Test Report No.:
FCC2022-0068-RF2

RF Test Report

EUT	:	**WIFI Module**
MODEL	:	**WF-U21DS-SSC1**
BRAND NAME	:	**N/A**
CLIENT	:	**Sichuan AI-Link Technology Co.,Ltd.**
Classification Of Test	:	**N/A**

CVC Testing Technology Co., Ltd.

Client	**Name : Sichuan AI-Link Technology Co.,Ltd.** **Address : Anzhou Industrial Park, Mianyang, Sichuan, P.R.C**		
Manufacturer	**Name : Sichuan AI-Link Technology Co.,Ltd.** **Address : Anzhou Industrial Park, Mianyang, Sichuan, P.R.C**		
Equipment Under Test	**Name : WIFI Module** **Model/Type: WF-U21DS-SSC1** **Trade mark : N/A** **Serial NO.:N/A** **Sample NO.:1-1**		
Date of Receipt.	**2022.11.22**	Date of Testing	**2022.11.22～2023.01.04**
Test Specification		**Test Result**	
FCC Part 15, Subpart C, Section 15.247		PASS	
Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Issue Date: 2023.01.05**		
Tested by: Xu ZhenFei Name Signature	Reviewed by: Liu YongHai Name Signature	Approved by: Chen HuaWen Name Signature	
Other Aspects: NONE.			
Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2022-0068-RF2	Original release	2023.01.05

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
FCC STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	N/A	Power form battery
15.247(a)(1)	Number of Hopping Frequency Used	PASS	Meet the requirement of limit.
15.247(a)(1)	Hopping Channel Separation	PASS	Meet the requirement of limit.
15.247(a)(1)	Dell Time of Each Channel	PASS	Meet the requirement of limit.
15.247(a)(1)	20dB EMISSION BANDWIDTH	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output Power	PASS	Meet the requirement of limit.
15.247(d), 15.209,15.205	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Out of band Emission Measurement	PASS	Meet the requirement of limit.
15.203 14.247(b)	Antenna Requirement	PASS	No antenna connector is used.

1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
WIFI & Bluetooth Test System 1					/
Communication Shielded Room 2	4m*3m*3m	CRTDSWKSR44301	VGDS-0700	CRT	2024/04/24
Bluetooth system integration	/	/	-	Tonscend	/
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2023/06/05
Comprehensive Test Instrument	CMW270	100304	DZ-000240-1	R&S	2023/12/06
Analog Signal Generator	SMB100A	181858	DZ-000238-2	R&S	2023/06/05
Vector Signal Generator	SGT100A	111661	DZ-000238-1	R&S	2023/06/05
RF Radio Frequency Switch	JS0806-2	19H9080187	`	Tonscend	2023/06/06
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2023/04/21
Radiation SpuriousTest System					/
3m Semi-Anechoic Chamber	FACT-4	ST08035	WKNA-0024	ETS	2024/12/12
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2023/03/02
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2023/03/02
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2023/06/25
Waveguide Horn Antenna	HF906	360306/008	EM-000093	R&S	2023/03/04
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZBECK	2023/07/31
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2023/06/05
5G Bandstop Filters	WRCJV12-4900-5100-5900-6100-50EE	851770	DZ-000186	WI	2023/12/06
Comprehensive tester	CMW500	159000	DZ-000240-2	R&S	2023/12/06
Conducted emission					/
EMI Test Receiver	ESR3	102394	VGDY-0705	R&S	2023-03-04
LISN	NSLK 8128	8128-316	VGDY-0149	SCHWARZBECK	2023-09-04
DC LISN	PVDC8301-017	PVDC8301#17	VGDY-0692	SCHWARZBECK	2023-10-08
LISN	NSLK 8129	8129-268	EM-000388	SCHWARZBECK	2023-03-03
Plus Limiter（#1）	VTSD 9561 F-N	00515	VGDY-0808	SCHWARZBECK	2023-03-04
Impedance Stabilization Network	ISN T800	27095	WKNE-0195	TESEQ	2023-09-04
Impedance Stabilization Network	NTFM8158	8158-0092	VGDY-0356	SCHWARZBECK	2023-06-07
ImpedanceStabilizationNetwork	NTFM8131	#184	EM-000498	SCHWARZBECK	2023-06-07
Voltage Probe	TK9420	9420-499	VGDY-0128	SCHWARZBECK	2023-03-04
Power Divider	4901.17.B	22643830	DB-0016	HUBER+SUHNER	2023-09-01
Video Signal Generator	GV-798+	151064920001	VGDS-0215	PROMAX	2023-05-30
Shielding Room(#1)	GP1A	001	WKNF-0001	LEINING	2024-08-08

1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	ITEM	FREQUENCY	UNCERTAINTY
1	Conducted Emissions	9kHz~30MHz	±2.66dB
2	Radiated Spurious Emissions	9KHz ~ 30MHz	±0.769dB
		30MHz ~ 1GMHz	±0.877dB
		1GHz ~ 18GHz	±0.777dB
		18GHz ~ 40GHz	±1.315dB

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology Co., Ltd.

Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China
Post Code：510663 Tel：020-32293888
FAX：020-32293889 E-mail：office@cvc.org.cn

2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	WIFI Module
BRAND	N/A
MODEL	WF-U21DS-SSC1
ADDITIONAL MODEL	/
FCC ID	2AOKI-AL5621D1
POWER SUPPLY	DC 3.3V
MODULATION TYPE	GFSK, π/4 DQPSK, 8DPSK
OPERATING FREQUENCY	2402MHz~2480MHz
NUMBER OF CHANNEL	79
PEAK OUTPUT POWER	13.4dBm (Max. Measured)
ANTENNA TYPE（Remark 5）	External Antenna, with3.46dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. EUT photo refer to the report (Report NO.: FCC2022-0068-E).
4. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
5. The EUT have SISO function, provides 1 completed transmitter and 1 receiver.
6. The Test Model is the same with the the original model WF-U21DS-SSA1 in Test Report No.FCC2022-0012 except that the model under test this time is added the shield.Therefore,we only test the radiated emission and as for the other test items ,we refer to the data in Test Report No.FCC2022-0012-RF2.

2.2 OTHER INFORMATION

Operation frequency each of channel.

Operation Frequency Each of Channel							
For BT (GFSK, π/4 DQPSK, 8 DPSK)							
CHANNEL	**FREQ. (MHz)**	**CHANNEL**	**FREQ. (MHz)**	**CHANNEL**	**FREQ. (MHz)**	**CHANNEL**	**FREQ. (MHz)**
0	**2402**	20	2422	40	2442	60	2462
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		

1. The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.
2. By means of test software which provided by manufacture, the power levels during the tests were set according to the following codes:

GFSK		π/4-DQPSK		8DPSK	
CHANNEL	**POWER SETTING**	**CHANNEL**	**POWER SETTING**	**CHANNEL**	**POWER SETTING**
0	DEFAULT	**0**	DEFAULT	**0**	DEFAULT
39	DEFAULT	**39**	DEFAULT	**39**	DEFAULT
78	DEFAULT	**78**	DEFAULT	**78**	DEFAULT

2.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports

The worst case was found when positioned on xaxis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	APPLICABLE TEST ITEMS				DESCRIPTION
	RSE<1G	RSE≥1G	PLC	APCM	
A	√	√	√	√	BT LINK

Where **RSE<1G:** Radiated Emission below 1GHz. **RSE≥1G:** Radiated Emission above 1GHz.
PLC: Power Line Conducted Emission. **APCM:** Antenna Port Conducted Measurement.

RADIATED EMISSION TEST (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0	FHSS	GFSK	DH5

RADIATED EMISSION TEST (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0, 39, 78	FHSS	GFSK	DH5
A	0, 39, 78	FHSS	π/4 DQPSK	2DH5
A	0, 39, 78	FHSS	8DPSK	3DH5

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CONDITION
-	BT Link

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0, 39, 78	FHSS	GFSK	DH5
A	0, 39, 78	FHSS	π/4 DQPSK	2DH5
A	0, 39, 78	FHSS	8DPSK	3DH5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RSE<1G	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
RSE≥1G	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
PLC	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
APCM	25deg. C, 58%RH	DC 3.3V from USB host unit	Liu ShiWei

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.247
KDB 558074 D01 15.247 Meas Guidance v05r02
ANSI C63.10-2020

All test items have been performed and recorded as per the above standards

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support Equipment					
NO	**Description**	**Brand**	**Model No.**	**Serial Number**	**Supplied by**
1	Latop	Lenovo	V14	PFNXB1628023	Lab

Support Cable							
NO	**Description**	**Quantity (Number)**	**Length (m)**	**Detachable (Yes/ No)**	**Shielded (Yes/ No)**	**Cores (Number)**	**Supplied by**
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 Limit

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
NOTE: 1. The lower limit shall apply at the transition frequencies. NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.		

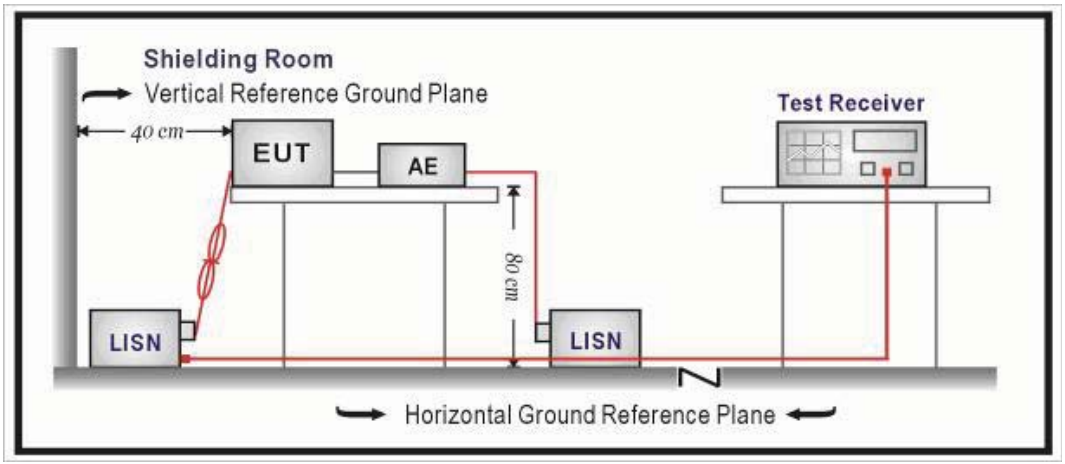
3.1.2 Measurement procedure

a. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.The equipment under test shall be placed on a support of non-metallic material, the height of which shall be1.5m above the ground,

b. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

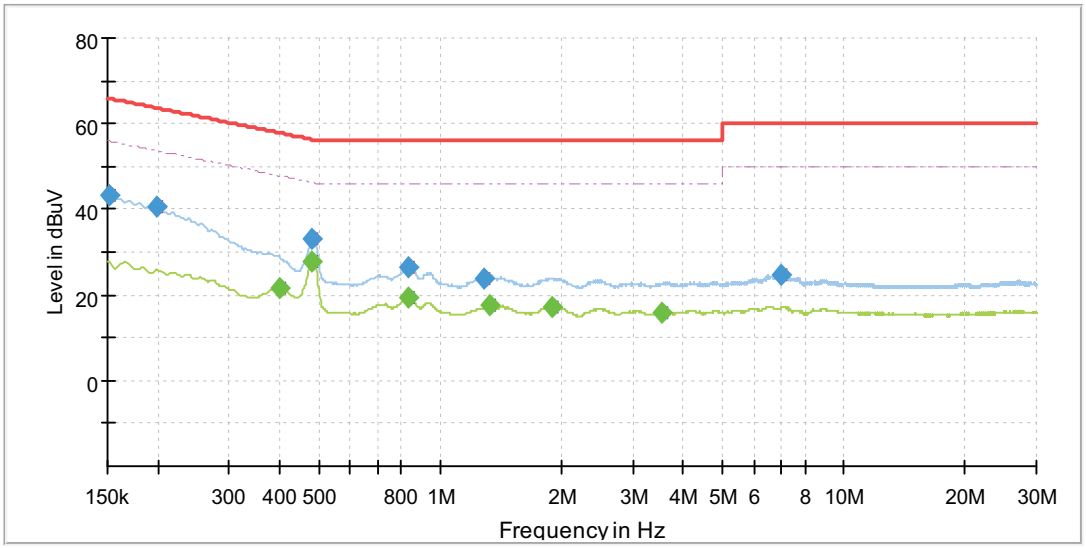
c. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.1.3 Test setup



3.1.4 Test results

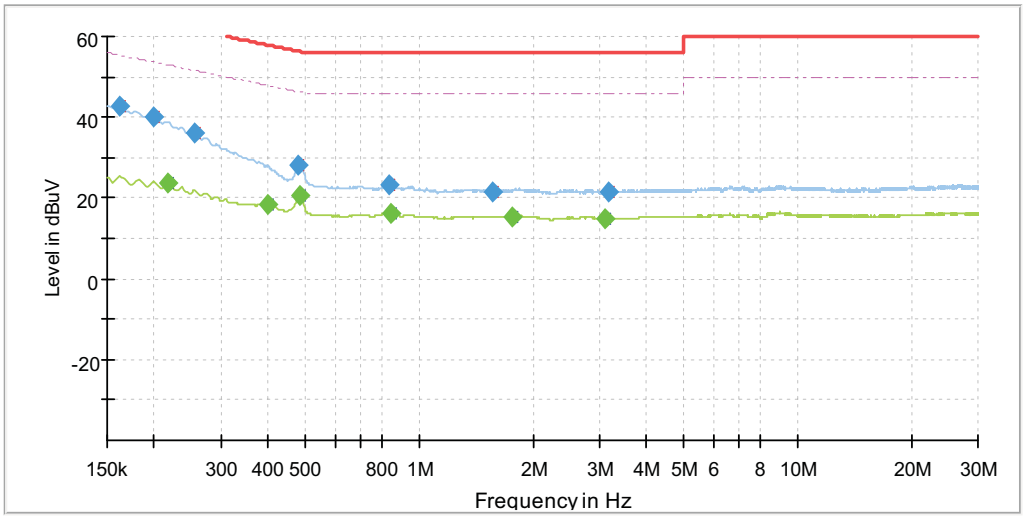
Test Mode	BT Link+2.4G WIFI Link	Frequency Range	150KHz ~ 30MHz
PHASE	Line (L)		



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.152	43.2	---	65.9	22.7	L1	19.5
2	0.200	40.4	---	63.6	23.2	L1	19.5
3	0.400	---	21.6	47.9	26.3	L1	19.5
4	**0.483**	**---**	**27.9**	**46.3**	**18.3**	**L1**	**19.5**
5	0.483	32.9	---	56.3	23.4	L1	19.5
6	0.832	26.3	---	56.0	29.7	L1	19.6
7	0.834	---	19.4	46.0	26.6	L1	19.6
8	1.291	23.8	---	56.0	32.2	L1	19.5
9	1.329	---	17.6	46.0	28.4	L1	19.5
10	1.885	---	17.2	46.0	28.8	L1	19.6
11	3.539	---	15.9	46.0	30.1	L1	19.6
12	6.979	24.6	---	60.0	35.4	L1	19.7

Remark: The emission levels of other frequencies were very low against the limit.

Test Mode	BT Link+2.4G WIFI Link	Frequency Range	150KHz ~ 30MHz
PHASE	Line (N)		



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	**0.161**	**42.6**	**---**	**65.4**	**22.8**	**N**	**19.5**
2	0.200	40.2	---	63.6	23.5	N	19.5
3	0.218	---	23.5	52.9	29.4	N	19.5
4	0.256	36.0	---	61.6	25.5	N	19.6
5	0.400	---	18.3	47.9	29.5	N	19.6
6	0.479	28.3	---	56.4	28.1	N	19.6
7	0.485	---	20.5	46.2	25.7	N	19.6
8	0.836	23.4	---	56.0	32.6	N	19.6
9	0.841	---	16.3	46.0	29.7	N	19.6
10	1.561	21.7	---	56.0	34.3	N	19.6
11	1.754	---	15.1	46.0	30.9	N	19.6
12	3.104	---	14.9	46.0	31.1	N	19.6

Remark: The emission levels of other frequencies were very low against the limit.

3.2 RADIATED EMISSIONS

3.2.1 Limits

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). Other emissions shall be at least 20dB below the highest level of the desired power.

FREQUENCIES (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
Above 960	500	3

NOTE: 1. The lower limit shall apply at the transition frequencies.
NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
NOTE: 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.2.2 Measurement procedure

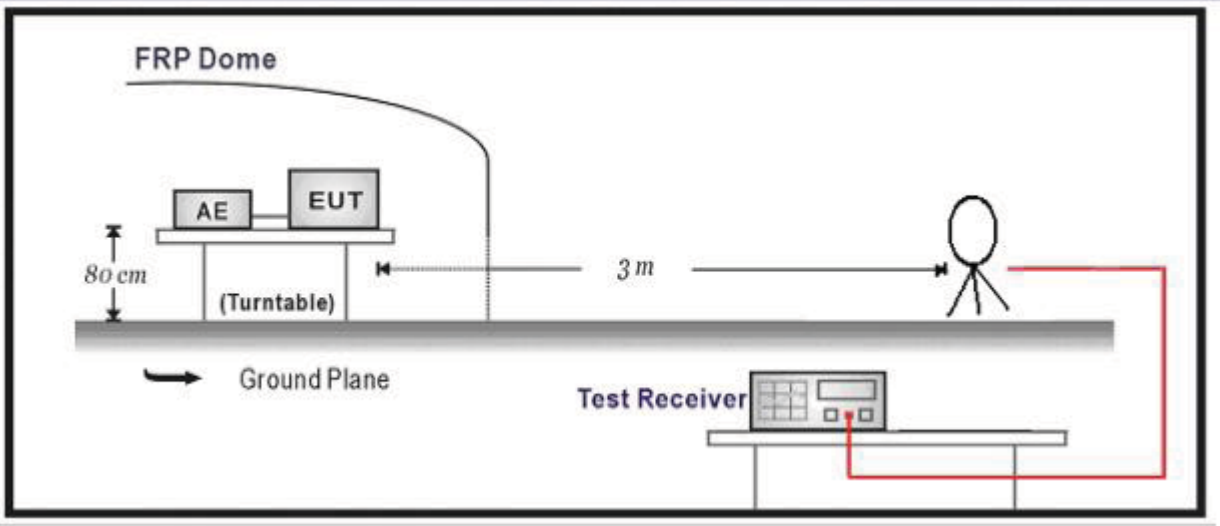
a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

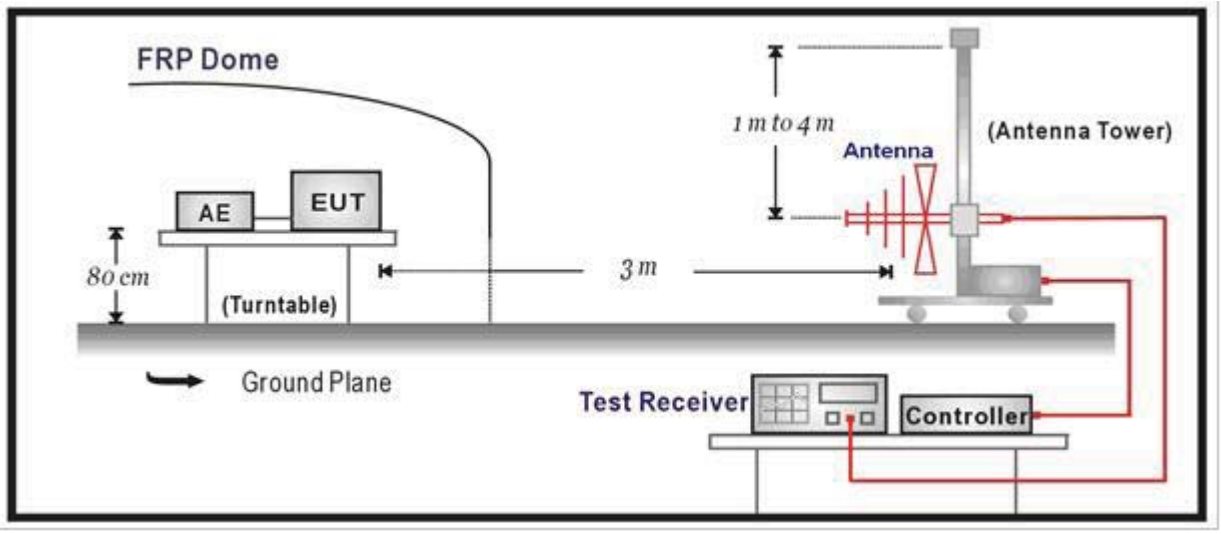
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ⩾ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

3.2.3 Test setup

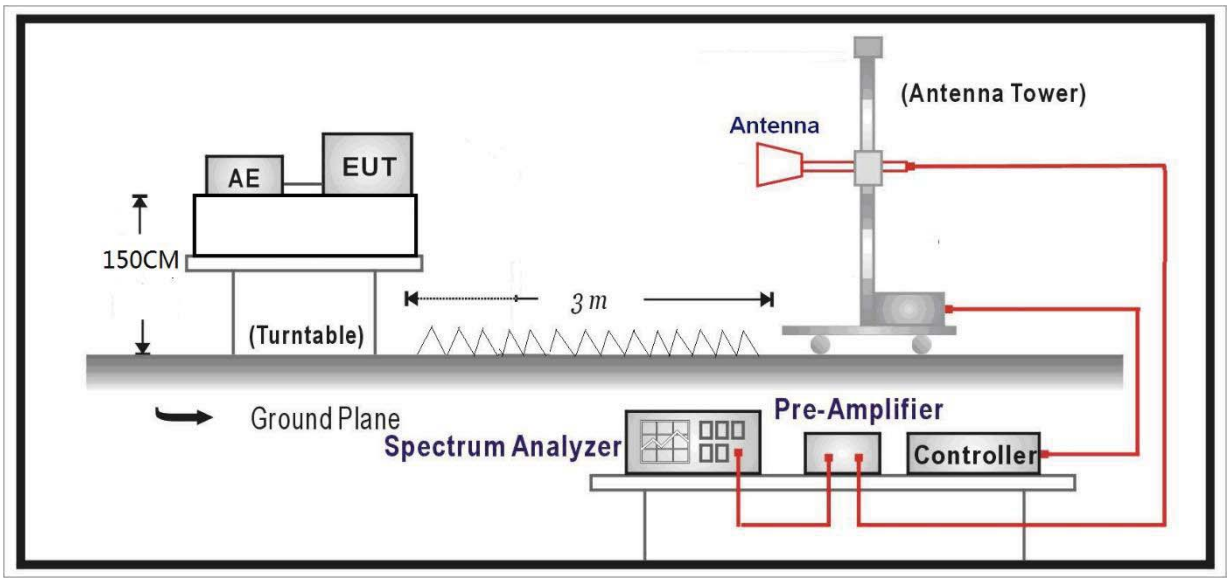
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:

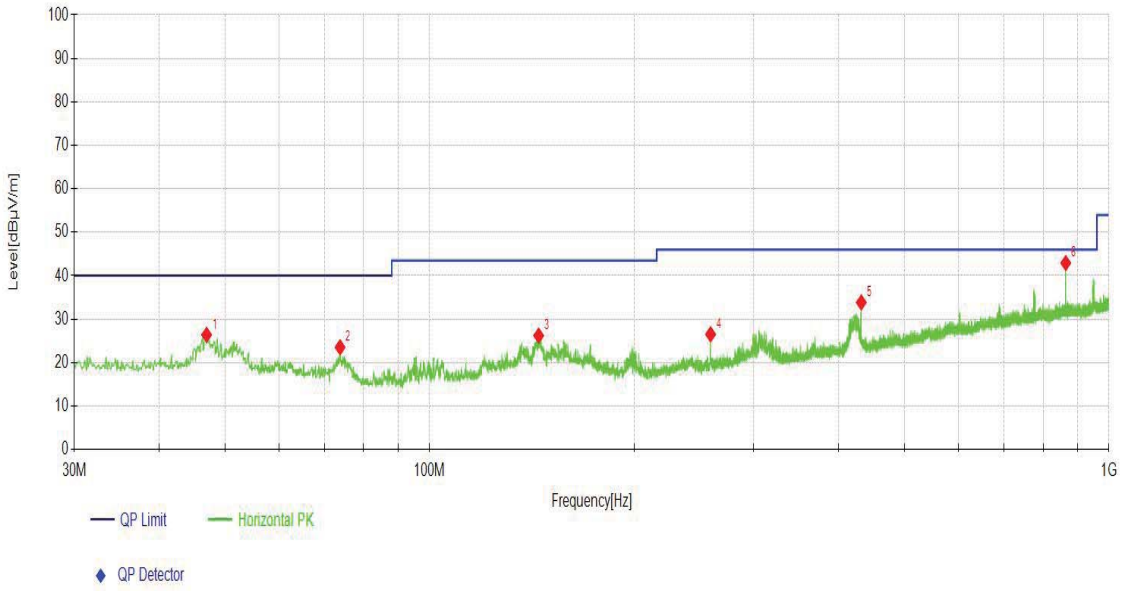


3.2.4 Test results

BELOW 1GHz WORST-CASE DATA:

Worst Test Mode	DH5	Channel	CH 0
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Horizontal

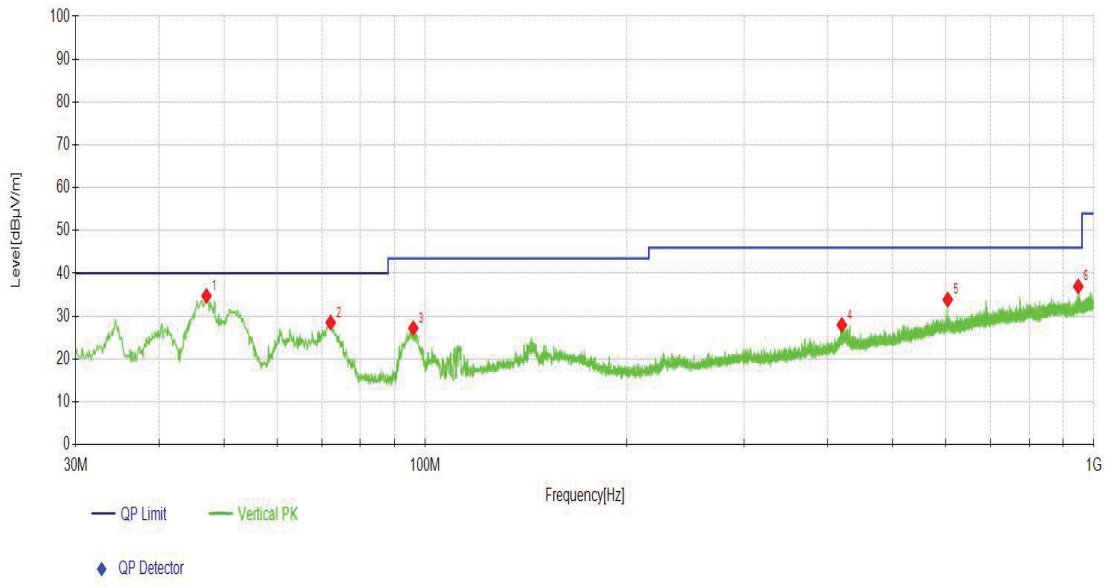


NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]
1	46.9767	7.09	19.30	26.39	40.00	13.61	200	334
2	73.8484	7.43	16.10	23.53	40.00	16.47	300	358
3	144.7625	6.32	19.89	26.21	43.50	17.29	200	156
4	259.2339	8.48	18.03	26.51	46.00	19.49	100	109
5	432.0082	11.22	22.61	33.83	46.00	12.17	200	356
6	**863.9924**	**13.61**	**29.31**	**42.92**	**46.00**	**3.08**	**100**	**81**

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.
3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
5. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

Worst Test Mode	DH5	Channel	CH 0
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]
1	108.7719	15.43	19.30	34.73	40.00	5.27	200	72
2	122.8383	12.13	16.37	28.50	40.00	11.50	100	103
3	134.1884	11.32	15.86	27.18	43.50	16.32	100	87
4	159.7990	5.58	22.37	27.95	46.00	18.05	100	334
5	230.5191	8.14	25.73	33.87	46.00	12.13	100	0
6	863.9924	6.96	29.99	36.95	46.00	9.05	100	357

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.
3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
5. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

ABOVE 1GHz DATA

DH5-CH 0

Channel	CH 0	**Frequency**	2402MHz
Frequency Range	Above 1G	**Detector Function**	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	36.84	-0.15	36.69	54.00	17.31	150	180	AV
2	2390.0000	44.71	-0.15	44.56	74.00	29.44	150	154	PK
3	2401.8362	77.84	-0.03	77.81			150	26	PK
4	2401.8362	77.61	-0.03	77.58			150	26	RMS
5	4804.0000	43.67	9.29	52.96	74.00	21.04	150	167	PK
6	4804.0000	35.04	9.29	44.33	54.00	9.67	150	68	AV
7	7206.0000	20.03	12.81	32.84	54.00	21.16	150	305	AV
8	7206.0000	27.80	12.81	40.61	74.00	33.39	150	232	PK
9	9608.0000	27.32	13.32	40.64	74.00	33.36	150	112	PK
10	9608.0000	20.15	13.32	33.47	54.00	20.53	150	1	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	36.93	-0.15	36.78	54.00	17.22	150	232	AV
2	2390.0000	44.90	-0.15	44.75	74.00	29.25	150	3	PK
3	2401.8172	75.43	-0.03	75.40			150	19	PK
4	2401.8362	75.18	-0.03	75.15			150	19	RMS
5	4804.0000	44.54	9.29	53.83	74.00	20.17	150	204	PK
6	4804.0000	35.29	9.29	44.58	54.00	9.42	150	1	AV
7	7204.5005	26.45	12.83	39.28	54.00	14.72	150	334	RMS
8	7204.5005	33.22	12.83	46.05	74.00	27.95	150	0	PK
9	9608.0000	28.62	13.32	41.94	74.00	32.06	150	74	PK
10	9608.0000	20.31	13.32	33.63	54.00	20.37	150	74	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

DH5-CH 39

Channel	CH 39	Frequency	2441MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4882.0000	43.35	9.84	53.19	74.00	20.81	150	19	PK
2	4882.0000	35.35	9.84	45.19	54.00	8.81	150	19	AV
3	7323.0000	20.54	10.96	31.50	54.00	22.50	150	274	AV
4	7323.0000	28.39	10.96	39.35	74.00	34.65	150	121	PK
5	9764.0000	27.77	13.23	41.00	74.00	33.00	150	342	PK
6	9764.0000	19.67	13.23	32.90	54.00	21.10	150	282	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4882.0000	43.51	9.84	53.35	74.00	20.65	150	347	PK
2	4882.0000	35.25	9.84	45.09	54.00	8.91	150	347	AV
3	7321.5122	25.07	11.00	36.07	54.00	17.93	150	360	RMS
4	7322.6823	32.26	10.98	43.24	74.00	30.76	150	132	PK
5	9764.0000	27.97	13.23	41.20	74.00	32.80	150	352	PK
6	9764.0000	19.32	13.23	32.55	54.00	21.45	150	286	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

DH5-CH 78

Channel	CH 78	Frequency	2480MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2479.8770	76.78	0.32	77.10			150	134	PK
2	2479.9720	76.13	0.32	76.45			150	134	RMS
3	2483.5000	36.91	0.46	37.37	54.00	16.63	150	54	AV
4	2483.5000	45.41	0.46	45.87	74.00	28.13	150	3	PK
5	4960.0000	43.02	10.69	53.71	74.00	20.29	150	48	PK
6	4960.0000	35.11	10.69	45.80	54.00	8.20	150	359	AV
7	7440.0000	21.17	9.75	30.92	54.00	23.08	150	314	AV
8	7440.0000	29.07	9.75	38.82	74.00	35.18	150	166	PK
9	9920.0000	27.09	13.83	40.92	74.00	33.08	150	33	PK
10	9920.0000	19.35	13.83	33.18	54.00	20.82	150	33	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2479.8390	75.49	0.32	75.81			150	18	PK
2	2479.8390	75.23	0.32	75.55			150	18	RMS
3	2483.5000	37.06	0.46	37.52	54.00	16.48	150	320	AV
4	2483.5000	45.44	0.46	45.90	74.00	28.10	150	360	PK
5	4960.0000	43.43	10.69	54.12	74.00	19.88	150	60	PK
6	5019.1419	35.23	11.04	46.27	54.00	7.73	150	247	RMS
7	7439.6940	24.56	9.73	34.29	54.00	19.71	150	354	RMS
8	7440.0000	29.17	9.75	38.92	74.00	35.08	150	329	PK
9	9920.0000	28.25	13.83	42.08	74.00	31.92	150	359	PK
10	9920.0000	19.83	13.83	33.66	54.00	20.34	150	295	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3DH5-CH 0

Channel	CH 0	Frequency	2402MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	36.76	-0.15	36.61	54.00	17.39	150	33	AV
2	2390.0000	44.56	-0.15	44.41	74.00	29.59	150	281	PK
3	2401.7982	77.45	-0.03	77.42			150	27	RMS
4	2401.8362	77.71	-0.03	77.68			150	27	PK
5	4804.0000	43.41	9.29	52.70	74.00	21.30	150	181	PK
6	4804.0000	35.72	9.29	45.01	54.00	8.99	150	357	AV
7	7204.5005	30.54	12.83	43.37	74.00	30.63	150	261	PK
8	7205.6706	23.72	12.82	36.54	54.00	17.46	150	80	RMS
9	9608.0000	28.04	13.32	41.36	74.00	32.64	150	120	PK
10	9608.0000	20.32	13.32	33.64	54.00	20.36	150	113	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	44.82	-0.15	44.67	54.00	9.33	150	219	PK
2	2390.0000	37.00	-0.15	36.85	54.00	17.15	150	72	AV
3	2401.8362	75.17	-0.03	75.14			150	20	RMS
4	2401.8552	75.40	-0.03	75.37			150	20	PK
5	4804.0000	45.20	9.29	54.49	74.00	19.51	150	86	PK
6	4804.0000	35.62	9.29	44.91	54.00	9.09	150	86	AV
7	7204.5005	25.52	12.83	38.35	54.00	15.65	150	359	RMS
8	7204.5005	32.50	12.83	45.33	74.00	28.67	150	0	PK
9	9608.0000	27.13	13.32	40.45	74.00	33.55	150	359	PK
10	9608.0000	19.44	13.32	32.76	54.00	21.24	150	0	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3DH5-CH 39

Channel	CH 39	Frequency	2441MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4882.0000	44.08	9.84	53.92	74.00	20.08	150	146	PK
2	4882.0000	35.31	9.84	45.15	54.00	8.85	150	346	AV
3	7323.0000	21.89	10.96	32.85	54.00	21.15	150	281	AV
4	7323.0000	29.47	10.96	40.43	74.00	33.57	150	60	PK
5	9764.0000	29.04	13.23	42.27	74.00	31.73	150	3	PK
6	9764.0000	19.79	13.23	33.02	54.00	20.98	150	3	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4882.0000	42.75	9.84	52.59	74.00	21.41	150	0	PK
2	4882.0000	34.88	9.84	44.72	54.00	9.28	150	300	AV
3	7321.5122	25.29	11.00	36.29	54.00	17.71	150	352	RMS
4	7322.6823	32.01	10.98	42.99	74.00	31.01	150	360	PK
5	9764.0000	27.26	13.23	40.49	74.00	33.51	150	72	PK
6	9764.0000	19.22	13.23	32.45	54.00	21.55	150	25	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

3DH5-CH 78

Channel	CH 78	Frequency	2480MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2479.8390	76.48	0.32	76.80			150	135	RMS
2	2479.8960	76.73	0.32	77.05			150	135	PK
3	2483.5000	37.13	0.46	37.59	54.00	16.41	150	241	AV
4	2483.5000	45.11	0.46	45.57	74.00	28.43	150	161	PK
5	4960.0000	43.33	10.69	54.02	74.00	19.98	150	126	PK
6	4960.0000	34.83	10.69	45.52	54.00	8.48	150	32	AV
7	7440.0000	22.36	9.75	32.11	54.00	21.89	150	295	AV
8	7440.0000	29.11	9.75	38.86	74.00	35.14	150	295	PK
9	9920.0000	27.94	13.83	41.77	74.00	32.23	150	181	PK
10	9920.0000	19.32	13.83	33.15	54.00	20.85	150	120	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2479.8770	74.89	0.32	75.21			150	26	RMS
2	2479.8960	75.27	0.32	75.59			150	19	PK
3	2483.5000	45.18	0.46	45.64	74.00	28.36	150	239	PK
4	2483.5000	36.73	0.46	37.19	54.00	16.81	150	313	AV
5	4960.0000	43.79	10.69	54.48	74.00	19.52	150	234	PK
6	4960.0000	34.84	10.69	45.53	54.00	8.47	150	134	AV
7	7440.0000	21.74	9.75	31.49	54.00	22.51	150	39	AV
8	7440.0000	28.90	9.75	38.65	74.00	35.35	150	53	PK
9	9920.0000	27.48	13.83	41.31	74.00	32.69	150	79	PK
10	9920.0000	19.71	13.83	33.54	54.00	20.46	150	26	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3.3 NUMBER OF HOPPING FREQUENCY USED

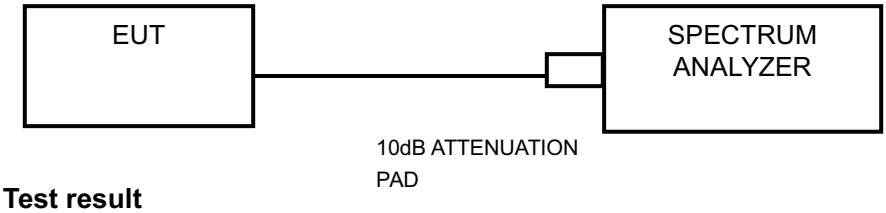
3.3.1 Limits

At least 15 channels frequencies, and should be equally spaced.

3.3.2 Measurement procedure

a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
c. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
d. Set the SA on View mode and then plot the result on SA screen.
e. Repeat above procedures until all frequencies measured were completed.

3.3.3 Test setup



3.3.4 Test result

Refer to Appendix A.

3.4 DWELL TIME ON EACH CHANNEL

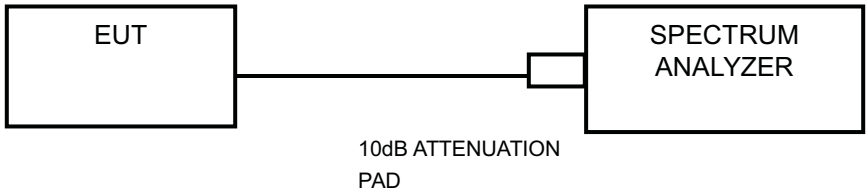
3.4.1 Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

3.4.2 Measurement procedure

a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
c. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
d. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
e. Repeat above procedures until all different time-slot modes have been completed.

3.4.3 Test setup



3.4.4 Test result

Refer to Appendix A.

3.5 20dB EMISSION BANDWIDTH

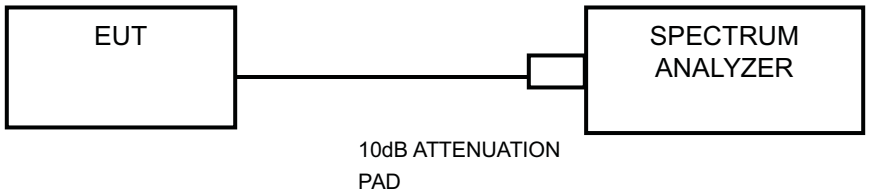
3.5.1 Limits

For frequency hopping system operating in the 2400-2483.5MHz, If the 20dB bandwidth of hopping channel is greater than 25kHz, two-thirds 20dBbandwidth of hopping channel shell be a minimum limit for the hopping channel separation

3.5.2 Measurement procedure

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
d. Repeat above procedures until all frequencies measured were complete.

3.5.3 Test setup



3.5.4 Test result

Refer to Appendix A.

3.6 HOPPING CHANNEL SEPARATION

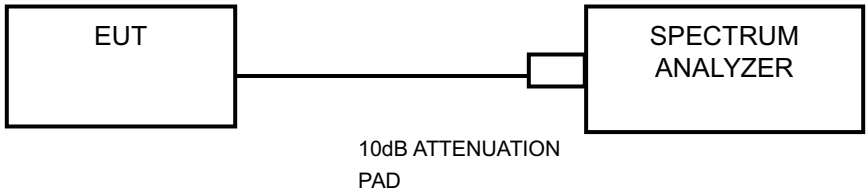
3.6.1 Limits

At least 25kHz or two-third of 20dB hopping channel bandwidth (whichever is greater).

3.6.2 Measurement procedure

a. Span: Wide enough to capture the peaks of two adjacent channels.
b. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
c. Video (or average) bandwidth (VBW) ⩾ RBW.
d. Sweep: Auto.
e. Detector function: Peak.
f. Trace: Max hold.
g. Allow the trace to stabilize.

3.6.3 Test setup



3.6.4 Test result

Refer to Appendix A.

3.7 CONDUCTED OUTPUT POWER

3.7.1 Limits(FCC)

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

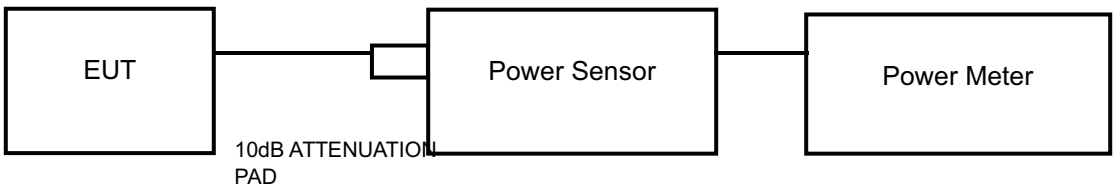
3.7.2 Limits(IC)

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W

3.7.3 Measurement procedure

a. A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor and set the detector to PEAK. Record the power level.
b. Anaverage power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power senso and set the detector to AVERAGE. Record the power level.

3.7.4 Test setup



3.7.5 Test result

Refer to Appendix A.

3.8 OUT OF BAND EMISSION MEASUREMENT

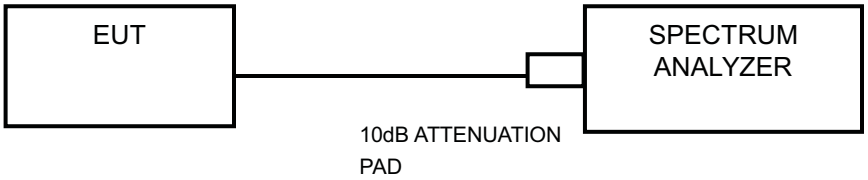
3.8.1 Limits

Below –20dB of the highest emission level of operating band (in 100KHz RBW).

3.8.2 Measurement procedure

The transmitter output was connected to the spectrum analyzer via a low loss cable. of Spectrum Analyzer was set RBW to 100 kHz and VBW to 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. Detector = PEAK and Trace mode = Max Hold. The band edges was measured and recorded.

3.8.3 Test setup



3.8.4 Test result

Refer to Appendix A.

3.9 OCCUPIED BANDWIDTH MEASUREMENT

3.9.1 Measurement procedure

The transmitter antenna output was connected to the spectrum analyzer through an attenuator. The resolution bandwidth shall be set to the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.
below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.9.2 TEST SETUP

3.9.3 Test result

Please refer Annex A.

4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Photos).

5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (External Photos report and Internal Photos).

6 Appendix A

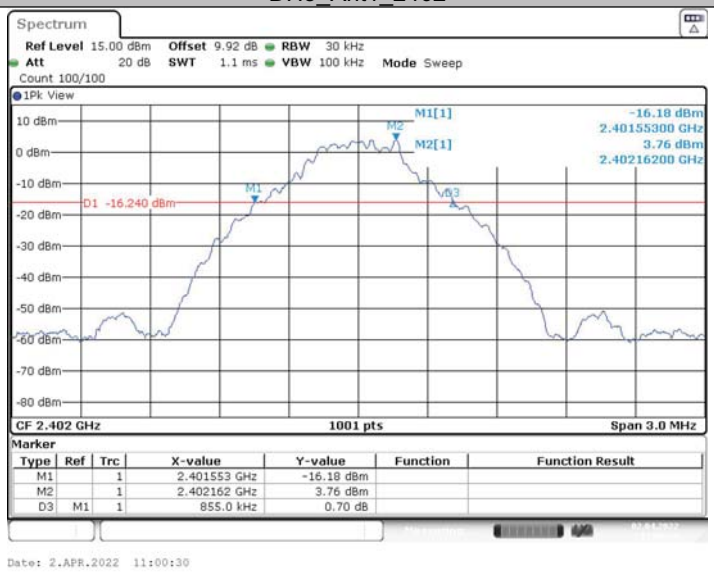
6.1 20dB Emission Bandwidth

6.1.1 Test Result

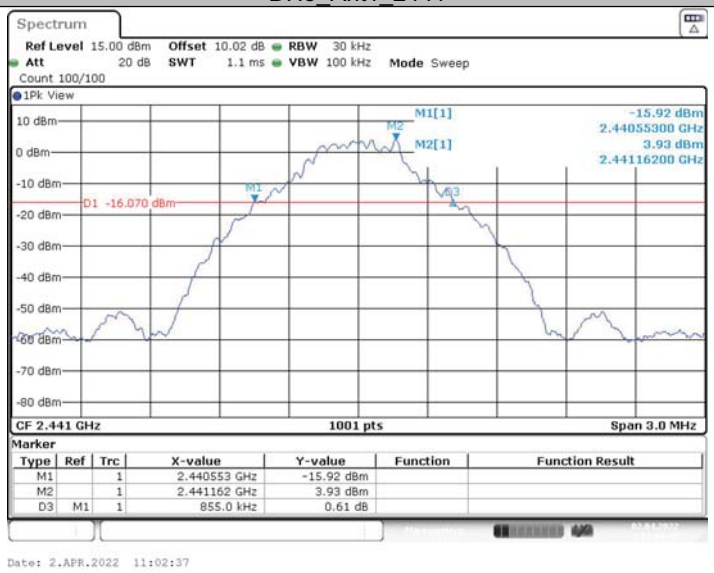
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.86	2401.55	2402.41	---	---
		2441	0.86	2440.55	2441.41	---	---
		2480	0.86	2479.55	2480.41	---	---
2DH5	Ant1	2402	1.25	2401.37	2402.62	---	---
		2441	1.25	2440.37	2441.62	---	---
		2480	1.25	2479.37	2480.63	---	---
3DH5	Ant1	2402	1.25	2401.37	2402.62	---	---
		2441	1.25	2440.37	2441.62	---	---
		2480	1.25	2479.37	2480.62	---	---

6.1.2 Test Graphs

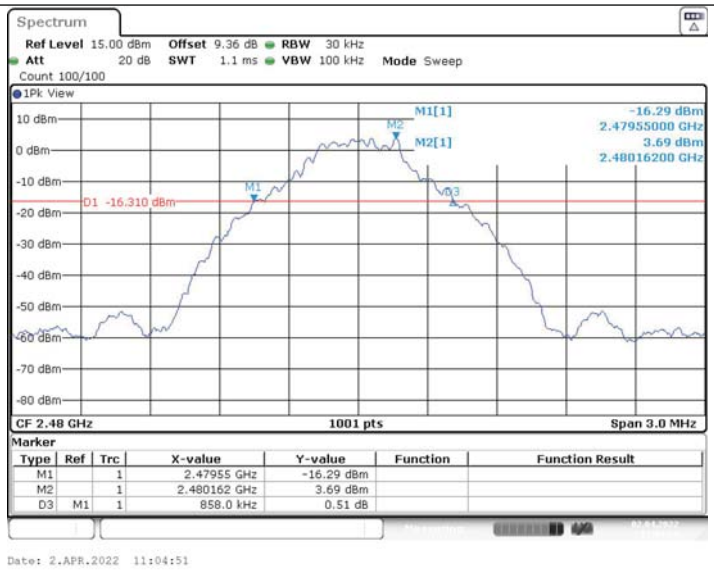
DH5_Ant1_2402



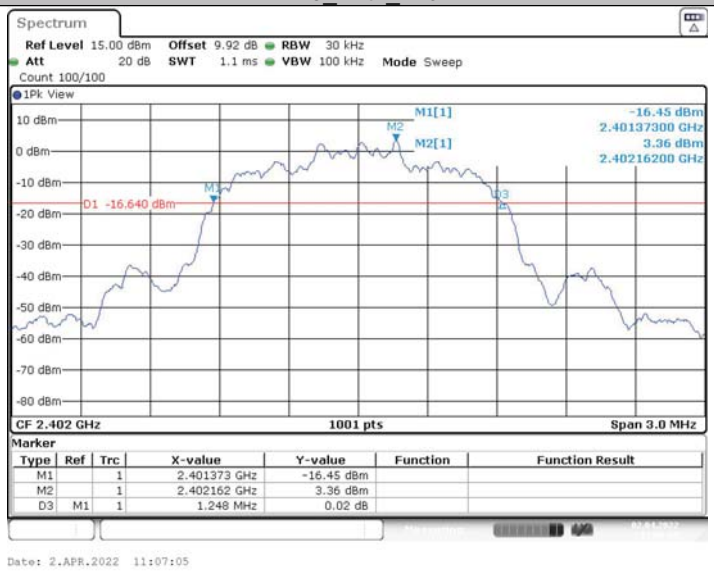
DH5_Ant1_2441



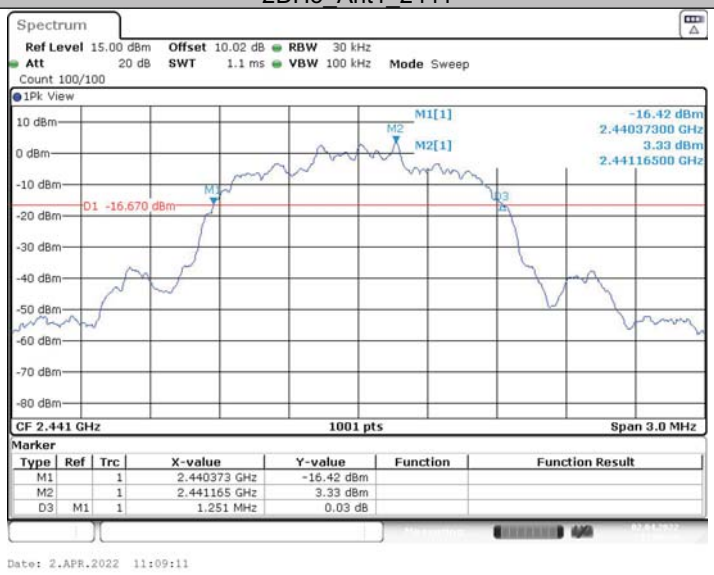
DH5_Ant1_2480



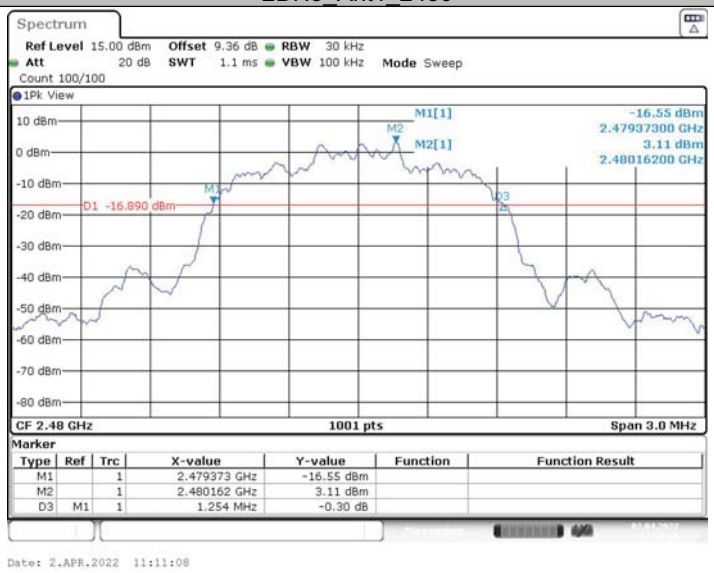
2DH5_Ant1_2402



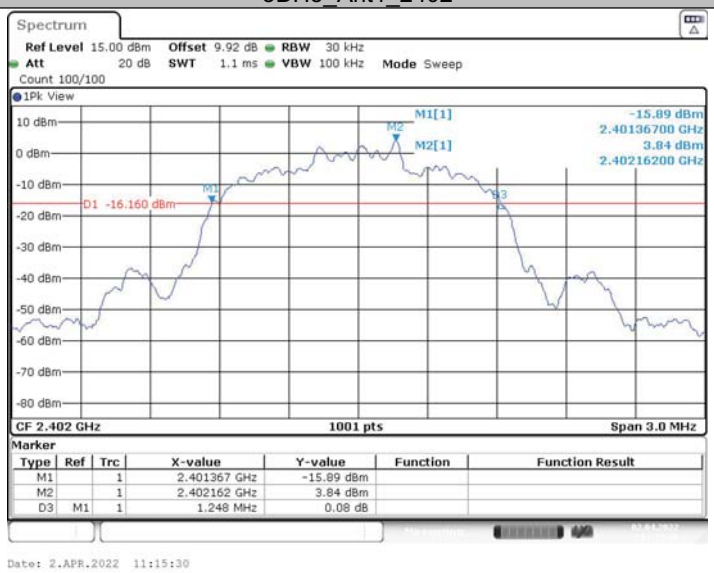
2DH5_Ant1_2441



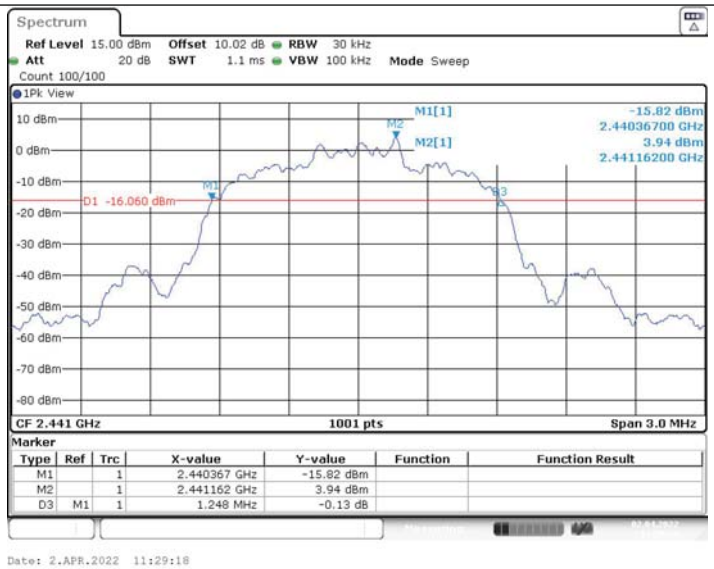
2DH5_Ant1_2480



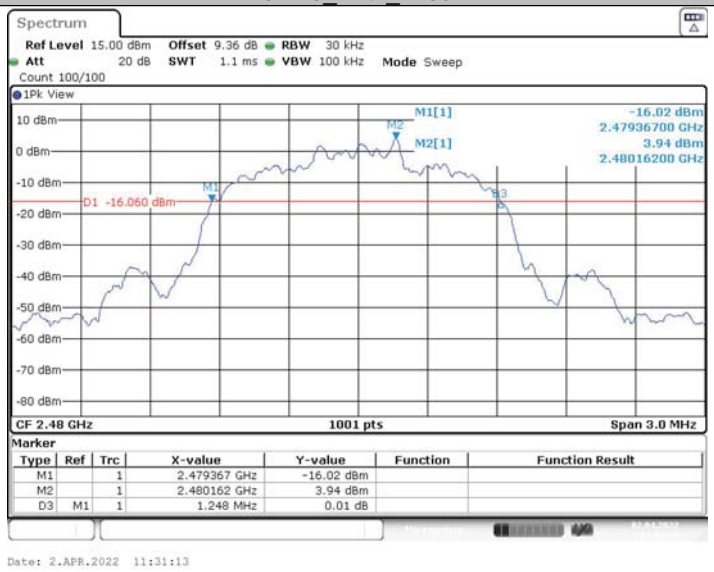
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



6.2 Conducted Output Power

6.2.1 Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	12.21	≤20.97	PASS
		2441	12.58	≤20.97	PASS
		2480	11.84	≤20.97	PASS
2DH5	Ant1	2402	12.68	≤20.97	PASS
		2441	13.06	≤20.97	PASS
		2480	12.34	≤20.97	PASS
3DH5	Ant1	2402	13.04	≤20.97	PASS
		2441	13.4	≤20.97	PASS
		2480	12.7	≤20.97	PASS

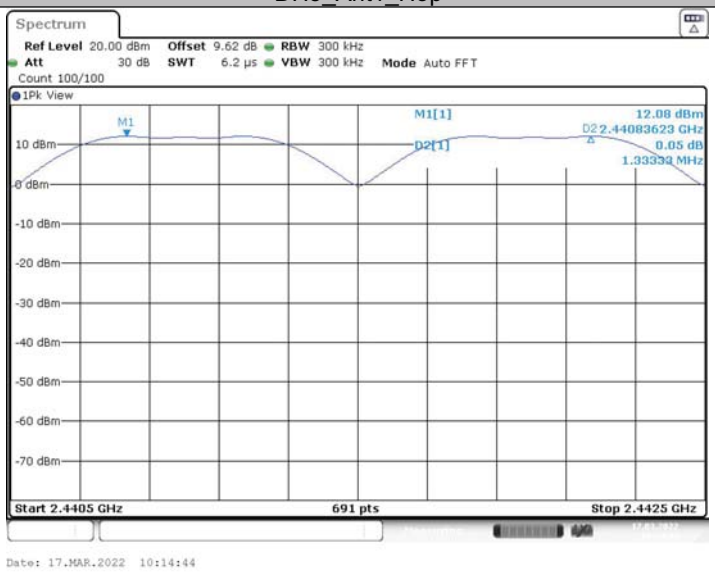
6.3 Hopping Channel Separation

6.3.1 Test Result

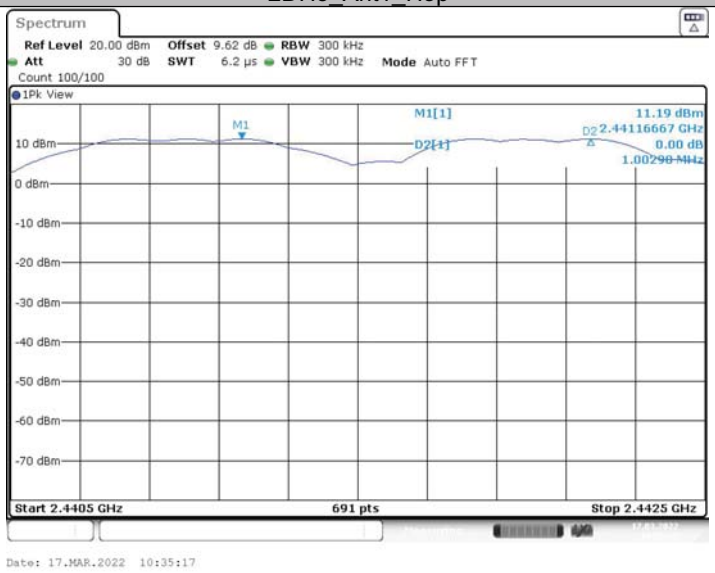
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.333	≥1.030	PASS
2DH5	Ant1	Hop	1.003	≥0.867	PASS
3DH5	Ant1	Hop	1.003	≥0.867	PASS

6.3.2 Test Graphs

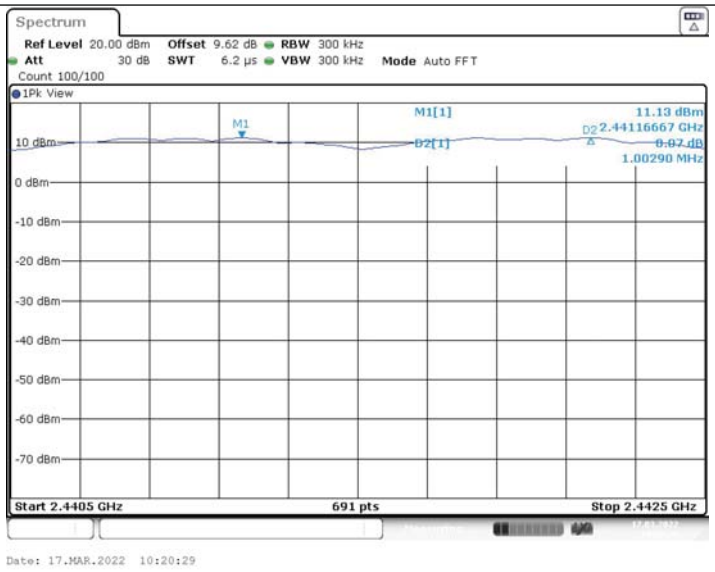
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Spectrum
Ref Level 20.00 dBm Offset 9.62 dB RBW 300 kHz
Att 30 dB SWT 6.2 µs VBW 300 kHz Mode Auto FFT
Count 100/100
1Pk View
M1
M1[1] 11.13 dBm
2.44116667 GHz
D2[1] 0.07 dB
D2
1.00290 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4405 GHz
691 pts
Stop 2.4425 GHz
Date: 17.MAR.2022 10:20:29

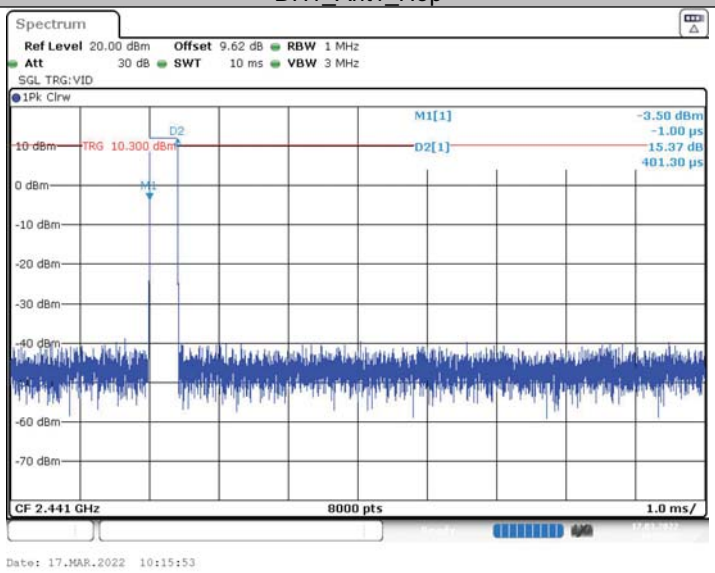
6.4 Dell Time of Each Channel

6.4.1 Test Result

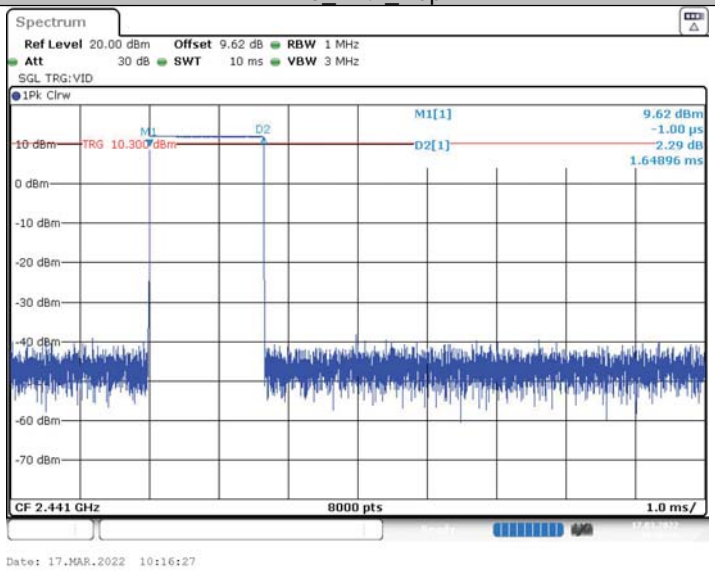
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.40	320	0.128	≤0.4	PASS
DH3	Ant1	Hop	1.65	160	0.264	≤0.4	PASS
DH5	Ant1	Hop	2.89	106.67	0.308	≤0.4	PASS
2DH1	Ant1	Hop	0.30	320	0.097	≤0.4	PASS
2DH3	Ant1	Hop	1.60	160	0.255	≤0.4	PASS
2DH5	Ant1	Hop	2.79	106.67	0.297	≤0.4	PASS
3DH1	Ant1	Hop	0.29	320	0.093	≤0.4	PASS
3DH3	Ant1	Hop	1.59	160	0.255	≤0.4	PASS
3DH5	Ant1	Hop	2.79	106.67	0.297	≤0.4	PASS

6.4.1 Test Graphs

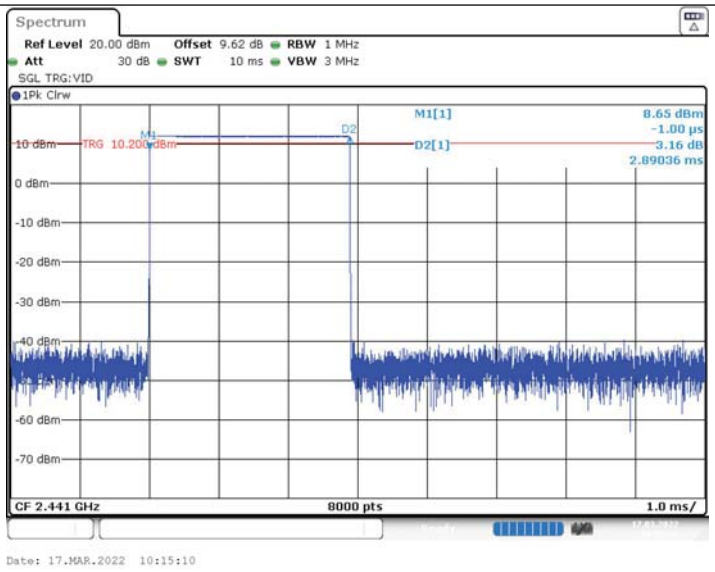
DH1_Ant1_Hop



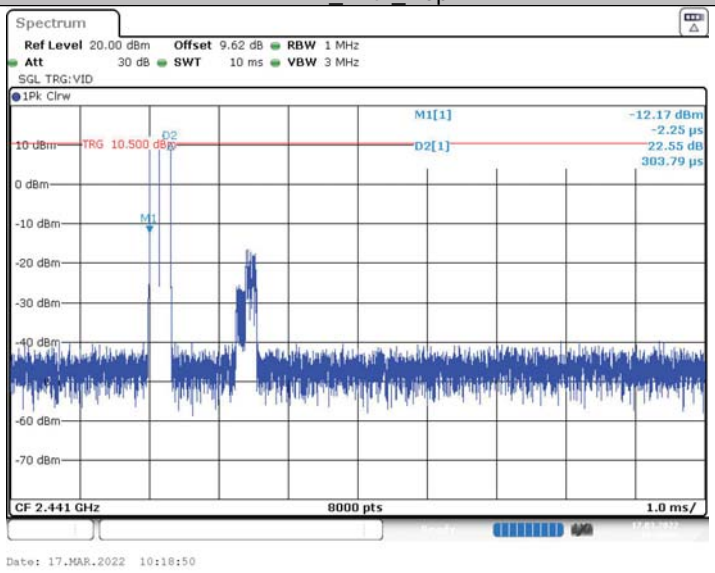
DH3_Ant1_Hop



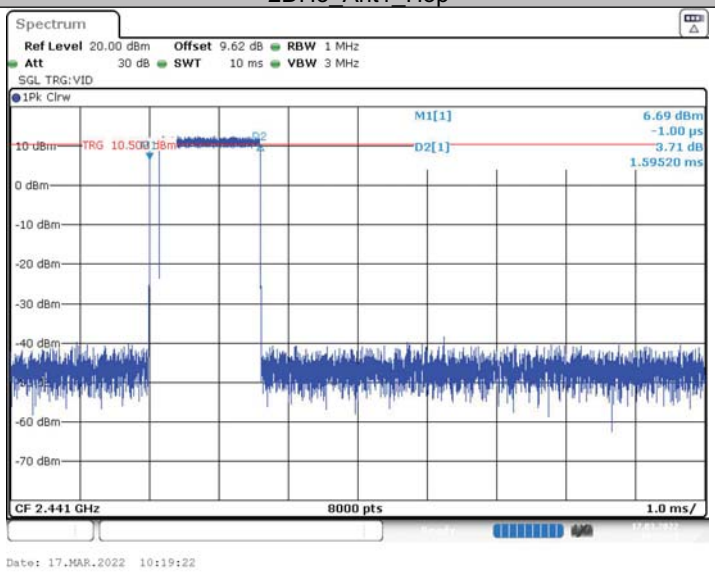
DH5_Ant1_Hop



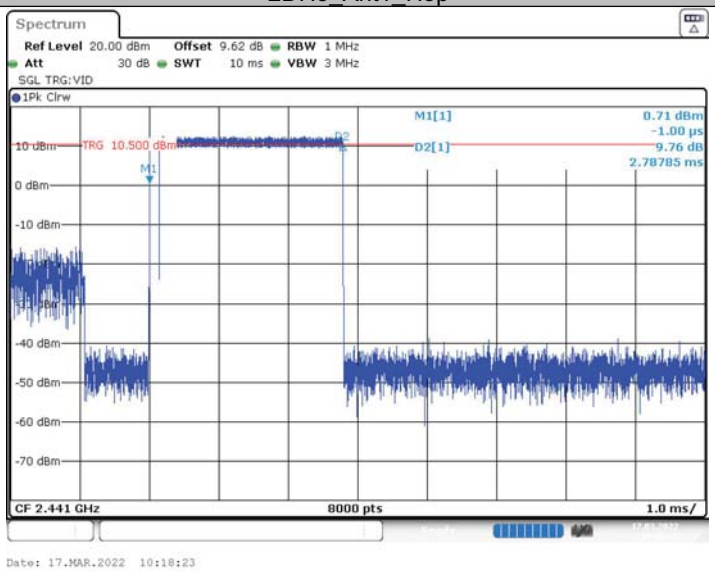
2DH1_Ant1_Hop



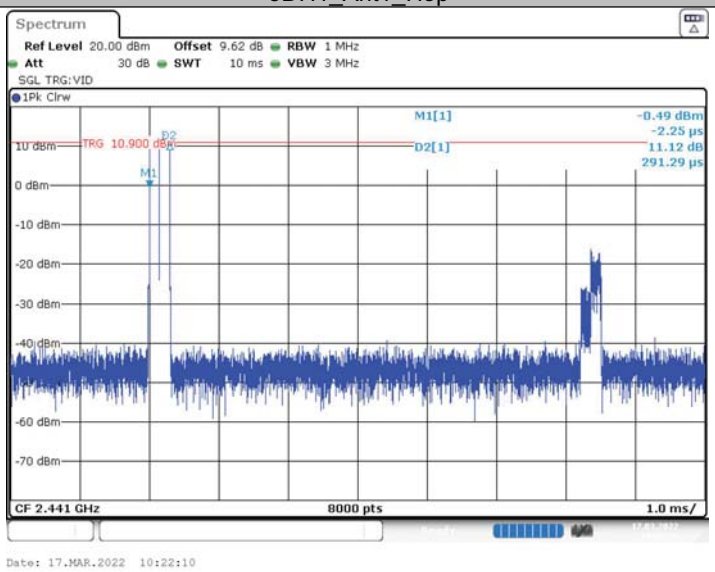
2DH3_Ant1_Hop



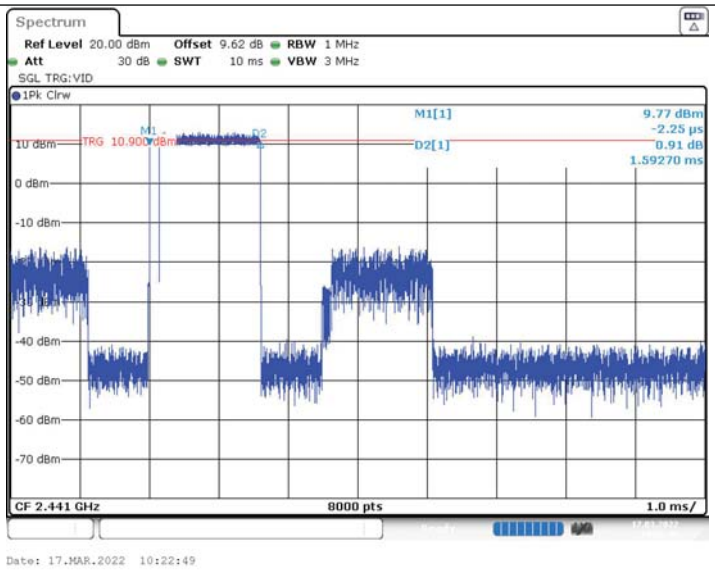
2DH5_Ant1_Hop



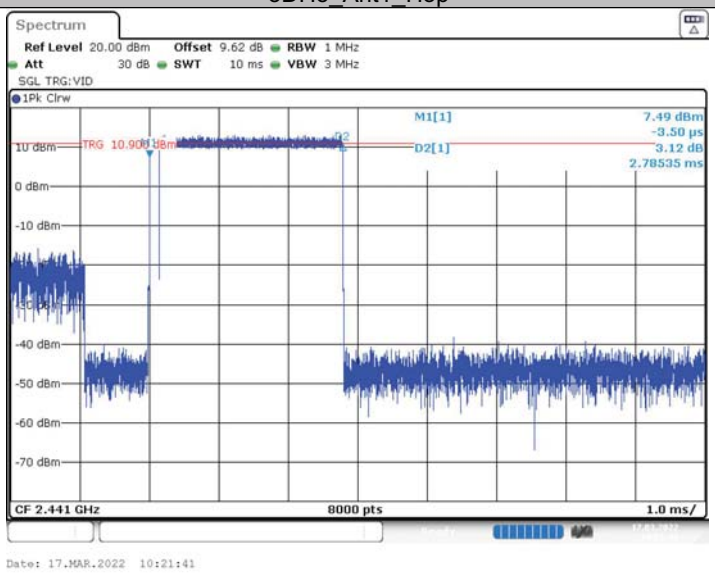
3DH1_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop



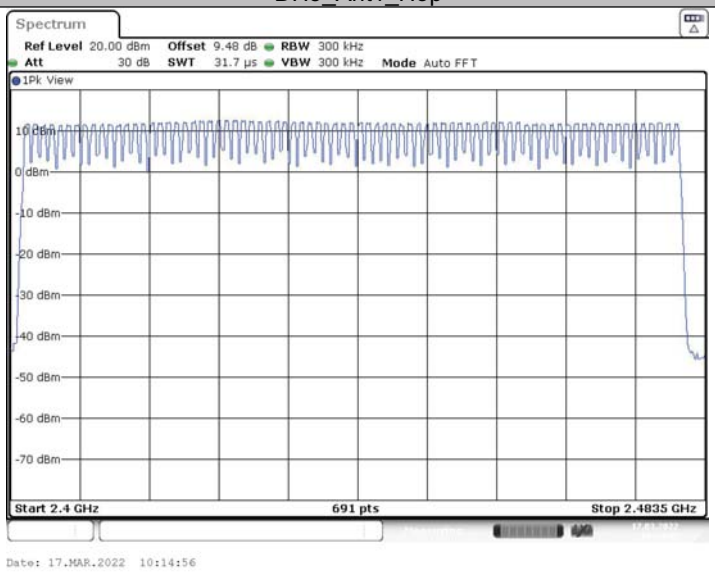
6.5 Number of hopping channels

6.5.1 Test Result

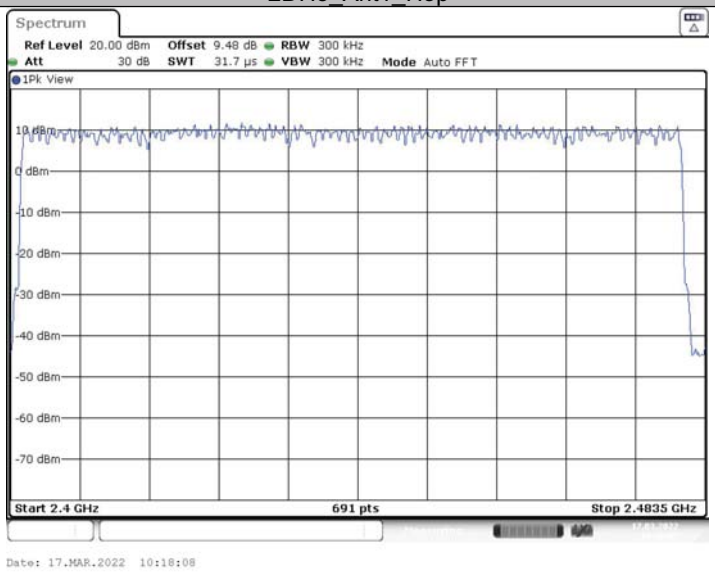
TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

6.5.2 Test Graphs

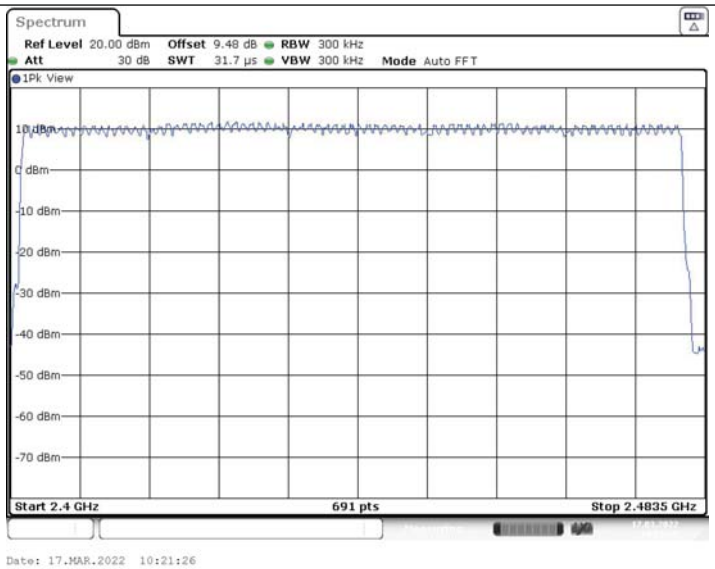
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Spectrum
Ref Level 20.00 dBm Offset 9.48 dB RBW 300 kHz
Att 30 dB SWT 31.7 µs VBW 300 kHz Mode Auto FFT
1Pk View
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4 GHz
691 pts
Stop 2.4835 GHz
Date: 17.MAR.2022 10:21:26

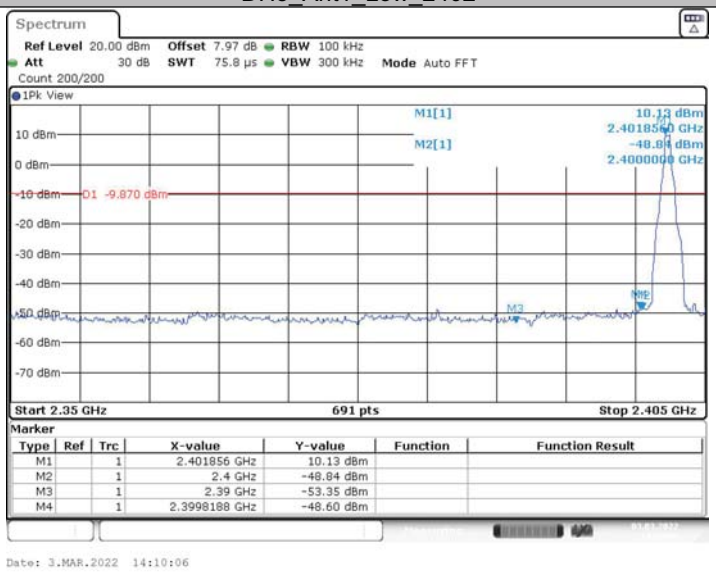
6.6 Band edge measurements

6.6.1 Test Result

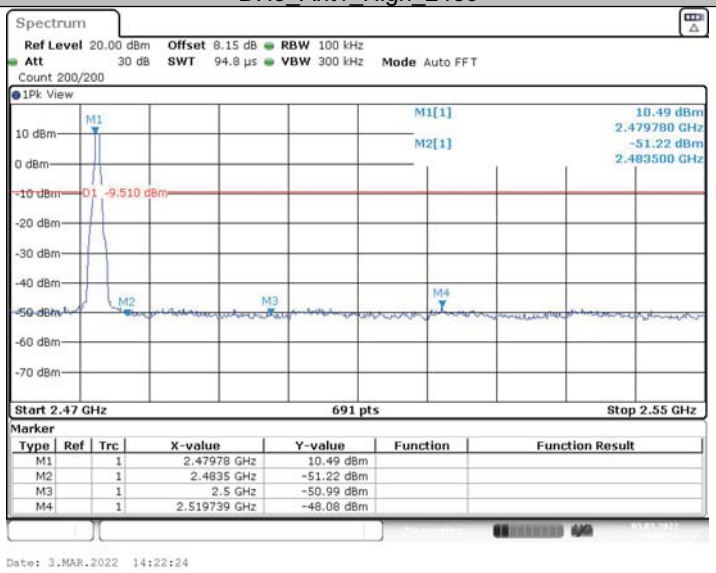
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	10.13	-48.6	≤-9.87	PASS
		High	2480	10.49	-48.08	≤-9.51	PASS
		Low	Hop_2402	11.53	-48.24	≤-8.47	PASS
		High	Hop_2480	11.48	-47.61	≤-8.52	PASS
2DH5	Ant1	Low	2402	8.92	-48.47	≤-11.08	PASS
		High	2480	9.44	-47.87	≤-10.56	PASS
		Low	Hop_2402	10.31	-46.98	≤-9.69	PASS
		High	Hop_2480	10.42	-47.03	≤-9.58	PASS
3DH5	Ant1	Low	2402	9.10	-48.97	≤-10.9	PASS
		High	2480	9.59	-47.48	≤-10.41	PASS
		Low	Hop_2402	9.69	-47.74	≤-10.31	PASS

6.6.2 Test Graphs

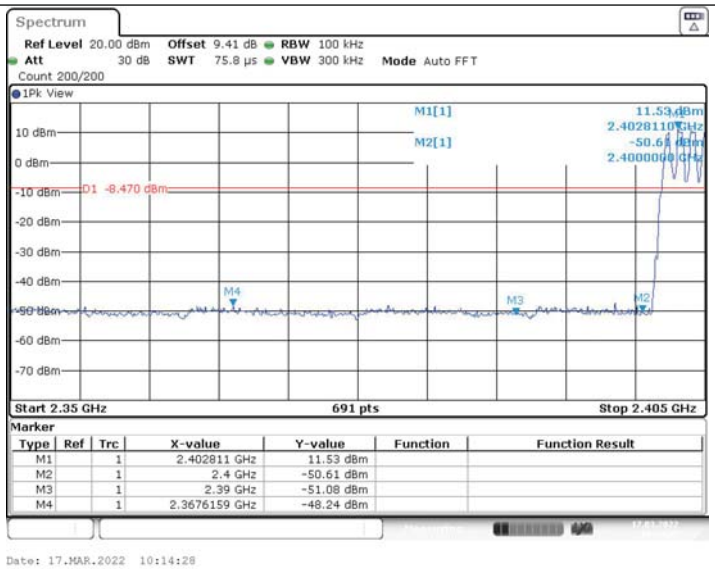
DH5_Ant1_Low_2402



DH5_Ant1_High_2480



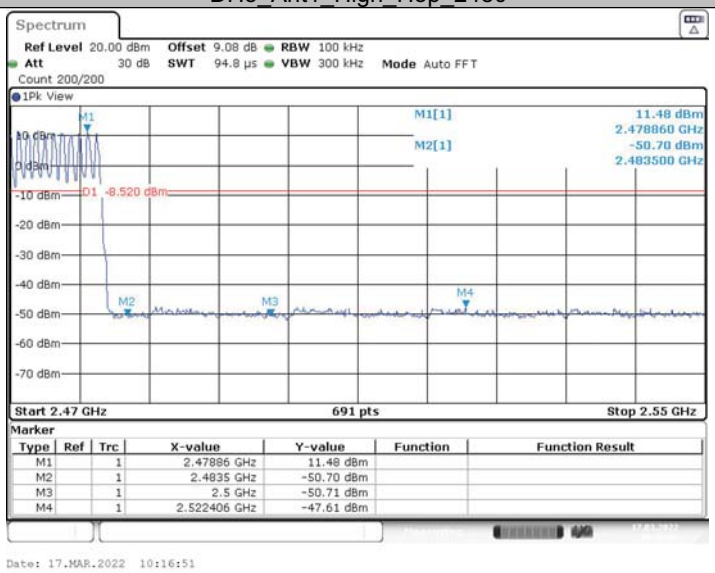
DH5_Ant1_Low_Hop_2402



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402811 GHz	11.53 dBm		
M2		1	2.4 GHz	-50.61 dBm		
M3		1	2.39 GHz	-51.08 dBm		
M4		1	2.3676159 GHz	-48.24 dBm		

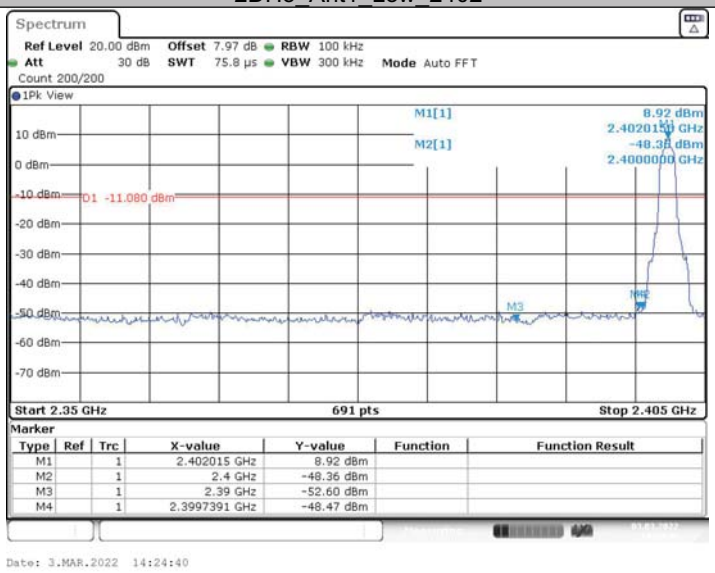
DH5_Ant1_High_Hop_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47886 GHz	11.48 dBm		
M2		1	2.4835 GHz	-50.70 dBm		
M3		1	2.5 GHz	-50.71 dBm		
M4		1	2.522406 GHz	-47.61 dBm		

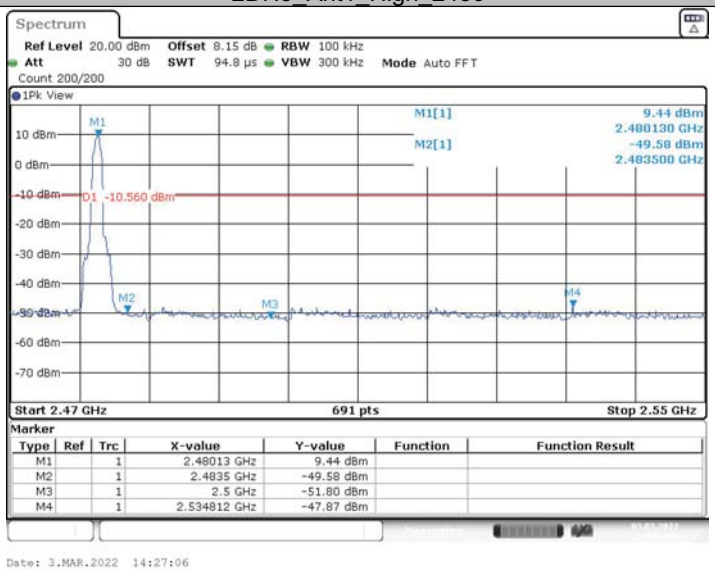
2DH5_Ant1_Low_2402



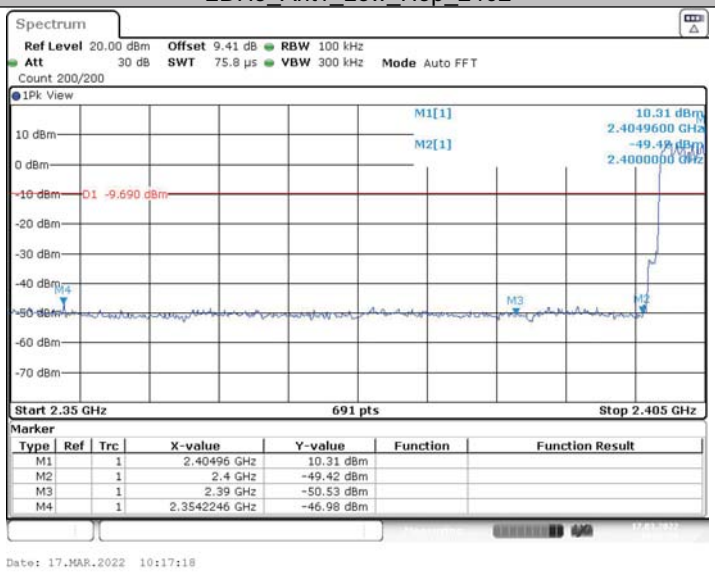
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402015 GHz	8.92 dBm		
M2		1	2.4 GHz	-48.36 dBm		
M3		1	2.39 GHz	-52.60 dBm		
M4		1	2.3997391 GHz	-48.47 dBm		

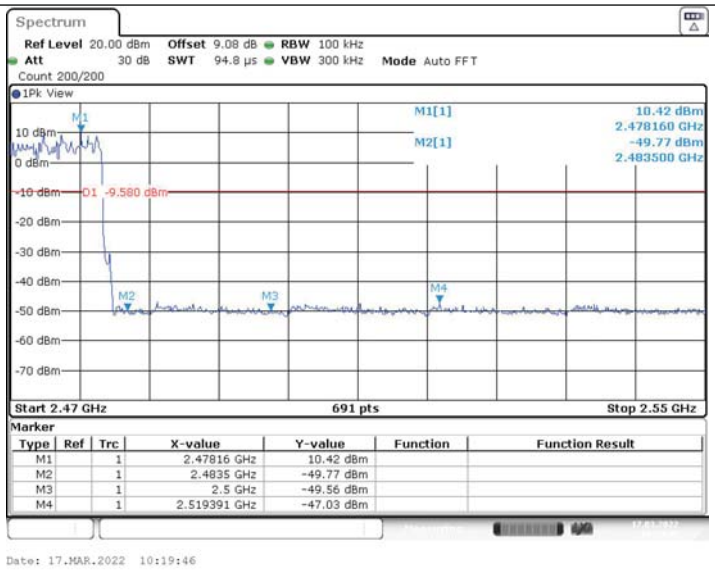
2DH5_Ant1_High_2480



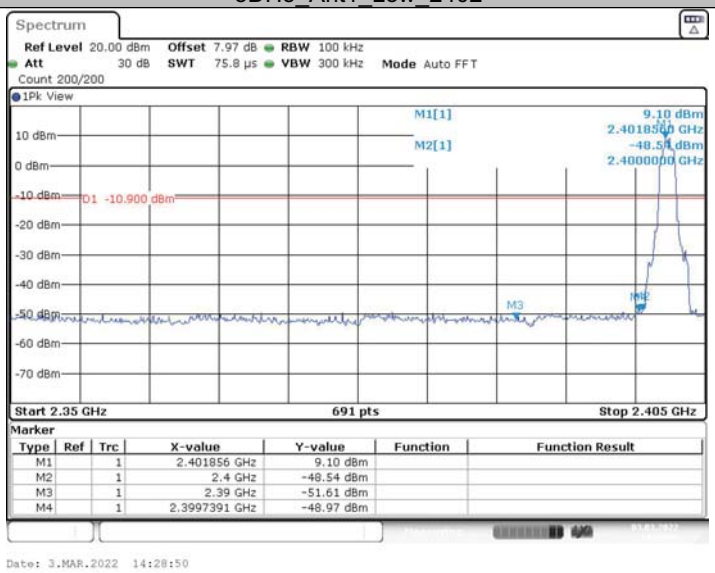
2DH5_Ant1_Low_Hop_2402



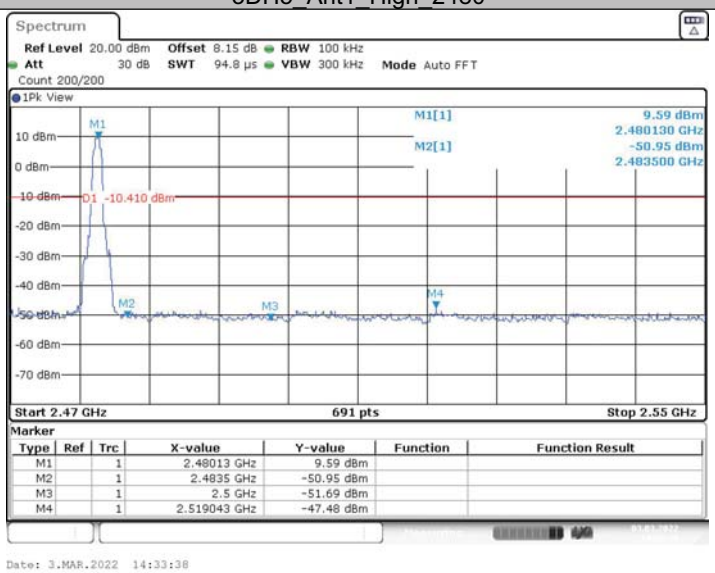
2DH5_Ant1_High_Hop_2480



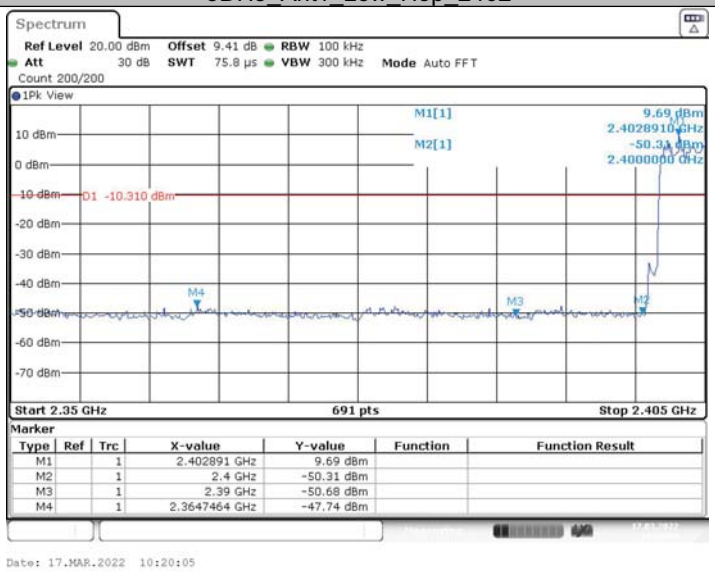
3DH5_Ant1_Low_2402



3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



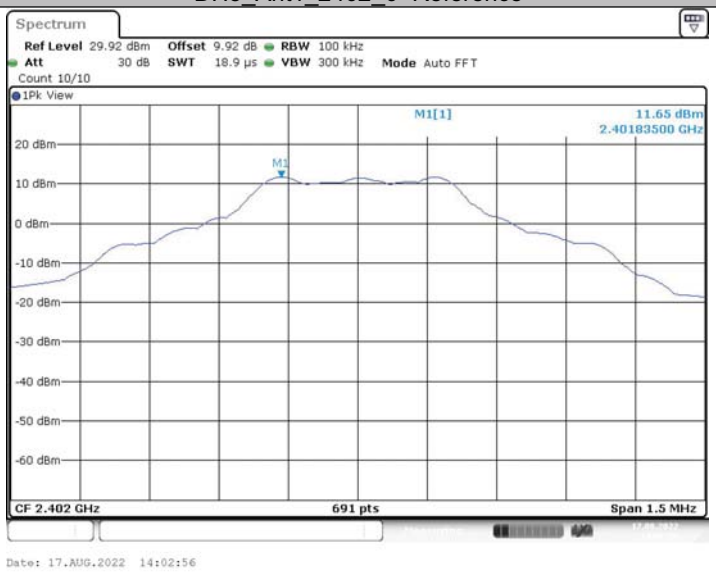
6.7 Out of band Emission Measurement

6.7.1 Test Result

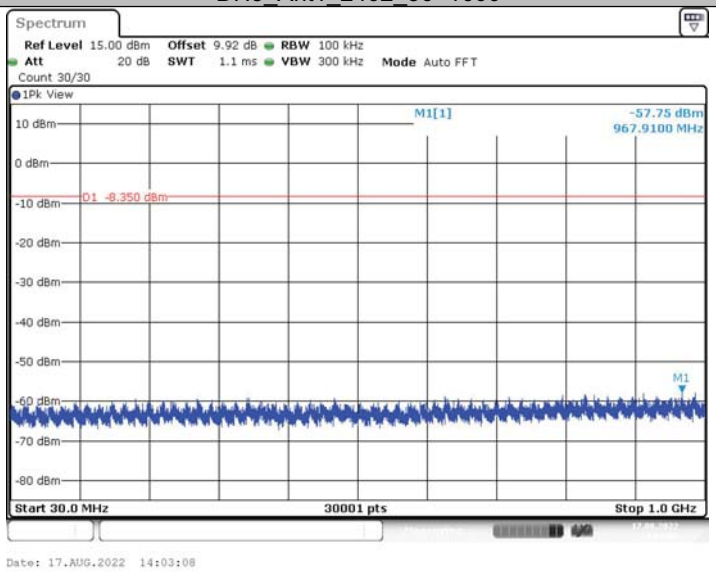
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	11.65	11.65	---	PASS
			30~1000	11.65	-57.75	≤-8.35	PASS
			1000~26500	11.65	-38.84	≤-8.35	PASS
		2441	Reference	11.95	11.95	---	PASS
			30~1000	11.95	-56.66	≤-8.05	PASS
			1000~26500	11.95	-39.08	≤-8.05	PASS
		2480	Reference	11.23	11.23	---	PASS
			30~1000	11.23	-58.47	≤-8.77	PASS
			1000~26500	11.23	-39.06	≤-8.77	PASS
2DH5	Ant1	2402	Reference	10.56	10.56	---	PASS
			30~1000	10.56	-57.75	≤-9.44	PASS
			1000~26500	10.56	-41.13	≤-9.44	PASS
		2441	Reference	10.98	10.98	---	PASS
			30~1000	10.98	-57.45	≤-9.02	PASS
			1000~26500	10.98	-41.1	≤-9.02	PASS
		2480	Reference	10.26	10.26	---	PASS
			30~1000	10.26	-58.37	≤-9.74	PASS
			1000~26500	10.26	-41.05	≤-9.74	PASS
3DH5	Ant1	2402	Reference	10.59	10.59	---	PASS
			30~1000	10.59	-57.46	≤-9.41	PASS
			1000~26500	10.59	-41.38	≤-9.41	PASS
		2441	Reference	11.02	11.02	---	PASS
			30~1000	11.02	-57.78	≤-8.98	PASS
			1000~26500	11.02	-40.87	≤-8.98	PASS
		2480	Reference	10.28	10.28	---	PASS
			30~1000	10.28	-58.76	≤-9.72	PASS
			1000~26500	10.28	-42.14	≤-9.72	PASS

6.7.1 Test Graphs

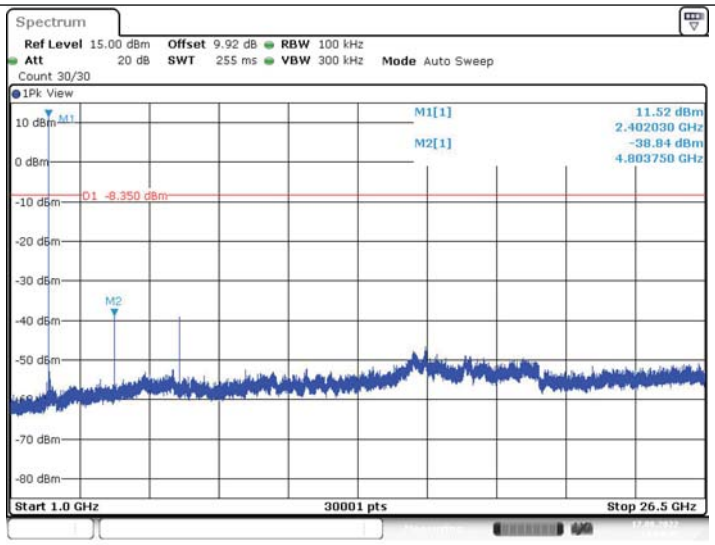
DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000

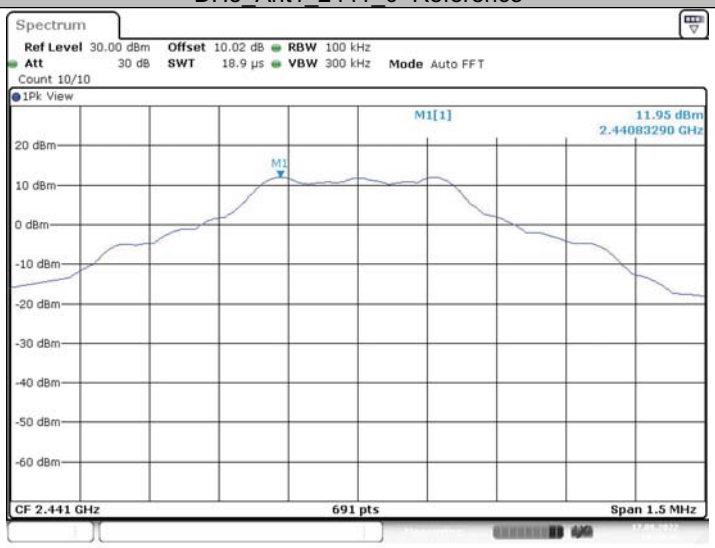


DH5_Ant1_2402_1000~26500



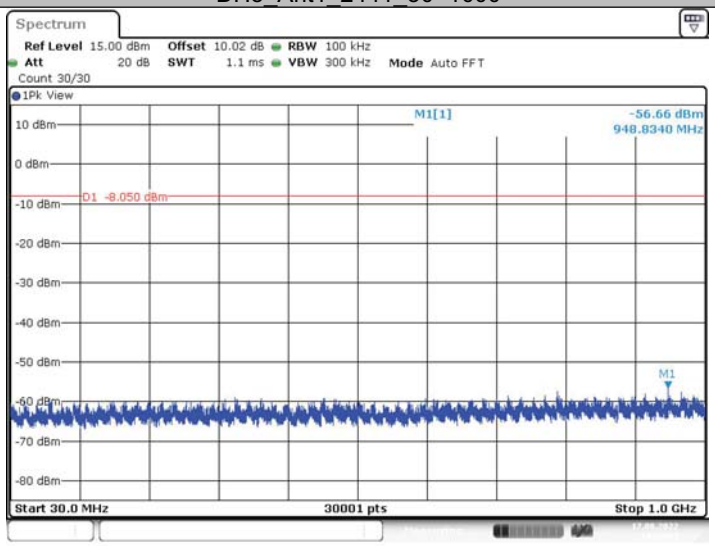
Date: 17.AUG.2022 14:03:45

DH5_Ant1_2441_0~Reference



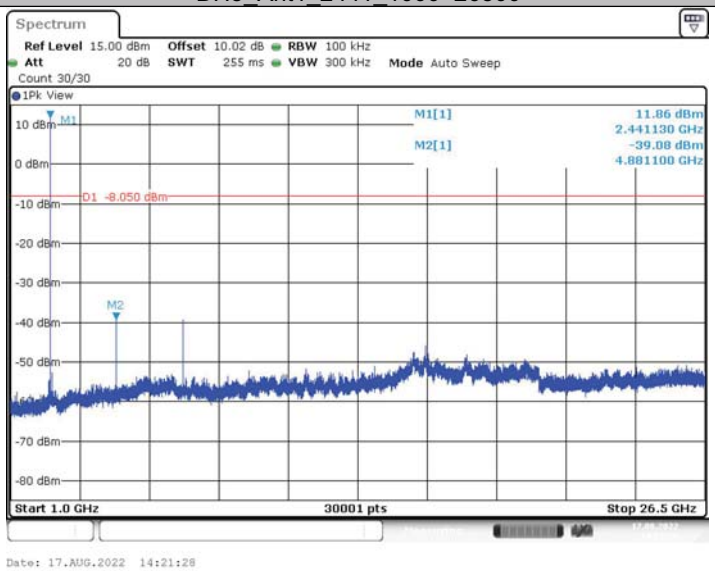
Date: 17.AUG.2022 14:20:40

DH5_Ant1_2441_30~1000



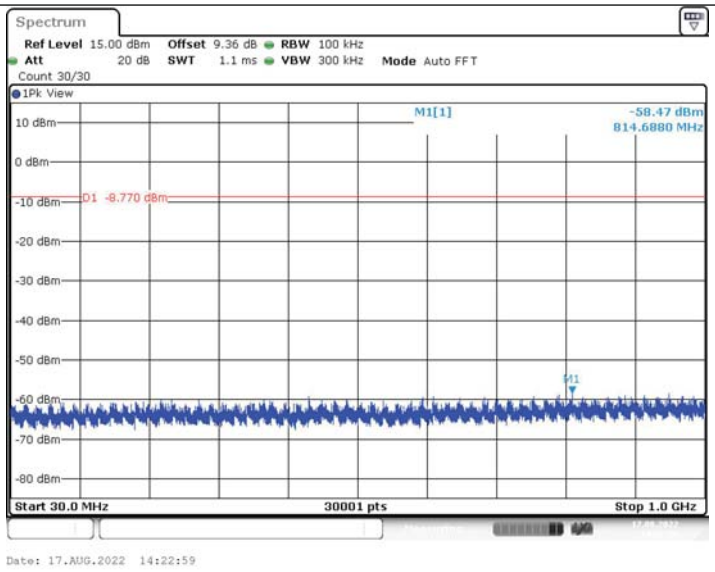
Date: 17.AUG.2022 14:20:51

DH5_Ant1_2441_1000~26500

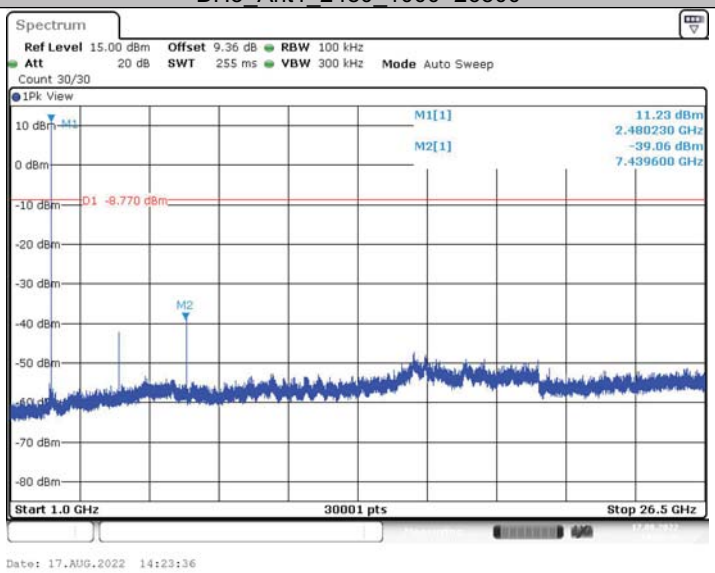


DH5_Ant1_2480_0~Reference

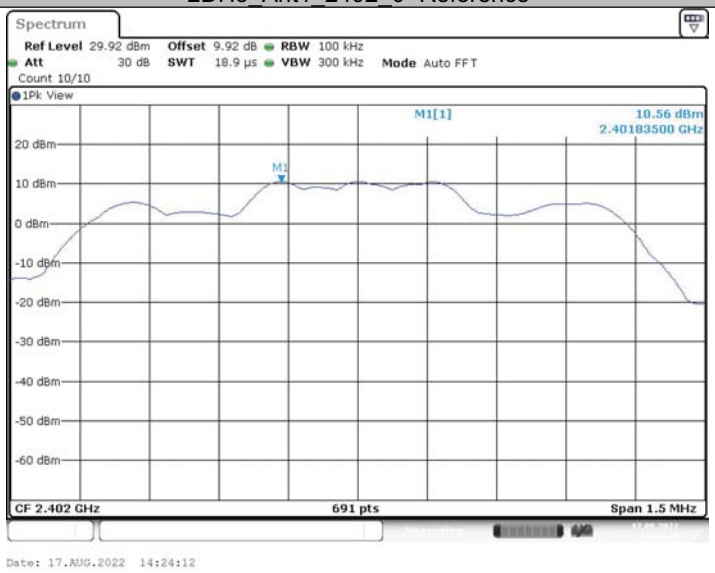
DH5_Ant1_2480_30~1000



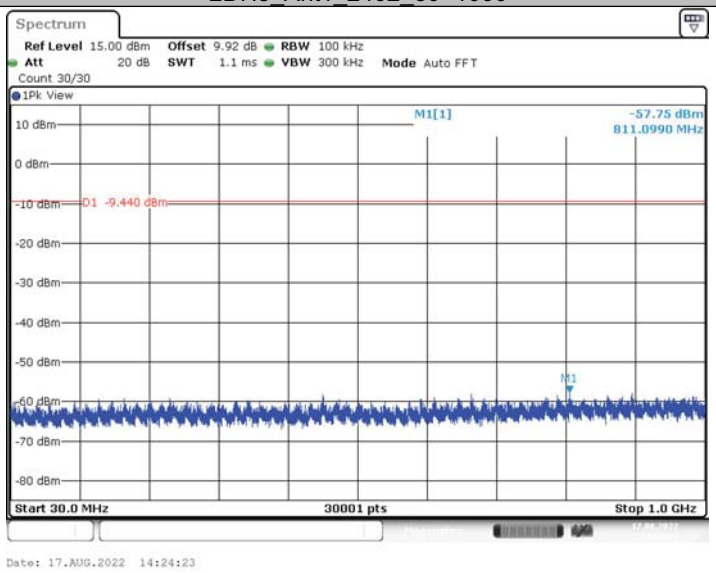
DH5_Ant1_2480_1000~26500



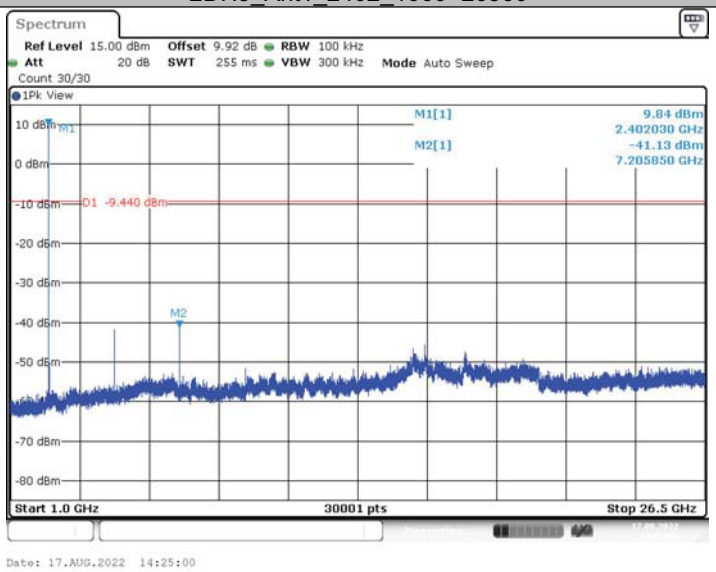
2DH5_Ant1_2402_0~Reference



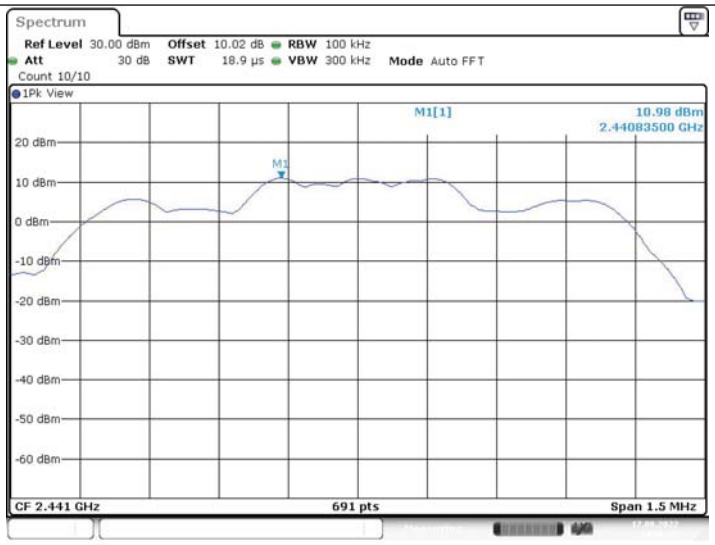
2DH5_Ant1_2402_30~1000



2DH5_Ant1_2402_1000~26500



2DH5_Ant1_2441_0~Reference



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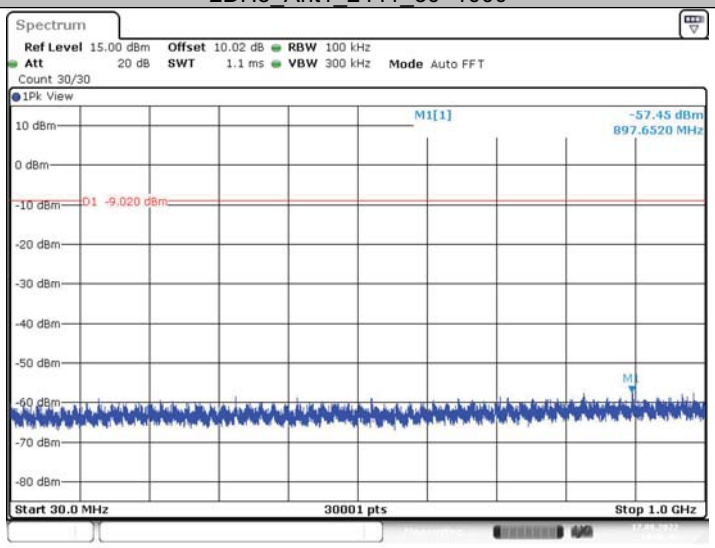
2DH5_Ant1_2441_30~1000



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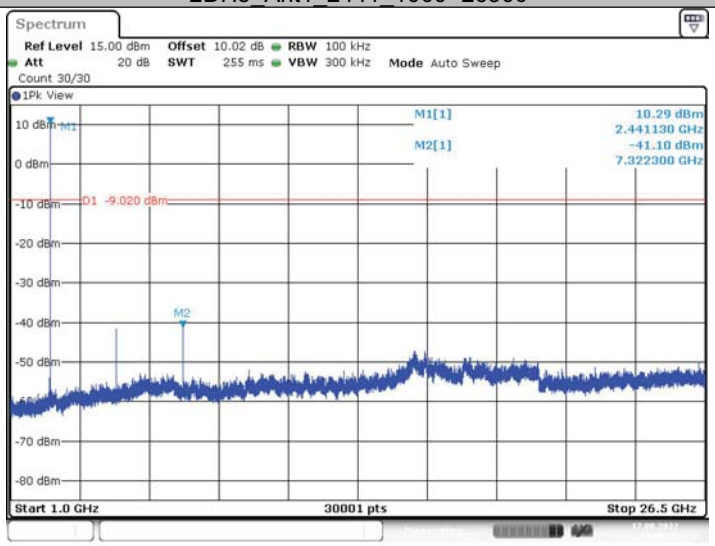
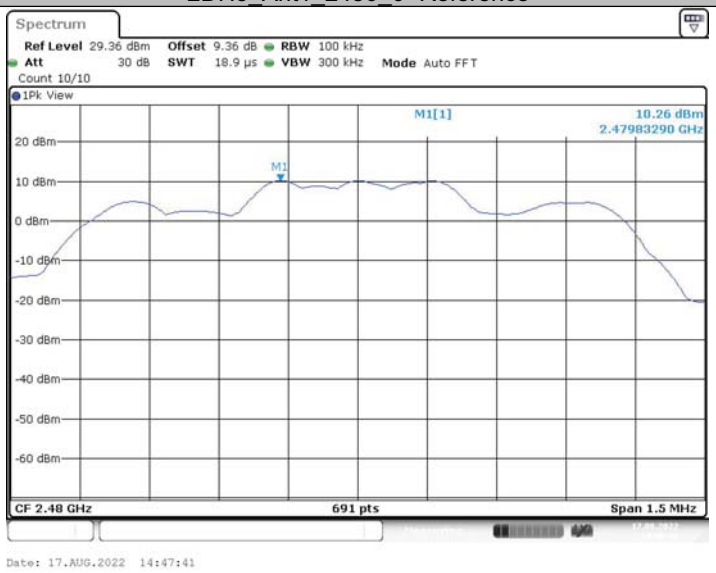
2DH5_Ant1_2441_1000~26500

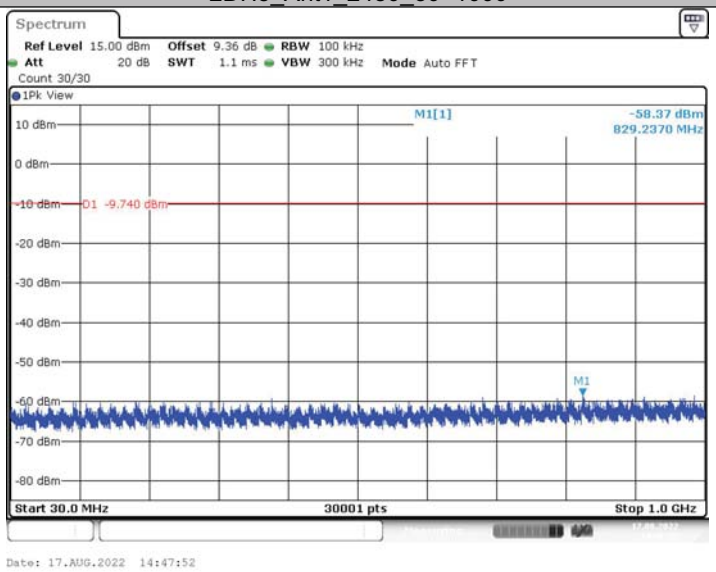


Date: 17.AUG.2022 14:47:25

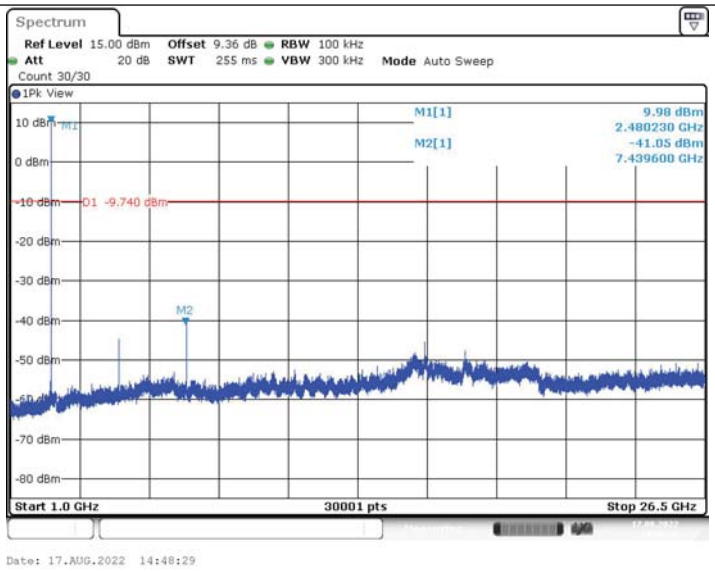
2DH5_Ant1_2480_0~Reference



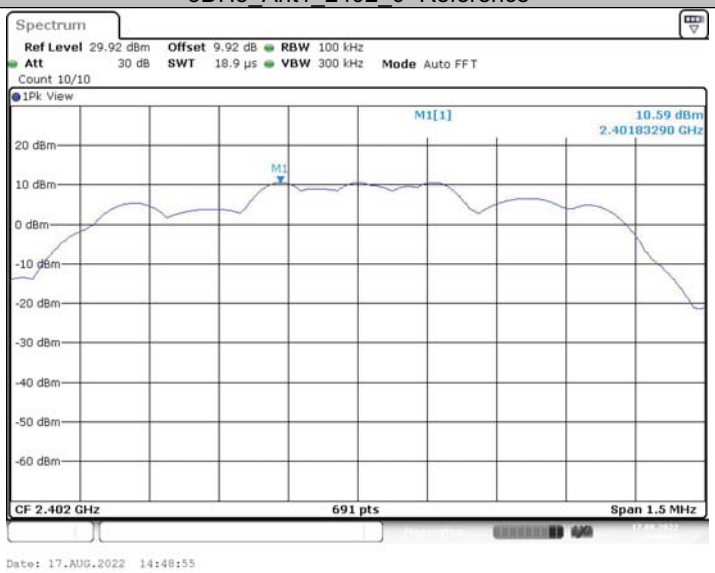
2DH5_Ant1_2480_30~1000



2DH5_Ant1_2480_1000~26500



3DH5_Ant1_2402_0~Reference



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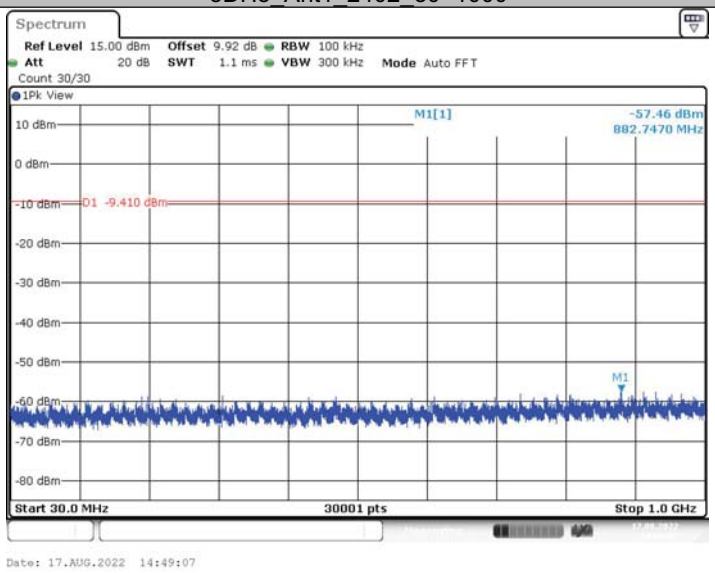
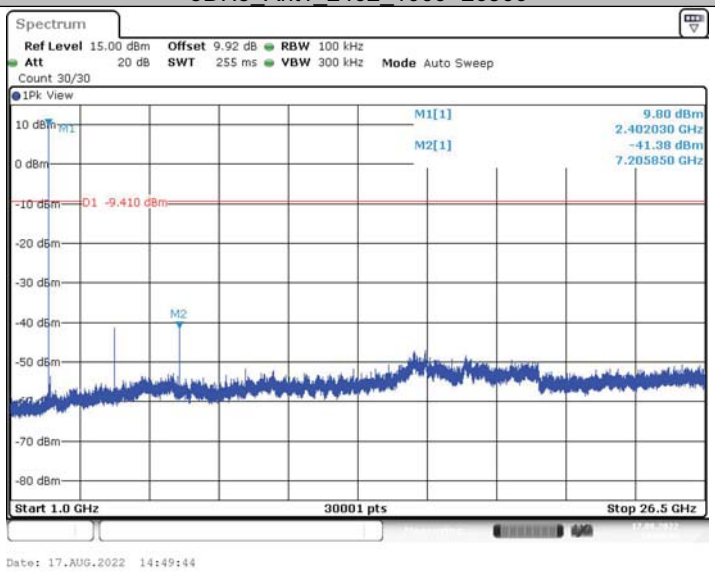
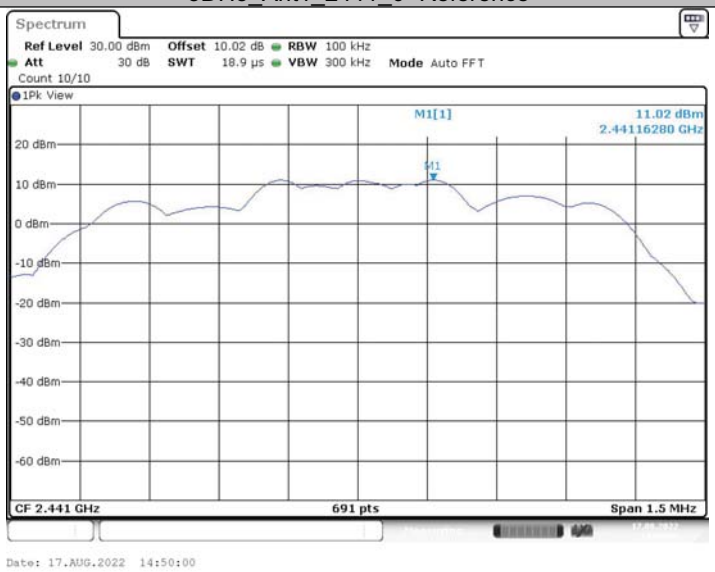


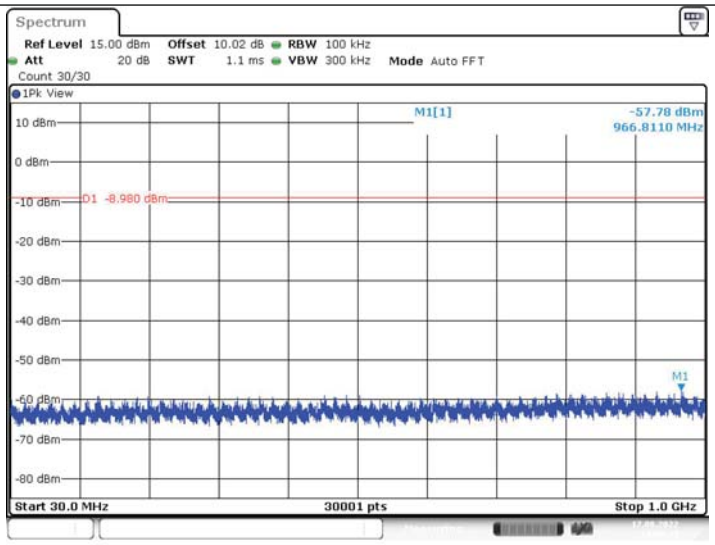
3DH5_Ant1_2402_1000~26500



3DH5_Ant1_2441_0~Reference



3DH5_Ant1_2441_30~1000



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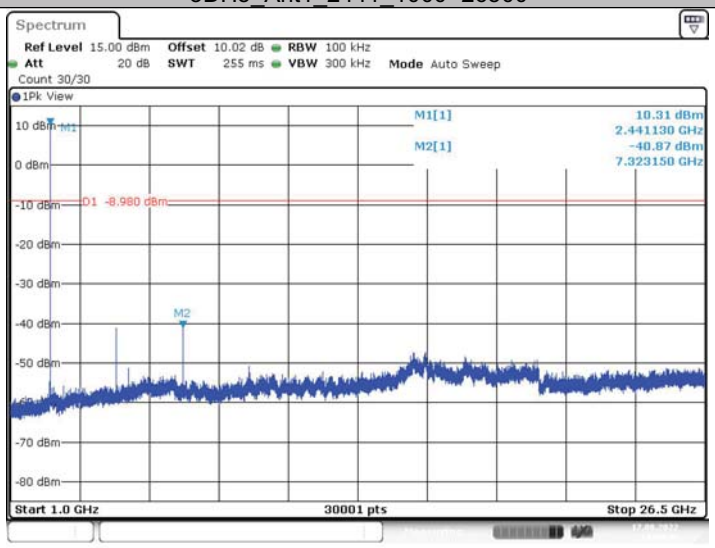
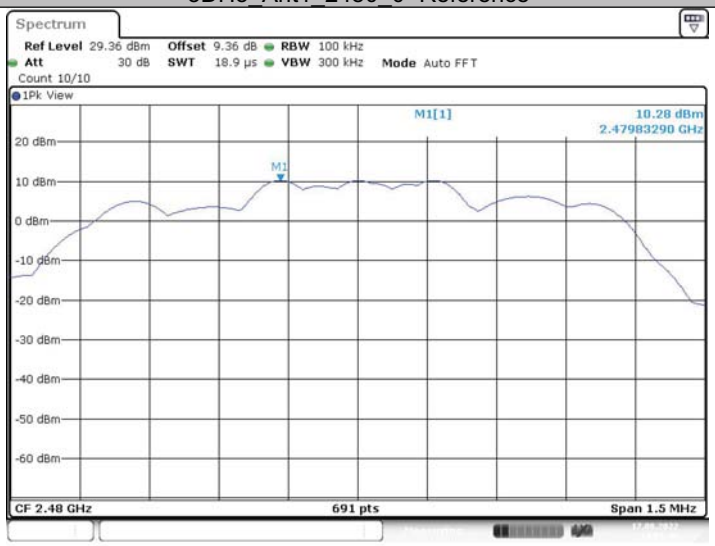
3DH5_Ant1_2441_1000~26500



Date: 17.AUG.2022 14:50:48

3DH5_Ant1_2480_0~Reference



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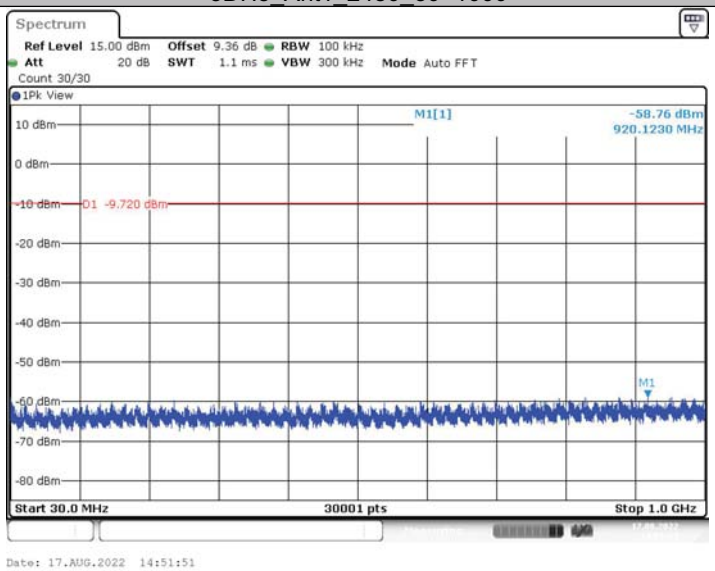
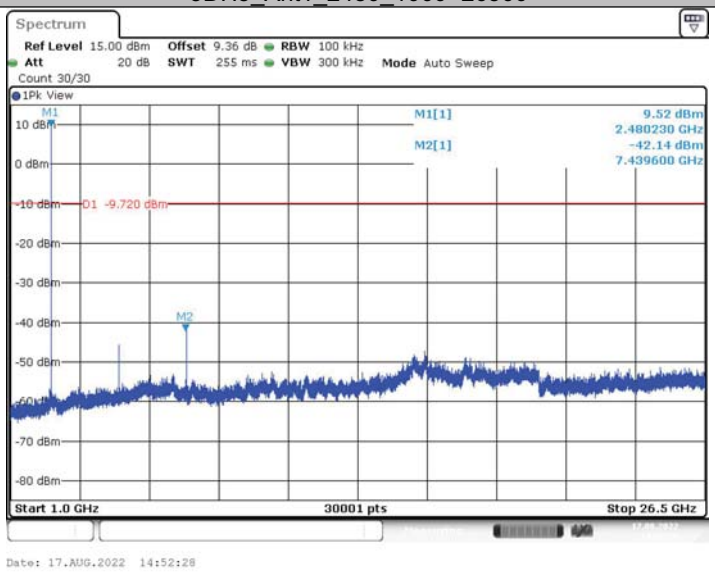
3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



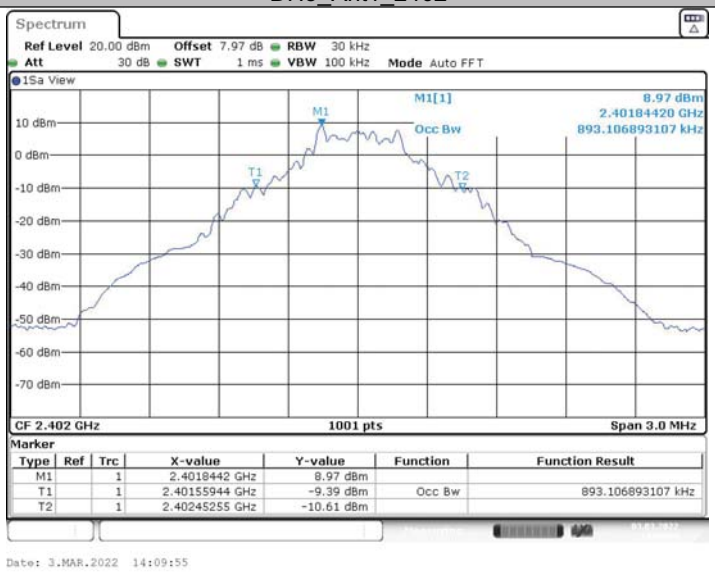
6.8 Occupied Channel Bandwidth

6.8.1 Test Result

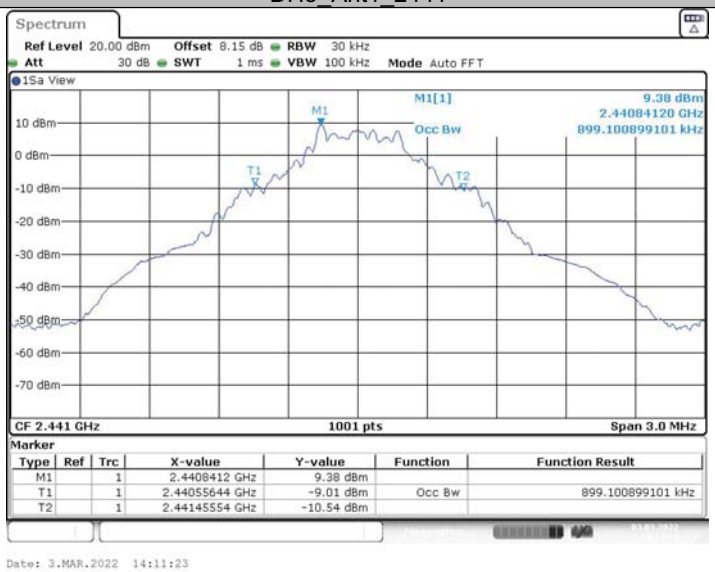
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.893	2401.559	2402.453	---	PASS
		2441	0.899	2440.556	2441.456	---	PASS
		2480	0.896	2479.559	2480.456	---	PASS
2DH5	Ant1	2402	1.175	2401.416	2402.590	---	PASS
		2441	1.175	2440.416	2441.590	---	PASS
		2480	1.175	2479.416	2480.590	---	PASS
3DH5	Ant1	2402	1.172	2401.422	2402.593	---	PASS
		2441	1.172	2440.422	2441.593	---	PASS
		2480	1.172	2479.422	2480.593	---	PASS

6.8.2 Test Graphs

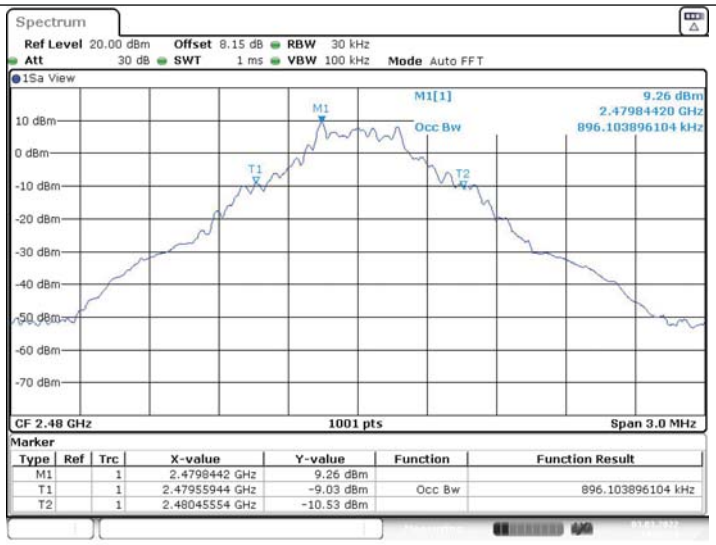
DH5_Ant1_2402



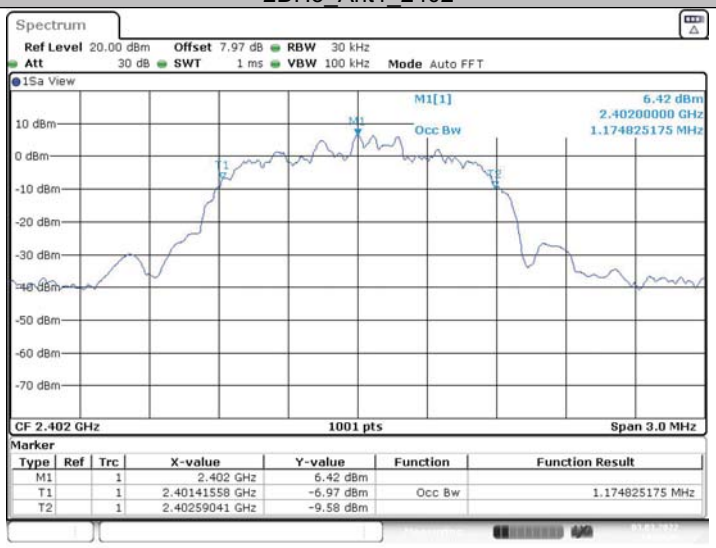
DH5_Ant1_2441



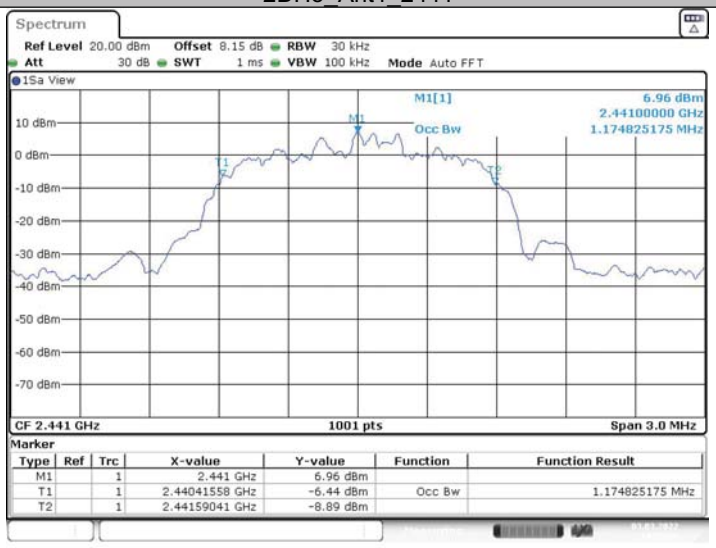
DH5_Ant1_2480



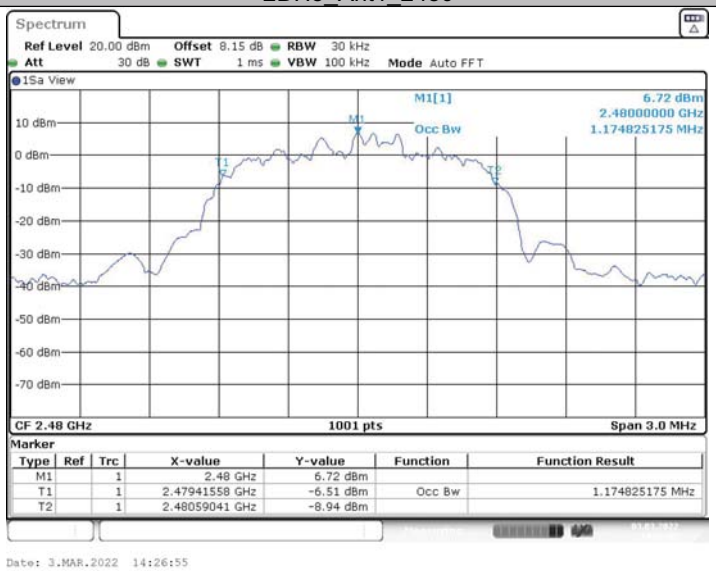
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402

3DH5_Ant1_2441

3DH5_Ant1_2480

Important

(1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.

(2) The test report is invalid if altered.

(3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.

(4) Objections to the test report must be submitted to the laboratory within 15 days.

(5) Generally, commission test is responsible for the tested samples only.

(6)Any photocopies or part photocopies of the test report are forbidden without the written permission from CVC;

Address of the laboratory:

CVC Testing Technology Co., Ltd.
Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China
Post Code：510663 Tel：020-32293888
FAX：020-32293889 E-mail：office@cvc.org.cn