



CFR 47 FCC PART 15 SUBPART C

TEST REPORT

For

Capsule

MODEL NUMBER: AKES-11SW

FCC ID: 2A6BYAKES-11SW

REPORT NUMBER: 4790307922-1

ISSUE DATE: Apr. 19, 2022

Prepared for

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Prepared by

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	04/19/2022	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test for AC Power Port	FCC Part 15.207	N/A (See Note 1)
7	Antenna Requirement	FCC Part 15.203	Pass

Note:
1) The EUT is powered by battery.
2) 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> decision rule is applied.



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: ANKON Technologies Co., Ltd.
Address: B3-2, B3-3, D3-4 Biolake, No.666, Hi-Tech Road, East Lake New Technology Development Zone, Wuhan, 430075 Hubei, China

Manufacturer Information

Company Name: ANKON Technologies Co., Ltd.
Address: B3-2, B3-3, D3-4 Biolake, No.666, Hi-Tech Road, East Lake New Technology Development Zone, Wuhan, 430075 Hubei, China

Factory Information

Company Name: ANKON Technologies Co., Ltd.
Address: B3-2, B3-3, D3-4 Biolake, No.666, Hi-Tech Road, East Lake New Technology Development Zone, Wuhan, 430075 Hubei, China

EUT Description

EUT Name: Capsule
Model: AKES-11SW
Sample Number: 4759644-S001, 4759644-S005
Sample Received Date: Mar. 12, 2022
Date of Tested: Mar. 16, 2022 ~ Apr. 19, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C	PASS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 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; CAB No.: CN0073) 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 recognize 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-26Gz)
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

EUT Name	Capsule
Model	AKES-11SW
Radio Technology	2.4GHz RF
Operation frequency	2403MHz ~ 2480MHz
Modulation	GFSK
Data Rate	0.25Mbps, 1Mbps, 2Mbps
Power Supply	DC 3V

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	Frequency (MHz)	Channel Number	Max AV Conducted Power (dBm)
1	2403-2480	1-78[78]	7.46

5.3. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		
20	2422	40	2442	60	2462		



5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
TX	CH 1, CH 39, CH 78	2403MHz, 2441MHz, 2480MHz

5.5. THE WORSE CASE CONFIGURATIONS

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band			
Test Software	DAQ-Mobile		
Transmit Antenna Number	NCB: 2MHz		
	Test Channel		
	CH 1	CH 39	CH 78
1	2403	2441	2480



5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2403-2480	Embedded FPC Antenna	-13.0

Transmit and Receive Mode	Description
1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.

5.7. THE WORSE CASE CONFIGURATIONS

Pre-test at the data rates, found that the data rate of 0.25Mbps was the worst case and recorded in this report.



5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	ThinkPad X1 Carbon 5th	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB	USB Cable	1	/

ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

TEST SETUP

The EUT can work in engineering mode with a software through a laptop.

SETUP DIAGRAM FOR TESTS





6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	126700	2020-12-05	2021-12-04	2022-12-03
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	126701	2020-12-05	2021-12-04	2022-12-03
<input checked="" type="checkbox"/>	Artificial Mains Networks	R&S	ENY81	126711	2020-10-13	2021-10-12	2022-10-11
Software							
Used	Description		Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Conducted disturbance		R&S	EMC32	Ver. 9.25		
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	155727	2020-05-10	2021-05-09	2022-05-08
<input checked="" type="checkbox"/>	EMI test receiver	R&S	ESR26	126703	2020-12-05	2021-12-04	2022-12-03
<input checked="" type="checkbox"/>	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	155456	2018-06-15	2021-06-03	2024-06-02
<input checked="" type="checkbox"/>	Receiver Antenna (30MHz-1GHz)	SunAR RF Motion	JB1	177821	2019-01-19	2022-01-18	2025-01-17
<input checked="" type="checkbox"/>	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2019-01-27	2022-02-28	2025-02-27
<input checked="" type="checkbox"/>	Receiver Antenna (18GHz-26.5GHz)	ETS	3160-10	155565	2019-01-05	2021-07-15	2024-07-14
<input checked="" type="checkbox"/>	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-1G18-50	178825	2021-03-26	2022-03-01	2023-02-28
<input checked="" type="checkbox"/>	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	135391	2020-12-05	2021-12-04	2022-12-03
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	1	2020-05-10	2021-05-09	2022-05-08
<input checked="" type="checkbox"/>	Highpass Filter	Wainwright	WHKX10-2700-3000-18000-40SS	2	2020-05-10	2021-05-09	2022-05-08
Software							
Used	Description		Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Tonscend	TS+	Ver. 2.5		
Other instruments							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9010B	155368	2020-05-10	2021-05-09	2022-05-08
<input checked="" type="checkbox"/>	Power Meter	Keysight	U2021XA	155370	2020-05-10	2021-05-09	2022-05-08



7. 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	8.3.1.3/8.3.2.3
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	Conducted Emission Test for AC Power Port	ANSI C63.10-2013	6.2



8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

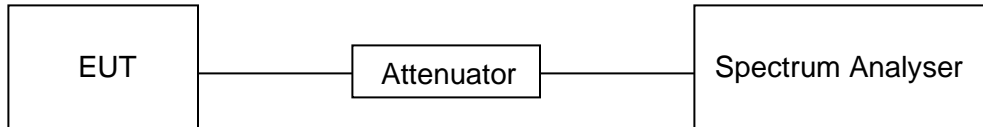
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP





TEST ENVIRONMENT

Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULTS

On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
100	100	1	100%	0	0.01	0.01

Note:

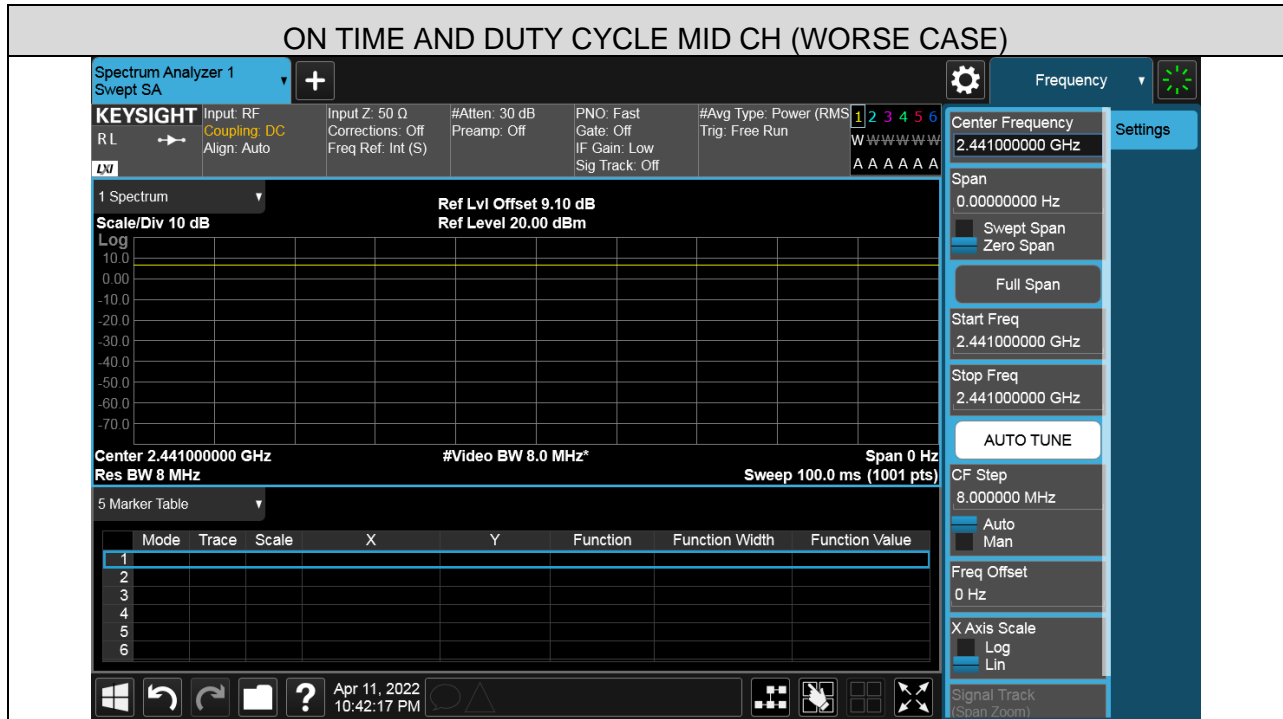
Duty Cycle Correction Factor=10log (1/x).

Where: x is Duty Cycle (Linear)

Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.

TEST GRAPHS



8.2. 6 dB DTS BANDWIDTH

LIMITS

CFR 47 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

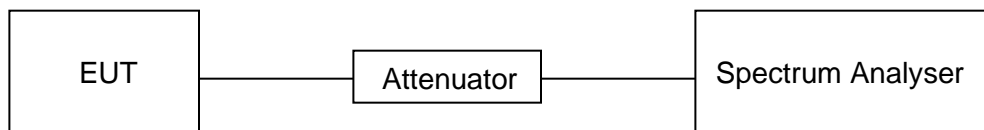
TEST PROCEDURE

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	100 kHz
VBW	$\geq 3 \times \text{RBW}$
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 to the maximum level measured in the fundamental emission.

TEST SETUP





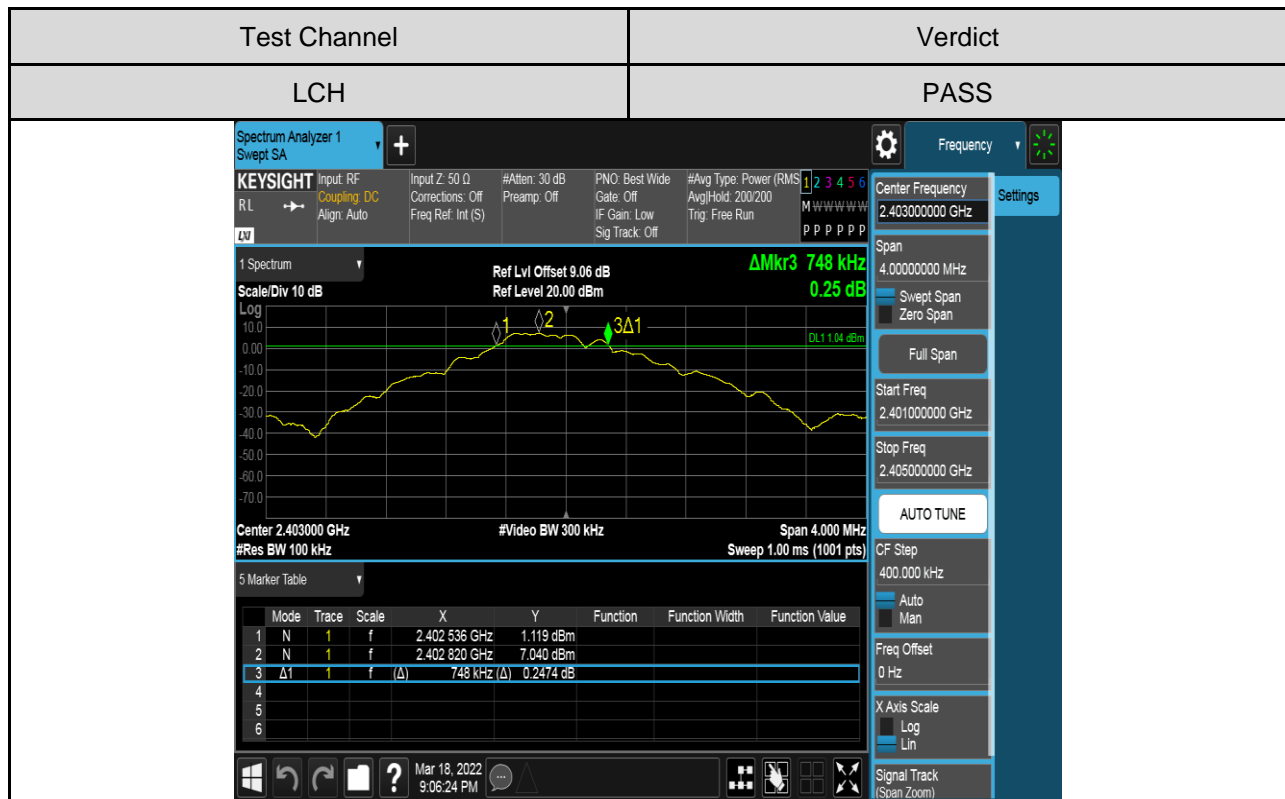
TEST ENVIRONMENT

Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V


RESULTS


Channel	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	0.748	≥500	Pass
Middle	0.752	≥500	Pass
High	0.752	≥500	Pass

TEST GRAPHS





Test Channel	Verdict																																
MCH	PASS																																
 <p>The screenshot shows a Keysight Spectrum Analyzer interface. The main display is a spectrum plot with a center frequency of 2.441000 GHz and a span of 4.000 MHz. A marker is placed at 2.441000 GHz with a value of -0.09 dB. The plot shows a signal with a bandwidth of 752 kHz. The table below the plot lists the marker details:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Mode</th> <th>Trace</th> <th>Scale</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.440 528 GHz</td> <td>-0.07142 dBm</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.440 680 GHz</td> <td>5.756 dBm</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Δ1</td> <td>1</td> <td>f (Δ)</td> <td>752 kHz (Δ)</td> <td>-0.09111 dB</td> <td></td> <td></td> </tr> </tbody> </table>		Mode	Trace	Scale	X	Y	Function	Function Width	Function Value	1	N	1	f	2.440 528 GHz	-0.07142 dBm			2	N	1	f	2.440 680 GHz	5.756 dBm			3	Δ 1	1	f (Δ)	752 kHz (Δ)	-0.09111 dB		
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Test Channel	Verdict																																
HCH	PASS																																
 <p>The screenshot shows a Keysight Spectrum Analyzer interface. The main display is a spectrum plot with a center frequency of 2.480000 GHz and a span of 4.000 MHz. A marker is placed at 2.480000 GHz with a value of -0.20 dB. The plot shows a signal with a bandwidth of 752 kHz. The table below the plot lists the marker details:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Mode</th> <th>Trace</th> <th>Scale</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.479 528 GHz</td> <td>-0.4147 dBm</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.479 812 GHz</td> <td>5.333 dBm</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Δ1</td> <td>1</td> <td>f (Δ)</td> <td>752 kHz (Δ)</td> <td>-0.1961 dB</td> <td></td> <td></td> </tr> </tbody> </table>		Mode	Trace	Scale	X	Y	Function	Function Width	Function Value	1	N	1	f	2.479 528 GHz	-0.4147 dBm			2	N	1	f	2.479 812 GHz	5.333 dBm			3	Δ 1	1	f (Δ)	752 kHz (Δ)	-0.1961 dB		
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3	Δ 1	1	f (Δ)	752 kHz (Δ)	-0.1961 dB																												



8.3. CONDUCTED OUTPUT POWER

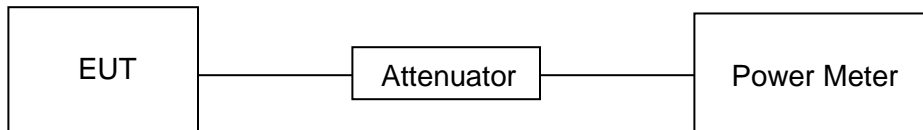
LIMITS

CFR 47 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 (See note1)	2400-2483.5
Note: 1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.			

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 Power meter.
 Measure the power of each channel.
 AVG Detector used for AVG result.

TEST SETUP



TEST ENVIRONMENT

Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULT

Test Channel	Measurement Output Power (AV)	10log(1/x) Factor	Maximum Conducted Output Power (AV)	LIMIT (dBm)
	dBm	dB	dBm	
Low	7.46	0	7.46	30
Middle	6.12	0	6.12	30
High	5.66	0	5.66	30

8.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 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 (See note1)	2400-2483.5
Note: 1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.			

TEST PROCEDURE

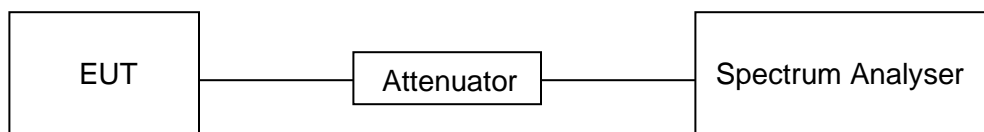
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x 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 SETUP



TEST ENVIRONMENT

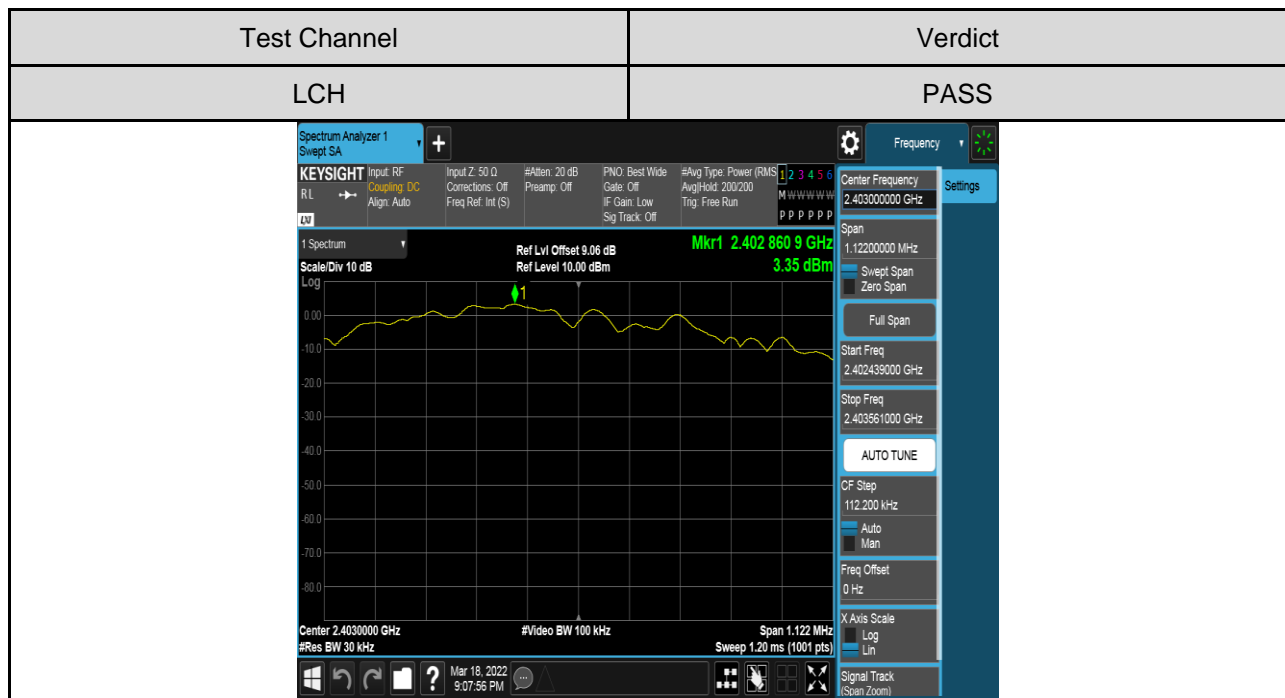
Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V



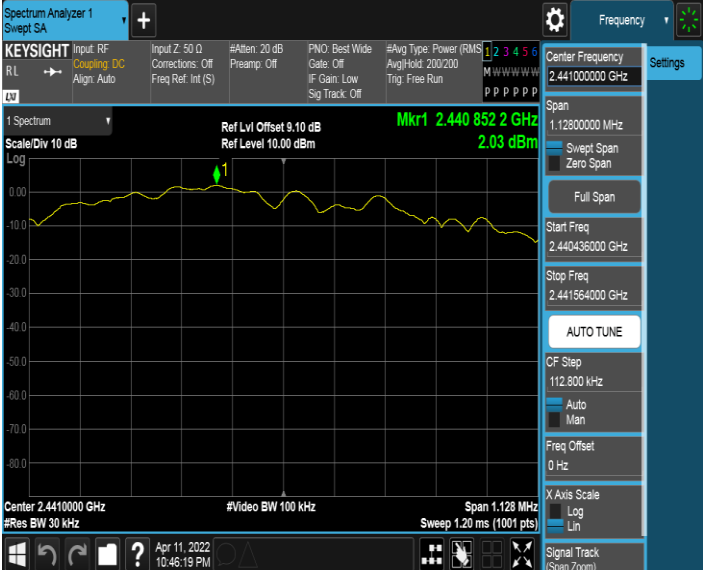
RESULTS

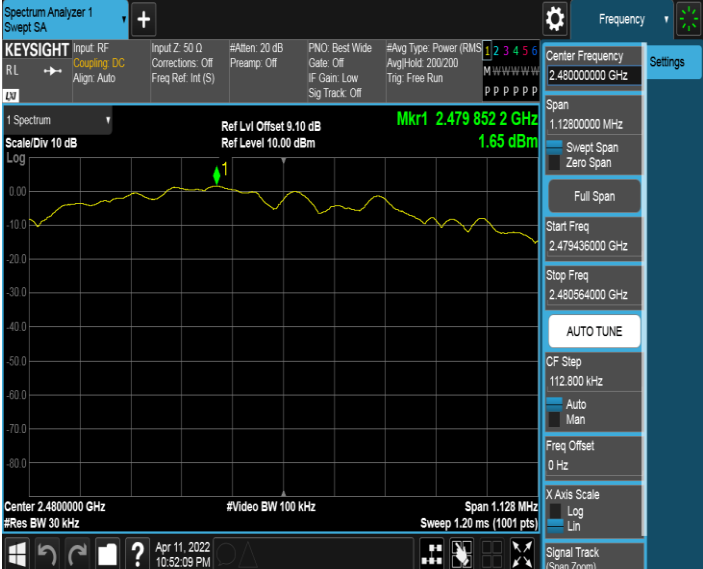
Test Channel	Power Spectral Density (dBm/30kHz)	Limit (dBm/3kHz)	Result
Low	3.35	8	PASS
Middle	2.03	8	PASS
High	1.65	8	PASS

TEST GRAPHS





Test Channel	Verdict
MCH	PASS
	

Test Channel	Verdict
HCH	PASS
	



8.5. CONDUCTED BANDEGE AND SPURIOUS EMISSIONS

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	at least 30 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:

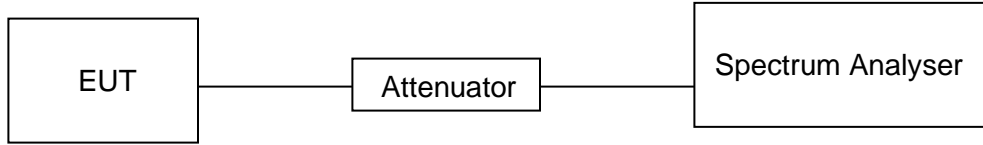
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP



TEST ENVIRONMENT

Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

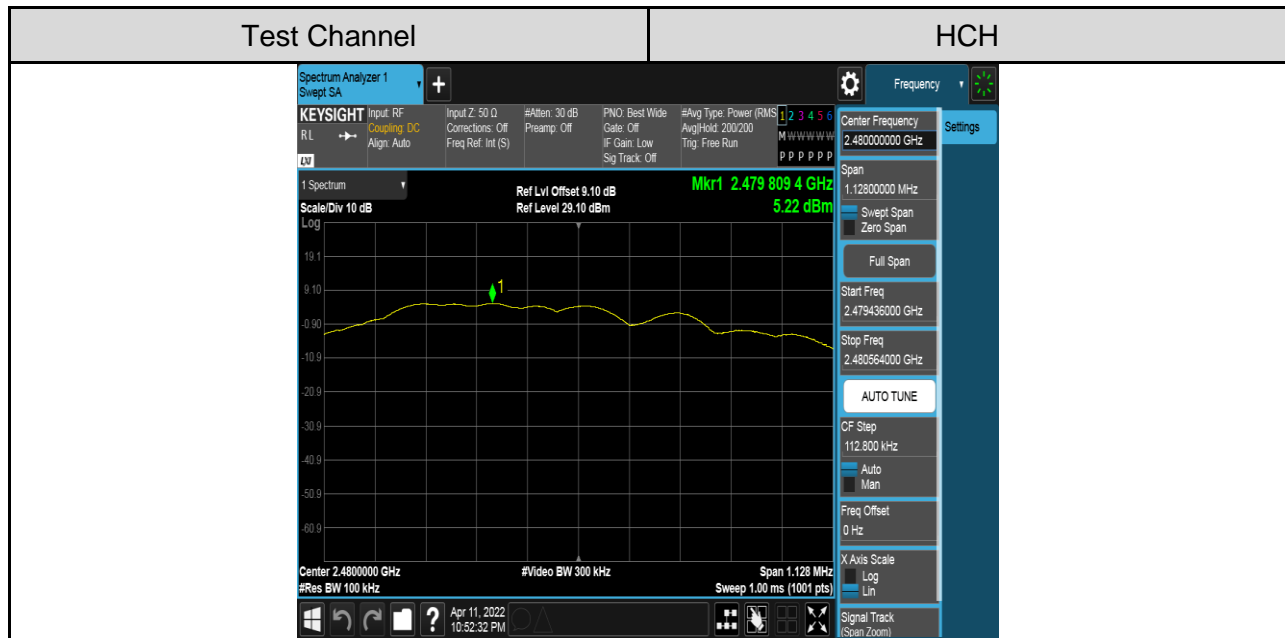
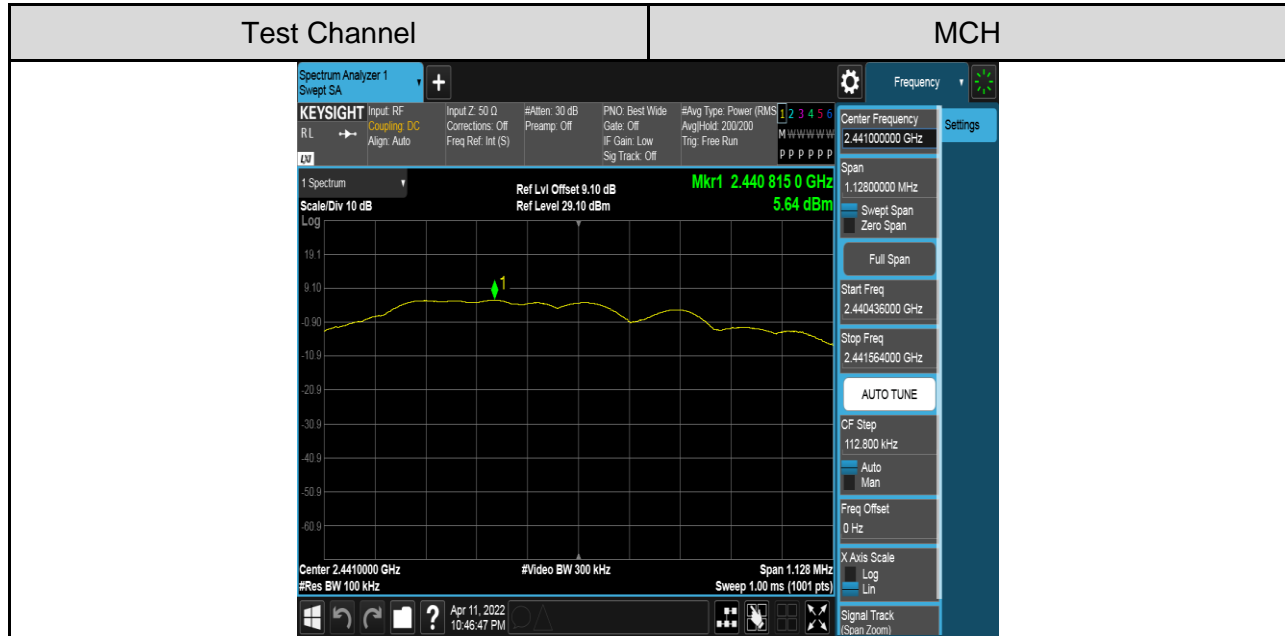
PART 1: REFERENCE LEVEL MEASUREMENT

TEST RESULTS TABLE

Test Channel	Result[dBm]
LCH	6.93
MCH	5.64
HCH	5.22

TEST GRAPHS





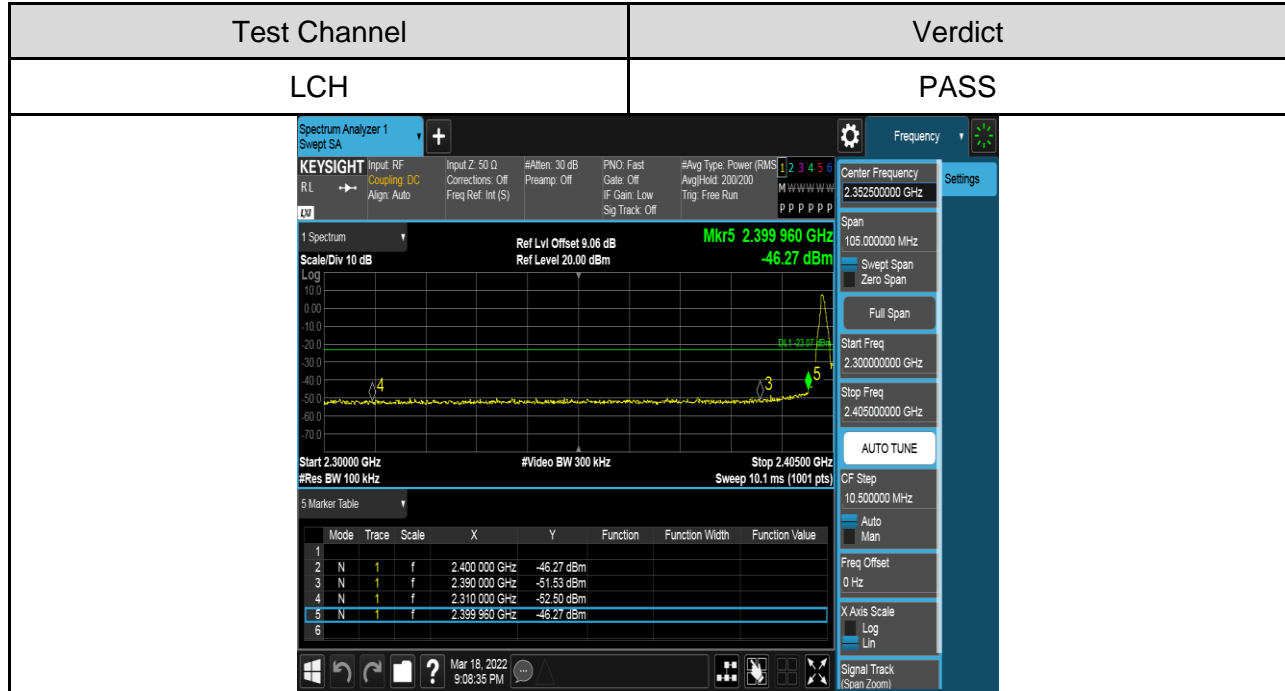


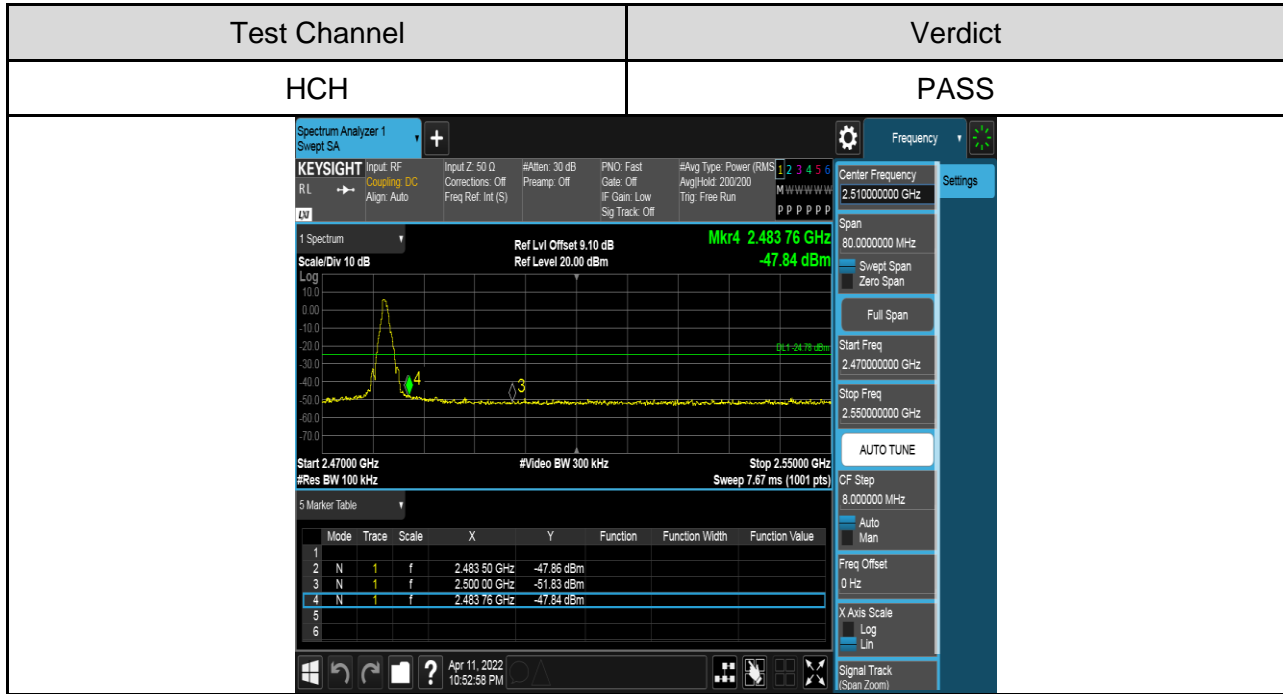
PART 2: CONDUCTED BANDEDGE

TEST RESULTS TABLE

Test Channel	Result	Verdict
LCH	Refer to the Test Graph	PASS
HCH	Refer to the Test Graph	PASS

TEST GRAPHS





PART 3: CONDUCTED SPURIOUS EMISSION

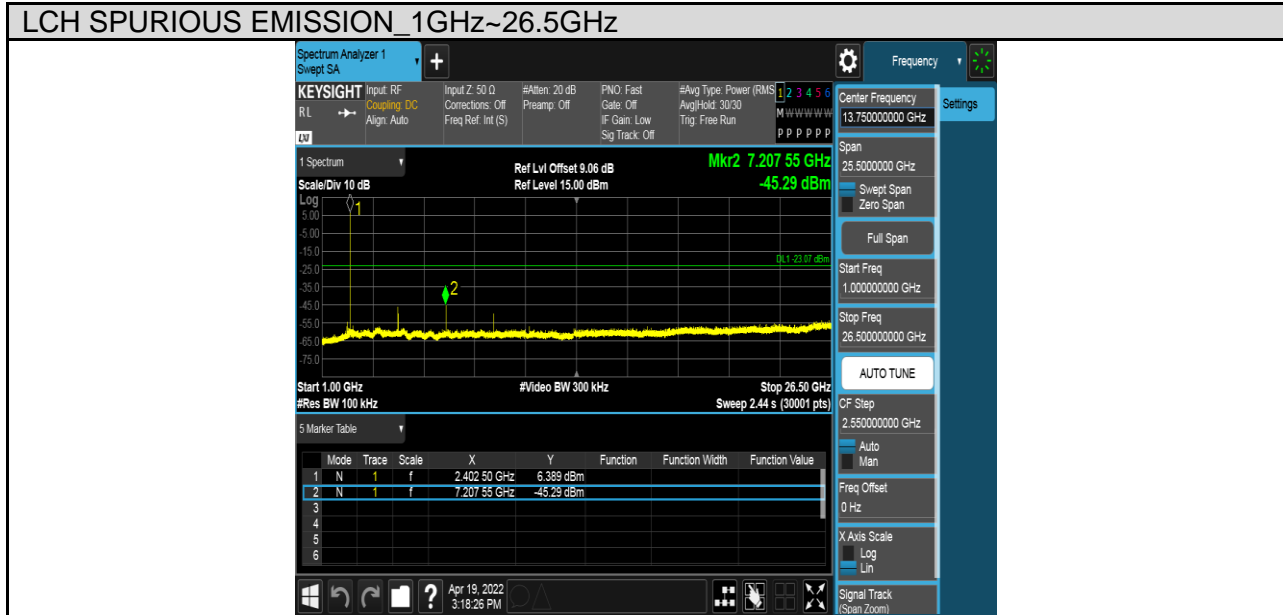
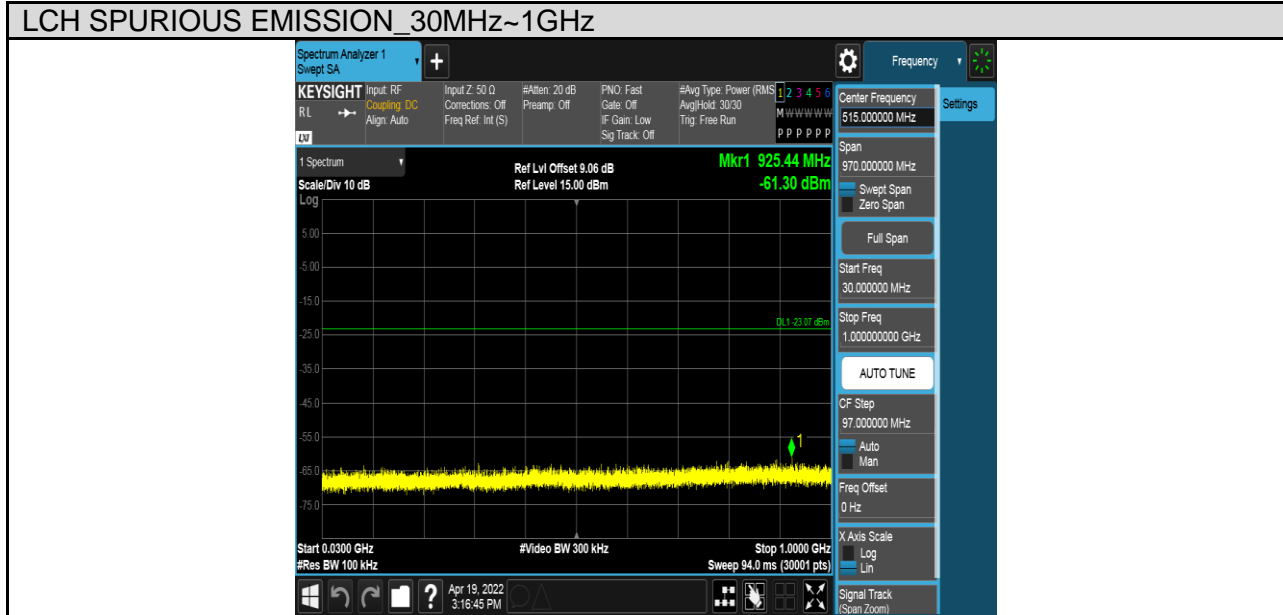
TEST RESULTS TABLE

Test Channel	Result	Verdict
LCH	Refer to the Test Graph	PASS
MCH	Refer to the Test Graph	PASS
HCH	Refer to the Test Graph	PASS



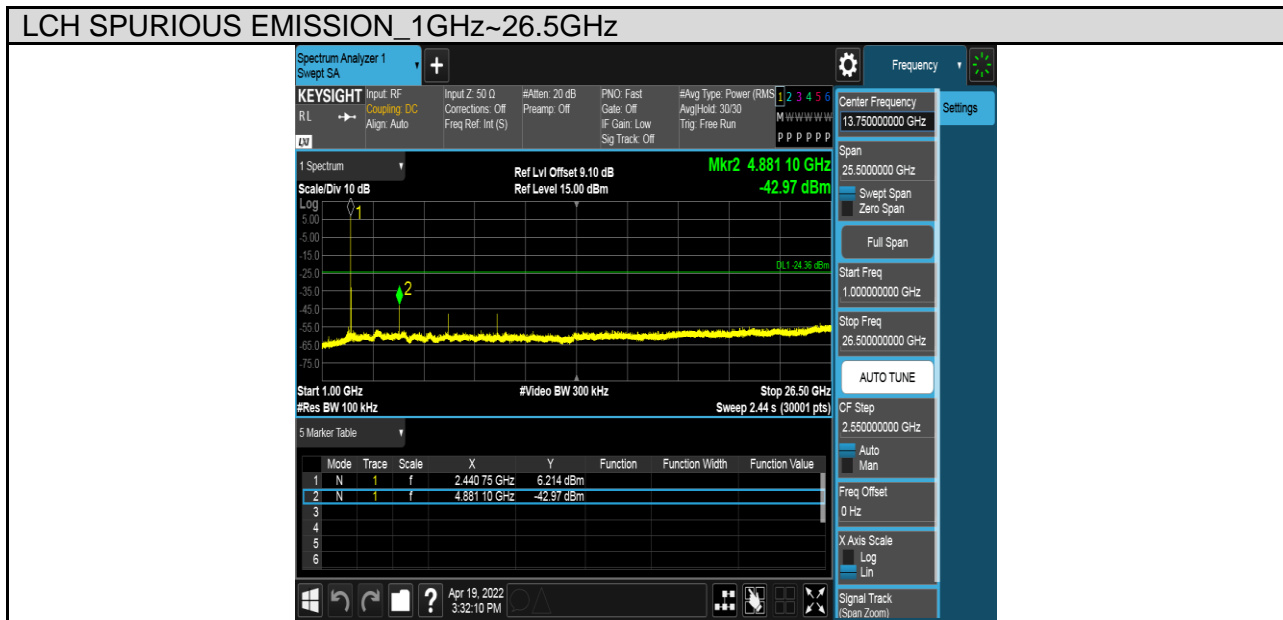
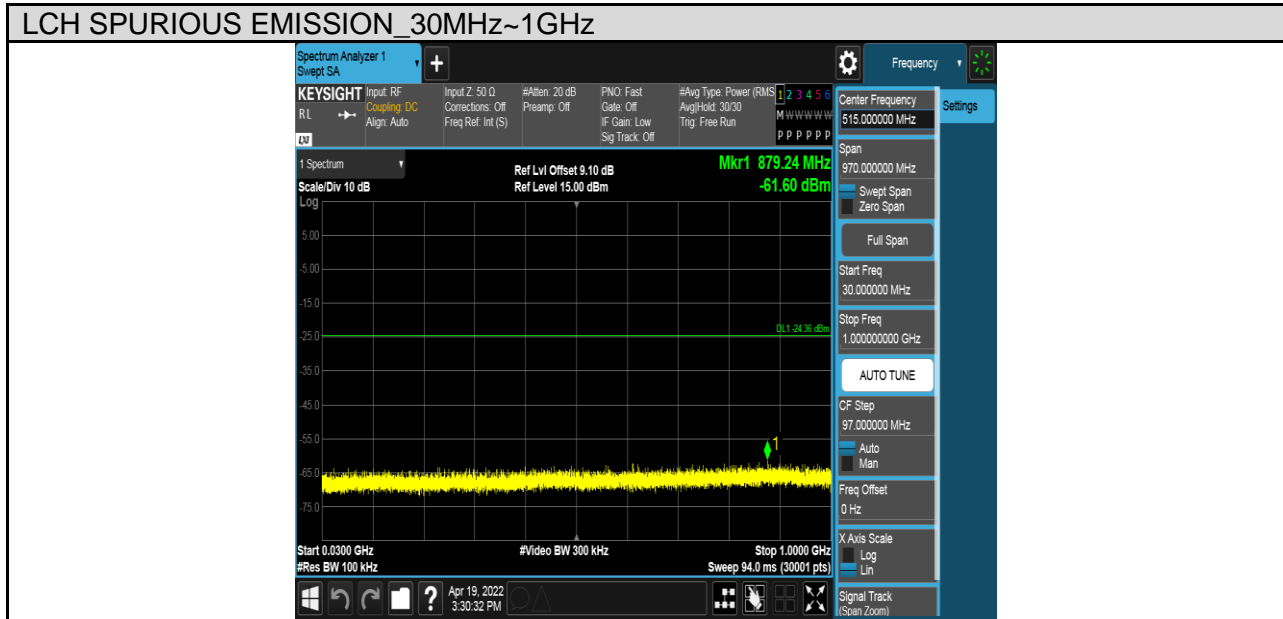
TEST GRAPHS

Channel	Verdict
LCH	PASS



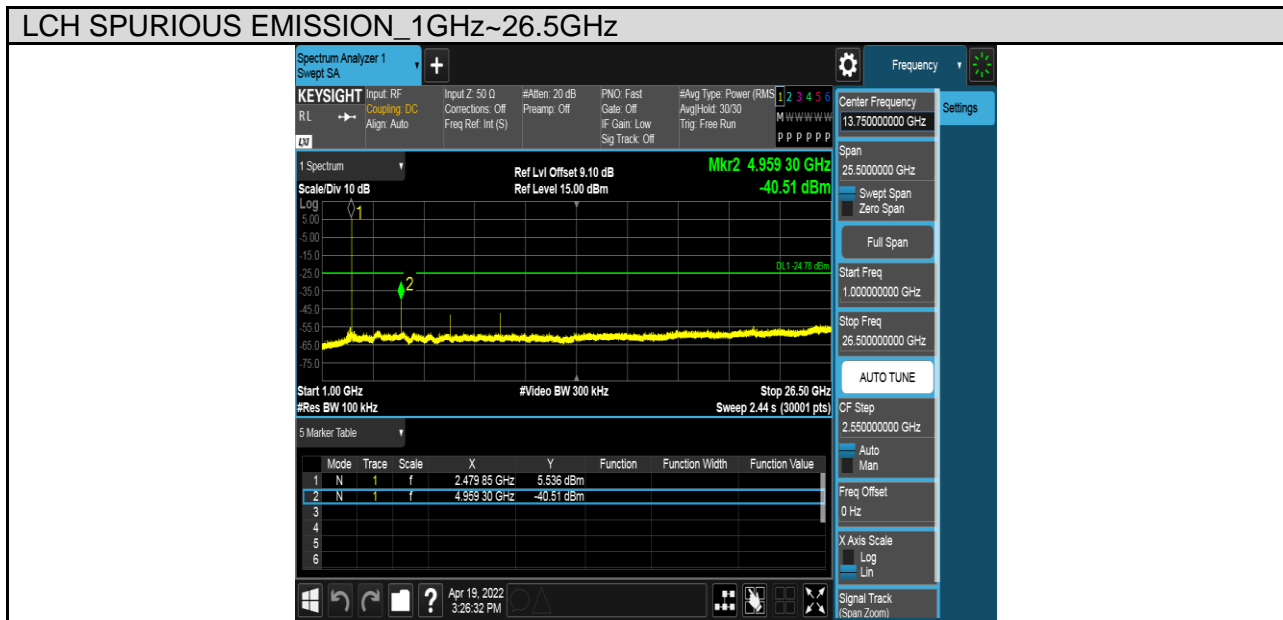
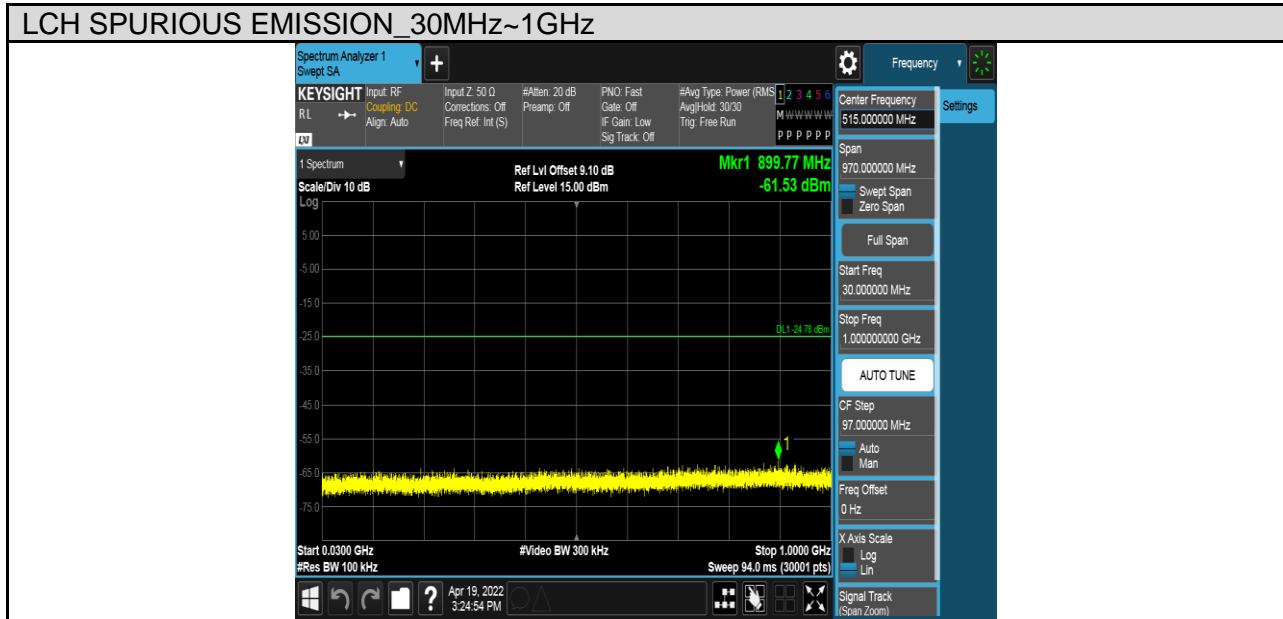


Channel	Verdict
MCH	PASS





Channel	Verdict
HCH	PASS





9. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 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

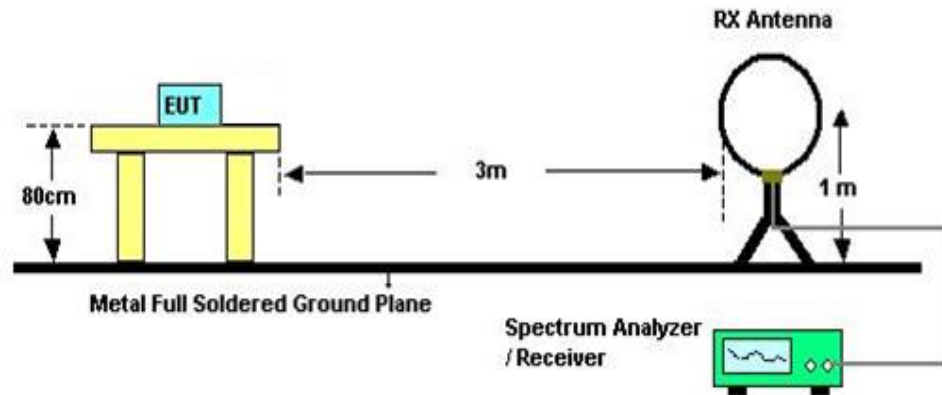
FCC Restricted bands of operation:

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 38.6

TEST SETUP AND PROCEDURE

Below 30MHz

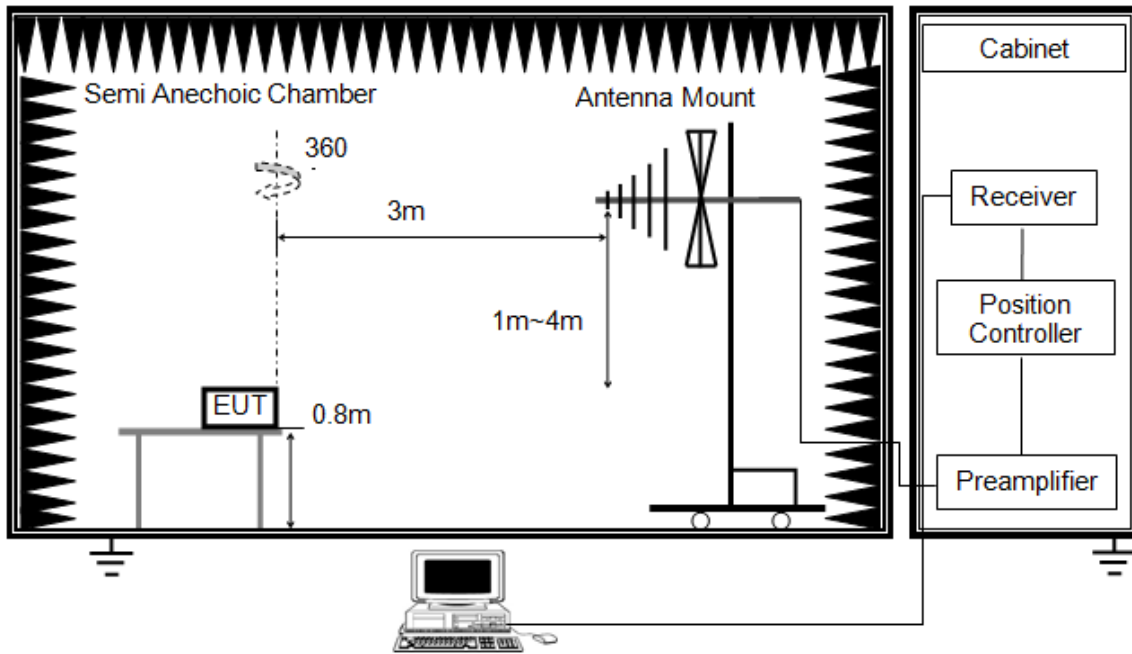


The setting of the spectrum analyser

RBW	200 Hz (From 9kHz to 0.15MHz)/ 9 kHz (From 0.15MHz to 30MHz)
VBW	200 Hz (From 9kHz to 0.15MHz)/ 9 kHz (From 0.15MHz to 30MHz)
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 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. 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. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1G

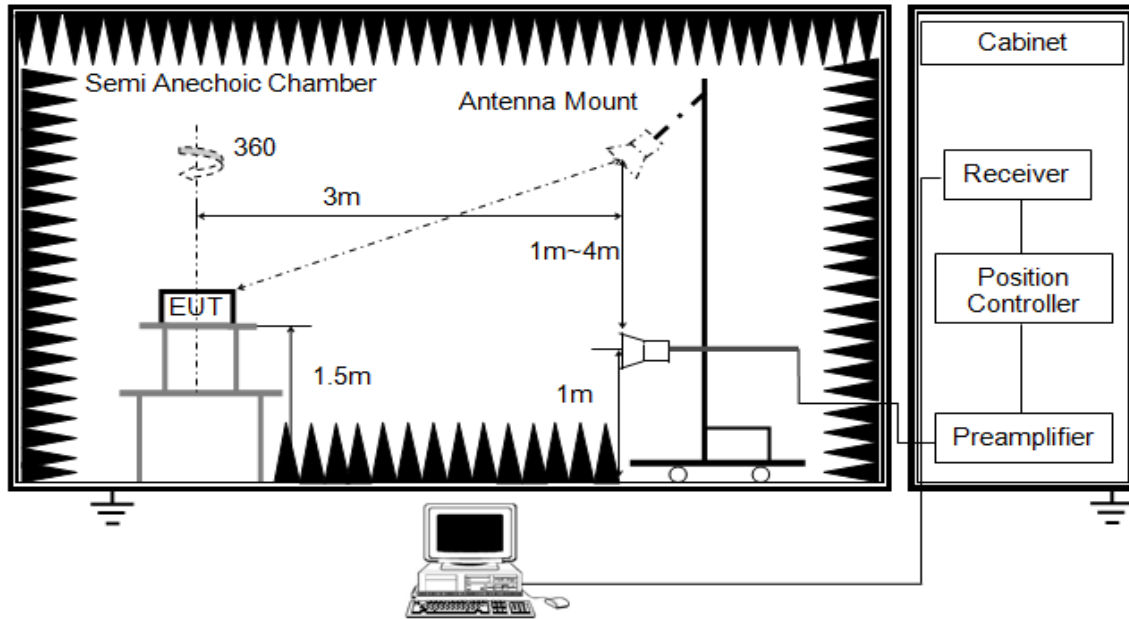


The setting of the spectrum analyser

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 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

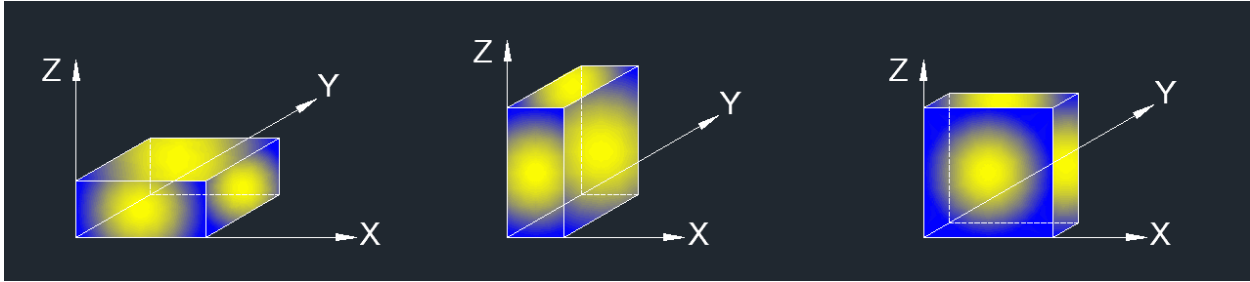


The setting of the spectrum analyser

RBW	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 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 list in section 7.1 with average detector, max hold to run for at least 50 traces for average measurements.
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 all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST ENVIRONMENT

Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

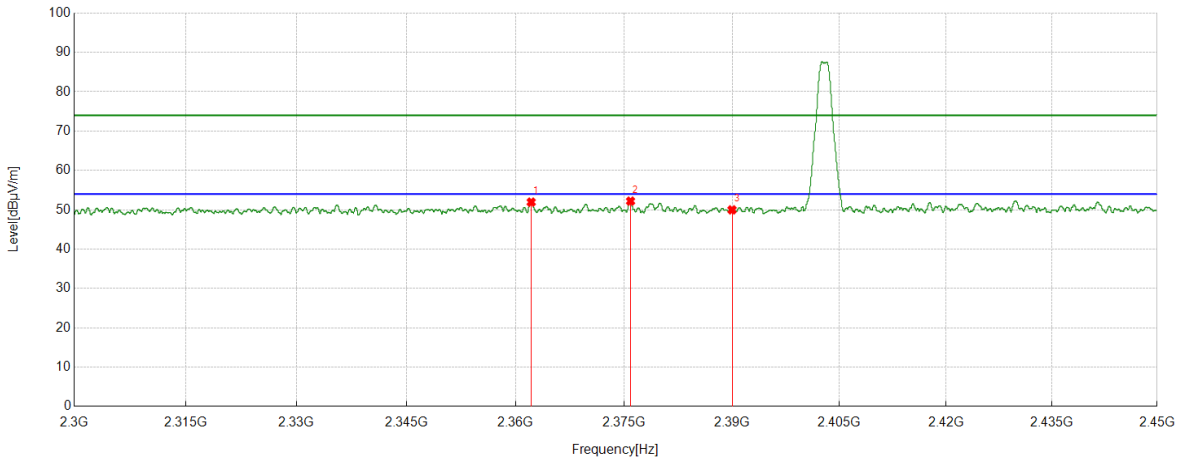
9.1. RESTRICTED BANDEDGE

Test Result Table

Test Antenna	Channel	P _{uw} (dBm)	Verdict
Antenna 1	LCH	<Limit	PASS
	HCH	<Limit	PASS



Channel	Polarization	Verdict
LCH	Horizontal	PASS



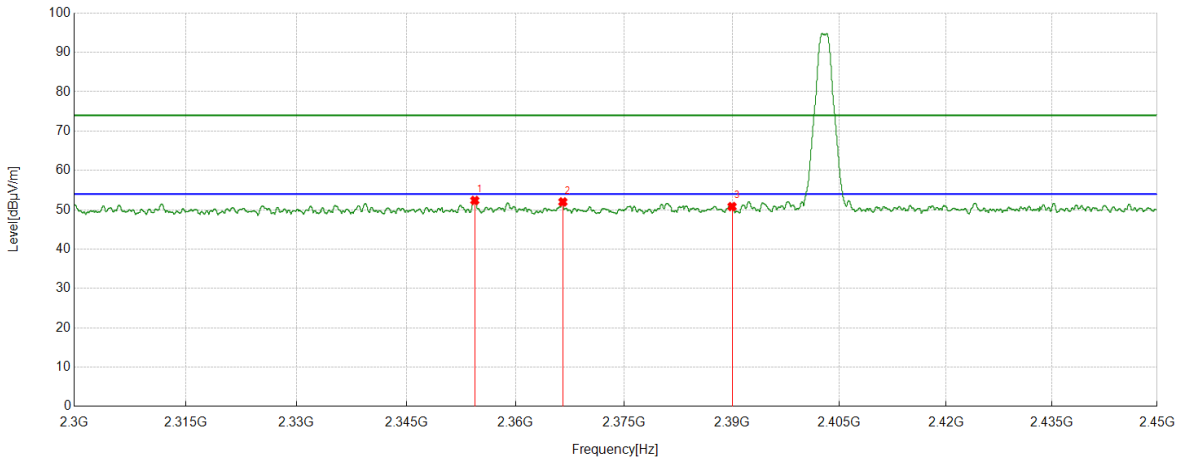
PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2362.164	40.71	11.23	51.94	74.00	-22.06	Horizontal
2	2375.8907	40.87	11.33	52.20	74.00	-21.80	Horizontal
3	2390	38.69	11.28	49.97	74.00	-24.03	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. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Channel	Polarization	Verdict
LCH	Vertical	PASS



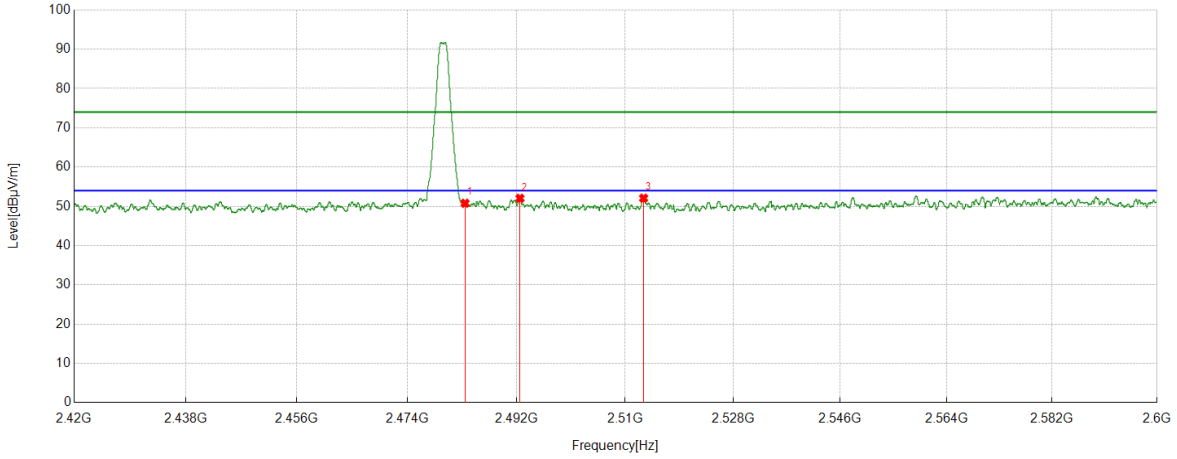
PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2354.4006	41.17	11.20	52.37	74.00	-21.63	Peak
2	2366.5333	40.73	11.26	51.99	74.00	-22.01	Peak
3	2390	39.53	11.28	50.81	74.00	-23.19	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. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Channel	Polarization	Verdict
HCH	Horizontal	PASS



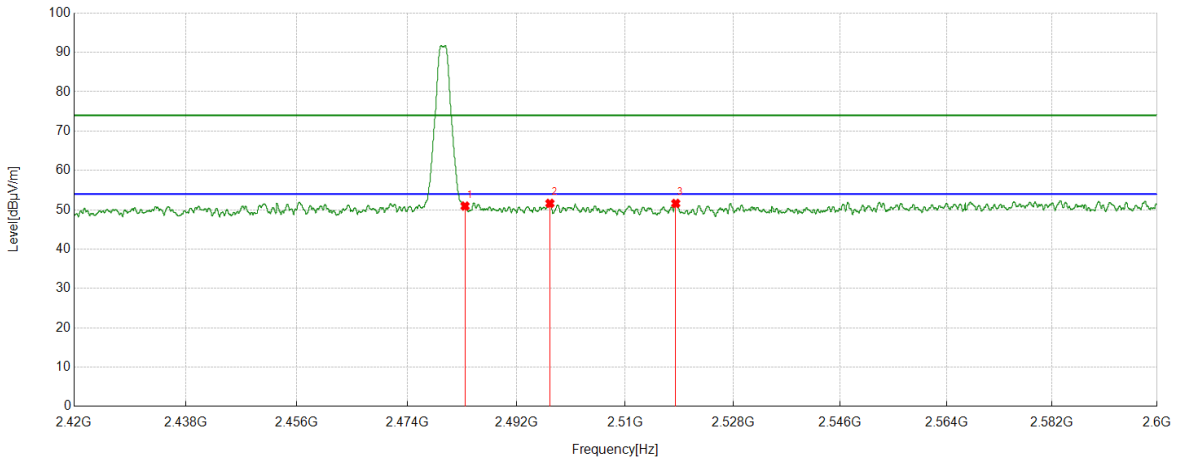
PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.5	39.42	11.36	50.78	74.00	-23.22	Horizontal
2	2492.5491	40.60	11.43	52.03	74.00	-21.97	Horizontal
3	2513.0491	40.44	11.63	52.07	74.00	-21.93	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. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Channel	Polarization	Verdict
HCH	Vertical	PASS



PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.5	39.58	11.36	50.94	74.00	-23.06	Peak
2	2497.4997	40.12	11.50	51.62	74.00	-22.38	Peak
3	2518.4048	39.96	11.65	51.61	74.00	-22.39	Peak

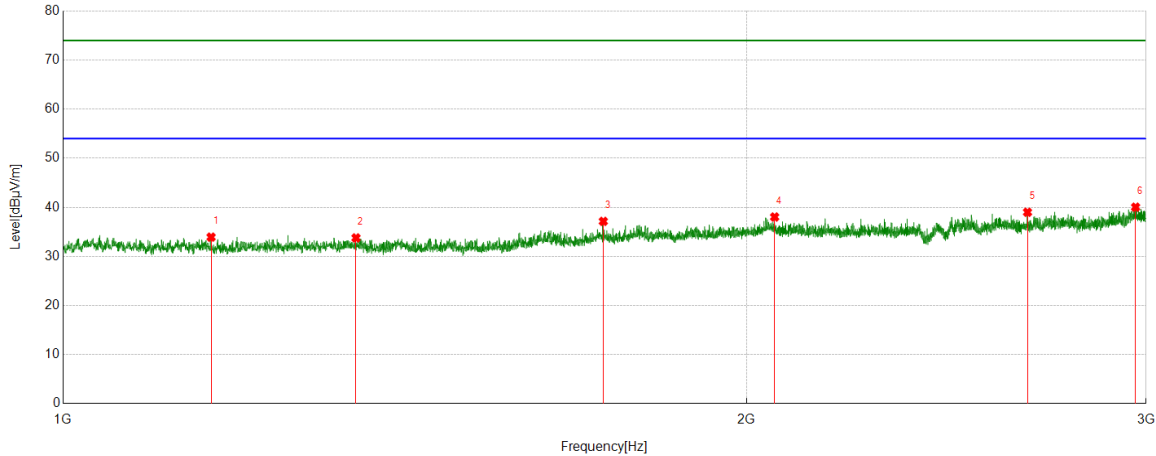
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

9.2. SPURIOUS EMISSIONS (1~18GHz)

Part I: 1GHz~3GHz

HARMONICS AND SPURIOUS EMISSIONS

Channel	Polarization	Verdict
LCH	Horizontal	PASS

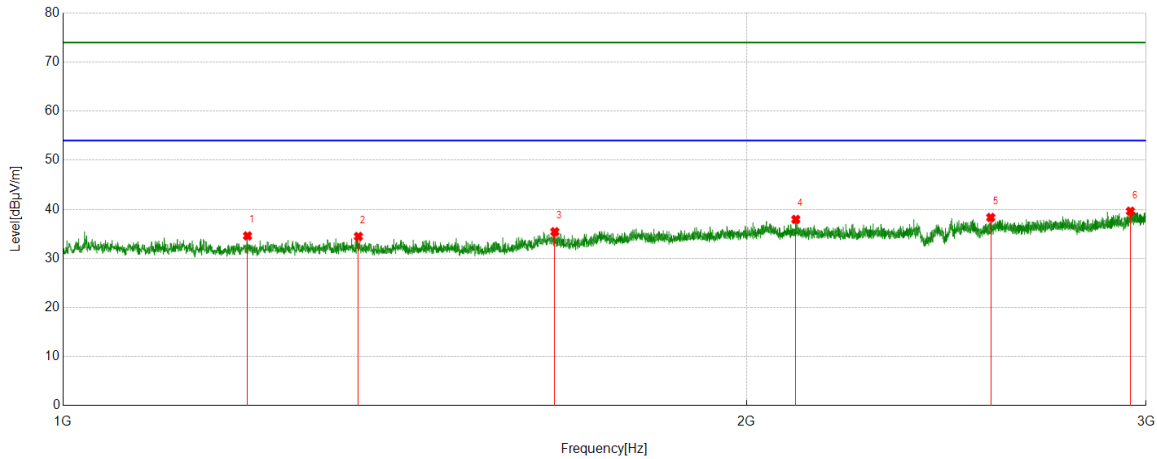


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1162.0203	40.09	-6.16	33.93	74.00	-40.07	Horizontal
2	1346.0433	40.03	-6.26	33.77	74.00	-40.23	Horizontal
3	1729.8412	42.00	-4.86	37.14	74.00	-36.86	Horizontal
4	2058.1323	40.83	-2.80	38.03	74.00	-35.97	Horizontal
5	2659.9575	40.89	-1.89	39.00	74.00	-35.00	Horizontal
6	2968.246	39.68	0.35	40.03	74.00	-33.97	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.



Channel	Polarization	Verdict
LCH	Vertical	PASS

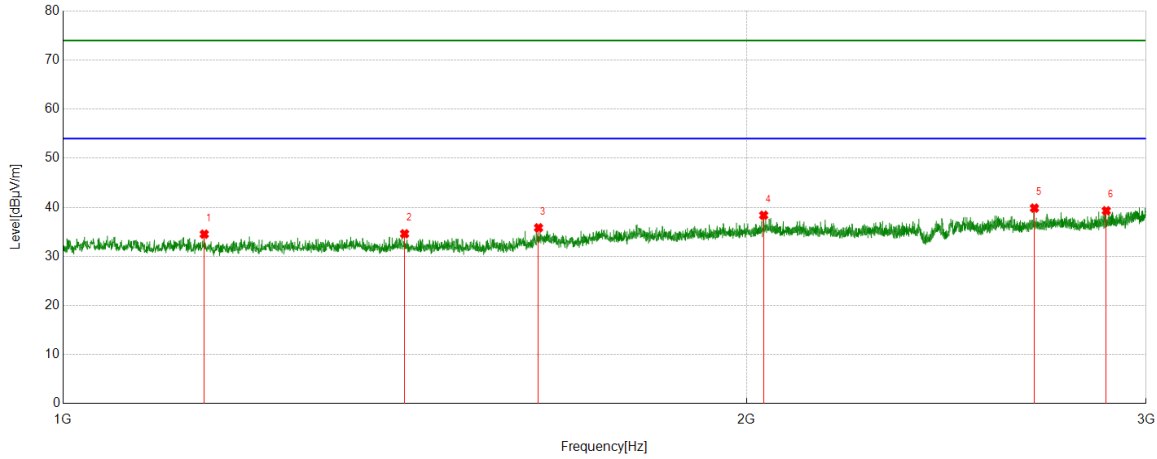


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1205.7757	41.05	-6.46	34.59	74.00	-39.41	Vertical
2	1349.2937	40.63	-6.16	34.47	74.00	-39.53	Vertical
3	1646.8309	40.59	-5.16	35.43	74.00	-38.57	Vertical
4	2102.8879	40.92	-2.98	37.94	74.00	-36.06	Vertical
5	2562.6953	40.71	-2.37	38.34	74.00	-35.66	Vertical
6	2952.7441	39.73	-0.12	39.61	74.00	-34.39	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.



Channel	Polarization	Verdict
MCH	Horizontal	PASS

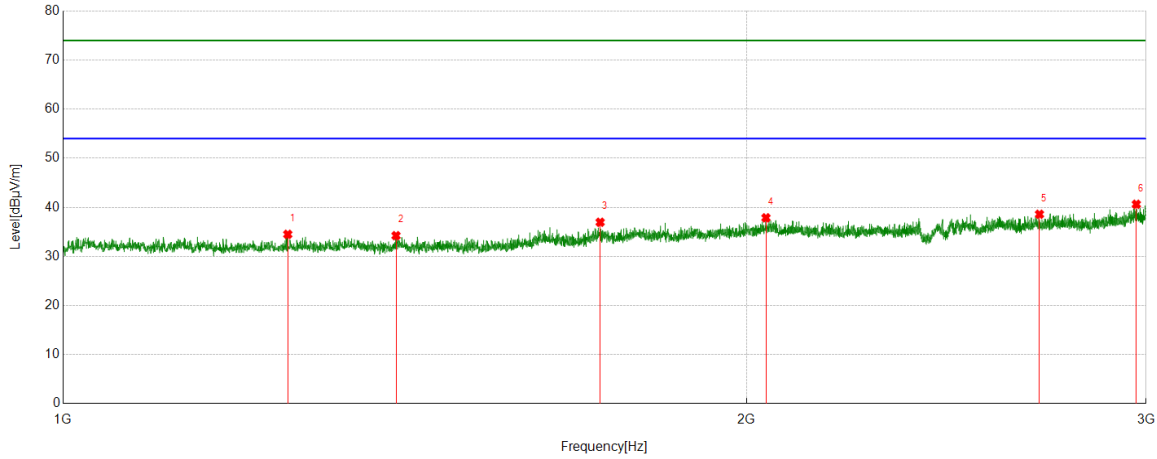


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1154.0193	40.66	-6.13	34.53	74.00	-39.47	Horizontal
2	1414.0518	41.03	-6.42	34.61	74.00	-39.39	Horizontal
3	1619.8275	41.18	-5.35	35.83	74.00	-38.17	Horizontal
4	2035.3794	41.08	-2.70	38.38	74.00	-35.62	Horizontal
5	2678.7098	41.67	-1.83	39.84	74.00	-34.16	Horizontal
6	2881.2352	40.43	-1.13	39.30	74.00	-34.70	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.



Channel	Polarization	Verdict
MCH	Vertical	PASS

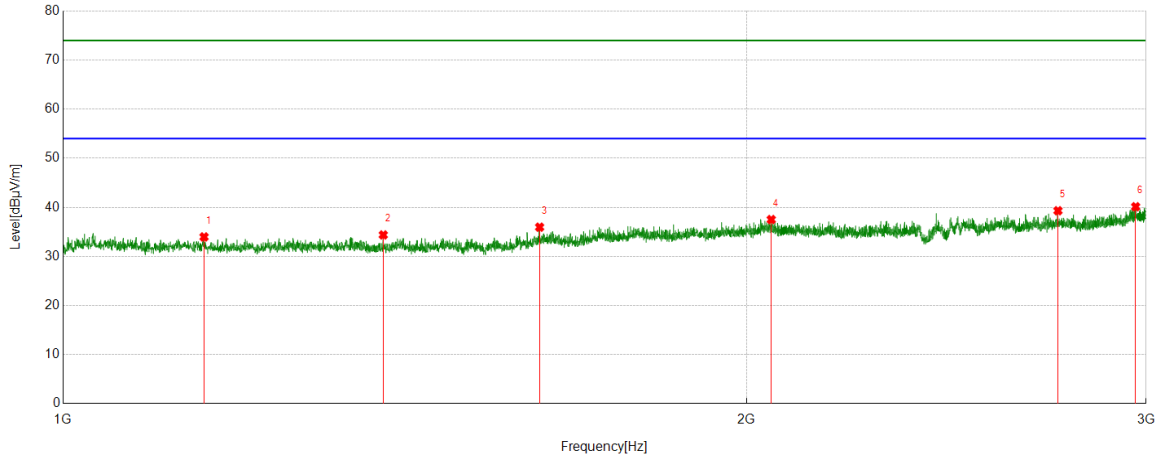


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1256.032	40.80	-6.30	34.50	74.00	-39.50	Vertical
2	1401.8002	40.82	-6.59	34.23	74.00	-39.77	Vertical
3	1724.3405	41.72	-4.76	36.96	74.00	-37.04	Vertical
4	2040.1300	40.40	-2.54	37.86	74.00	-36.14	Vertical
5	2692.4616	40.23	-1.64	38.59	74.00	-35.41	Vertical
6	2970.4963	40.24	0.38	40.62	74.00	-33.38	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.



Channel	Polarization	Verdict
HCH	Horizontal	PASS

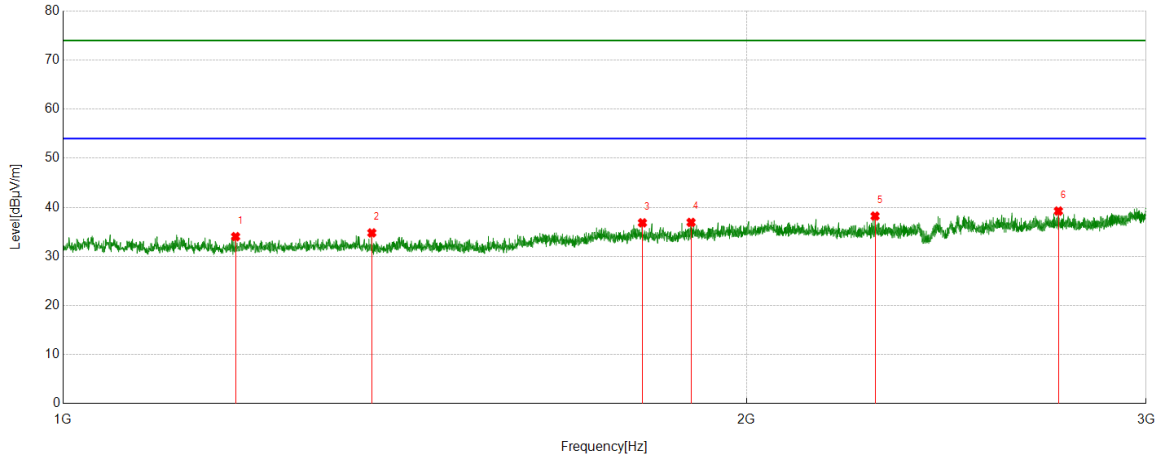


No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1153.7692	40.10	-6.13	33.97	74.00	-40.03	Horizontal
2	1383.798	41.07	-6.69	34.38	74.00	-39.62	Horizontal
3	1621.5777	41.30	-5.34	35.96	74.00	-38.04	Horizontal
4	2051.1314	40.10	-2.59	37.51	74.00	-36.49	Horizontal
5	2743.4679	40.86	-1.55	39.31	74.00	-34.69	Horizontal
6	2968.4961	39.77	0.35	40.12	74.00	-33.88	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.



Channel	Polarization	Verdict
HCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1191.2739	40.59	-6.56	34.03	74.00	-39.97	Vertical
2	1367.796	41.39	-6.60	34.79	74.00	-39.21	Vertical
3	1799.8500	41.06	-4.22	36.84	74.00	-37.16	Vertical
4	1890.8614	40.83	-3.90	36.93	74.00	-37.07	Vertical
5	2278.9099	41.43	-3.21	38.22	74.00	-35.78	Vertical
6	2744.7181	40.79	-1.55	39.24	74.00	-34.76	Vertical

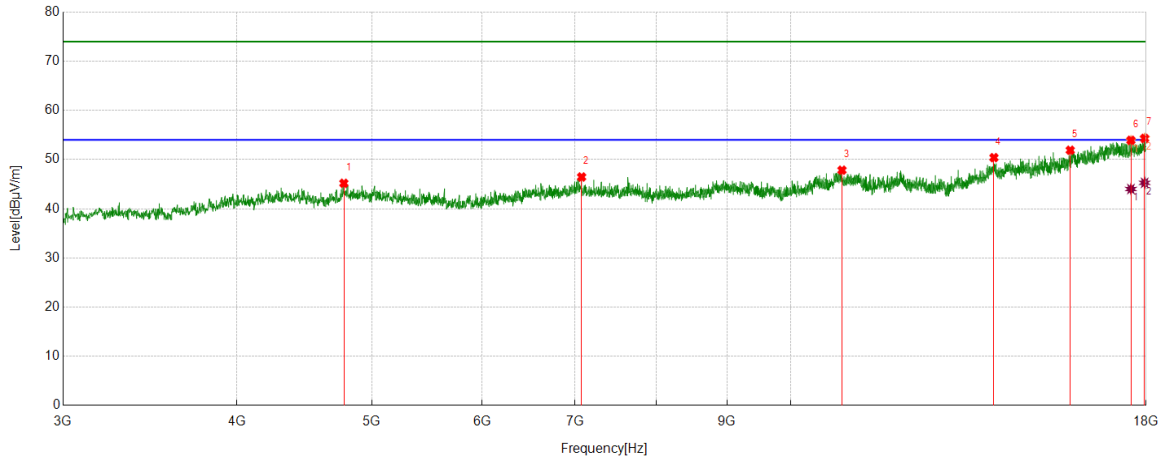
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
 4. Peak: Peak detector.
 5. For below 3GHz part, filter losses were only considered in the spurious 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

HARMONICS AND SPURIOUS EMISSIONS

Channel	Polarization	Verdict
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	4773.9717	39.84	5.34	45.18	74.00	-28.82	Horizontal
2	7074.8844	37.69	8.77	46.46	74.00	-27.54	Horizontal
3	10883.4854	36.24	11.60	47.84	74.00	-26.16	Horizontal
4	13994.4993	36.34	14.06	50.40	74.00	-23.60	Horizontal
5	15877.2347	35.64	16.26	51.90	74.00	-22.10	Horizontal
6	17553.6942	35.68	18.15	53.83	74.00	-20.17	Horizontal
7	17956.8696	34.95	19.39	54.34	74.00	-19.66	Horizontal

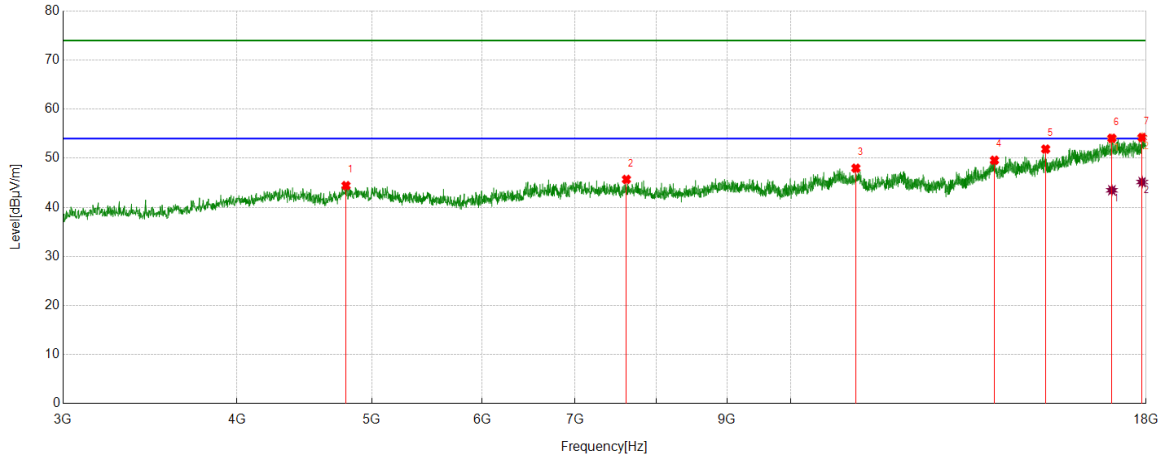
AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17553.6942	25.86	18.15	44.01	54.00	-9.99	Horizontal
2	17956.8696	25.88	19.39	45.27	54.00	-8.73	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. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average 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.



Channel	Polarization	Verdict
LCH	Vertical	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4790.8489	38.41	6.01	44.42	74.00	-29.58	Vertical
2	7618.7023	37.59	8.10	45.69	74.00	-28.31	Vertical
3	11136.6421	36.49	11.48	47.97	74.00	-26.03	Vertical
4	14005.7507	35.35	14.24	49.59	74.00	-24.41	Vertical
5	15243.4054	36.51	15.35	51.86	74.00	-22.14	Vertical
6	17009.8762	35.88	18.01	53.89	74.00	-20.11	Vertical
7	17883.7355	35.16	19.00	54.16	74.00	-19.84	Vertical

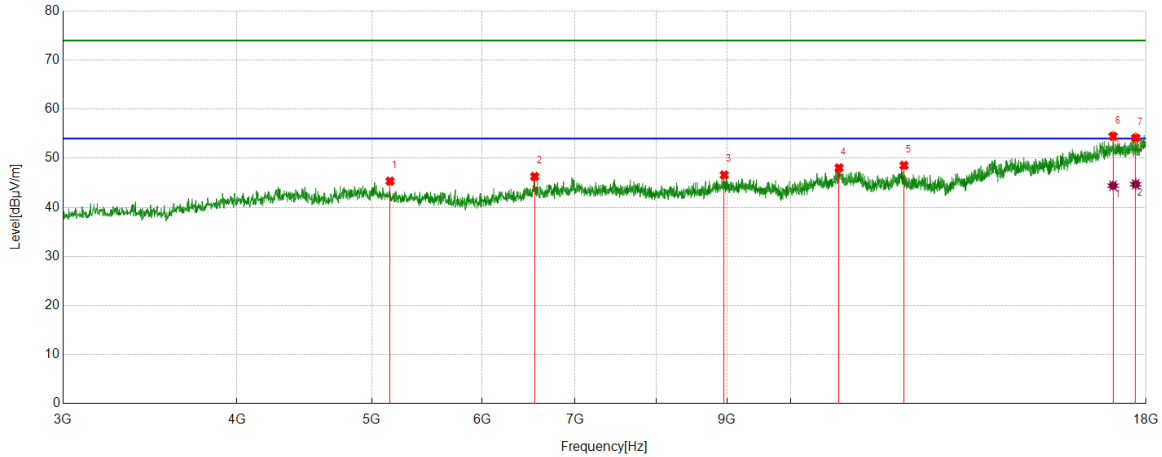
AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17009.8762	25.47	18.01	43.48	54.00	-10.52	Vertical
2	17883.7355	26.16	19.00	45.16	54.00	-8.84	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. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average 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.



Channel	Polarization	Verdict
MCH	Horizontal	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	5152.7691	40.50	4.83	45.33	74.00	-28.67	Horizontal
2	6546.0683	38.26	8.02	46.28	74.00	-27.72	Horizontal
3	8957.6197	37.53	9.05	46.58	74.00	-27.42	Horizontal
4	10830.9789	36.65	11.39	48.04	74.00	-25.96	Horizontal
5	12059.2574	36.83	11.72	48.55	74.00	-25.45	Horizontal
6	17043.6305	36.36	18.24	54.60	74.00	-19.40	Horizontal
7	17692.4616	36.08	18.22	54.30	74.00	-19.70	Horizontal

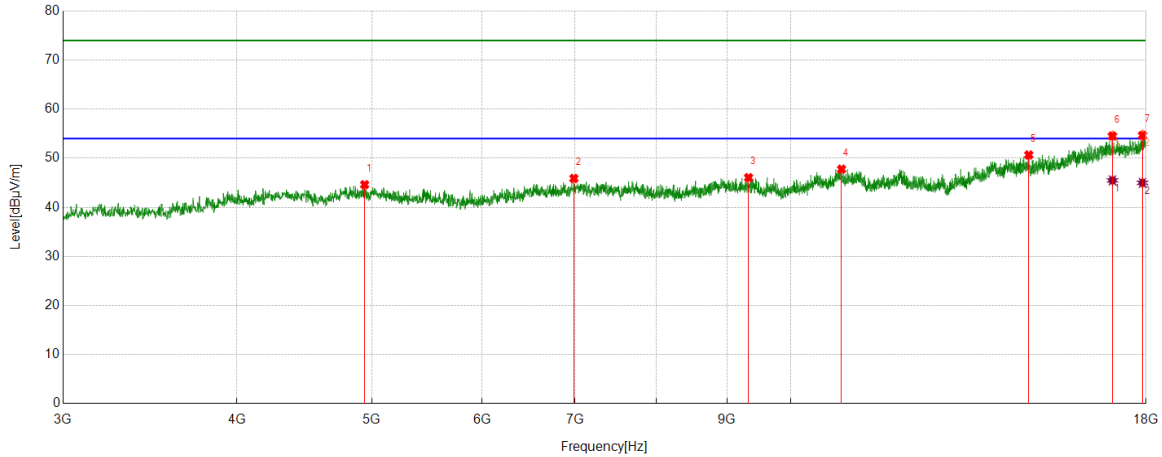
AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17043.6305	26.17	18.24	44.41	54.00	-9.59	Horizontal
2	17692.4616	26.48	18.22	44.70	54.00	-9.30	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. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average 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.



Channel	Polarization	Verdict
MCH	Vertical	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4940.8676	38.99	5.63	44.62	74.00	-29.38	Vertical
2	6984.8731	37.25	8.63	45.88	74.00	-28.12	Vertical
3	9325.1656	37.12	8.93	46.05	74.00	-27.95	Vertical
4	10875.9845	36.21	11.56	47.77	74.00	-26.23	Vertical
5	14825.2282	35.84	14.83	50.67	74.00	-23.33	Vertical
6	17024.8781	36.42	18.17	54.59	74.00	-19.41	Vertical
7	17894.9869	35.62	19.21	54.83	74.00	-19.17	Vertical

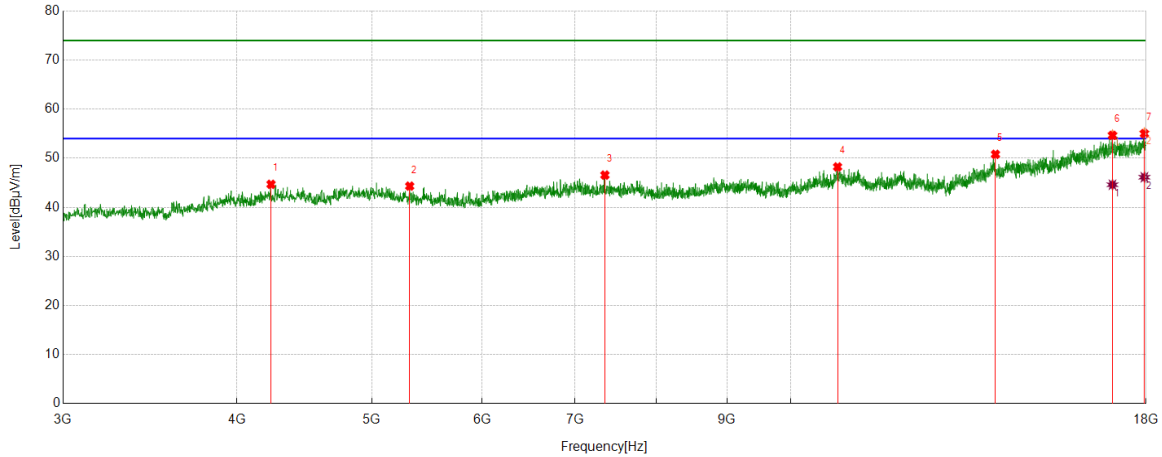
AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17024.8781	27.32	18.17	45.49	54.00	-8.51	Vertical
2	17894.9869	25.78	19.21	44.99	54.00	-9.01	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. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average 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.



Channel	Polarization	Verdict
HCH	Horizontal	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4232.029	40.17	4.52	44.69	74.00	-29.31	Horizontal
2	5323.4154	39.30	5.02	44.32	74.00	-29.68	Horizontal
3	7352.4191	38.63	7.94	46.57	74.00	-27.43	Horizontal
4	10804.7256	36.80	11.44	48.24	74.00	-25.76	Horizontal
5	14030.1288	36.15	14.65	50.80	74.00	-23.20	Horizontal
6	17026.7533	36.47	18.30	54.77	74.00	-19.23	Horizontal
7	17949.3687	35.76	19.42	55.18	74.00	-18.82	Horizontal

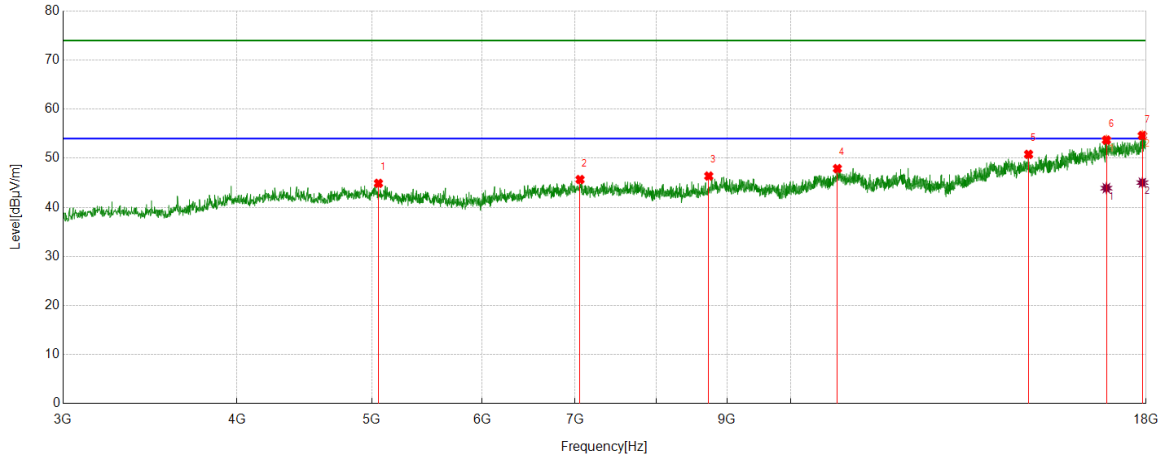
AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17026.7533	26.30	18.30	44.60	54.00	-9.40	Horizontal
2	17949.3687	26.71	19.42	46.13	54.00	-7.87	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. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average 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.



Channel	Polarization	Verdict
HCH	Vertical	PASS



PK Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	5055.2569	39.34	5.55	44.89	74.00	-29.11	Vertical
2	7056.132	37.01	8.65	45.66	74.00	-28.34	Vertical
3	8730.7163	38.14	8.23	46.37	74.00	-27.63	Vertical
4	10800.9751	36.51	11.38	47.89	74.00	-26.11	Vertical
5	14819.6024	35.92	14.88	50.80	74.00	-23.20	Vertical
6	16856.107	36.25	17.48	53.73	74.00	-20.27	Vertical
7	17891.2364	35.4	19.25	54.65	74.00	-19.35	Vertical

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	16856.107	26.43	17.48	43.91	54.00	-10.09	Vertical
2	17891.2364	25.78	19.25	45.03	54.00	-8.97	Vertical

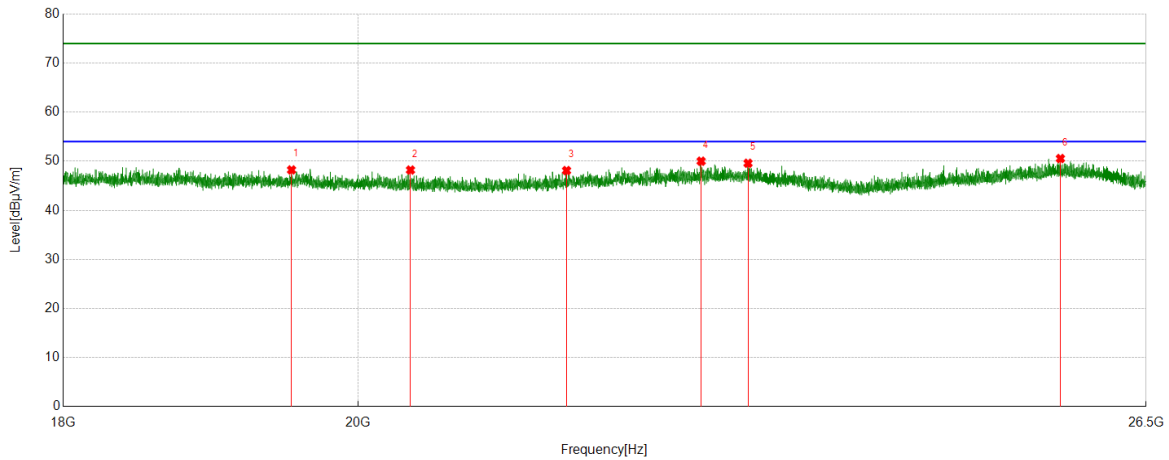
- Note: 1. Measurement = Reading Level + Correct Factor;
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak detector: RBW: 1 MHz, VBW: 3 MHz;
 4. Average detector: RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.);
 5. For above 3GHz part, filter losses were 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.



9.3. SPURIOUS EMISSIONS (18~26GHz)

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

Channel	Polarization	Verdict
HCH	Horizontal	PASS

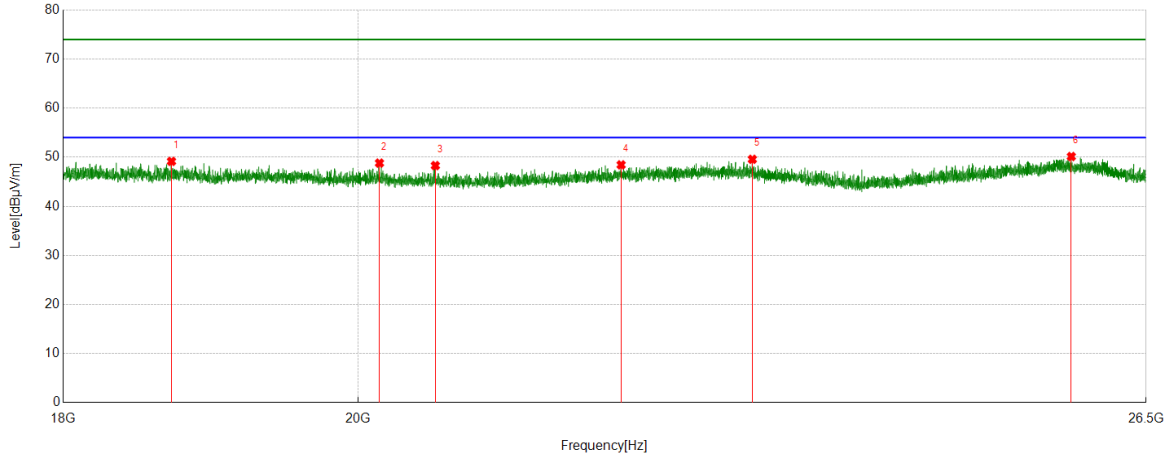


No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19530.153	48.94	-0.71	48.23	74.00	-25.77	Horizontal
2	20377.6878	48.87	-0.66	48.21	74.00	-25.79	Horizontal
3	21545.7046	48.55	-0.45	48.10	74.00	-25.90	Horizontal
4	22606.6107	49.09	0.92	50.01	74.00	-23.99	Horizontal
5	22988.2988	48.37	1.22	49.59	74.00	-24.41	Horizontal
6	25701.7702	49.37	1.18	50.55	74.00	-23.45	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. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



Channel	Polarization	Verdict
HCH	Vertical	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18710.6711	50.16	-1.00	49.16	74.00	-24.84	Vertical
2	20153.2653	49.38	-0.57	48.81	74.00	-25.19	Vertical
3	20559.606	49.04	-0.74	48.30	74.00	-25.70	Vertical
4	21969.897	48.32	0.13	48.45	74.00	-25.55	Vertical
5	23024.0024	48.42	1.16	49.58	74.00	-24.42	Vertical
6	25802.0802	48.80	1.35	50.15	74.00	-23.85	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. Peak: Peak detector.
 4. AVG: VBW=10 Hz.
 5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

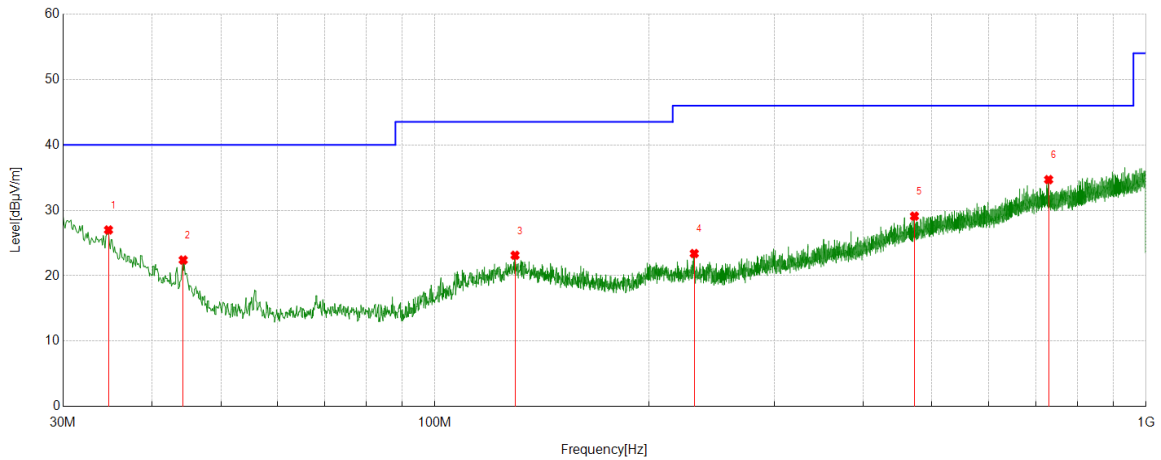
Note: All the test modes have been tested, only the worst data record in the report.



9.4. SPURIOUS EMISSIONS (0.03 ~ 1 GHz)

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

Channel	Polarization	Verdict
HCH	Horizontal	PASS

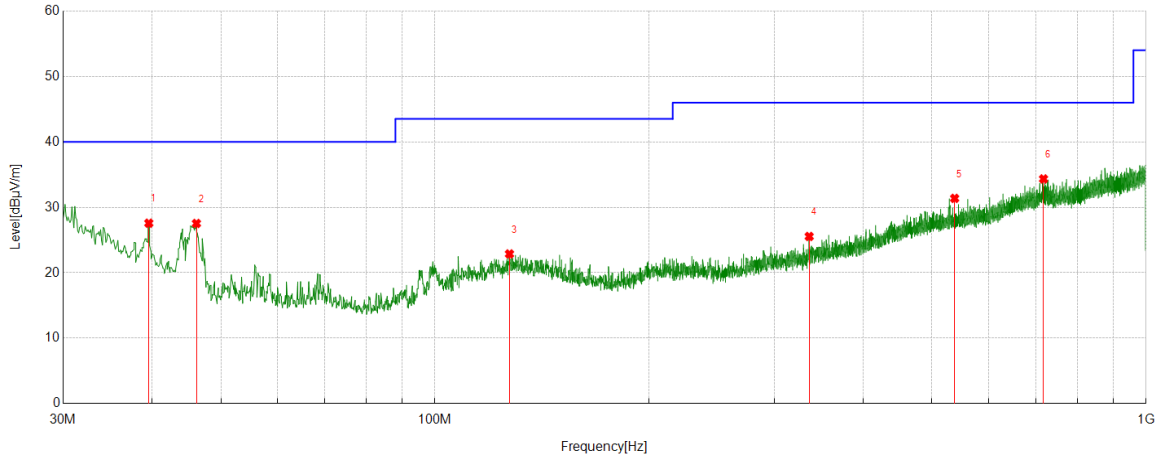


No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.7535	2.56	24.44	27.00	40.00	-13.00	Peak
2	44.2604	4.23	18.18	22.41	40.00	-17.59	Peak
3	129.629	1.99	21.14	23.13	43.50	-20.37	Peak
4	231.5862	3.80	19.60	23.40	46.00	-22.60	Peak
5	472.3642	3.30	25.81	29.11	46.00	-16.89	Peak
6	729.3429	4.87	29.82	34.69	46.00	-11.31	Peak

- Note: 1. Result Level = Read Level + Correct Factor.
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



Channel	Polarization	Verdict
HCH	Vertical	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	39.604	6.44	21.14	27.58	40.00	-12.42	Peak
2	46.2006	10.58	16.96	27.54	40.00	-12.46	Peak
3	127.3007	1.90	20.98	22.88	43.50	-20.62	Peak
4	335.9686	3.50	22.05	25.55	46.00	-20.45	Peak
5	538.0398	4.56	26.81	31.37	46.00	-14.63	Peak
6	717.4107	4.77	29.57	34.34	46.00	-11.66	Peak

- Note: 1. Result Level = Read Level + Correct Factor.
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

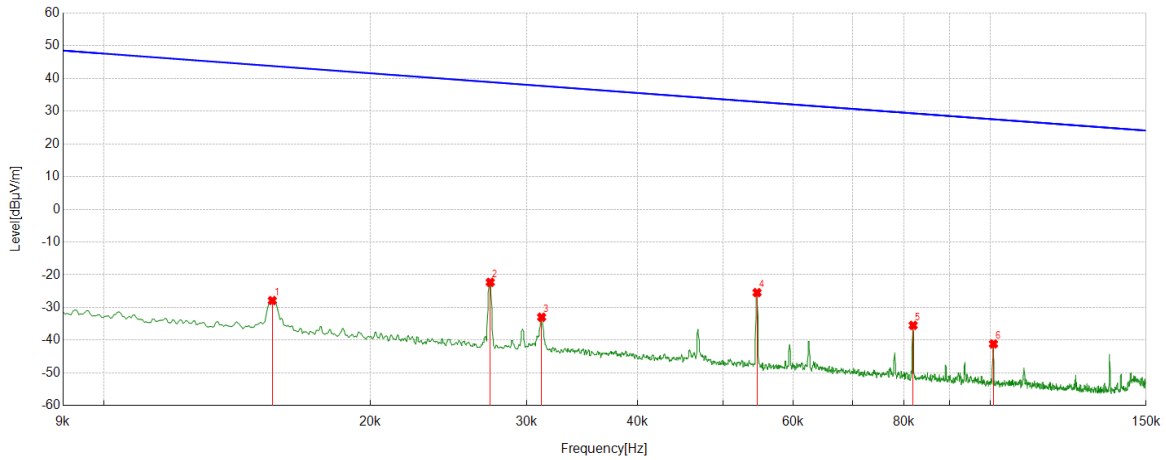
Note: All constructions and test modes have been tested, only the worst data record in the report.



9.5. SPURIOUS EMISSIONS BELOW 30M

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

Channel	Frequency Range	Verdict
HCH	9kHz~150kHz	PASS

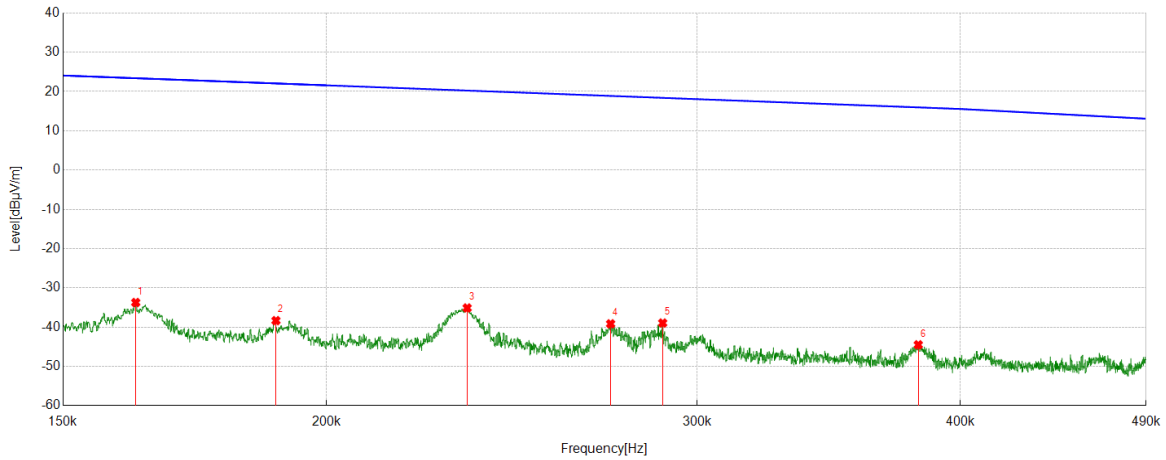


No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0155	34.01	-61.89	-27.88	43.80	-71.68	Peak
2	0.0273	39.48	-61.77	-22.29	38.88	-61.17	Peak
3	0.0312	28.78	-61.74	-32.96	37.71	-70.67	Peak
4	0.0546	36.31	-61.75	-25.44	32.86	-58.30	Peak
5	0.0819	26.38	-61.83	-35.45	29.33	-64.78	Peak
6	0.1009	20.69	-61.82	-41.13	27.53	-68.66	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.



Channel	Frequency Range	Verdict
HCH	150kHz~490kHz	PASS

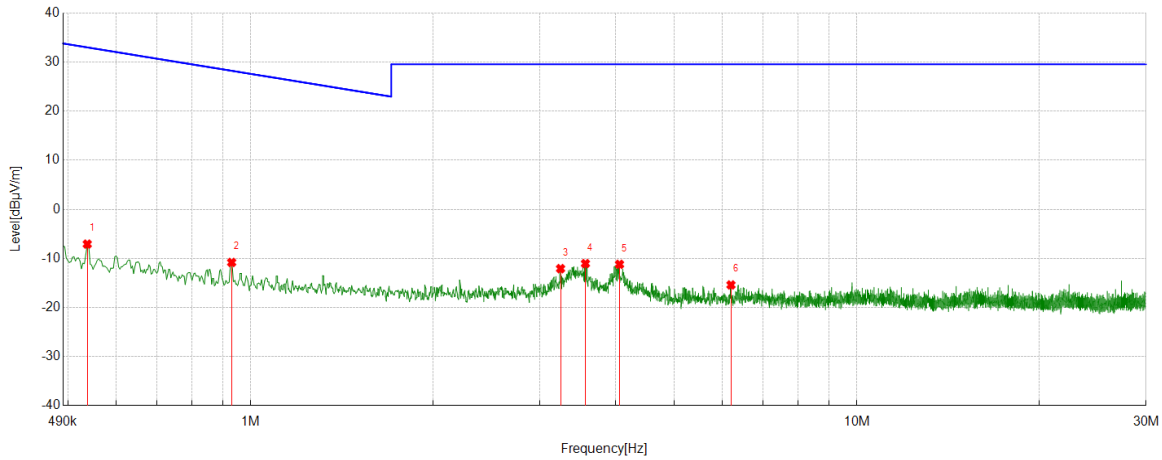


No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1624	28.12	-61.85	-33.73	23.39	-57.12	Peak
2	0.1893	23.52	-61.86	-38.34	22.06	-60.40	Peak
3	0.2333	26.76	-61.87	-35.11	20.24	-55.35	Peak
4	0.2729	22.73	-61.89	-39.16	18.88	-58.04	Peak
5	0.2889	22.95	-61.90	-38.95	18.39	-57.34	Peak
6	0.382	17.40	-61.90	-44.50	15.96	-60.46	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.



Channel	Frequency Range	Verdict
HCH	150kHz~490kHz	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5372	14.81	-21.89	-7.08	33.00	-40.08	Peak
2	0.9297	11.05	-21.87	-10.82	28.24	-39.06	Peak
3	3.2436	9.68	-21.76	-12.08	29.54	-41.62	Peak
4	3.5652	10.70	-21.75	-11.05	29.54	-40.59	Peak
5	4.0581	10.54	-21.74	-11.20	29.54	-40.74	Peak
6	6.1978	6.30	-21.70	-15.40	29.54	-44.94	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.

Note: All constructions and test modes have been tested, only the worst data record in the 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.

RESULTS

Complies

END OF REPORT