ACCREDITED
CERTIFICATE #5473.01

Test Report No.:
FCC2022-0038-RF3

RF Test Report

EUT	:	**IoT Display**
MODEL	:	**DS7610-915M**
BRAND NAME	:	**Milesight**
APPLICANT	:	**Xiamen Milesight IoT Co., Ltd.**
CLASSIFICATION OF TEST	:	**N/A**

CVC Testing Technology Co., Ltd.

Applicant	**Name: Xiamen Milesight IoT Co., Ltd.** **Address: Building C09, Software Park Phase III, Xiamen 361024, Fujian, China**
Manufacturer	**Name: Xiamen Milesight IoT Co., Ltd.** **Address: Building C09, Software Park Phase III, Xiamen 361024, Fujian, China**
Equipment Under Test	**Name: IoT Display** **Model/Type: DS7610-915M** **Additional Models/Types: See Section 2.2** **Brand: Milesight** **Serial NO.: N/A** **Sampe NO.: 4-1**

Date of Receipt.	**2022.07.11**	Date of Testing	**2022.07.11～2022.12.06**

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. Seal of CVC **Issue Date: 2022.12.10**

Tested by:	Reviewed by:	Approved by:
Xu ZhenFei	Liu YongHai	Chen HuaWen
Name Signature	Name Signature	Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2022-0038-RF3	Original release	2022.12.10

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15 Subpart C			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
FCC Part 15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit
FCC Part 15.247(a)(1)	Number of Hopping Frequency Used	PASS	Meet the requirement of limit.
FCC Part 15.247(a)(1)	Hopping Channel Separation	PASS	Meet the requirement of limit.
FCC Part 15.247(a)(1)	Dell Time of Each Channel	PASS	Meet the requirement of limit.
FCC Part 15.247(a)(1)	20dB Emissions Bandwidth	PASS	Meet the requirement of limit.
---	Occupied Channel Bandwidth	N/A	For reference
FCC Part 15.247(b)	Conducted Output Power	PASS	Meet the requirement of limit.
FCC Part 15.247(d), FCC Part 15.209,15.205	Radiated Emission and Restricted bands Measurements	PASS	Meet the requirement of limit.
FCC Part 15.247(d)	Out of band Emission and Band edge measurements	PASS	Meet the requirement of limit.
FCC Part 15.203 FCC Part 15.247(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	CRTDSWKSR 44301	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 Spurious Test 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	ESCI	100857	WKNB-0081	R&S	2023-12-08
EMI Test Receiver	ESR3	102394	VGDY-0705	R&S	2023-03-04
LISN	NSLK 8127	8127644	VGDY-0150	SCHWARZBECK	2023-09-04
LISN	NSLK 8128	8128-316	VGDY-0149	SCHWARZBECK	2023-09-04
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
Plus Limiter（#2）	VTSD 9561	9561-F017	VGDY-0152	SCHWARZBECK	2024-09-04
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
Audio Signal Generator	GAG-810	EK871591	EM-000309	GW	2023-12-08
Shielding Room(#1)	GP1A	001	WKNF-0001	LEINING	2024-08-08
Shielding Room(#2)	GP1A	002	WKNF-0006	LEINING	2024-08-08
Current probe	EZ-17	0816.2063.02	EM-000567	R&S	2023-01-16

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

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	IoT Display
BRAND	Milesight
MODEL	DS7610-915M
ADDITIONAL MODEL	See Section 2.2
FCC ID	2AYHY-DS7610
POWER SUPPLY	1. DC 5V from USB host unit 2. DC 56V from POE 3. DC 12V from Adapter
MODULATION TYPE	GFSK, π/4 DQPSK, 8DPSK
OPERATING FREQUENCY	2402MHz~2480MHz
NUMBER OF CHANNEL	79
PEAK OUTPUT POWER	7.05dBm (Max. Measured)
ANTENNA TYPE（Remark 4）	Ceramic Antenna, with 2.26dBi gain
HARDWARE VERSION:	UD00-00-V1.2
SOFTWARE VERSION:	72.0.0.5-r1
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.: FCC2022-0038-E).
4. Please refer to the antenna report.
5. The EUT have SISO function, provides 1 completed transmitter and 1 receiver.

2.2 ADDITIONAL MODELS/TYPES

	Models
1	DS7610-9M
2	NH7610-915M
3	NH7610-9M

Note:
The only differences are silk-screen 、trade name and model no. for trading purpose.

2.3 OTHER INFORMATION

Operation frequency each of channel.

Operation Frequency Each of Channel							
For BT (GFSK, π/4 DQPSK)							
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		

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.

2.4 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
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	BT LINK

Where **RE < 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
RE<1G	25.2deg. C, 55%RH	DC 12V from Adapter	Li JiaLing
RE≥1G	25.2deg. C, 55%RH	DC 12V from Adapter	Li JiaLing
PLC	25.6deg. C, 54%RH	DC 12V from Adapter	Li JiaLing
APCM	24.9deg. C, 58%RH	DC 5V from USB host unit	Liu ShiWei

2.5 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

2.6 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	N/A	N/A	N/A	N/A	N/A

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.		

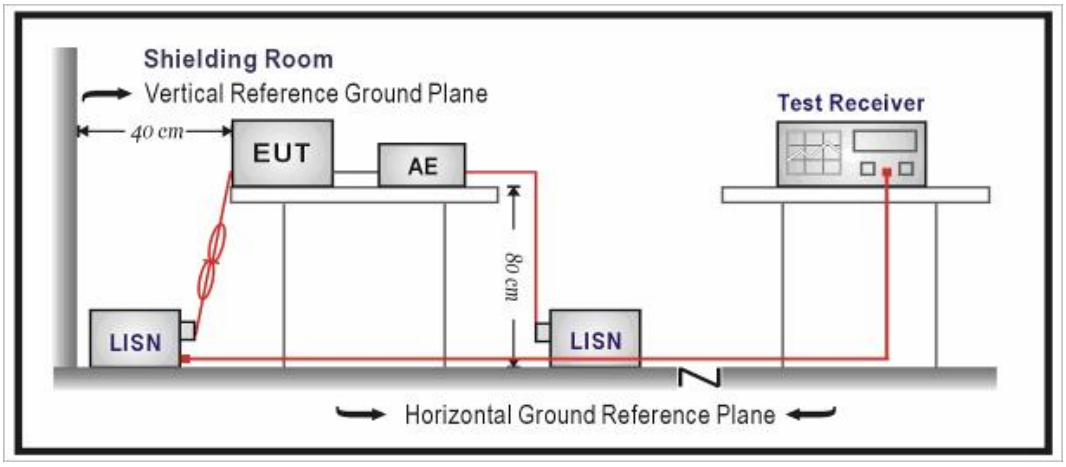
3.1.2 Measurement procedure

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.

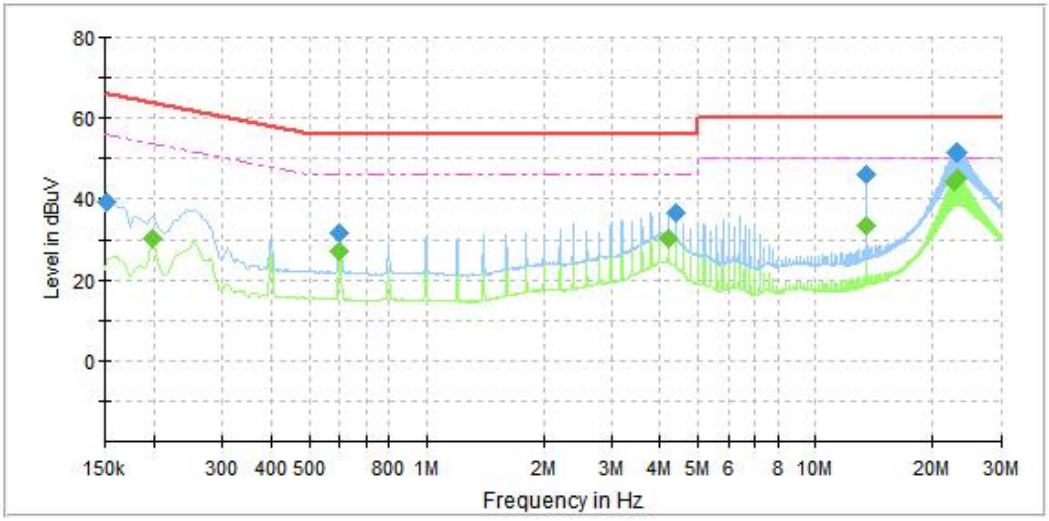
c. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.1.3 Test setup



3.1.4 Test results

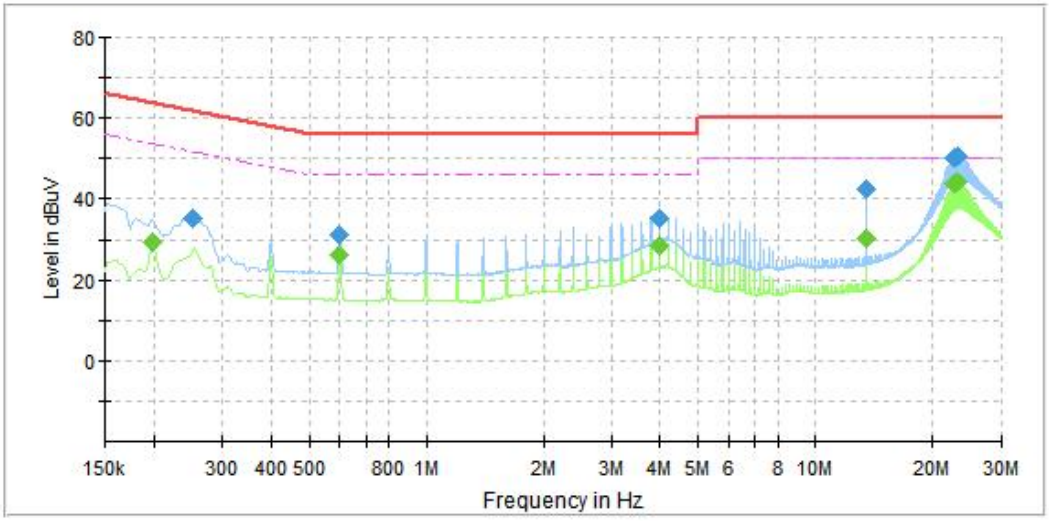
Test Mode	BT Link	Frequency Range	150KHz ~ 30MHz
PHASE	Line (L)		



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.152	39.4	---	65.9	26.5	L1	19.5
2	0.200	---	30.4	53.6	23.2	L1	19.5
3	0.600	---	27.0	46.0	19.0	L1	19.6
4	0.600	31.8	---	56.0	24.2	L1	19.6
5	4.196	---	30.1	46.0	15.9	L1	19.6
6	4.396	36.7	---	56.0	19.3	L1	19.6
7	13.560	---	33.4	50.0	16.6	L1	19.9
8	13.560	46.2	---	60.0	13.9	L1	19.9
9	22.574	---	44.5	50.0	5.5	L1	19.9
10	22.974	51.6	---	60.0	8.4	L1	19.9
11	**23.172**	**---**	**45.1**	**50.0**	**4.9**	**L1**	**19.9**
12	23.174	51.5	---	60.0	8.5	L1	19.9

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

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



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.200	---	29.4	53.6	24.2	N	19.5
2	0.251	35.4	---	61.7	26.3	N	19.6
3	0.600	---	26.1	46.0	19.9	N	19.6
4	0.600	31.1	---	56.0	24.9	N	19.6
5	3.995	---	28.5	46.0	17.5	N	19.6
6	3.995	35.2	---	56.0	20.8	N	19.6
7	13.560	---	30.1	50.0	19.9	N	20.1
8	13.560	42.5	---	60.0	17.5	N	20.1
9	22.569	---	43.6	50.0	6.4	N	20.2
10	22.574	50.1	---	60.0	9.9	N	20.2
11	23.174	---	44.2	50.0	5.8	N	20.2
12	23.174	50.8	---	60.0	9.2	N	20.2

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

3.2 RADIATED EMISSION AND RESTRICTED BANDS MEASUREMENTS

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

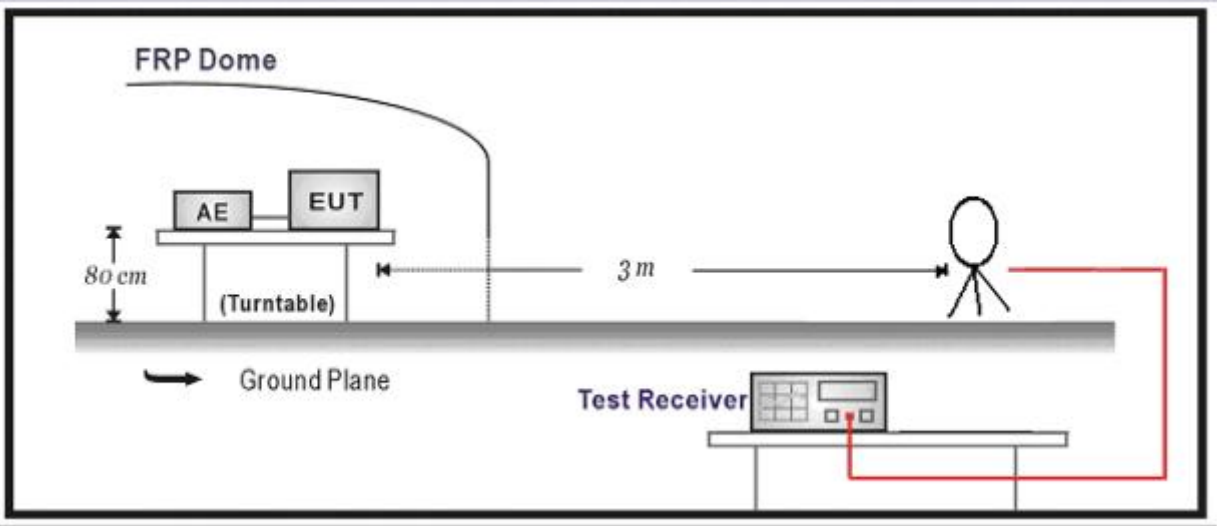
a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving 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:

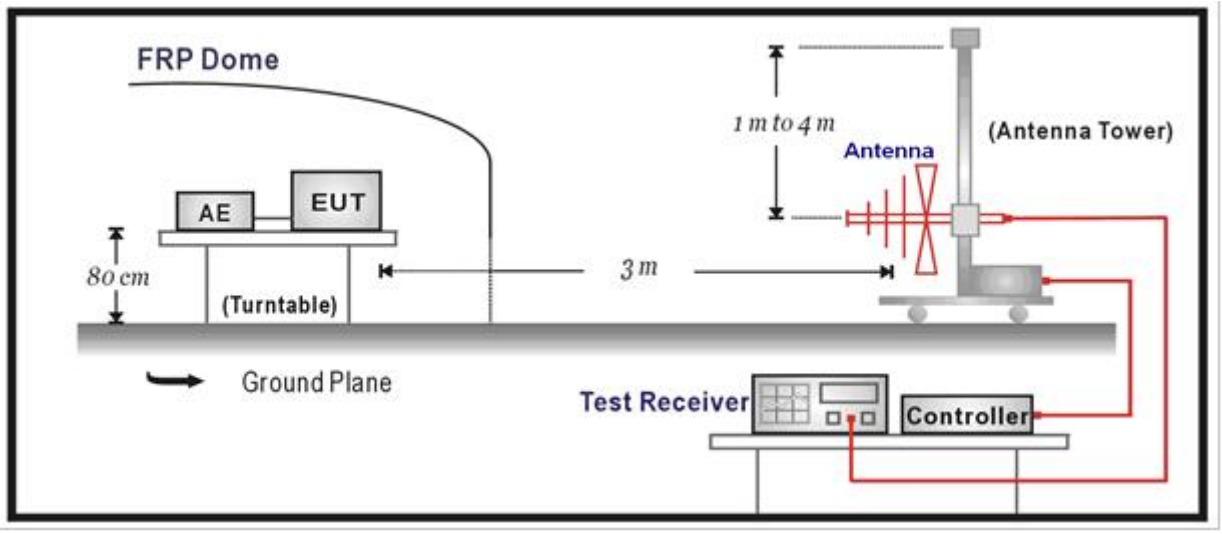
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution 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

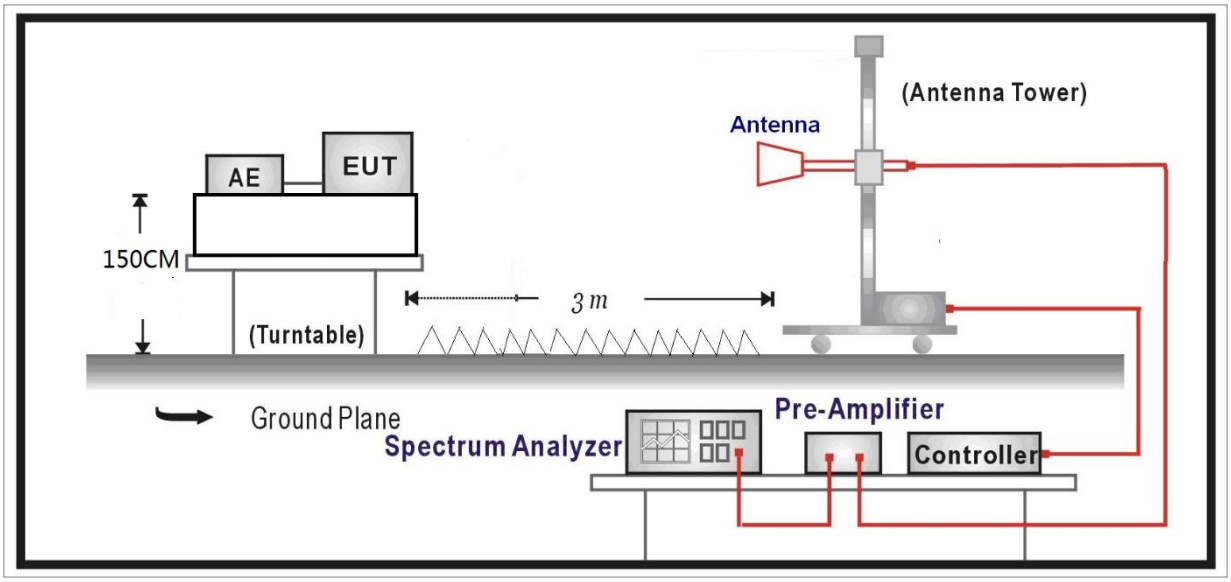
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:

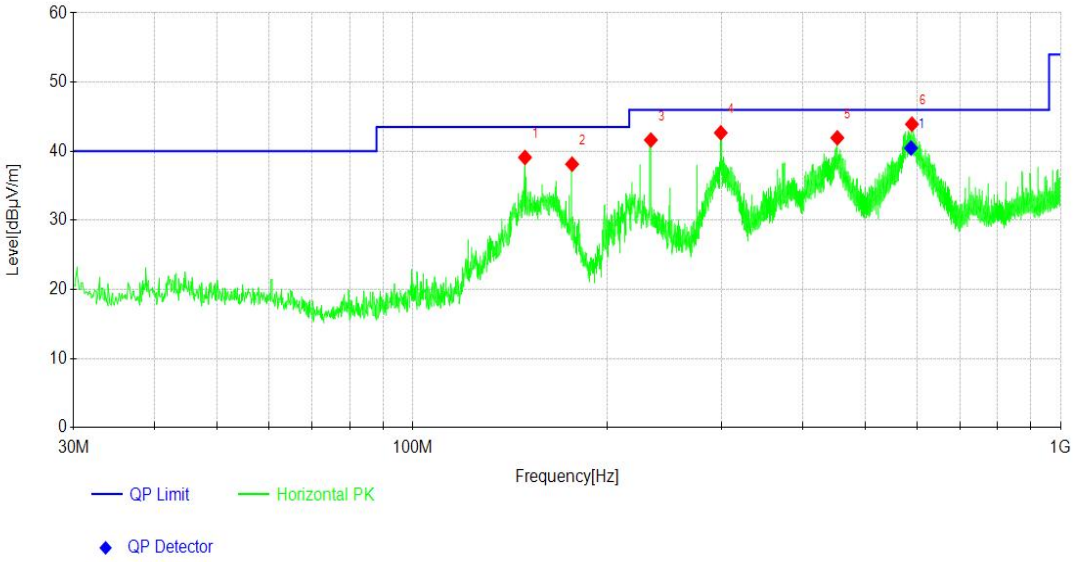


3.2.4 Test results

BELOW 1GHz WORST-CASE DATA:

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

Horizontal

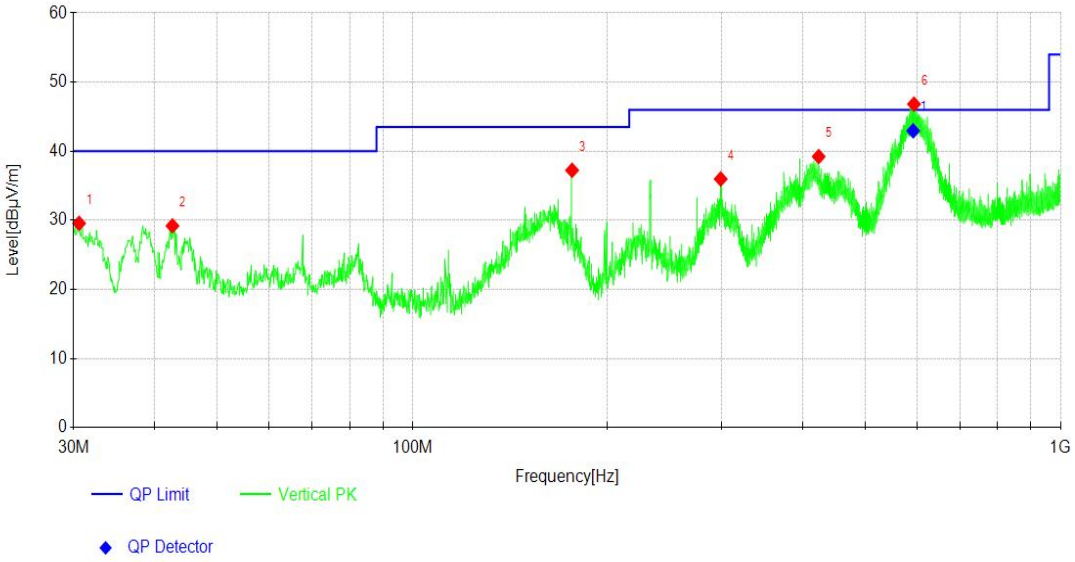


NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]
1	149.1279	18.69	20.41	39.10	43.50	4.40	200	36
2	176.2906	19.10	19.03	38.13	43.50	5.37	200	357
3	233.2353	23.54	18.09	41.63	46.00	4.37	100	94
4	299.0079	22.66	20.01	42.67	46.00	3.33	100	83
5	452.3802	18.76	23.18	41.94	46.00	4.06	200	278
6	589.6490	14.60	25.87	40.46	46.00	5.54	180	137.5

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	30.5821	10.46	19.10	29.56	40.00	10.44	100	86
2	42.6113	9.67	19.53	29.20	40.00	10.80	100	80
3	176.2906	18.21	19.03	37.24	43.50	6.26	100	350
4	298.9109	15.97	20.01	35.98	46.00	10.02	200	358
5	423.3743	16.44	22.79	39.23	46.00	6.77	200	356
6	**594.0144**	**17.00**	**25.96**	**42.96**	**46.00**	**3.04**	**102**	**352.4**

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	36.24	-0.15	36.09	54.00	17.91	305	252	AV
2	2390.0000	44.06	-0.15	43.91	74.00	30.09	242	90	PK
3	2402.1212	91.64	-0.03	91.61			291	12	AV
4	2402.1972	91.94	-0.03	91.91			212	7	PK
5	4804.0000	42.76	9.29	52.05	74.00	21.95	184	196	PK
6	4804.0000	34.51	9.29	43.80	54.00	10.20	153	45	AV
7	7206.0000	20.86	12.81	33.67	54.00	20.33	234	18	AV
8	7206.0000	29.28	12.81	42.09	74.00	31.91	239	112	PK
9	9608.0000	27.83	13.32	41.15	74.00	32.85	189	73	PK
10	9608.0000	20.13	13.32	33.45	54.00	20.55	188	127	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	44.00	-0.15	43.85	74.00	30.15	201	317	PK
2	2390.0000	36.48	-0.15	36.33	54.00	17.67	127	284	AV
3	2401.9312	88.82	-0.03	88.79			307	206	AV
4	2402.1782	89.20	-0.03	89.17			207	206	PK
5	4804.0000	42.47	9.29	51.76	74.00	22.24	216	295	PK
6	4804.0000	34.45	9.29	43.74	54.00	10.26	180	128	AV
7	7206.0000	27.21	9.73	36.94	54.00	17.06	297	46	AV
8	7206.0000	31.07	12.85	43.92	74.00	30.08	184	71	PK
9	9608.0000	28.04	13.32	41.36	74.00	32.64	227	179	PK
10	9608.0000	19.66	13.32	32.98	54.00	21.02	130	174	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	42.55	9.84	52.39	74.00	21.61	111	316	PK
2	4882.0000	34.65	9.84	44.49	54.00	9.51	231	243	AV
3	7323.0000	20.84	10.96	31.80	54.00	22.20	186	96	AV
4	7323.0000	29.31	10.96	40.27	74.00	33.73	169	232	PK
5	9764.0000	27.76	13.23	40.99	74.00	33.01	179	28	PK
6	9764.0000	19.39	13.23	32.62	54.00	21.38	253	184	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	42.71	9.84	52.55	74.00	21.45	248	119	PK
2	4882.0000	34.51	9.84	44.35	54.00	9.65	267	217	AV
3	7323.0000	30.14	10.96	41.10	74.00	32.90	293	233	PK
4	7323.0000	27.42	9.73	37.15	54.00	16.85	253	45	AV
5	9764.0000	20.07	13.23	33.30	54.00	20.70	247	195	AV
6	9764.0000	28.79	13.23	42.02	74.00	31.98	252	185	PK

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	95.18	0.32	95.50			245	40	PK
2	2479.9340	94.90	0.32	95.22			300	40	AV
3	2483.5000	37.30	0.46	37.76	54.00	16.24	264	54	AV
4	2483.5000	44.54	0.46	45.00	74.00	29.00	303	138	PK
5	4960.0000	42.77	10.69	53.46	74.00	20.54	238	360	PK
6	4960.0000	34.36	10.69	45.05	54.00	8.95	186	326	AV
7	7440.0000	22.31	9.75	32.06	54.00	21.94	142	212	AV
8	7440.0000	29.96	9.75	39.71	74.00	34.29	141	69	PK
9	9920.0000	28.00	13.83	41.83	74.00	32.17	199	2	PK
10	9920.0000	19.32	13.83	33.15	54.00	20.85	170	2	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2480.0100	86.20	0.31	86.51			204	110	AV
2	2480.2190	86.59	0.32	86.91			193	110	PK
3	2483.5000	37.04	0.46	37.50	54.00	16.50	114	236	AV
4	2483.5000	45.08	0.46	45.54	74.00	28.46	249	98	PK
5	4960.0000	43.34	10.69	54.03	74.00	19.97	169	33	PK
6	4960.0000	34.48	10.69	45.17	54.00	8.83	201	93	AV
7	7440.0000	27.73	9.73	37.46	54.00	16.54	131	46	AV
8	7440.0000	29.19	9.75	38.94	74.00	35.06	160	257	PK
9	9920.0000	19.78	13.83	33.61	54.00	20.39	291	139	AV
10	9920.0000	28.38	13.83	42.21	74.00	31.79	117	16	PK

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]

2DH5-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	36.53	-0.15	36.38	54.00	17.62	207	257	AV
2	2390.0000	45.48	-0.15	45.33	74.00	28.67	128	160	PK
3	2401.9312	91.26	-0.03	91.23			146	15	PK
4	2401.9692	89.26	-0.03	89.23			274	15	AV
5	4804.0000	43.02	9.29	52.31	74.00	21.69	184	195	PK
6	4804.0000	34.84	9.29	44.13	54.00	9.87	235	137	AV
7	7206.0000	20.21	12.81	33.02	54.00	20.98	233	0	AV
8	7206.0000	29.48	12.81	42.29	74.00	31.71	236	272	PK
9	9608.0000	27.76	13.32	41.08	74.00	32.92	230	266	PK
10	9608.0000	19.49	13.32	32.81	54.00	21.19	249	306	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	36.58	-0.15	36.43	54.00	17.57	284	1	AV
2	2390.0000	45.20	-0.15	45.05	74.00	28.95	133	343	PK
3	2401.9882	86.38	-0.03	86.35			278	207	AV
4	2402.1212	88.42	-0.03	88.39			128	207	PK
5	4804.0000	42.27	9.29	51.56	74.00	22.44	146	310	PK
6	4804.0000	34.61	9.29	43.90	54.00	10.10	226	184	AV
7	7206.0000	20.95	12.81	33.76	54.00	20.24	213	192	AV
8	7206.0000	29.44	12.81	42.25	74.00	31.75	253	114	PK
9	9608.0000	27.27	13.32	40.59	74.00	33.41	276	245	PK
10	9608.0000	20.02	13.32	33.34	54.00	20.66	227	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]

2DH5-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	34.48	9.84	44.32	54.00	9.68	115	3	AV
2	4882.0000	42.89	9.84	52.73	74.00	21.27	186	260	PK
3	7323.0000	32.05	10.96	43.01	74.00	30.99	179	101	PK
4	7323.0000	23.95	10.96	34.91	54.00	19.09	245	203	AV
5	9764.0000	22.93	13.23	36.16	54.00	17.84	231	153	AV
6	9764.0000	31.87	13.23	45.10	74.00	28.90	114	39	PK

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4882.0000	34.65	9.84	44.49	54.00	9.51	306	202	AV
2	4882.0000	42.68	9.84	52.52	74.00	21.48	197	271	PK
3	7323.0000	32.03	10.96	42.99	74.00	31.01	120	320	PK
4	7323.0000	23.92	10.96	34.88	54.00	19.12	148	93	AV
5	9764.0000	23.42	13.23	36.65	54.00	17.35	118	225	AV
6	9764.0000	31.52	13.23	44.75	74.00	29.25	227	237	PK

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]

2DH5-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	2479.8010	94.37	0.32	94.69			178	45	PK
2	2480.2190	92.32	0.32	92.64			298	39	AV
3	2483.5000	37.02	0.46	37.48	54.00	16.52	120	104	AV
4	2483.5000	44.54	0.46	45.00	74.00	29.00	249	230	PK
5	4960.0000	42.79	10.69	53.48	74.00	20.52	184	84	PK
6	4960.0000	34.54	10.69	45.23	54.00	8.77	172	55	AV
7	7440.0000	22.12	9.75	31.87	54.00	22.13	307	260	AV
8	7440.0000	29.06	9.75	38.81	74.00	35.19	279	0	PK
9	9920.0000	27.60	13.83	41.43	74.00	32.57	253	127	PK
10	9920.0000	19.90	13.83	33.73	54.00	20.27	128	161	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2480.0860	83.24	0.32	83.56			191	110	AV
2	2480.2190	85.46	0.32	85.78			300	110	PK
3	2483.5000	36.75	0.46	37.21	54.00	16.79	164	268	AV
4	2483.5000	44.19	0.46	44.65	74.00	29.35	134	176	PK
5	4960.0000	42.59	10.69	53.28	74.00	20.72	171	4	PK
6	4960.0000	35.42	11.02	46.44	54.00	7.56	224	255	AV
7	7440.0000	27.74	9.73	37.47	54.00	16.53	155	46	AV
8	7440.0000	29.87	9.75	39.62	74.00	34.38	282	36	PK
9	9920.0000	28.27	13.83	42.10	74.00	31.90	300	278	PK
10	9920.0000	19.61	13.83	33.44	54.00	20.56	301	193	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	36.87	-0.15	36.72	54.00	17.28	208	224	AV
2	2390.0000	44.48	-0.15	44.33	74.00	29.67	292	224	PK
3	2402.0642	90.34	-0.03	90.31			208	14	AV
4	2402.2352	91.66	-0.03	91.63			207	14	PK
5	4804.0000	42.80	9.29	52.09	74.00	21.91	291	202	PK
6	4804.0000	34.63	9.29	43.92	54.00	10.08	309	154	AV
7	7206.0000	20.81	12.81	33.62	54.00	20.38	272	191	AV
8	7206.0000	28.45	12.81	41.26	74.00	32.74	227	191	PK
9	9608.0000	28.62	13.32	41.94	74.00	32.06	247	260	PK
10	9608.0000	19.64	13.32	32.96	54.00	21.04	122	300	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	36.33	-0.15	36.18	54.00	17.82	148	158	AV
2	2390.0000	45.26	-0.15	45.11	74.00	28.89	227	310	PK
3	2401.8932	86.84	-0.03	86.81			290	205	AV
4	2401.9882	88.68	-0.03	88.65			168	205	PK
5	4804.0000	44.57	9.29	53.86	74.00	20.14	158	84	PK
6	4804.0000	34.57	9.29	43.86	54.00	10.14	236	84	AV
7	7206.0000	21.04	12.81	33.85	54.00	20.15	285	21	AV
8	7206.0000	28.93	12.81	41.74	74.00	32.26	165	110	PK
9	9608.0000	29.48	13.32	42.80	74.00	31.20	148	277	PK
10	9608.0000	20.20	13.32	33.52	54.00	20.48	288	277	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	42.32	9.80	52.12	74.00	21.88	215	183	PK
2	4882.0000	34.69	9.80	44.49	54.00	9.51	298	36	AV
3	7323.0000	21.34	11.01	32.35	54.00	21.65	172	295	AV
4	7323.0000	29.58	11.01	40.59	74.00	33.41	243	88	PK
5	9764.0000	27.92	13.25	41.17	74.00	32.83	273	236	PK
6	9764.0000	19.72	13.25	32.97	54.00	21.03	227	187	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	43.73	9.80	53.53	74.00	20.47	159	354	PK
2	4882.0000	34.49	9.80	44.29	54.00	9.71	260	98	AV
3	7323.0000	29.38	11.01	40.39	74.00	33.61	305	3	PK
4	7323.0000	27.92	9.73	37.65	54.00	16.35	129	45	AV
5	9764.0000	19.63	13.25	32.88	54.00	21.12	243	360	AV
6	9764.0000	27.12	13.25	40.37	74.00	33.63	148	124	PK

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	2479.9910	92.22	0.31	92.53			261	39	AV
2	2480.0290	94.61	0.32	94.93			226	39	PK
3	2483.5000	37.12	0.46	37.58	54.00	16.42	212	46	AV
4	2483.5000	44.69	0.46	45.15	74.00	28.85	124	78	PK
5	4960.0000	42.60	10.69	53.29	74.00	20.71	262	70	PK
6	4960.0000	34.39	10.69	45.08	54.00	8.92	293	45	AV
7	7440.0000	21.45	9.75	31.20	54.00	22.80	308	133	AV
8	7440.0000	29.61	9.75	39.36	74.00	34.64	273	128	PK
9	9920.0000	27.29	13.83	41.12	74.00	32.88	185	148	PK
10	9920.0000	19.57	13.83	33.40	54.00	20.60	283	158	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	85.19	0.32	85.51			167	110	PK
2	2479.8770	82.88	0.32	83.20			247	110	AV
3	2483.5000	36.92	0.46	37.38	54.00	16.62	167	1	AV
4	2483.5000	45.12	0.46	45.58	74.00	28.42	194	12	PK
5	4960.0000	42.89	10.69	53.58	74.00	20.42	217	132	PK
6	4960.0000	34.39	10.69	45.08	54.00	8.92	171	0	AV
7	7440.0000	27.77	9.73	37.50	54.00	16.50	205	46	AV
8	7440.0000	29.99	9.75	39.74	74.00	34.26	218	218	PK
9	9920.0000	19.39	13.83	33.22	54.00	20.78	157	208	AV
10	9920.0000	27.56	13.83	41.39	74.00	32.61	255	3	PK

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

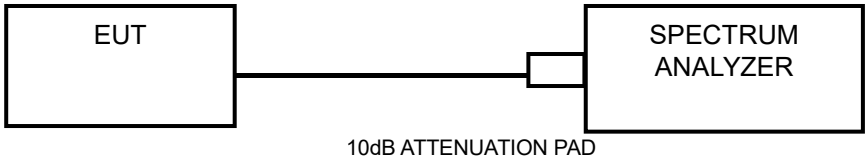
3.3.1 Limits

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

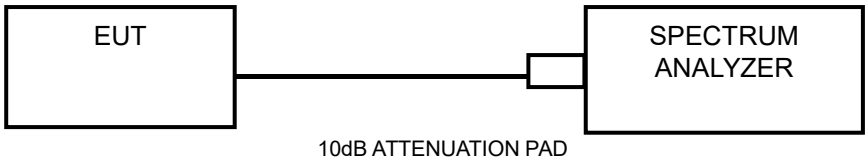
3.4.1 Limits

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

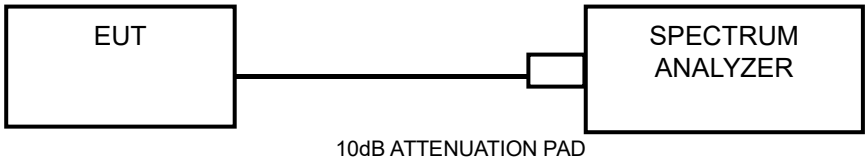
3.5.1 Limits

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

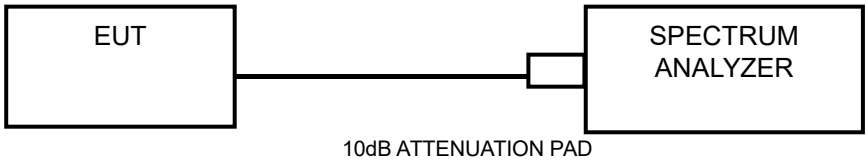
3.6.1 Limits

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

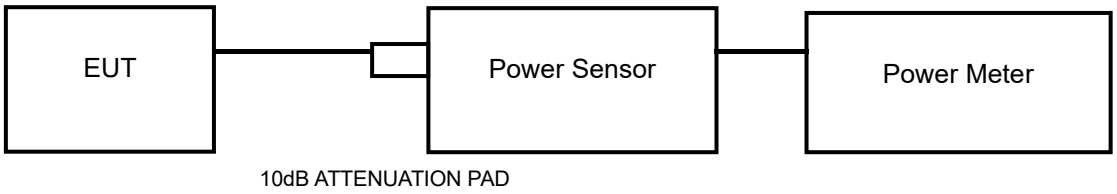
3.7.1 Limits

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 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.

3.7.3 Test setup



3.7.4 Test result

Refer to Appendix A.

3.8 OUT OF BAND EMISSION AND BAND EDGE MEASUREMENTS

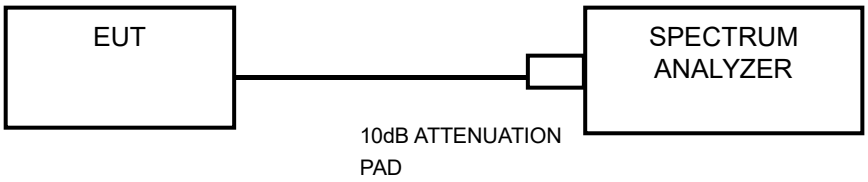
3.8.1 Limits

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

Refer to Appendix 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 and Internal Photos).

6 Appendix A

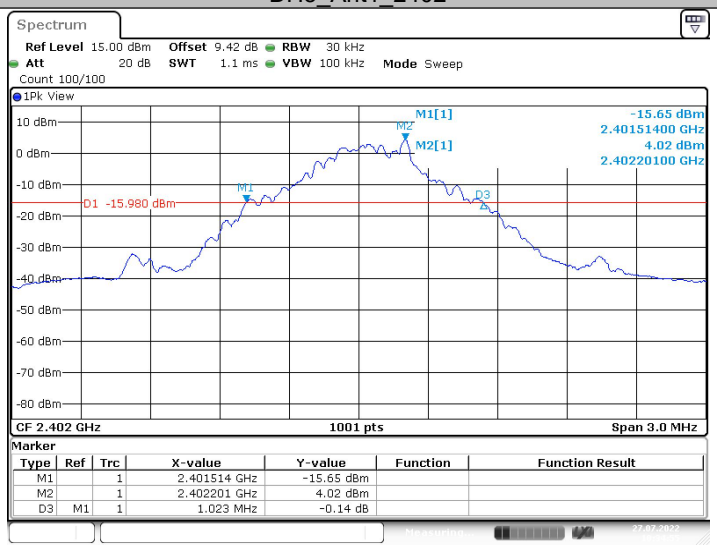
6.1 20dB Emission Bandwidth

6.1.1 Test Result

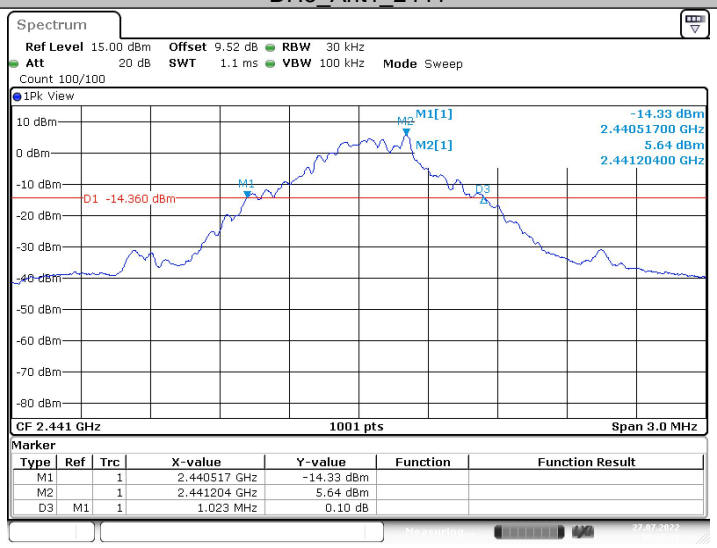
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.02	2401.51	2402.54	---	---
		2441	1.02	2440.52	2441.54	---	---
		2480	1.02	2479.53	2480.55	---	---
2DH5	Ant1	2402	1.36	2401.37	2402.72	---	---
		2441	1.36	2440.37	2441.73	---	---
		2480	1.35	2479.38	2480.73	---	---
3DH5	Ant1	2402	1.32	2401.38	2402.70	---	---
		2441	1.32	2440.39	2441.70	---	---
		2480	1.32	2479.39	2480.71	---	---

6.1.2 Test Graphs

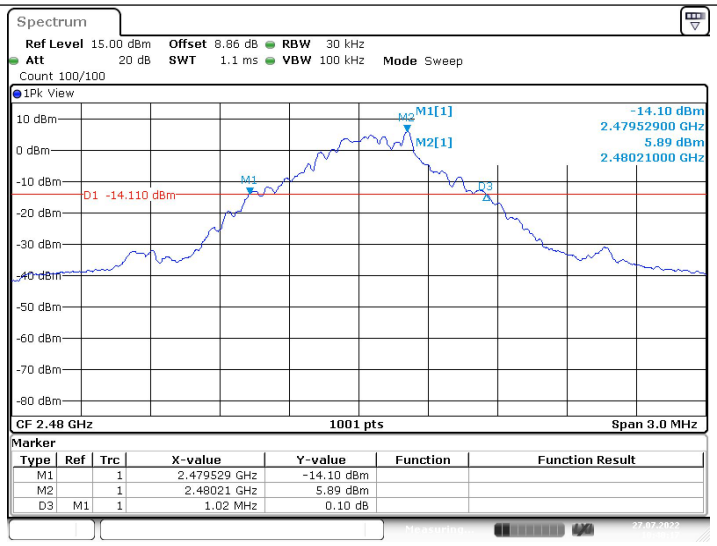
DH5_Ant1_2402



DH5_Ant1_2441

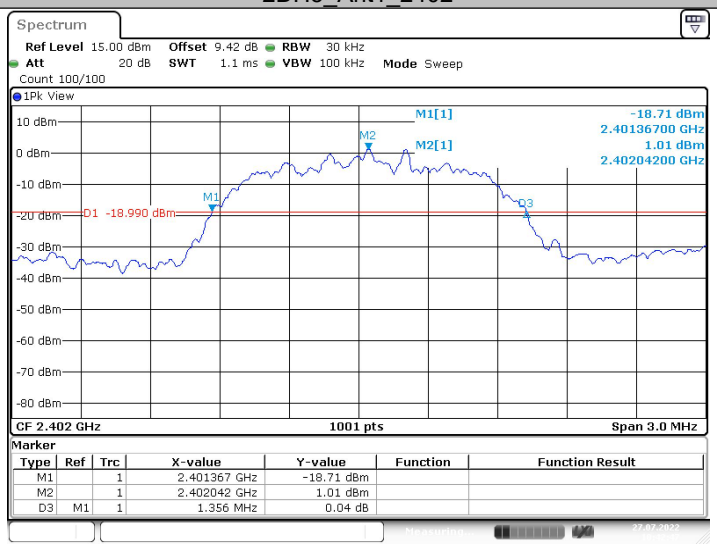


DH5_Ant1_2480



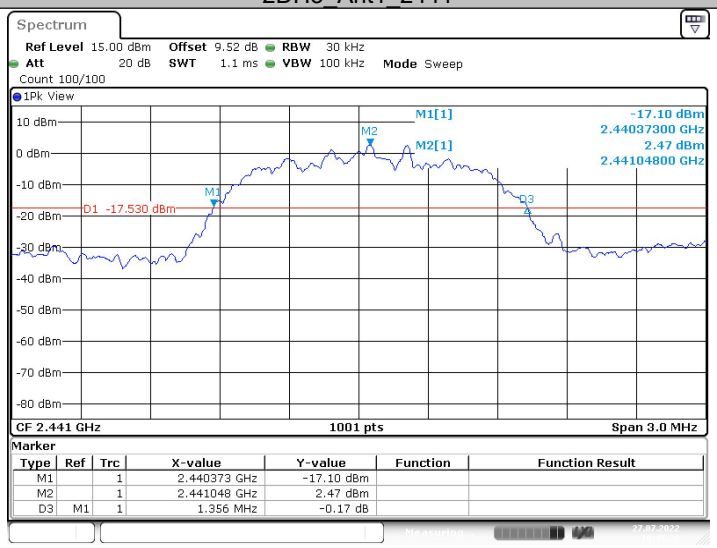
Date: 27.JUL.2022 10:40:18

2DH5_Ant1_2402



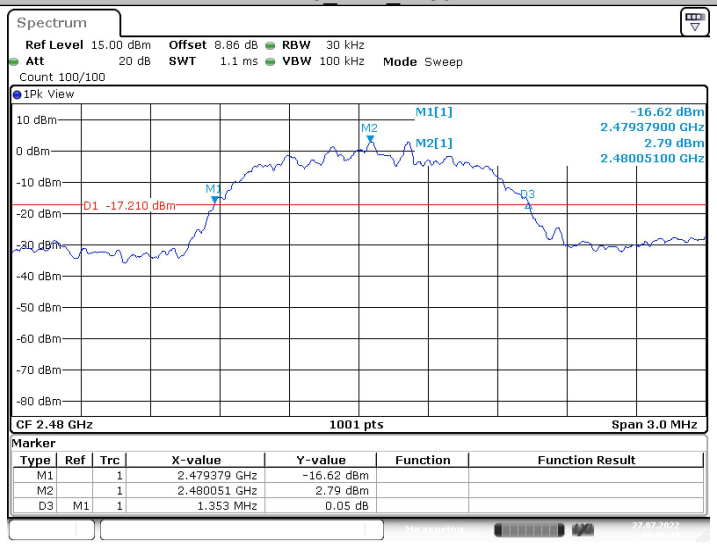
Date: 27.JUL.2022 10:42:48

2DH5_Ant1_2441

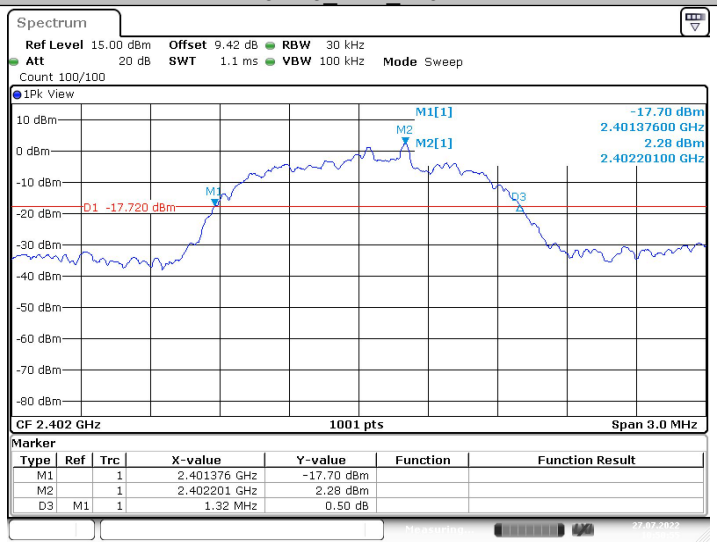


Date: 27.JUL.2022 10:45:26

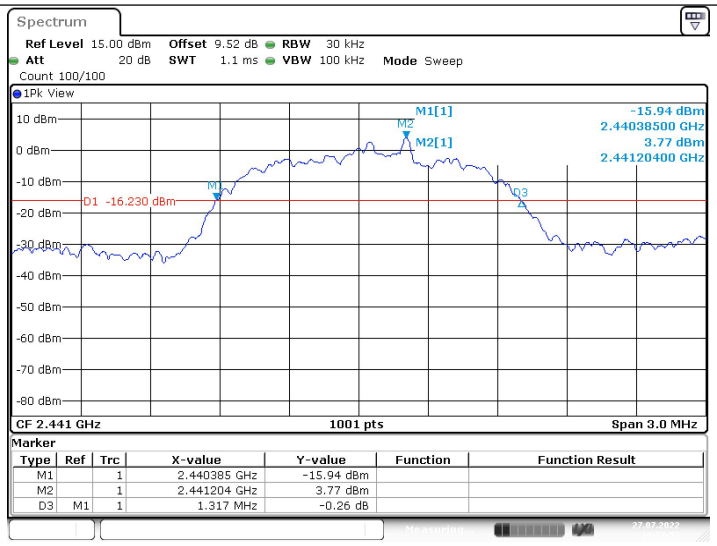
2DH5_Ant1_2480



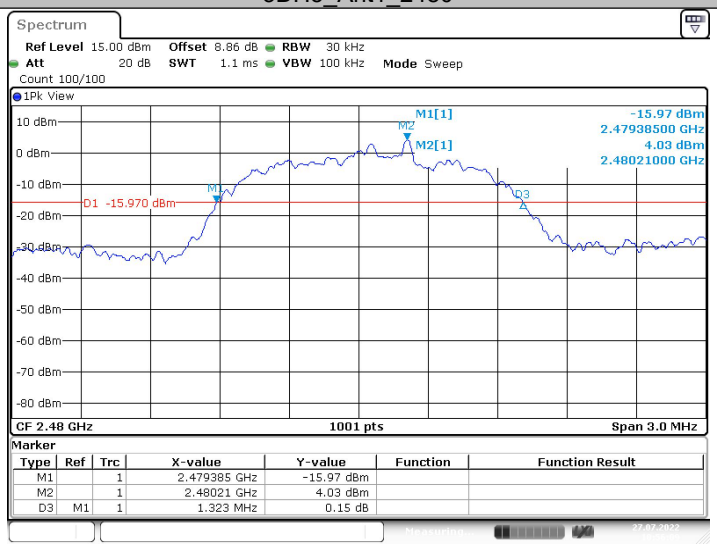
3DH5_Ant1_2402



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	5.27	≤20.97	PASS
		2441	6.84	≤20.97	PASS
		2480	7.05	≤20.97	PASS
2DH5	Ant1	2402	5.17	≤20.97	PASS
		2441	6.58	≤20.97	PASS
		2480	6.73	≤20.97	PASS
3DH5	Ant1	2402	5.41	≤20.97	PASS
		2441	6.82	≤20.97	PASS
		2480	6.97	≤20.97	PASS

6.2.1 Test Result Average

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
DH5	Ant1	2402	-0.12	≤20.97	2.26	2.14	≤36.00	PASS
		2441	0.33	≤20.97	2.26	2.59	≤36.00	PASS
		2480	0.52	≤20.97	2.26	2.78	≤36.00	PASS
2DH5	Ant1	2402	-0.06	≤20.97	2.26	2.2	≤36.00	PASS
		2441	0.52	≤20.97	2.26	2.78	≤36.00	PASS
		2480	0.54	≤20.97	2.26	2.8	≤36.00	PASS
3DH5	Ant1	2402	0.07	≤20.97	2.26	2.33	≤36.00	PASS
		2441	0.5	≤20.97	2.26	2.76	≤36.00	PASS
		2480	0.75	≤20.97	2.26	3.01	≤36.00	PASS

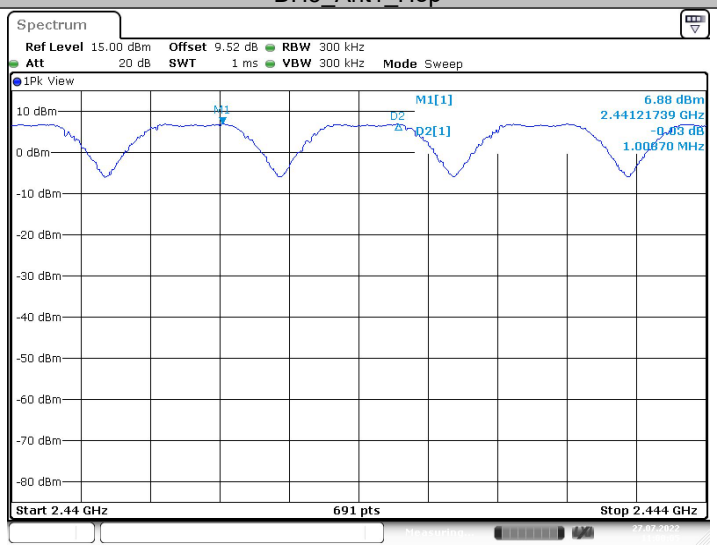
6.3 Hopping Channel Separation

6.3.1 Test Result

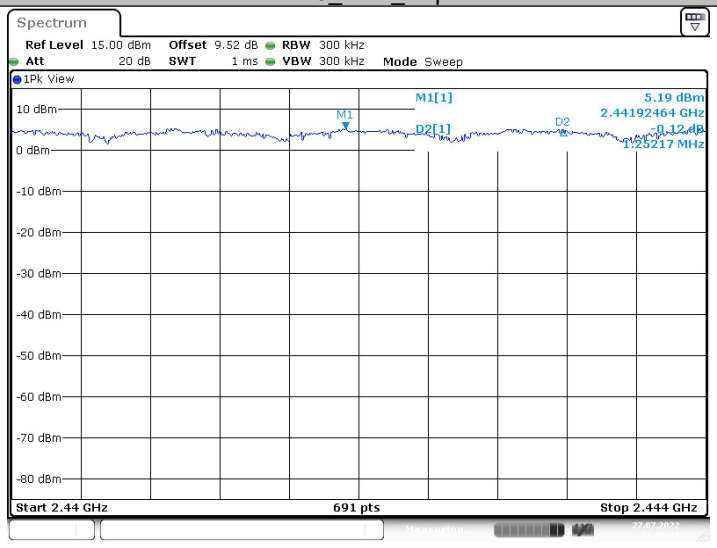
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.009	≥0.680	PASS
2DH5	Ant1	Hop	1.252	≥0.907	PASS
3DH5	Ant1	Hop	1.125	≥0.880	PASS

6.3.2 Test Graphs

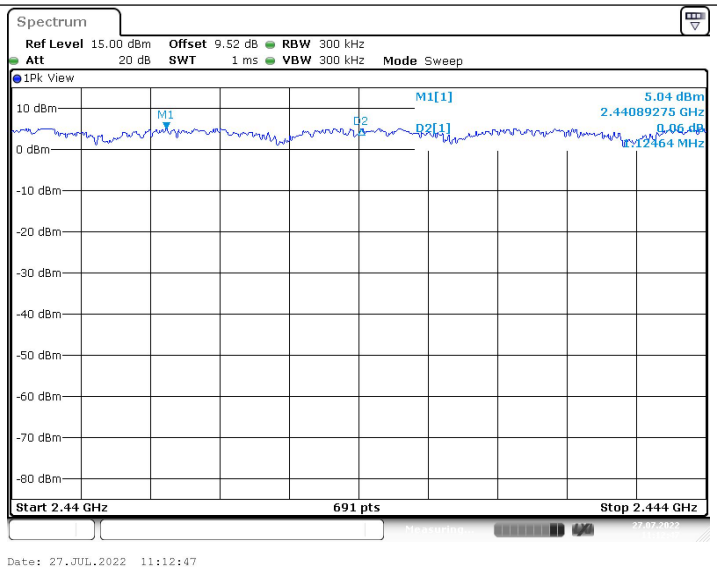
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Spectrum
Ref Level 15.00 dBm Offset 9.52 dB RBW 300 kHz
Att 20 dB SWT 1 ms VBW 300 kHz Mode Sweep
1Pk View
M1[1] 5.04 dBm
2.44089275 GHz
D2[1] 0.06 dB
1.12464 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
Start 2.44 GHz
691 pts
Stop 2.444 GHz
Measuring...
27.07.2022
Date: 27.JUL.2022 11:12:47

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	0.36	320	0.115	≤0.4	PASS
DH3	Ant1	Hop	1.62	160	0.259	≤0.4	PASS
DH5	Ant1	Hop	2.86	106.67	0.305	≤0.4	PASS
2DH1	Ant1	Hop	0.37	320	0.118	≤0.4	PASS
2DH3	Ant1	Hop	1.62	160	0.259	≤0.4	PASS
2DH5	Ant1	Hop	2.87	106.67	0.306	≤0.4	PASS
3DH1	Ant1	Hop	0.37	320	0.118	≤0.4	PASS
3DH3	Ant1	Hop	1.62	160	0.259	≤0.4	PASS
3DH5	Ant1	Hop	2.87	106.67	0.306	≤0.4	PASS