



TEST REPORT

REPORT NUMBER: 123W00020-BT RF

ON

Type of Equipment: 4G Smart Phone
Type of Designation: MobiWire H6322, Altice S35
Brand Name: MobiWire, Altice
Manufacturer: MobiWire SAS
FCC ID: QPN-H6322

ACCORDING TO

FCC Part15

Chongqing Academy of Information and Communications Technology

Month date, year

Jun 16, 2023

Signature



Xiang Luoyong

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.



Report No.: 123W00020-BT RF

Revision Version

Report Number	Revision	Date	Memo
I23W00020-BT RF	00	2023-06-16	Initial creation of test report

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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC/IC Registration Number:	CN1239
Address:	Building C, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

1.2. Testing Environment

Normal Temperature:	15-35°C
Relative Humidity:	25-75%

1.3. Project data

Testing Start Date:	2023-05-23
Testing End Date:	2023-05-26

1.4. Signature



2023-06-16

Dong Junxin
(Prepared this test report)

Date



2023-06-16

Li Xu
(Reviewed this test report)

Date



2023-06-16

Xiang Luoyong
Director of the laboratory
(Approved this test report)

Date

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2. Client Information

2.1. Applicant Information

Company Name:	MobiWire SAS
Address /Post:	107 Boulevard de la Mission Marchand 92400 Courbevoie,France
City:	Courbevoie
Country:	France
Telephone:	+33625028368
Fax:	N/A
Email:	olivier.tiennault@mobiwire.com
Contact Person:	Olivier Tiennault

2.2. Manufacturer Information

Company Name:	MobiWire SAS
Address /Post:	107 Boulevard de la Mission Marchand 92400 Courbevoie,France
City:	Courbevoie
Country:	France
Telephone:	+33625028368
Fax:	N/A
Email:	olivier.tiennault@mobiwire.com
Contact Person:	Olivier Tiennault

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3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	4G Smart Phone
Model name	MobiWire H6322, Altice S35
Brand name	MobiWire, Altice
GSM Frequency Band	GSM:850/ 900/ 1800/1900
WCDMA Frequency Band	WCDMA:B1/B2/B5/B8
LTE Frequency Band	LTE: B1/2/3/4/5/7/8/20/28/38/41
BLUETOOTH Frequency Band	2402MHz-2480MHz
WLAN Frequency Band	Wi-Fi 2.4G:802.11b/g/n, Wi-Fi 5G U-NII-1/ U-NII-2a/U-NII-2c/U-NII-3:802.11a/n/ac
Type of BT modulation	GFSK; $\pi/4$ DQPSK; 8DPSK
Extreme Temperature	-10-55°C
Nominal Voltage	3.85V
Extreme High Voltage	4.4V
Extreme Low Voltage	3.6V

Note: Photographs of EUT are shown in ANNEX A of this test report.

Note: High and low voltage values in extreme condition test are given by manufacturer.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
S4	354365420003740 354365420003757	V01	Mobiwire_H6322_V01	2023-05-23
S8	354365420006222 354365420006230	V01	Mobiwire_H6322_V01	2023-05-23
S9	354365420009044 354365420009051	V01	Mobiwire_H6322_V01	2023-05-23

*EUT ID: is used to identify the test sample in the lab internally.

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note

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BLUETOOTH	CH0-78	2402-2480	--
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3.3. Outline of Equipment under Test

3.4. Internal Identification of AE used during the test

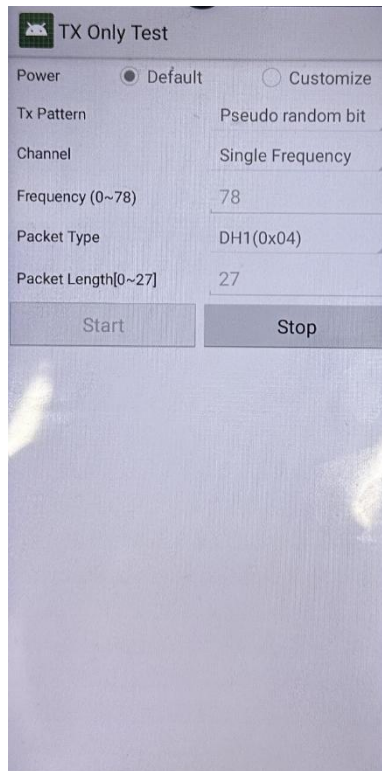
AE ID*	Description	dB*
AE1	RF cable	1dB

*AE ID: is used to identify the test sample in the lab internally.

dB*: is provided customer.

3.5. EUT Test RF Confagle Configuration

EUT uses MTK working control emission measurement, Change power level, channel, rate and HT .



4. Reference Documents

4.1. Documents supplied by applicant

PICS/PIXIT, referring to Annex B for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz	--
KDB 558074	Guidance for Performing Compliance Measurements on Frequency Hopping Spread Spectrum systems (DSS) Operating Under §15.247	2019

5. Test Equipments Utilized

5.1. RF Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Spectrum analyzer	FSQ 26	201137/026	--	--	R&S	2023-06-29
2	Spectrum analyzer	FSW26	104280	--	--	R&S	2023-06-29
3	DC Power Supply	3303D	801128	--	--	Topward	2023-06-29

5.2. RSE and CE Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	EMI Test Receiver	ESU40	100307	--	--	R&S	2023-06-29
2	TRILOG Broadband Antenna	VULB9163	9163-586	--	--	Schwarzbeck	2024-10-28
3	Horn antenna	9120D	1083	--	--	Schwarzbeck	2024-12-14
4	Horn antenna	DATE 1152	LM7127	--	--	ETS	2024-09-06
5	Horn antenna	DATE 1012	LM5945	--	--	ETS	2024-09-06
6	Amplifier1	SCU-08F1	8320027	--	--	R&S	2023-06-29
7	Amplifier2	SCU-18F	180093	--	--	R&S	2023-06-29
8	2-Line V-Network	ENV216	102368	--	--	R&S	2024-05-27
9	Test Receiver	ESR 3	101382	03	3.48 SP2	R&S	2024-01-28
10	Test Receiver	ESW 26	101382	00	1.50 SP1	R&S	2023-06-29

5.3. Climate Chamber

No.	Name	Type	SN	Manufacture	Cal.Due Date
--	--	--	--	--	--

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5.4. Anechoic chamber Vibration table

No.	Name	Type	SN	Manufacture	Cal.Due Date
1	Fully-Anechoic Chamber	FAC5	--	TDK	2024-09-22
2	Anechoic Chamber	SAC 10	--	TDK	2026-08-26

5.5. Test software

No.	Name	version	SN	Manufacture
1	EMC32 (Transmitter Spurious Emission-Radiated Above 1GHz)	V 10.20.01	--	R&S
2	EMC32 (Transmitter Spurious Emission-Radiated Below 1GHz)	V9.26.01	--	R&S
3	EMC32 (AC Powerline Conducted Emission)	V 10.40.10	--	R&S

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6. Test Results

6.1. Summary of Test Results

A brief summary of the tests carried out is shown as following.

FCC Rules	Name of Test	Result
15.247(b)	Maximum Peak Output Power	Pass
15.247(a)	20dB Occupied Bandwidth	Pass
15.247(a)	99% Occupied Bandwidth	Pass
15.247 (d)	Band Edges Compliance	Pass
15.247(a)	Time Of Occupancy (Dwell Time)	Pass
15.247(a)	Carrier Frequency Separation	Pass
15.247(a)	Number Of Hopping Channels	Pass
15.247(d)	Transmitter Spurious Emission-Conducted	Pass
15.247,15.209,15.205	Transmitter Spurious Emission-Radiated	Pass
15.207	AC Powerline Conducted Emission	Pass

NOTE:

The MobiWire H6322, Altice 535, manufactured by MobiWire SAS is a new product for testing.
The following configurations were tested for radiation spurious emission:

6.2. Peak Output Power-Conducted

Specifications:	FCC 47 Part 15.247(b)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(b)(3)	<30dBm

Measurement Uncertainty:

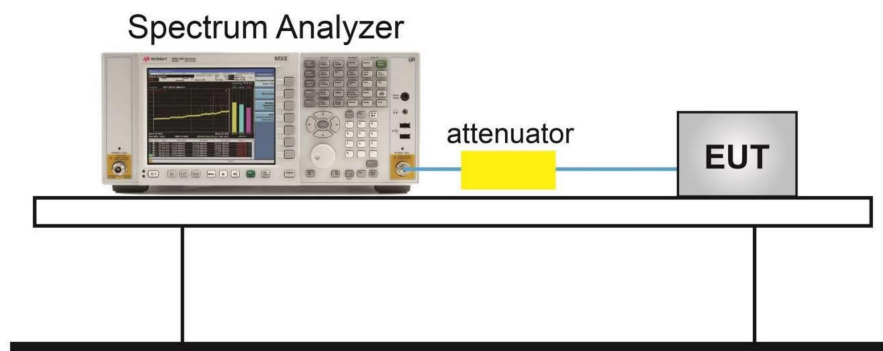
Measurement Uncertainty	±0.36dB
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Test Procedure

The measurement is according to ANSI C63.10 clause 7.8.5.

1. The output power of EUT was connected to the spectrum analyzer by cable and divide. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Measure the conducted output power and record the results it

Test setup



Antenna gain of EUT

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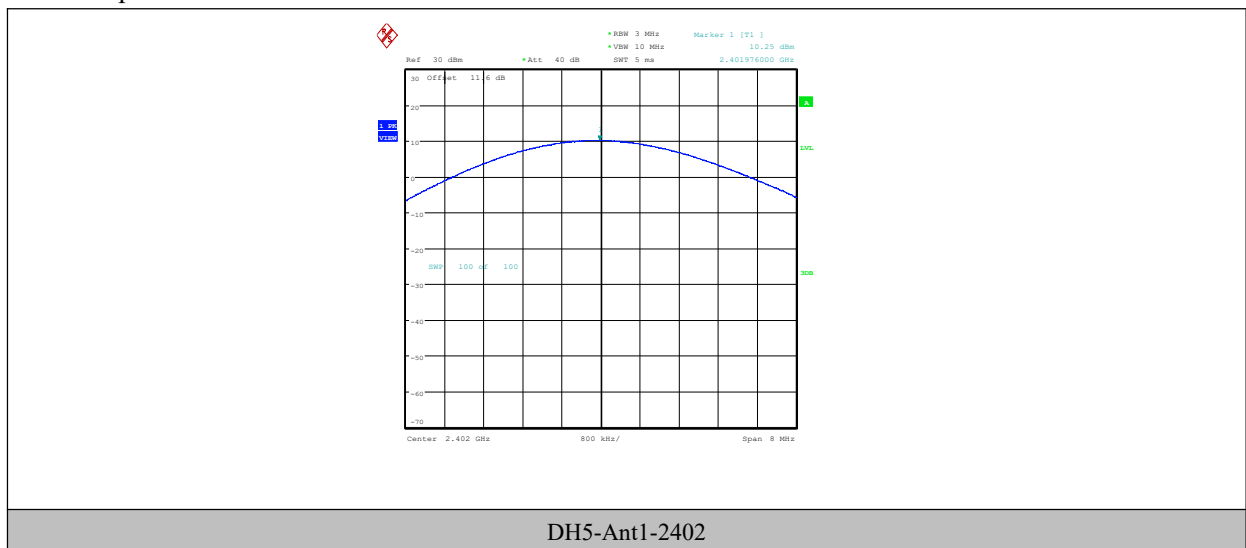
No.	Item(s)	Data
1	Antenna gain of EUT	1.15 dBi

Note: The data is provided by the customer may affect the validity of the test results in this report, and the impact and consequences of this shall be undertaken by the customer.

Measurement Results

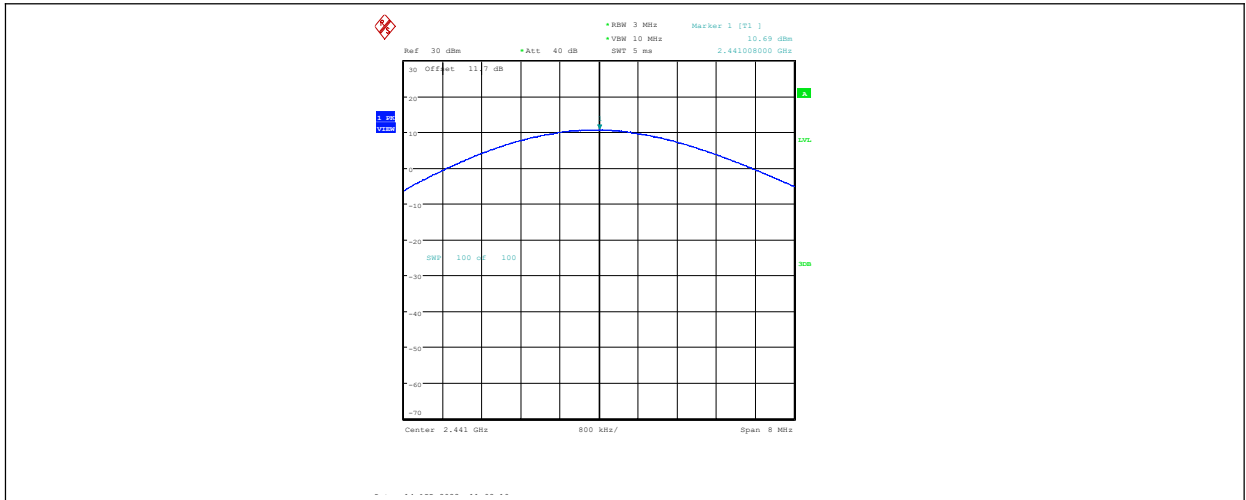
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	10.25	≤30	PASS
DH5	Ant1	2441	10.69	≤30	PASS
DH5	Ant1	2480	10.04	≤30	PASS
2DH5	Ant1	2402	9.96	≤20.97	PASS
2DH5	Ant1	2441	9.88	≤20.97	PASS
2DH5	Ant1	2480	9.28	≤20.97	PASS
3DH5	Ant1	2402	9.99	≤20.97	PASS
3DH5	Ant1	2441	9.87	≤20.97	PASS
3DH5	Ant1	2480	9.3	≤20.97	PASS

Test Graphs

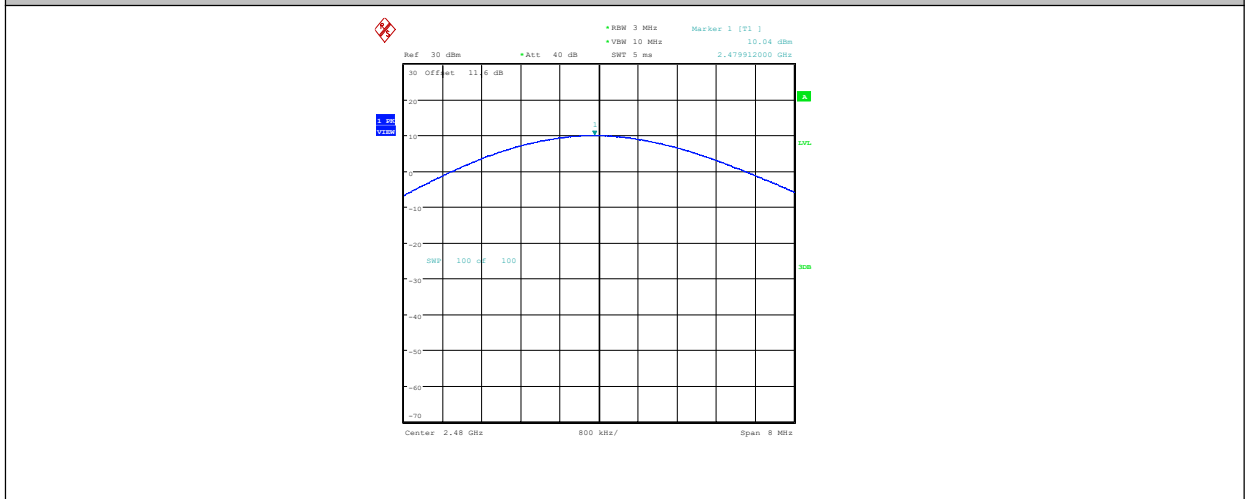


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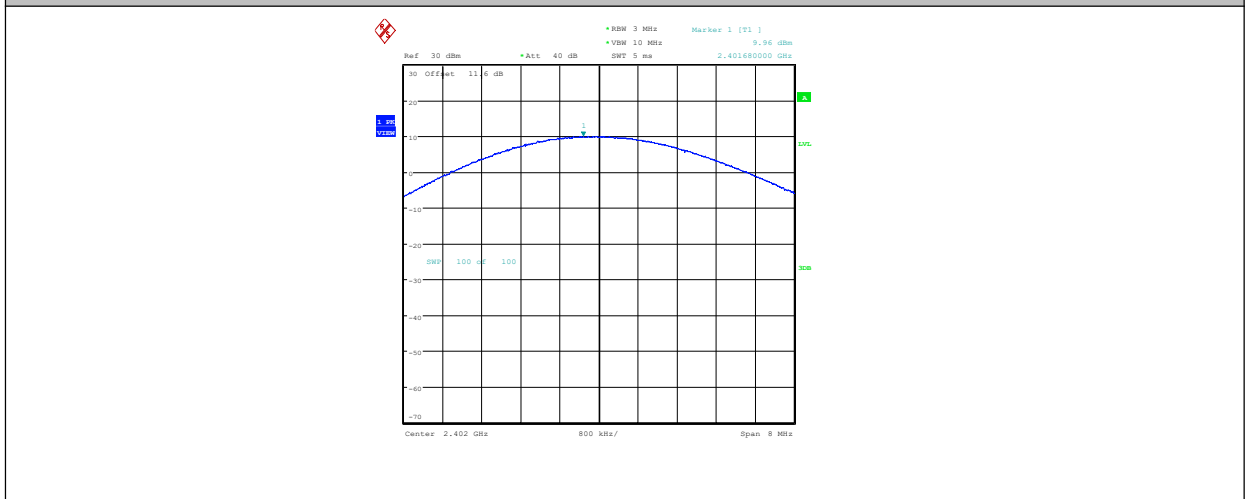
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DH5-Ant1-2441



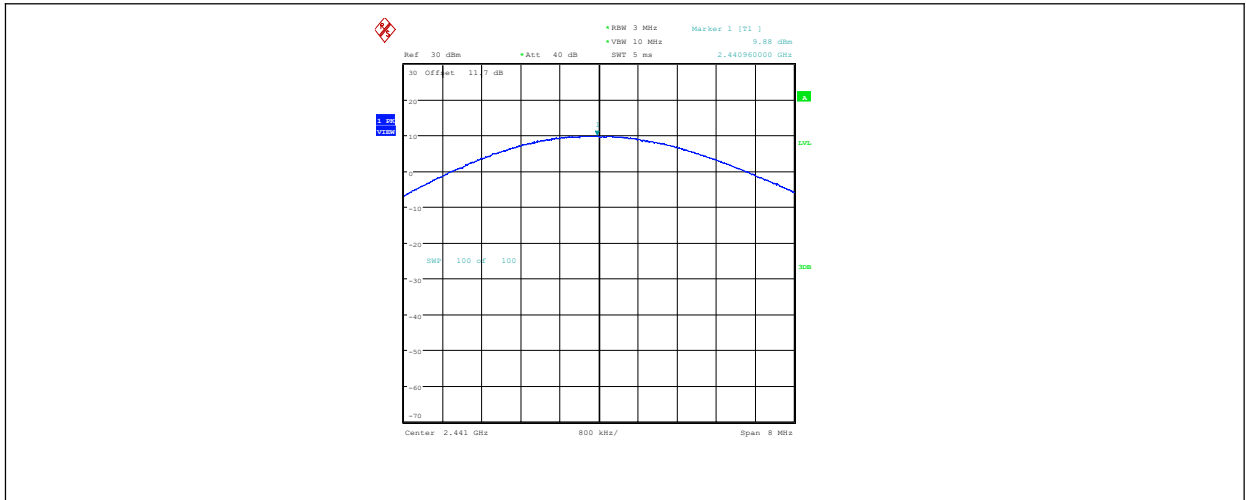
DH5-Ant1-2480



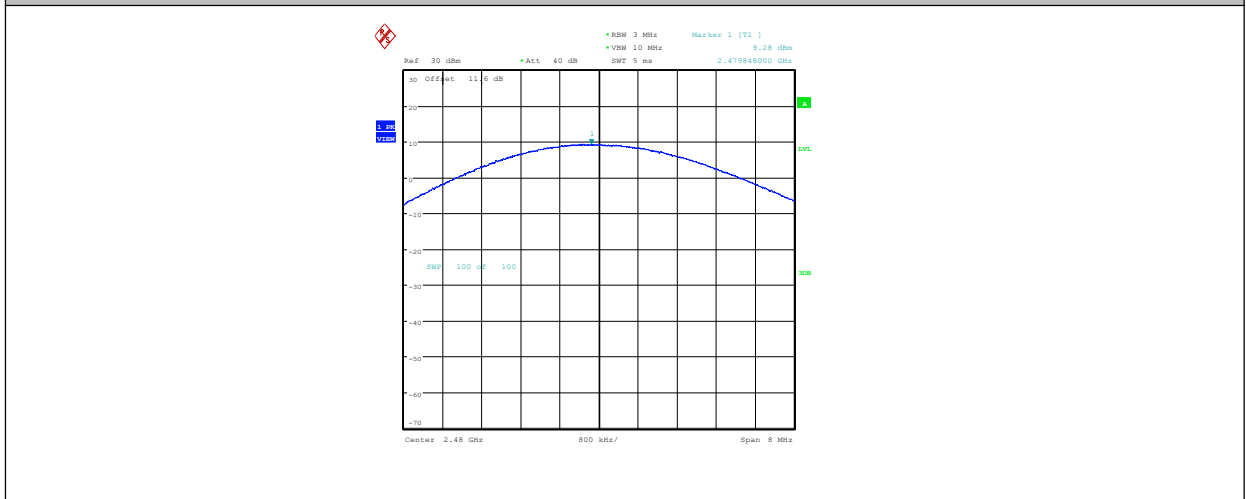
2DH5-Ant1-2402

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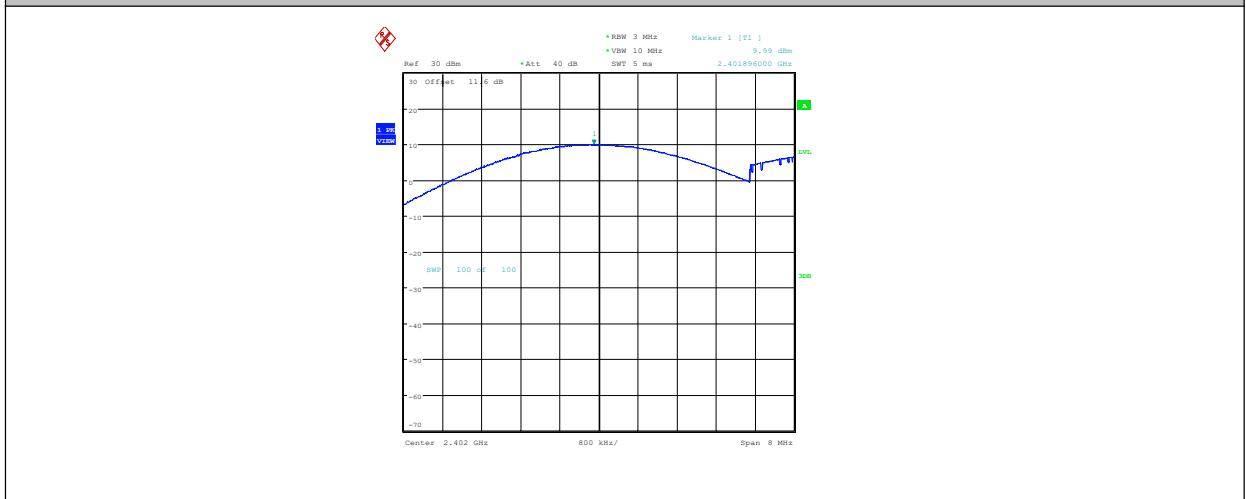
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2DH5-Ant1-2441



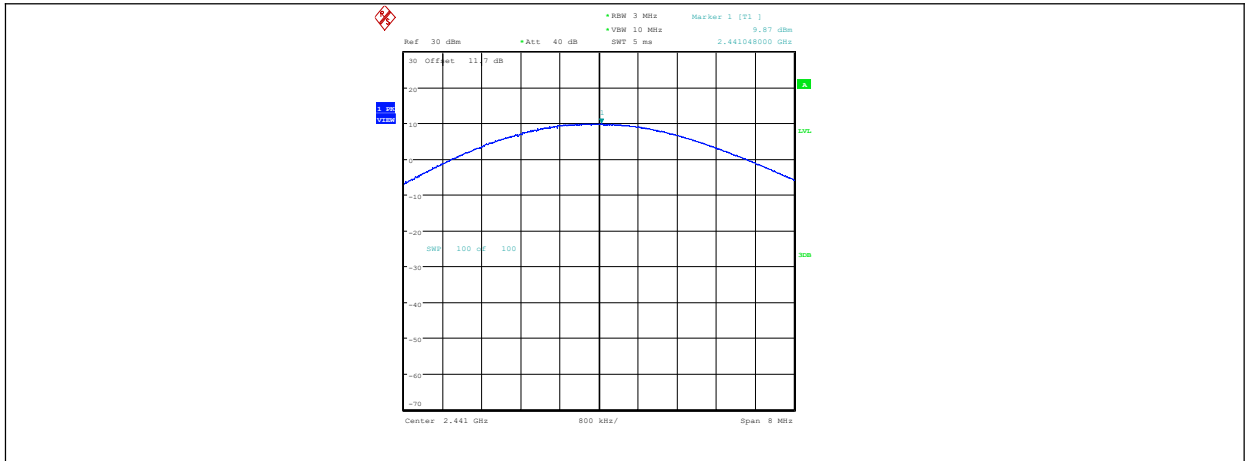
2DH5-Ant1-2480



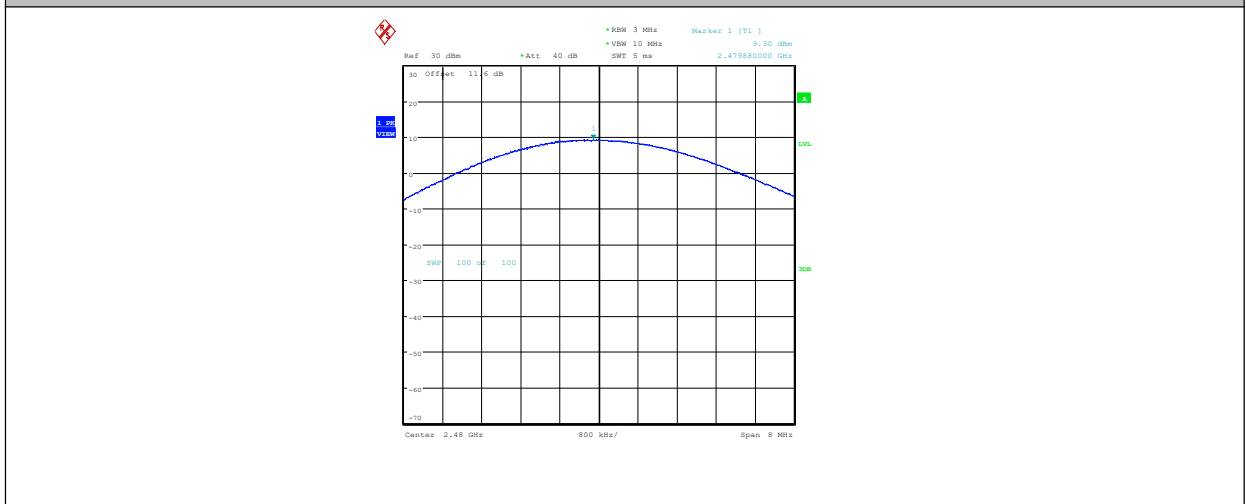
3DH5-Ant1-2402

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3DH5-Ant1-2441



3DH5-Ant1-2480

6.3. 20dB Bandwidth

Specifications:	FCC 47 Part 15.247(d)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(d)	20dB below peak output power in 100KHz bandwidth

Measurement Uncertainty:

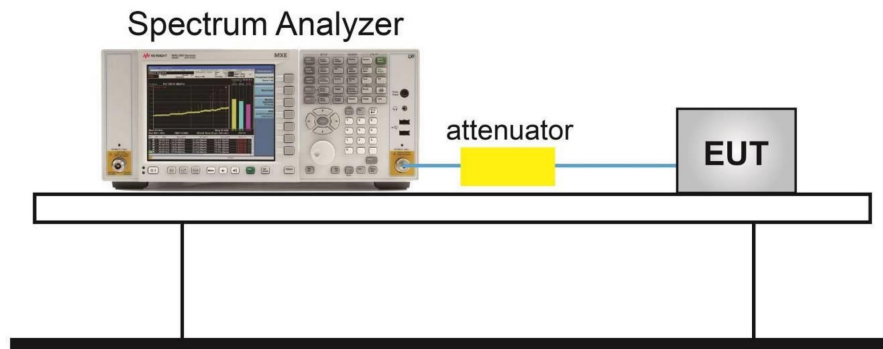
Measurement Uncertainty	±1.06KHz
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Test procedures

The measurement is according to ANSI C63.10 clause 7.8.7

1. Connect the EUT through cable and divide with CMW 270 and spectrum analyzer.
2. Enable the EUT transmit maximum power.
3. Set the spectrum analyzer as step 4 to step 7.
4. Span: two or five times of OBW
5. RBW= 1% to 5% of the OBW; VBW is approximately three times of RBW; Max Hold.
6. Select the max peak, and N DB DOWN=20dB.
7. Record the results.

Test Setup

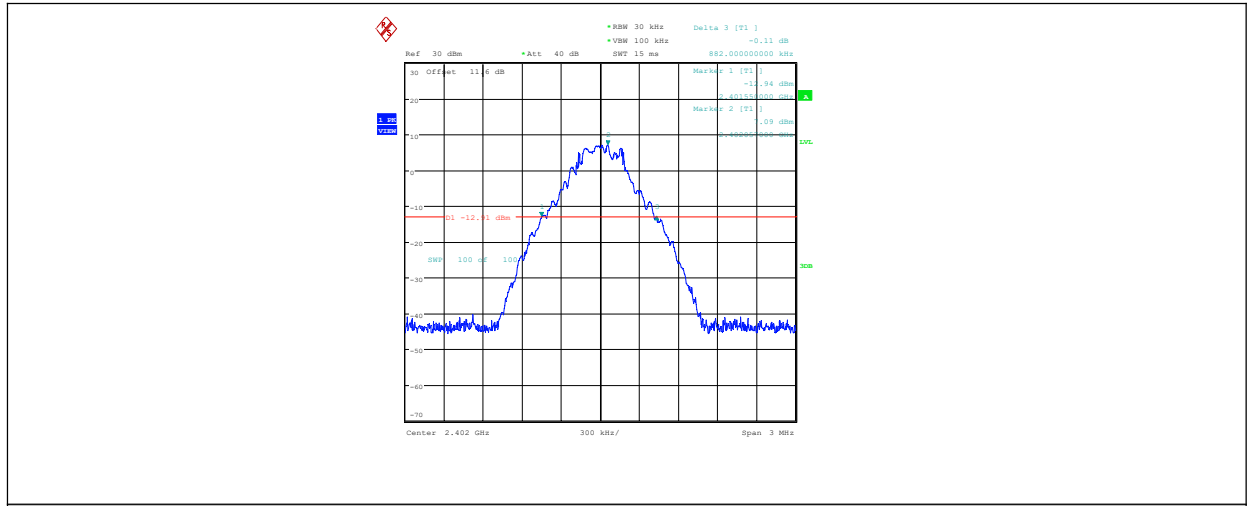


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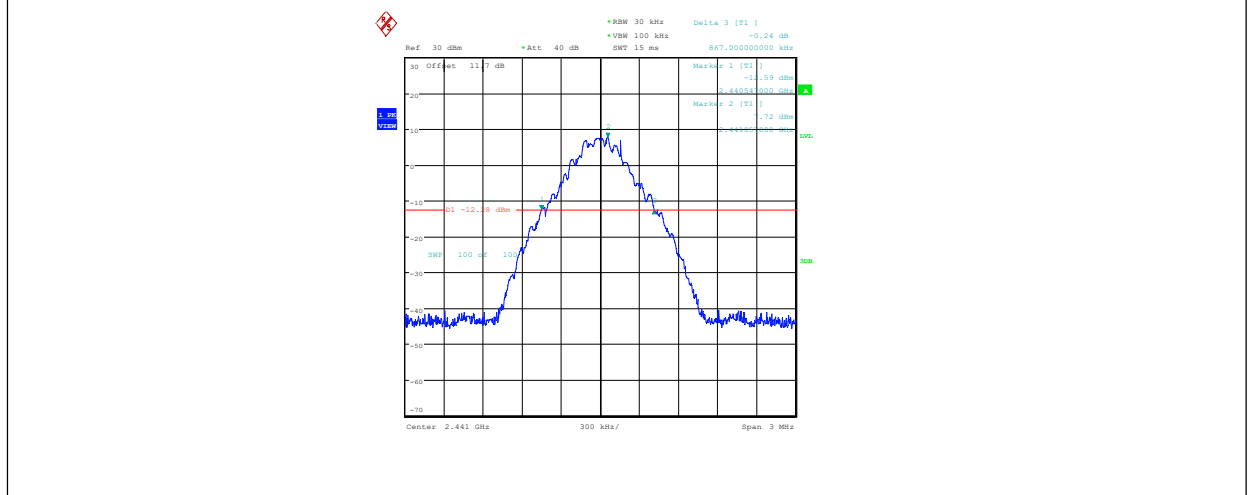
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Measurement Result

TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.88	2401.55	2402.43	---	---
DH5	Ant1	2441	0.87	2440.55	2441.41	---	---
DH5	Ant1	2480	0.87	2479.55	2480.41	---	---
2DH5	Ant1	2402	1.26	2401.37	2402.63	---	---
2DH5	Ant1	2441	1.27	2440.37	2441.63	---	---
2DH5	Ant1	2480	1.26	2479.37	2480.63	---	---
3DH5	Ant1	2402	1.28	2401.36	2402.63	---	---
3DH5	Ant1	2441	1.27	2440.36	2441.63	---	---
3DH5	Ant1	2480	1.29	2479.35	2480.64	---	---



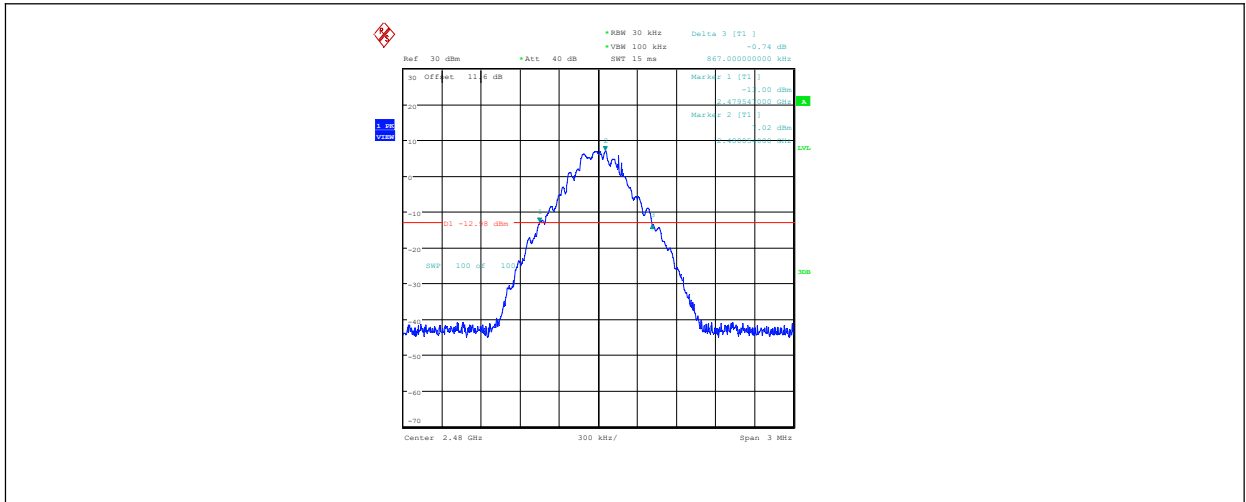
DH5-Ant1-2402



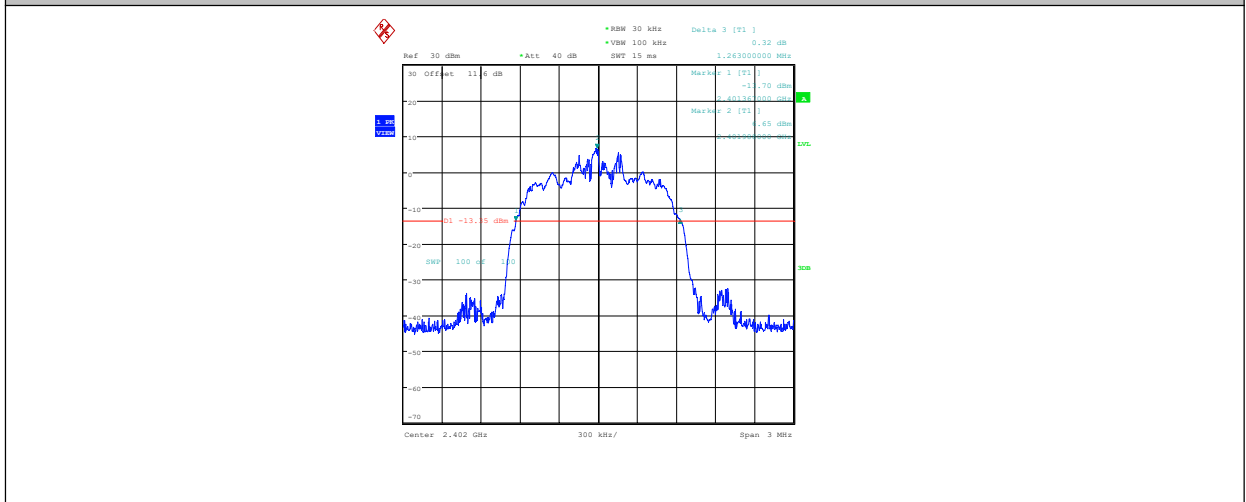
DH5-Ant1-2441

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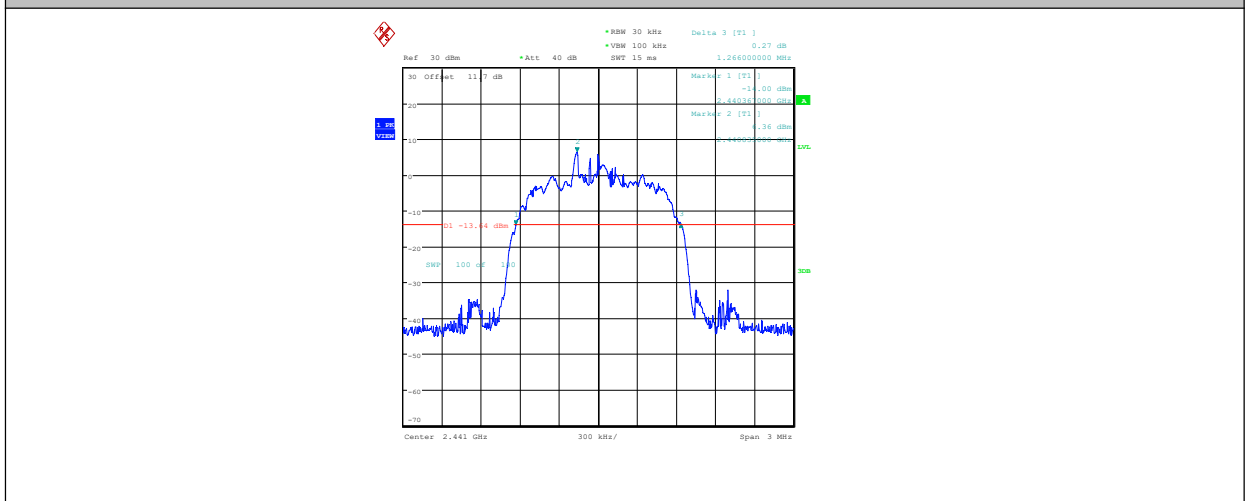
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DH5-Ant1-2480



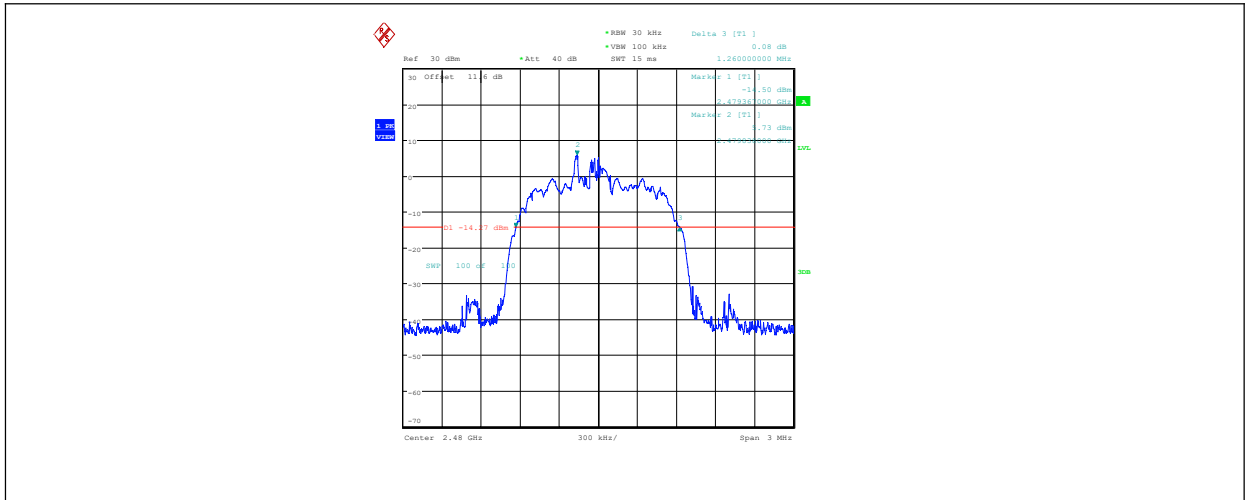
2DH5-Ant1-2402



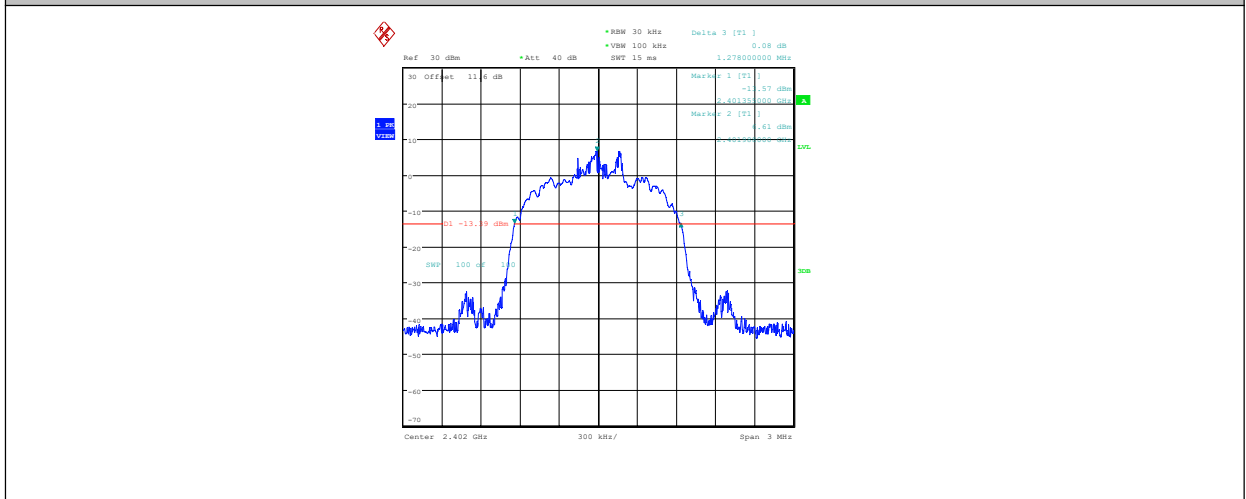
2DH5-Ant1-2441

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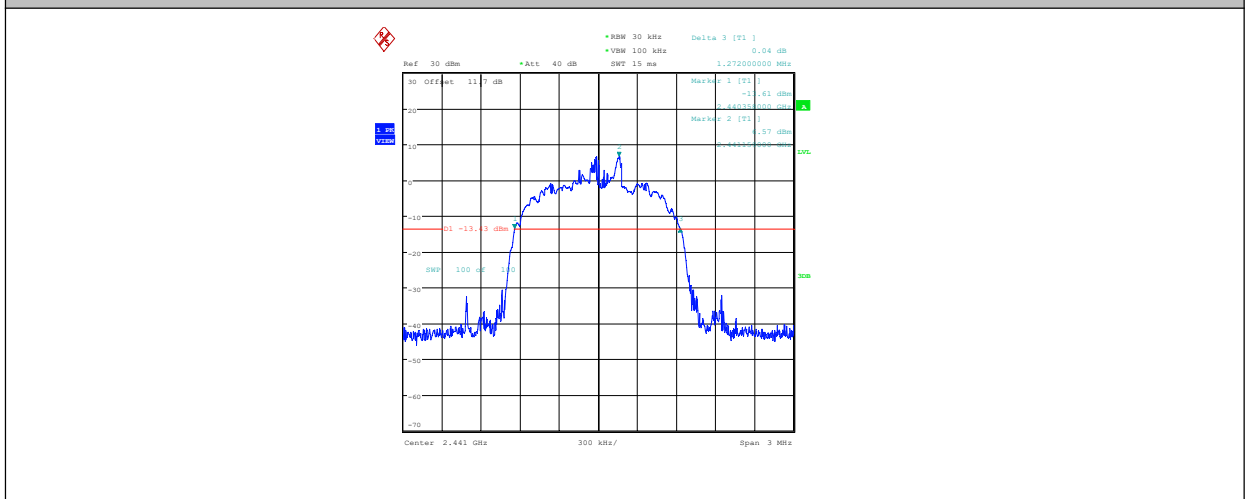
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2DH5-Ant1-2480



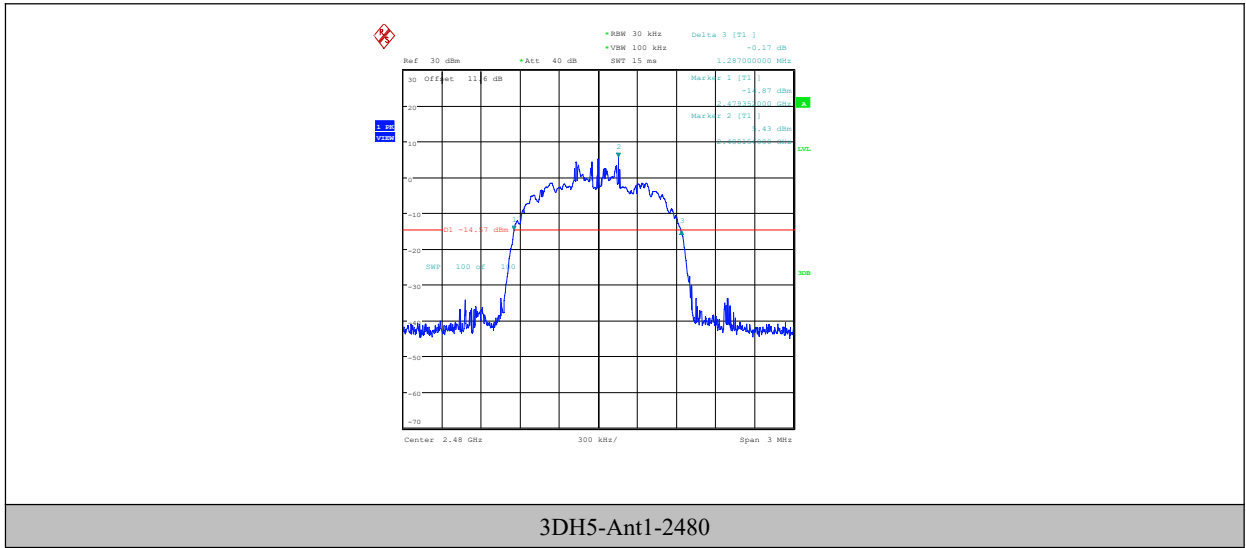
3DH5-Ant1-2402



3DH5-Ant1-2441

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6.4. 99% Occupied Bandwidth

Specifications:	FCC 47 Part 15.247(a)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(a)	N/A

Measurement Uncertainty:

Measurement Uncertainty	±1.06/KHz
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Test procedures

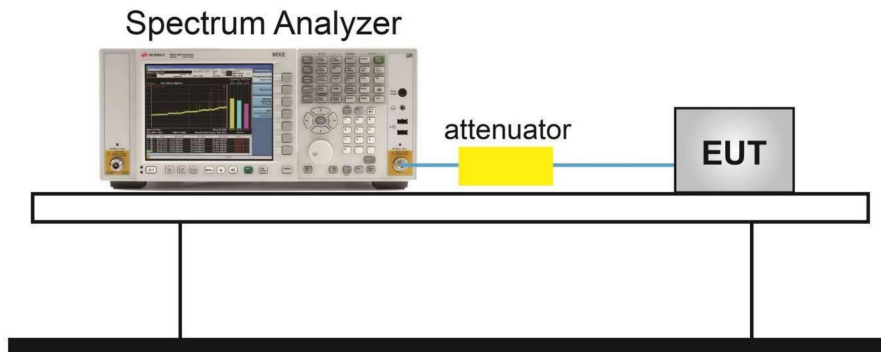
The measurement is according to ANSI C63.10 clause 6.9.3.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set RBW shall be in the range of 1% to 5% of the OBW.
4. Set the VBW $\geq [3 \times \text{RBW}]$.
5. Detector = peak.
6. Trace mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize.
9. The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

Test setup

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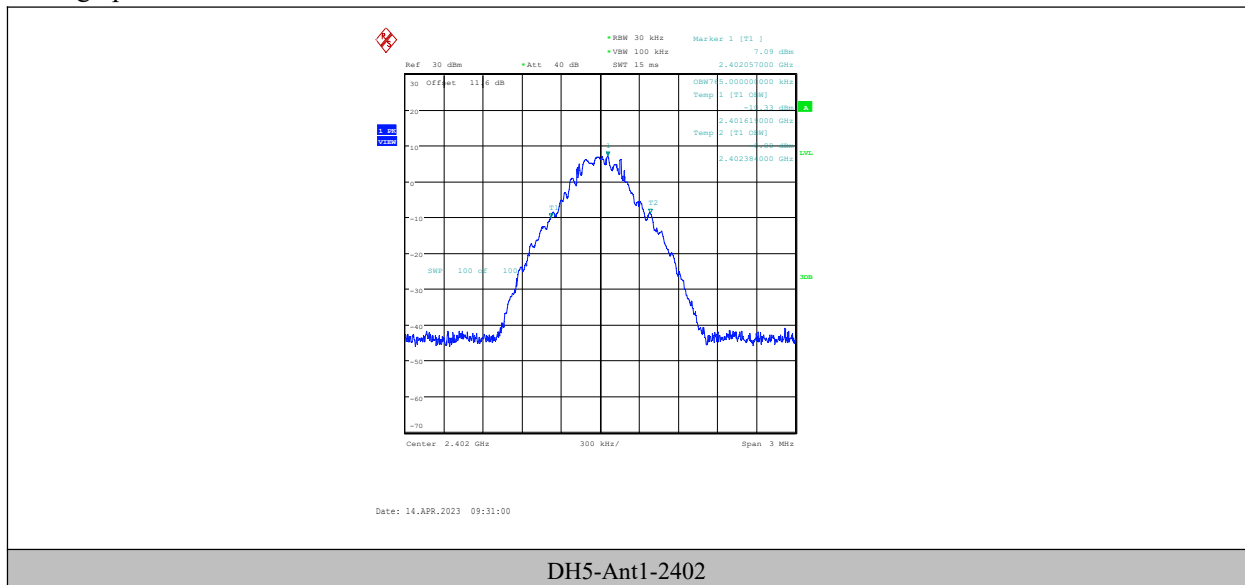
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
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Measurement Result

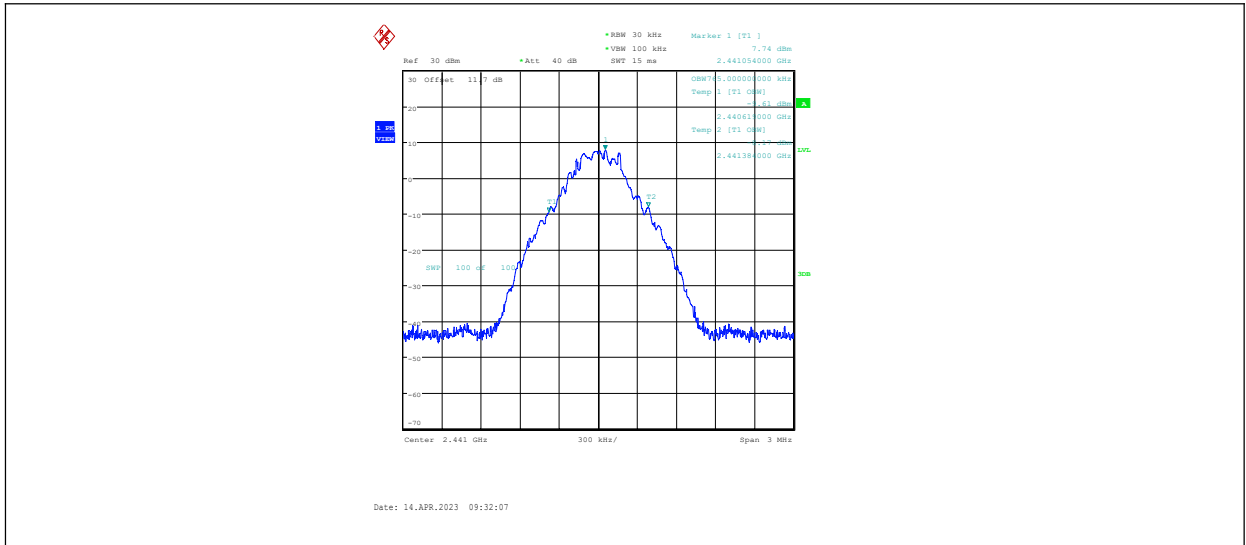
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.765	2401.6190	2402.3840	---	---
DH5	Ant1	2441	0.765	2440.6190	2441.3840	---	---
DH5	Ant1	2480	0.765	2479.6160	2480.3810	---	---
2DH5	Ant1	2402	1.158	2401.4150	2402.5730	---	---
2DH5	Ant1	2441	1.152	2440.4180	2441.5700	---	---
2DH5	Ant1	2480	1.155	2479.4150	2480.5700	---	---
3DH5	Ant1	2402	1.179	2401.4210	2402.6000	---	---
3DH5	Ant1	2441	1.158	2440.4210	2441.5790	---	---
3DH5	Ant1	2480	1.164	2479.4150	2480.5790	---	---

Test graphs as below

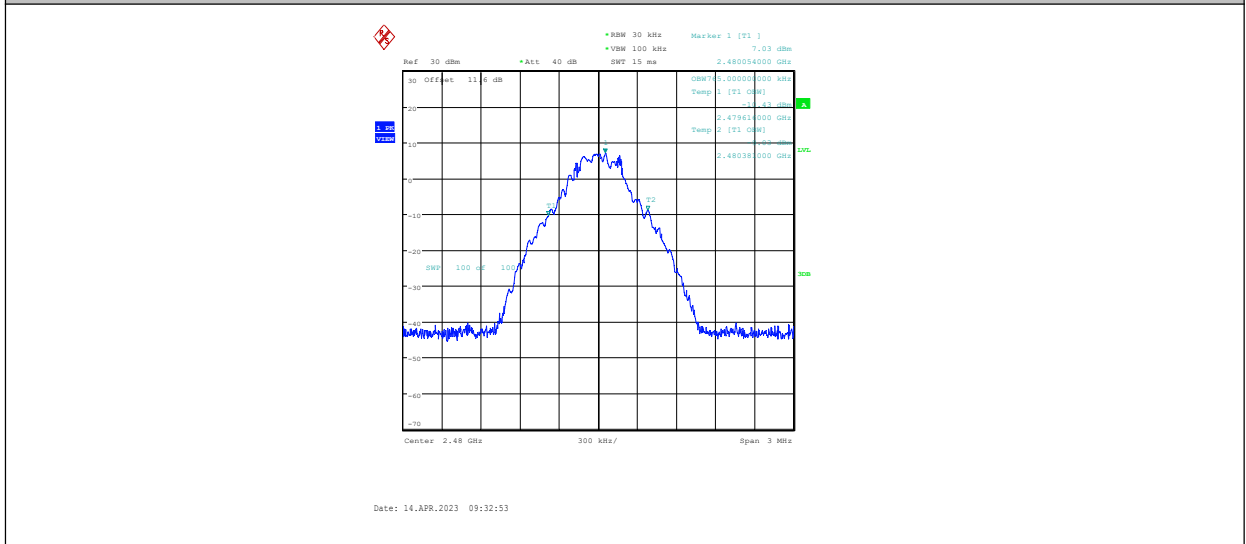


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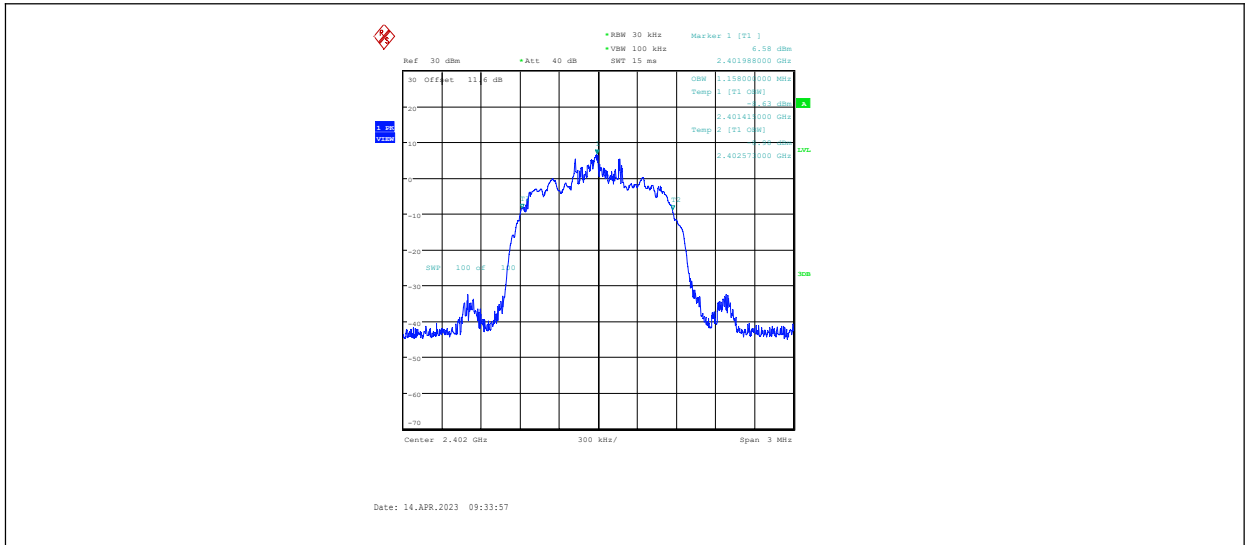
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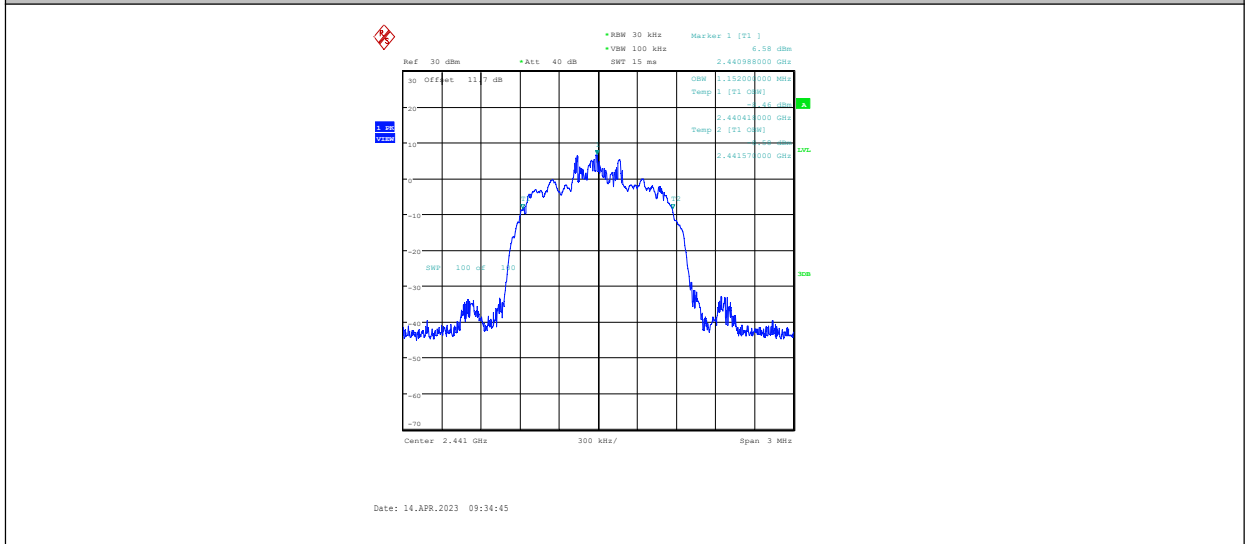
DH5-Ant1-2441



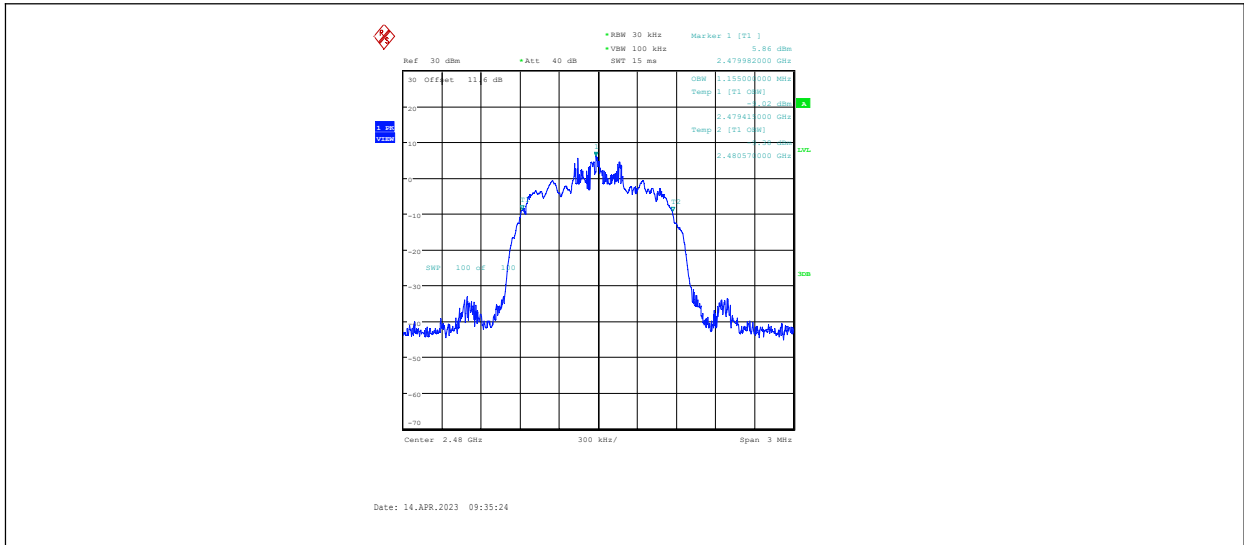
DH5-Ant1-2480



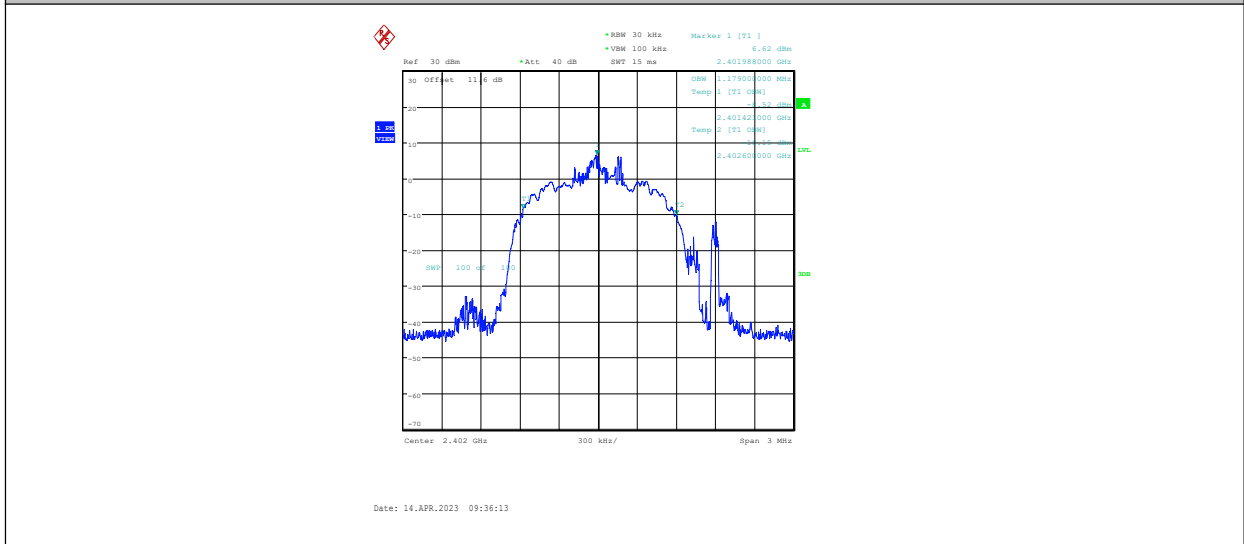
2DH5-Ant1-2402



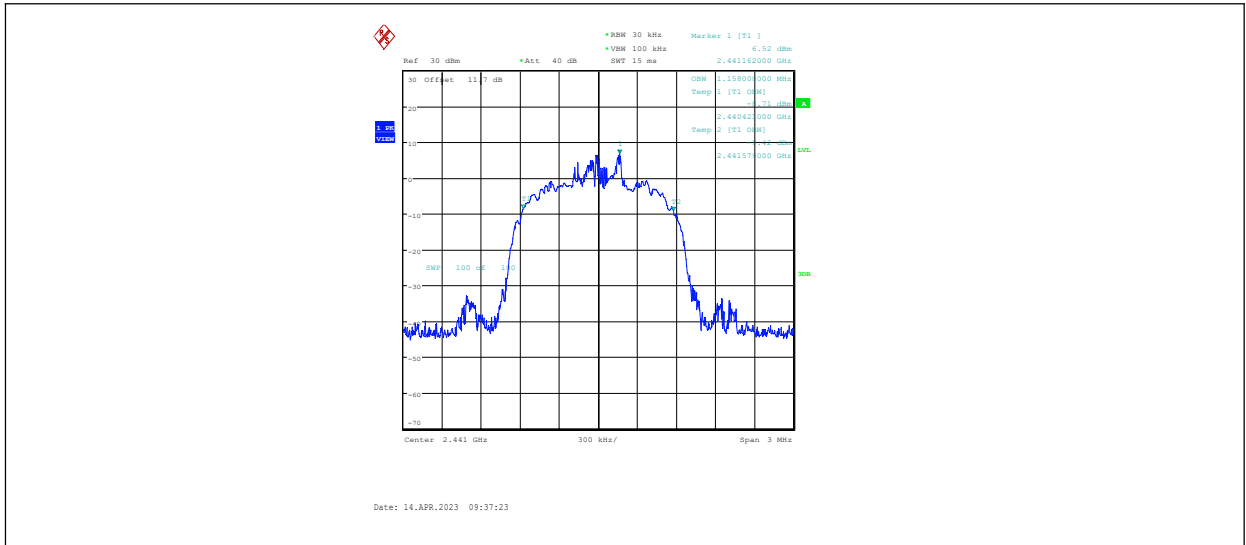
2DH5-Ant1-2441



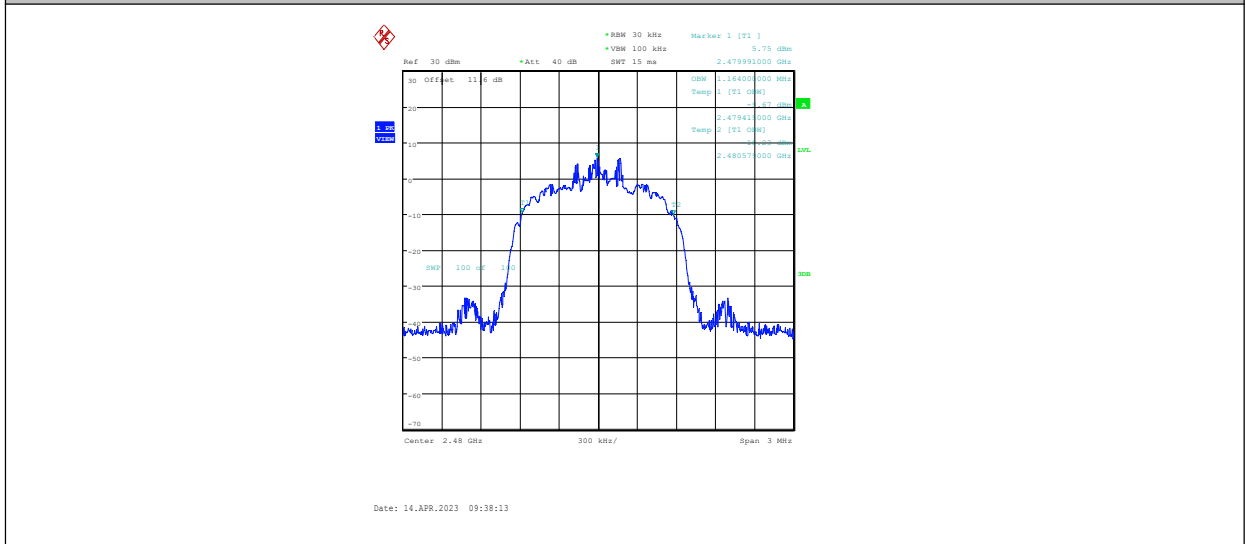
2DH5-Ant1-2480



3DH5-Ant1-2402



3DH5-Ant1-2441



3DH5-Ant1-2480

6.5. Frequency Band Edges-Conducted

Limit Level Construction:

Standard	Limit
FCC 47 CFR Part 15.247(d)	>20dBm

Measurement Uncertainty:

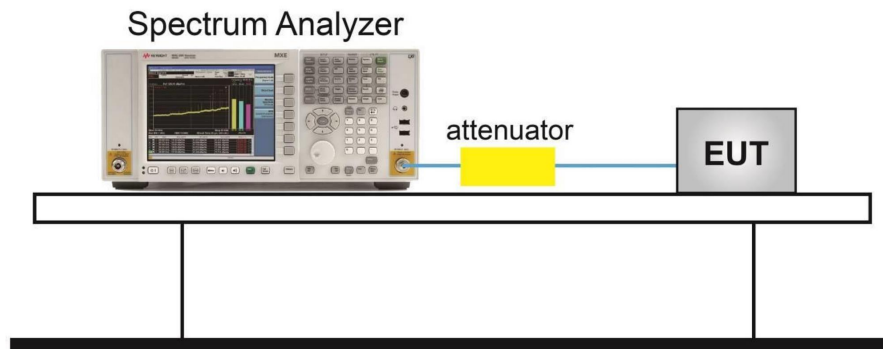
Measurement Uncertainty	±0.80dBm/KHz
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Test procedures

The measurement is according to ANSI C63.10 clause 7.8.6.

1. Connect the EUT to spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz, span more than 1.5 times channel bandwidth (2MHz).
3. Detector =peak, sweep time=auto couple, trace mode=max hold.Allow sweep to continue until the trace stabilizes.

Test setup



Measurement Result

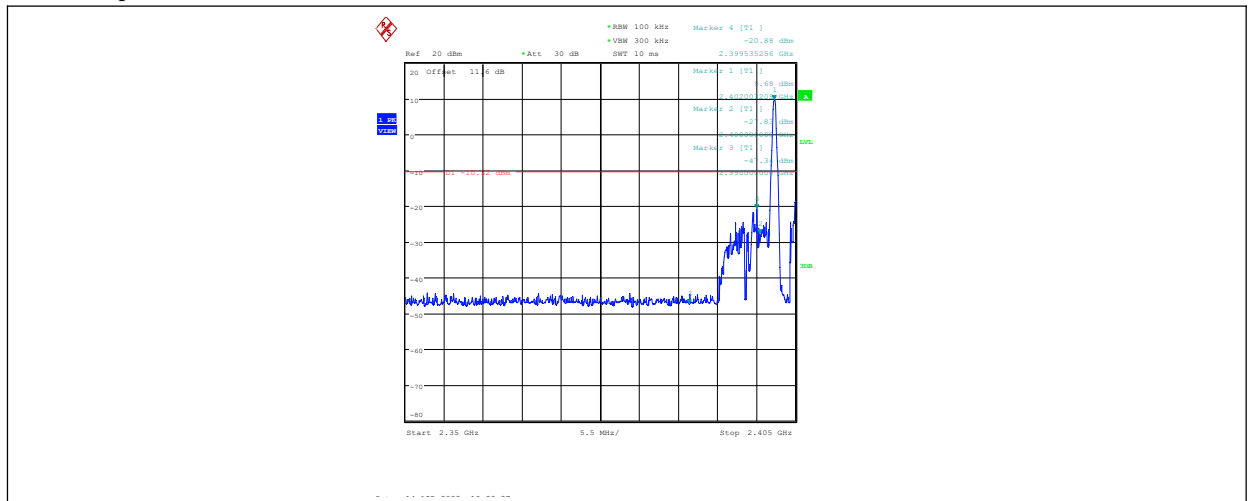
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	9.68	-20.88	≤-10.32	PASS
DH5	Ant1	High	2480	9.35	-43.31	≤-10.65	PASS
2DH5	Ant1	Low	2402	9.14	-43.6	≤-10.86	PASS
2DH5	Ant1	High	2480	8.47	-42.62	≤-11.53	PASS
3DH5	Ant1	Low	2402	9.37	-43.58	≤-10.63	PASS
3DH5	Ant1	High	2480	8.49	-43.78	≤-11.51	PASS
DH5	Ant1	Low	Hop_2402	8.75	-44.13	≤-11.25	PASS

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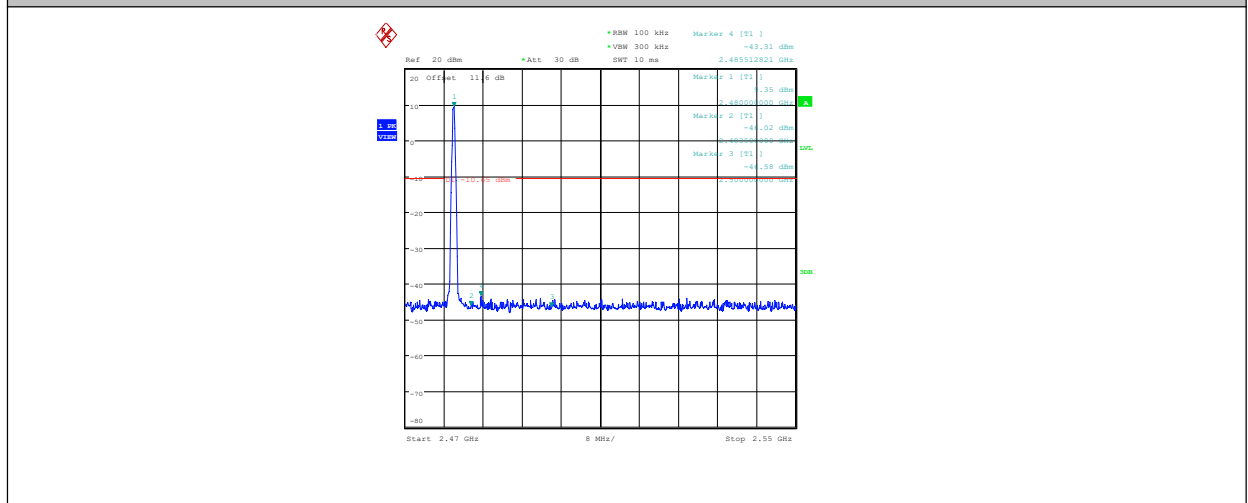
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DH5	Ant1	High	Hop_2480	9.59	-44.25	≤-10.41	PASS
2DH5	Ant1	Low	Hop_2402	3.77	-44.47	≤-16.23	PASS
2DH5	Ant1	High	Hop_2480	6.22	-44.38	≤-13.78	PASS
3DH5	Ant1	Low	Hop_2402	5.97	-43.64	≤-14.03	PASS
3DH5	Ant1	High	Hop_2480	5.76	-44.27	≤-14.24	PASS

Test Graphs



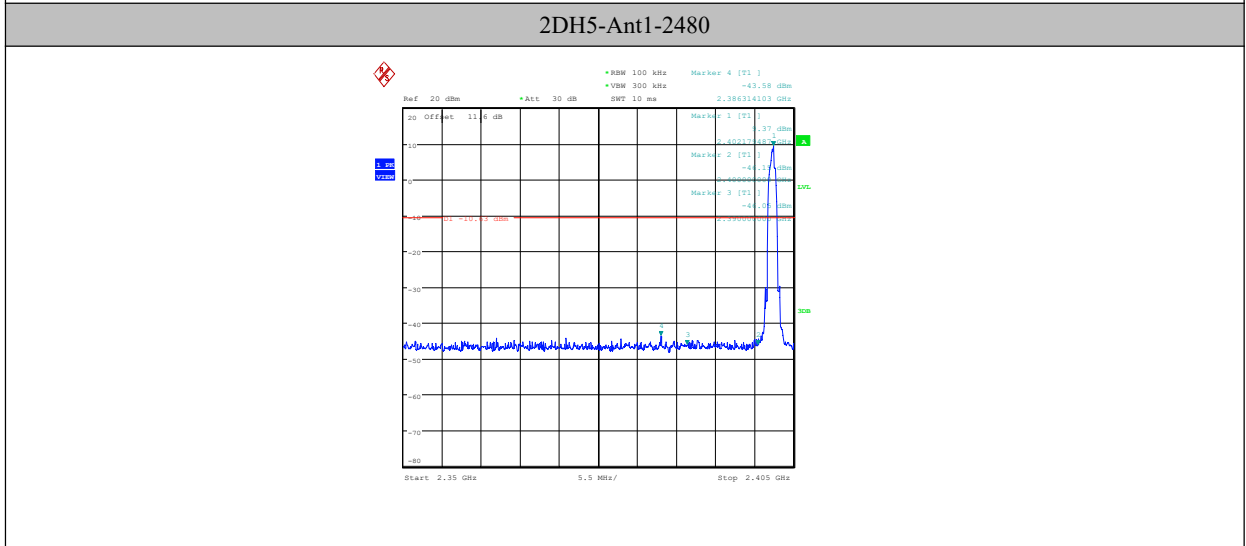
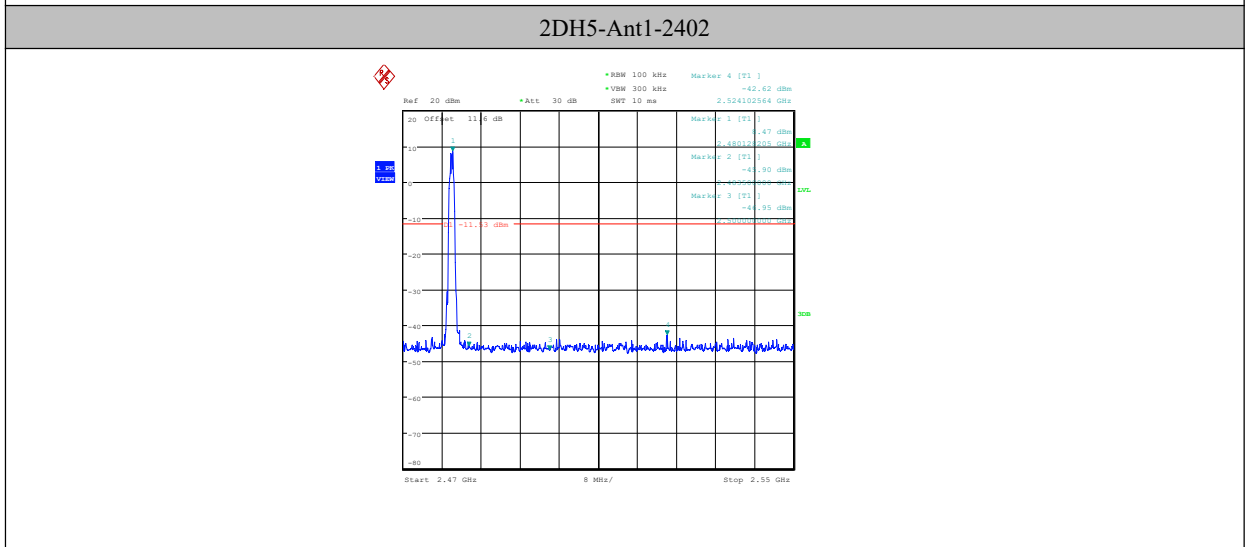
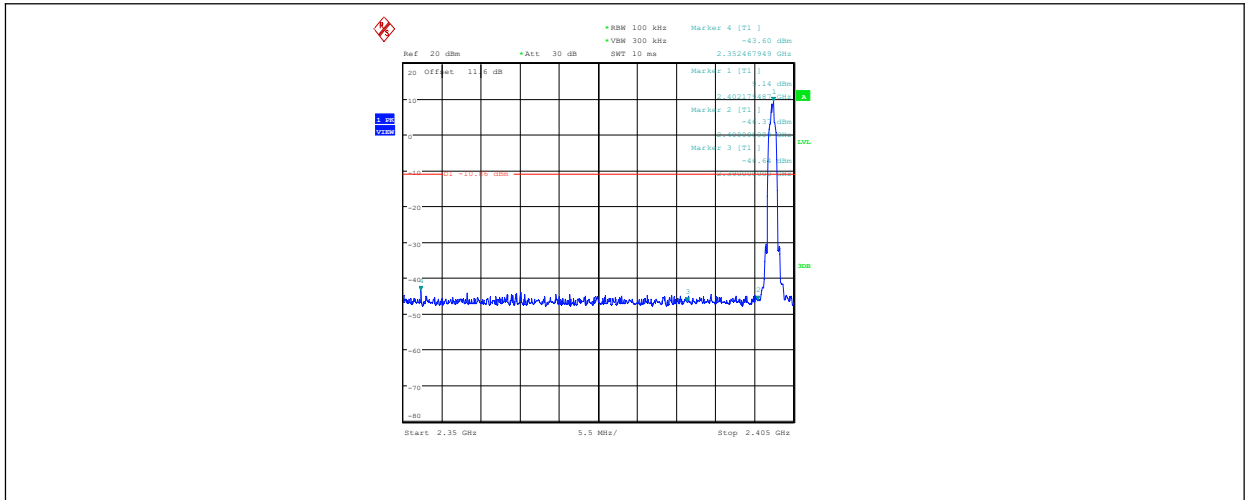
DH5-Ant1-2402

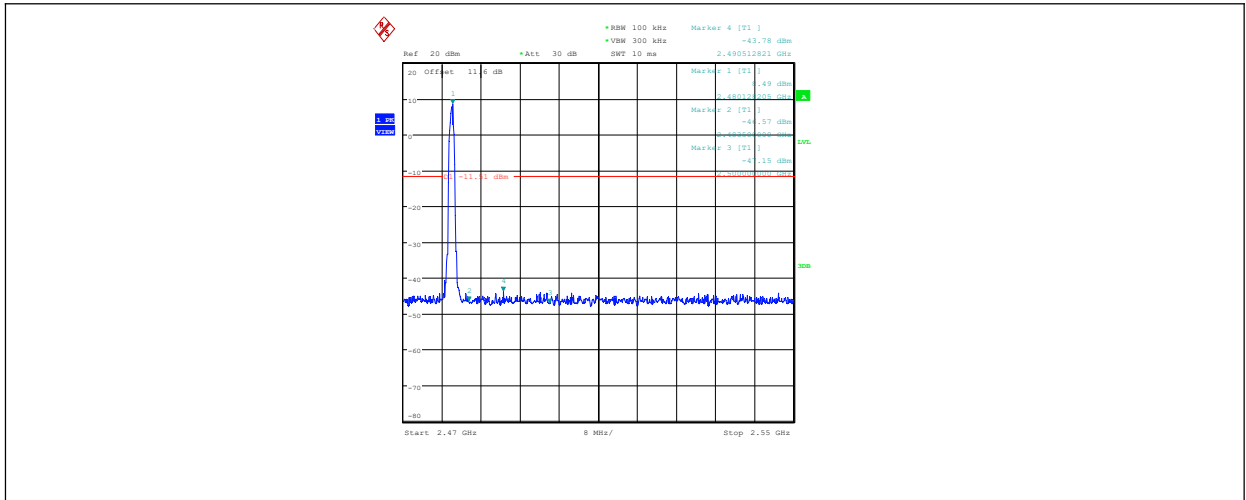


DH5-Ant1-2480

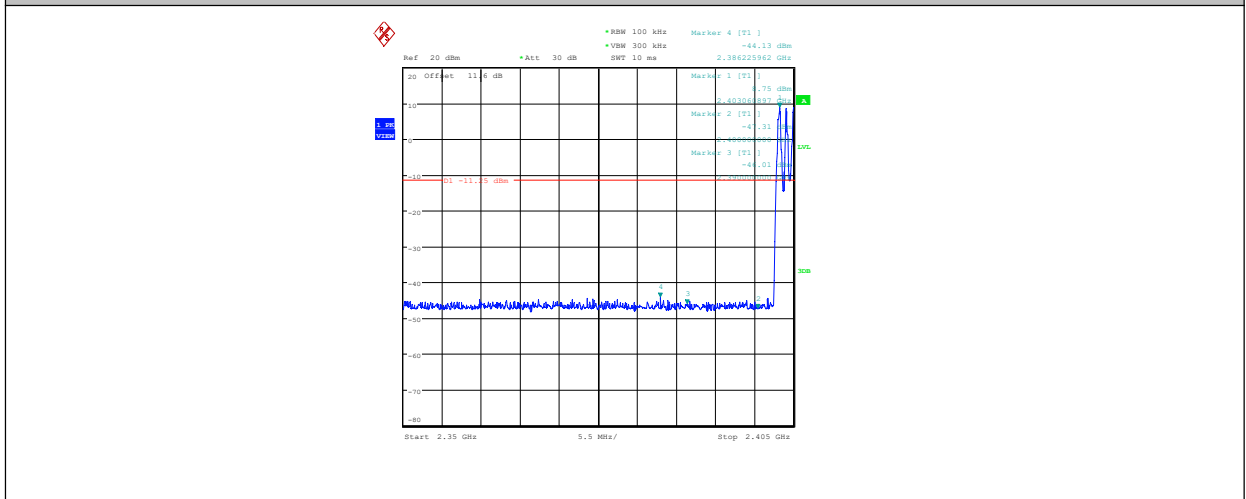
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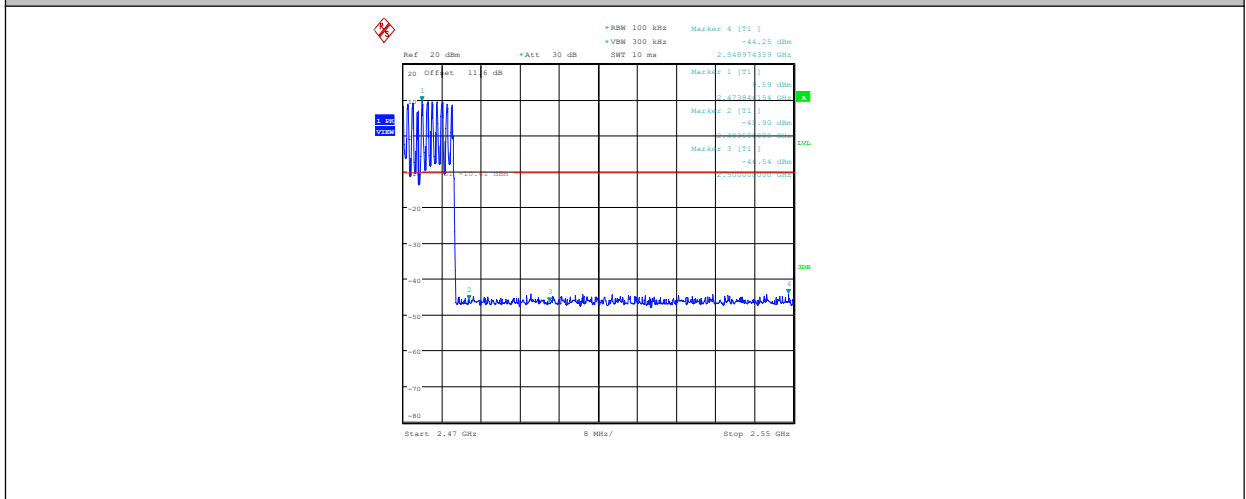




3DH5-Ant1-2480



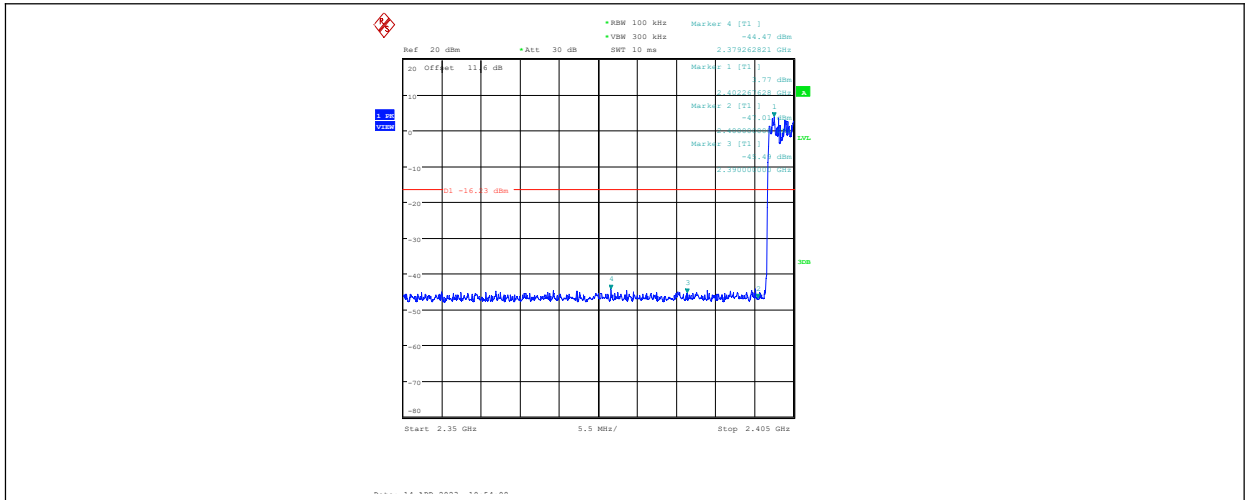
DH5-Ant1-Hop_2402



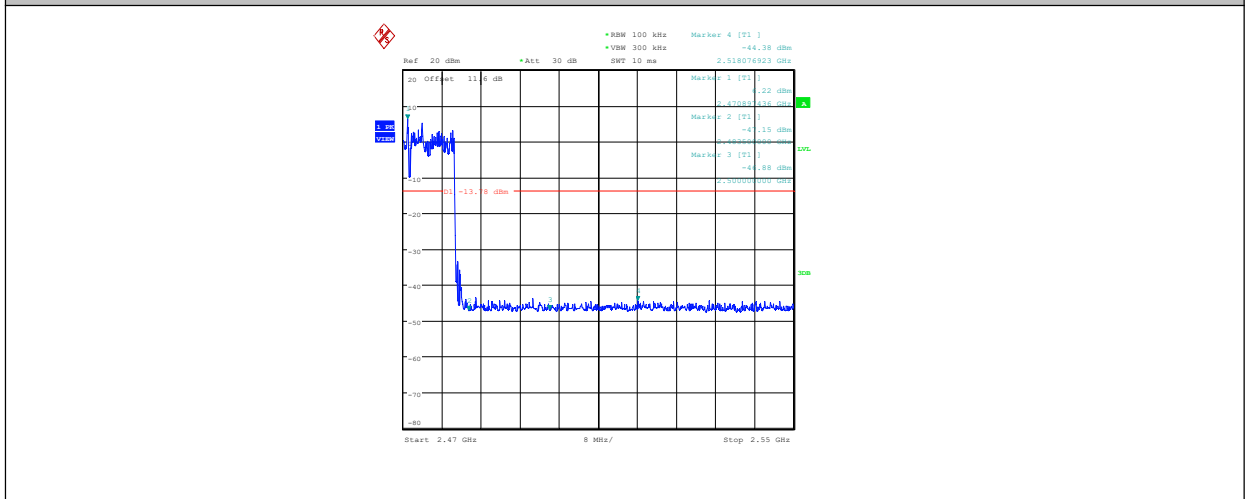
DH5-Ant1-Hop_2480

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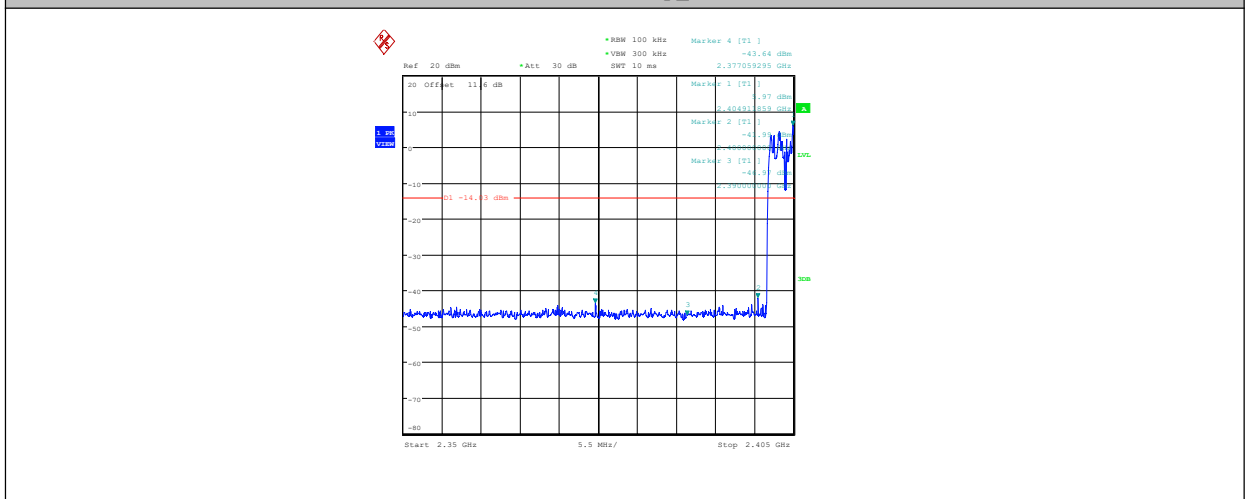
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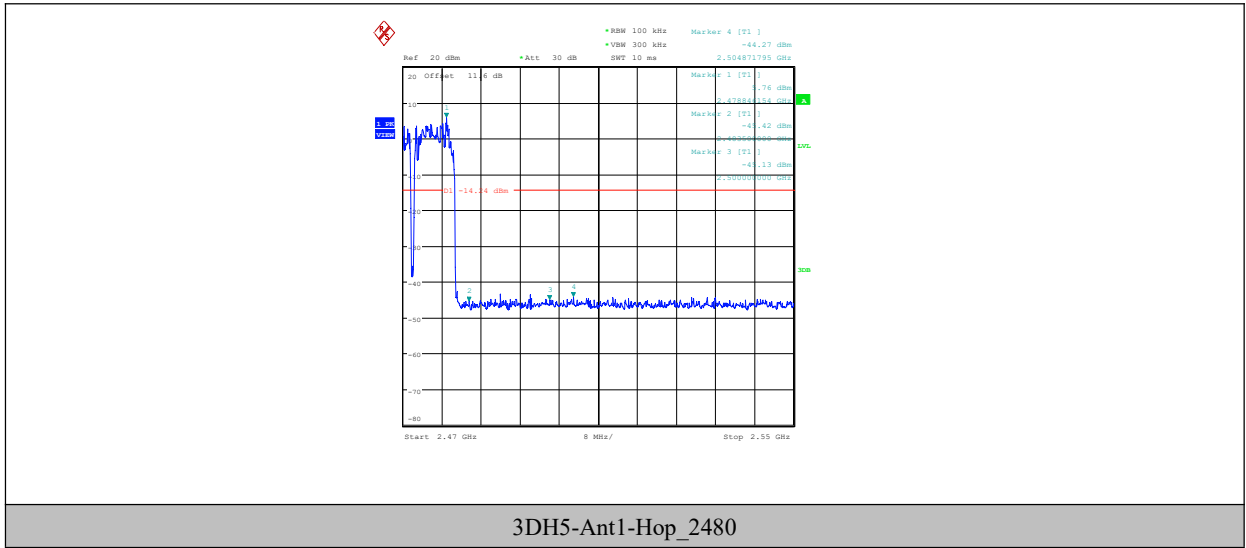
2DH5-Ant1-Hop_2402



2DH5-Ant1-Hop_2480



3DH5-Ant1-Hop_2402



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6.6. Time Of Occupancy (Dwell Time)

Specifications:	FCC 47 Part 15.247 (a)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247 (a) (1) (iii)	<400ms

Measurement Uncertainty:

Measurement Uncertainty	0.52ms
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Test procedures

The measurement is according to ANSI C63.10 clause 7.8.4

1. Connect the EUT through cable and divide with CMW 270 and spectrum analyzer.
2. Enable the EUT transmit maximum power.
3. Set the spectrum analyzer as step 4 to step 8.
4. Span: Zero span, centered on a hopping channel.
5. RBW shall be \leq channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
6. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
7. Detector function: Peak.
8. Trace: Max hold.
9. Use the marker-delta function, and record it.

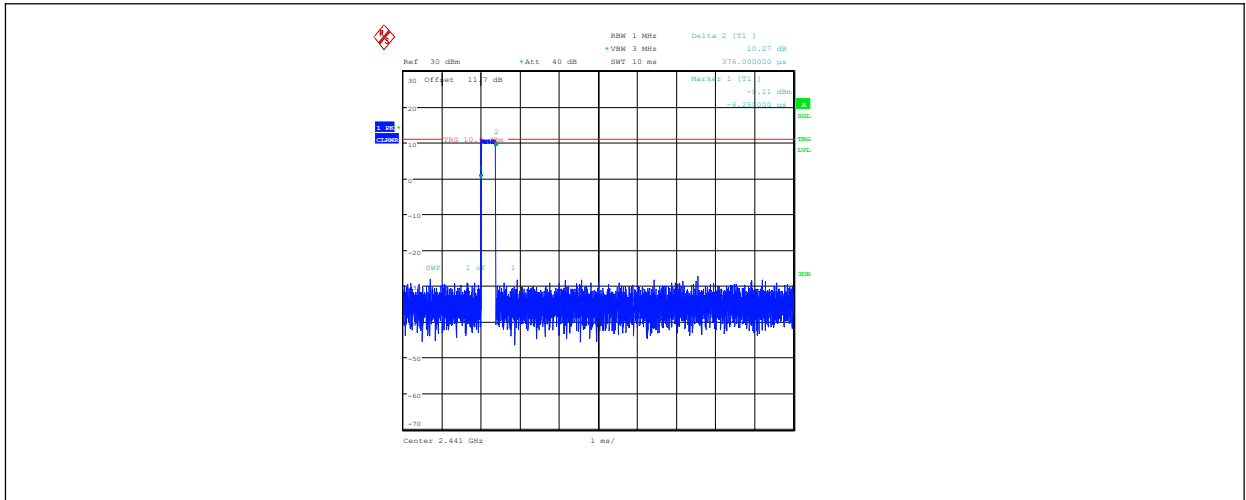
Note: For AFH mode, Test Period = 0.4 (second/ channel) x 20 Channel = 8 sec,

For FHSS mode, Test Period = 0.4 (second/ channel) x 79 Channel = 31.6 sec,

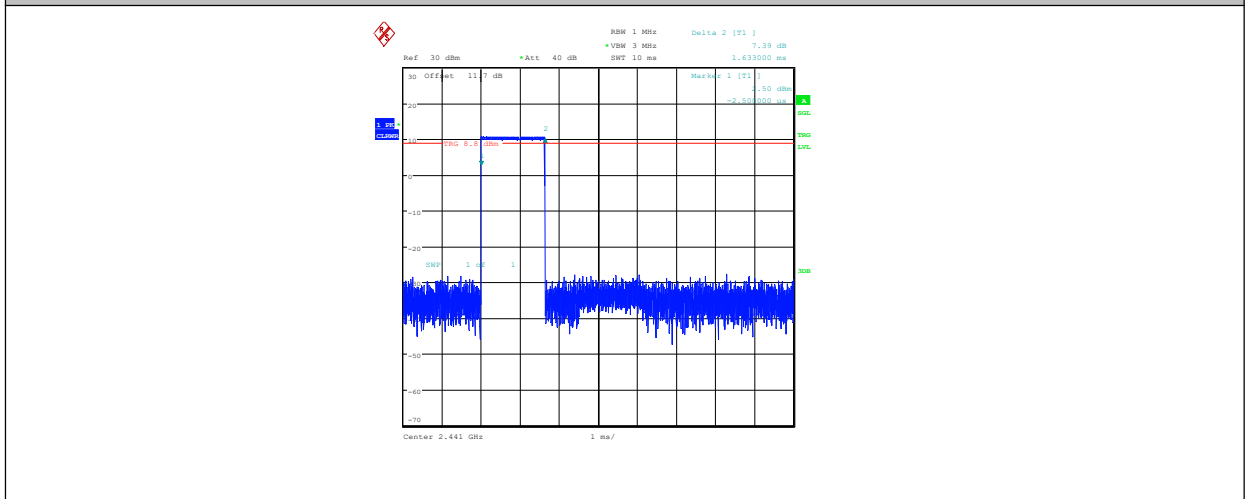
So the Time of Occupancy (Dwell Time) of AFH mode= Time of Occupancy (Dwell Time) of FHSS mode / 79 Channel x 20 Channel.

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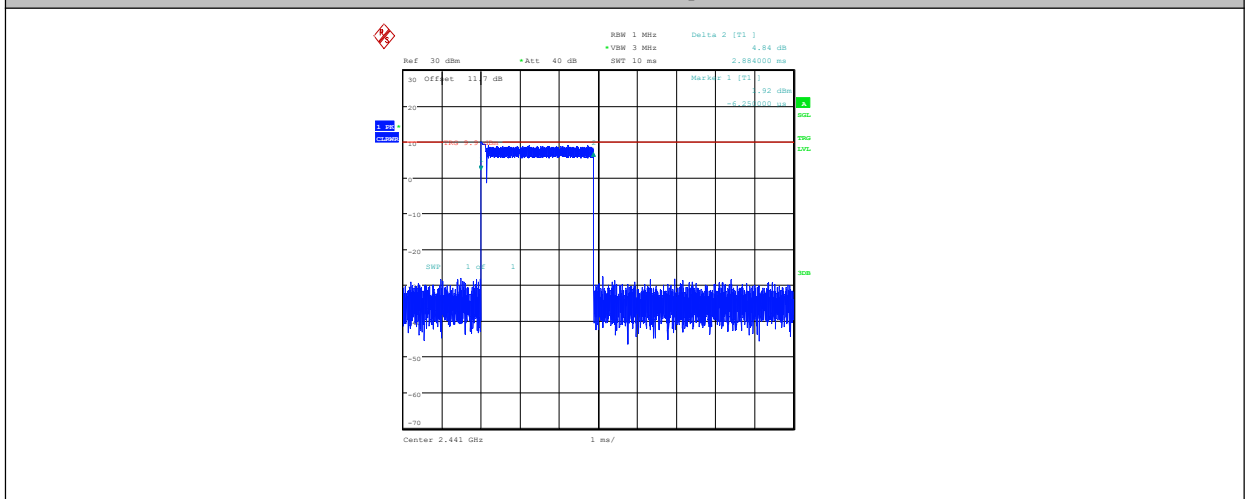
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DH1-Ant1-Hop



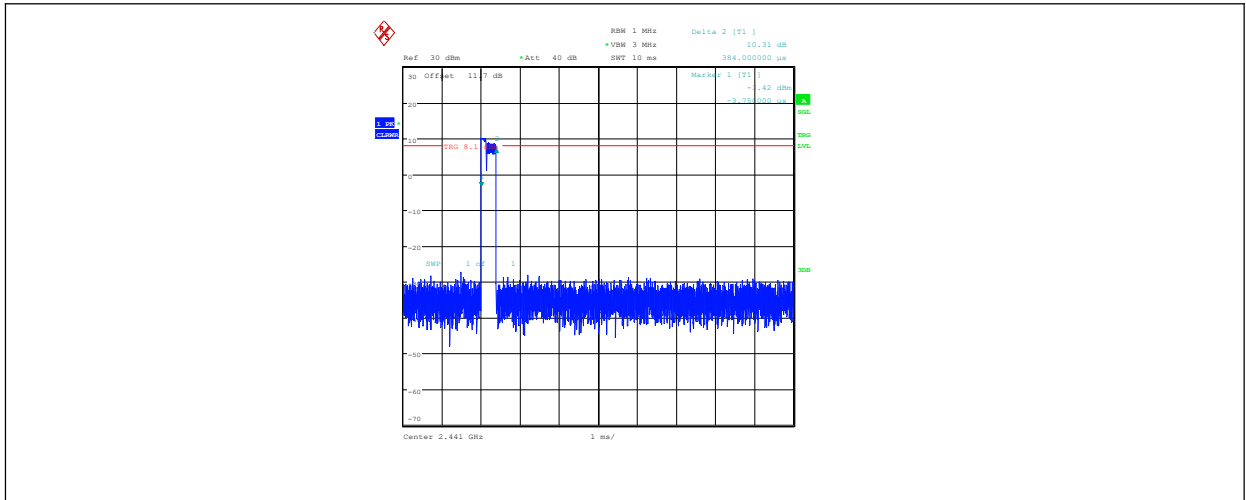
DH3-Ant1-Hop



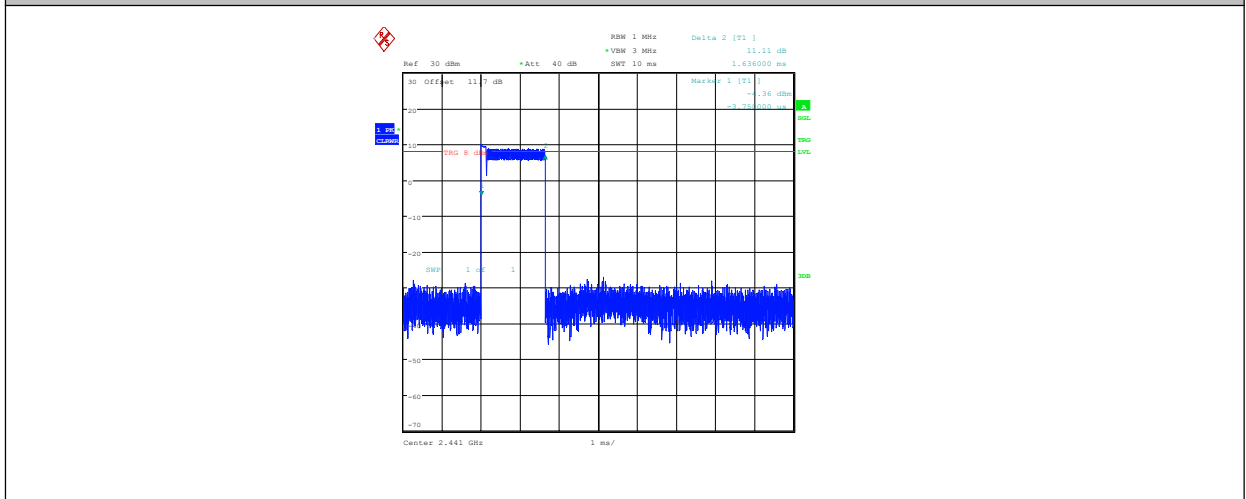
2DH5-Ant1-Hop

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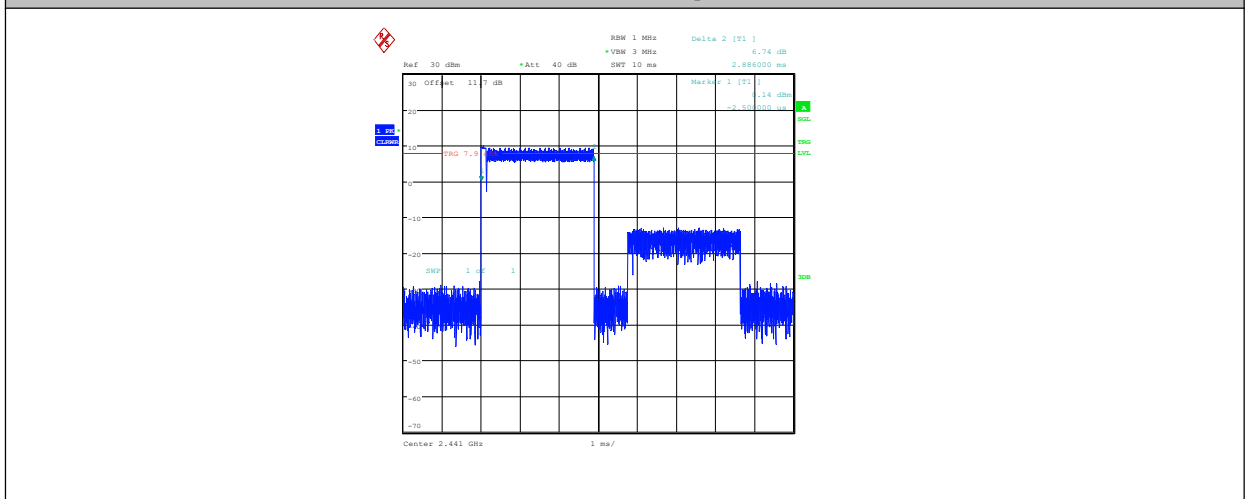
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2DH1-Ant1-Hop



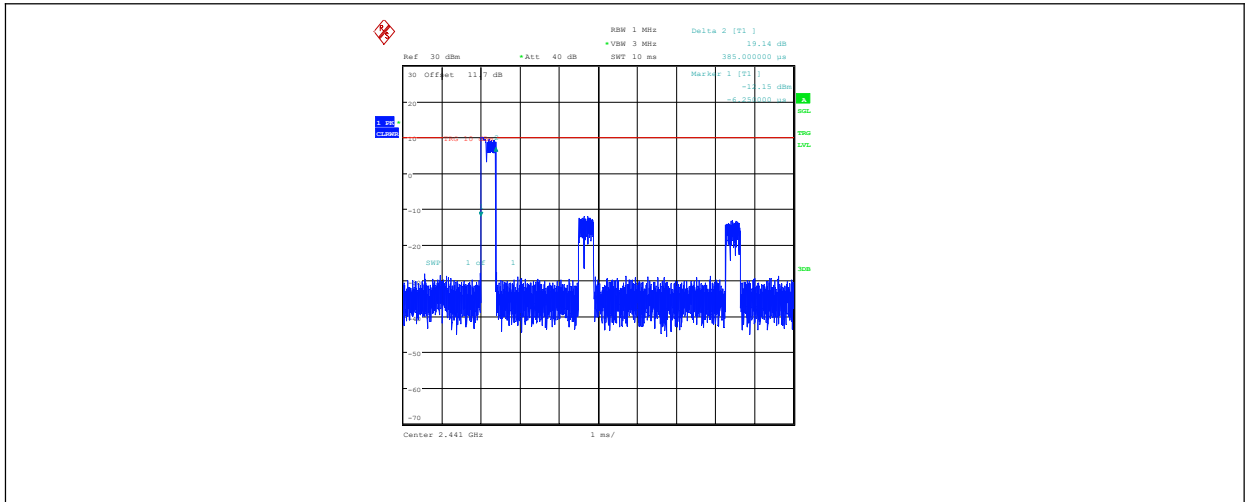
2DH3-Ant1-Hop



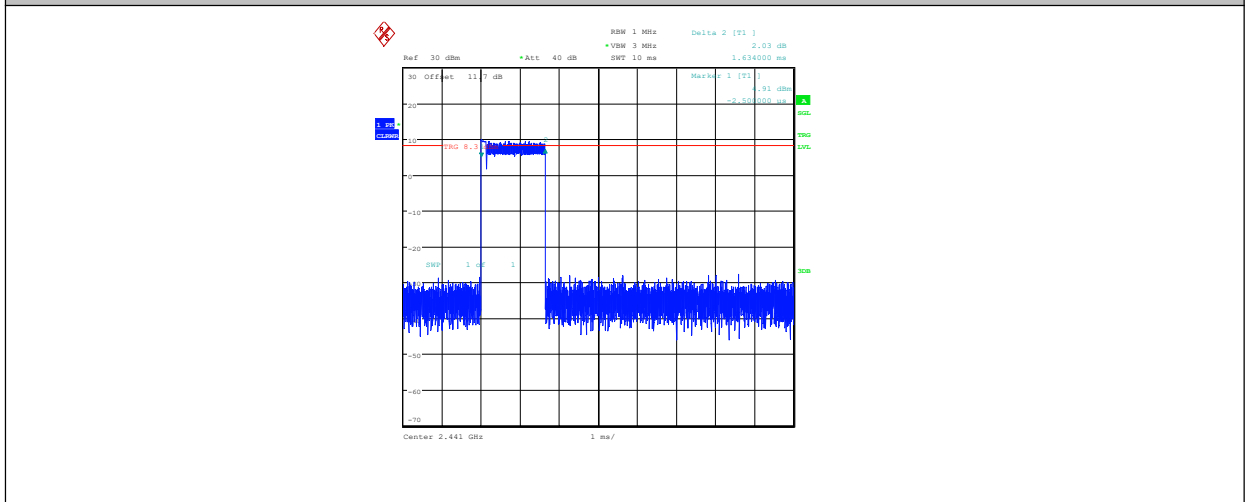
3DH5-Ant1-Hop

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3DH1-Ant1-Hop



3DH3-Ant1-Hop

6.7. Carrier Frequency Separation

Specifications:	FCC 47 Part 15.247 (a)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247 (a) (1)	Over 25KHz or (2/3)*20dB bandwidth

Measurement Uncertainty:

Measurement Uncertainty	4KHz
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Test procedures

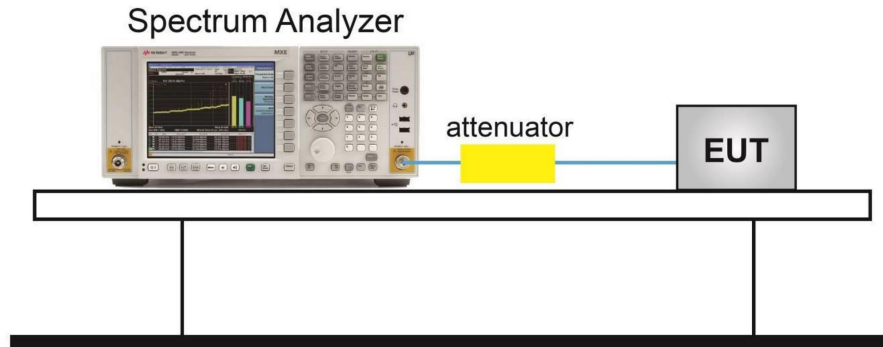
The measurement is according to ANSI C63.10 clause 7.8.2.

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit in hopping mode.
3. Span: Wide enough to capture the peaks of two adjacent channels.
4. 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.
5. Video (or average) bandwidth (VBW) \geq RBW.
6. Sweep: Auto.
7. Detector function: Peak.
8. Trace: Max hold.
9. Allow the trace to stabilize.S

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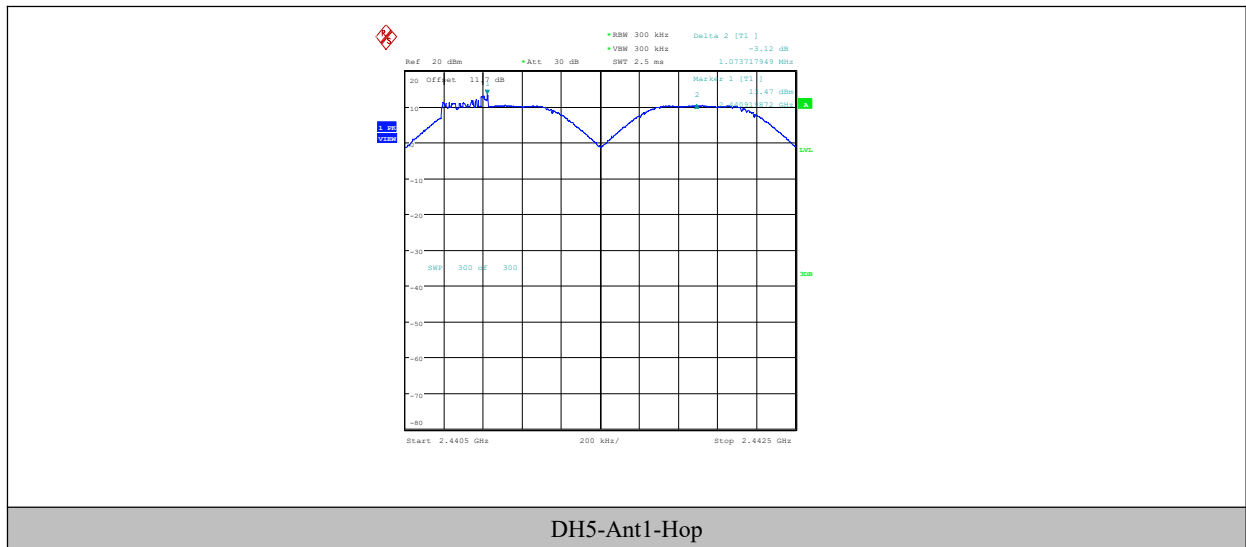
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Test Setup



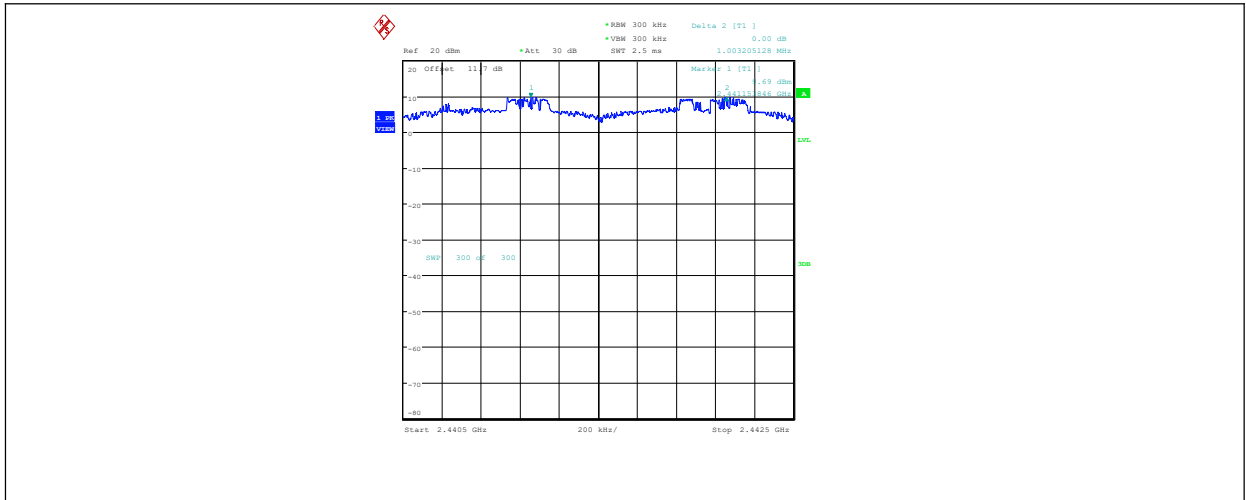
Measurement Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.074	≥ 0.880	PASS
2DH5	Ant1	Hop	1.003	≥ 0.847	PASS
3DH5	Ant1	Hop	0.971	≥ 0.860	PASS

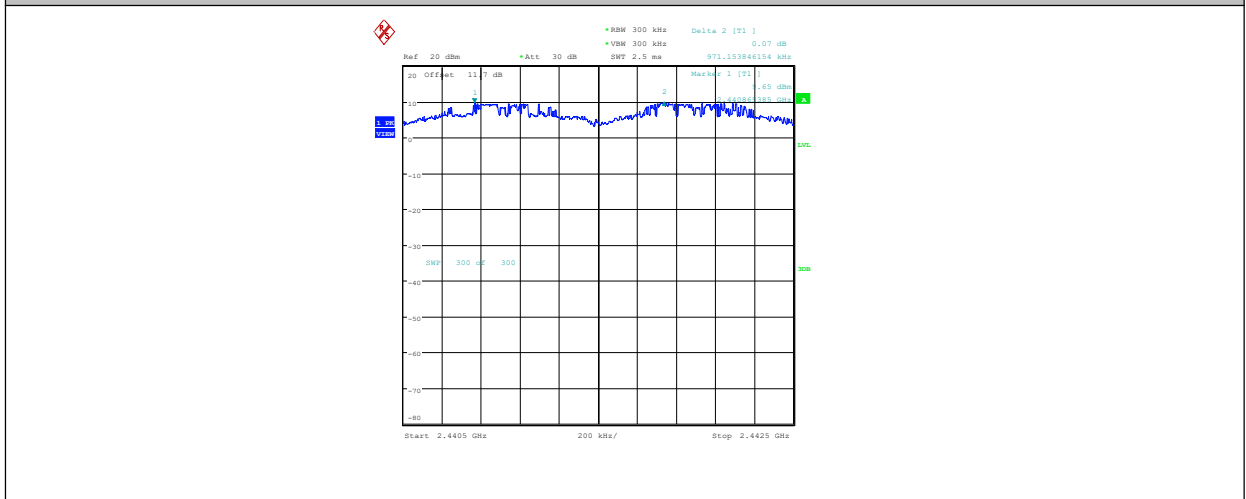


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2DH5-Ant1-Hop



3DH5-Ant1-Hop

6.8. Number Of Hopping Channels

Specifications:	FCC 47 CFR Part 15.247 (a)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 CFR Part 15.247 (a)(1)(iii)	At least 15 non-overlapping channels

Measurement Uncertainty:

Measurement Uncertainty	±0.34dB
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Test procedure

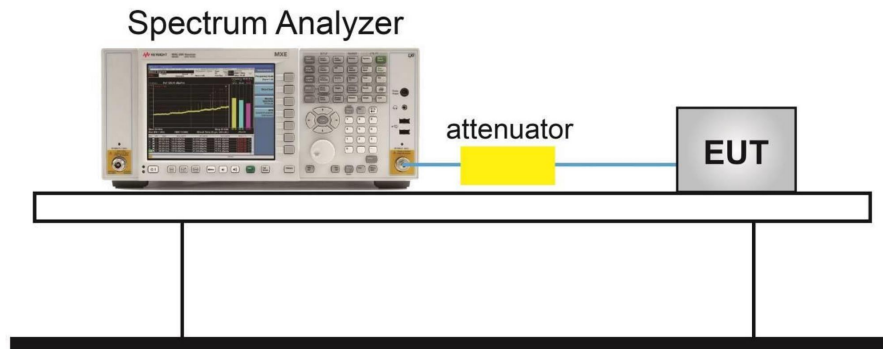
The measurement is according to ANSI C63.10 clause 7.8.3.

1. Connect the EUT through cable and divide with CMW 270 and spectrum analyzer.
2. Enable the EUT transmit in hopping mode.
3. Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
4. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
5. VBW \geq RBW.
6. Sweep: Auto.
7. Detector function: Peak.
8. Trace: Max hold.
9. Allow the trace to stabilize.
10. Record the test results.

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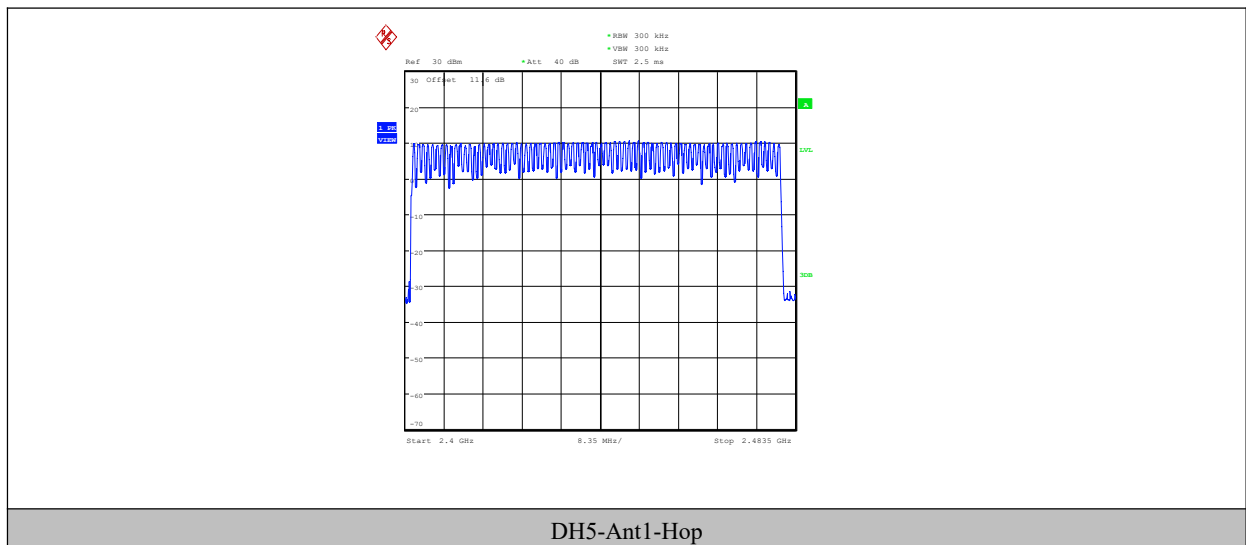
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Test Setup



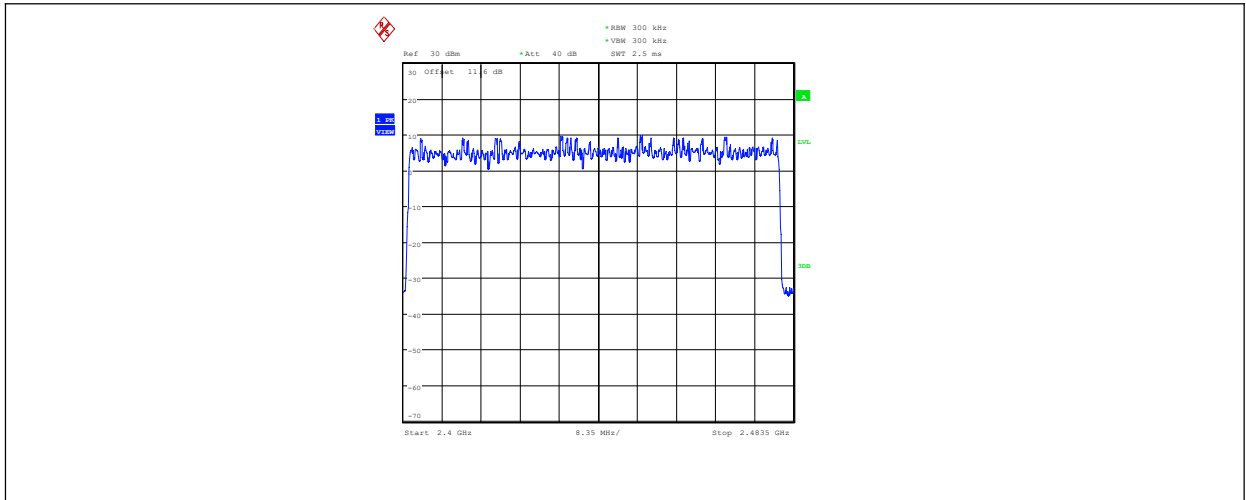
Measurement Result

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

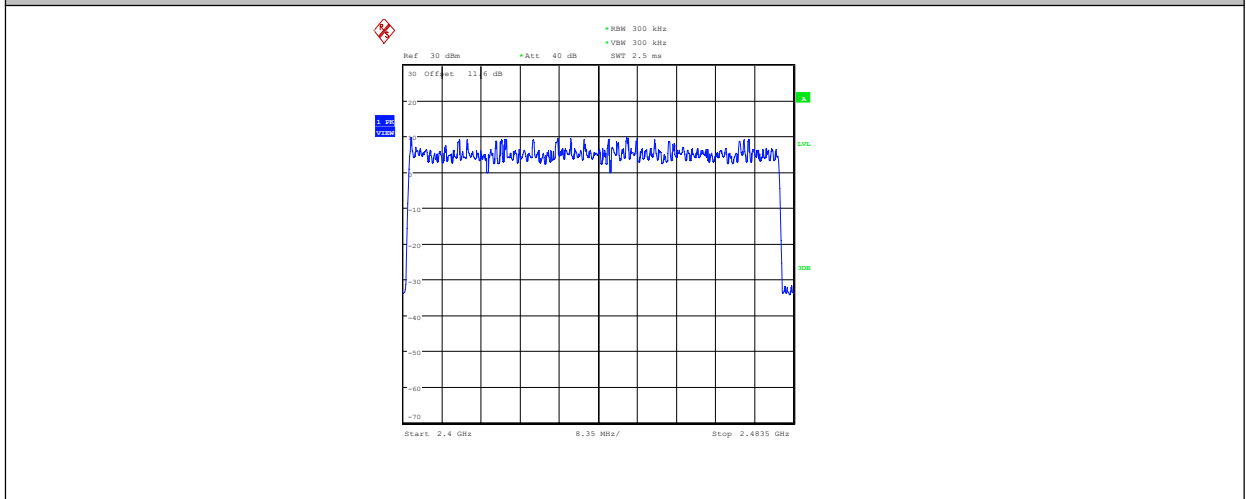


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2DH5-Ant1-Hop



3DH5-Ant1-Hop

6.9. Transmitter Spurious Emission-Conducted

Specifications:	FCC 47 CFR Part 15.247(d)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 CFR Part 15.247(d)	20dB below peak output power in 100KHz

Measurement Uncertainty:

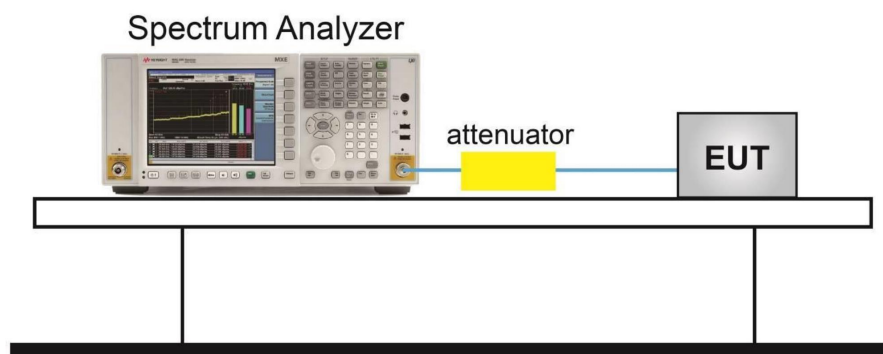
Measurement Uncertainty	±0.80dBm/KHz
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Test procedures

The measurement is according to ANSI C63.10 clause 7.8.8.

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100kHz, VBW=300kHz.
3. Detector =peak, sweep time=auto couple, trace mode=max hold

Test Setup



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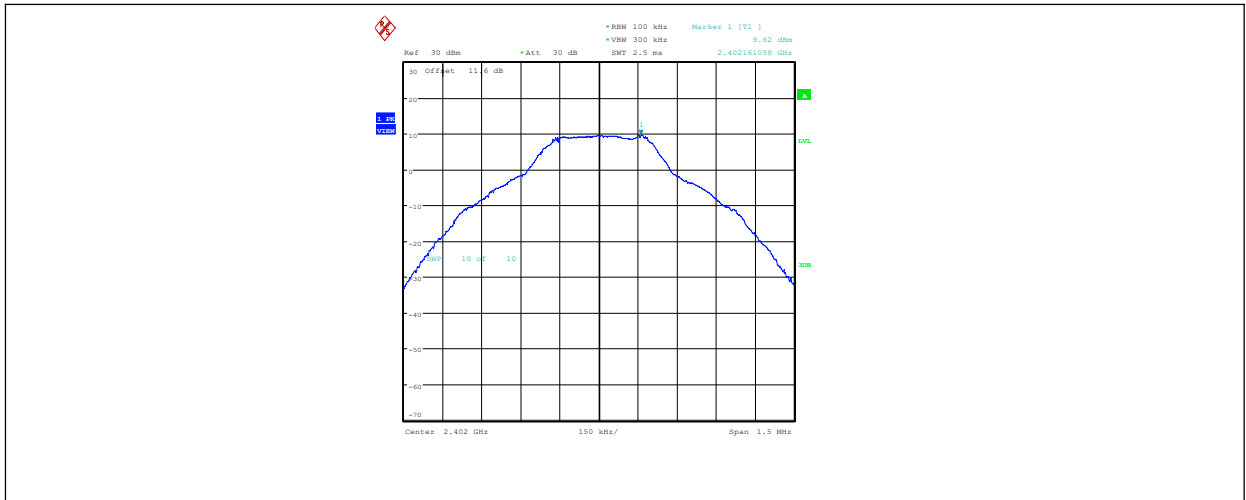
Measurement Results

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	9.62	9.62	---	PASS
DH5	Ant1	2402	30~1000	9.62	-51.6	≤ -10.38	PASS
DH5	Ant1	2402	1000~26500	9.62	-51.3	≤ -10.38	PASS
DH5	Ant1	2441	0~Reference	9.93	9.93	---	PASS
DH5	Ant1	2441	30~1000	9.93	-53.33	≤ -10.07	PASS
DH5	Ant1	2441	1000~26500	9.93	-52.49	≤ -10.07	PASS
DH5	Ant1	2480	0~Reference	9.22	9.22	---	PASS
DH5	Ant1	2480	30~1000	9.22	-53.84	≤ -10.78	PASS
DH5	Ant1	2480	1000~26500	9.22	-52.49	≤ -10.78	PASS
2DH5	Ant1	2402	0~Reference	9.27	9.27	---	PASS
2DH5	Ant1	2402	30~1000	9.27	-55.49	≤ -10.73	PASS
2DH5	Ant1	2402	1000~26500	9.27	-52.04	≤ -10.73	PASS
2DH5	Ant1	2441	0~Reference	9.14	9.14	---	PASS
2DH5	Ant1	2441	30~1000	9.14	-55.09	≤ -10.86	PASS
2DH5	Ant1	2441	1000~26500	9.14	-52.48	≤ -10.86	PASS
2DH5	Ant1	2480	0~Reference	8.58	8.58	---	PASS
2DH5	Ant1	2480	30~1000	8.58	-55.49	≤ -11.42	PASS
2DH5	Ant1	2480	1000~26500	8.58	-52.5	≤ -11.42	PASS
3DH5	Ant1	2402	0~Reference	9.33	9.33	---	PASS
3DH5	Ant1	2402	30~1000	9.33	-55.95	≤ -10.67	PASS
3DH5	Ant1	2402	1000~26500	9.33	-52.05	≤ -10.67	PASS
3DH5	Ant1	2441	0~Reference	9.26	9.26	---	PASS
3DH5	Ant1	2441	30~1000	9.26	-55.5	≤ -10.74	PASS
3DH5	Ant1	2441	1000~26500	9.26	-52.44	≤ -10.74	PASS
3DH5	Ant1	2480	0~Reference	8.59	8.59	---	PASS
3DH5	Ant1	2480	30~1000	8.59	-54.5	≤ -11.41	PASS
3DH5	Ant1	2480	1000~26500	8.59	-52.63	≤ -11.41	PASS

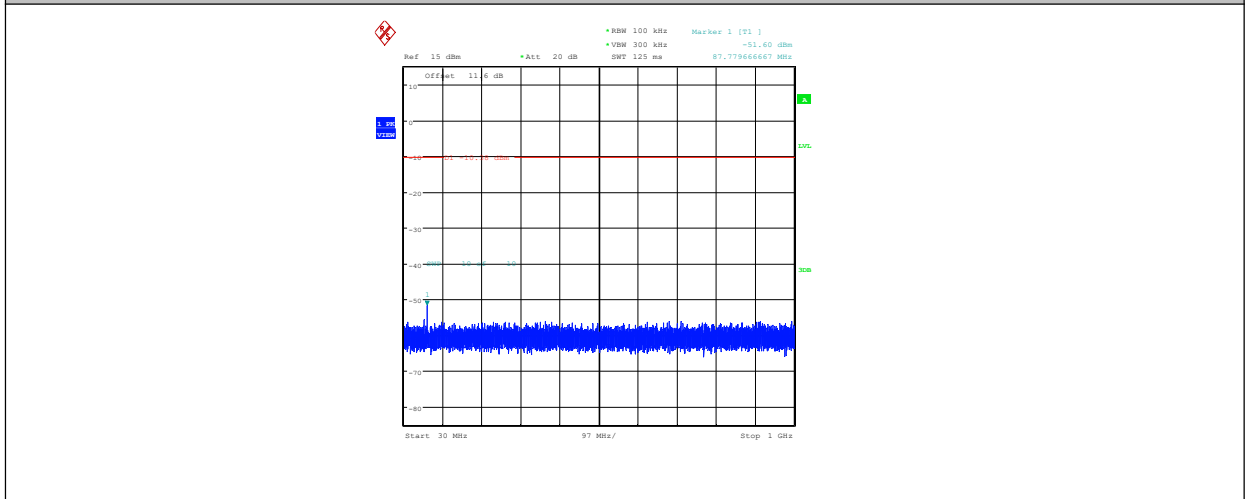
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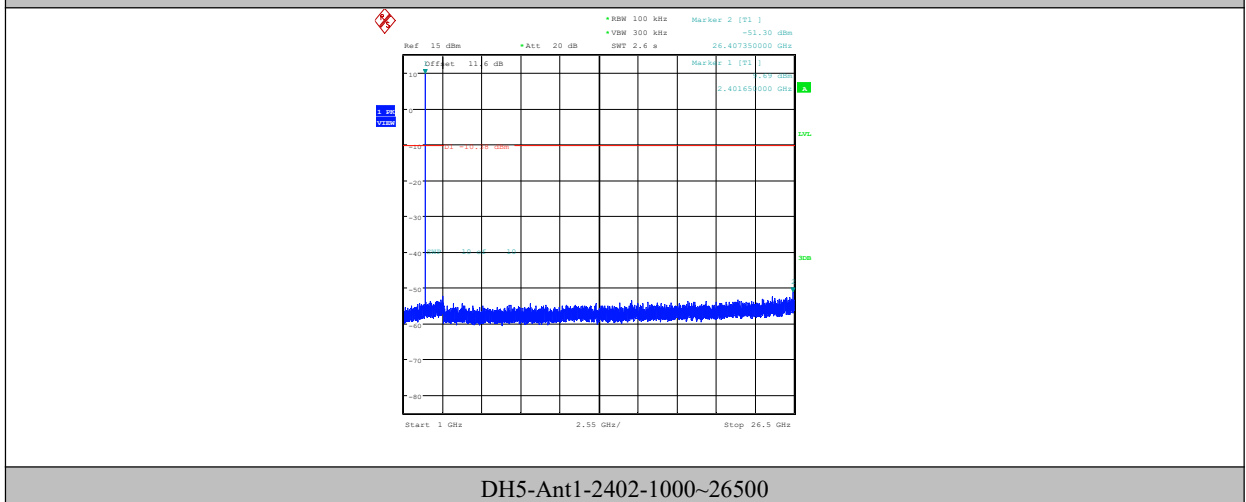
Test Graphs



DH5-Ant1-2402-0-Reference



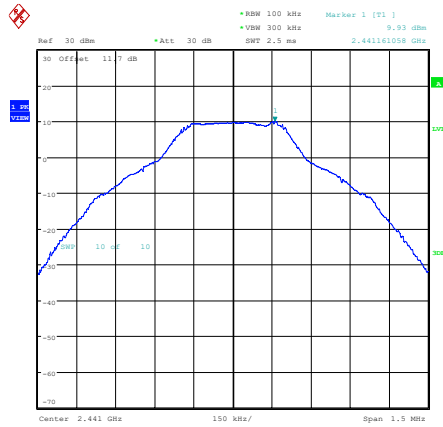
DH5-Ant1-2402-30~1000



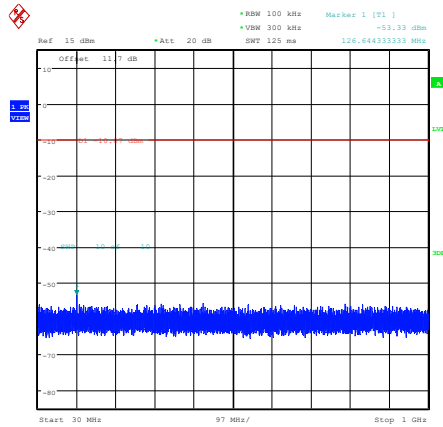
DH5-Ant1-2402-1000~26500

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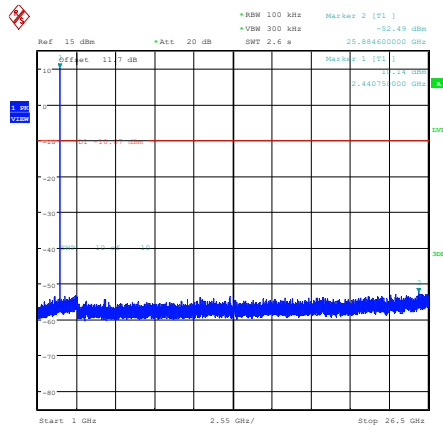
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DH5-Ant1-2441-0~Reference



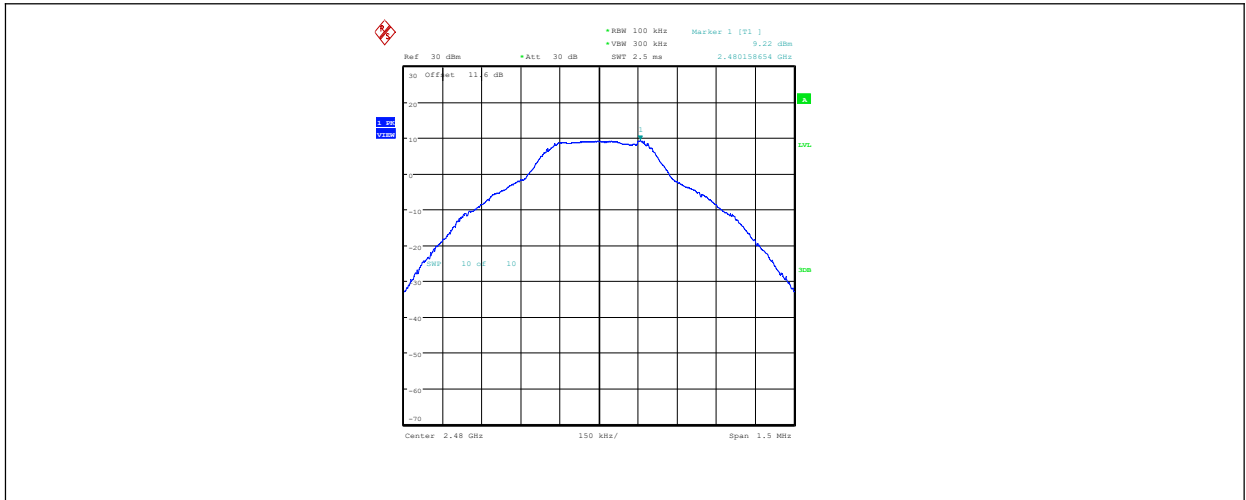
DH5-Ant1-2441-30~1000



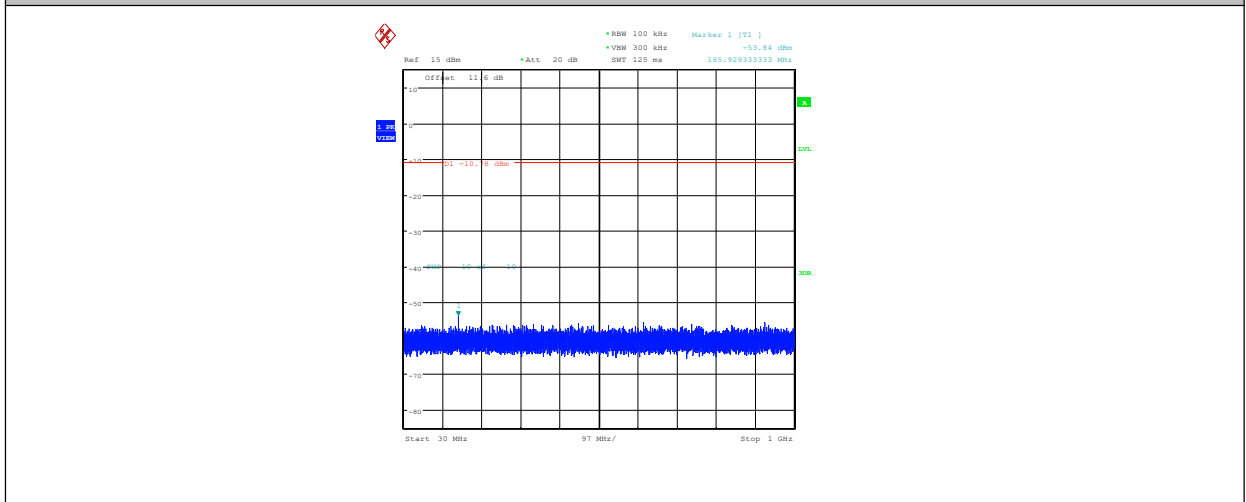
DH5-Ant1-2441-1000~26500

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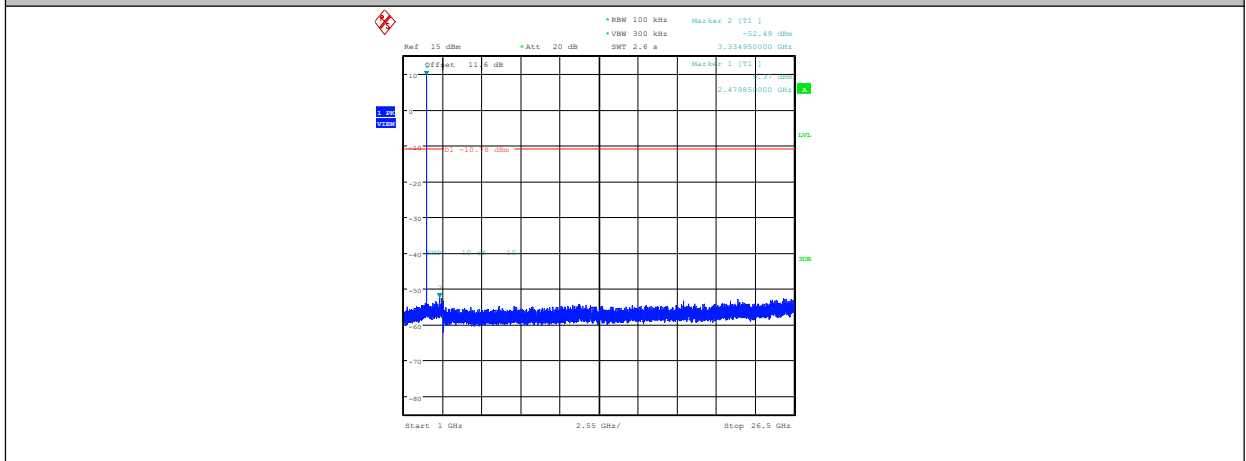
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DH5-Ant1-2480-0~Reference



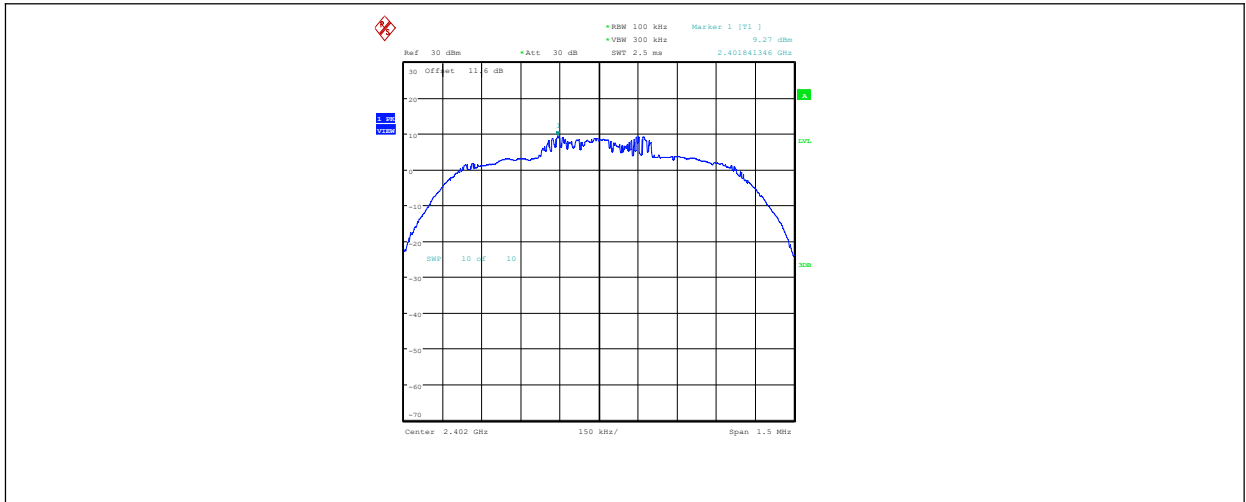
DH5-Ant1-2480-30~1000



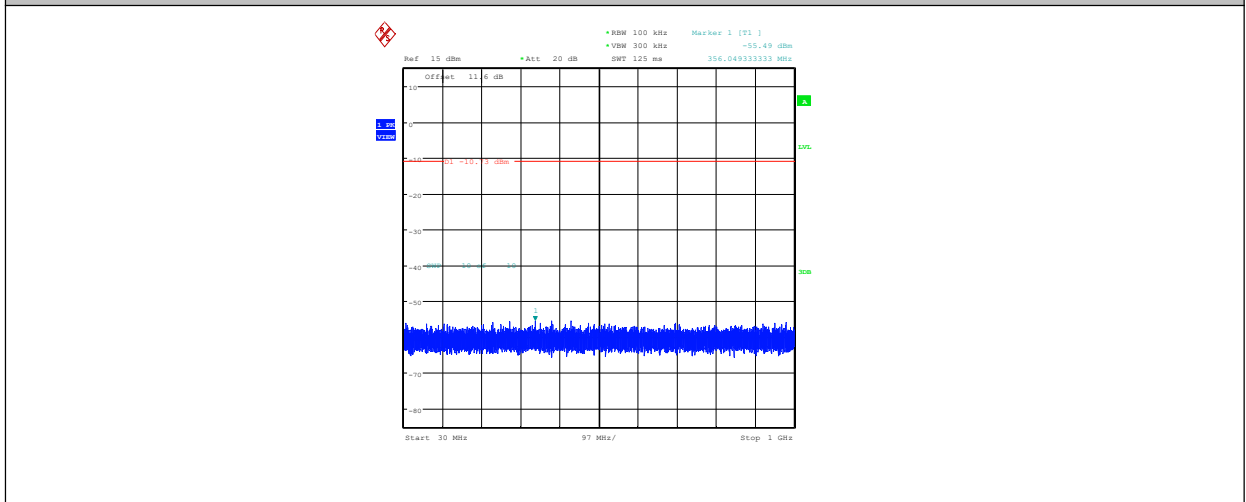
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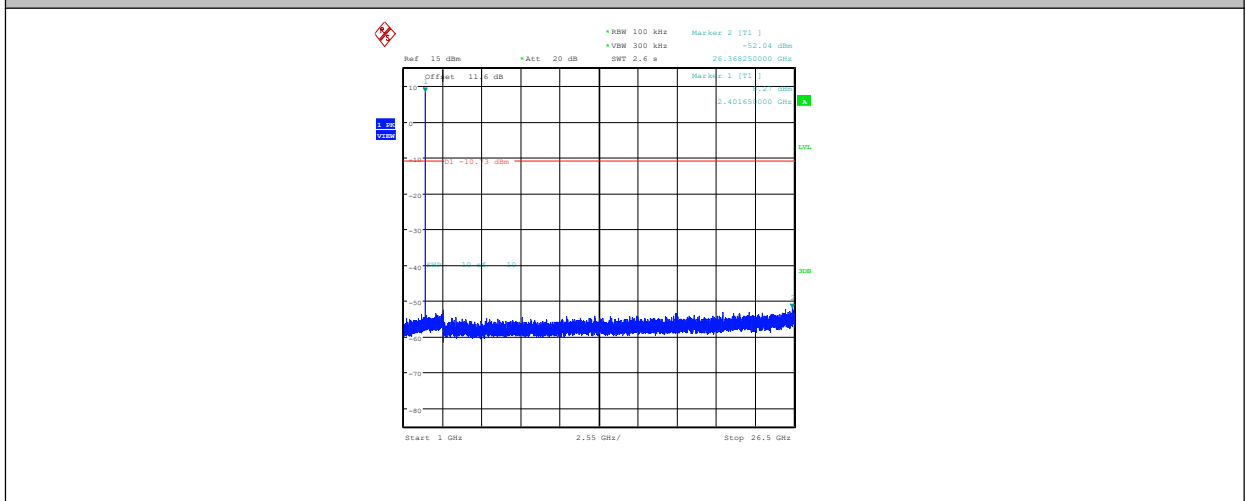
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2DH5-Ant1-2402-0~Reference



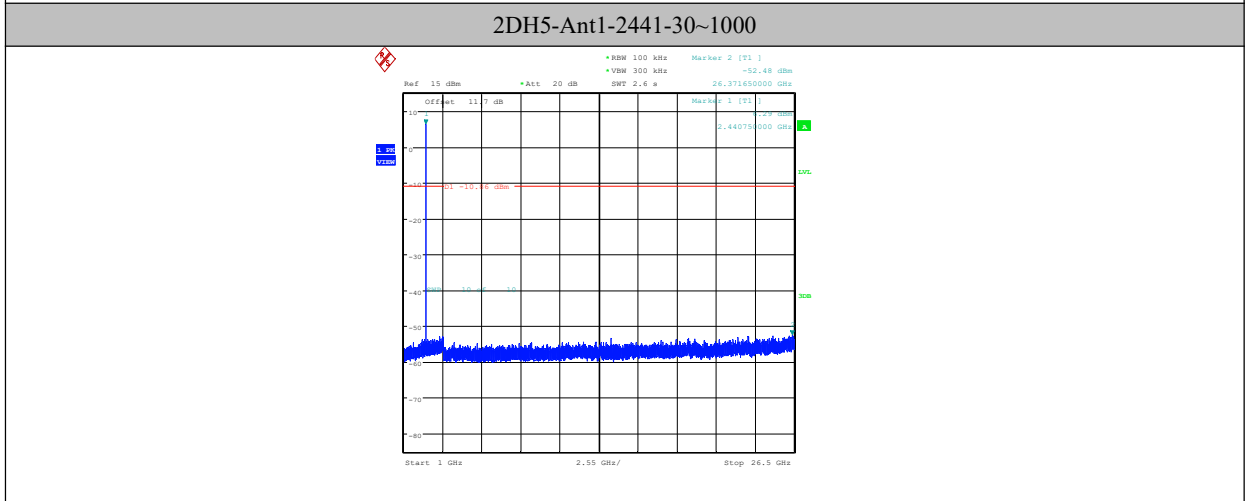
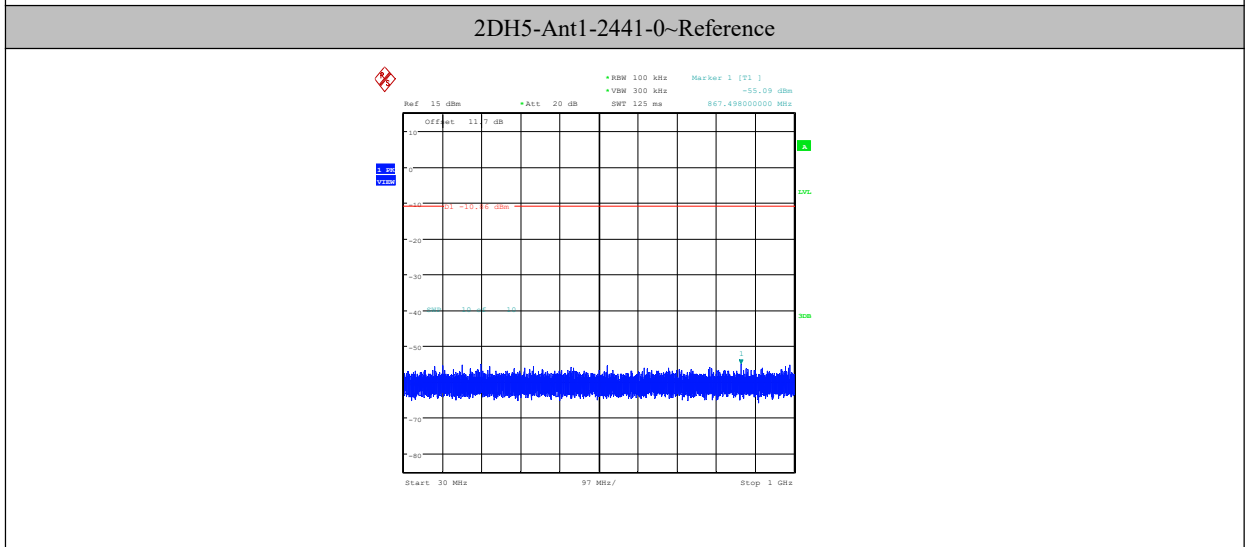
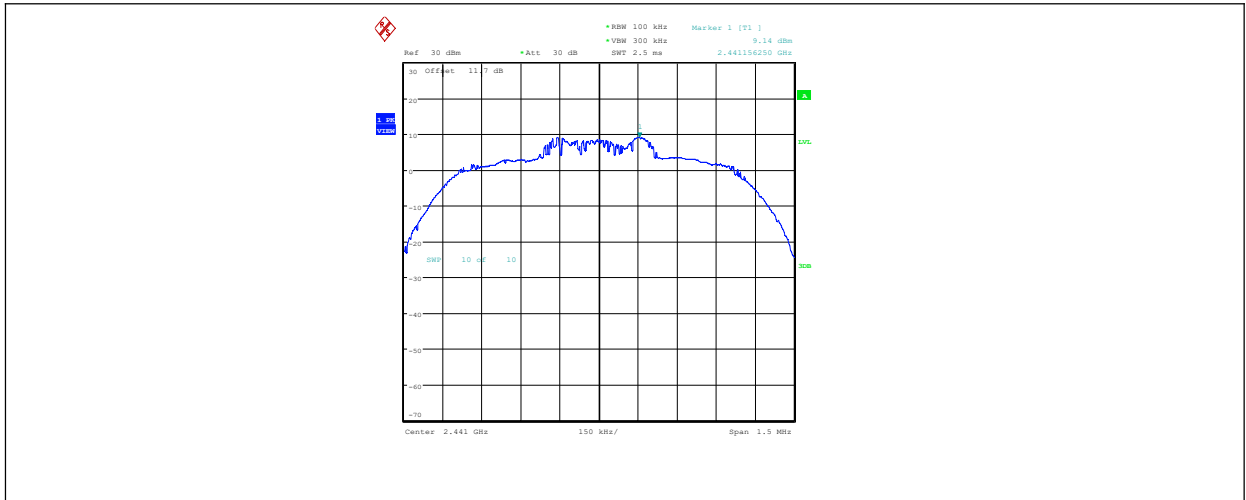
2DH5-Ant1-2402-30~1000



2DH5-Ant1-2402-1000~26500

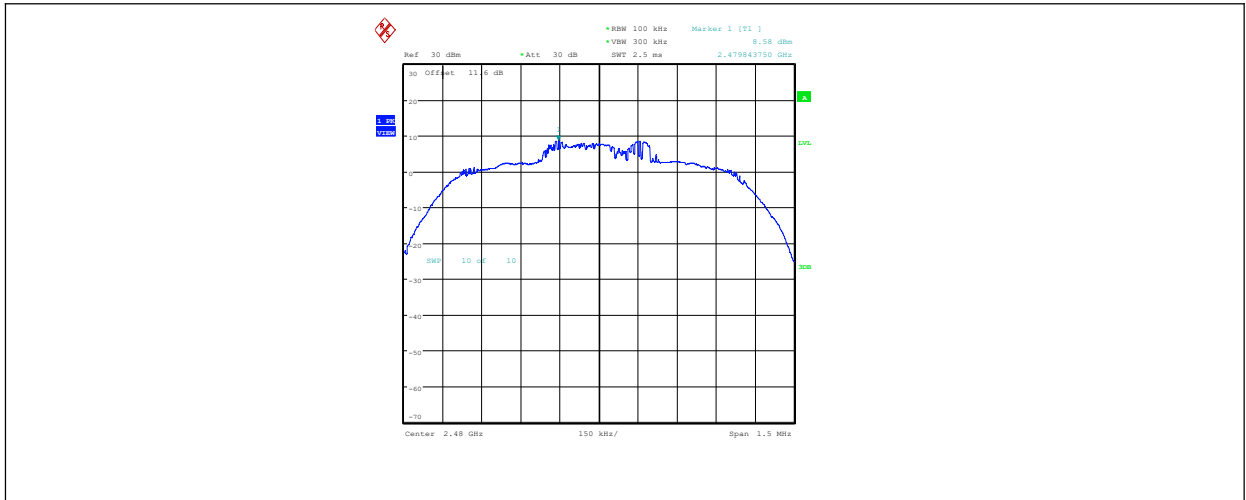
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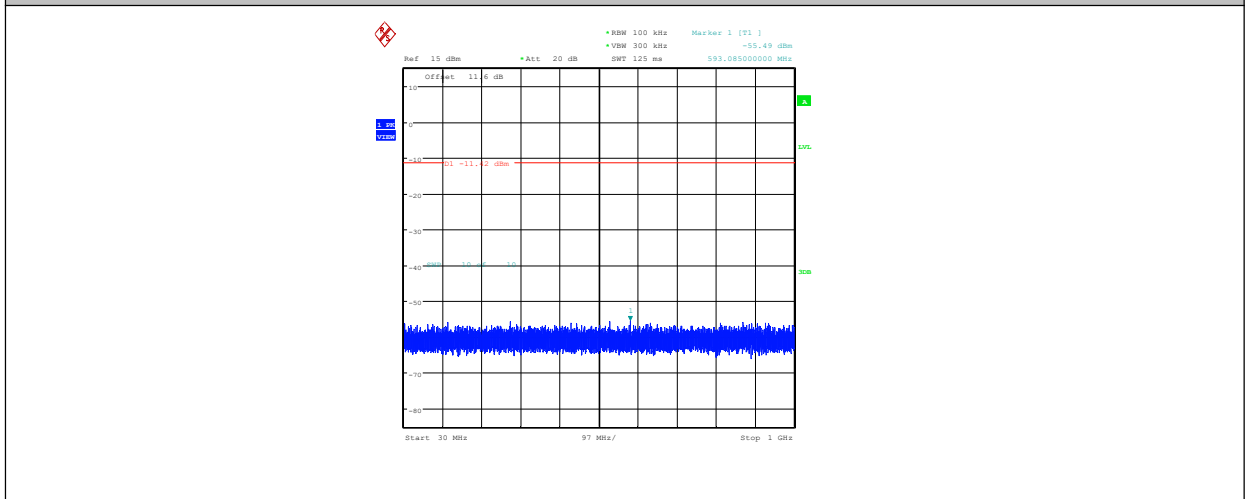


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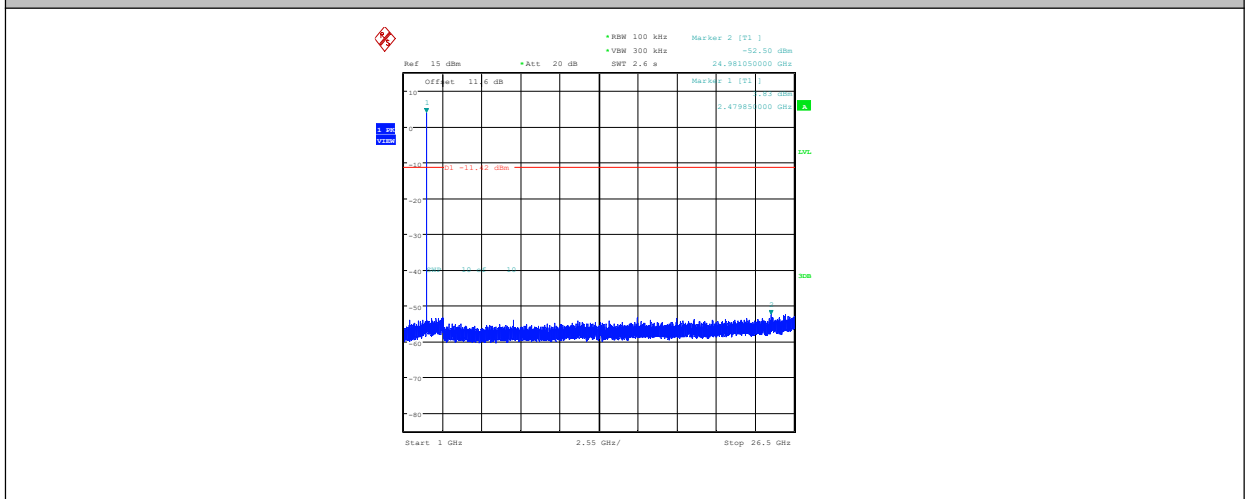
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2DH5-Ant1-2480-0~Reference



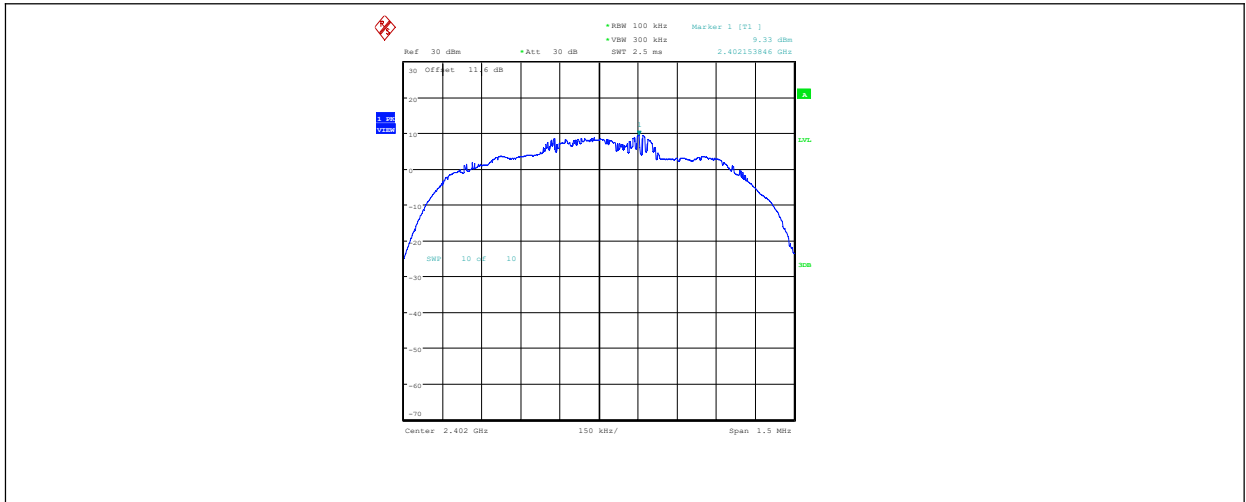
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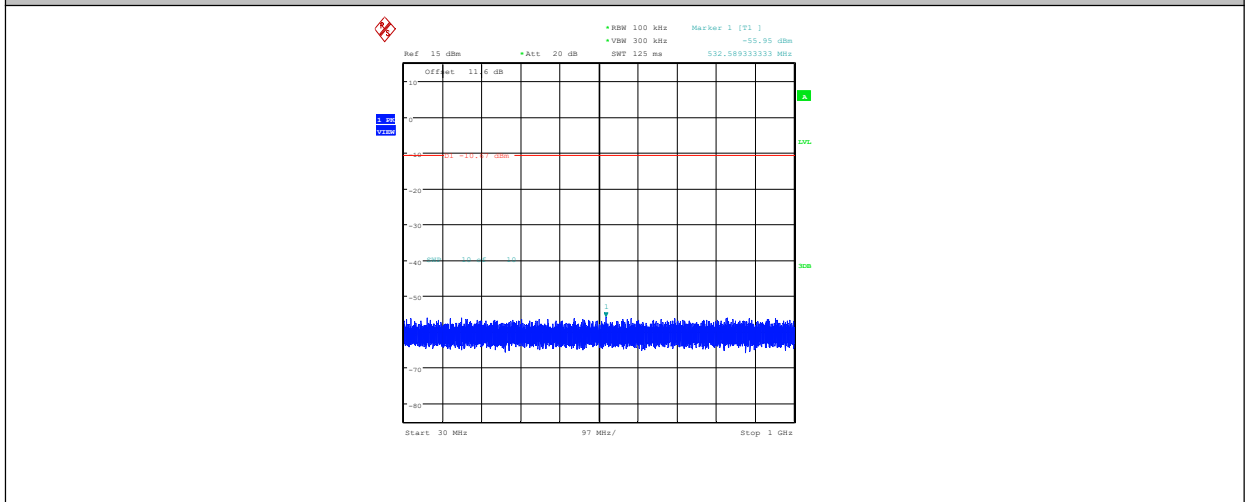
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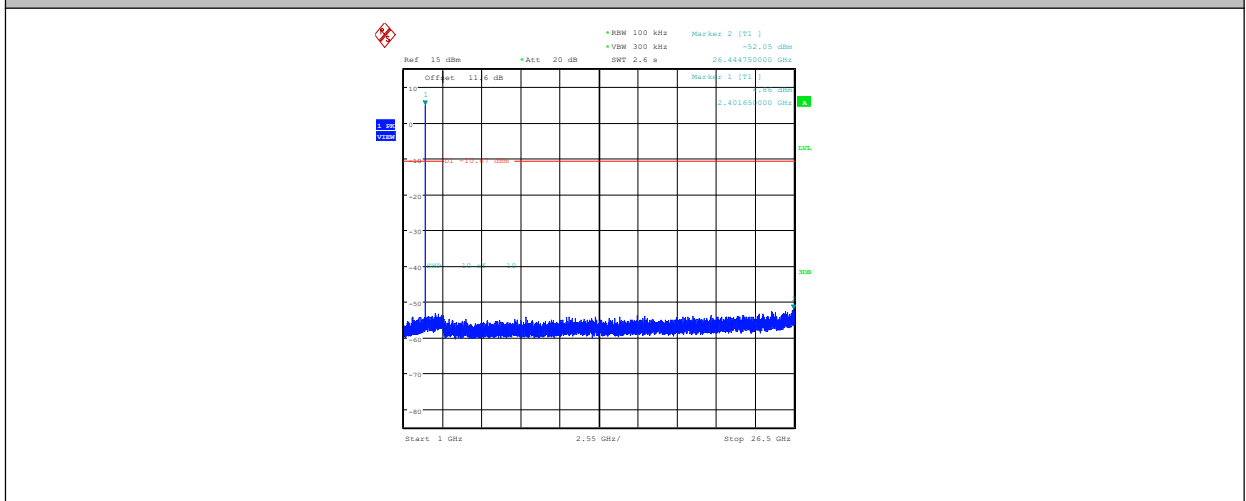
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3DH5-Ant1-2402-0~Reference



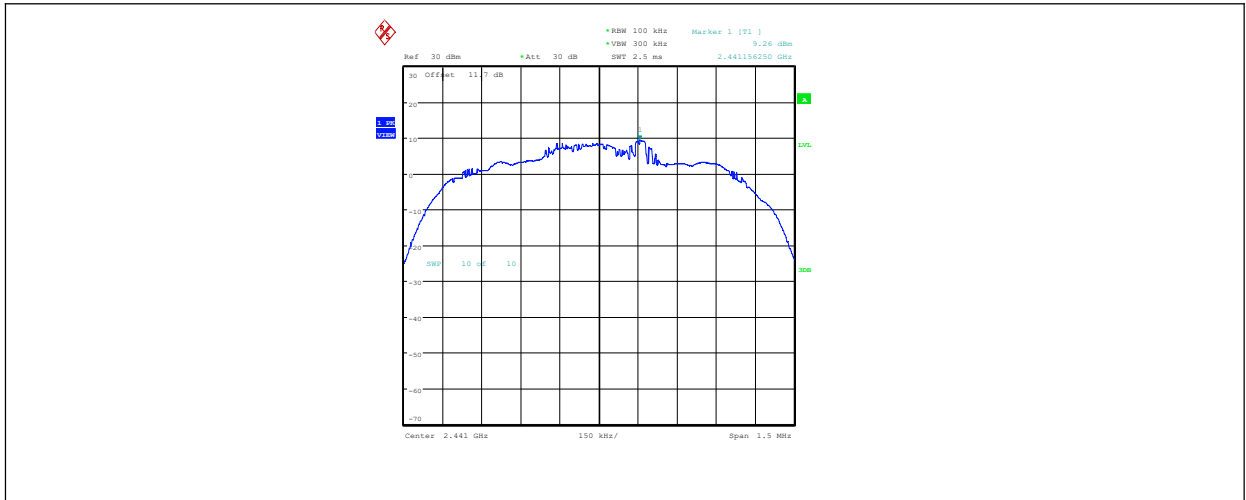
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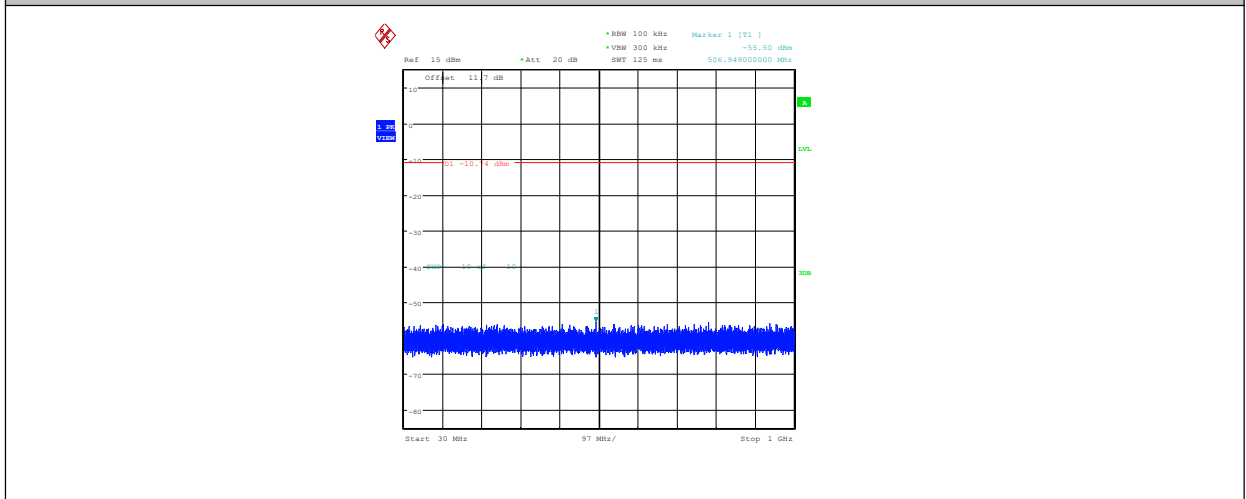
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Chongqing Academy of Information and Communication Technology

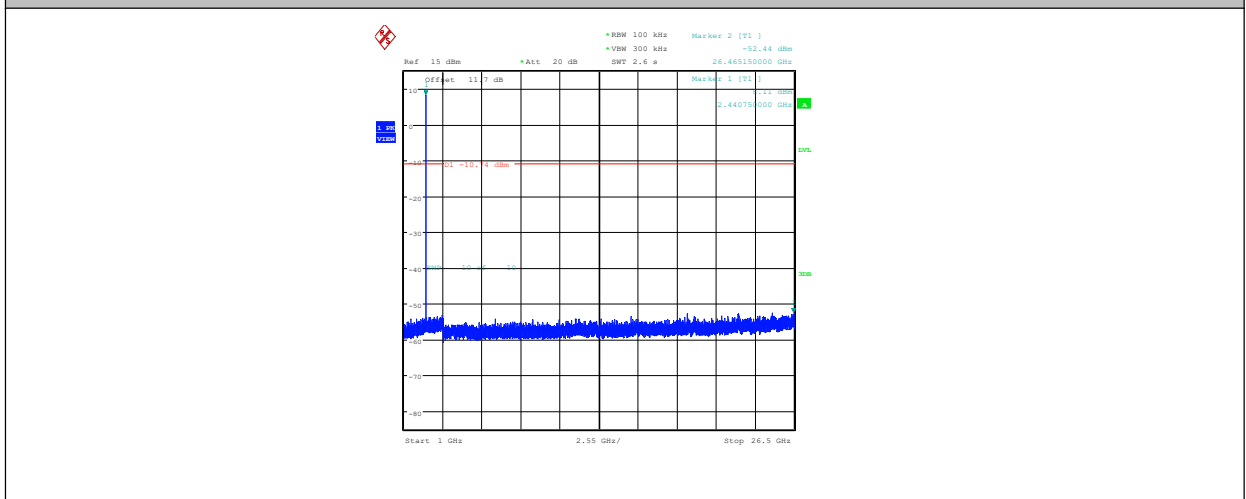
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3DH5-Ant1-2441-0~Reference



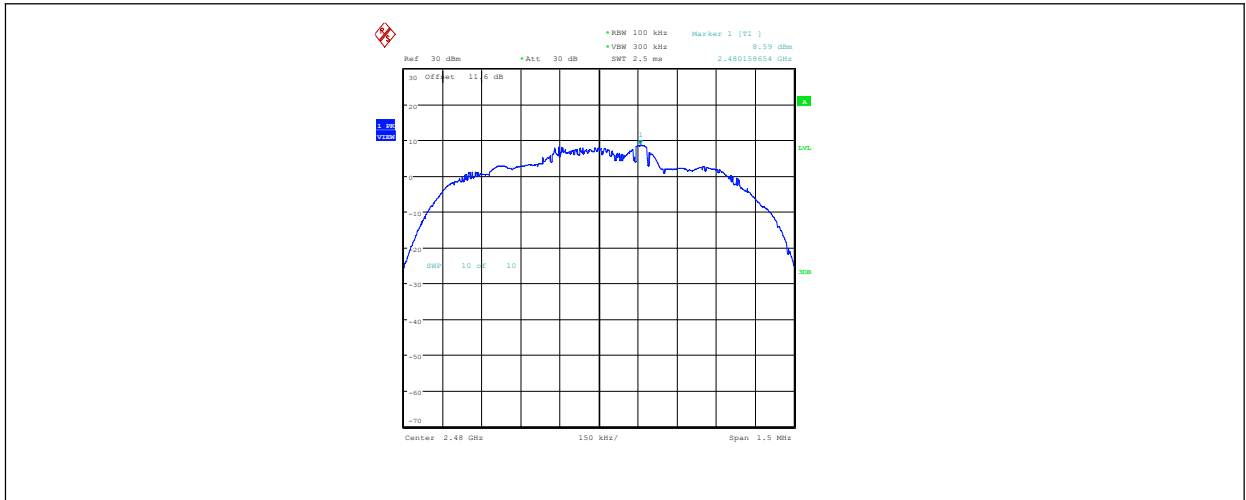
3DH5-Ant1-2441-30~1000



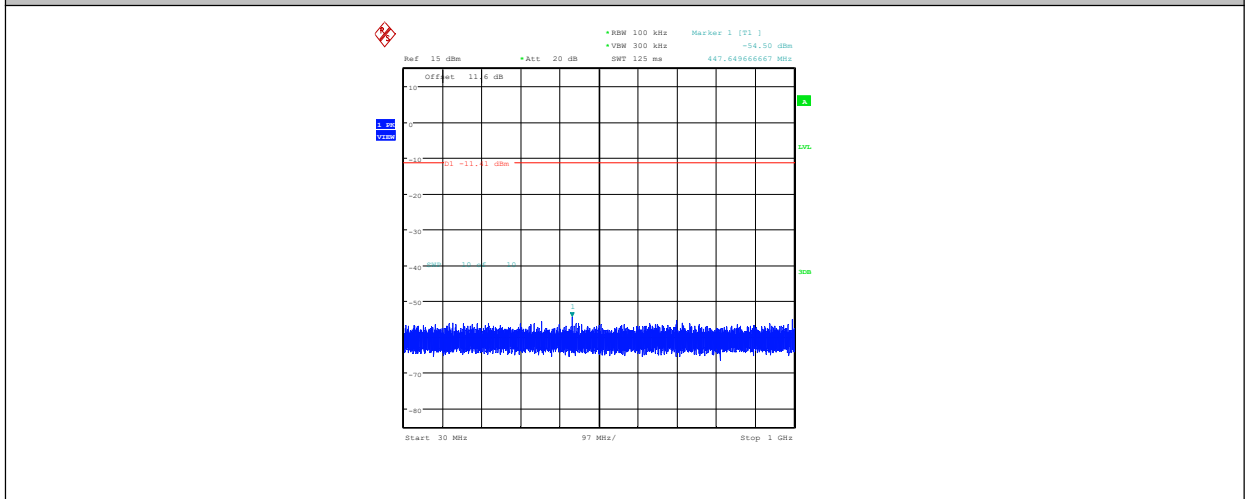
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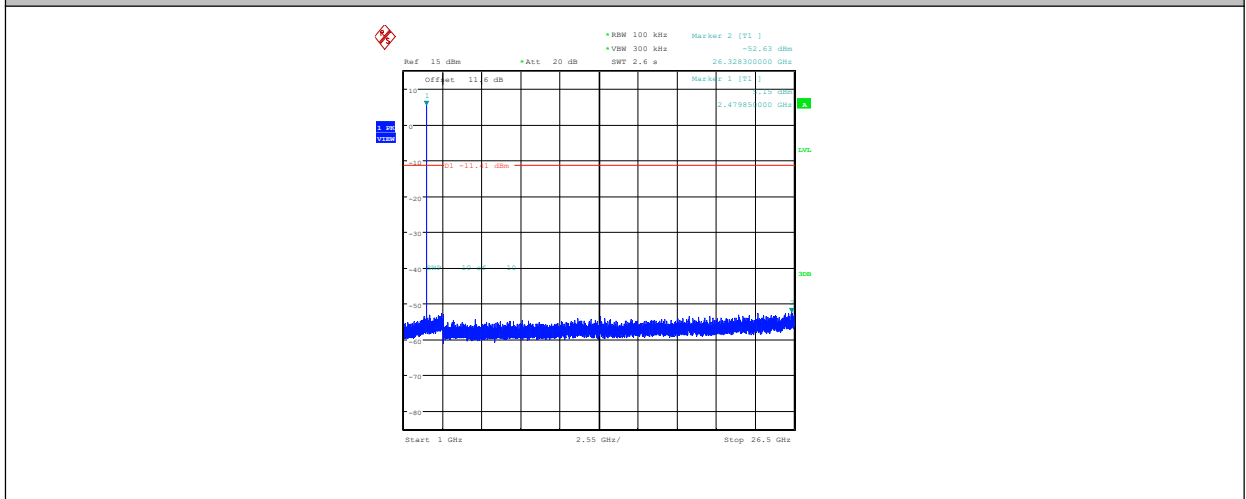
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3DH5-Ant1-2480-0~Reference



3DH5-Ant1-2480-30~1000



3DH5-Ant1-2480-1000~26500

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6.10. Transmitter Spurious Emission-Radiated

Specifications:	FCC 47 CFR Part 15.247, 15.205, 15.209
DUT Serial Number:	S4,S8,S9
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

Measurement Uncertainty:

Measurement Uncertainty	<p>30MHz-150MHz: 3.79 dB (k=2). 150MHz-1000MHz: 3.51dB (k=2). 1000MHz-6000MHz: 4.84 dB (k=2). 6000MHz-18000MHz: 4.52 dB (k=2).</p>
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In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see 15.205(c)).

Limit in restricted band

Frequency of emission (MHz)	Field strength (mV/m)	Field strength (dBuV/m)
0.009~0.49	2400/F (kHz)	129-94
0.49~1.705	24000/F (kHz)	74-63
1.705~30	30	70
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

Test Method

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, For

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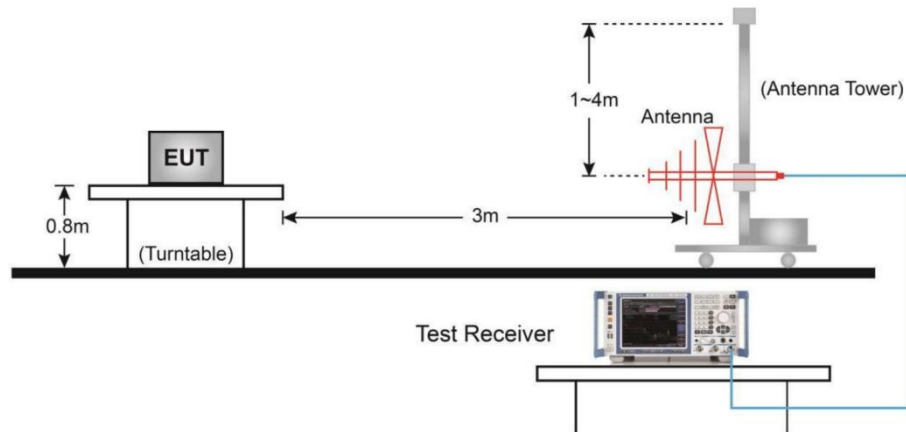
emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.10-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission	RBW/VBW	Sweep Time (s)
0.009~30	9KHz/30KHz	Auto
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

Test Setup

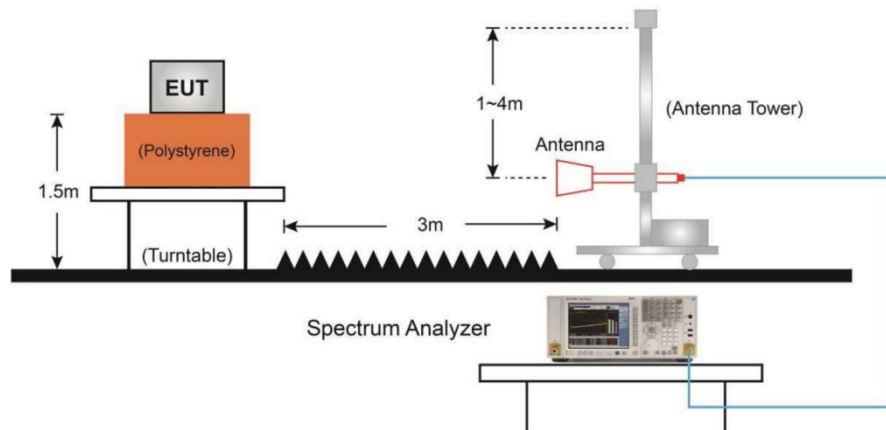
Below 1GHz Test Setup



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Above 1GHz Test Setup



Measurement Results

A “reference path loss” is established and AR_{pi} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

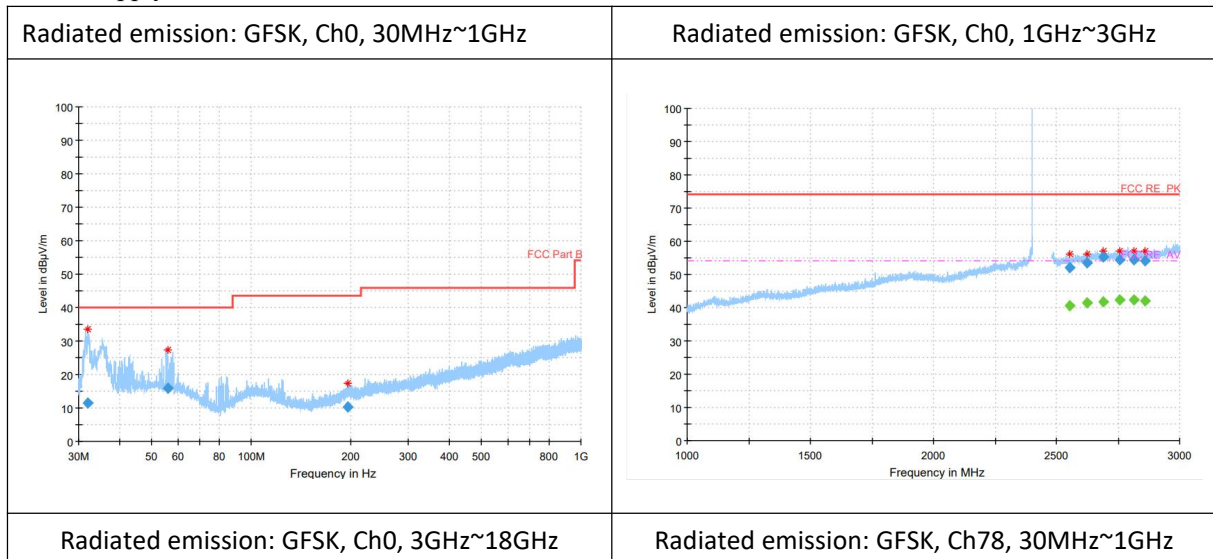
The measurement results are obtained as described below:

$$AR_{pi} = \text{Cable loss} + \text{Antenna Factor} - \text{Preamplifier gain}$$

$$\text{Result} = P_{Mea} + AR_{pi}$$

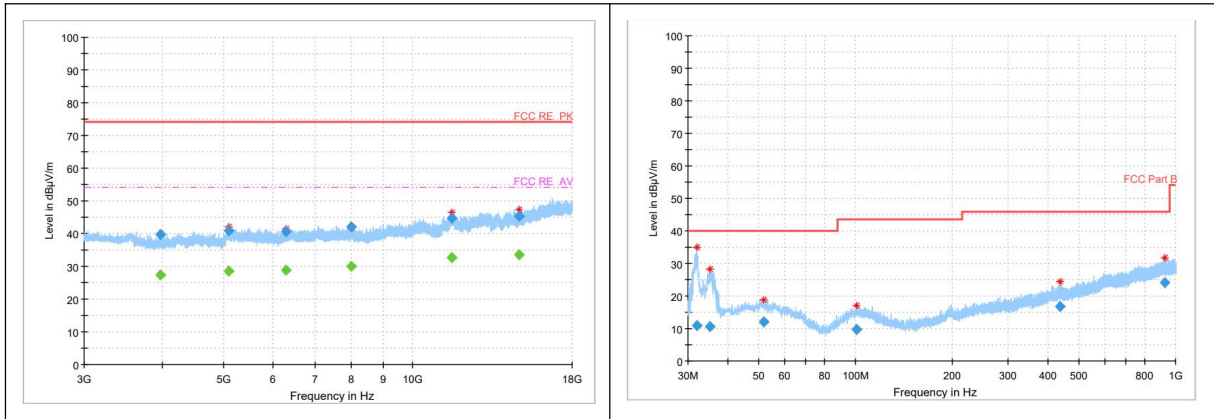
The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

Main Supply



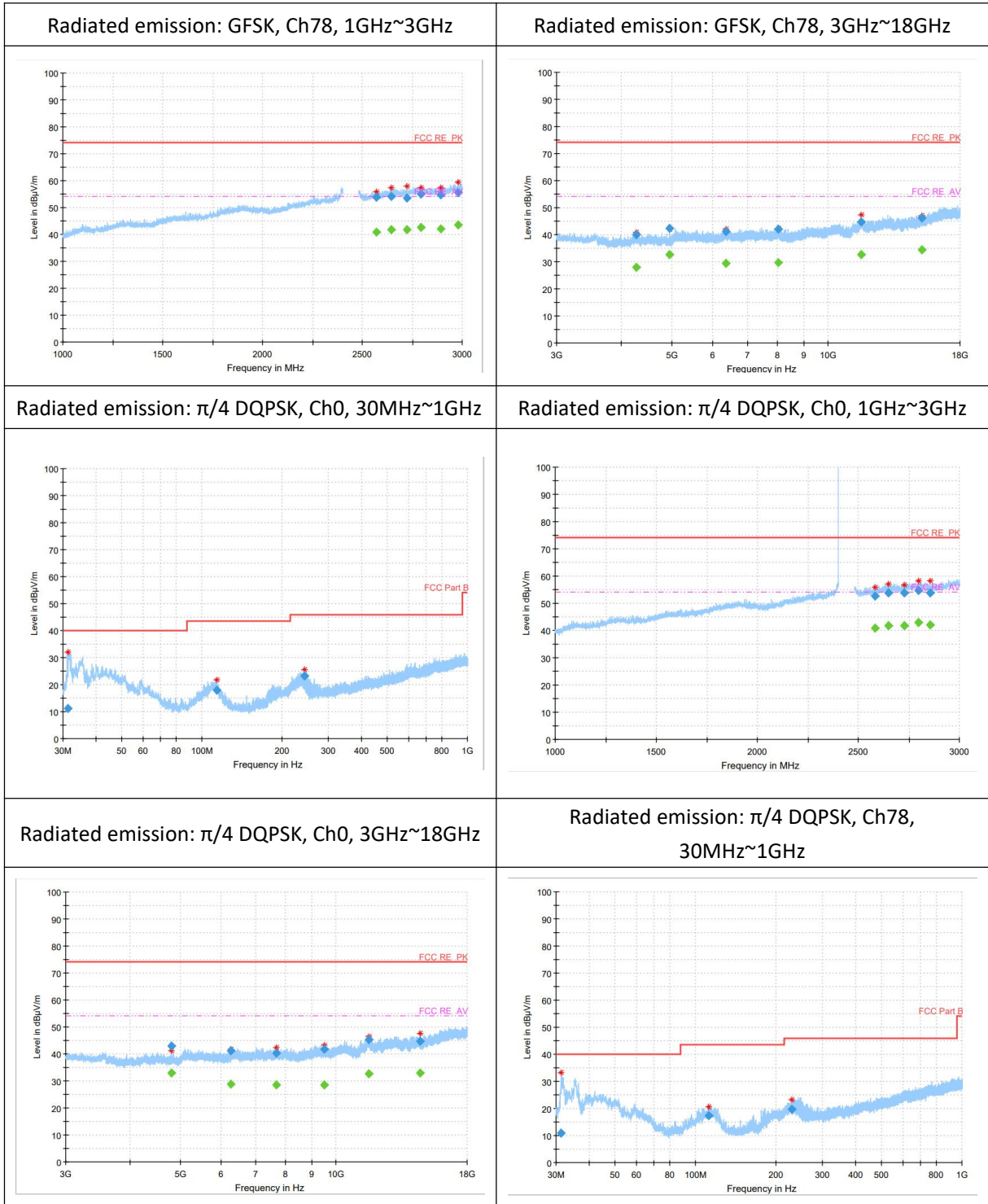
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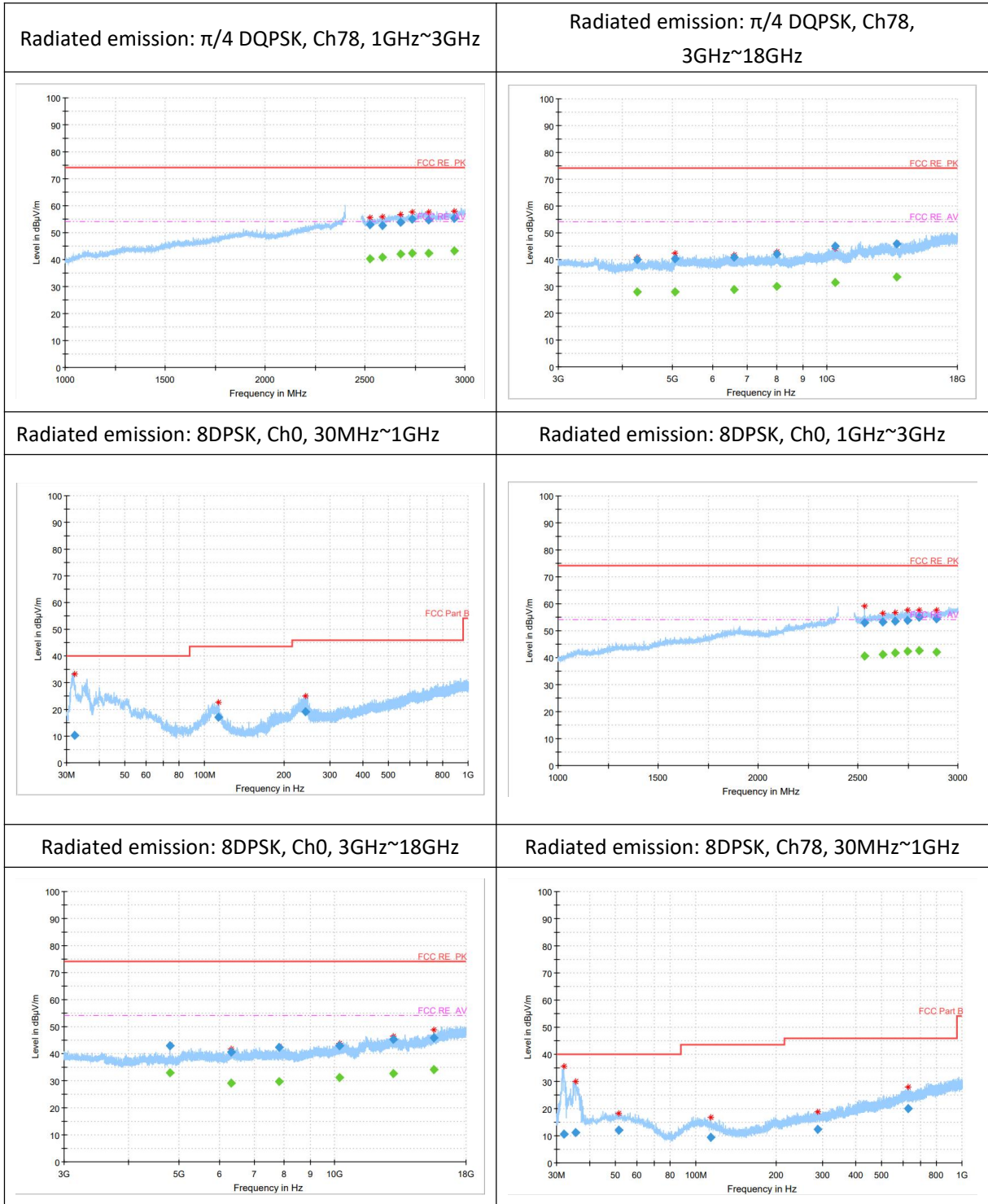
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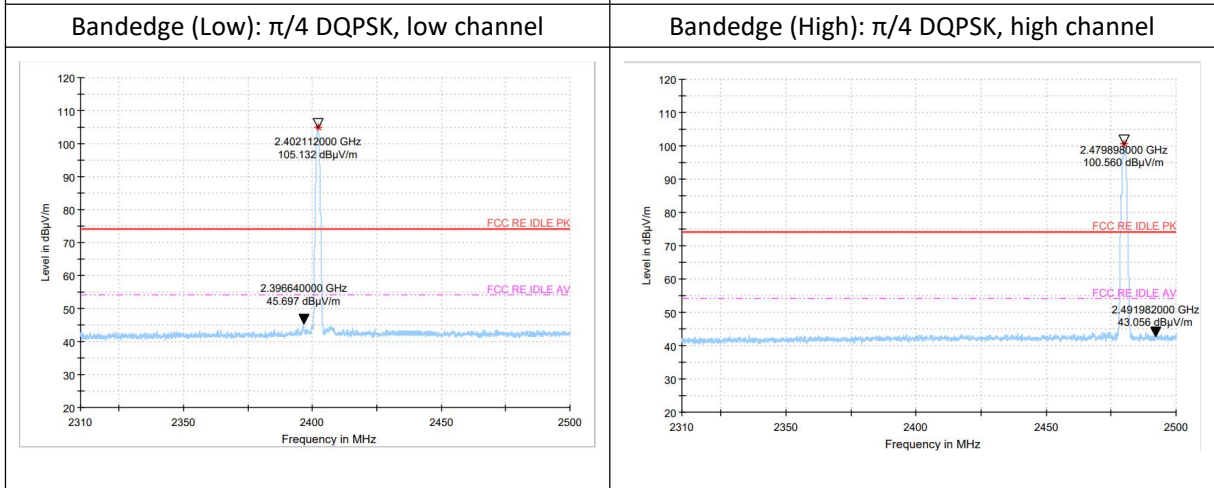
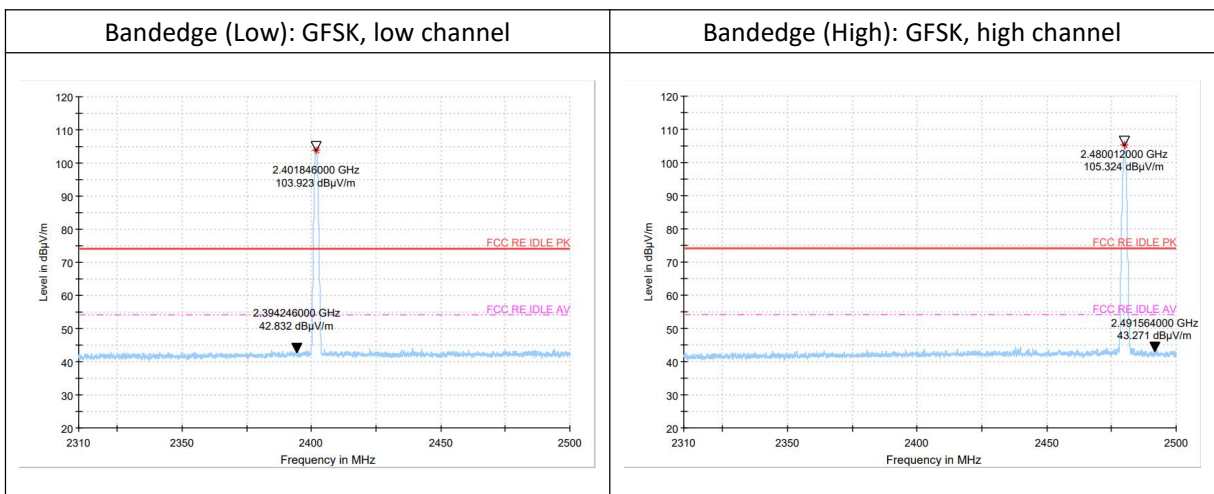
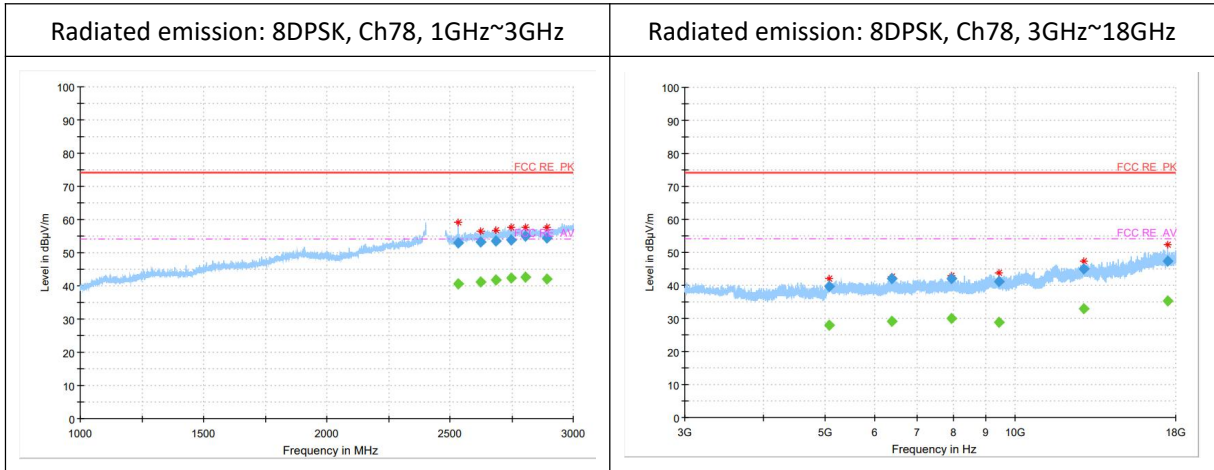
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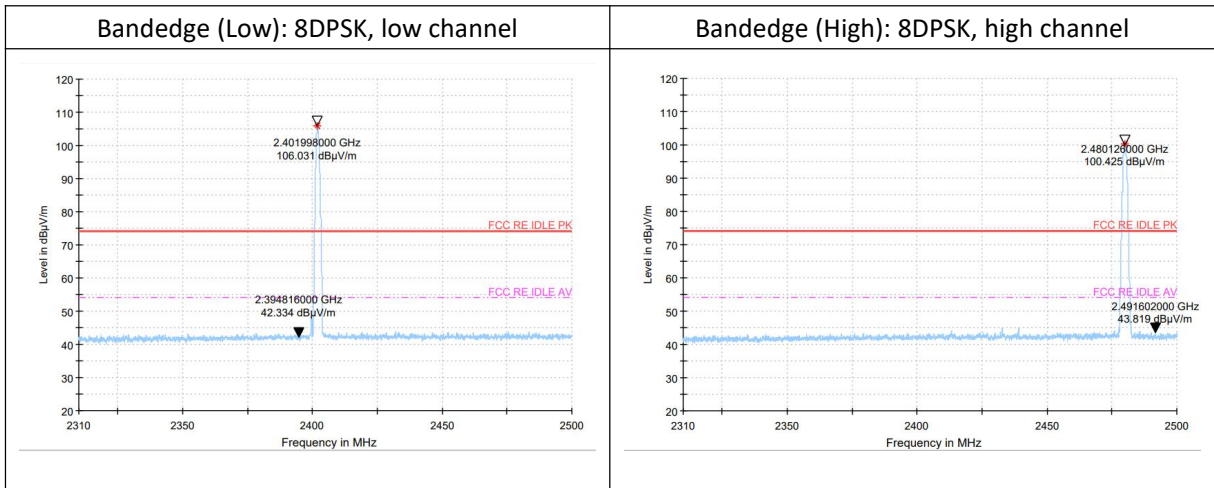
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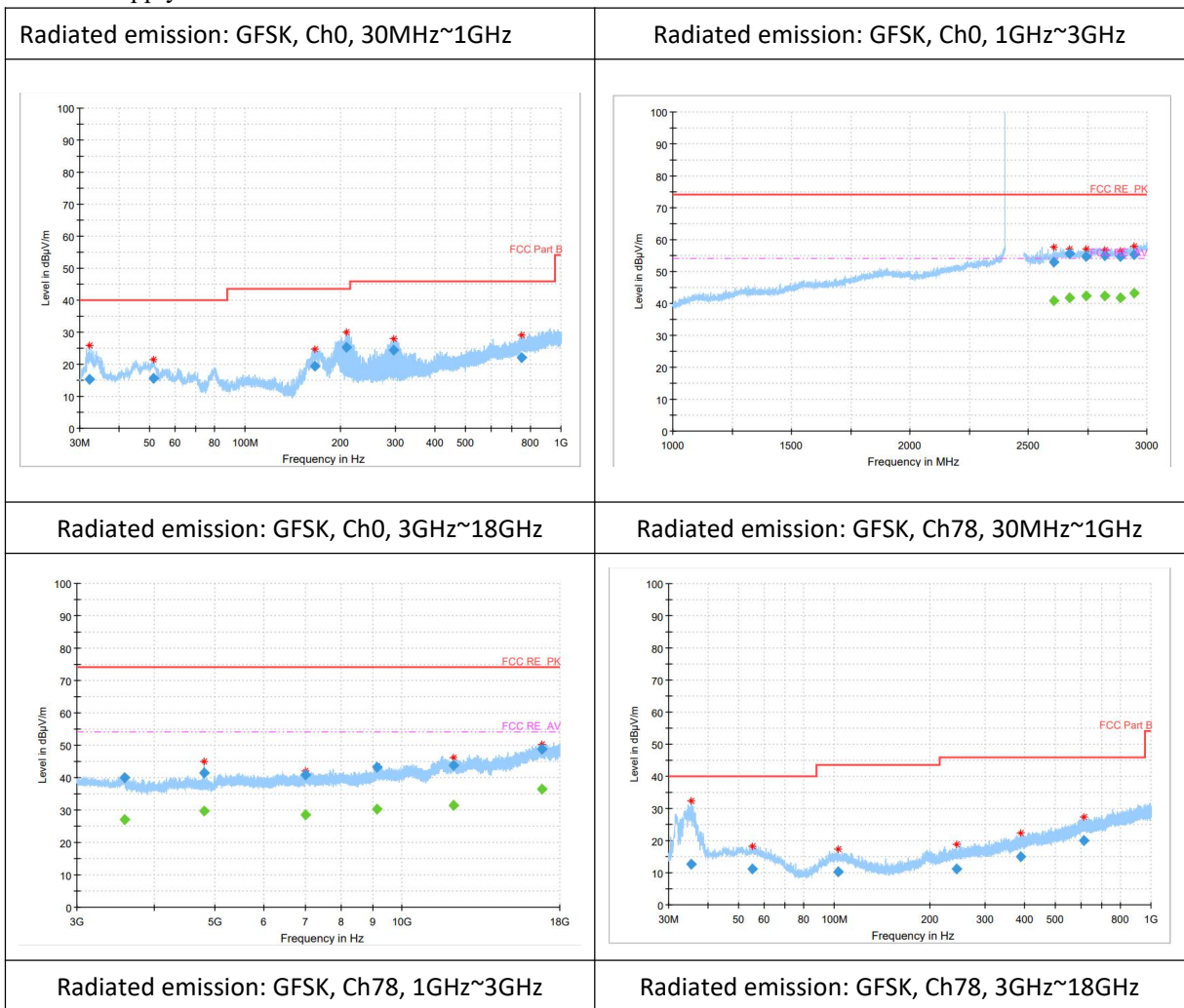


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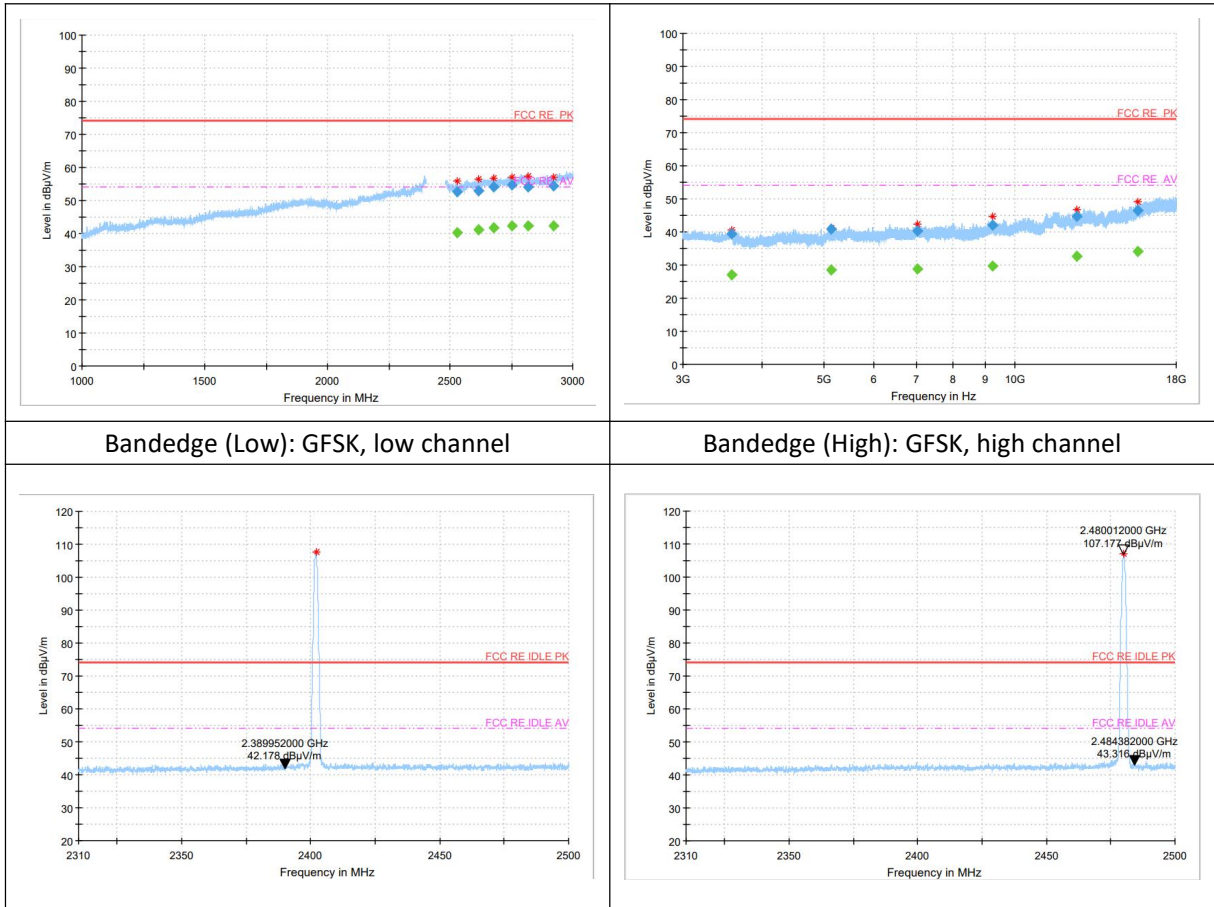


Second supply



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Note1: The out-of- limit signal in the picture is the main frequency signal.

Note2: Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier, the Emissions in the frequency band 18GHz-40GHz is more than 20dB below the limit are not report.

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Main Supply

RSE-2DH5-CH0-1G-3G

Frequency (MHz)	Result (dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Polarity
2401.8	107.84	17.3	90.54	V
2583.0	52.71	16.2	36.51	H
2648.0	53.95	17.3	36.65	V
2727.0	53.78	17.5	36.28	V
2798.8	54.73	18.2	36.53	H
2854.2	53.8	17.7	36.1	V

RSE-2DH5-CH0-1G-3G (Average)

Frequency (MHz)	Result (dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Polarity
2401.8	100.67	17.3	83.37	V
2798.8	42.83	18.2	24.63	H

RSE-2DH5-CH0-3G-18G

Frequency (MHz)	Result (dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Polarity
4804.3	42.81	-4	46.81	V
6280.8	41.15	-2.3	43.45	H
7670.2	40.22	-1.6	41.82	V
9505.2	41.64	-0.4	42.04	H
11623.0	45.22	3.3	41.92	H
14562.5	44.58	5.5	39.08	H

RSE-2DH5-CH0-30M-1G

Frequency (MHz)	Result (dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Polarity
31.4	11.18	-15.7	26.88	V
113.5	17.88	-13.3	31.18	V

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243.2	23.29	-11.5	34.79	H
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RSE-2DH5-CH78-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2524.2	53	15.5	37.5	H
2587.2	52.66	16.3	36.36	H
2677.0	53.72	17.2	36.52	V
2736.2	55.02	17.6	37.42	H
2819.8	54.69	18	36.69	V
2945.4	55.35	18.7	36.65	H

RSE-2DH5-CH78-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2736.2	42.24	17.6	24.64	H
2819.8	42.34	18	24.34	V
2945.4	43.25	18.7	24.55	H

RSE-2DH5-CH78-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
4271.5	40.08	-5	45.08	H
5067.3	40.3	-0.6	40.9	V
6602.1	40.74	-2.5	43.24	V
8001.2	42.02	-1.1	43.12	V
10394.6	44.9	1.4	43.5	V
13700.3	45.98	4.5	41.48	V

RSE-2DH5-CH78-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
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31.3	10.88	-15.6	26.48	V
112.4	17.25	-13.2	30.45	V
229.5	19.73	-11.7	31.43	V

RSE-3DH5-CH0-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2552.6	53.09	16.1	36.99	H
2654.1	53.7	17.3	36.4	V
2743.5	54.88	17.7	37.18	H
2835.3	54.16	17.8	36.36	V
2905.2	55.18	17.9	37.28	V
2942.4	54.85	18.7	36.15	V

RSE-3DH5-CH0-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2743.5	42.44	17.7	24.74	H
2835.3	42.28	17.8	24.48	V
2905.2	42.58	17.9	24.68	V
2942.4	43.19	18.7	24.49	V

RSE-3DH5-CH0-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
4803.9	43.05	-4	47.05	V
6313.8	40.54	-2.2	42.74	V
7830.1	42.49	-1.7	44.19	H
10225.5	42.87	0.7	42.17	H
13013.5	45.28	4.4	40.88	H
15610.0	45.76	7.6	38.16	H

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RSE-3DH5-CH0-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
32.1	10.17	-15.7	25.87	V
113.2	16.98	-13.3	30.28	V
241.6	19.21	-11.5	30.71	V

RSE-3DH5-CH78-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2534.6	52.95	15.7	37.25	H
2622.2	53.32	16.8	36.52	H
2687.3	53.59	17.2	36.39	V
2745.9	53.97	17.8	36.17	V
2805.1	55.13	18.1	37.03	V
2892.9	54.41	17.8	36.61	V

RSE-3DH5-CH78-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2805.1	42.57	18.1	24.47	V
2892.9	42.02	17.8	24.22	V

RSE-3DH5-CH78-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
5086.6	39.63	-0.6	40.23	H
6391.5	41.97	-2.4	44.37	H
7946.9	42.2	-1.3	43.5	H
9438.2	41.11	-0.4	41.51	V
12887.1	44.86	3.9	40.96	H

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17495.4	47.47	10.2	37.27	H
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RSE-3DH5-CH78-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
32.0	10.68	-15.7	26.38	V
35.5	11.26	-14.9	26.16	V
51.4	12.08	-11.5	23.58	H
113.5	9.39	-13.3	22.69	V
287.5	12.32	-10.3	22.62	H
626.0	19.9	-2.2	22.1	V

RSE-DH5-CH0-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2552.6	52.06	16.1	35.96	H
2625.7	53.48	16.8	36.68	H
2691.1	55.15	17.1	38.05	V
2758.2	54.36	17.9	36.46	V
2815.1	54.39	18	36.39	H
2857.6	54.22	17.7	36.52	V

RSE-DH5-CH0-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2691.1	41.73	17.1	24.63	V
2758.2	42.3	17.9	24.4	V
2815.1	42.41	18	24.41	H
2857.6	42.05	17.7	24.35	V

RSE-DH5-CH0-3G-18G

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Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
3969.5	39.58	-5.8	45.38	V
5105.9	41	-0.7	41.7	V
6300.7	40.56	-2.2	42.76	H
8007.8	42.11	-1.1	43.21	V
11548.4	44.75	3.4	41.35	H
14822.5	45.39	6.1	39.29	V

RSE-DH5-CH0-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
32.1	11.35	-15.7	27.05	V
55.8	15.93	-11.7	27.63	V
196.5	10.44	-12.6	23.04	H

RSE-DH5-CH78-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2569.9	53.69	16.2	37.49	V
2644.0	54.23	17.2	37.03	H
2722.7	53.49	17.4	36.09	V
2794.8	55.09	18.1	36.99	V
2891.5	54.59	17.8	36.79	H
2979.3	55.46	19.3	36.16	V

RSE-DH5-CH78-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2644.0	41.81	17.2	24.61	H
2794.8	42.75	18.1	24.65	V

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2891.5	41.96	17.8	24.16	H
2979.3	43.53	19.3	24.23	V

RSE-DH5-CH78-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
4269.5	40.08	-5	45.08	V
4960.3	42.34	-2.6	44.94	V
6371.6	41.11	-2.4	43.51	H
8030.7	41.97	-1.2	43.17	V
11608.8	44.61	3.4	41.21	H
15211.5	46.1	6.9	39.2	H

RSE-DH5-CH78-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
32.1	10.92	-15.7	26.62	V
35.1	10.66	-15	25.66	V
51.7	11.93	-11.5	23.43	H
100.6	9.82	-12.9	22.72	V
434.8	16.65	-6.5	23.15	H
927.0	24.11	1.3	22.81	H

Second supply

RSE-DH5-CH0-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2607.1	53.04	16.5	36.54	H
2672.2	55.69	17.2	38.49	V
2745.7	54.78	17.8	36.98	V
2821.2	55.01	18	37.01	H

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2889.5	54.79	17.8	36.99	V
2948.3	55.33	18.8	36.53	H

RSE-DH5-CH0-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2672.2	41.88	17.2	24.68	V
2745.7	42.35	17.8	24.55	V
2821.2	42.27	18	24.27	H
2889.5	41.87	17.8	24.07	V
2948.3	43.28	18.8	24.48	H

RSE-DH5-CH0-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
3583.6	39.97	-6.2	46.17	H
4803.7	41.49	-4	45.49	H
7013.9	40.79	-2.2	42.99	H
9143.1	43.19	-0.5	43.69	V
12150.6	43.73	2.7	41.03	V
16829.2	48.79	10.3	38.49	V

RSE-DH5-CH0-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
32.3	15.42	-15.7	31.12	H
51.2	15.72	-11.5	27.22	H
166.7	19.29	-15.1	34.39	H
208.8	25.22	-13.1	38.32	H
295.0	24.45	-10.3	34.75	H
751.3	22.08	-0.4	22.48	H

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RSE-DH5-CH78-1G-3G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2529.4	52.6	15.6	37	V
2614.0	52.81	16.6	36.21	H
2679.4	54.09	17.2	36.89	V
2753.3	54.64	17.8	36.84	V
2816.6	54.2	18	36.2	V
2920.3	54.32	18.2	36.12	V

RSE-DH5-CH78-1G-3G (Average)

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
2679.4	41.86	17.2	24.66	V
2753.3	42.28	17.8	24.48	V
2816.6	42.39	18	24.39	V
2920.3	42.49	18.2	24.29	V

RSE-DH5-CH78-3G-18G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
3575.5	39.28	-6.2	45.48	H
5146.8	40.94	-1.5	42.44	V
7033.8	40.36	-2.1	42.46	V
9221.0	42.05	-0.4	42.45	V
12545.9	44.83	3.1	41.73	V
15656.2	46.33	7.8	38.53	H

RSE-DH5-CH78-30M-1G

Frequency (MHz)	Result (dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Polarity
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35.4	12.69	-14.9	27.59	V
55.1	11.31	-11.7	23.01	H
102.7	10.18	-12.8	22.98	H
242.9	11.22	-11.5	22.72	H
386.8	14.96	-7.7	22.66	V
612.3	20.13	-1.9	22.03	H

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6.11. AC Powerline Conducted Emission

Method of Measurement: ANSI C63.10-2013-clause 6.2

1.The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.

2.f the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.

3.The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.

4.If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.³⁶ Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

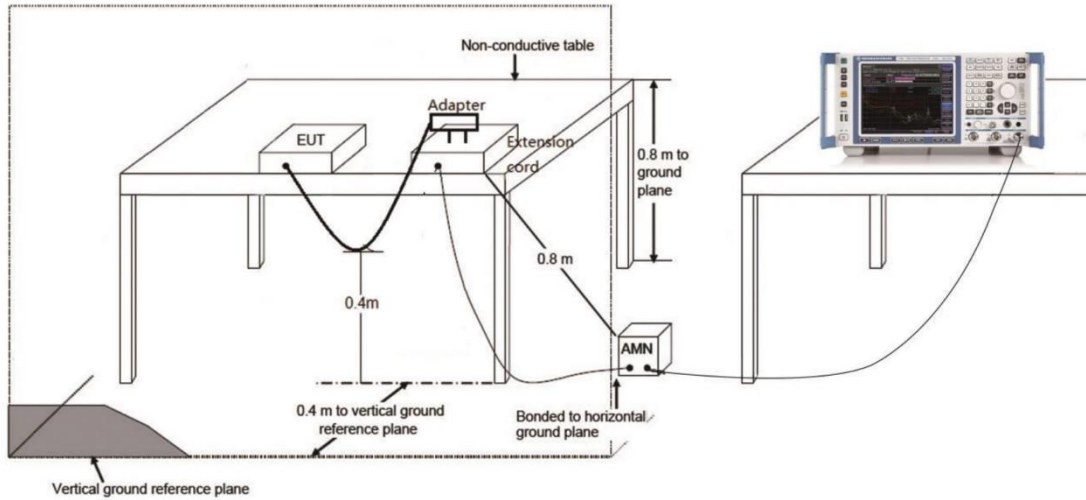
Measurement Uncertainty:

Measurement Uncertainty	1.97db (k=2)
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Test Setup



Test

Condition

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

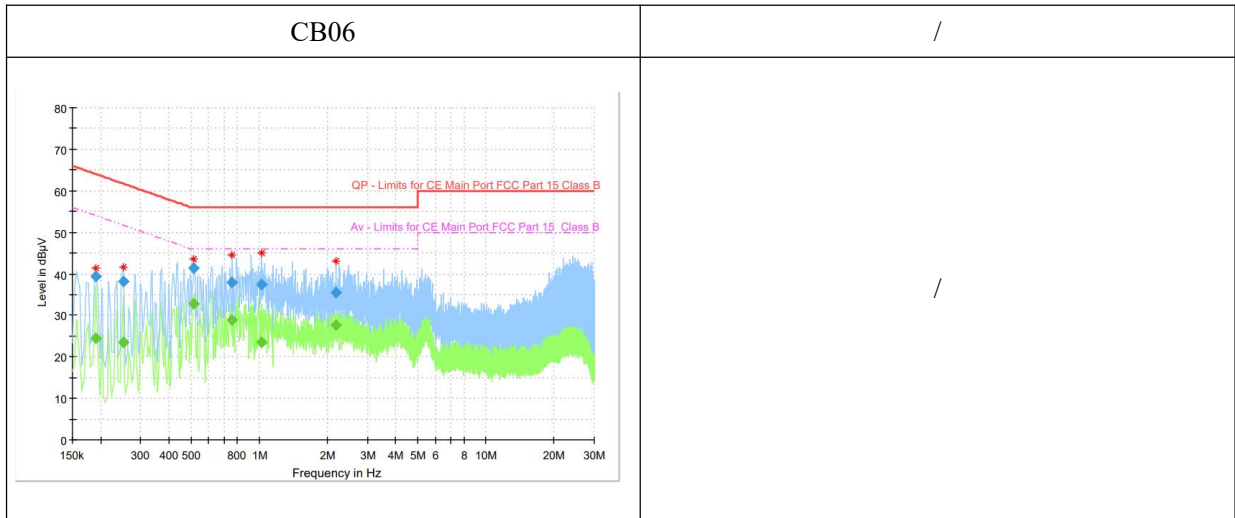
(Quasi-peak-average Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Conclusion
0.15 to 0.5	66 to 56	56 to 46	P
0.5 to 5	56	46	
5 to 30	60	50	

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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Frequency (MHz)	QuasiPeak (dBµV)	Average (dµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.191044	---	24.58	53.99	29.41	15000.0	9.000	L1	ON	9.6
0.191044	39.35	---	63.99	24.65	15000.0	9.000	L1	ON	9.6
0.250744	---	23.48	51.73	28.25	15000.0	9.000	L1	ON	9.6
0.250744	38.22	---	61.73	23.51	15000.0	9.000	L1	ON	9.6
0.515663	41.34	---	56.00	14.66	15000.0	9.000	N	ON	9.6
0.515663	---	32.79	46.00	13.21	15000.0	9.000	N	ON	9.6
0.758194	---	28.89	46.00	17.11	15000.0	9.000	N	ON	9.6
0.758194	38.01	---	56.00	17.99	15000.0	9.000	N	ON	9.6
1.023113	37.48	---	56.00	18.52	15000.0	9.000	L1	ON	9.6
1.023113	---	23.59	46.00	22.41	15000.0	9.000	L1	ON	9.6
2.179800	---	27.59	46.00	18.41	15000.0	9.000	N	ON	9.7
2.179800	35.50	---	56.00	20.50	15000.0	9.000	N	ON	9.7

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Annex A EUT Photos

See the document "I23W00020-External Photos".
See the document "I23W00020-Internal Photos".

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Annex B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

*****END OF REPORT*****

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