

CFR 47 FCC PART 15 SUBPART C

TEST REPORT

For

BioXam Capsule

MODEL NUMBER: AKEM-31SW

FCC ID: 2ATXZ-AKEM31SW

PROJECT NUMBER: 4790785577

REPORT NUMBER: 4790785577-1

ISSUE DATE: Jan. 22, 2024

Prepared for

AnX Robotica Corp.

Prepared by

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	01/22/2024	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: The EUT is powered by battery.			

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: AnX Robotica Corp.
Address: 6010 W. Spring Creek Pkwy, Plano, TX 75024, USA

Manufacturer Information

Company Name: AnX Robotica Corp.
Address: 6010 W. Spring Creek Pkwy, Plano, TX 75024, USA

Factory Information

Company Name: ANKON MEDICAL TECHNOLOGIES (SHANGHAI) CO., LTD.
Address: 1/F, No. 2218, Jinsui Road, China (Shanghai) Pilot Free Trade Zone, Pudong New District, Shanghai, China

EUT Description

EUT Name: BioXam Capsule
Model: AKEM-31SW
Sample Number: 6172314
Sample Received Date: Jun. 13, 2023
Date of Tested: Jun. 13, 2023~ Jan. 22, 2024

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

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Reviewed By:

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Kevin Shen

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Leon Wu

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
Maximum Conduct Output Power	± 1.3dB
DTS Bandwidth	±1.9 %
Maximum Conducted Output Power	± 0.69dB
Maximum Power Spectral Density Level	±1.5 dB
Band-edge Compliance	± 1.9%
Unwanted Emissions in Non-restricted Freq Bands	9kHz-30MHz: ±0.90dB 30MHz-1GHz: ±1.5 dB 1GHz-12.75GHz: ±1.9dB 12.75GHz-26.5GHz: ±2.1dB
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)	3.5dB (1GHz-18GHz)
	3.9dB (18GHz-26.5GHz)
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	BioXam Capsule
Model	AKEM-31SW
Radio Technology	2.4GHz RF
Operation frequency	2403MHz ~ 2480MHz
Modulation	GFSK
Antenna Type:	FPC Antenna
Antenna Gain:	2.63 dBi
	Note: This data is provided by customer and our lab isn't responsible for this data.
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]	5.73

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	Test Channel		
	NCB: 2MHz		
	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	FPC	2.63

Note: This data is provided by customer and our lab isn't responsible for this data.

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

5.7. THE WORSE CASE CONFIGURATIONS

For the product, there is only one transmission antenna, so only the worst data for the antenna is recorded in this report.

The product supports three kinds of data rate (250kbps, 1Mbps, 2Mbps), both of them have been tested and the 2Mbps 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	E590	/
2	Data Recorder	AnX Robotica Corp.	/	/

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	2022-11-26	2023-11-25	2024-11-24
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	126701	2022-11-26	2023-11-25	2024-11-24
<input checked="" type="checkbox"/>	Artificial Mains Networks	R&S	ENY81	126712	2022-09-27	2023-09-26	2024-09-25
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"/>	EMI test receiver	R&S	ESR7	222993	2022-05-20	2023-04-08	2024-04-07
<input checked="" type="checkbox"/>	EMI test receiver	R&S	ESR26	126703	2022-11-26	2023-11-25	2024-11-24
<input checked="" type="checkbox"/>	Spectrum Analyzer	R&S	FSV3044	222992	2022-05-20	2023-04-08	2024-04-07
<input checked="" type="checkbox"/>	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	155456	2018-06-04	2021-06-03	2024-06-02
<input checked="" type="checkbox"/>	Receiver Antenna (30MHz-1GHz)	Schwarzbeck	VULB 9163	126704	2019-01-28	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)	Schwarzbeck	BBHA9170	126706	2019-02-29	2022-02-28	2025-02-27
<input checked="" type="checkbox"/>	Pre-amplification (To 18GHz)	Tonscnd	TAP01018050	224539	2022-10-11	2023-10-10	2024-10-09
<input checked="" type="checkbox"/>	Pre-amplification (To 18GHz)	R&S	SCU-18D	134667	2022-11-26	2023-11-25	2024-11-24
<input checked="" type="checkbox"/>	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	135391	2022-11-26	2023-11-25	2024-11-24
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCGV12-2375-2400-2485-2510-40SS	1	2022-12-19	2023-12-18	2024-12-17
<input checked="" type="checkbox"/>	High Pass Filter	COM-MW	ZBF13-3-18G-01	2	2022-12-19	2023-12-18	2024-12-17
Software							
Used	Description		Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Tonscnd	TS+	Ver. 2.5		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Chinese-EMC	RE_RSE	Ver. 3.03		
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	2022-05-20	2023-04-08	2024-04-07
<input checked="" type="checkbox"/>	Power Meter	MWT	MW100-RFCB	221694	2022-05-23	2023-04-08	2024-04-07
<input checked="" type="checkbox"/>	Attenuator	PASTERNAK	PE7087-6	1624	2022-05-23	2023-04-08	2024-04-07

7. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.2.3 (Method PM)
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r02	8.4 (Method PKPSD)
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

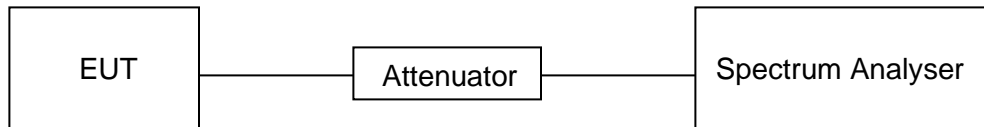
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

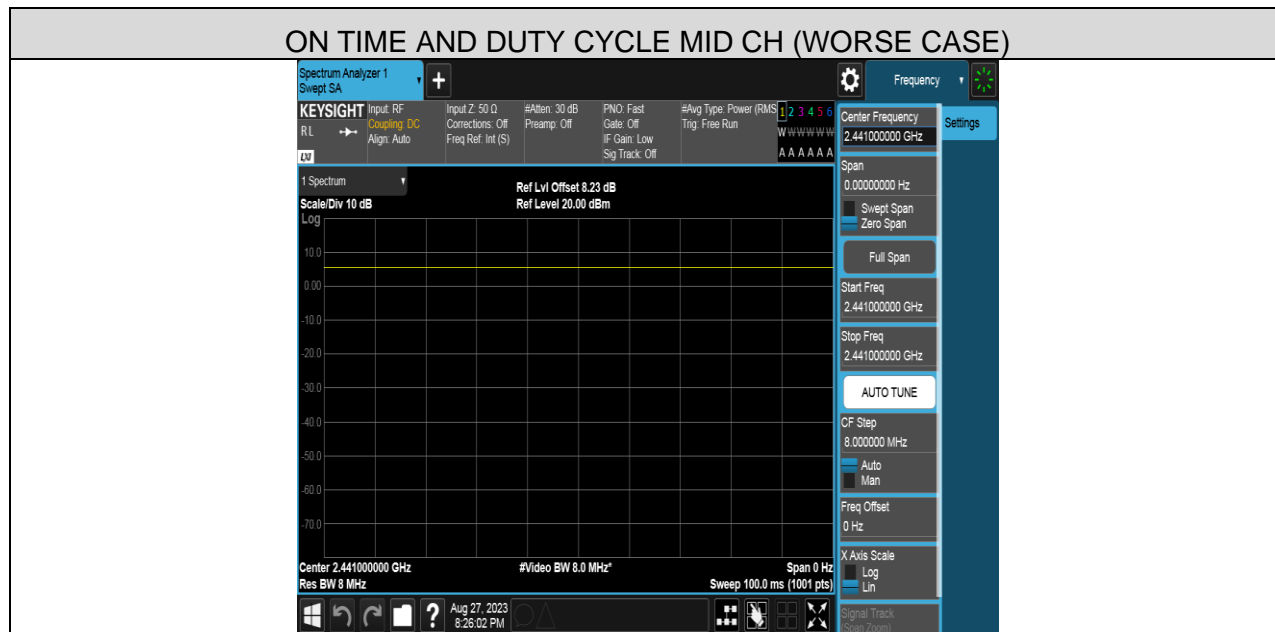
Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

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)
100.3	100.3	1	100%	0	0.01	0.01

- Note: 1) Duty Cycle Correction Factor=10log(1/x).
 2) Where: x is Duty Cycle (Linear)
 3) Where: T is On Time (transmit duration)
 4) If the duty cycle is above 98%, the Final VBW is 10Hz.

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	≥ 500KHz	2400-2483.5

TEST PROCEDURE

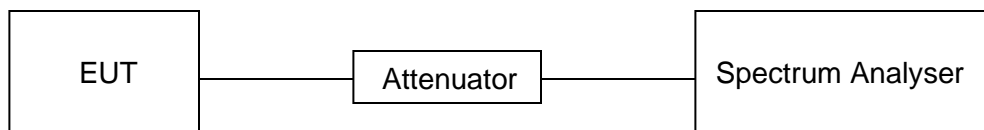
Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth.

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

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth :100K
VBW	For 6dB Bandwidth: ≥3 × 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



TEST ENVIRONMENT


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

RESULTS

Channel	6dB bandwidth (MHz)	Limit (kHz)	Result
LCH	0.752	≥500	Pass
MCH	0.752	≥500	Pass
HCH	0.752	≥500	Pass

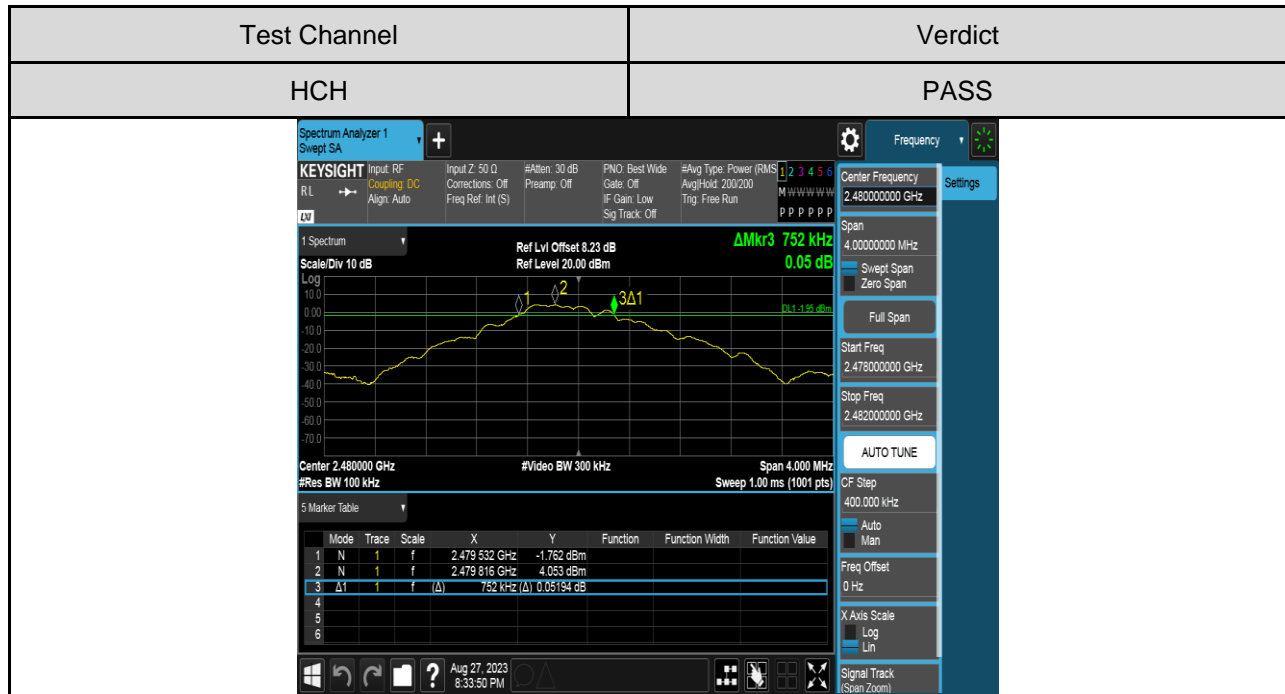
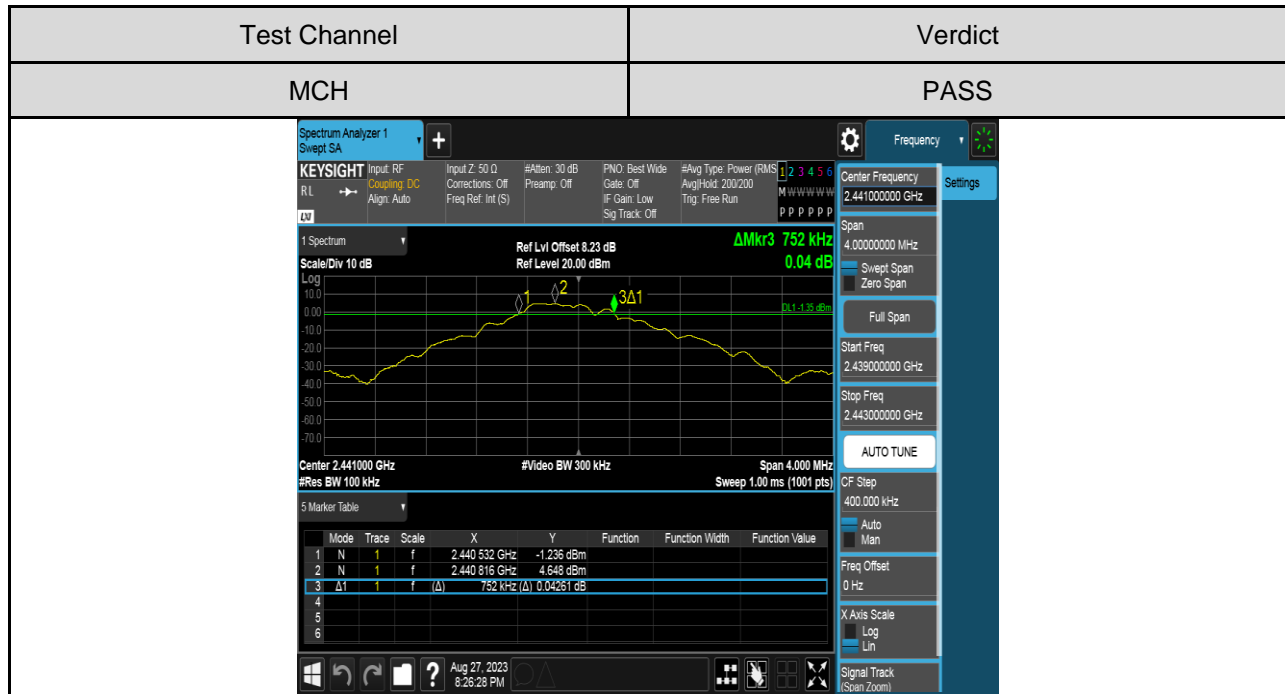
TEST GRAPHS

Test Channel	Verdict
LCH	PASS



The screenshot shows the Keysight Spectrum Analyzer interface. The main display is a spectrum plot with a yellow trace. A peak is marked at 2.402532 GHz with a level of -1.168 dBm. A 6dB bandwidth is indicated as 0.752 MHz. The center frequency is set to 2.403000 GHz and the span is 4.000 MHz. The resolution bandwidth is 100 kHz and the video bandwidth is 300 kHz. The plot is in Log scale. The marker table below the plot shows the following data:

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	f	2.402532 GHz	-1.168 dBm			
2	N	f	2.402603 GHz	4.773 dBm			
3	Δ1	f (Δ)	752 kHz (Δ)	0.1704 dB			



8.3. AVERAGE CONDUCTED OUTPUT POWER

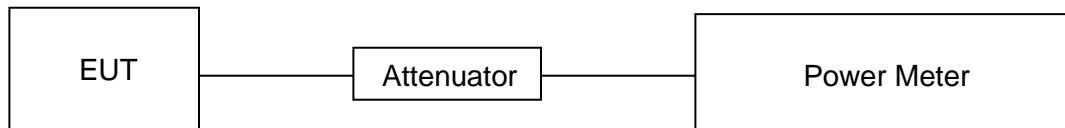
LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	Conducted Output Power	1 watt or 30dBm (See note1)	2400-2483.5
Note: 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 sensor.
Measure the power of each channel.
Average detector used for average result.

TEST SETUP



TEST ENVIRONMENT

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

RESULT

Test Channel	Maximum Conducted Output Power (AV) (dBm)	LIMIT (dBm)
LCH	5.73	30
MCH	5.67	30
HCH	5.00	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

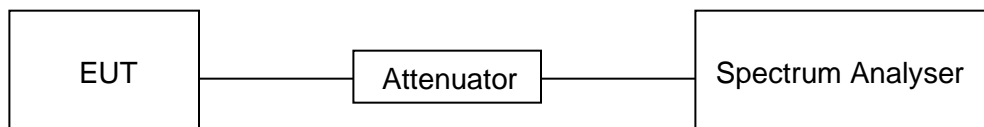
Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following settings:

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 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



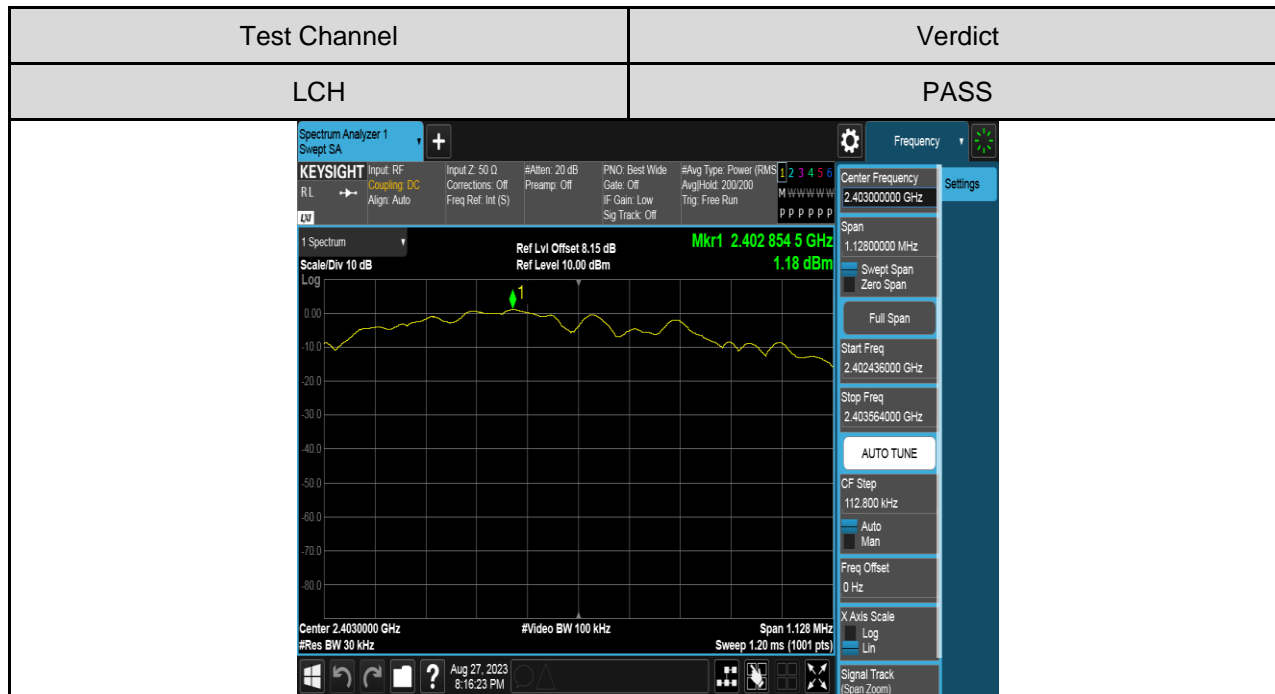
TEST ENVIRONMENT

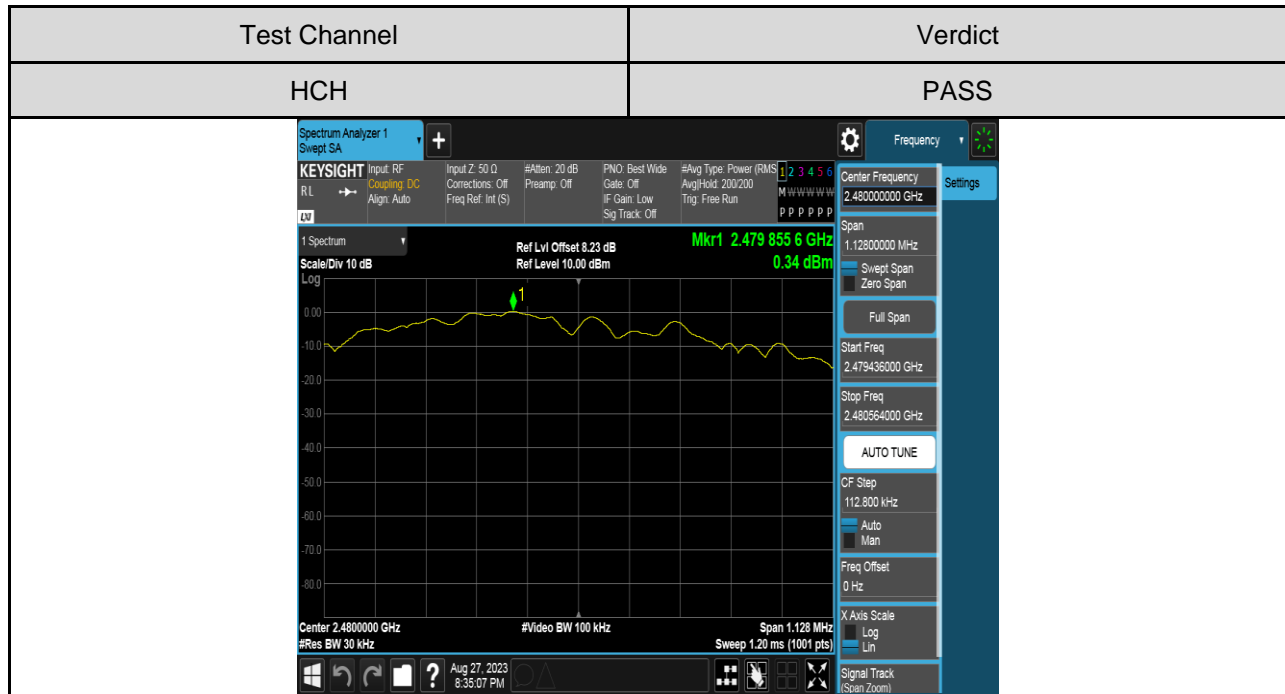
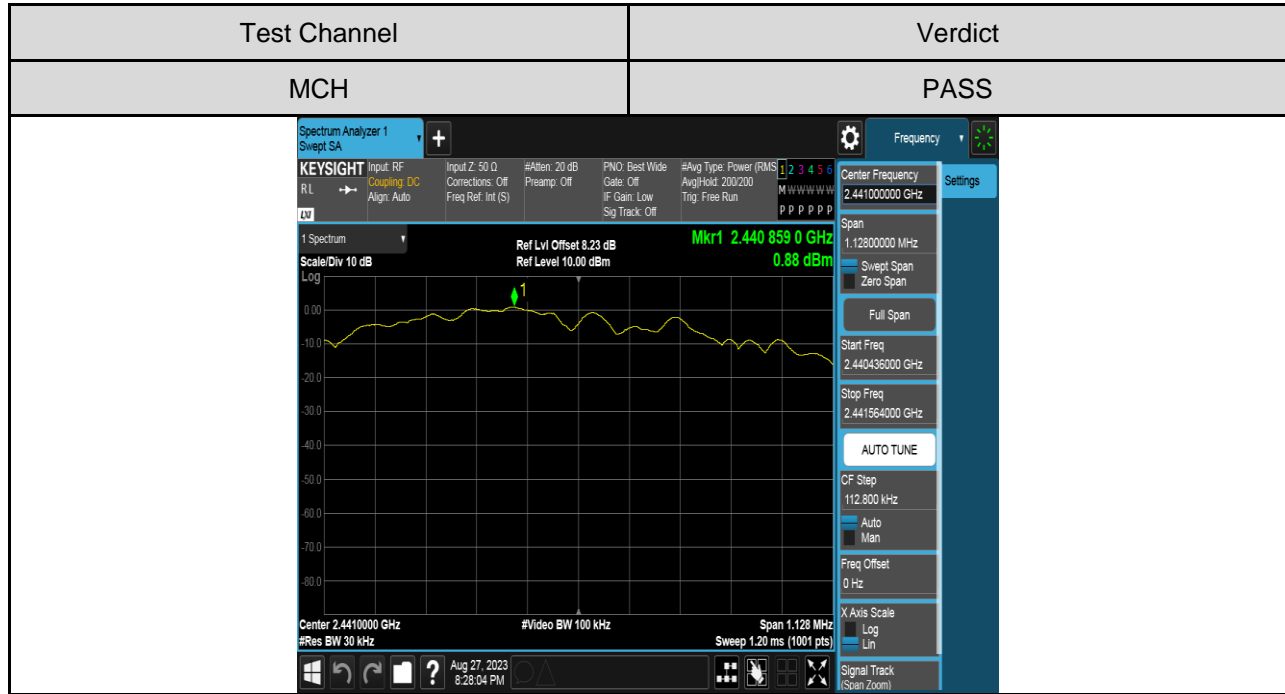
Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULTS

Test Channel	Power Spectral Density (dBm/30kHz)	Limit (dBm/3kHz)	Result
LCH	1.18	8	PASS
MCH	0.88	8	PASS
HCH	0.34	8	PASS

TEST GRAPHS





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

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

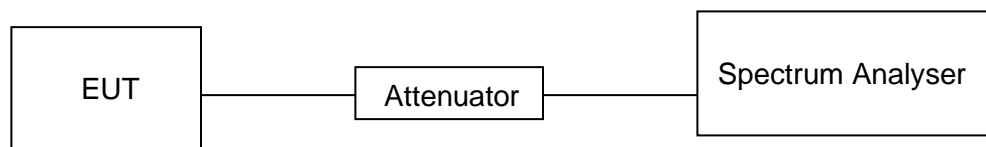
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	100K
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

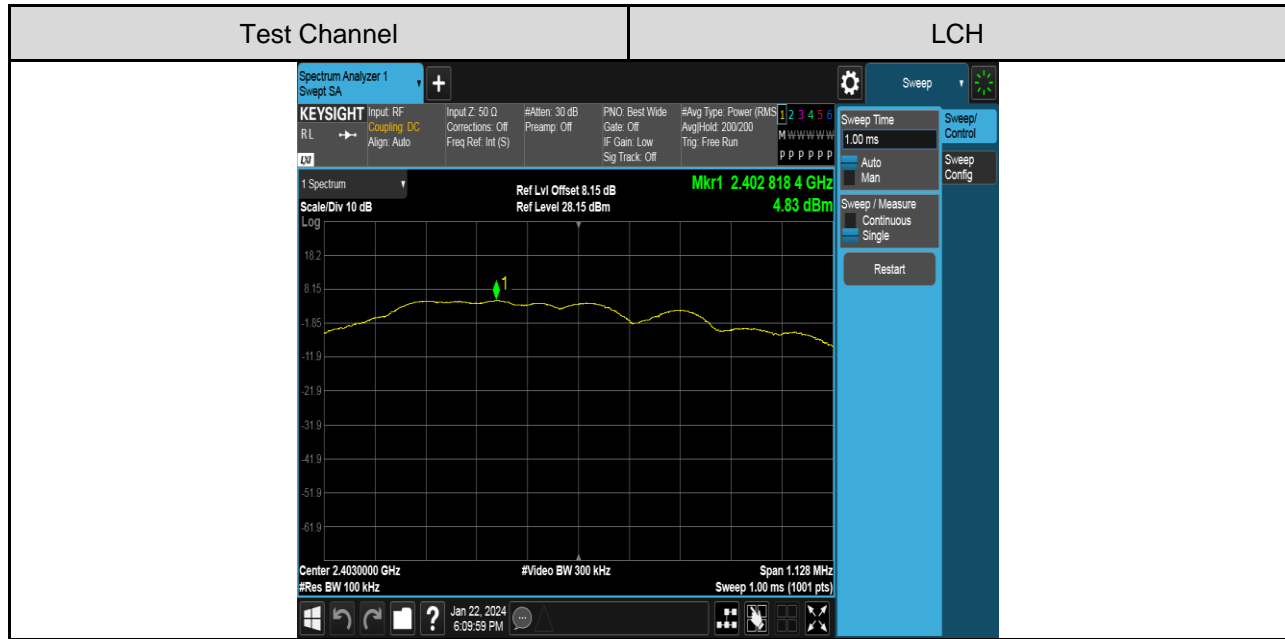
Temperature	20°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

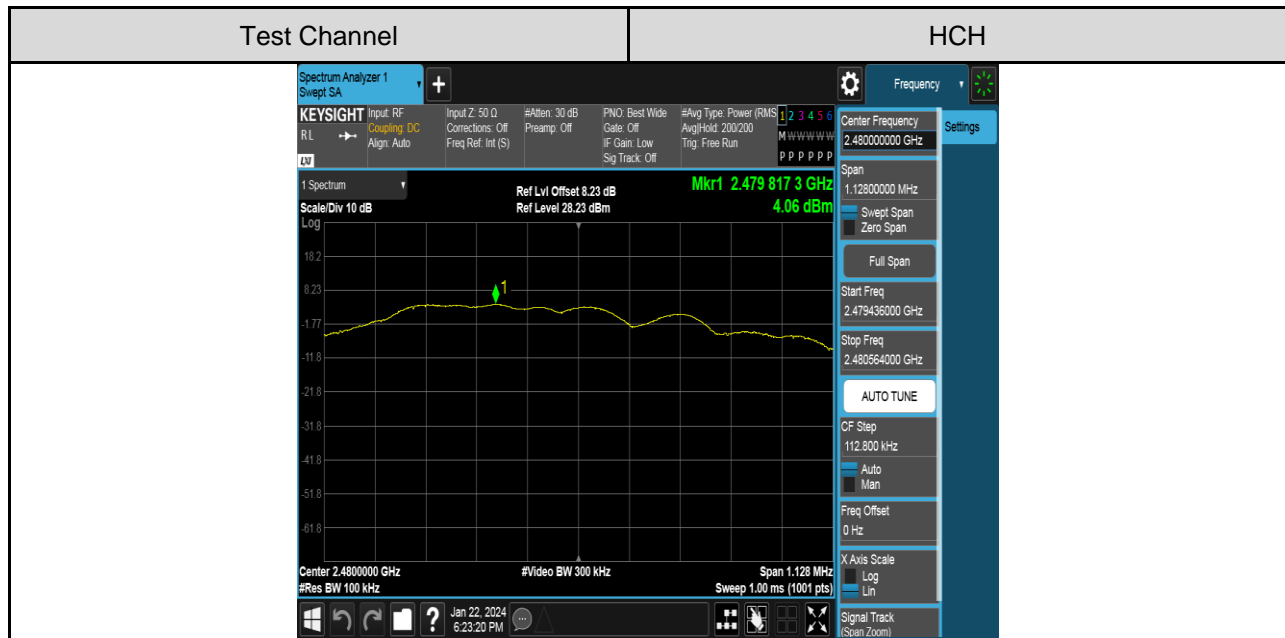
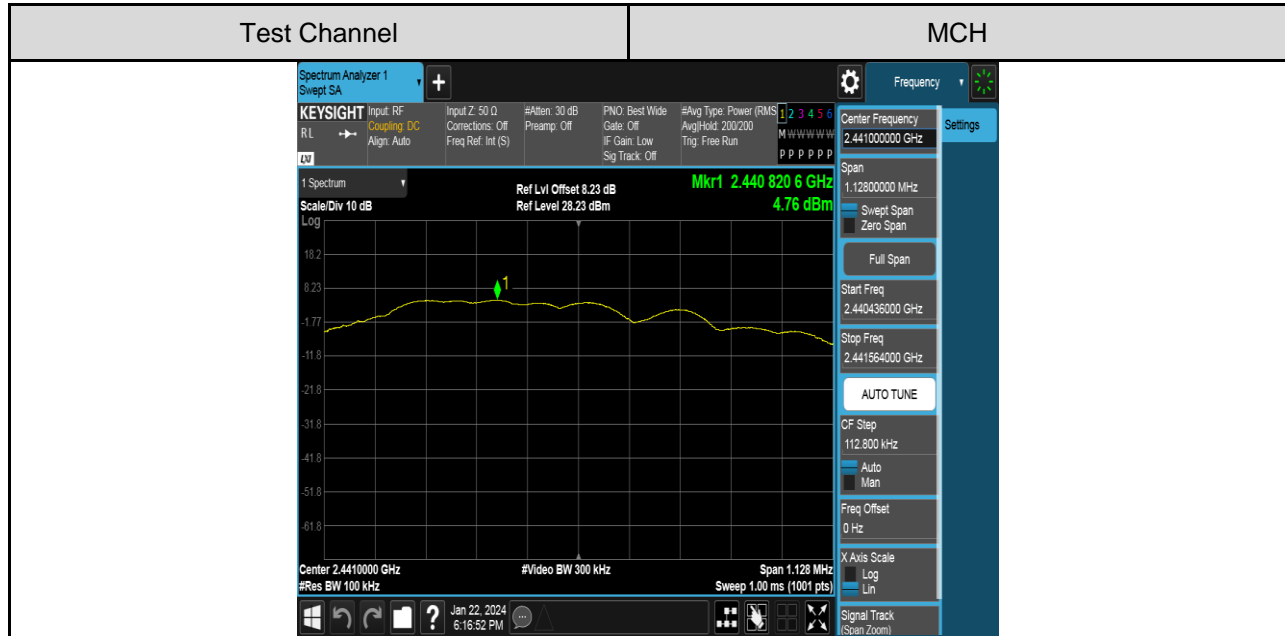
PART 1: REFERENCE LEVEL MEASUREMENT

TEST RESULTS TABLE

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

TEST GRAPHS



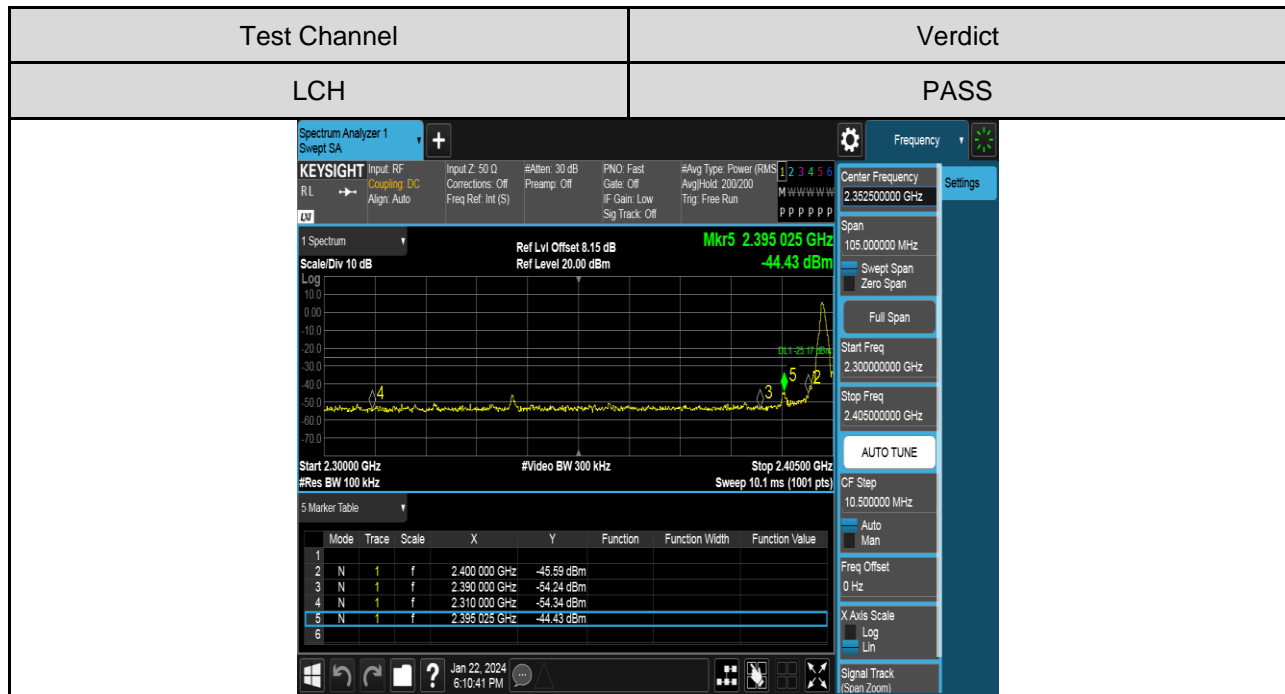


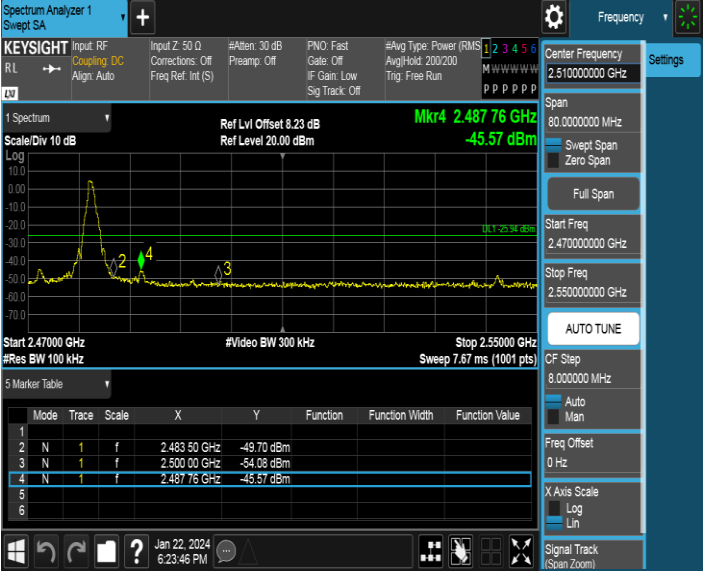
PART 2: CONDUCTED BANDEDGE

TEST RESULTS TABLE

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

TEST GRAPHS



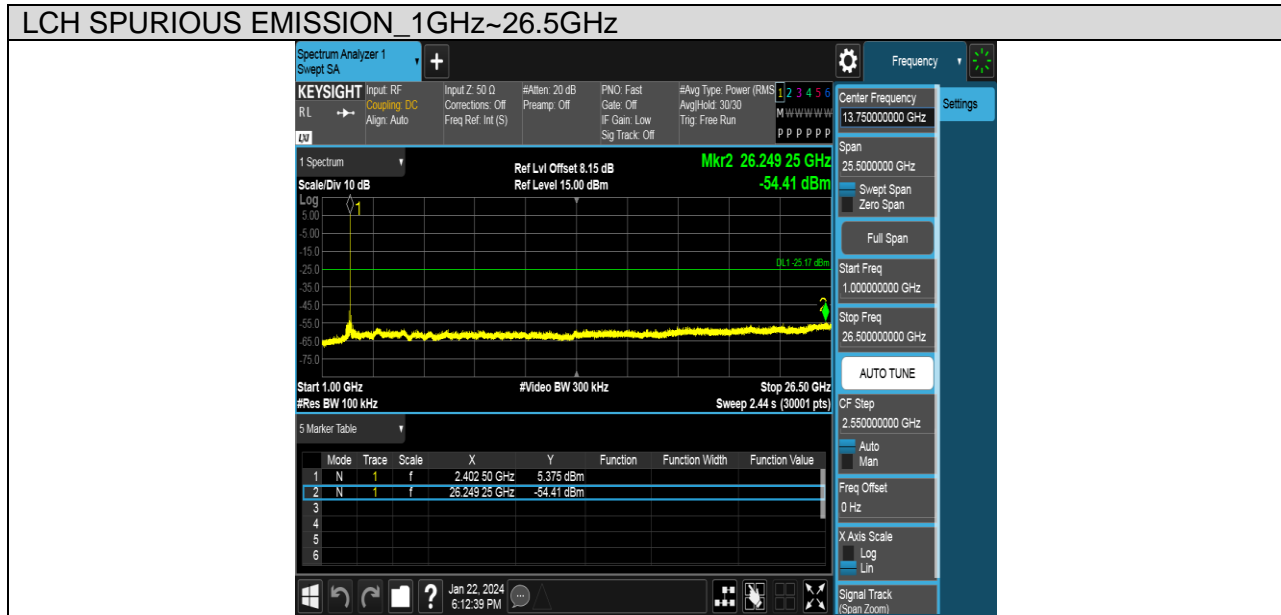
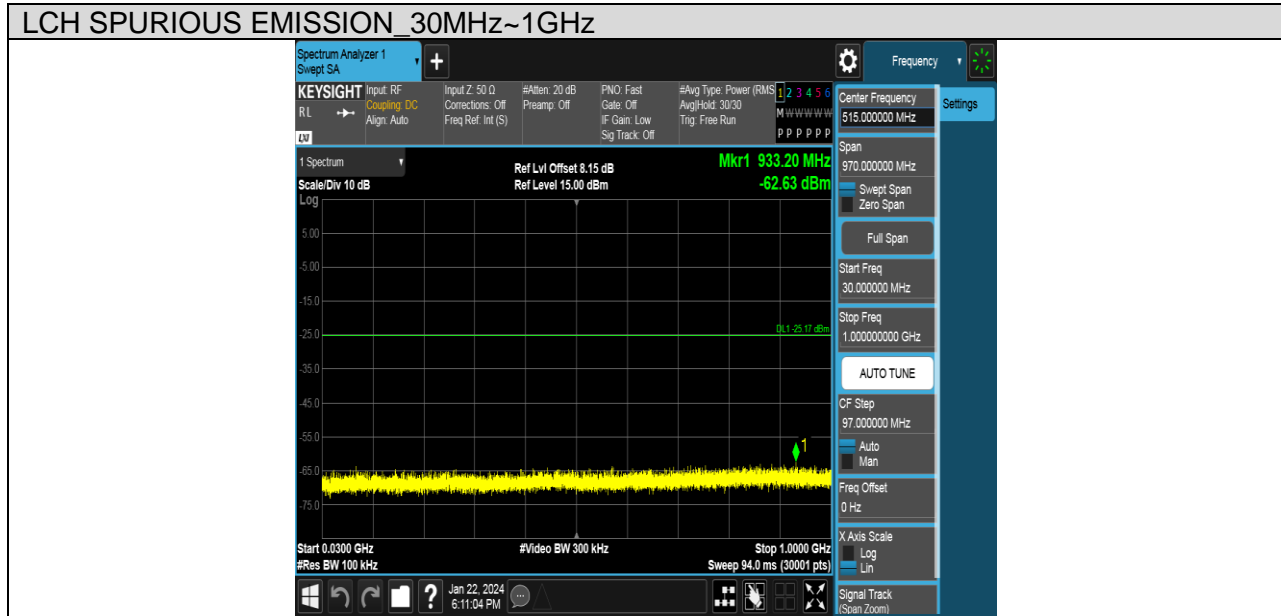
Test Channel	Verdict
HCH	PASS
	

PART 3: CONDUCTED SPURIOUS EMISSION**TEST RESULTS TABLE**

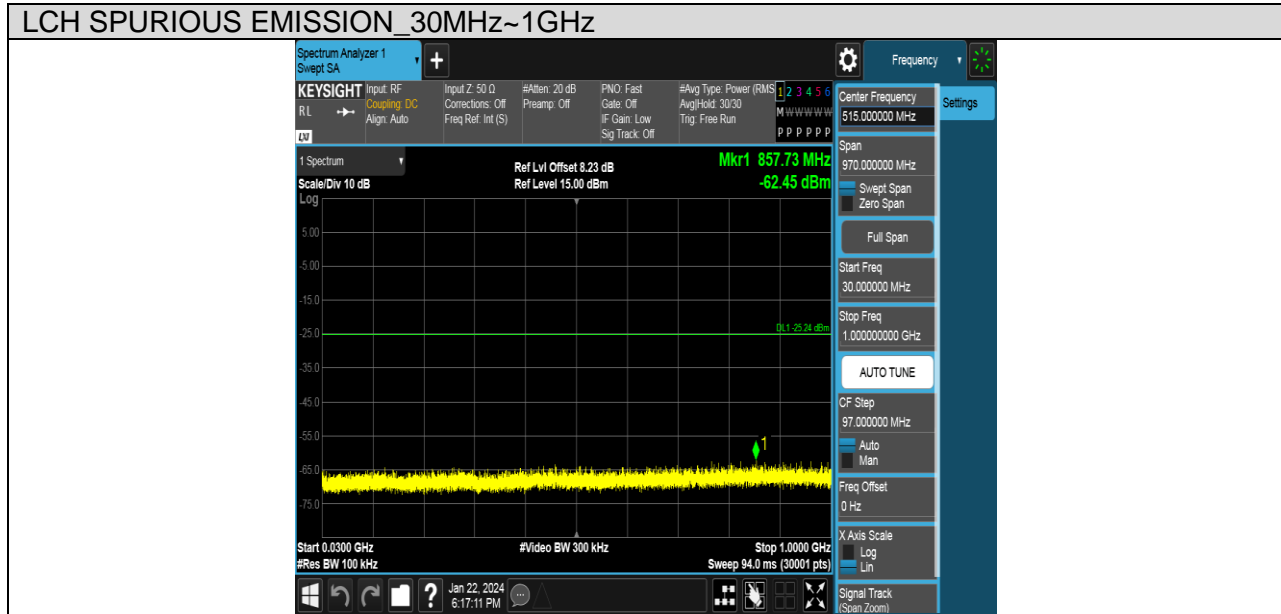
Channel	Result	Verdict
LCH	Refer to the Test Graph	PASS
MCH	Refer to the Test Graph	PASS
HCH	Refer to the Test Graph	PASS

TEST GRAPHS

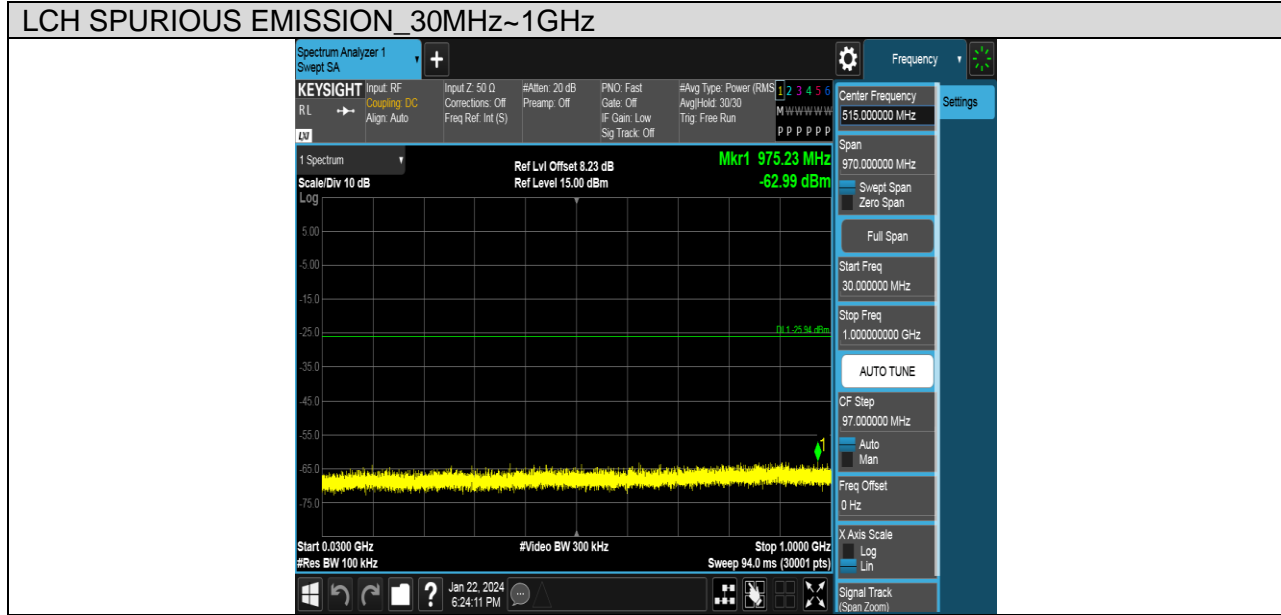
Channel	Verdict
LCH	PASS



Channel	Verdict
MCH	PASS



Channel	Verdict
HCH	PASS



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

Please refer to FCC §15.205 and §15.209

Please refer to FCC KDB 558074

Radiation Disturbance Test Limit for FCC (Class B) (9Hz-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:

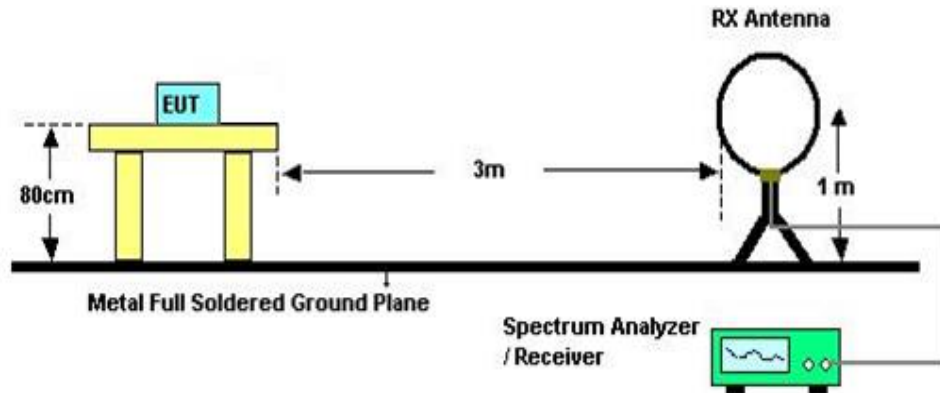
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218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

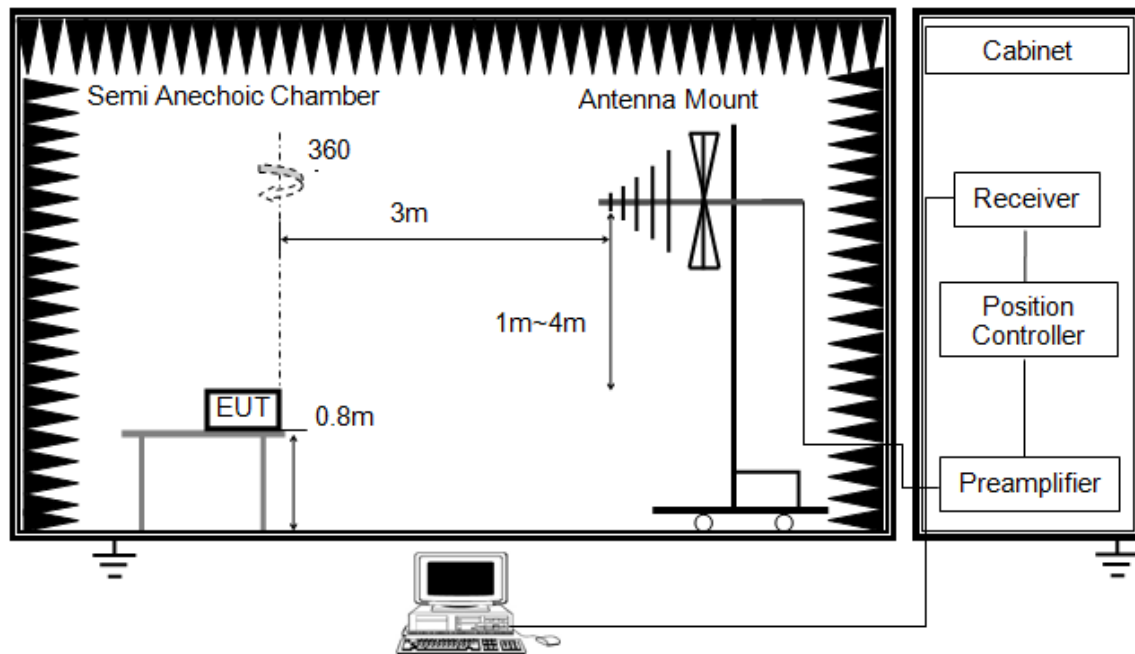


The setting of the spectrum analyser

RBW	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

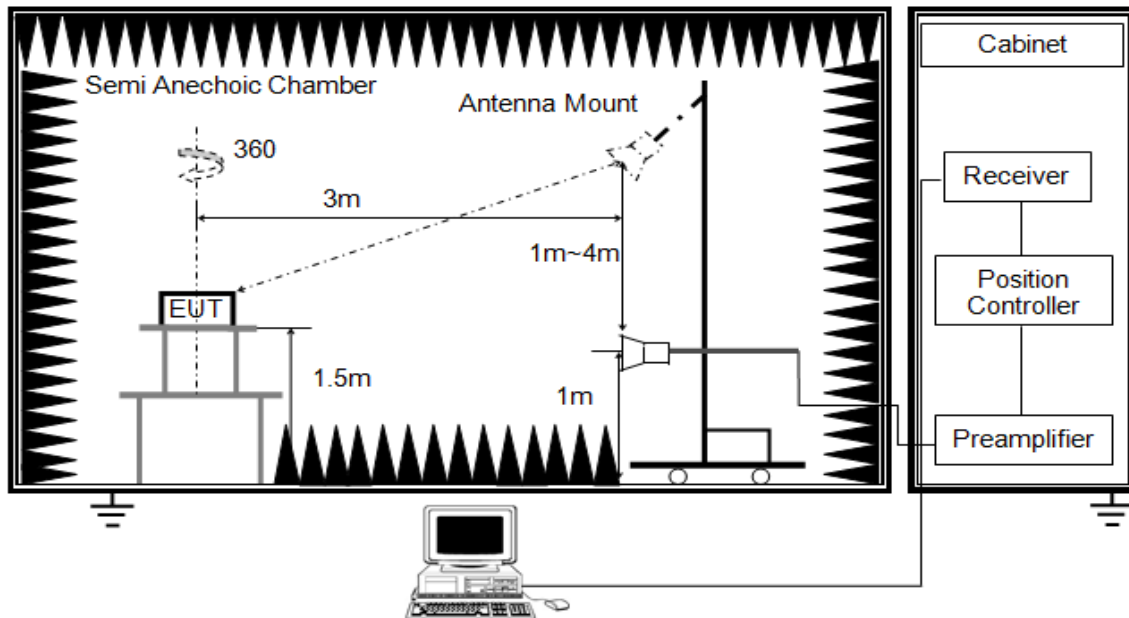


The setting of the spectrum analyser

RBW	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

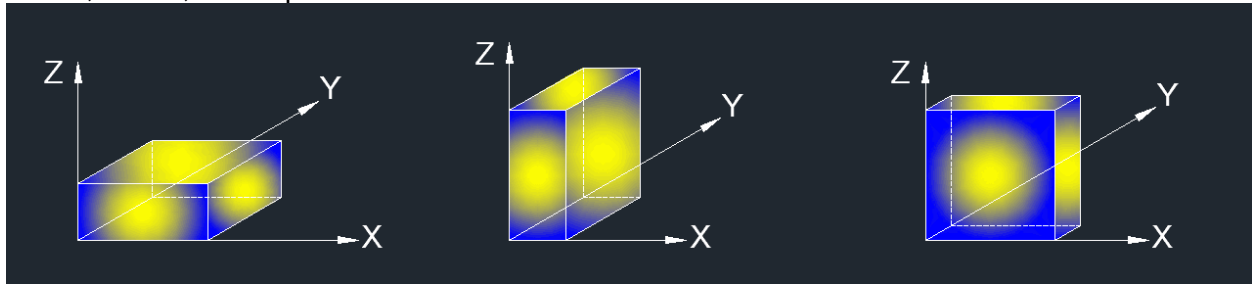


The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK:3 MHz AVG: See note6
Sweep	Auto
Detector	Peak/Average (10 Hz)
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.

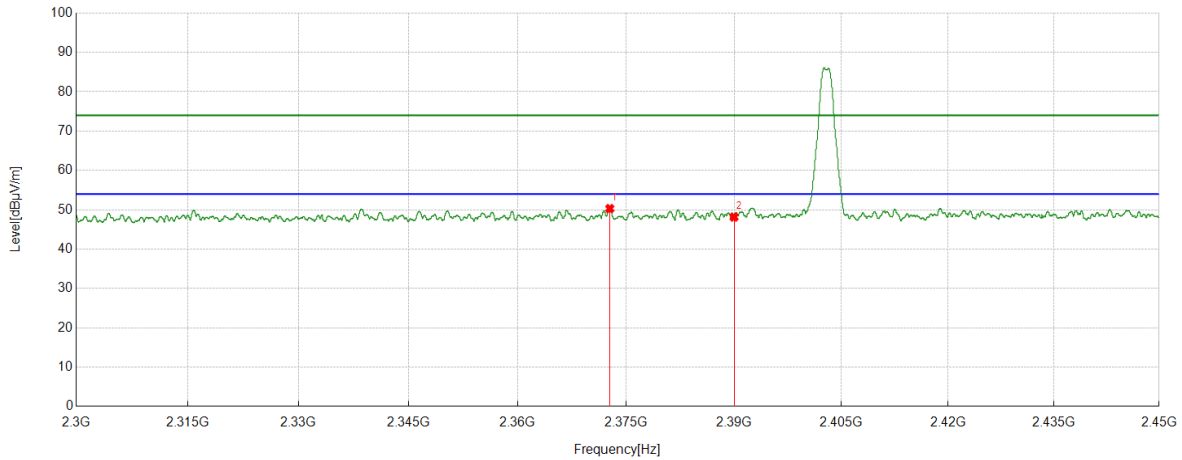
TEST ENVIRONMENT

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

9.2. RESTRICTED BANDEDGE**TEST RESULT TABLE**

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

Channel	Polarization	Verdict
LCH	Horizontal	PASS

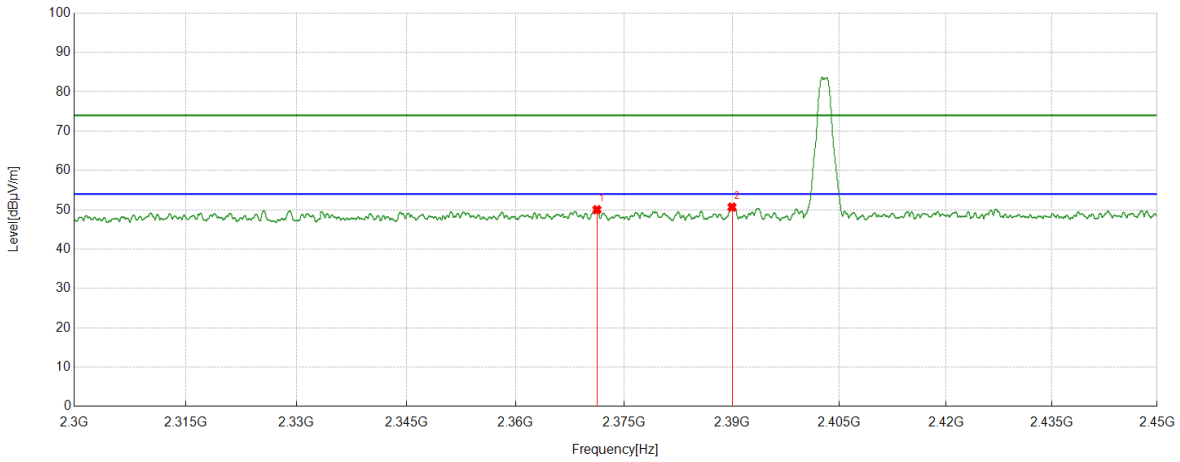


PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2372.7403	40.14	10.16	50.30	74.00	23.70	Peak
2	2390.0000	37.80	10.35	48.15	74.00	25.85	Peak

- Note: 1. Peak detector: RBW: 1 MHz, VBW: 3 MHz.
 2. Average detector: RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
 3. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable + Attenuator) – Amplifier Gain.
 4. 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

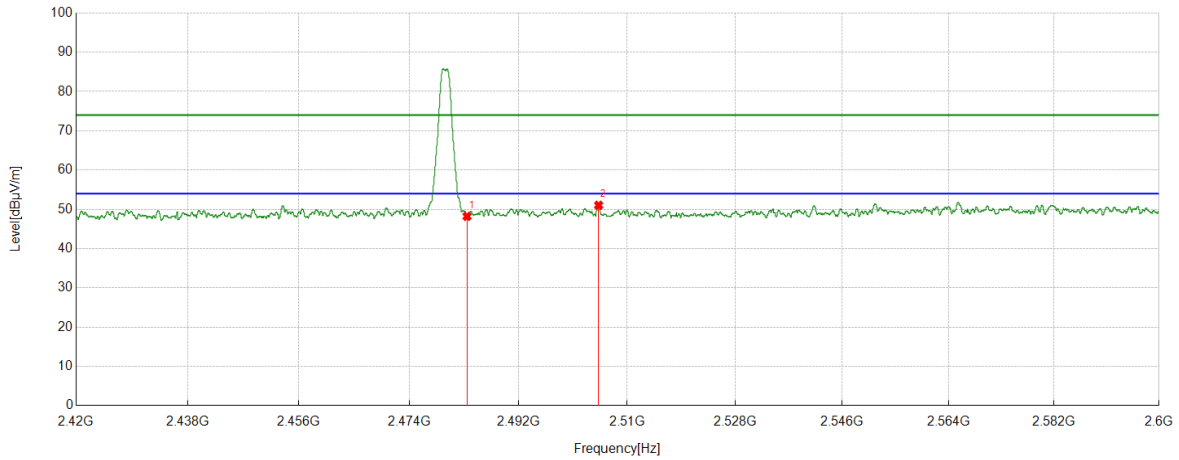


PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2371.2402	39.87	10.14	50.01	74.00	23.99	Peak
2	2390.0000	40.32	10.35	50.67	74.00	23.33	Peak

- Note: 1. Peak detector: RBW: 1 MHz, VBW: 3 MHz.
 2. Average detector: RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
 3. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable + Attenuator) – Amplifier Gain.
 4. 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

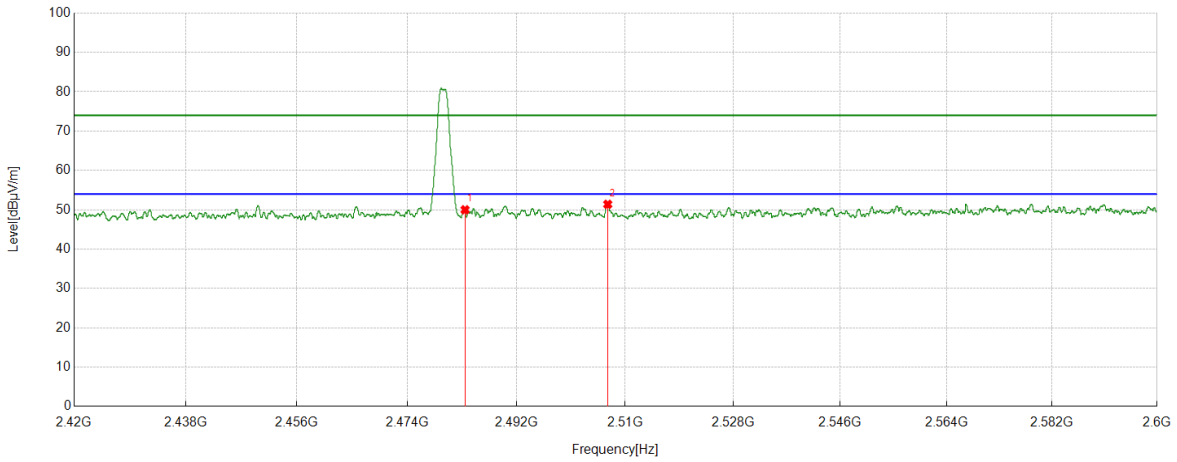


PK Result:

No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.5000	37.57	10.64	48.21	74.00	25.79	Peak
2	2505.2407	40.11	10.92	51.03	74.00	22.97	Peak

- Note: 1. Peak detector: RBW: 1 MHz, VBW: 3 MHz.
 2. Average detector: RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
 3. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable + Attenuator) – Amplifier Gain.
 4. 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	2483.5000	39.35	10.64	49.99	74.00	24.01	Peak
2	2507.0859	40.40	10.99	51.39	74.00	22.61	Peak

- Note: 1. Peak detector: RBW: 1 MHz, VBW: 3 MHz.
 2. Average detector: RBW: 1 MHz, VBW: 1/T MHz(refer to clause 7.1.).
 3. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable + Attenuator) – Amplifier Gain.
 4. 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 (1~18GHz)

TEST RESULTS TABLE

1) For 1GHz~18GHz

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

2) For 9kHz~30MHz

Channel	Puw(dBm)	Verdict
LCH	<Limit	PASS

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

3) For 30MHz~1GHz

Channel	Puw(dBm)	Verdict
LCH	<Limit	PASS

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

4) For 18GHz~26.5GHz

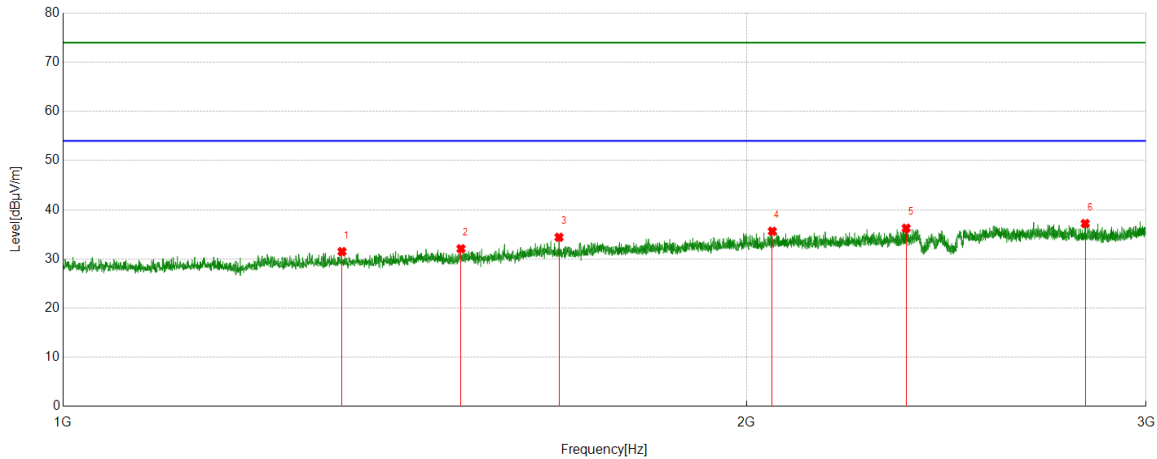
Channel	Puw(dBm)	Verdict
LCH	<Limit	PASS

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

Part 1: 1GHz~3GHz

HARMONICS AND SPURIOUS EMISSIONS

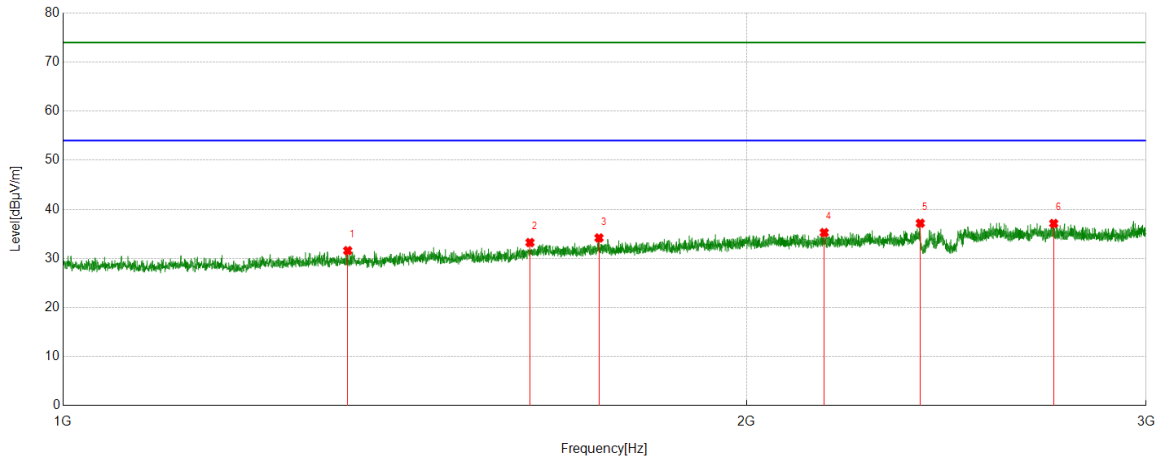
Channel	Polarization	Verdict
LCH	Horizontal	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1327.0409	52.11	-20.62	31.49	74.00	42.51	Peak
2	1497.3122	51.80	-19.73	32.07	74.00	41.93	Peak
3	1653.8317	52.75	-18.34	34.41	74.00	39.59	Peak
4	2053.3817	51.64	-16.01	35.63	74.00	38.37	Peak
5	2351.919	51.00	-14.76	36.24	74.00	37.76	Peak
6	2820.4776	50.12	-12.92	37.20	74.00	36.80	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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.

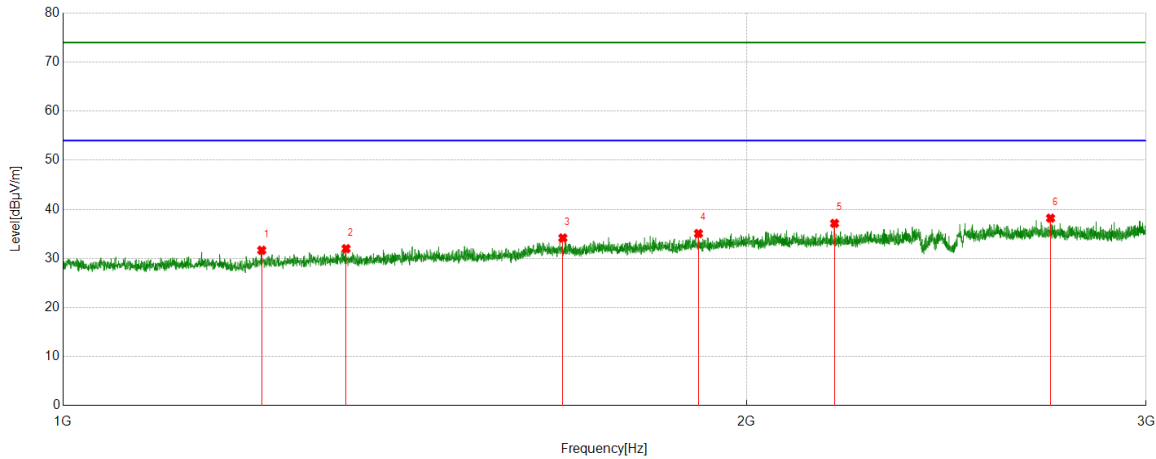
Channel	Polarization	Verdict
LCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1334.7918	52.18	-20.60	31.58	74.00	42.42	Peak
2	1605.8257	52.01	-18.78	33.23	74.00	40.77	Peak
3	1722.3403	52.24	-18.07	34.17	74.00	39.83	Peak
4	2164.3955	51.25	-15.99	35.26	74.00	38.74	Peak
5	2385.9232	51.40	-14.23	37.17	74.00	36.83	Peak
6	2731.7165	49.55	-12.43	37.12	74.00	36.88	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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.

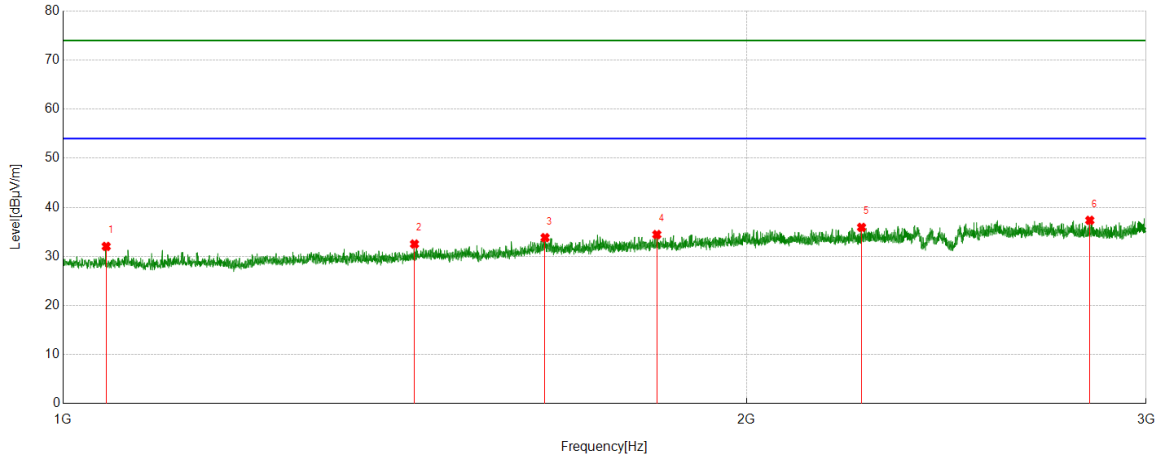
Channel	Polarization	Verdict
MCH	Horizontal	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1223.2779	52.89	-21.23	31.66	74.00	42.34	Peak
2	1332.5416	52.57	-20.59	31.98	74.00	42.02	Peak
3	1660.3325	52.48	-18.32	34.16	74.00	39.84	Peak
4	1905.1131	52.11	-17.04	35.07	74.00	38.93	Peak
5	2187.1484	53.05	-15.91	37.14	74.00	36.86	Peak
6	2722.9654	50.51	-12.31	38.20	74.00	35.80	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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.

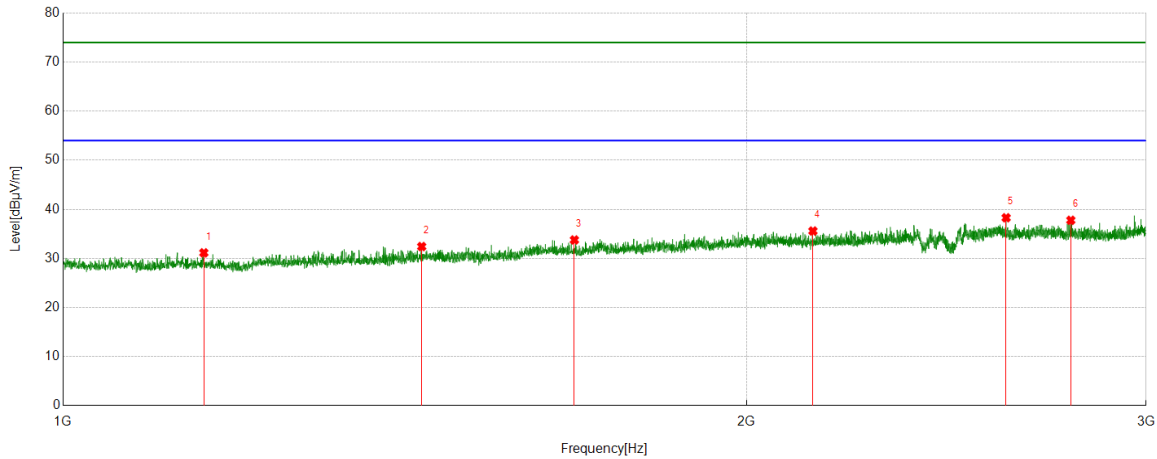
Channel	Polarization	Verdict
MCH	Vertical	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1044.7556	53.98	-21.94	32.04	74.00	41.96	Peak
2	1428.3035	52.57	-20.05	32.52	74.00	41.48	Peak
3	1630.5788	52.28	-18.46	33.82	74.00	40.18	Peak
4	1826.3533	51.81	-17.36	34.45	74.00	39.55	Peak
5	2247.906	50.89	-14.97	35.92	74.00	38.08	Peak
6	2833.4792	50.03	-12.68	37.35	74.00	36.65	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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.

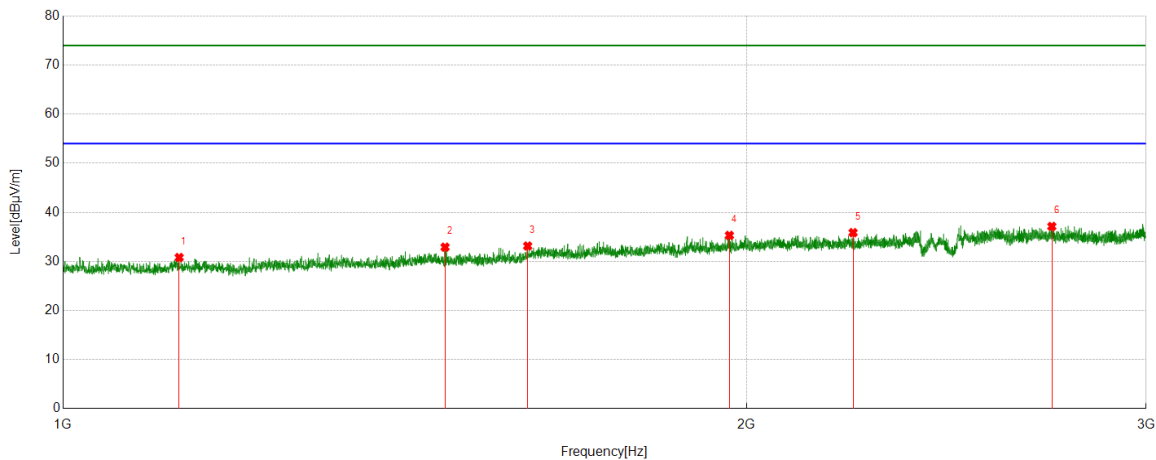
Channel	Polarization	Verdict
HCH	Horizontal	PASS



No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1153.5192	52.49	-21.35	31.14	74.00	42.86	Peak
2	1438.8049	52.20	-19.78	32.42	74.00	41.58	Peak
3	1679.835	51.90	-18.14	33.76	74.00	40.24	Peak
4	2139.6425	51.19	-15.61	35.58	74.00	38.42	Peak
5	2602.9504	51.49	-13.21	38.28	74.00	35.72	Peak
6	2779.4724	50.68	-12.91	37.77	74.00	36.23	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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



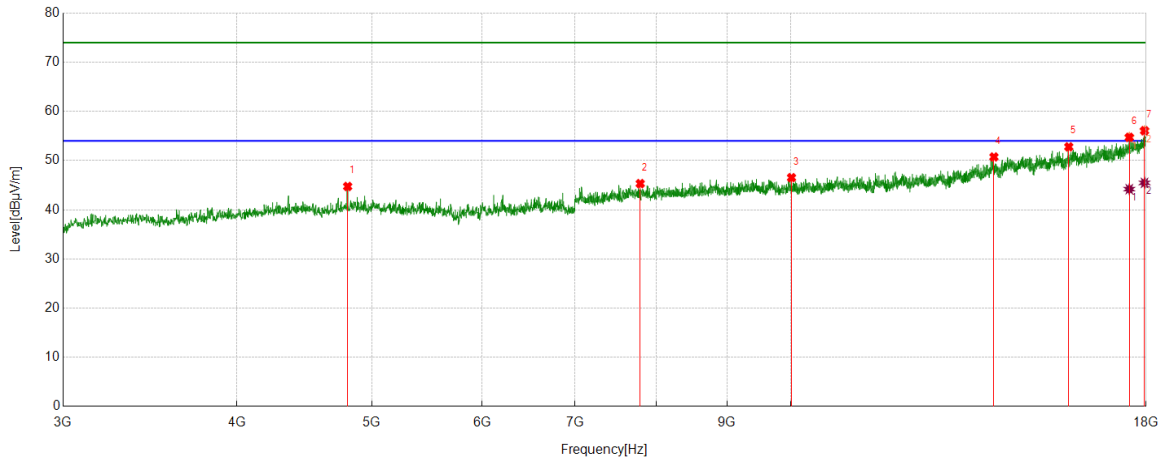
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	1125.0156	52.24	-21.44	30.80	74.00	43.20	Peak
2	1473.3092	52.71	-19.81	32.90	74.00	41.10	Peak
3	1602.0753	51.88	-18.74	33.14	74.00	40.86	Peak
4	1965.8707	51.79	-16.49	35.30	74.00	38.70	Peak
5	2228.6536	51.17	-15.31	35.86	74.00	38.14	Peak
6	2726.4658	49.47	-12.34	37.13	74.00	36.87	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 2: 3GHz~18GHz

HARMONICS AND SPURIOUS EMISSIONS

Channel	Polarization	Verdict
LCH	Horizontal	PASS



PK Result:

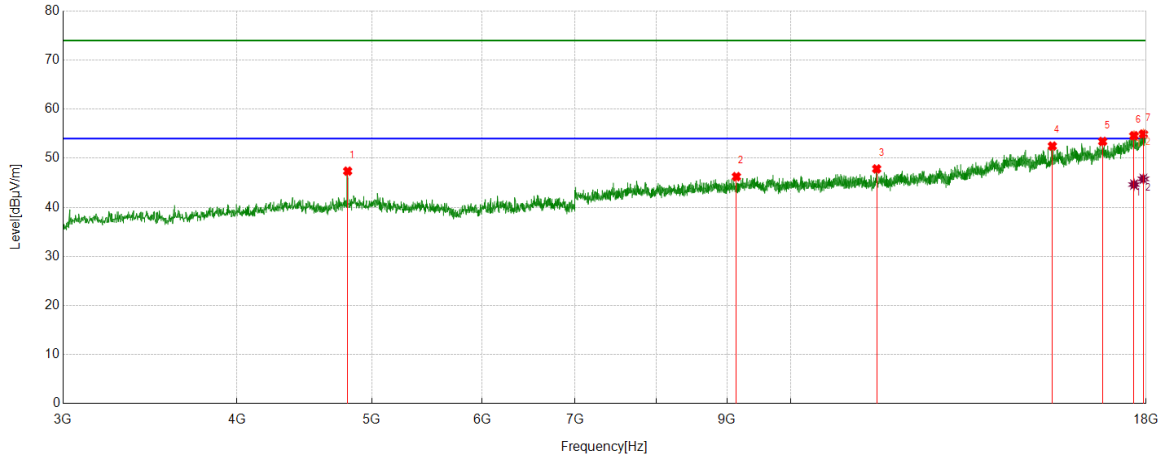
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4803.9755	48.62	-3.88	44.74	74.00	29.26	Peak
2	7794.9744	44.25	1.07	45.32	74.00	28.68	Peak
3	10011.5014	42.48	4.05	46.53	74.00	27.47	Peak
4	13994.4993	40.32	10.42	50.74	74.00	23.26	Peak
5	15839.73	39.00	13.79	52.79	74.00	21.21	Peak
6	17506.8134	37.52	17.21	54.73	74.00	19.27	Peak
7	17953.1191	37.69	18.39	56.08	74.00	17.92	Peak

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17506.8134	26.98	17.21	44.19	54.00	9.81	AV
2	17953.1191	27.08	18.39	45.47	54.00	8.53	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
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:

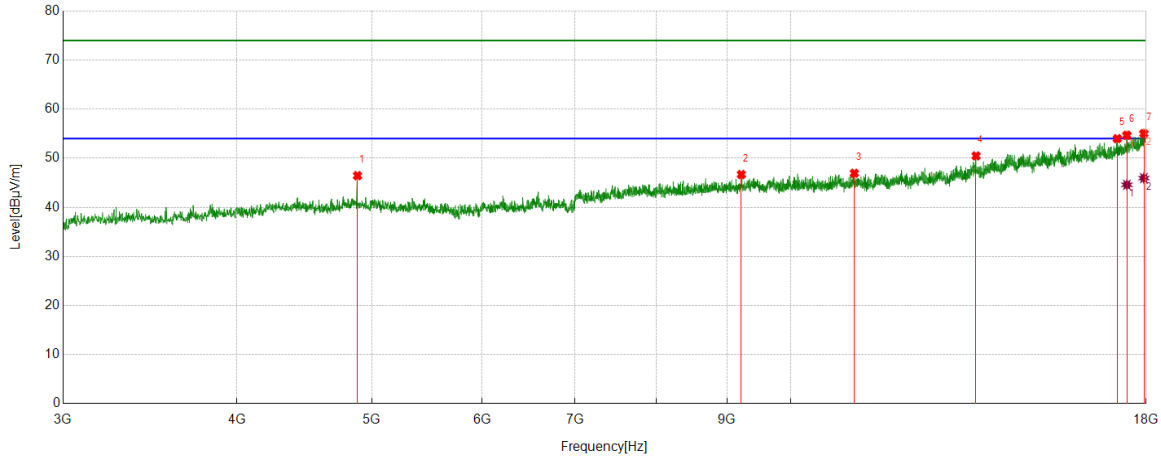
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4803.9755	51.25	-3.88	47.37	74.00	26.63	Peak
2	9139.5174	43.69	2.56	46.25	74.00	27.75	Peak
3	11526.6908	41.87	5.96	47.83	74.00	26.17	Peak
4	15414.0518	39.34	13.14	52.48	74.00	21.52	Peak
5	16752.9691	38.46	14.96	53.42	74.00	20.58	Peak
6	17643.7055	36.79	17.80	54.59	74.00	19.41	Peak
7	17919.3649	36.2	18.73	54.93	74.00	19.07	Peak

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17643.7055	26.84	17.80	44.64	54.00	9.36	AV
2	17919.3649	27.06	18.73	45.79	54.00	8.21	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
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:

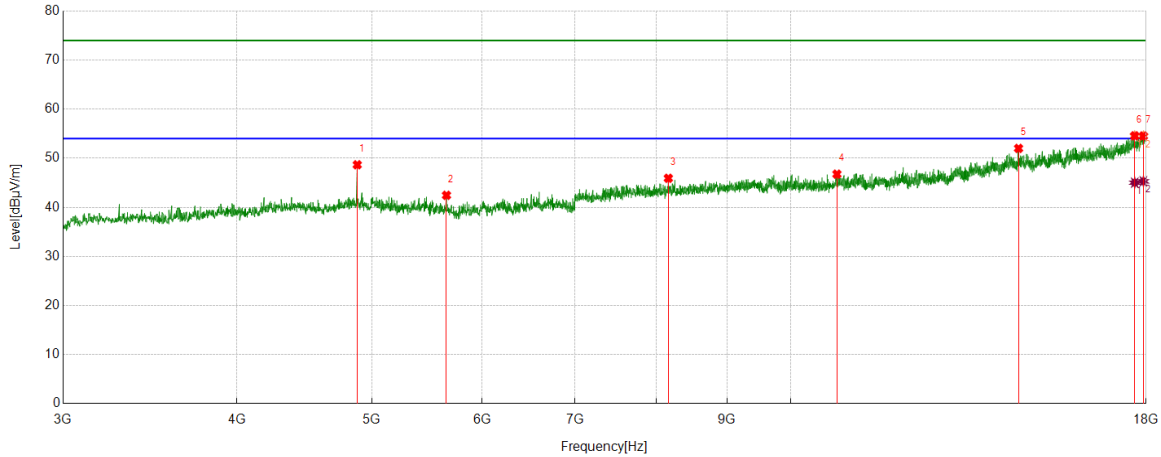
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4882.7353	49.94	-3.49	46.45	74.00	27.55	Peak
2	9214.5268	43.88	2.81	46.69	74.00	27.31	Peak
3	11108.5136	41.71	5.23	46.94	74.00	27.06	Peak
4	13585.6982	41.43	9.05	50.48	74.00	23.52	Peak
5	17161.7702	38.37	15.62	53.99	74.00	20.01	Peak
6	17437.4297	37.93	16.75	54.68	74.00	19.32	Peak
7	17934.3668	36.35	18.68	55.03	74.00	18.97	Peak

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17437.4297	27.84	16.75	44.59	54.00	9.41	AV
2	17934.3668	27.27	18.68	45.95	54.00	8.05	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
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:

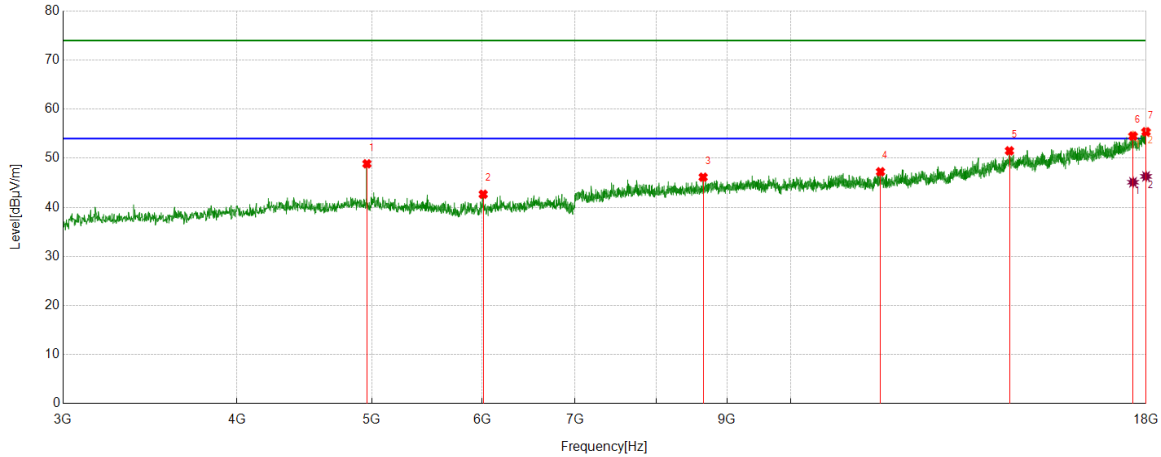
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4880.8601	52.15	-3.48	48.67	74.00	25.33	Peak
2	5657.2072	45.05	-2.60	42.45	74.00	31.55	Peak
3	8166.2708	44.10	1.82	45.92	74.00	28.08	Peak
4	10793.4742	42.42	4.34	46.76	74.00	27.24	Peak
5	14575.822	39.83	12.18	52.01	74.00	21.99	Peak
6	17664.333	36.95	17.62	54.57	74.00	19.43	Peak
7	17919.3649	35.81	18.73	54.54	74.00	19.46	Peak

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17664.333	27.40	17.62	45.02	54.00	8.98	AV
2	17919.3649	26.57	18.73	45.30	54.00	8.70	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
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:

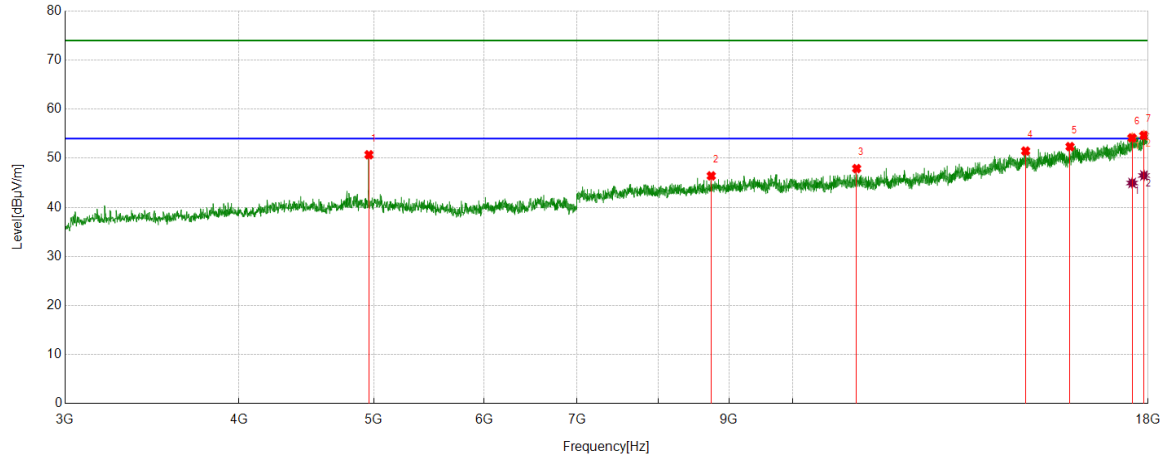
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	4959.62	53.05	-4.18	48.87	74.00	25.13	Peak
2	6011.6265	44.54	-1.88	42.66	74.00	31.34	Peak
3	8650.0813	43.97	2.17	46.14	74.00	27.86	Peak
4	11599.825	41.78	5.46	47.24	74.00	26.76	Peak
5	14358.2948	40.49	11.02	51.51	74.00	22.49	Peak
6	17615.5769	36.90	17.63	54.53	74.00	19.47	Peak
7	17998.1248	36.66	18.72	55.38	74.00	18.62	Peak

AV Result:

No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17615.5769	27.48	17.63	45.11	54.00	8.89	AV
2	17998.1248	27.58	18.72	46.30	54.00	7.70	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
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	4959.62	54.89	-4.18	50.71	74.00	23.29	Peak
2	8738.2173	43.82	2.59	46.41	74.00	27.59	Peak
3	11114.1393	42.85	5.04	47.89	74.00	26.11	Peak
4	14697.7122	39.86	11.61	51.47	74.00	22.53	Peak
5	15819.1024	38.28	14.08	52.36	74.00	21.64	Peak
6	17531.1914	37.56	16.59	54.15	74.00	19.85	Peak
7	17878.1098	35.70	18.96	54.66	74.00	19.34	Peak

AV Result:

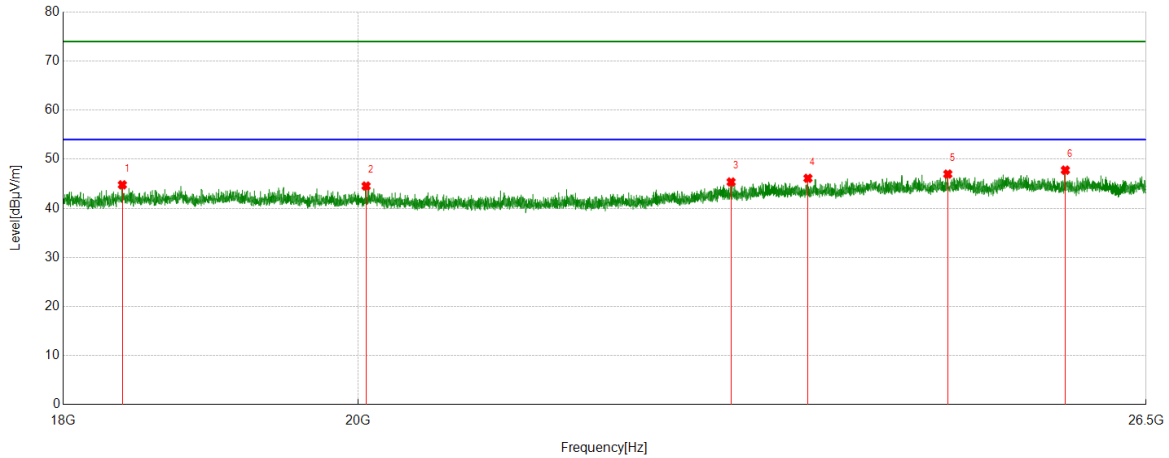
No.	Frequency	Reading Level	Correct Factor	Result	Limit	Margin	Remark
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
1	17531.1914	28.37	16.59	44.96	54.00	9.04	AV
2	17878.1098	27.53	18.96	46.49	54.00	7.51	AV

- Note: 1. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable + Filter) – Amplifier Gain.
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 8.1.).
5. For above 3GHz part, filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Part 3: 18GHz~26.5GHz

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

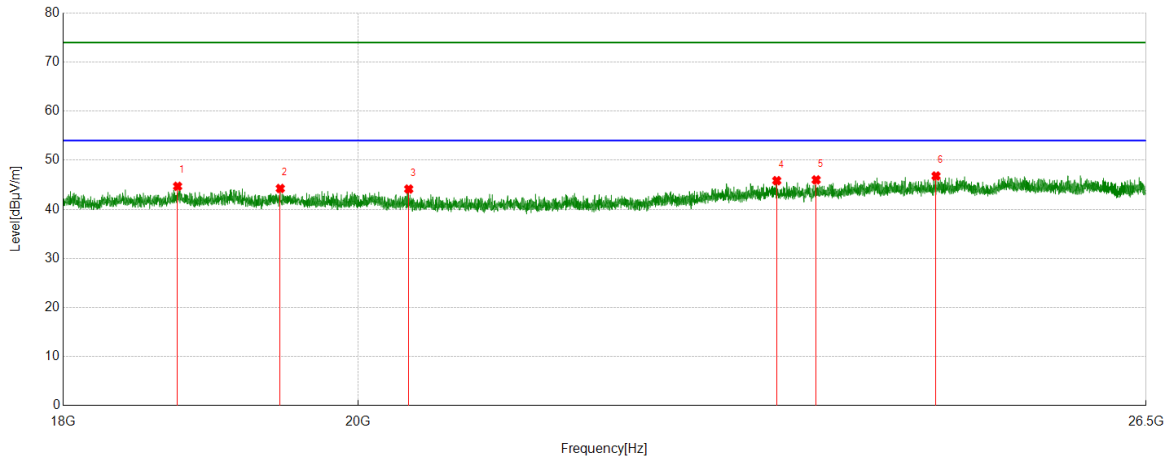
Channel	Polarization	Verdict
HCH	Horizontal	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18385.0885	51.47	-6.68	44.79	74.00	29.21	Peak
2	20057.2057	49.64	-5.10	44.54	74.00	29.46	Peak
3	22849.735	49.20	-3.84	45.36	74.00	28.64	Peak
4	23485.5986	49.28	-3.16	46.12	74.00	27.88	Peak
5	24688.4688	50.16	-3.18	46.98	74.00	27.02	Peak
6	25746.8247	50.71	-2.93	47.78	74.00	26.22	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,
 Correct Factor = Antenna Factor + Loss (Cable) – Amplifier Gain.
 4. 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	18751.4751	50.90	-6.21	44.69	74.00	29.31	Peak
2	19451.9452	49.75	-5.50	44.25	74.00	29.75	Peak
3	20364.9365	49.64	-5.51	44.13	74.00	29.87	Peak
4	23225.4725	49.22	-3.38	45.84	74.00	28.16	Peak
5	23554.4554	49.12	-3.12	46.00	74.00	28.00	Peak
6	24584.7585	49.87	-3.08	46.79	74.00	27.21	Peak

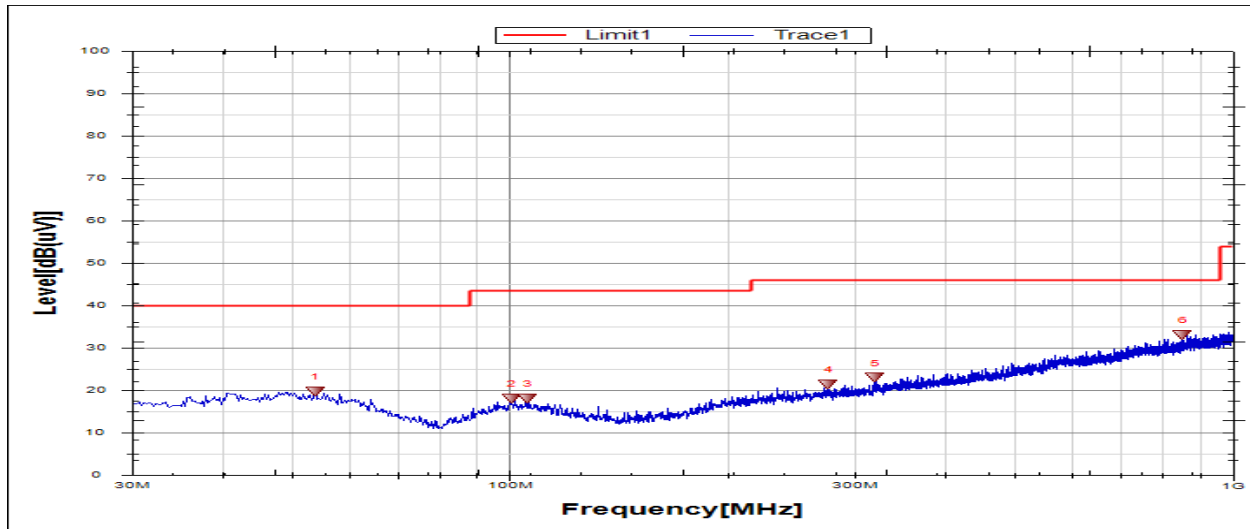
- Note: 1. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 2. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
 3. Measurement = Reading Level + Correct Factor,
 Correct Factor = Antenna Factor + Loss (Cable) – Amplifier Gain.
 4. Only the worst case emission 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.

Part 4: 30MHz~1GHz

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

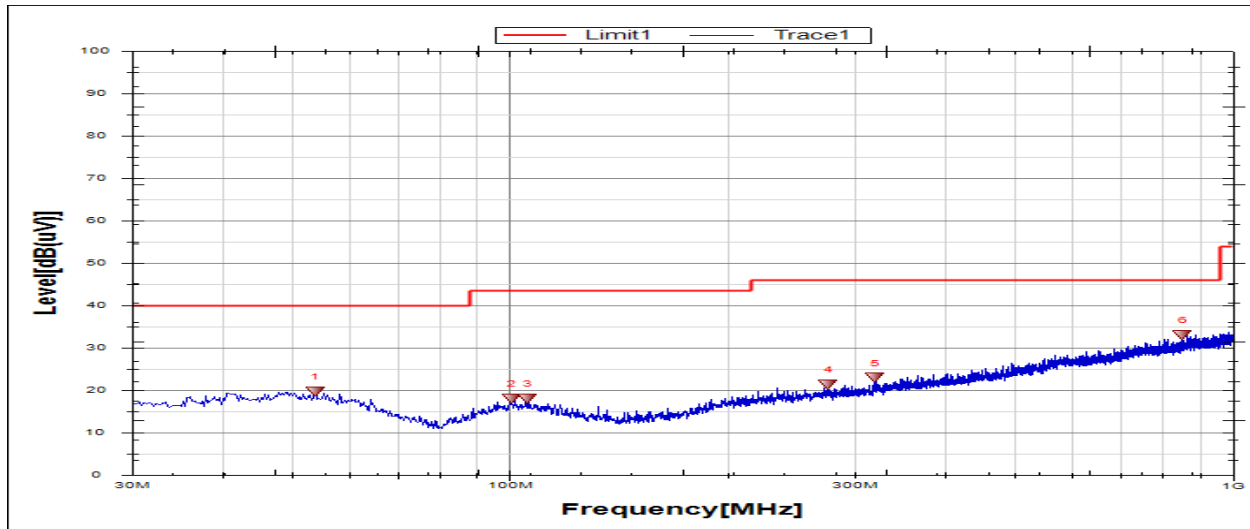
Channel	Polarization	Verdict
HCH	Horizontal	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	47.9495	0.66	20.81	21.47	40	18.53	Peak
2	99.8576	-0.88	18.85	17.97	43.5	25.53	Peak
3	279.8378	4.63	20.85	25.48	46	20.52	Peak
4	287.8423	6.39	21.01	27.4	46	18.6	Peak
5	582.0688	1.51	27.55	29.06	46	16.94	Peak
6	883.5722	1.39	31.35	32.74	46	13.26	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,
 Correct Factor = Antenna Factor + Loss (Cable).

Channel	Polarization	Verdict
HCH	Vertical	PASS



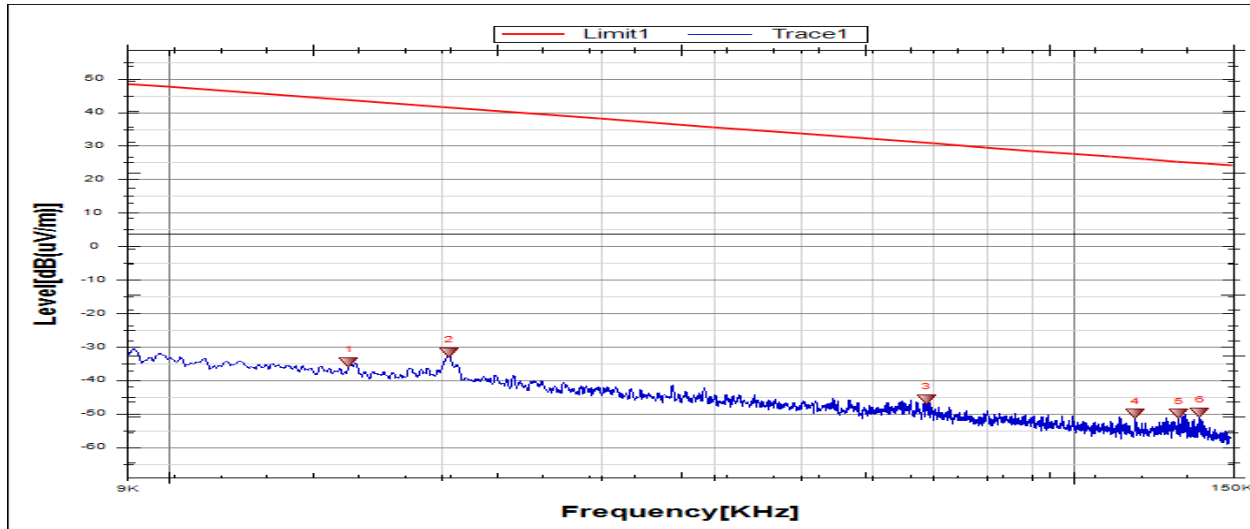
No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	53.771	-0.75	20.5	19.75	40	20.25	Peak
2	100.5853	-0.66	18.85	18.19	43.5	25.31	Peak
3	105.9216	-0.42	18.62	18.2	43.5	25.3	Peak
4	275.9569	0.74	20.78	21.52	46	24.48	Peak
5	320.103	1.09	21.96	23.05	46	22.95	Peak
6	853.252	2.21	30.88	33.09	46	12.91	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,
 Correct Factor = Antenna Factor + Loss (Cable).

Part 5: 9kHz~30MHz

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

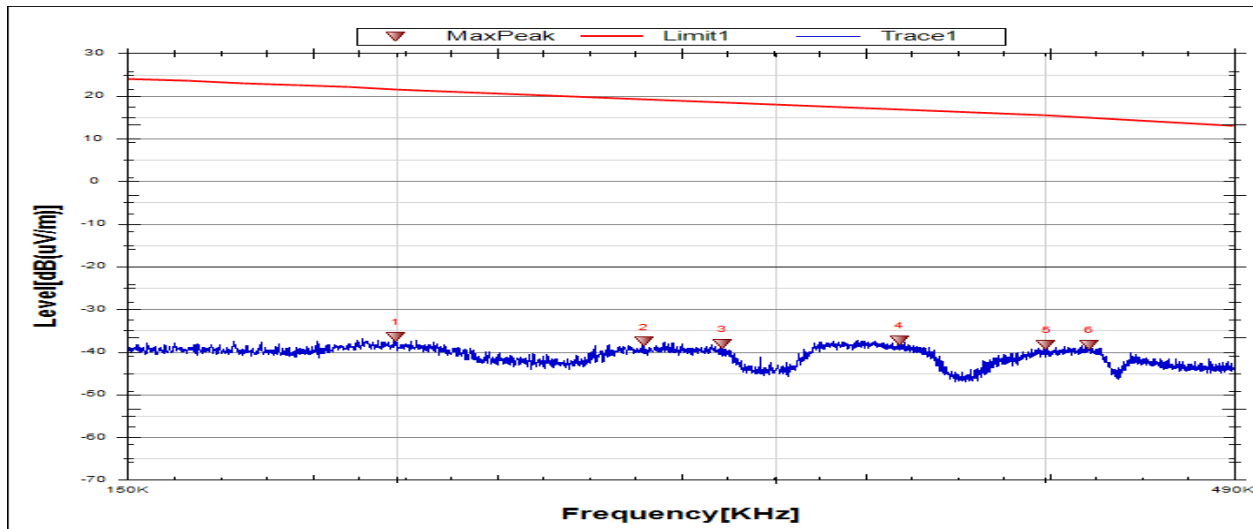
Channel	Frequency Range	Verdict
HCH	9kHz~150kHz	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0158	27.27	-61.85	-34.58	44.11	78.69	Peak
2	0.0204	30.15	-61.81	-31.66	41.44	73.1	Peak
3	0.0687	16.08	-61.77	-45.69	30.89	76.58	Peak
4	0.117	11.79	-61.82	-50.03	26.25	76.28	Peak
5	0.1308	11.84	-61.83	-49.99	25.28	75.27	Peak
6	0.138	12.27	-61.83	-49.56	24.81	74.37	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable) + Distance Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, the test data of Face-on was the worst and recorded in the report.

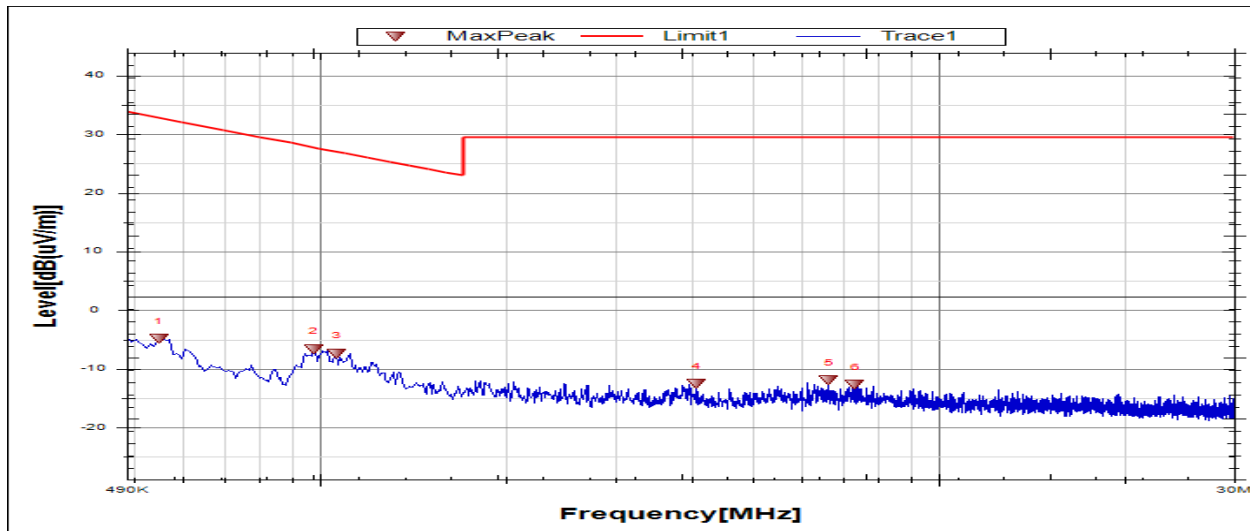
Channel	Frequency Range	Verdict
HCH	150kHz~490kHz	PASS



No.	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1997	25.39	-61.86	-36.47	21.59	58.06	Peak
2	0.2605	24.29	-61.89	-37.6	19.45	57.05	Peak
3	0.2834	23.84	-61.9	-38.06	18.64	56.7	Peak
4	0.3424	24.54	-61.9	-37.36	17	54.36	Peak
5	0.401	23.59	-61.88	-38.29	15.53	53.82	Peak
6	0.4196	23.51	-61.88	-38.37	15.02	53.39	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable) + Distance Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, the test data of Face-on was the worst and recorded in the report.

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	0.5490	16.97	-21.87	-4.90	32.86	37.76	Peak
2	0.9770	15.23	-21.85	-6.62	27.81	34.43	Peak
3	1.0656	14.48	-21.85	-7.37	27.06	34.43	Peak
4	4.0614	9.20	-21.75	-12.55	29.54	42.09	Peak
5	6.6515	9.80	-21.74	-11.94	29.54	41.48	Peak
6	7.3377	9.04	-21.72	-12.68	29.54	42.22	Peak

- Note: 1. Measurement = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Loss (Cable) + Distance Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, the test data of Face-on was the worst and recorded 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.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi

END OF REPORT