RADIO TEST REPORT-BT
ETSI EN 300 328 V1.9.1 (2015-02)

Product : StiX

Trade Name : Navori

Model Name : 3500

Serial Model : N/A

Report No. : NTEK-2016NT05045500R1

Prepared for

Navori SA

Rue du Lion d'Or 4 1003 Lausanne - Switzerland

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... Navori SA

Address ..... Rue du Lion d'Or 4 1003 Lausanne - Switzerland

Manufacturer's Name ....

Address .....

Product description

Product name ..... StiX

Trademark ..... Navori

Model and/or type reference 3500

Serial Model: N/A

Rating(s) ..... DC 5V, 2.5A

Standards ..... ETSI EN 300 328 V1.9.1 (2015-02)

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the 1999/5/EC R&TTE Directive Art.3.2 requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....

Date (s) of performance of tests ..... 04 May. 2016 ~17 Jun. 2016

Date of Issue..... 17 Jun. 2016

Test Result..... **Pass**

Testing Engineer : Allen Liu

(Allen Liu)

Technical Manager : Jason Chen

(Jason Chen)

Authorized Signatory : Sam Chen

(Sam Chen)

NTEK TESTING TECHNOLOGY CO., LTD. APPROVED

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1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

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<tr><td>Model Name.</td><td>3500</td></tr>
<tr><td>Serial Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is StiX
<table>
<tr><td>Operation Frequency:</td><td>2402~2480 MHz</td></tr>
<tr><td>Modulatin Type:</td><td>GFSK,Π/4-DQPSK,8DPSK</td></tr>
<tr><td>Modulation Technology:</td><td>FHSS</td></tr>
<tr><td>Adaptive/non-adaptive</td><td>Adaptive equipment</td></tr>
<tr><td>Number Of Channel</td><td>79CH</td></tr>
<tr><td>Antenna Designation:</td><td>External Antenna</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>1.0 dBi</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Refer to below Table</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
<tr><td>Battery</td><td>N/A</td></tr>
<tr><td>I/O Ports</td><td>Refer to users manual</td></tr>
<tr><td>Hardware Version</td><td></td></tr>
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Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

79 channels are provided to BT(GFSK,Π/4-DQPSK,8DPSK)

Channel	Frequency (MHz
00	2402
01	2403
.....	.....
.....	.....
.....	...
.....	.....
77	2479
78	2480

1.2 Information about the EUT

a) The type of modulation used by the equipment:

☒FHSS

☐other forms of modulation: DSSS

b) In case of FHSS modulation:

- In case of non-Adaptive Frequency Hopping equipment:

  The number of Hopping Frequencies:

- In case of Adaptive Frequency Hopping Equipment:

  The maximum number of Hopping Frequencies: 79

  The minimum number of Hopping Frequencies: 79

  The Dwell Time: 0.26s Maximum

  The Minimum Channel Occupation Time: 6.60ms Maximum

c) Adaptive / non-adaptive equipment:

☐non-adaptive Equipment

☒adaptive Equipment without the possibility to switch to a non-adaptive mode

☐adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:

The Channel Occupancy Time implemented by the equipment:

☒The equipment has implemented an LBT based DAA mechanism

- In case of equipment using modulation different from FHSS:

☐The equipment is Frame Based equipment

☐The equipment is Load Based equipment

☐The equipment can switch dynamically between Frame Based and Load Based equipment

The CCA time implemented by the equipment:

The value q as referred to in clause 4.3.2.5.2.2.2

☐The equipment has implemented an non-LBT based DAA mechanism

☐The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:

The maximum RF Output Power (e.i.r.p.):

The maximum (corresponding) Duty Cycle:

Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared):

f) The worst case operational mode for each of the following tests:

- RF Output Power

DPSK

- Power Spectral Density

N/A

- Duty cycle, Tx-Sequence, Tx-gap

N/A

- Dwell time, Minimum Frequency Occupation & Hopping Sequence (only for FHSS equipment)

DPSK

- Hopping Frequency Separation (only for FHSS equipment)

DPSK

- Medium Utilisation

N/A

- Adaptivity & Receiver Blocking

N/A

- Occupied Channel Bandwidth

DPSK

- Transmitter unwanted emissions in the OOB domain

DPSK

- Transmitter unwanted emissions in the spurious domain

DPSK

- Receiver spurious emissions

DPSK

g) The different transmit operating modes (tick all that apply):

☒Operating mode 1: Single Antenna Equipment

☒Equipment with only 1 antenna

☐Equipment with 2 diversity antennas but only 1 antenna active at any moment in time

☐Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)

☐Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming

☐Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)

☐High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1

☐High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

☐Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming

☐Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)

☐High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1

☐High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

h) In case of Smart Antenna Systems:

- The number of Receive chains: .....
- The number of Transmit chains: .....

☐symmetrical power distribution

☐asymmetrical power distribution

In case of beam forming, the maximum beam forming gain: .....

NOTE: Beam forming gain does not include the basic gain of a single antenna.

i) Operating Frequency Range(s) of the equipment:

- Operating Frequency Range 1: 2402 MHz to 2480 MHz

NOTE: Add more lines if more Frequency Ranges are supported.

j) Occupied Channel Bandwidth(s):

Occupied Channel Bandwidth: 1.183MHz

NOTE: Add more lines if more channel bandwidths are supported.

k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

☒Stand-alone

☐Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☐Plug-in radio device (Equipment intended for a variety of host systems)

☐Other

l) The extreme operating conditions that apply to the equipment:

Operating temperature range: -20° C to 55° C

Operating voltage range: 5.75V to 4.5V ☐AC ☒DC

Details provided are for the:

☒stand-alone equipment

☐combined (or host) equipment

☐test jig

m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:

Antenna Type

☒ External Antenna

Antenna Gain: 1.0 dBi

If applicable, additional beamforming gain (excluding basic antenna gain):

☐Temporary RF connector provided

☐No temporary RF connector provided

☐Dedicated Antennas (equipment with antenna connector)

☐Single power level with corresponding antenna(s)

☐Multiple power settings and corresponding antenna(s)

Number of different Power Levels: .....

Power Level 1:

Power Level 2:

Power Level 3:

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:

Details provided are for the:

☒stand-alone equipment

☐combined (or host) equipment

☐test jig

Supply Voltage

☐AC mains State AC voltage

☒DC State DC voltage: 15V

In case of DC, indicate the type of power source

☐Internal Power Supply

☒External Power Supply or AC/DC adapter: DC 5V

☐Battery

☐Other: .....

o) Describe the test modes available which can facilitate testing:

N/A

p) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.):

Bluetooth

1.3 TEST CONDITIONS

	Normal Test Conditions	Extreme Test Conditions
Temperature	15°C - 35°C	-20°C ~ 55°C Note: (1)
Relative Humidity	20% - 75%	N/A
Supply Voltage	DC 5V	DC 4.5V – DC 5.75V Note: (2)

Note:

(1) The HT 55°C and LT -20°C was declarated by manufacturer, The EUT couldn't be operate normally with higher or lower temperature.

(2) The High Voltage 5.75V and Low Voltage 4.5V was declarated by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.

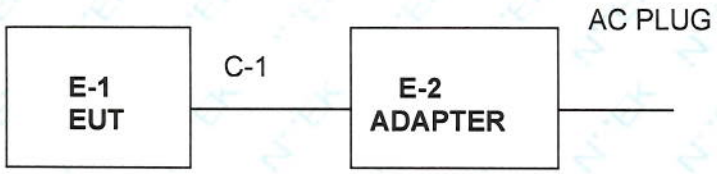
(3) The measurements are performed at the highest, middle, lowest available channels.

1.4 TEST CONFIGURATION OF EUT

Modulation Used For Conformance Testing		
Bluetooth mode	Data rate	Modulation type
BR	1Mbps	GFSK
EDR	2Mbps	Π/4-DQPSK
EDR	3Mbps	8DPSK

Test Channel Frequencies Configuration		
Test Channel	EUT Channel	Test Frequency (MHz)
Lowest	CH00	2402
Middle	CH39	2441
Highest	CH78	2480

1.5 DESCRIPTION OF TEST CONDITIONS



1.6 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.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	StiX	N/A	3500	N/A	EUT
E-2	Adapter	N/A	N/A	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.0m	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

1.7 EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESPI7	101318	2016.06.27
2	Bilog Antenna	TESEQ	CBL6111D	31216	2016.08.23
3	Turn Table	EM	SC100_1	60531	N/A
4	Antnna Mast	EM	SC100	N/A	N/A
5	Horn Antenna	EM	EM-AH-10180	2011071402	2016.08.23
6	HF Cable	N/A	R-01	N/A	2016.06.27
7	HF Cable	N/A	R-02	N/A	2016.06.27
8	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2016.06.27
9	LF Cable	N/A	R-03	N/A	2016.06.27
10	Broadband Preamplifier	SCHWARZBECK	BBV9718	9718-218	2016.12.24
11	Pre-Amplifier	EM	EM30180	60538	2016.12.24
12	Spectrum Analyzer	Agilent	E4407B	MY45108040	2016.06.27
13	Filter	TRILTHIC	2400MHz	29	2016.11.18
14	Attenuator	Weinschel	33-10-33	AR4010	2016.11.18
15	Attenuator	Weinschel	24-20-34	BP4485	2016.11.18
16	Spectrum Analyzer	Agilent	E4440A	MY46186938	2016.11.18
17	ESG VETCTOR SIGNAL GENERARAOR	Agilent	E4438C	MY45093347	2016.06.27
18	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2016.08.07
19	Power Splitter	Mini-Circuits	ZN2PD-63-S+	SF025101428	2016.12.08
20	Coupler	Mini-Circuits	ZADC-10-63-S+	SF794101410	2016.12.08
21	Cable	N/A	RF-01	N/A	2016.11.18
22	Cable	N/A	RF-02	N/A	2016.11.18
23	Power Splitter	Mini-Circuits/USA	ZN2PD-63-S+	SF025101428	2016.12.08
24	Directional Coupler	MCLI/USA	CB11-20	0D2L51502	2016.08.12
25	Attenuator	Agilent	8495B	MY42147029	2016.11.19
26	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2016.11.18
27	Passive Loop Antenna	ETS-LINDGEREN	6512	165355	2016.12.23
28	Power Meter	Agilent	E4419B	MY45102538	2016.07.30
29	Power Sensor	Agilent	E9301A	MY41495644	2016.07.30
30	Power Sensor	Agilent	E9301A	US39212148	2016.07.30
31	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	2016.07.19

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
32	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	2016.07.19
33	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY53480008	2016.07.19
34	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080019	2016.07.19

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EN 300 328 V1.9.1		
Clause	Test Item	Results
TRANSMITTER PARAMETERS		
4.3.1.2	RF Output Power	Pass
4.3.1.3	Duty cycle, Tx-Sequence, Tx-gap	Not Applicable (See Note 1/2)
4.3.1.4	Accumulated Transmit Time, Frequency Occupation and Hopping Sequence	Pass
4.3.1.5	Hopping Frequency Separation	Pass
4.3.1.6	Medium Utilization (MU) factor	Not Applicable (See Note 1/2)
4.3.1.7	Adaptivity	Not Applicable (See Note 1)
4.3.1.8	Occupied Channel Bandwidth	Pass
4.3.1.9	Transmitter unwanted emission in the OOB domain	Pass
4.3.1.10	Transmitter unwanted emissions in the spurious domain	Pass
RECEIVER PARAMETERS		
4.3.1.11	Receiver Spurious Emissions	Pass
4.3.1.12	Receiver Blocking	Not Applicable (See Note 1)

Note:
1. These requirements do not apply for equipment with a maximum declared RF output power of less than 10 dBm EIRP or for equipment when operating in a mode where the RF output power is less than 10 dBm EIRP.
2. These requirements apply to non-adaptive frequency hopping equipment or to adaptive frequency hopping equipment operating in a non-adaptive mode

2.1 TEST FACILITY

NTEK Testing Technology Co., Ltd.
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China
FCC Registered No.: 238937 IC Registered No.:9270A-1
CNAS Registration No.:L5516

2.2 MAXIMUM MEASUREMENT UNCERTAINTY

For the test methods, according to ETSI EN 300 328 standard, the measurement uncertainty figures shall be calculated in accordance with ETR 100 028-1[4] and shall correspond to an expansion factor(coverage factor) k=1.96 or k=2 (which provide confidence levels of respectively **95** % and **95.45** % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Maximum measurement uncertainty

No.	Item	Uncertainty
1	Occupied Channel Bandwidth	± 5%
2	RF output Power,conducted	±1.5dB
3	Power Spectral Density, conducted	± 3dB
4	Unwanted emissions, conducted	± 3dB
5	All emissions,radiated	± 6dB
6	Temperature	± 3°C
7	Humidity	± 3%
9	Time	± 5%

TRANSMITTER PARAMETERS

3. RF OUTPUT POWER

3.1 LIMITS OF RF OUTPUT POWER

RF OUTPUT POWER	
Condition	Limit
☐ Non-adaptive frequency hopping systems	Equal to or less than the value declared by the supplier. This declared value shall be equal to or less than 20 dBm.
☒ Adaptive frequency hopping systems	20dBm

3.2 TEST PROCEDURE

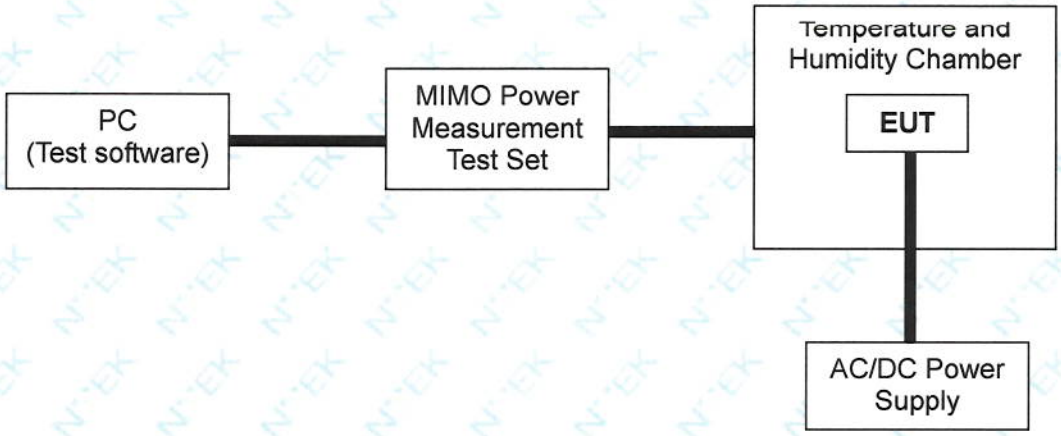
Refer to chapter 5.3.2.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☒Conducted measurement	☐Radiated measurement

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 TEST RESULTS

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V (Normal)
Test Mode :	BT-GFSK(CH00/CH39/CH78)		

TEST CONDITIONS				RF Output Power (dBm)		
				CH00	CH39	CH78
T nom (°C)	20.00	V nom (V)	5	4.82	4.81	4.87
T min (°C)	-20.00	V max (V)	5.75	4.85	4.87	4.91
		V min (V)	4.5	4.83	4.83	4.88
T max (°C)	55.00	V max (V)	5.75	4.69	4.71	4.69
		V min (V)	4.5	4.59	4.75	4.75
Max Power				**4.91**		
Limits				20dBm		
Result				**Complies**		

Note: Power measurement, actual measurement for 16 Burst power.

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V (Normal)
Test Mode :	BT-Π/4-DQPSK (CH00/CH39/CH78)		

TEST CONDITIONS				RF Output Power (dBm)		
				CH00	CH39	CH78
T nom (°C)	20.00	V nom (V)	5	4.01	4.09	4.08
T min (°C)	-20.00	V max (V)	5.75	4.05	4.11	4.12
		V min (V)	4.5	4.07	4.19	4.19
T max (°C)	55.00	V max (V)	5.75	3.85	4.02	3.95
		V min (V)	4.5	3.79	3.91	3.87
Max Power				**4.19**		
Limits				20dBm		
Result				**Complies**		

Note: Power measurement, actual measurement for 17 Burst power.

UT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V (Normal)
Test Mode :	BT-8DPSK (CH00/CH39/CH78)		

TEST CONDITIONS				RF Output Power (dBm)		
				CH00	CH39	CH78
T nom (°C)	20.00	V nom (V)	5	4.26	4.34	4.37
T min (°C)	-20.00	V max (V)	5.75	4.31	4.41	4.39
		V min (V)	4.5	4.28	4.39	4.28
T max (°C)	55.00	V max (V)	5.75	4.15	4.28	4.33
		V min (V)	4.5	4.17	4.25	4.29
Max Power				**4.41**		
Limits				20dBm		
Result				**Complies**		

Note：Power measurement，actual measurement for 18 Burst power.

4. Accumulated Transmit Time, Frequency Occupation and Hopping Sequence

4.1 Limits of Accumulated Transmit Time, Frequency Occupation and Hopping Sequence

Accumulated Transmit Time	
Condition	Limit
☐ Non-adaptive frequency hopping systems	≤ 15 ms[15 ms * the minimum number of hopping frequencies (N)]
☒ Adaptive frequency hopping systems	≤ 400 ms in [400 ms * the minimum number of hopping frequencies (N)]
MINIMUM FREQUENCY OCCUPATION TIME	
Condition	Limit
☐ Non-adaptive frequency hopping systems	Each hopping frequency of the hopping sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.
☒ Adaptive frequency hopping systems	
HOPPING SEQUENCE (S)	
Condition	Limit
☐ Non-adaptive frequency hopping systems	≥15 hopping frequencies or 15/minimum
☒ Adaptive frequency hopping systems	Operating over a minimum of 70% of the Operating in the band 2.4 GHz to 2.4835 GHz
	≥15 hopping frequencies or 15/minimum

4.2 TEST PROCEDURE

Refer to chapter 5.3.4.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☒Conducted measurement	☐Radiated measurement

The setting of the Spectrum Analyzer

Frequency Center	Equal to the hopping frequency being investigated
Frequency Span	0Hz
Trance Mode	Clear / Write
Trigger Mode	Free Run
Detector	RMS
Sweep Point / Sweep Time	30000 / Auto
RBW	~ 50 % of the Occupied Channel Bandwidth (300KHz)
VBW	⩾ RBW (1MHz)

4.3 DEVIATION FROM TEST STANDARD

No deviation

4.4 TEST SETUP

The measurements only were performed at normal test conditions. The equipment was configured to operate at its maximun Dwell time and maximum Duty Cycle. The measurement was performed on a minimum of 2 hopping frequencies chosen arbitrary from the actual hopping sequence. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. Controlling software (Button Function) has been activated to set the EUT on specific status.

4.5 TEST RESULTS

Accumulated Transmit Time

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH39)		

Data Packet	Frequency	Accumulated Transmit Time per Hop	Accumulated Transmit Time	Limits	Result
		(ms)	(s)	(s)	Pass
DH1	2441 MHz	0.37	0.12	0.4	Pass
DH3	2441 MHz	1.63	0.26	0.4	Pass
DH5	2441MHz	1.65	0.18	0.4	Pass

EUT :	StiX	Model Name :	StiX
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-Π/4-DQPSK (CH39)		

Data Packet	Frequency	Accumulated Transmit Time per Hop	Accumulated Transmit Time	Limits	Result
		(ms)	(s)	(s)	Pass
2DH1	2441 MHz	0.36	0.12	0.4	Pass
2DH3	2441 MHz	0.39	0.06	0.4	Pass
2DH5	2441MHz	0.40	0.04	0.4	Pass

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-8DPSK (CH39)		

Data Packet	Frequency	Accumulated Transmit Time per Hop	Accumulated Transmit Time	Limits	Result
		(ms)	(s)	(s)	Pass
3DH1	2441 MHz	0.38	0.12	0.4	Pass
3DH3	2441 MHz	1.63	0.26	0.4	Pass
3DH5	2441MHz	1.63	0.17	0.4	Pass

MINIMUM FREQUENCY OCCUPATION TIME

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH39)		

Mode	Frequency	Accumulated Transmit Time (ms)	Minimum frequency occupation time (ms)	PASS /FAIL
DH1	2441 MHz	0.37	1.48	PASS
DH3	2441 MHz	1.63	6.52	PASS
DH5	2441 MHz	1.65	6.60	PASS
Remark: Mini frequency occupation Time(ms)=4*Dwell time(ms)				

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-Π/4-DQPSK (CH39)		

Mode	Frequency	Accumulated Transmit Time (ms)	Minimum frequency occupation time (ms)	PASS /FAIL
2DH1	2441 MHz	0.36	1.44	PASS
2DH3	2441 MHz	0.39	1.56	PASS
2DH5	2441 MHz	0.4	1.60	PASS
Remark: Mini frequency occupation Time(ms)=4*Dwell time(ms)				

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-8DPSK(CH39)		

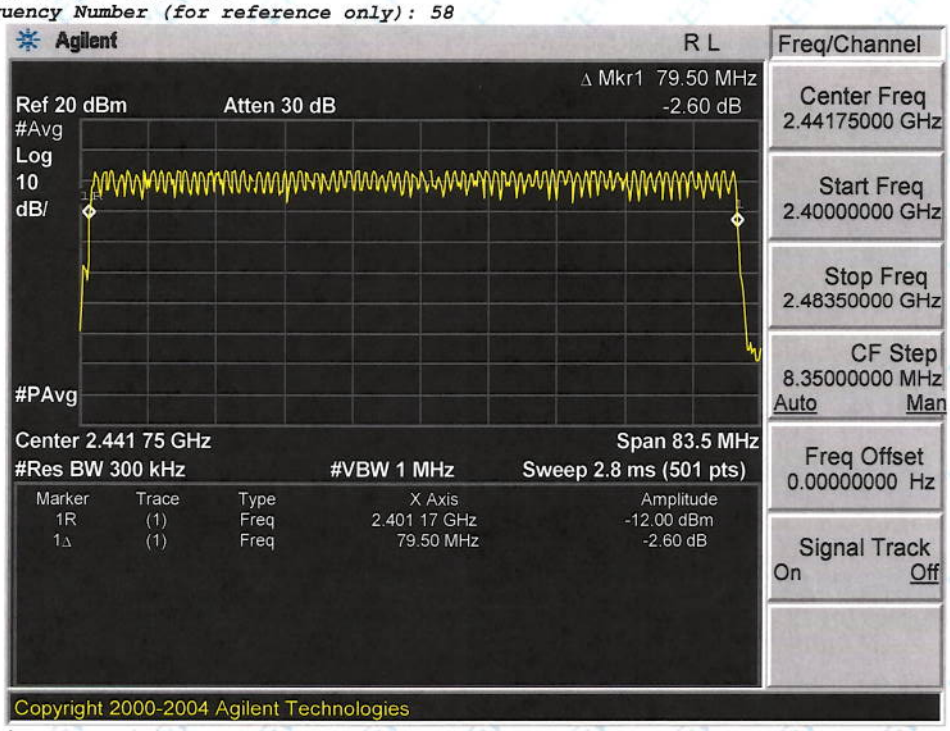
Mode	Frequency	Accumulated Transmit Time (ms)	Minimum frequency occupation time (ms)	PASS /FAIL
3DH1	2441 MHz	0.38	1.52	PASS
3DH3	2441 MHz	1.63	6.52	PASS
3DH5	2441 MHz	1.63	6.52	PASS
Remark: Mini frequency occupation Time(ms)=4*Dwell time(ms)				

HOPPING SEQUENCE

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH00/CH78)		

HOPPING SEQUENCE							
Hopping Mode	**Hopping Channel**	**Hopping Channel Limit**	**F_L 20dB**	**F_H 20dB**	**Minimun Hopping Range**	**Minimun Hopping Range Limit**	**Result**
DH1	79	15	2401.17	2480.67	95.21%	70%	Pass

Used Frequency Range: 79.500000
Hopping Frequency Number (for reference only): 58



Note: Only the worst data were recorded in this report.

5. OCCUPIED CHANNEL BANDWIDTH

5.1 LIMITS OF OCCUPIED CHANNEL BANDWIDTH

OCCUPIED CHANNEL BANDWIDTH		
Condition		Limit
All types of equipment		Shall fall completely within the band 2400 to 2483.5 MHz
Additional requirement	For non-adaptive using wide band modulations other than FHSS system and EIRP >10 dBm	Less than 20 MHz
	For non-adaptive frequency hopping system and EIRP >10 dBm	Less than 5 MHz

5.2 TEST PROCEDURE

Refer to chapter 5.3.8.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☒Conducted measurement	☐Radiated measurement

The setting of the Spectrum Analyzer

Center Frequency	The centre frequency of the channel under test
Frequency Span	2 × Occupied Channel Bandwidth (e.g. 2MHz for BT)
Detector	RMS
RBW	~ 1 % of the span without going below 1 % (30KHz)
VBW	3 × RBW (100KHz)
Trace	Max hold

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

These measurements only were performed at normal test conditions. The measurement shall be performed only on the lowest and the highest frequency within the ststed frequency range. Using software to force the EUT to hop or transmit on a single Hopping frequency. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. Controlling software (Button Function) has been activated to set the EUT on specific status.

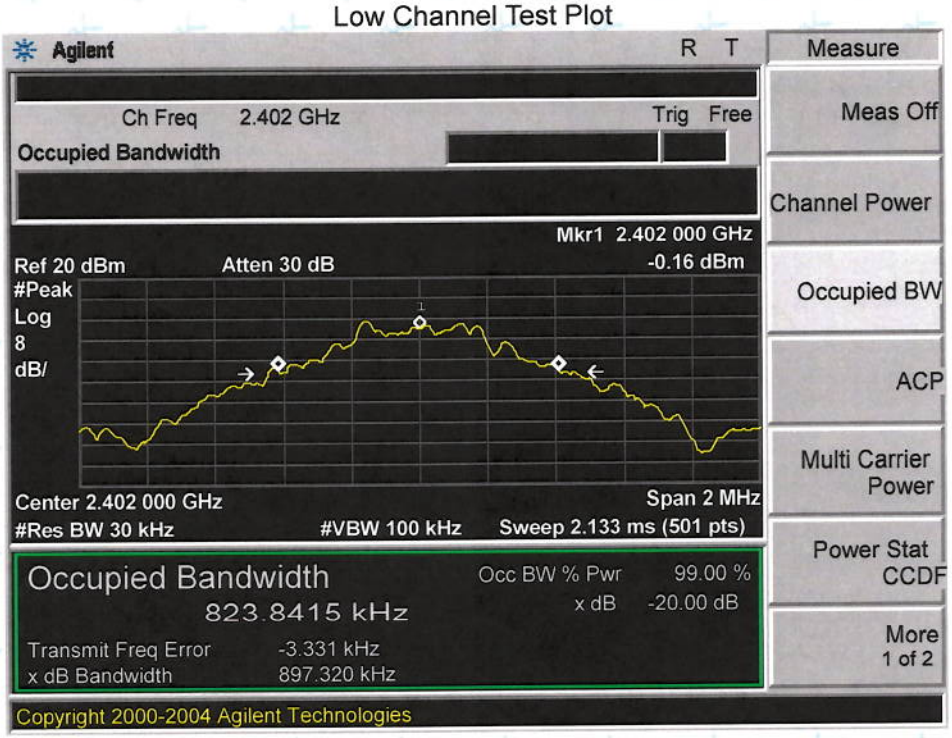
5.5 TEST RESULTS

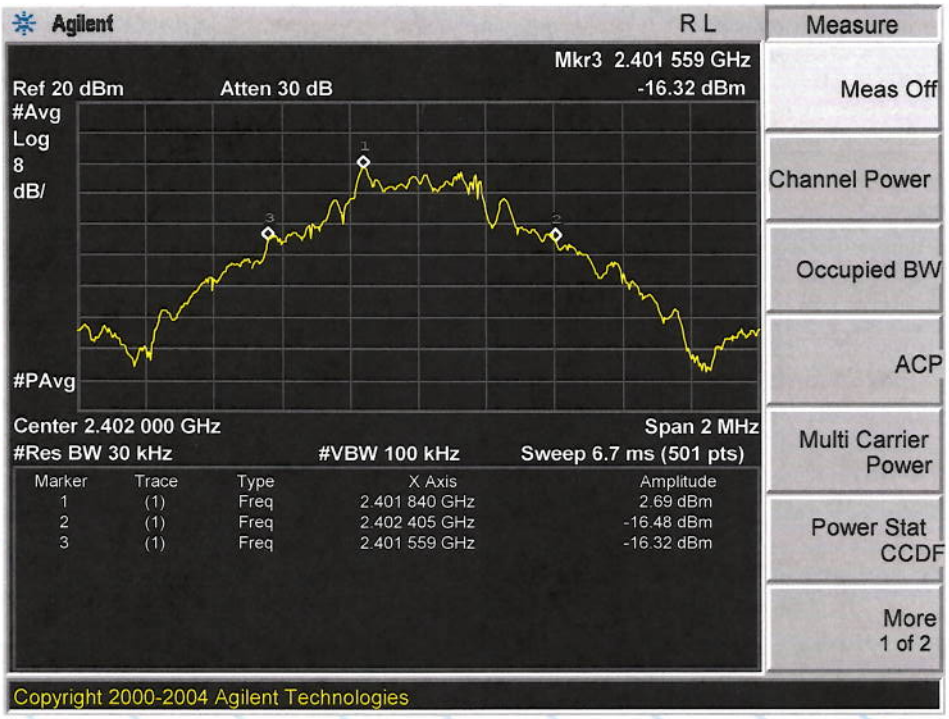
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH00/CH78)		

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	Measured frequencies		Limit	PASS /FAIL
			F_L (MHz)	F_H (MHz)		
00	2402	0.824	2401.56	2402.41	FL>2.4GHz and	PASS
78	2480	0.832	2479.56	2480.41	FH<2.4835 GHz	PASS

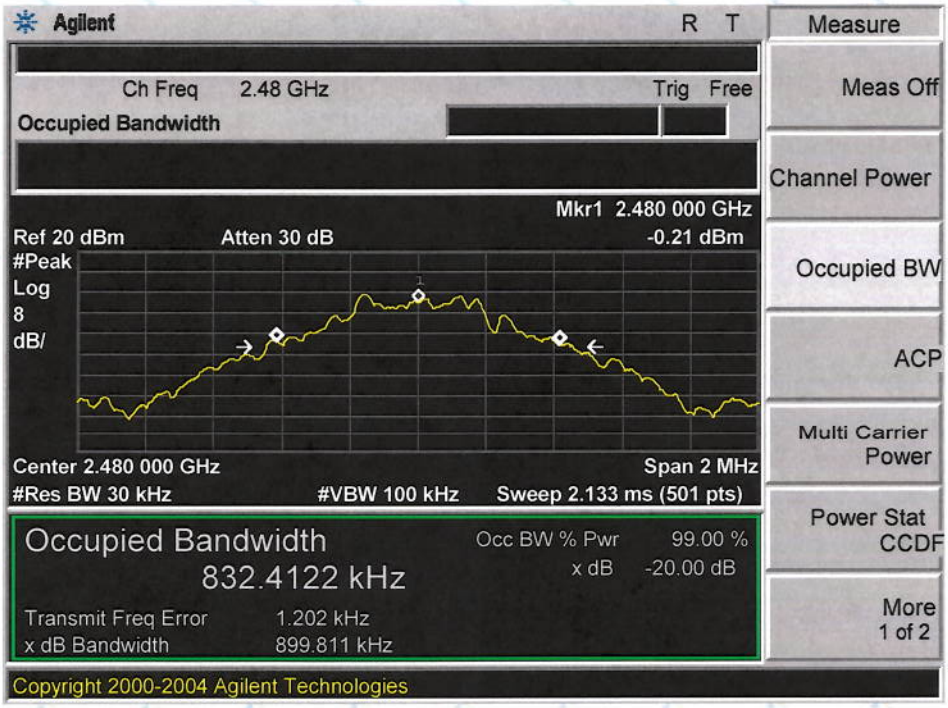
Note: FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
FH is the highest frequency of the 99% occupied bandwidth of power envelope.

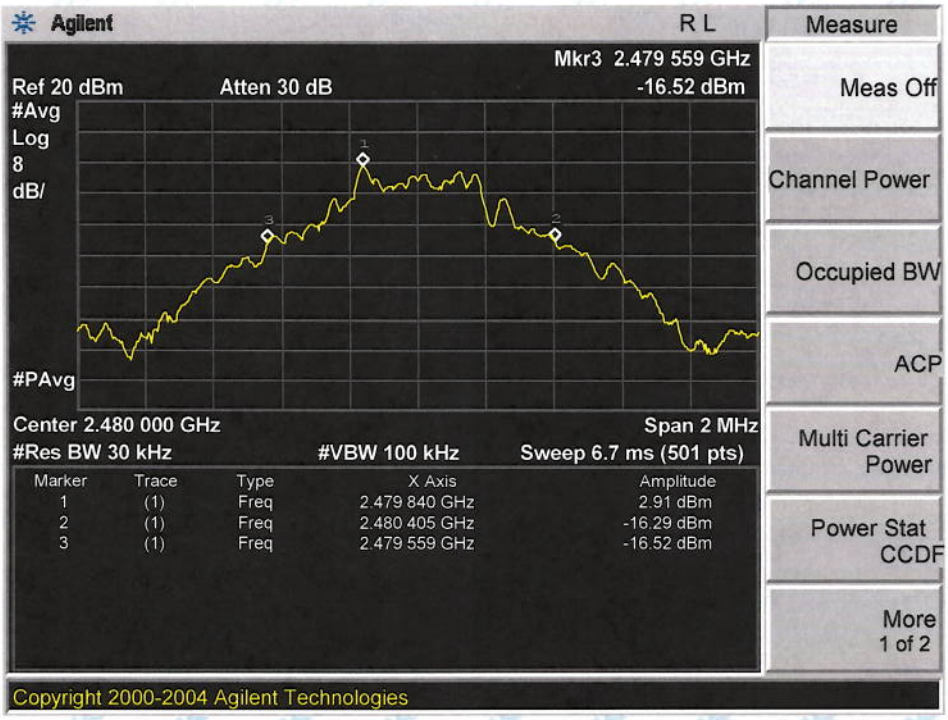
Low Channel Test Plot





High Channel Test Plot



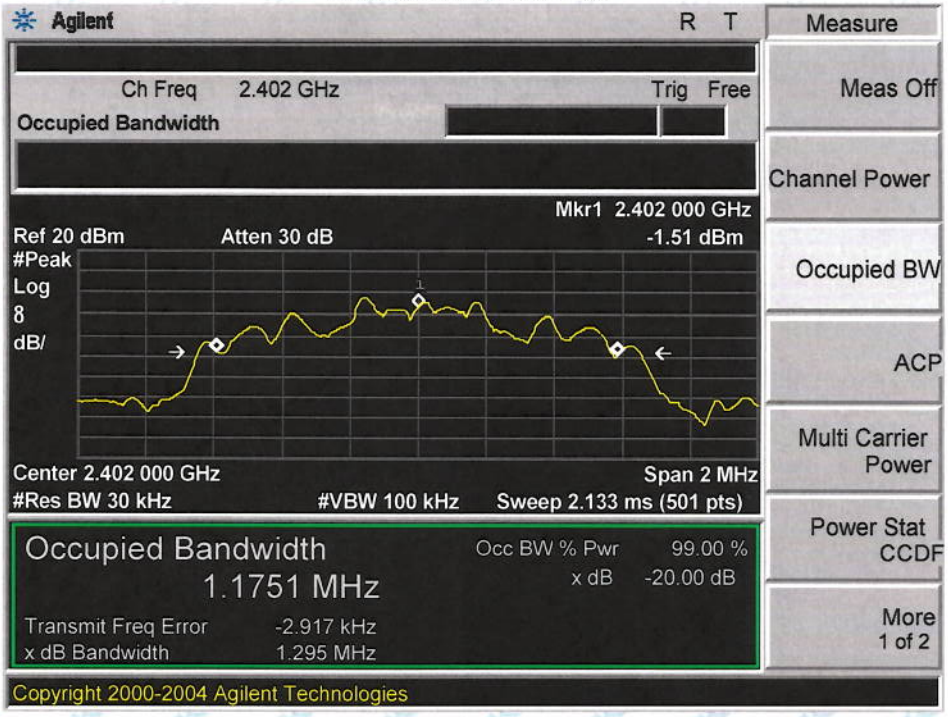


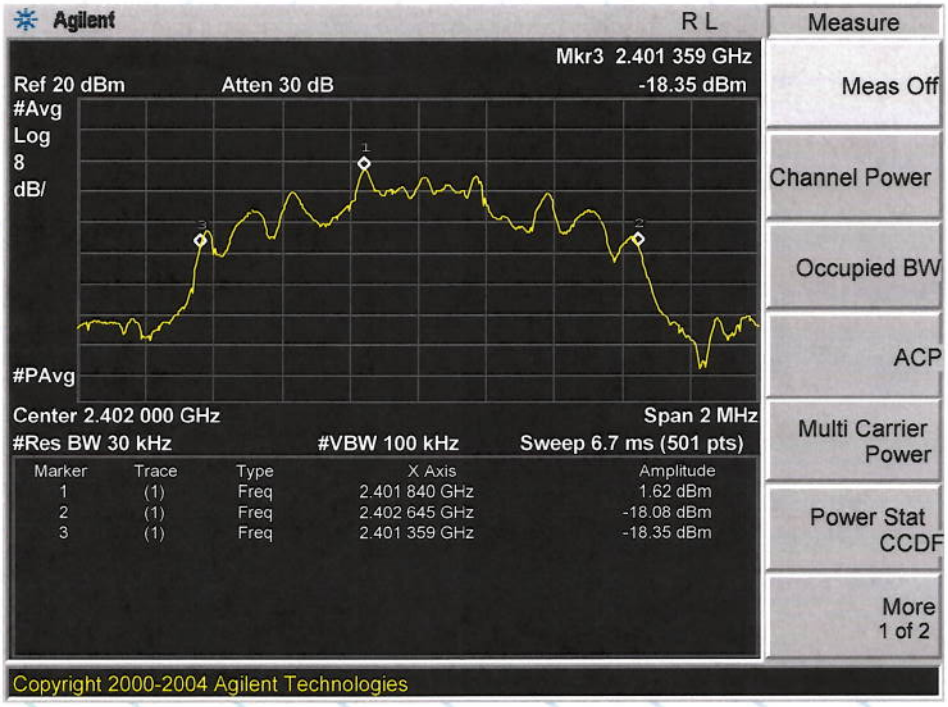
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-Π/4-DQPSK(CH00/CH78)		

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	Measured frequencies		Limit	PASS /FAIL
			F_L (MHz)	F_H (MHz)		
00	2402	1.175	2401.36	2402.65	FL>2.4GHz and	PASS
78	2480	1.183	2479.36	2480.65	FH<2.4835 GHz	PASS

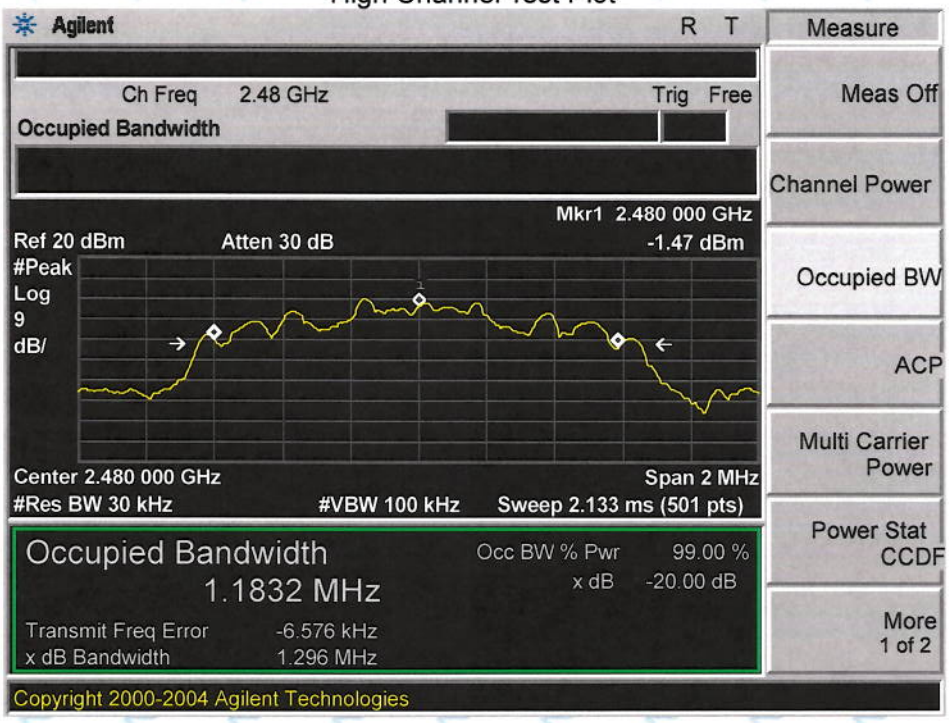
Note: FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
FH is the highest frequency of the 99% occupied bandwidth of power envelope.

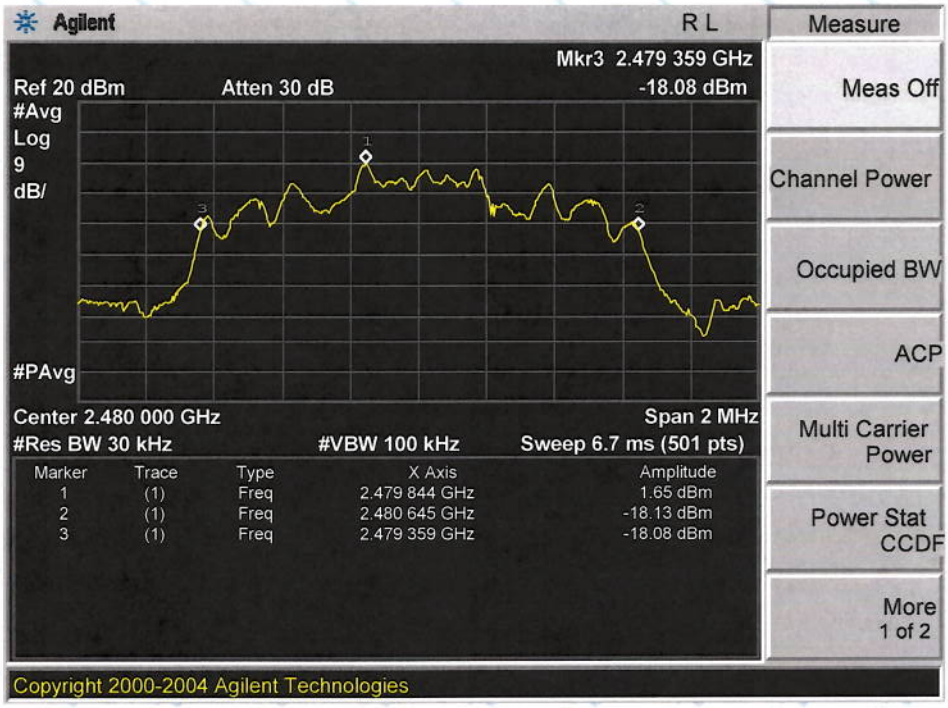
Low Channel Test Plot





High Channel Test Plot



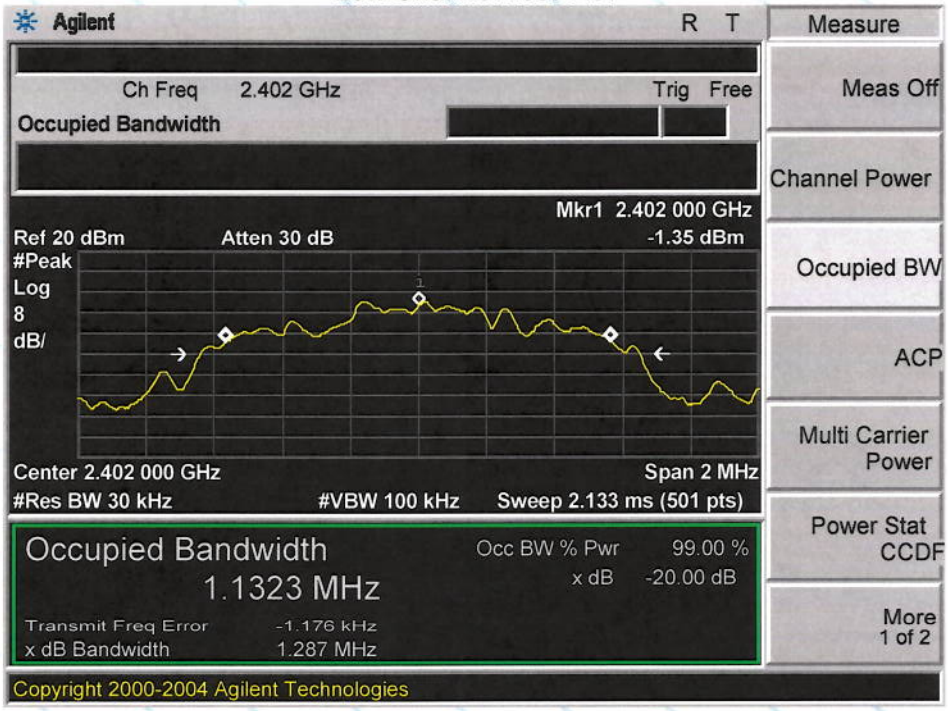


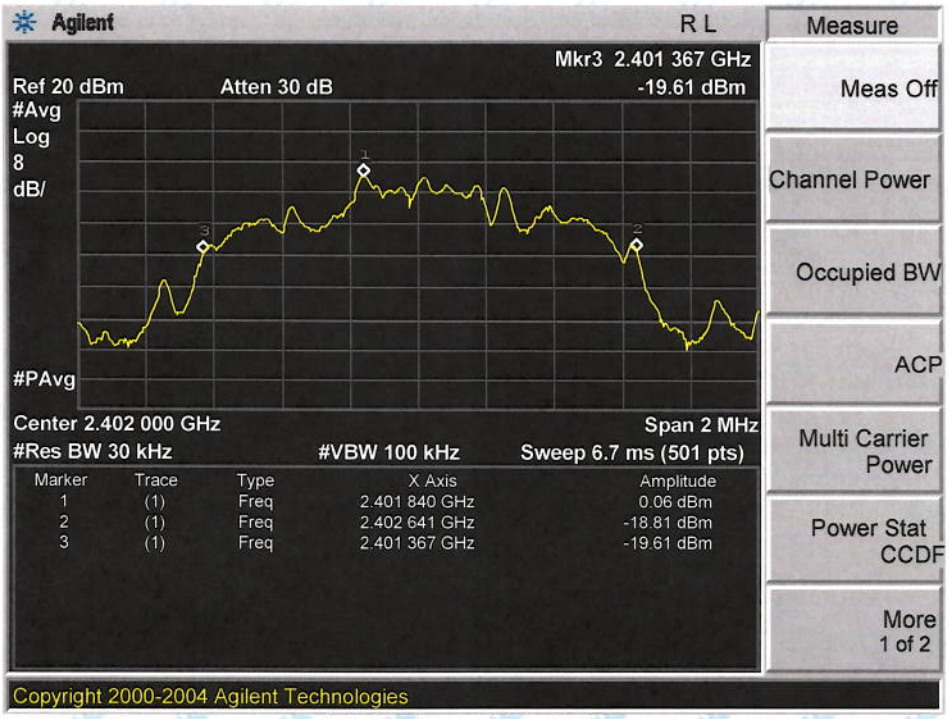
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-8DPSK(CH00/CH78)		

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	Measured frequencies		Limit	PASS /FAIL
			F_L (MHz)	F_H (MHz)		
00	2402	1.132	2401.37	2402.64	FL>2.4GHz and FH<2.4835 GHz	PASS
78	2480	1.130	2479.37	2480.64		PASS

Note: FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
FH is the highest frequency of the 99% occupied bandwidth of power envelope.

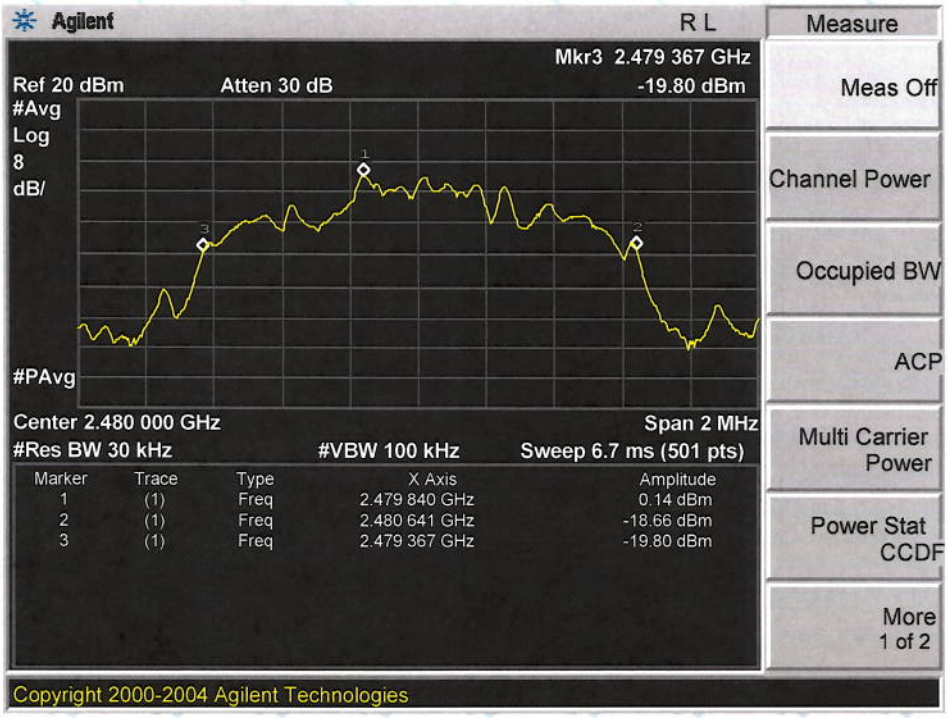
Low Channel Test Plot





High Channel Test Plot

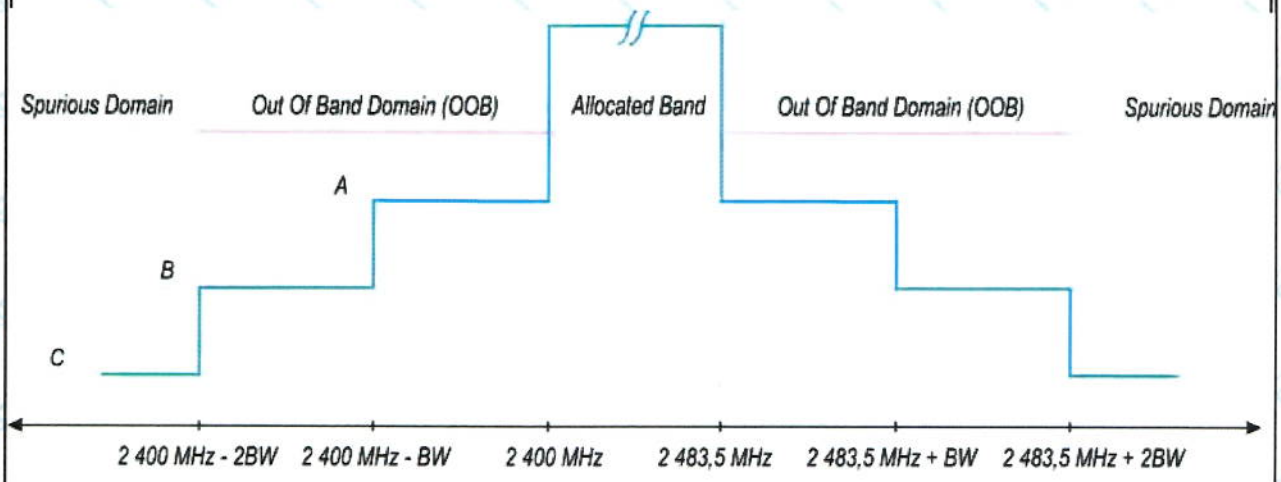
High Channel Test Plot



6. TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

6.1 LIMITS OF TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN	
Condition	Limit
Under all test conditions	The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in below figure.



A: -10 dBm/MHz e.i.r.p.
B: -20 dBm/MHz e.i.r.p.
C: Spurious Domain limits

BW = Occupied Channel Bandwidth in MHz or 1 MHz whichever is greater

6.2 TEST PROCEDURE

Refer to chapter 5.3.9.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☒Conducted measurement	☐Radiated measurement

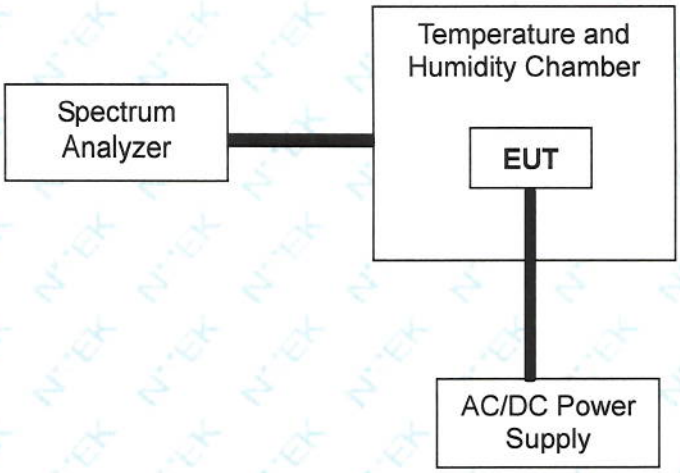
The setting of the Spectrum Analyzer

Span	0Hz
Filter Mode	Channel Filter
Trace Mode	Clear/Write
Trigger Mode	Video Trigger
Detector	RMS
Sweep Point / Sweep Mode	5000 / Continuous
RBW / VBW	1MHz / 3MHz

6.3 DEVIATION FROM TEST STANDARD

No deviation

6.4 TEST SETUP



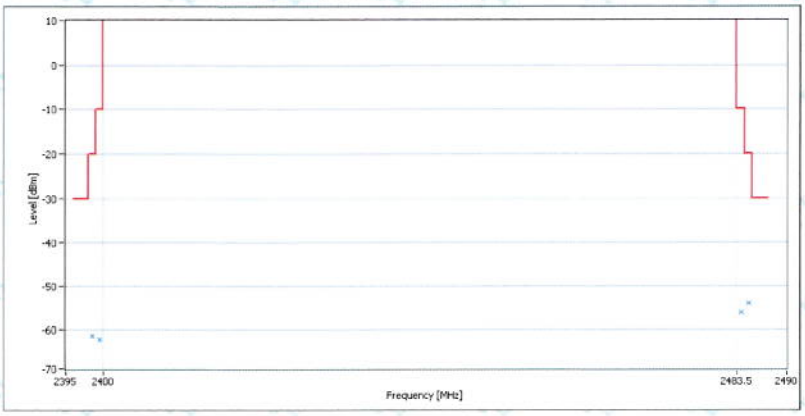
The measurements were performed at normal environmental conditions and shall be repeated at the extremes of the operating temperature and voltage range. The equipment was performed normal operation (hopping) during test. The equipment was configured to operate under its worst case situation with respect to output power. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. The power source of the EUT has to be conducted with the power supply for voltage change. The frequency has to be recorded for the right and left end above threshold of highest and lowest channel respectively.

6.5 TEST RESULTS

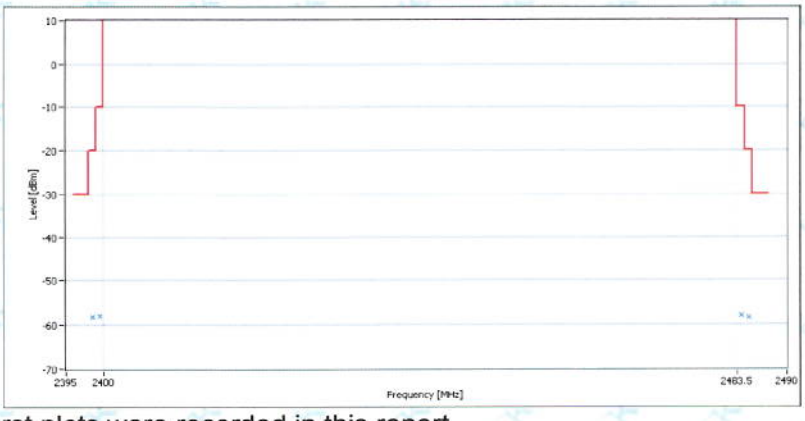
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH00/CH78)		

Channel frequency				2402MHz		2480MHz	
Test condition				OOB Emission(MHz)		OOB Emission(MHz)	
				2400-BW ~2400	2400-2BW ~2400-BW	2483.5 ~ 2483.5+BW	2483.5+BW ~ 2483.5+2BW
				Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)
T nom (°C)	20.00	V nom (V)	5	-62.3	-61.5	-58.1	-58.6
T min (°C)	-20.00	V max (V)	5.75	-62.5	-61.4	-58.3	-58.5
		V min (V)	4.5	-62.4	-61.3	-58.8	-58.7
T max (°C)	55.00	V max (V)	5.75	-62.2	-61.6	-58.6	-58.3
		V min (V)	4.5	-62.0	-61.2	-58.0	-58.4
Limits				-10.00	-20.00	-10.00	-20.00
PASS/FAIL				PASS	PASS	PASS	PASS

Low channel



High channel

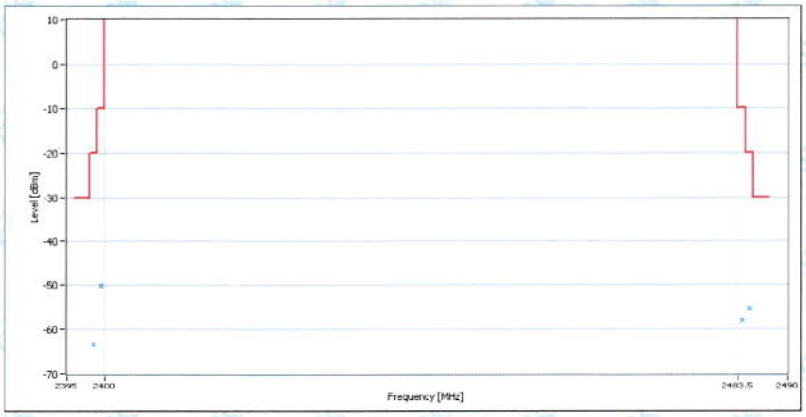


Note: Only the worst plots were recorded in this report.

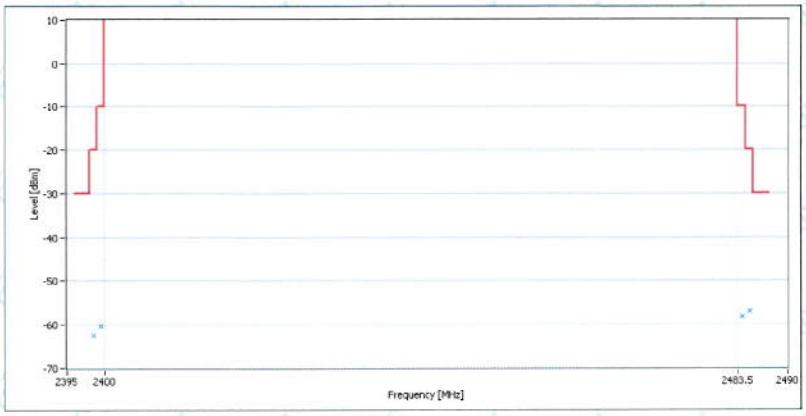
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-Π/4-DQPSK(CH00/CH78)		

Channel frequency				2402MHz		2480MHz	
Test condition				OOB Emission(MHz)		OOB Emission(MHz)	
				2400-BW ~2400	2400-2BW ~2400-BW	2483.5 ~ 2483.5+BW	2483.5+BW ~ 2483.5+2BW
				Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)
T nom (°C)	20.00	V nom (V)	5	-50.0	-63.4	-58.2	-57.1
T min (°C)	-20.00	V max (V)	5.75	-50.5	-63.8	-58.6	-57.0
		V min (V)	4.5	-50.4	-63.2	-58.7	-57.5
T max (°C)	55.00	V max (V)	5.75	-49.9	-64.0	-58.5	-57.7
		V min (V)	4.5	-49.7	-63.6	-58.2	-57.2
Limits				-10.00	-20.00	-10.00	-20.00
PASS/FAIL				PASS	PASS	PASS	PASS

Low channel



High channel

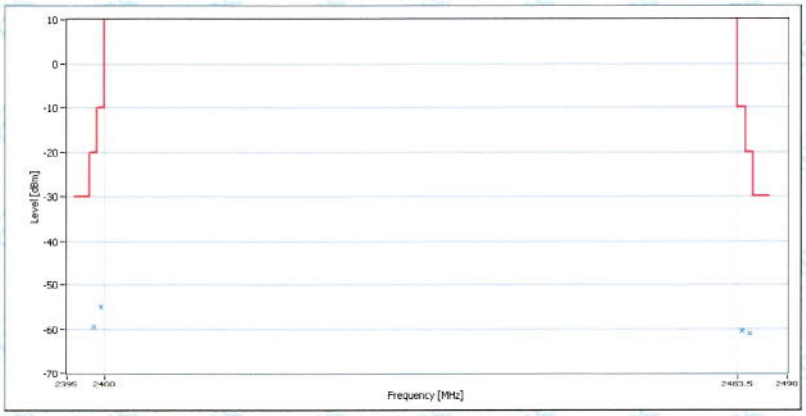


Note: Only the worst plots were recorded in this report.

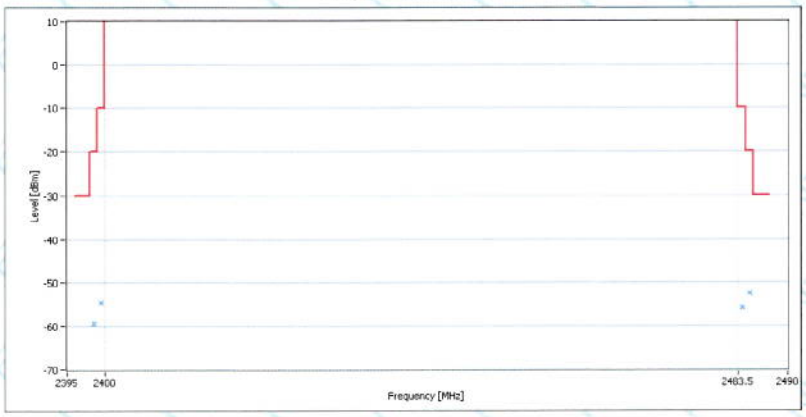
EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-8DPSK(CH00/CH78)		

Channel frequency				2402MHz		2480MHz	
Test condition				OOB Emission(MHz)		OOB Emission(MHz)	
				2400-BW ~2400	2400-2BW ~2400-BW	2483.5 ~ 2483.5+BW	2483.5+BW ~ 2483.5+2BW
				Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)	Maximum power (dBm)
T nom (°C)	20.00	V nom (V)	5	-55.0	-59.3	-55.7	-52.5
T min (°C)	-20.00	V max (V)	5.75	-54.8	-59.7	-55.8	-52.4
		V min (V)	4.5	-55.5	-59.9	-55.6	-52.5
T max (°C)	55.00	V max (V)	5.75	-55.4	-59.2	-55.7	-52.2
		V min (V)	4.5	-54.7	-59.4	-55.0	-52.7
Limits				-10.00	-20.00	-10.00	-20.00
PASS/FAIL				PASS	PASS	PASS	PASS

Low channel



High channel



Note: Only the worst plots were recorded in this report.

7. HOPPING FREQUENCY SEPARATION

7.1 LIMITS OF HOPPING FREQUENCY SEPARATION

HOPPING FREQUENCY SEPARATION	
Condition	Limit
☐ Non-adaptive frequency hopping systems	The minimum Hopping Frequency Separation shall be equal to occupide channel bandwidth of a single hop, with a minimum separation of 100 kHz.
☒ Adaptive frequency hopping systems	The minimum Hopping Frequency Separation shall be 100 kHz.

7.2 TEST PROCEDURE

Refer to chapter 5.3.5.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☒Conducted measurement	☐Radiated measurement

The setting of the Spectrum Analyzer

Center Frequency	Centre of the two adjacent hopping frequencies
Frequency Span	Sufficient to see the complete power envelope of both hopping frequencies
Detector	RMS
RBW	~ 1 % of the span (24KHz)
VBW	3 × RBW (75KHz)
Trace	Max hold
Sweep Time	Auto

7.3 DEVIATION FROM TEST STANDARD

No deviation

7.4 TEST SETUP

The measurements were performed at normal test conditions. The measurement was performed on 2 adjacent hopping frequencies. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. Controlling software (Button Function) has been activated to set the EUT on specific status.

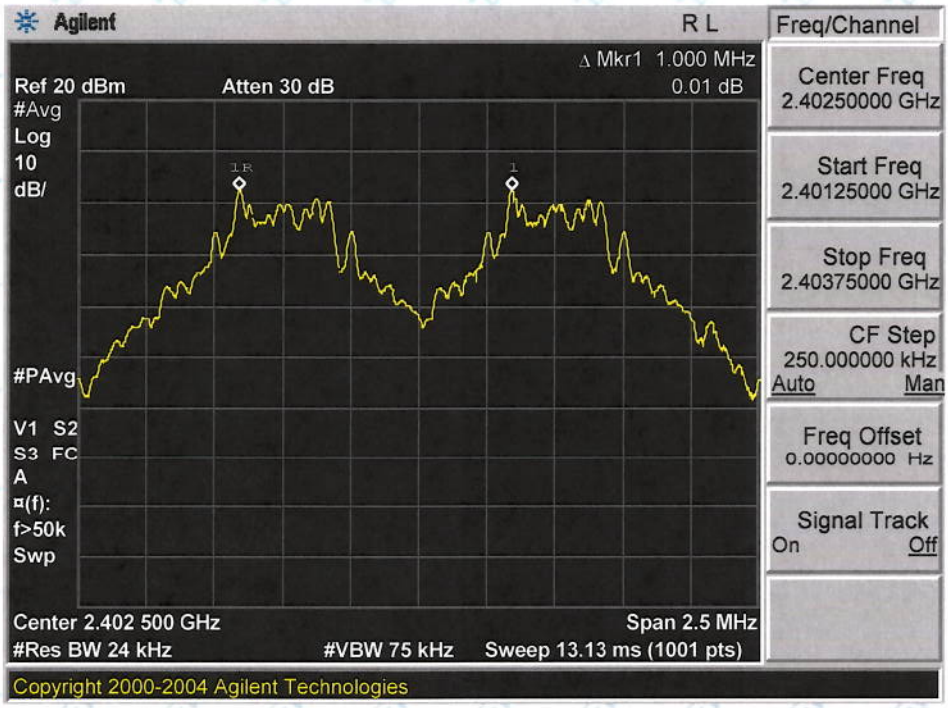
7.5 TEST RESULTS

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-GFSK(CH00/CH39/CH78)		

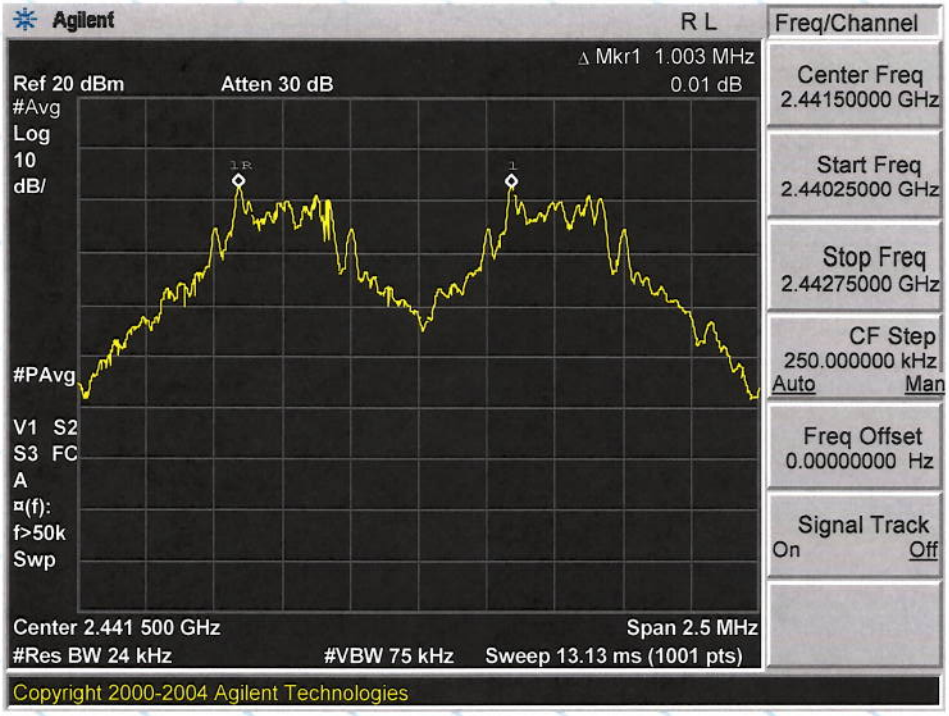
Channel Number	Frequency (MHz)	Ch. Separation (MHz)	Limit (MHz) Minimum	PASS/FAIL
00	2402	1.000	0.100	PASS
39	2441	1.003	0.100	PASS
78	2480	1.003	0.100	PASS

Note: 1.The limitation is from OCB of a single hop and this value must greater and equal to 100kHz.
2.The device will never "hop" to its neighbour channel, therefore the "effective" channel separation becomes 2x the "normal" channel separation.

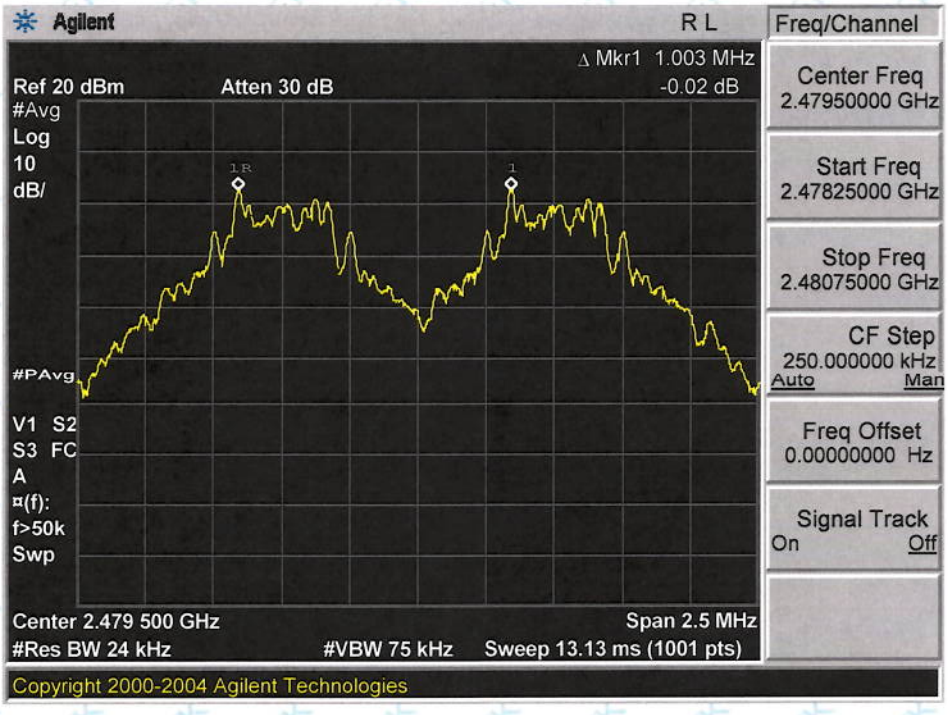
CH00



CH39


Agilent
R L
Freq/Channel
Δ Mkr1 1.003 MHz
Ref 20 dBm
Atten 30 dB
0.01 dB
#Avg
Log
10
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.44150000 GHz
Start Freq
2.44025000 GHz
Stop Freq
2.44275000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.441 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

CH78

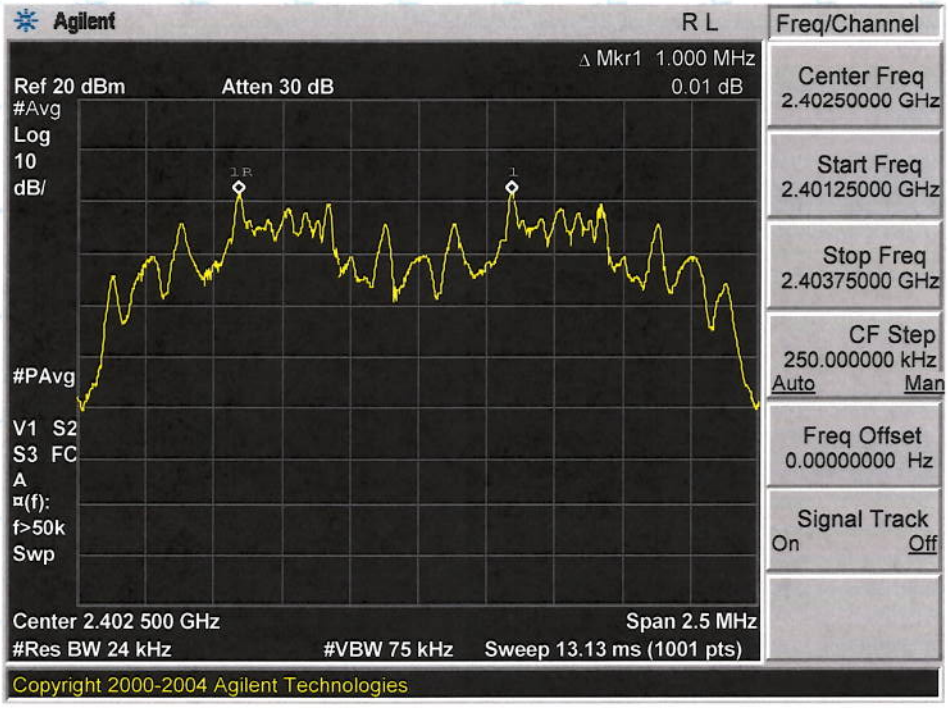

Agilent
R L
Freq/Channel
Δ Mkr1 1.003 MHz
Ref 20 dBm
Atten 30 dB
-0.02 dB
#Avg
Log
10
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.47950000 GHz
Start Freq
2.47825000 GHz
Stop Freq
2.48075000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.479 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-Π/4-DQPSK(CH00/CH39/CH78)		

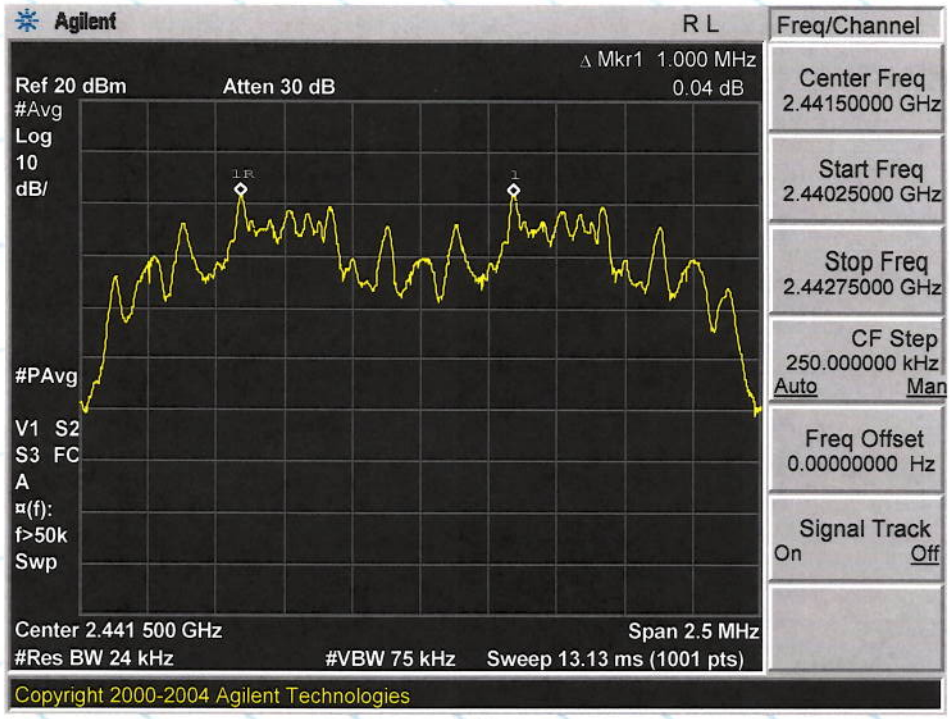
Channel Number	Frequency (MHz)	Ch. Separation (MHz)	Limit (MHz) Minimum	PASS/FAIL
00	2402	1.000	0.100	PASS
39	2441	1.000	0.100	PASS
78	2480	1.000	0.100	PASS

Note: 1.The limitation is from OCB of a single hop and this value must greater and equal to 100kHz.
2.The device will never "hop" to its neighbour channel, therefore the "effective" channel separation becomes 2x the "normal" channel separation.

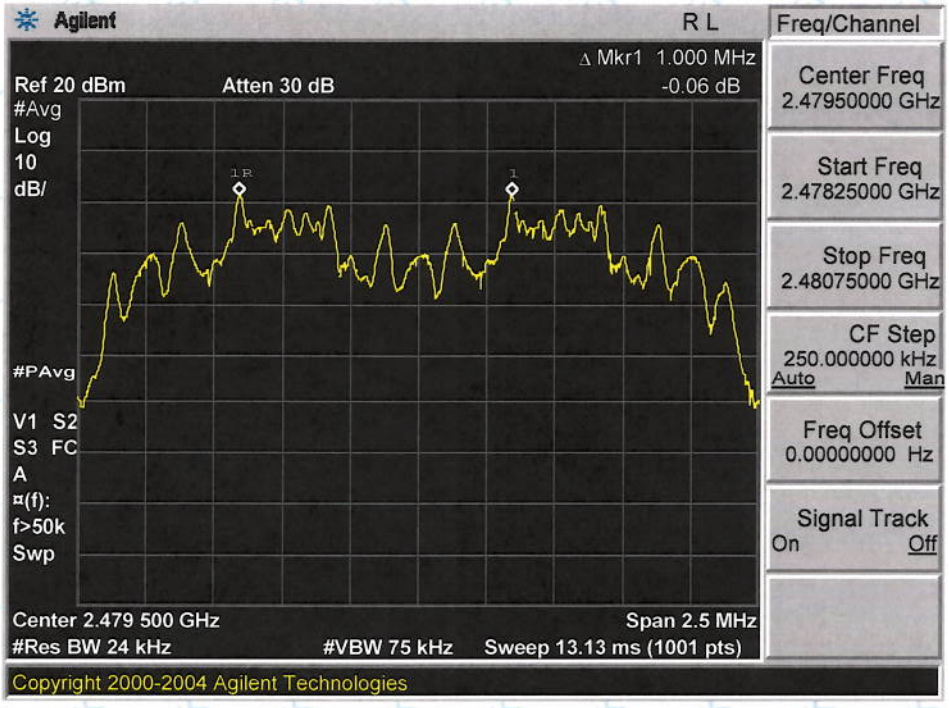
CH00



CH39


Agilent
R L
Freq/Channel
Δ Mkr1 1.000 MHz
0.04 dB
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.44150000 GHz
Start Freq
2.44025000 GHz
Stop Freq
2.44275000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.441 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

CH78

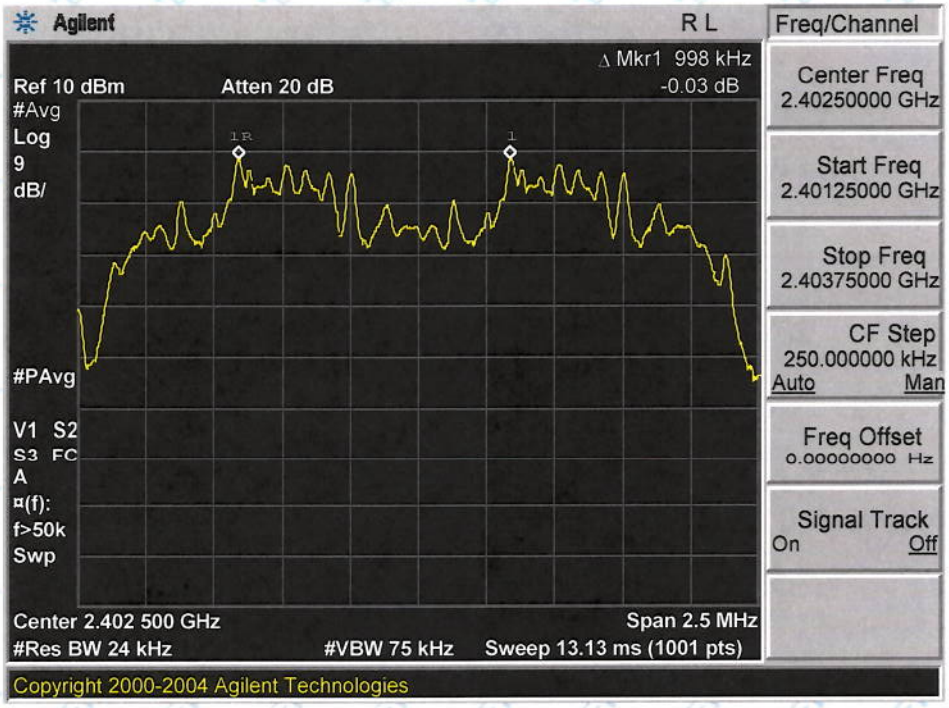

Agilent
R L
Freq/Channel
Δ Mkr1 1.000 MHz
-0.06 dB
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.47950000 GHz
Start Freq
2.47825000 GHz
Stop Freq
2.48075000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.479 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

EUT :	StiX	Model Name :	3500
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 5V
Test Mode :	BT-8DPSK(CH00/CH39/CH78)		

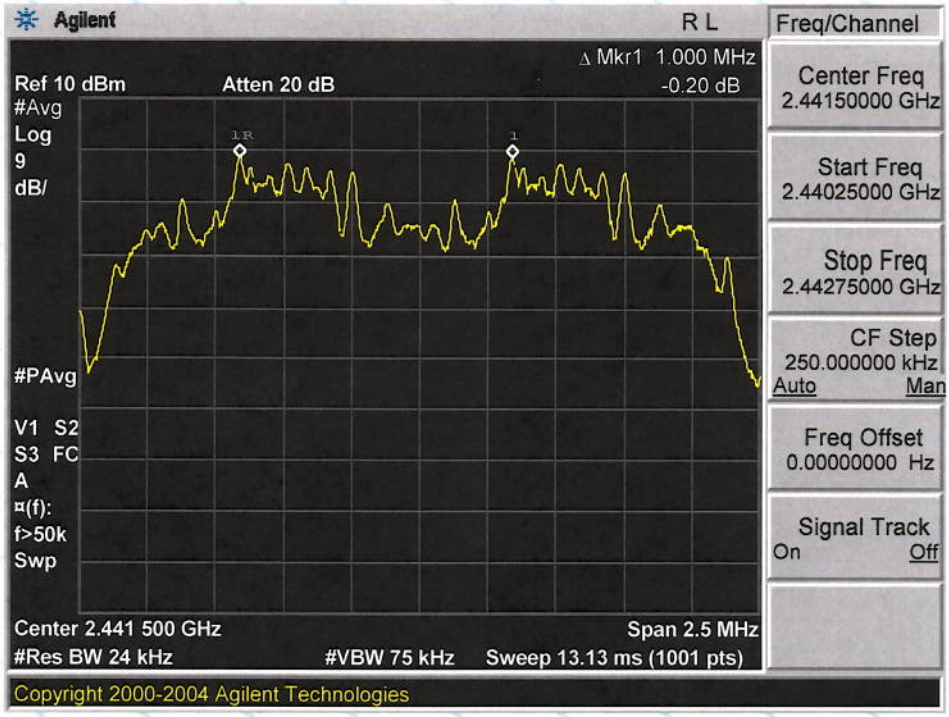
Channel Number	Frequency (MHz)	Ch. Separation (MHz)	Limit (MHz) Minimum	PASS/FAIL
00	2402	0.998	0.100	PASS
39	2441	1.000	0.100	PASS
78	2480	1.003	0.100	PASS

Note: 1.The limitation is from OCB of a single hop and this value must greater and equal to 100kHz.
2.The device will never "hop" to its neighbour channel, therefore the "effective" channel separation becomes 2x the "normal" channel separation.

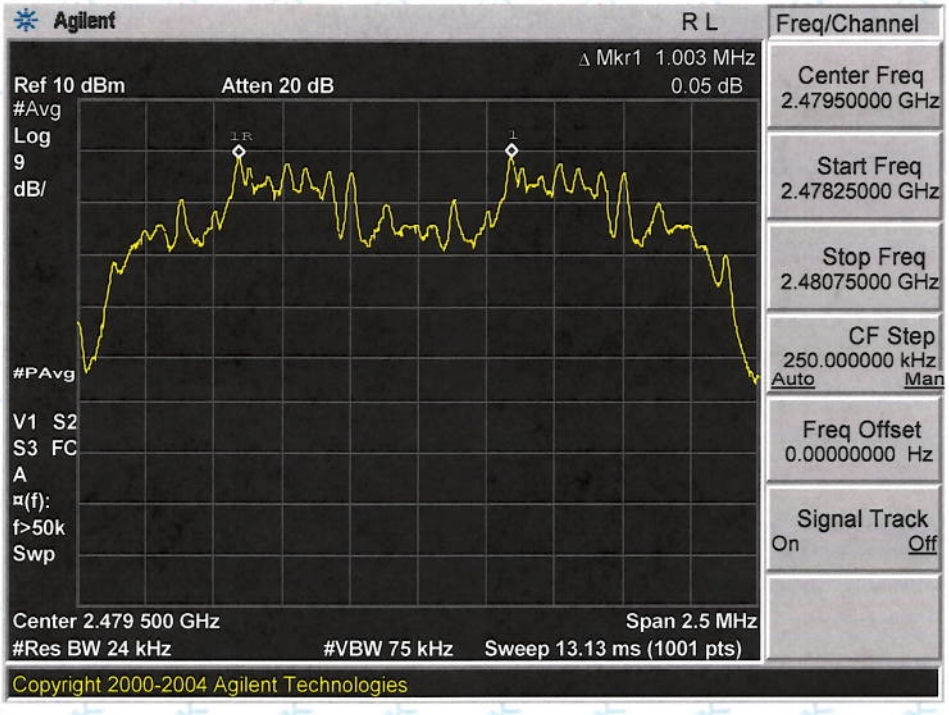
CH00



CH39


Agilent
R L
Freq/Channel
Δ Mkr1 1.000 MHz
-0.20 dB
Ref 10 dBm
Atten 20 dB
#Avg
Log
9
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.44150000 GHz
Start Freq
2.44025000 GHz
Stop Freq
2.44275000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.441 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

CH78


Agilent
R L
Freq/Channel
Δ Mkr1 1.003 MHz
0.05 dB
Ref 10 dBm
Atten 20 dB
#Avg
Log
9
dB/
#PAvg
V1 S2
S3 FC
A
¤(f):
f>50k
Swp
Center Freq
2.47950000 GHz
Start Freq
2.47825000 GHz
Stop Freq
2.48075000 GHz
CF Step
250.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.479 500 GHz
Span 2.5 MHz
#Res BW 24 kHz
#VBW 75 kHz
Sweep 13.13 ms (1001 pts)
Copyright 2000-2004 Agilent Technologies

8. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

8.1 LIMITS OF TRANSMITTER TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN		
Frequency Range	Maximum Power Limit (E.R.P.(≤1 GHz) E.I.R.P.(> 1 GHz))	Bandwidth
30 MHz to 47 MHz	-36dBm	100 kHz
47 MHz to 74 MHz	-54dBm	100 kHz
74 MHz to 87.5 MHz	-36dBm	100 kHz
87.5 MHz to 118 MHz	-54dBm	100 kHz
118 MHz to 174 MHz	-36dBm	100 kHz
174 MHz to 230 MHz	-54dBm	100 kHz
230 MHz to 470 MHz	-36dBm	100 kHz
470 MHz to 862 MHz	-54dBm	100 kHz
862 MHz to 1 GHz	-36dBm	100 kHz
1 GHz ~ 12.75 GHz	-30dBm	1 MHz

8.2 TEST PROCEDURE

Refer to chapter 5.3.10.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☐Conducted measurement	☒Radiated measurement

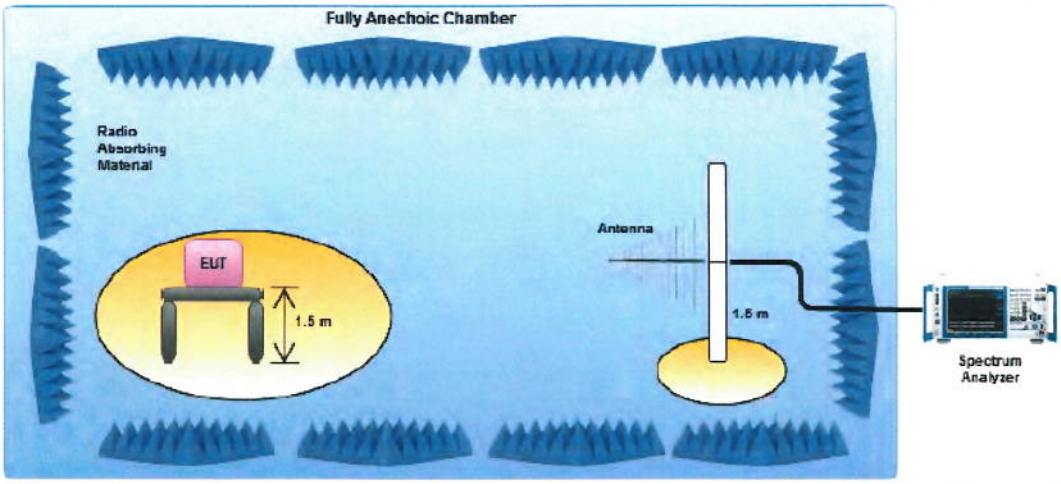
The setting of the Spectrum Analyzer

RBW	100K(＜1GHz) / 1M(＞1GHz)
VBW	300K(＜1GHz) / 3M(＞1GHz)

8.3 DEVIATION FROM TEST STANDARD

No deviation

8.4 TEST SETUP



1. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

2. The measurements were performed when normal hopping was disabled. In this case measurements were performed when operating at the lowest and the highest hopping frequency.

3. The equipment was configured to operate under its worst case situation with respect to output power.

4. The test setup has been constructed as the normal use condition. Controlling software (Button Function) has been activated to set the EUT on specific status.

8.5 TEST RESULTS

BELOW 1 GHz WORST- CASE DATA (30 MHz ~ 1GHz)

EUT :	StiX	Model Name :	3500
Temperature :	24 ℃	Relative Humidity	54%
Pressure :	1010 hPa	Test Power :	DC 5V
Test Mode :	BT-GFSK(CH00/CH39/CH78)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Remark
V	99.4781	-72.22	28.88	-43.34	-36	-7.34	peak
V	178.2058	-86.02	22.75	-63.27	-54	-9.27	peak
V	266.5297	-71.36	24.81	-46.55	-36	-10.55	peak
V	319.5874	-75.14	22.92	-52.22	-36	-16.22	peak
V	466.7458	-90.33	29.71	-60.62	-54	-6.62	peak
V	735.6258	-95.69	35.05	-60.64	-54	-6.64	peak
H	166.5284	-74.25	26.81	-47.44	-36	-11.44	peak
H	193.0214	-70.33	19.12	-51.21	-36	-15.21	peak
H	266.4521	-71.48	24.81	-46.67	-36	-10.67	peak
H	350.2147	-71.85	23.59	-48.26	-36	-12.26	peak
H	435.3605	-73.64	28.33	-45.31	-36	-9.31	peak
H	553.4518	-93.47	31.24	-62.23	-54	-8.23	peak

Remark:
1.Absolute Level= ReadingLevel+ Factor, Margin= Limit- Absolute Level.
2.All the modes had been tested, but only the worst data recorded in the report.

ABOVE 1 GHz WORST- CASE DATA (1GHz ~ 12.75GHz)

EUT :	StiX	Model Name :	3500
Temperature :	24 ℃	Relative Humidity	54%
Pressure :	1010 hPa	Test Power :	DC 5V
Test Mode :	BT-GFSK (CH00/CH39/CH78)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Remark
operation frequency:2402							
V	4804.335	-49.33	8.49	-40.84	-30.00	-10.84	peak
V	7206.158	-52.52	10.54	-41.98	-30.00	-11.98	peak
H	4804.227	-47.36	8.48	-38.88	-30.00	-8.88	peak
H	7206.339	-51.25	10.54	-40.71	-30.00	-10.71	peak
operation frequency:2441							
V	4882.265	-49.33	8.47	-40.86	-30.00	-10.86	peak
V	7306.221	-54.02	10.52	-43.50	-30.00	-13.50	peak
H	4882.528	-48.47	8.46	-40.01	-30.00	-10.01	peak
H	7306.633	-50.36	10.53	-39.83	-30.00	-9.83	peak
operation frequency:2480							
V	4960.175	-48.15	8.46	-39.69	-30.00	-9.69	peak
V	7440.582	-52.69	10.51	-42.18	-30.00	-12.18	peak
H	4960.321	-48.17	8.44	-39.73	-30.00	-9.73	peak
H	7440.147	-52.44	10.52	-41.92	-30.00	-11.92	peak

Remark:
1. Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level – Limit.
2. All the modes had been tested, but only the worst data recorded in the report.

9. RECEIVER SPURIOUS EMISSIONS

9.1 LIMITS OF RECEIVER SPURIOUS RADIATION

RECEIVER SPURIOUS EMISSIONS		
Frequency Range	Maximum Power Limit (E.R.P.(≤1 GHz) E.I.R.P.(> 1 GHz))	Measurement Bandwidth
30 MHz ~ 1 GHz	-57dBm	100KHz
1 GHz ~ 12.75 GHz	-47dBm	1MHz

9.2 TEST PROCEDURE

Refer to chapter 5.3.11.2 of ETSI EN 300328 V1.9.1 (2015-02)

Measurement	
☐Conducted measurement	☒Radiated measurement

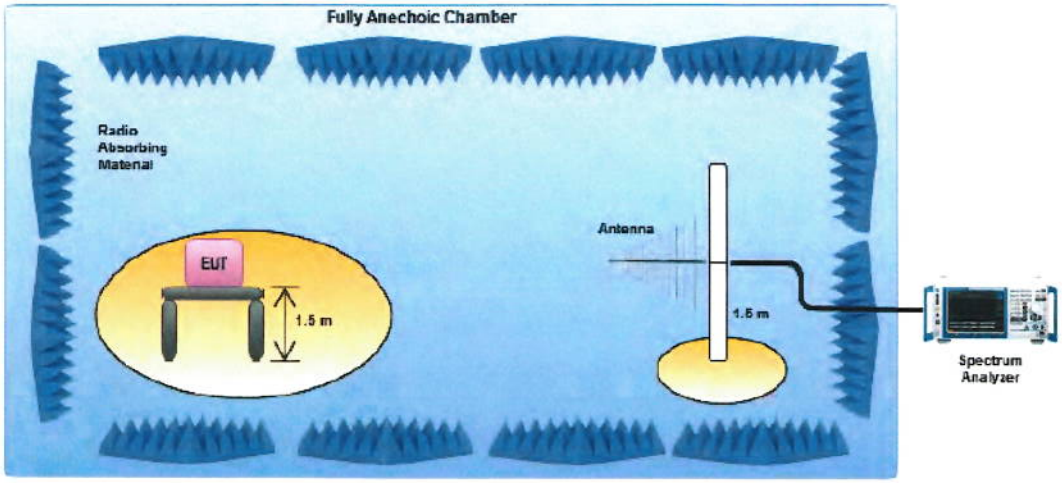
The setting of the Spectrum Analyzer

RBW	100K(＜1GHz) / 1M(＞1GHz)
VBW	300K(＜1GHz) / 3M(＞1GHz)

9.3 DEVIATION FROM TEST STANDARD

No deviation

9.4 TEST SETUP



1. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).
2. Testing was performed when the equipment was in a receive-only mode.
3. The measurements were performed when normal hopping was disabled. In this case measurements were performed when operating at the lowest and the highest hopping frequency.
4. The test setup has been constructed as the normal use condition. Controlling software (Button Function) has been activated to set the EUT on specific status.

9.5 TEST RESULTS

RX BELOW 1 GHz WORST- CASE DATA (30 MHz ~ 1GHz)

EUT :	StiX	Model Name :	3500
Temperature :	24 ℃	Relative Humidity	54%
Pressure :	1010 hPa	Test Power :	DC 5V
Test Mode :	BT-8-GFSK (CH00/CH39/CH78)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Remark
V	69.3254	-93.25	25.96	-67.29	-57	-10.29	peak
V	88.2665	-88.02	18.58	-69.44	-57	-12.44	peak
V	199.6327	-89.15	24.23	-64.92	-57	-7.92	peak
V	366.2057	-95.36	27.18	-68.18	-57	-11.18	peak
V	533.1254	-96.47	31.21	-65.26	-57	-8.26	peak
V	705.1257	-97.26	34.3	-62.96	-57	-5.96	peak
H	69.7451	-90.74	27.67	-63.07	-57	-6.07	peak
H	105.2085	-93.65	17.59	-76.06	-57	-19.06	peak
H	155.3247	-88.25	20.76	-67.49	-57	-10.49	peak
H	299.4581	-90.15	25.1	-65.05	-57	-8.05	peak
H	436.7451	-96.47	29.44	-67.03	-57	-10.03	peak
H	607.2058	-98.22	33.18	-65.04	-57	-8.04	peak

Remark:
1. Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level – Limit.
2. All the modes had been tested, but only the worst data recorded in the report.

RX ABOVE 1 GHz WORST- CASE DATA (1GHz ~ 12.75GHz)

EUT :	StiX	Model Name :	3500
Temperature :	24 ℃	Relative Humidity	54%
Pressure :	1010 hPa	Test Power :	DC 5V
Test Mode :	BT-GFSK (CH00/CH39/CH78)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Remark
V	1052.205	-60.27	-5.14	-65.41	-47	-18.41	peak
V	1933.109	-64.33	-2.03	-66.36	-47	-19.36	peak
V	2736.212	-62.69	-1.51	-64.2	-47	-17.2	peak
V	6755.412	-66.69	7.36	-59.33	-47	-12.33	peak
V	8133.584	-67.16	8.53	-58.63	-47	-11.63	peak
V	11654.547	-68.32	9.46	-58.86	-47	-11.86	peak
H	988.527	-64.27	-5.84	-70.11	-47	-23.11	peak
H	1735.269	-65.03	-1.87	-66.9	-47	-19.9	peak
H	3815.457	-65.69	3.46	-62.23	-47	-15.23	peak
H	4833.024	-67.33	5.12	-62.21	-47	-15.21	peak
H	9125.528	-67.33	9.46	-57.87	-47	-10.87	peak
H	11362.254	-80.12	17.41	-62.71	-47	-15.71	peak

1. Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level – Limit.
2. All the modes had been tested, but only the worst data recorded in the report.

10. PHOTOGRAPHS OF THE TEST CONFIGURATION

SPURIOUS EMISSIONS MEASUREMENT PHOTOS