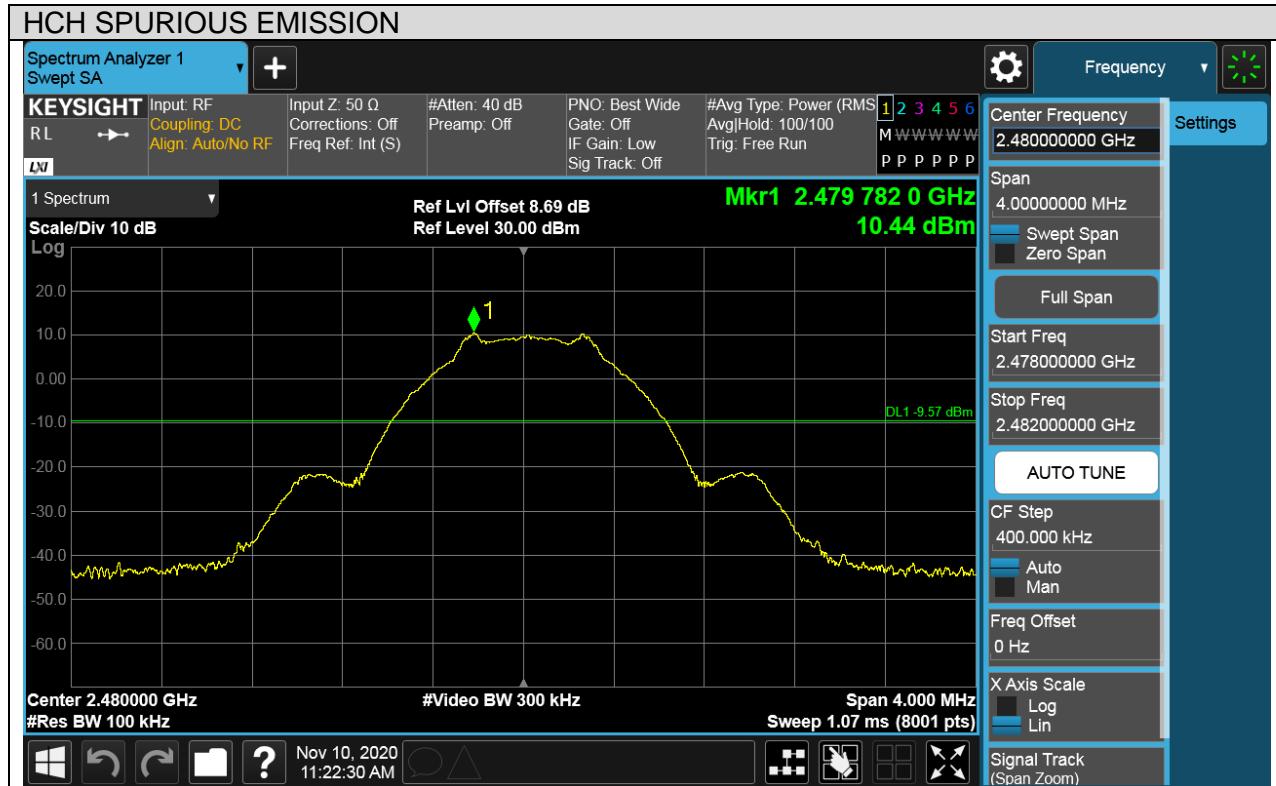


MCH SPURIOUS EMISSION_15GHz~25GHz

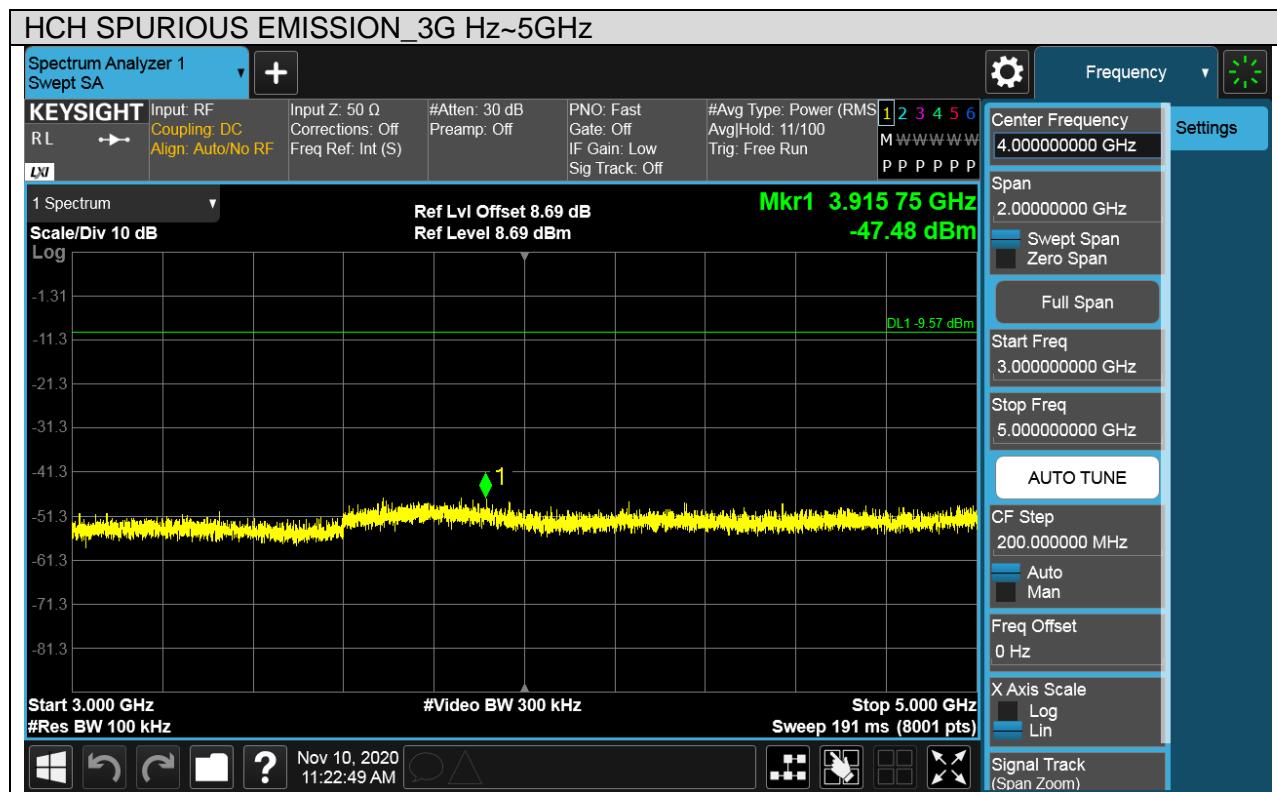
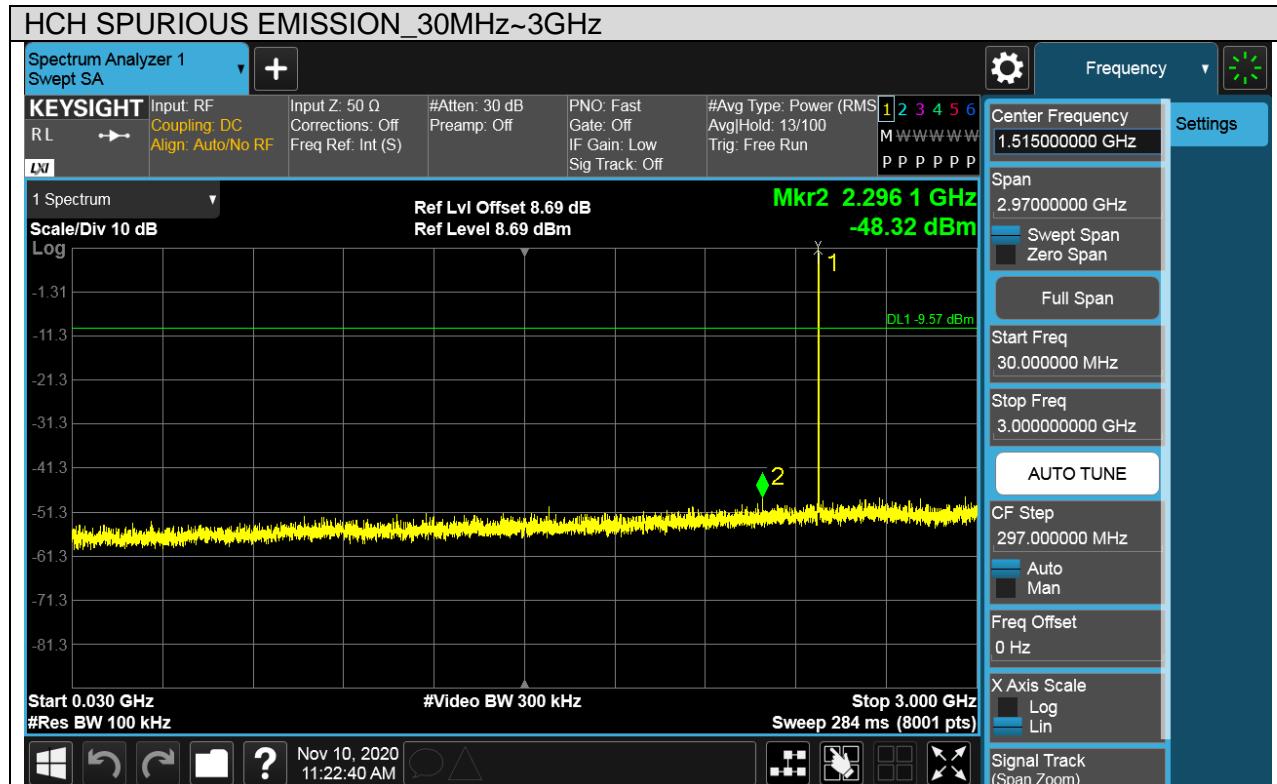


Test Mode	Channel	Verdict
BLE	HCH	PASS

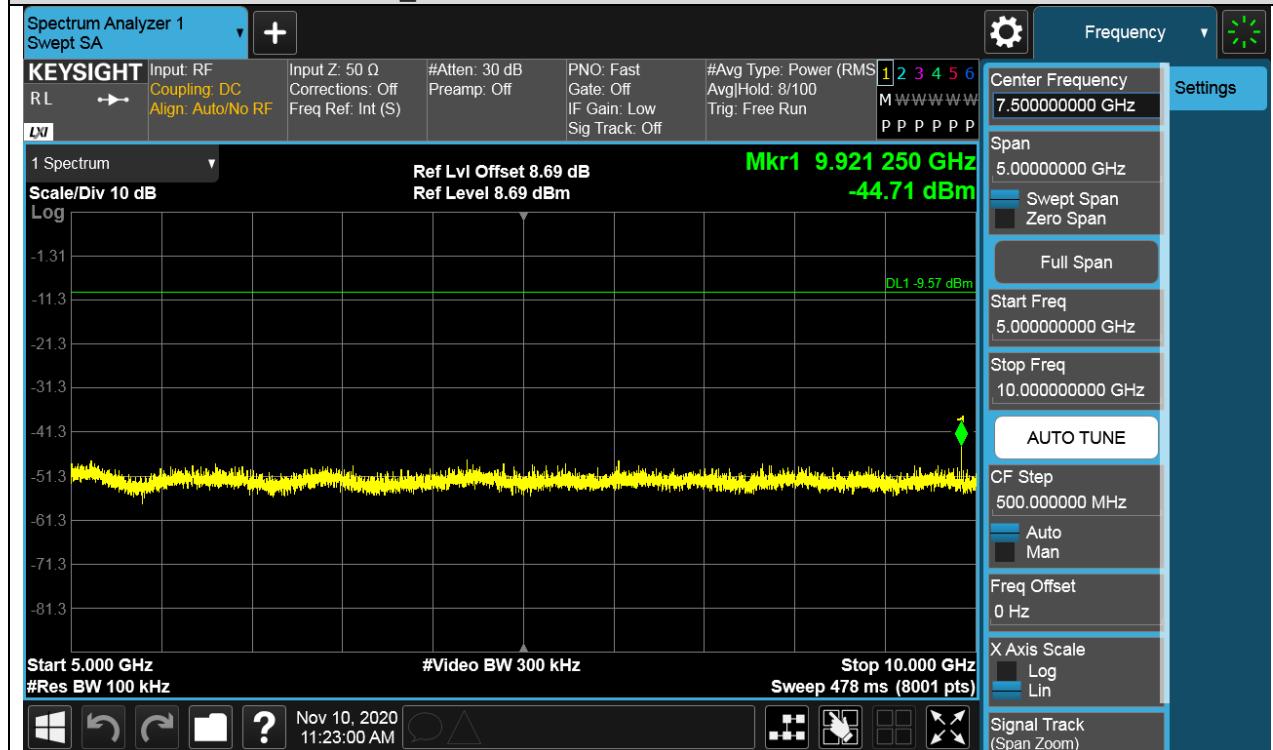
Pref test Plot



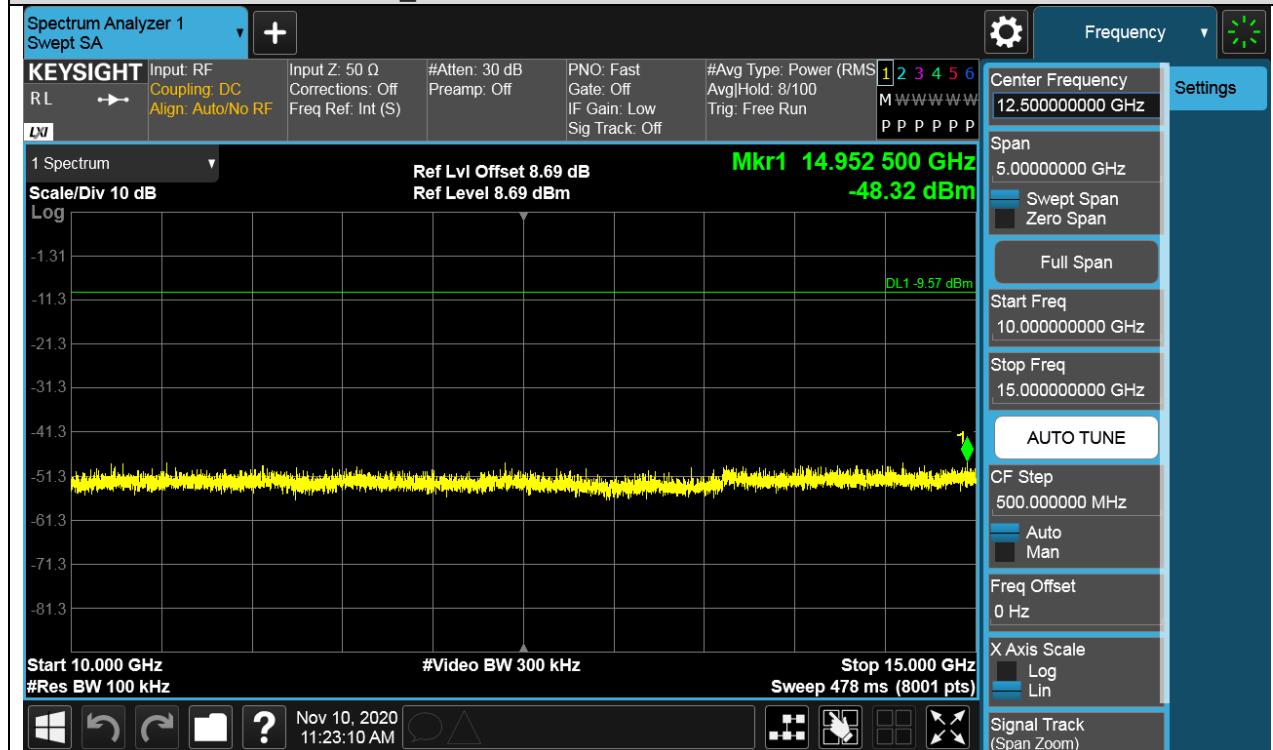
Puw test Plot



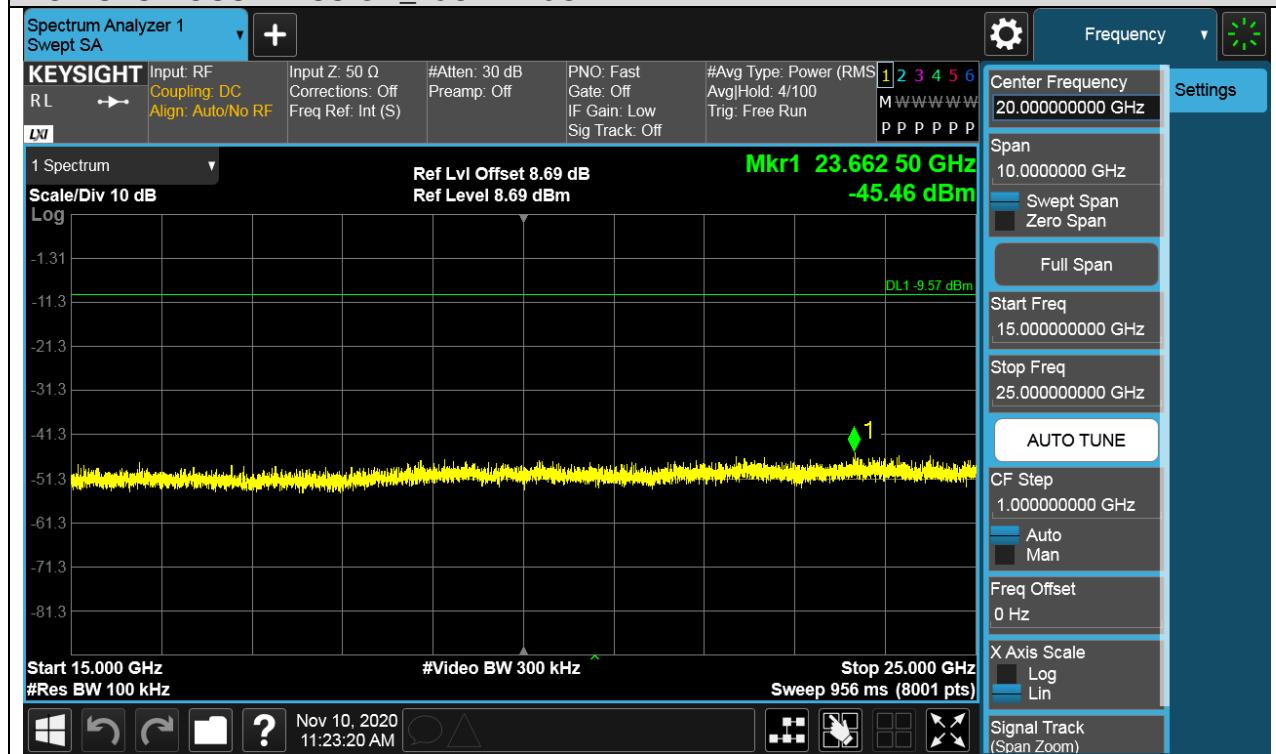
HCH SPURIOUS EMISSION_5G Hz~10GHz



HCH SPURIOUS EMISSION_10G Hz~15GHz



HCH SPURIOUS EMISSION_15GHz~25GHz



7.6. RADIATED TEST RESULTS

7.6.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (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

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)

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

IC Restricted bands please refer to ISED RSS-GEN Clause 8.10
Restricted bands of operation

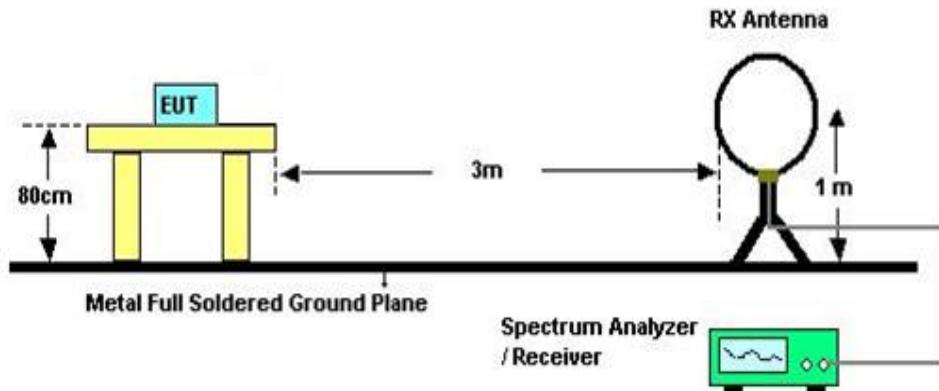
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	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

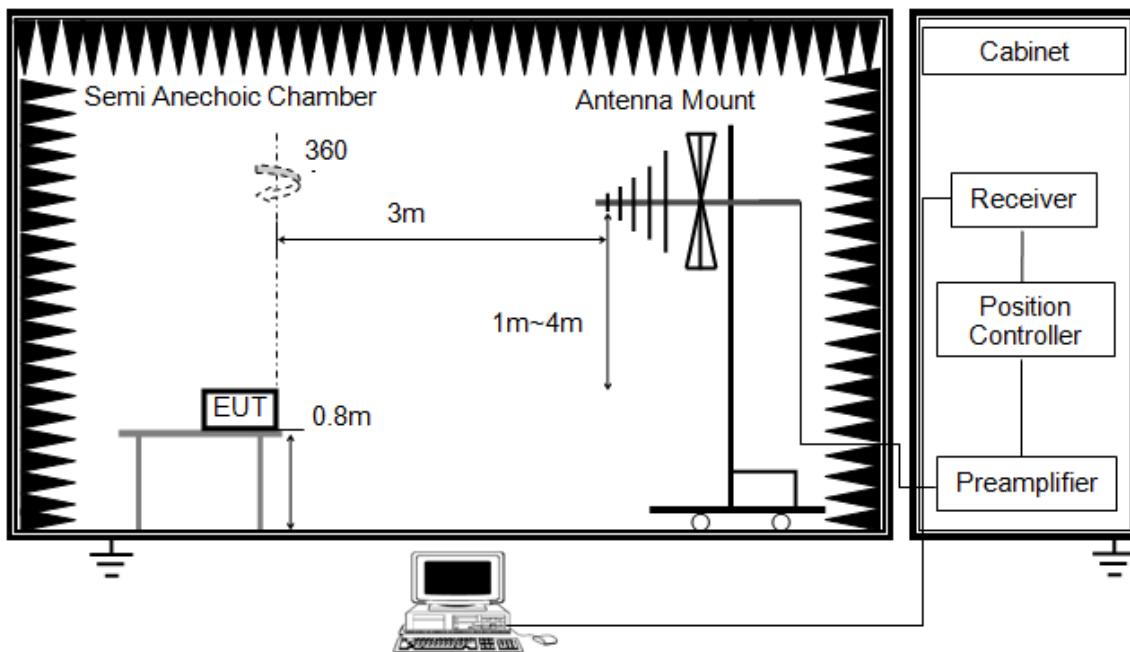


The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (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 0.8 meter 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)

Below 1G

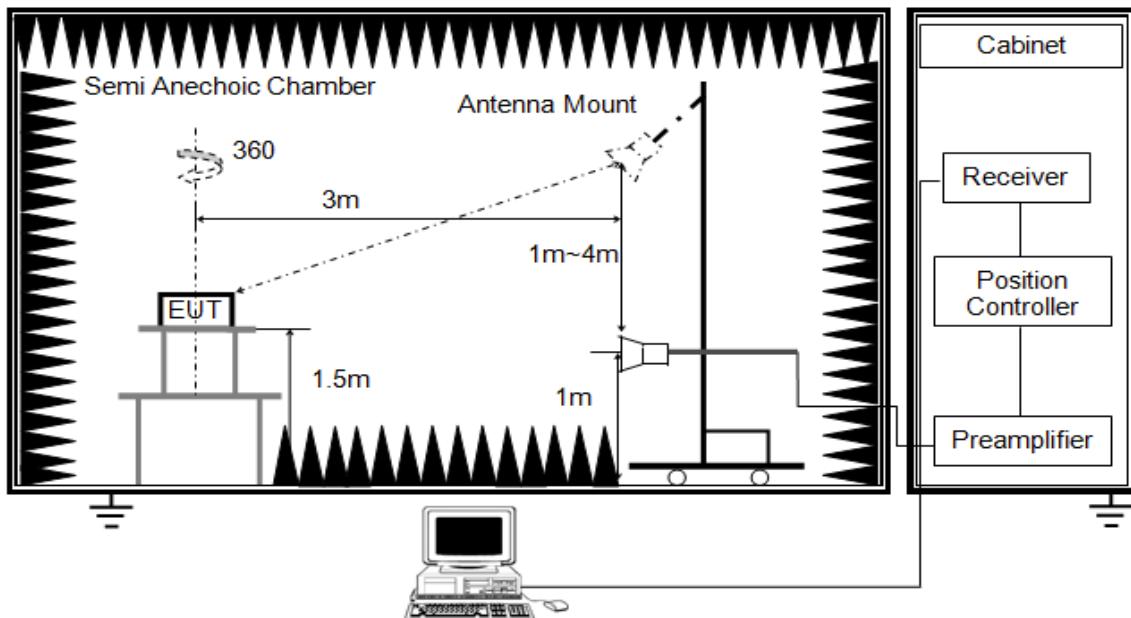


The setting of the spectrum analyser

RBW	120K
VBW	300K
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 0.8 meter 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

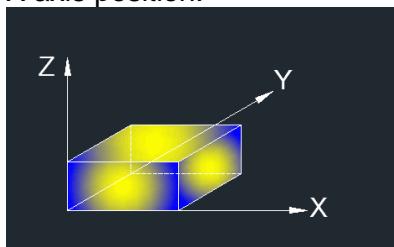


The setting of the spectrum analyser

RBW	1M
VBW	PEAK:3M AVG: See note6
Sweep	Auto
Detector	Peak/Average(Refer to section 7.1)
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 1.5m 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 set $VBW \leq RBW/100$, but not less than 10Hz video bandwidth with peak detector, max hold to be run for at least 50 traces for average measurements.
8. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

X axis position:



Note : For this product can only work at X axis position.

7.6.2. TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

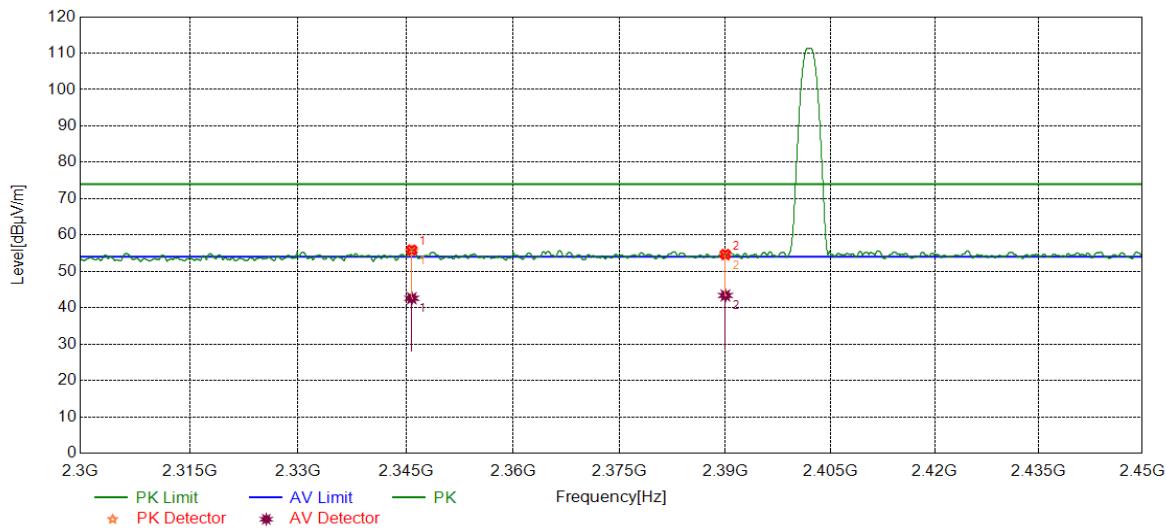
7.6.3. RESTRICTED BANDEDGE

Test Result Table

Test Mode	Channel	Puw(dBm)	Verdict
BLE	LCH	<Limit	PASS
	HCH	<Limit	PASS

Test Graphs:

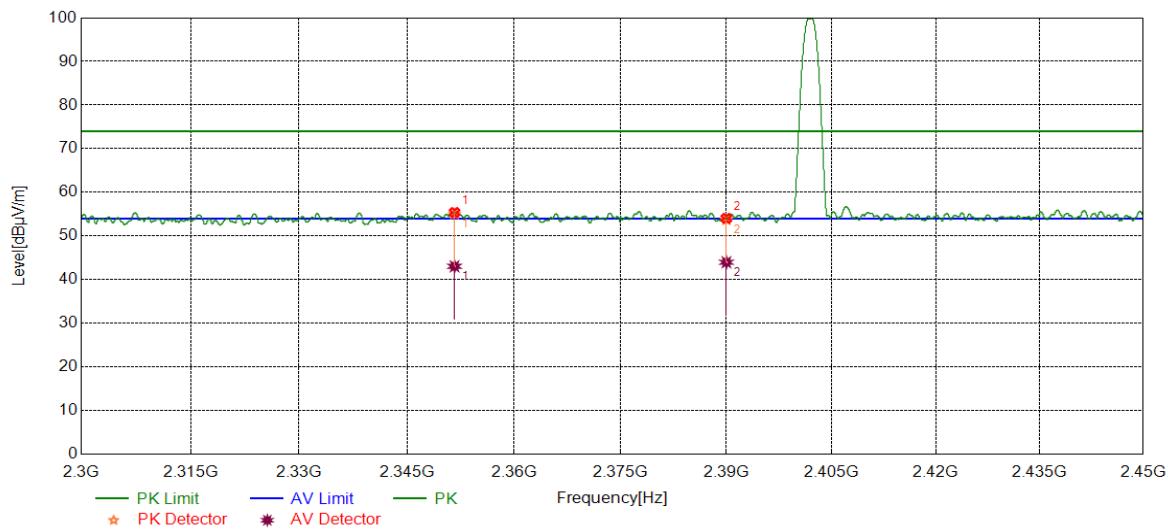
Test Mode	Channel	Polarization	Verdict
BLE	LCH	Horizontal	PASS



No.	Frequency (MHz)	Reading Level	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
		(dBuV/m)	(dB)				
1	2345.8120	42.54	13.35	55.89	74.00	-18.11	peak
		29.25	13.35	42.60	54.00	-11.40	average
2	2390.0000	40.94	13.75	54.69	74.00	-19.31	peak
		29.62	13.75	43.37	54.00	-10.63	average

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.

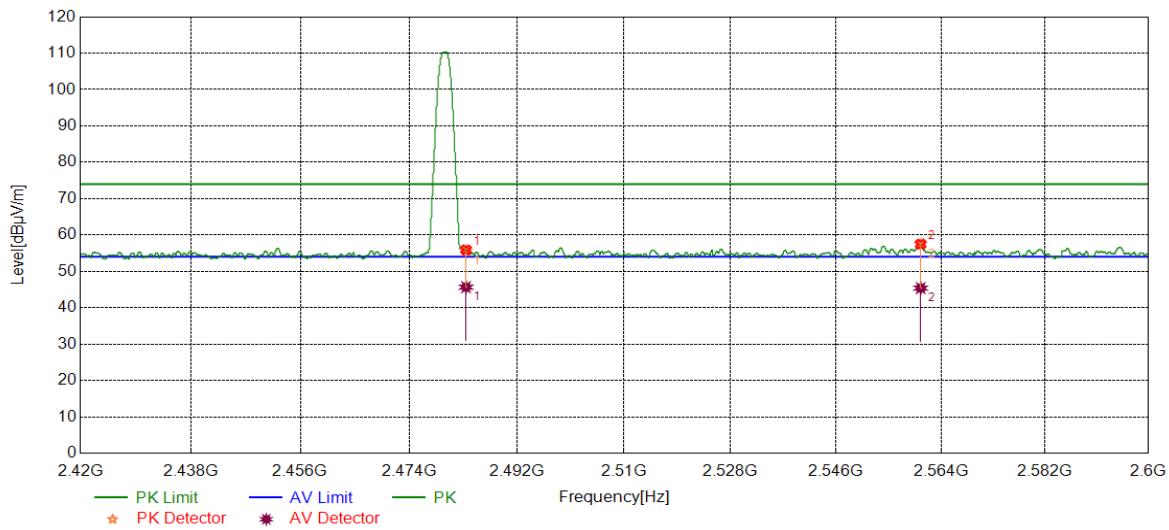
Test Mode	Channel	Polarization	Verdict
BLE	LCH	Vertical	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2351.6440	41.99	13.40	55.39	74.00	-18.61	peak
		29.65	13.40	43.05	54.00	-10.95	average
2	2390.0000	40.30	13.75	54.05	74.00	-19.95	peak
		30.23	13.75	43.98	54.00	-10.02	average

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.

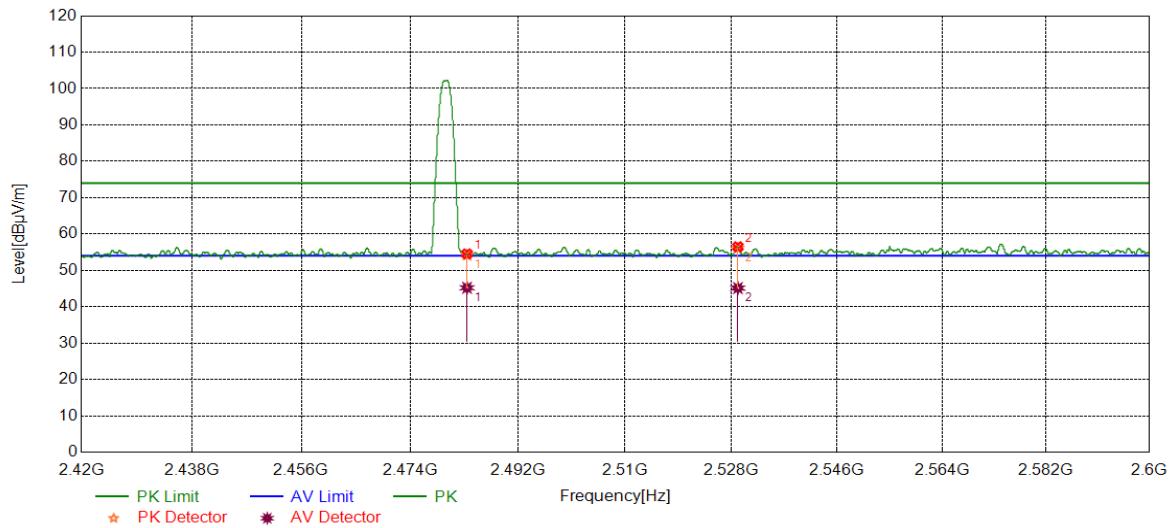
Test Mode	Channel	Polarization	Verdict
BLE	HCH	Horizontal	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.5000	42.40	13.51	55.91	74.00	-18.09	peak
		32.15	13.51	45.66	54.00	-8.34	average
2	2560.5041	43.52	13.97	57.49	74.00	-16.51	peak
		31.42	13.97	45.39	54.00	-8.61	average

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	HCH	Vertical	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.5000	41.04	13.51	54.55	74.00	-19.45	peak
		31.70	13.51	45.21	54.00	-8.79	average
2	2529.0909	42.65	13.85	56.50	74.00	-17.50	peak
		31.29	13.85	45.14	54.00	-8.86	average

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.

7.6.4. SPURIOUS EMISSIONS

Test Result Table:

1) For 1GHz~3GHz

Test Mode	Channel	Puw(dBm)	Verdict
BLE	LCH	<Limit	PASS
	MCH	<Limit	PASS
	HCH	<Limit	PASS

2) For 3GHz~18GHz

Test Mode	Channel	Puw(dBm)	Verdict
BLE	LCH	<Limit	PASS
	MCH	<Limit	PASS
	HCH	<Limit	PASS

3) For 9KHz~30MHz

Test Mode	Channel	Puw(dBm)	Verdict
BLE	MCH	<Limit	PASS

Remark:

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

4) For 30MHz~1GHz

Test Mode	Channel	Puw(dBm)	Verdict
BLE	MCH	<Limit	PASS

Remark:

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

5) For 18GHz~26.5GHz

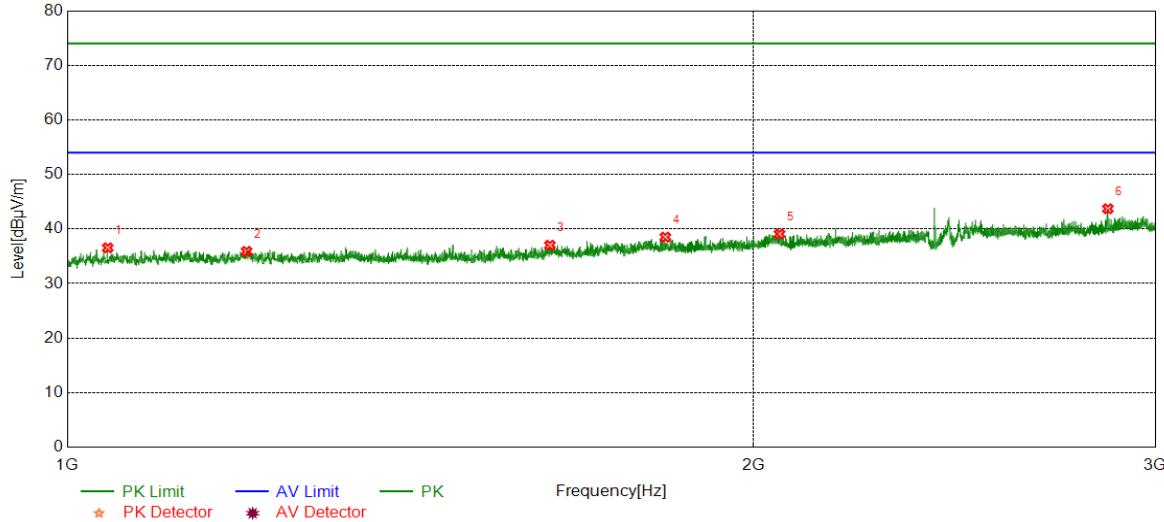
Test Mode	Channel	Puw(dBm)	Verdict
BLE	MCH	<Limit	PASS

Remark:

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

Part I: 1GHz~3GHz
HARMONICS AND SPURIOUS EMISSIONS

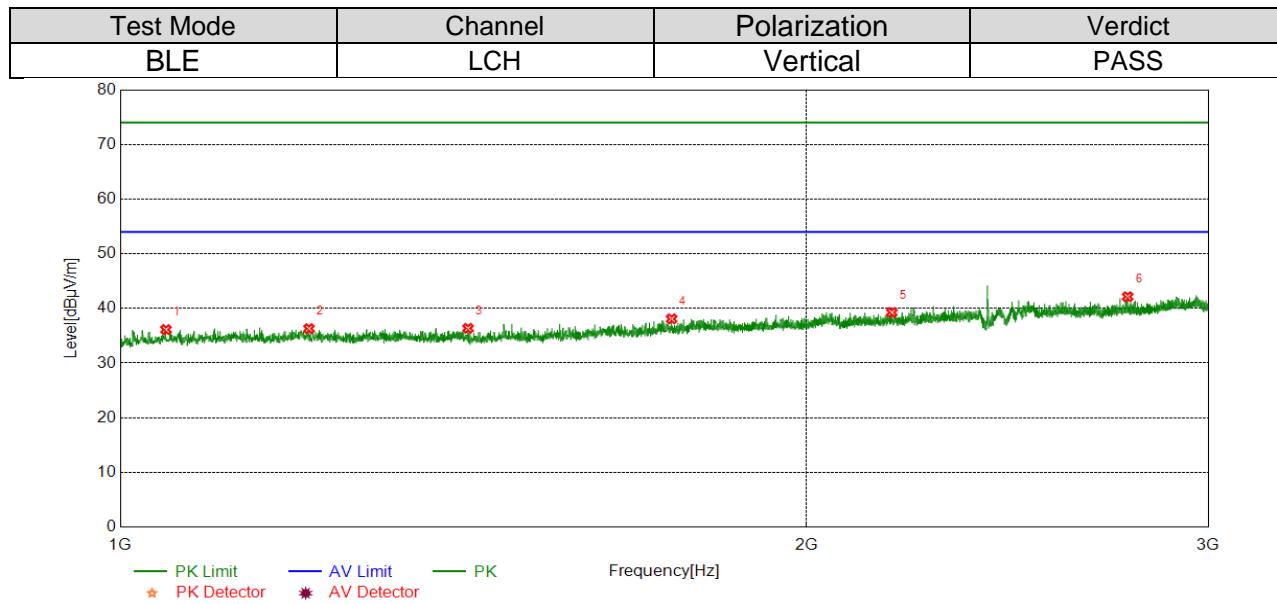
Test Mode	Channel	Polarization	Verdict
BLE	LCH	Horizontal	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	1041.7552	41.98	-5.43	36.55	74.00	-37.45	peak
2	1198.5248	41.43	-5.54	35.89	74.00	-38.11	peak
3	1628.0785	42.13	-5.11	37.02	74.00	-36.98	peak
4	1829.3537	42.39	-3.88	38.51	74.00	-35.49	peak
5	2052.8816	41.65	-2.58	39.07	74.00	-34.93	peak
6	2859.9825	43.61	0.10	43.71	74.00	-30.29	peak

Note:

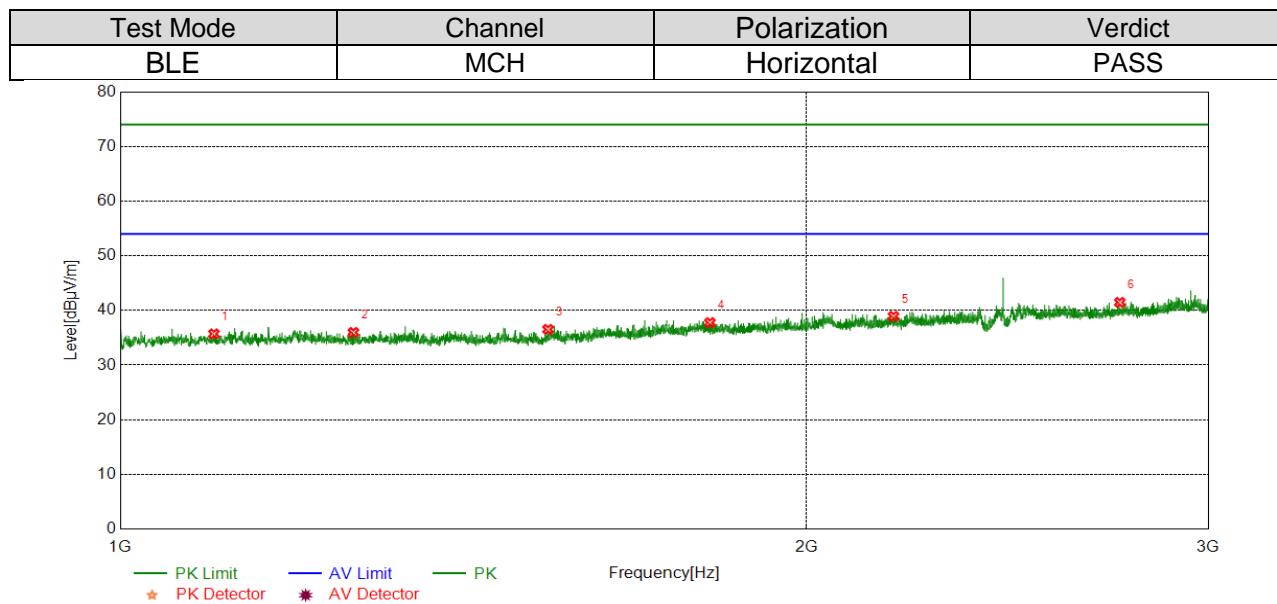
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. Peak: Peak detector.
5. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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	1047.2559	41.58	-5.45	36.13	74.00	-37.87	peak
2	1210.0263	41.91	-5.61	36.30	74.00	-37.70	peak
3	1420.8026	42.03	-5.67	36.36	74.00	-37.64	peak
4	1745.0931	42.49	-4.40	38.09	74.00	-35.91	peak
5	2179.6475	41.58	-2.32	39.26	74.00	-34.74	peak
6	2765.7207	42.41	-0.27	42.14	74.00	-31.86	peak

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

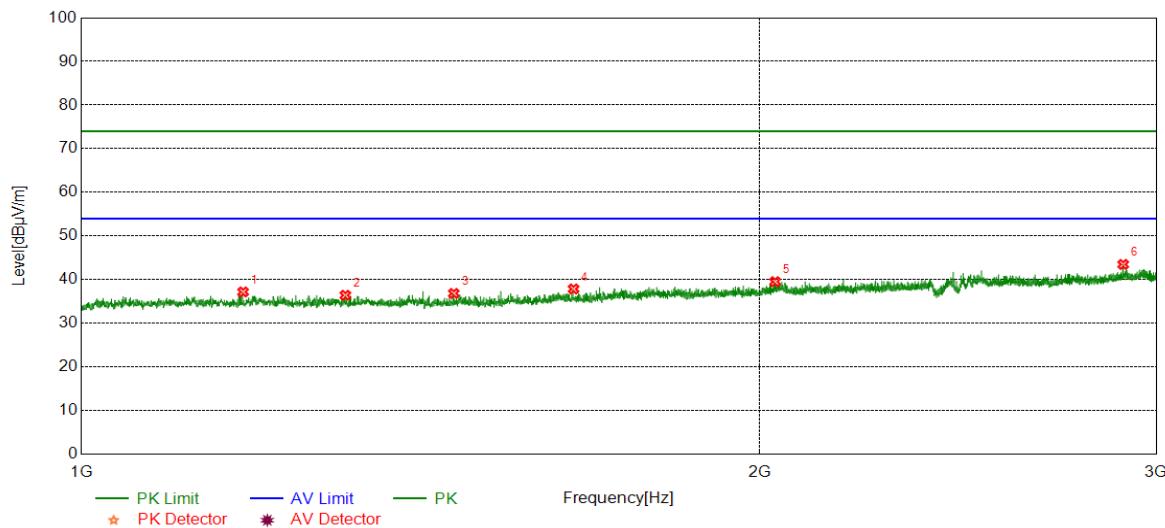


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	1099.2624	41.26	-5.55	35.71	74.00	-38.29	peak
2	1265.5332	41.60	-5.63	35.97	74.00	-38.03	peak
3	1540.3175	42.20	-5.67	36.53	74.00	-37.47	peak
4	1813.8517	41.70	-3.93	37.77	74.00	-36.23	peak
5	2183.3979	41.25	-2.34	38.91	74.00	-35.09	peak
6	2743.9680	41.95	-0.48	41.47	74.00	-32.53	peak

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

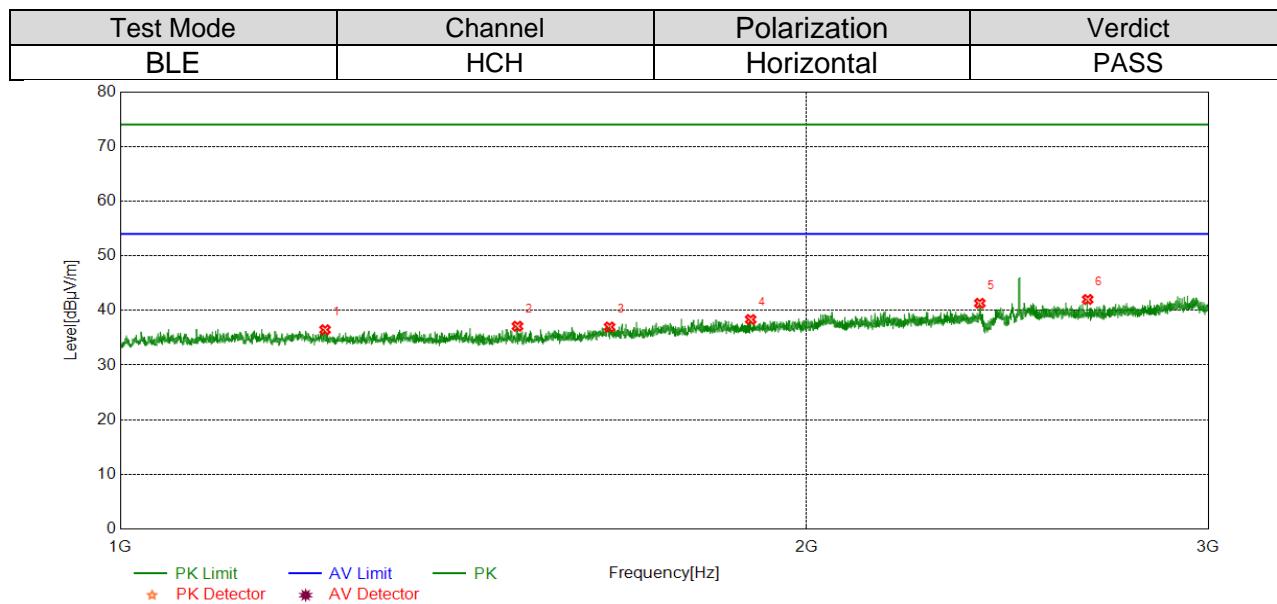
Test Mode	Channel	Polarization	Verdict
BLE	MCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	1179.7725	42.81	-5.63	37.18	74.00	-36.82	peak
2	1309.7887	42.12	-5.70	36.42	74.00	-37.58	peak
3	1463.3079	42.62	-5.78	36.84	74.00	-37.16	peak
4	1653.8317	42.84	-4.98	37.86	74.00	-36.14	peak
5	2032.1290	42.22	-2.69	39.53	74.00	-34.47	peak
6	2900.4876	43.14	0.35	43.49	74.00	-30.51	peak

Note:

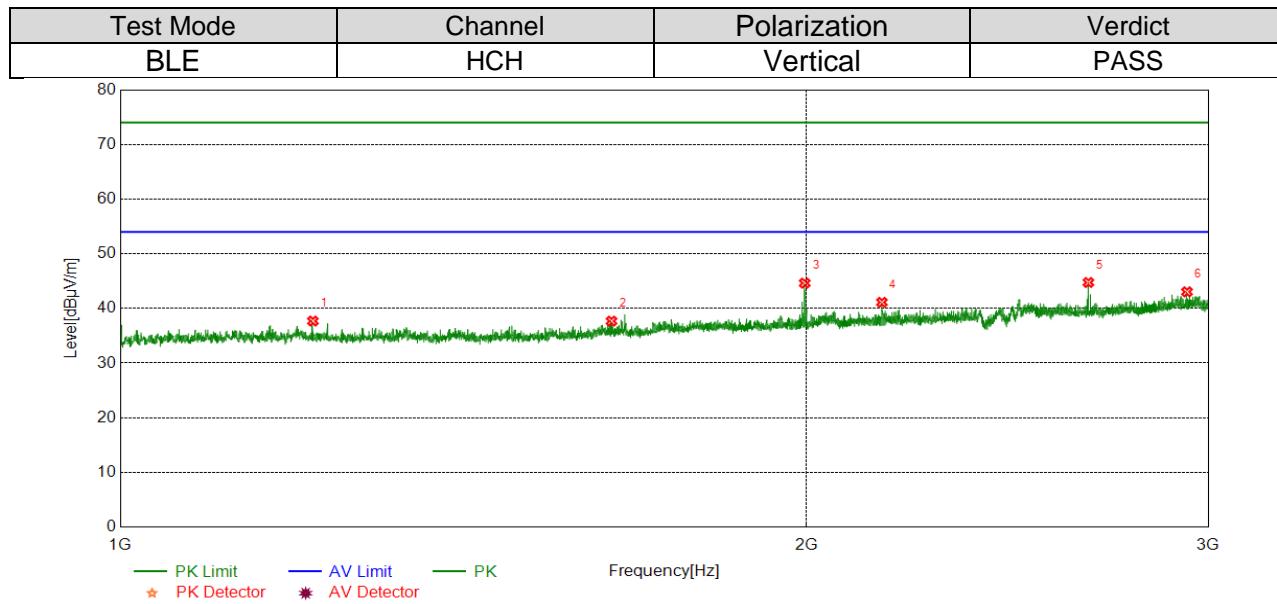
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. Peak: Peak detector.
5. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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	1229.7787	42.05	-5.58	36.47	74.00	-37.53	peak
2	1493.5617	42.92	-5.81	37.11	74.00	-36.89	peak
3	1639.0799	42.00	-5.03	36.97	74.00	-37.03	peak
4	1890.1113	42.02	-3.68	38.34	74.00	-35.66	peak
5	2382.1728	42.79	-1.48	41.31	74.00	-32.69	peak
6	2656.2070	42.78	-0.78	42.00	74.00	-32.00	peak

Note:

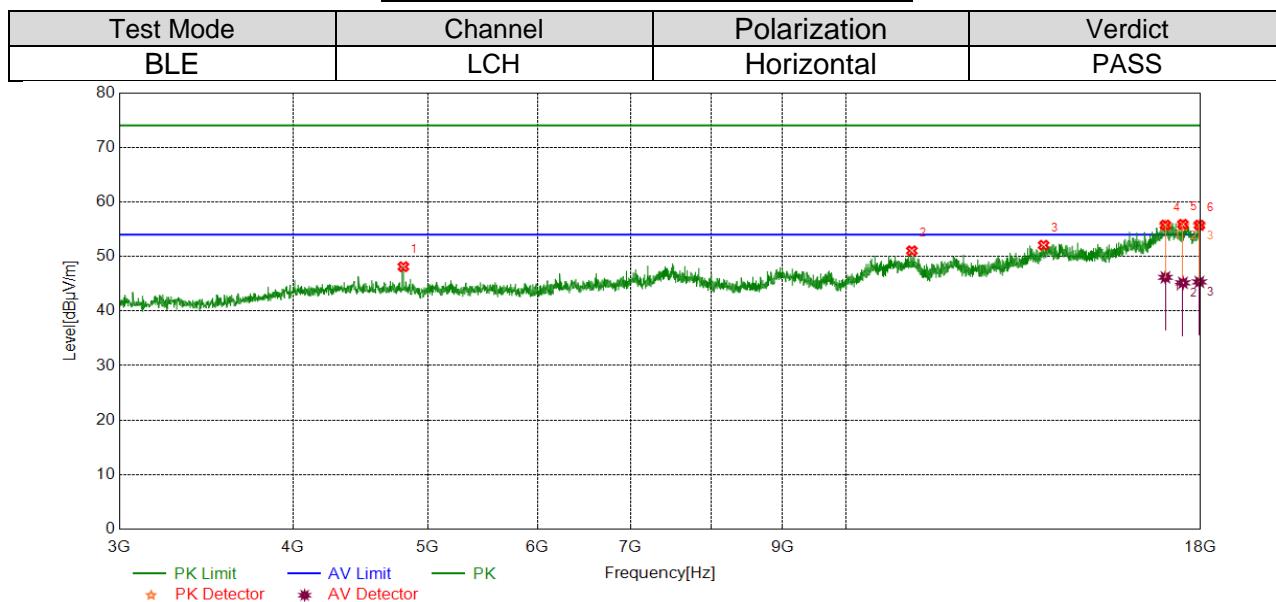
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. Peak: Peak detector.
5. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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	1214.7768	43.29	-5.60	37.69	74.00	-36.31	peak
2	1642.3303	42.70	-5.02	37.68	74.00	-36.32	peak
3	1996.1245	47.68	-3.05	44.63	74.00	-29.37	peak
4	2157.8947	43.64	-2.52	41.12	74.00	-32.88	peak
5	2658.2073	45.52	-0.77	44.75	74.00	-29.25	peak
6	2936.4921	42.59	0.45	43.04	74.00	-30.96	peak

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

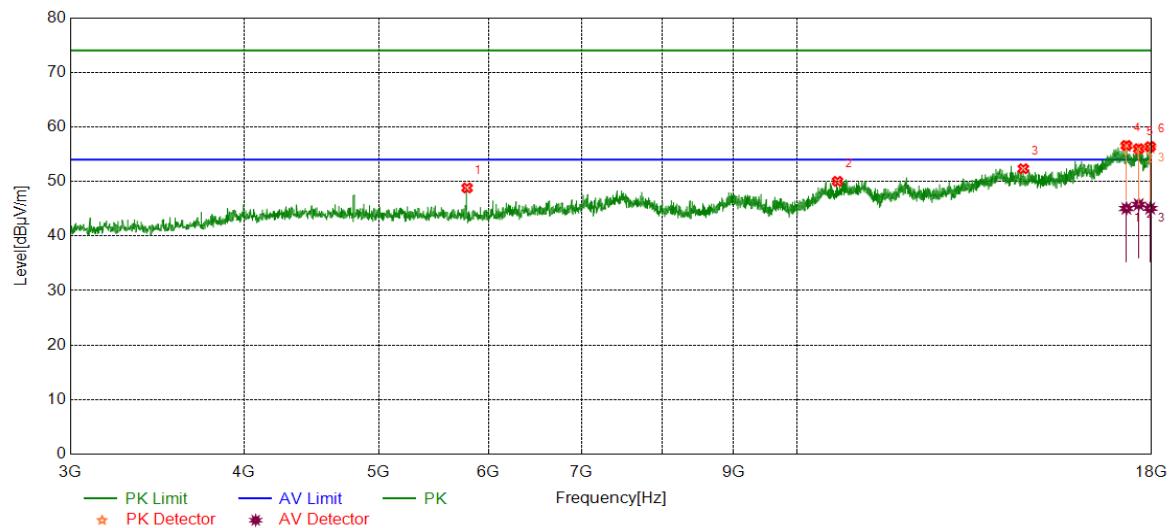
Part II: 3GHz~18GHz
HARMONICS AND SPURIOUS EMISSIONS


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	4803.9755	43.27	4.85	48.12	74.00	-25.88	peak
2	11155.3944	38.61	12.43	51.04	74.00	-22.96	peak
3	13876.3595	36.89	15.17	52.06	74.00	-21.94	peak
4	16979.8725	36.26	19.50	55.76	74.00	-18.24	peak
		26.67	19.50	46.17	54.00	-7.83	average
5	17480.5601	37.20	18.70	55.90	74.00	-18.10	peak
		26.46	18.70	45.16	54.00	-8.84	average
6	17964.3705	37.31	18.43	55.74	74.00	-18.26	peak
		26.90	18.43	45.33	54.00	-8.67	average

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

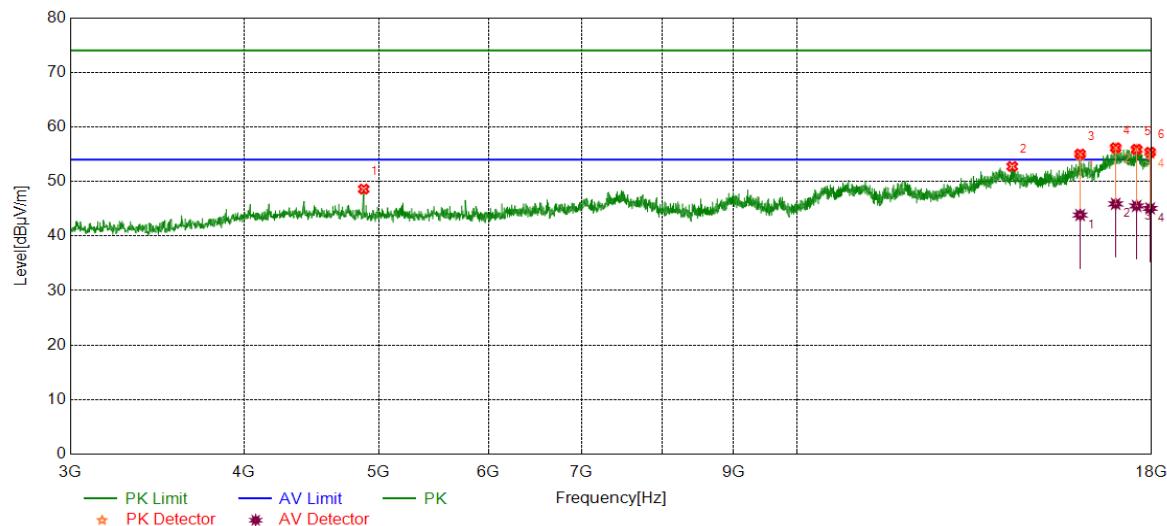
Test Mode	Channel	Polarization	Verdict
BLE	LCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	5790.3488	43.42	5.39	48.81	74.00	-25.19	peak
2	10695.9620	38.04	11.98	50.02	74.00	-23.98	peak
3	14553.3192	37.24	15.09	52.33	74.00	-21.67	peak
4	17263.0329	38.57	18.03	56.60	74.00	-17.40	peak
		27.01	18.03	45.04	54.00	-8.96	average
5	17619.3274	37.29	18.71	56.00	74.00	-18.00	peak
		27.08	18.71	45.79	54.00	-8.21	average
6	17956.8696	37.93	18.45	56.38	74.00	-17.62	peak
		26.61	18.45	45.06	54.00	-8.94	average

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. Confirm that the test have added the Band Reject Filter losses during the testing.
 Proper operation of the transmitter prior to adding the filter to the measurement chain.
 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.

Test Mode	Channel	Polarization	Verdict
BLE	MCH	Horizontal	PASS

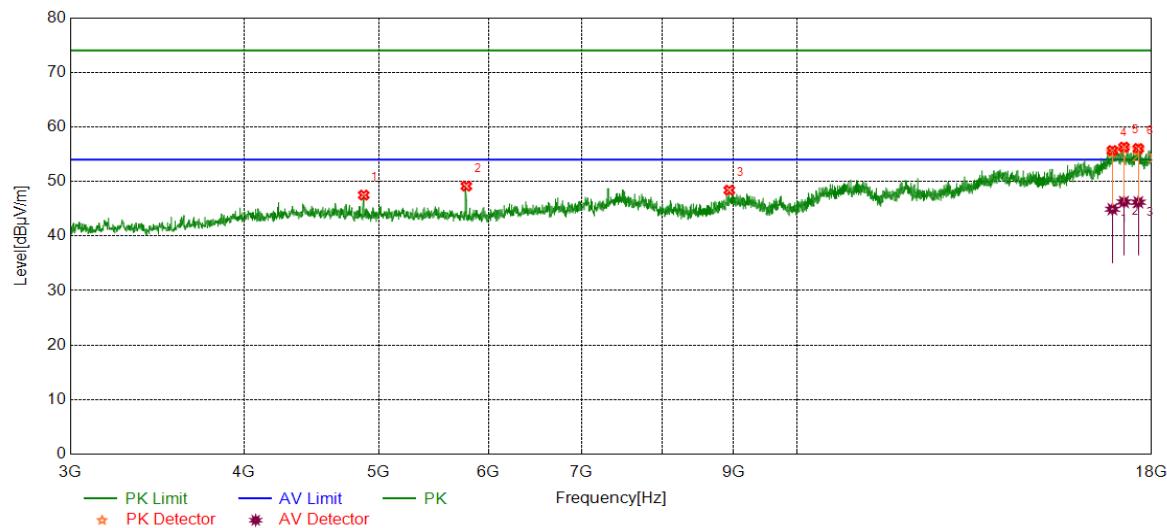


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	4878.9849	43.46	5.14	48.60	74.00	-25.40	peak
2	14288.9111	37.45	15.29	52.74	74.00	-21.26	peak
3	15989.7487	38.62	16.41	55.03	74.00	-18.97	peak
		27.44	16.41	43.85	54.00	-10.15	average
4	16959.2449	36.46	19.72	56.18	74.00	-17.82	peak
		26.17	19.72	45.89	54.00	-8.11	average
5	17559.3199	37.08	18.82	55.90	74.00	-18.10	peak
		26.69	18.82	45.51	54.00	-8.49	average
6	17956.8696	36.91	18.45	55.36	74.00	-18.64	peak
		26.61	18.45	45.06	54.00	-8.94	average

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

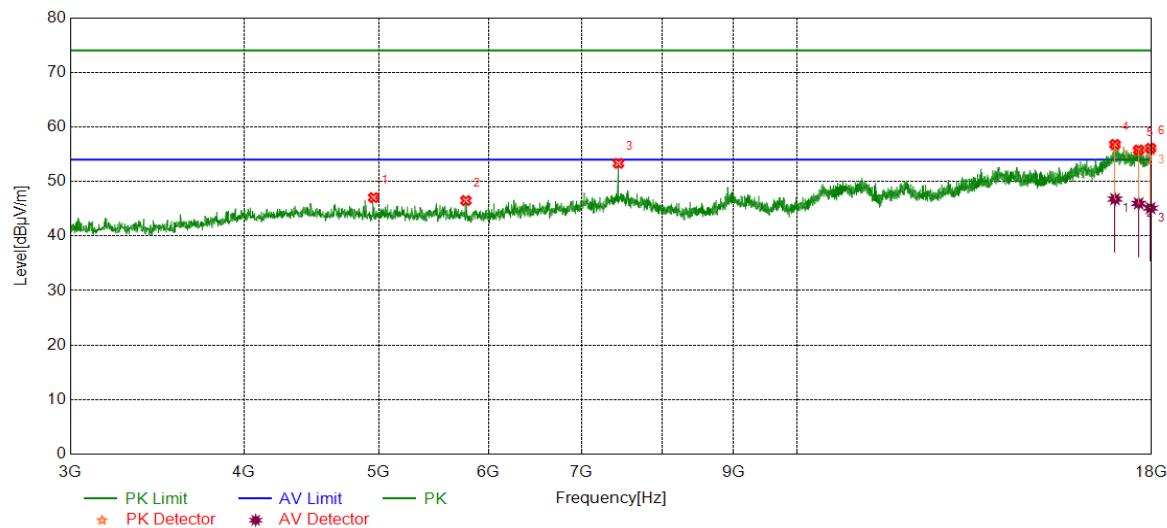
Test Mode	Channel	Polarization	Verdict
BLE	MCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	4878.9849	42.36	5.14	47.50	74.00	-26.50	peak
2	5782.8479	43.78	5.36	49.14	74.00	-24.86	peak
3	8940.7426	39.21	9.19	48.40	74.00	-25.60	peak
4	16867.3584	37.63	18.04	55.67	74.00	-18.33	peak
		26.88	18.04	44.92	54.00	-9.08	average
5	17193.6492	37.54	18.76	56.30	74.00	-17.70	peak
		27.48	18.76	46.24	54.00	-7.76	average
6	17608.0760	37.32	18.72	56.04	74.00	-17.96	peak
		27.48	18.72	46.20	54.00	-7.80	average

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. Confirm that the test have added the Band Reject Filter losses during the testing.
 Proper operation of the transmitter prior to adding the filter to the measurement chain.
 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.

Test Mode	Channel	Polarization	Verdict
BLE	HCH	Horizontal	PASS

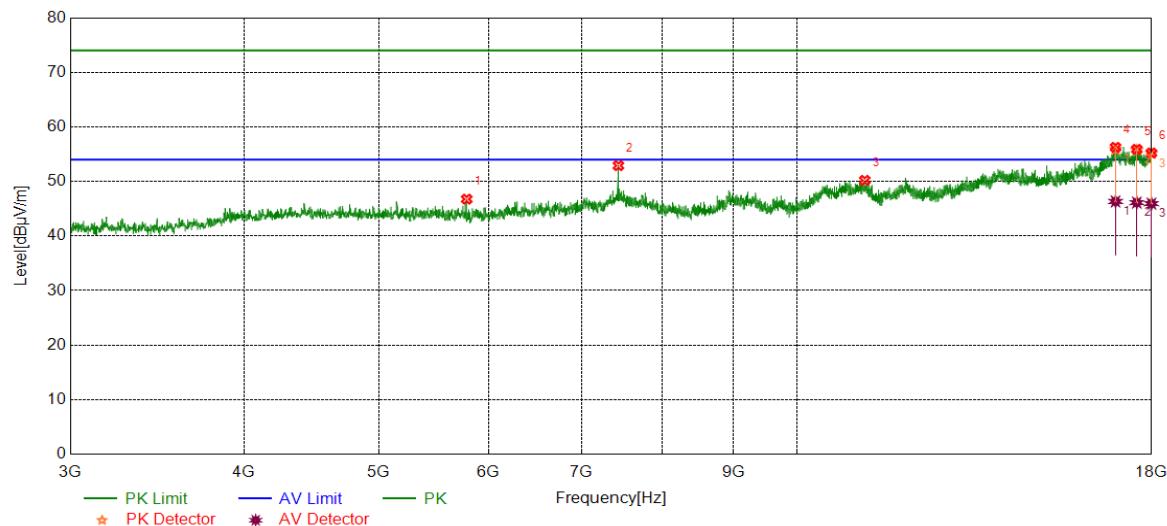


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	4959.6200	41.93	5.11	47.04	74.00	-26.96	peak
2	5779.0974	41.16	5.34	46.50	74.00	-27.50	peak
3	7440.5551	44.15	9.17	53.32	74.00	-20.68	peak
4	16940.4926	37.39	19.40	56.79	74.00	-17.21	peak
		27.37	19.40	46.77	54.00	-7.23	average
5	17617.4522	37.06	18.71	55.77	74.00	-18.23	peak
		27.26	18.71	45.97	54.00	-8.03	average
6	17968.1210	37.71	18.38	56.09	74.00	-17.91	peak
		26.73	18.38	45.11	54.00	-8.89	average

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. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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.

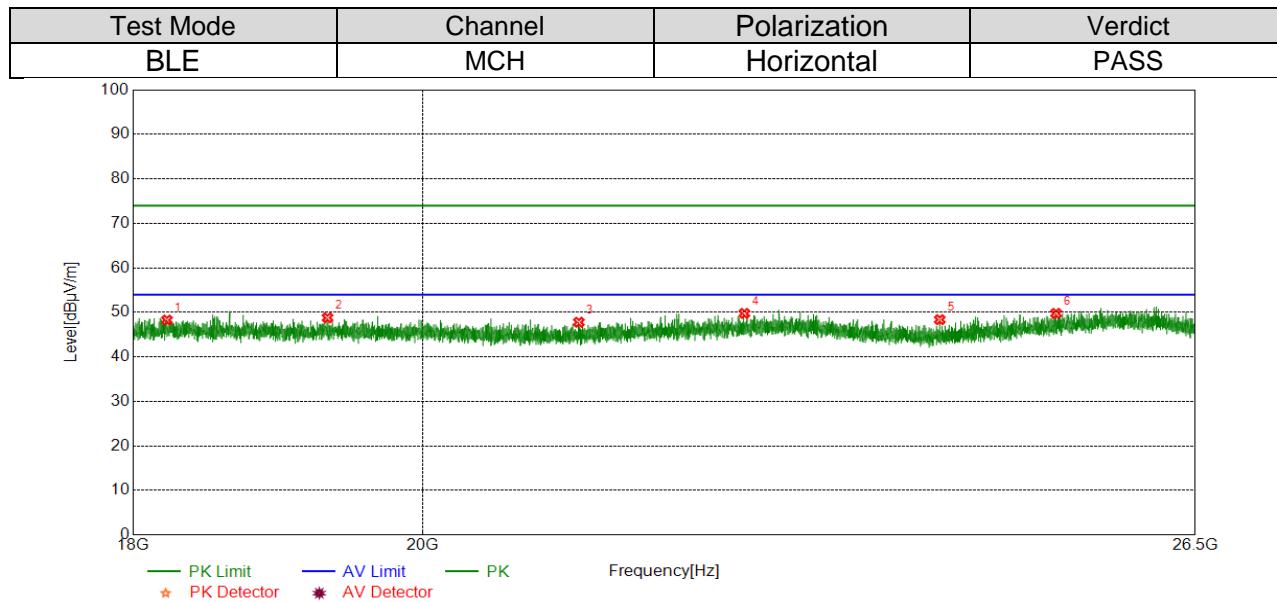
Test Mode	Channel	Polarization	Verdict
BLE	HCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	5786.5983	41.38	5.38	46.76	74.00	-27.24	peak
2	7440.5551	43.73	9.17	52.90	74.00	-21.10	peak
3	11191.0239	37.90	12.31	50.21	74.00	-23.79	peak
4	16955.4944	36.73	19.52	56.25	74.00	-17.75	peak
		26.81	19.52	46.33	54.00	-7.67	average
5	17563.0704	36.94	18.95	55.89	74.00	-18.11	peak
		27.17	18.95	46.12	54.00	-7.88	average
6	17994.3743	36.91	18.31	55.22	74.00	-18.78	peak
		27.63	18.31	45.94	54.00	-8.06	average

Note:

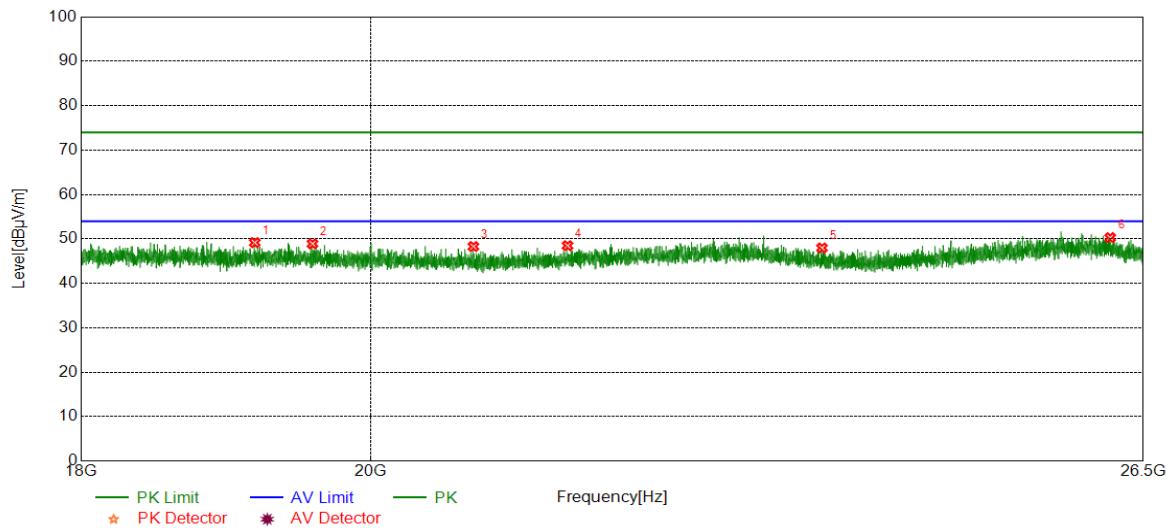
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. Peak: Peak detector.
5. Confirm that the test have added the Band Reject Filter losses during the testing.
Proper operation of the transmitter prior to adding the filter to the measurement chain.
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 III: 18GHz~26.5GHz
SPURIOUS EMISSIONS 18GHz TO 26.5GHz (WORST-CASE CONFIGURATION)


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
1	18221.8722	49.33	-1.05	48.28	74.00	-25.72	peak
2	19319.3319	49.65	-0.86	48.79	74.00	-25.21	peak
3	21171.6672	48.63	-0.84	47.79	74.00	-26.21	peak
4	22487.5988	48.99	0.78	49.77	74.00	-24.23	peak
5	24146.9647	49.40	-1.03	48.37	74.00	-25.63	peak
6	25191.7192	49.44	0.33	49.77	74.00	-24.23	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	MCH	Vertical	PASS

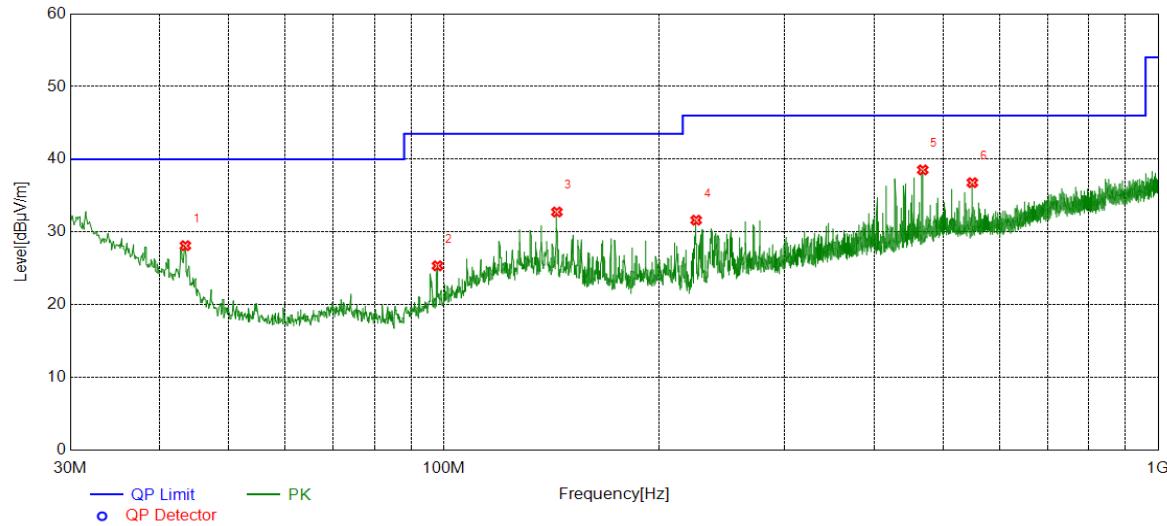


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	19173.9674	50.15	-0.98	49.17	74.00	-24.83	peak
2	19581.1581	49.61	-0.70	48.91	74.00	-25.09	peak
3	20763.6264	49.17	-0.88	48.29	74.00	-25.71	peak
4	21487.8988	49.02	-0.53	48.49	74.00	-25.51	peak
5	23574.8575	48.28	-0.30	47.98	74.00	-26.02	peak
6	26184.6185	48.98	1.32	50.30	74.00	-23.70	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
SPURIOUS EMISSIONS 30M TO 1GHz (WORST-CASE CONFIGURATION)

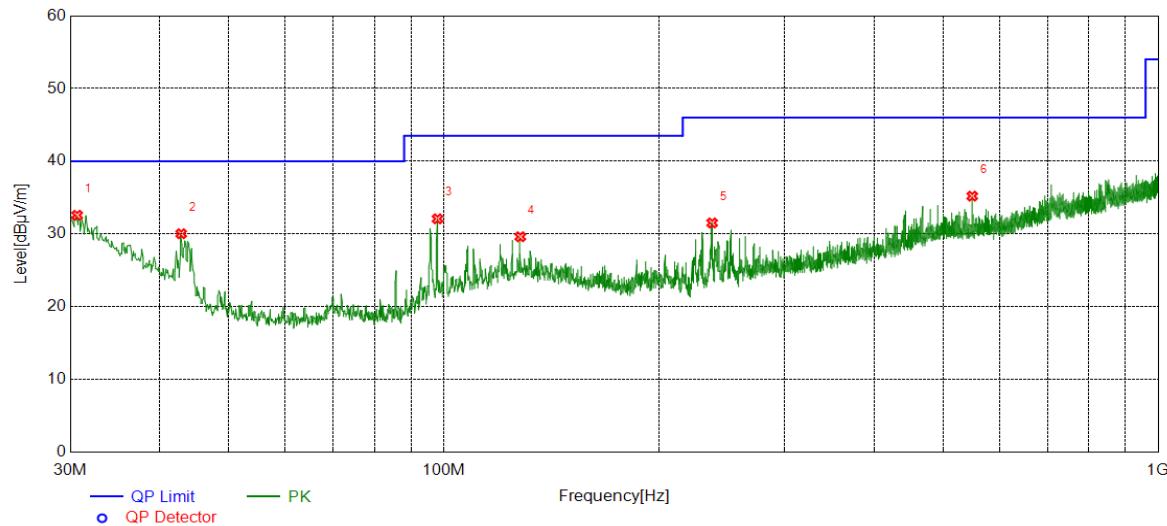
Test Mode	Channel	Polarization	Verdict
BLE	MCH	Horizontal	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
							peak
1	43.4843	9.46	18.66	28.12	40.00	-11.88	peak
2	98.0038	8.78	16.57	25.35	43.50	-18.15	peak
3	143.9864	12.78	19.97	32.75	43.50	-10.75	peak
4	225.5716	13.37	18.26	31.63	46.00	-14.37	peak
5	468.1928	13.51	25.03	38.54	46.00	-7.46	peak
6	549.3899	10.51	26.27	36.78	46.00	-9.22	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.
 3. Measurement = Reading Level + Correct Factor.

Test Mode	Channel	Polarization	Verdict
BLE	MCH	Vertical	PASS

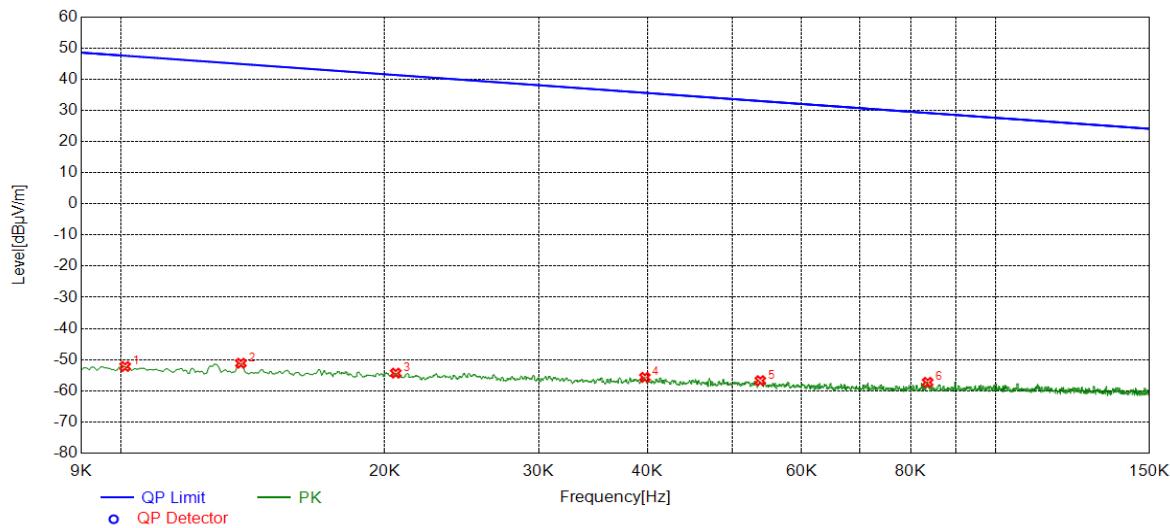


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	30.6791	5.83	26.75	32.58	40.00	-7.42	peak
2	42.9023	11.03	19.01	30.04	40.00	-9.96	peak
3	98.0038	15.52	16.57	32.09	43.50	-11.41	peak
4	127.9798	9.16	20.46	29.62	43.50	-13.88	peak
5	237.5038	12.52	19.00	31.52	46.00	-14.48	peak
6	549.1959	8.94	26.27	35.21	46.00	-10.79	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.
 3. Measurement = Reading Level + Correct Factor.

Part V: 9KHz~30MHz
SPURIOUS EMISSIONS Below 30MHz (WORST CASE CONFIGURATION-FACE ON)

Test Mode	Channel	Frequency Range	Verdict
BLE	MCH	9KHz~150KHz	PASS

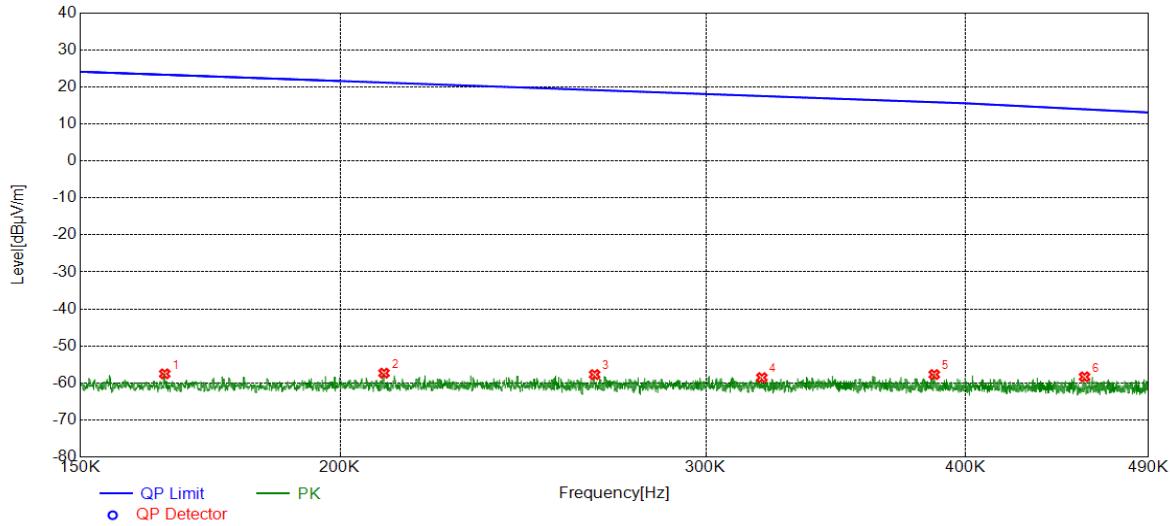


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0101	8.86	-61.04	-52.18	47.53	-99.71	peak
2	0.0137	9.79	-60.93	-51.14	44.89	-96.03	peak
3	0.0206	6.42	-60.74	-54.32	41.32	-95.64	peak
4	0.0397	5.20	-60.87	-55.67	35.63	-91.30	peak
5	0.0538	4.26	-61.00	-56.74	32.99	-89.73	peak
6	0.0836	3.84	-61.10	-57.26	29.16	-86.42	peak

Note:

1. Measurement = Reading Level + Correct Factor.
2. Result 300m= Result 3m-80 dBuV/m
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
4. 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

Test Mode	Channel	Frequency Range	Verdict
BLE	MCH	150KHz~490KHz	PASS

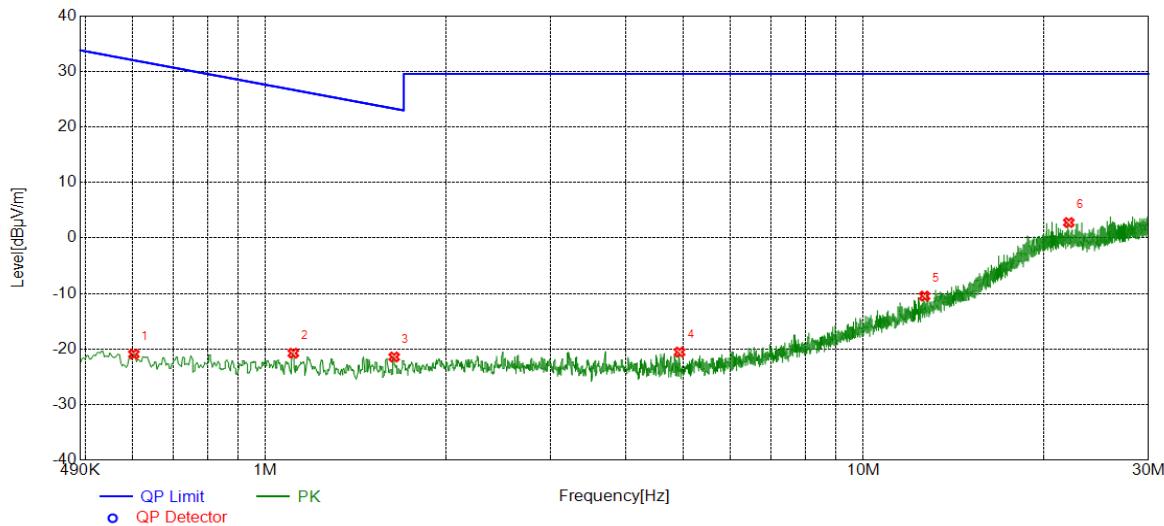


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1647	3.65	-61.16	-57.51	23.27	-80.78	peak
2	0.2100	3.61	-60.93	-57.32	21.16	-78.48	peak
3	0.2652	3.01	-60.72	-57.71	19.13	-76.84	peak
4	0.3192	2.14	-60.67	-58.53	17.52	-76.05	peak
5	0.3864	2.92	-60.62	-57.70	15.86	-73.56	peak
6	0.4564	2.24	-60.56	-58.32	13.95	-72.27	peak

Note:

1. Measurement = Reading Level + Correct Factor.
2. Result 300m= Result 3m-80 dBuV/m
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
4. 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

Test Mode	Channel	Frequency Range	Verdict
BLE	MCH	490KHz~30MHz	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.6021	-0.36	-20.56	-20.92	32.01	-52.93	peak
2	1.1127	-0.47	-20.28	-20.75	26.68	-47.43	peak
3	1.6410	-1.22	-20.21	-21.43	23.30	-44.73	peak
4	4.9258	-0.40	-20.15	-20.55	29.54	-50.09	peak
5	12.6582	8.55	-19.02	-10.47	29.54	-40.01	peak
6	22.0610	20.29	-17.52	2.77	29.54	-26.77	peak

Note:

1. Measurement = Reading Level + Correct Factor.
2. Result 30m= Result 3m-40 dBuV/m
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
4. 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

Note: All constructions channels have been tested, only the worst data record in the report.

8. 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