

EN300 328 RADIO TEST REPORT

FOR

Applicant	:	Audioengine LLC
Address	:	6500 River Place Blvd, Bldg 7, Ste 250, Austin, TX 78730, USA
Equipment under Test	:	A5+desktop powered bluetooth speaker
Model No.	:	A5+BT
Trade Mark	:	Audioengine
Manufacturer	:	Evervictory Electronic Company Limited
Address	:	Chu Chi Management District, Hu Men Town, Dong-Guan Ciry, Guang-Dong Province, P. R. China

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

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REPORT

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TEST REPORT DECLARE

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Address	:	Chu Chi Management District, Hu Men Town, Dong-Guan Ciry, Guang-Dong Province, P. R. China

Test Standard Used: EN 300 328 V2.1.1

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment In Accordance with EN 300 328 V2.1.1 about the effective uses allocated spectrum requirements of Directive 2014/53/EU.

Report No:	DDT-R17Q0505-8E5		
Date of Receipt:	May 9, 2017	Date of Test:	May 9, 2017~Jun. 30, 2017



Prepared By:


Leo Liu/Engineer



Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

1.1. Summary of test results

1.2. Standard description

EN 300 328 V2.1.1: Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

1.3. Test result

Harmonized Standard EN300 328				
The following essential requirements and test specifications are relevant to the presumption of conformity under Article 3.2 of the RED Directive				
No	Test Parameter	Clause No	Condition	Results
Transmitter Parameters				
1	RF Output Power	4.3.1.2 or 4.3.2.2	Apply all equipment	PASS
2	Power Spectral Density	4.3.2.3	Only for equipment using wide band modulations other than FHSS	N/A
3	Duty Cycle ,Tx-Sequence, Tx-gap	4.3.1.3 or 4.3.2.4	Only for non-adaptive equipment	Only for ≥ 10 dBm and non-adaptive
4	Accumulated Transmit time, Frequency Occupation & Hopping Sequence	4.3.1.4	Only for FHSS equipment	PASS
5	Hopping Frequency Separation	4.3.1.5	Only for FHSS	PASS
6	Medium Utilisation	4.3.1.6 or 4.3.2.5	Only for non-adaptive equipment	Only for ≥ 10 dBm and non-adaptive
7	Adaptive	4.3.1.7 or 4.3.2.6	Only for adaptive equipment	Only for ≥ 10 dBm and non-adaptive
8	Occupied Channel Bandwidth	4.3.1.8 or 4.3.2.7	Apply all equipment	PASS
9	Transmitter unwanted emissions in the OOB domain	4.3.1.9 or 4.3.2.8	Apply all equipment	PASS
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10 or 4.3.2.9	Apply all equipment	PASS
11	Receiver spurious emissions	4.3.1.11 or 4.3.2.10	Apply all equipment	PASS
12	Receiver Blocking	4.3.1.12 or 4.3.2.11	Apply all equipment	PASS
13	Geo-location capability	4.3.1.13 or 4.3.2.12	Only for equipment with geo-location capability	N/A

Note: N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device.

2. General test information

2.1. Description of EUT

EUT* Name	: A5+desktop powered bluetooth speaker
Model Number	: A5+BT
EUT function description	: Please reference user manual of this device
Power supply	: AC 220-240V~1.60A, 50/60Hz
Hardware Version	: V1.0
Software Version	: V1.7
Radio Specification	: Bluetooth 3.0+EDR
Operation frequency	: 2402MHz -2480MHz
Modulation	: GFSK, $\pi/4$ QPSK, 8-DPSK
Data rate	: 1Mbps, 2Mbps, 3Mbps
Antenna Type	: External antenna, maximum PK gain: 2.0 dBi
Sample Type	: Series production

Note 1: EUT is the ab. of equipment under test.

2.2. Accessories of EUT

Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode as below table.

Test software: BlueSuite2.6.0

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
GFSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
$\pi/4$ QPSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
8-DPSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
GFSK hopping off Tx Mode	LCH: CH0	2402
	MCH: CH39	2441
	HCH: CH78	2480
$\pi/4$ QPSK hopping off Tx Mode	LCH: CH0	2402
	MCH: CH39	2441
	HCH: CH78	2480
8-DPSK hopping off Tx Mode	LCH: CH0	2402
	MCH: CH39	2441
	HCH: CH78	2480

Note: For $\pi/4$ QPSK its same modulation type with 8-DPSK, and based exploratory test, there is no significant difference of that two types test result, after the preliminary scan, 8-DPSK will have higher emission, so all items final test were only performed with the worse case 8-DPSK and GFSK.

2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

/	Normal Conditions	Extreme Conditions
Temperature range	NT: 21-25°C	LT:-20°C and HT: 55°C
Humidity range	40-75%	N/A
Pressure range	86-106kPa	N/A
Power supply	NV: AC 230V/50Hz	LV:AC 207V, HV:AC 253V

Note: The Extreme temperature range and extreme voltages are declared by the manufacturer.

2.6. Deviations of test standard

No Deviation.

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808 Tel: +86-0769-89201699 <http://www.dgddt.com>

CNAS Accreditation No. L6451

A2LA Accreditation No. 3870.01

2.8. Measurement uncertainty

Test Item	Uncertainty
Occupied Channel Bandwidth	1.1%
RF Output power, conducted	0.74dB
Power Spectral Density, Conducted	0.74dB
Unwanted Emissions, Conducted	0.86dB(10 MHz \leq f < 3.6GHz);
	1.40dB(3.6GHz \leq f < 8GHz)
	1.66dB(8GHz \leq f < 22GHz)
Temperature	0.4°C
Humidity	2%

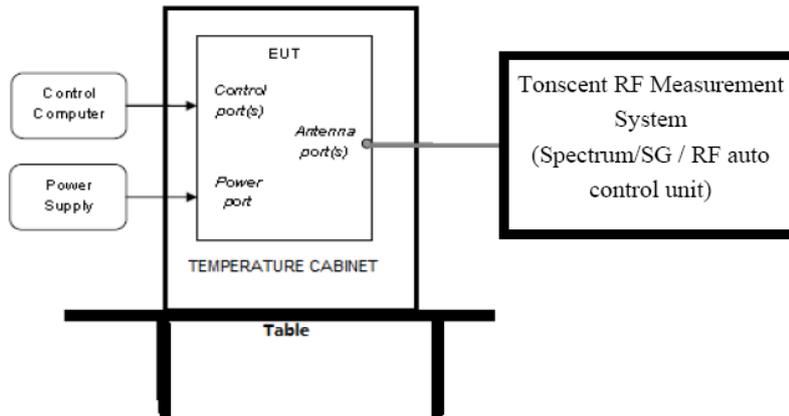
DC and Low frequency voltage	1.0%
Time	0.6%
Duty Cycle	0.6%
Radiated Spurious Emissions (Substitution method)	3.57dB
Radiated Spurious Emissions(Pre-correction method)	4.14dB(30MHz-1GHz)
	5.32dB(1GHz-18GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscent RF Measurement System)					
Spectrum analyzer	R&S	FSU26	1166.1660.26	Oct. 16, 2016	1Year
Wideband Radio Communication tester	R&S	CMW500	155523	Dec. 20, 2016	1 Year
Vector Signal Generator	Agilent	E8267D	MY52098743	Oct. 20, 2016	1Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 05, 2016	1Year
Power Sensor	Agilent	U2021XA	MY55150010	Apr. 18, 2017	1Year
Power Sensor	Agilent	U2021XA	MY55150011	Apr. 19, 2017	1Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Oct. 24, 2016	1Year
Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2016	1Year
RF Cable	Micable	C10-01-01-1	100309	Aug. 18, 2016	1Year
Test Software	JS Tonscend	JS1120-2	Ver.2.5	N/A	N/A
USB Data acquisition	Agilent	U2531A	TW55043503	N/A	N/A
Auto control Unit	JS Tonscend	JS0806-2	158060010	N/A	N/A
Radiated Emission Test					
EMI Test Receiver	R&S	ESU8	100316	Oct. 16, 2016	1Year
Spectrum analyzer	R&S	FSU26	1166.1660.26	Oct. 16, 2016	1Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Oct. 27, 2016	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 16, 2016	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Oct. 12, 2016	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Oct. 16, 2016	1 Year
RF Cable	HUBSER	CP-X2	W11.03	Oct. 16, 2016	1Year
RF Cable	HUBSER	CP-X1	W12.02	Oct. 16, 2016	1 Year
MI Cable	HUBSER	C10-01-01-1M	1091629	Oct. 16, 2016	1 Year
Test software	Audix	E3	V 6.11111b	/	/

4. RF Output Power

4.1. Block diagram of test setup



4.2. Limits

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm.

The maximum RF output power for this equipment shall be equal to or less than the value declared by the manufacturer. This declared value shall be equal to or less than 20 dBm.

This limit shall apply for any combination of power level and intended antenna assembly.

4.3. Test Procedure

- (1) Connect each EUT's antenna output to power sensor by RF cable and attenuator.
- (2) Refer to ETSI EN300328 V2.1.1 Clause 5.4.2.2.1.
- (3) For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured.

4.4. Test Result

GFSK Modulation					
Test conditions		Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Voltage (V)	Temperature (°C)				
NV	LT	7.30	9.30	20.00	Pass
	NT	7.31	9.31		
	HT	7.31	9.31		
8DPSK Modulation					
Test conditions		Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Voltage (V)	Temperature (°C)				
NV	LT	5.27	7.27	20.00	Pass
	NT	5.28	7.28		
	HT	5.28	7.28		

Note: EIRP = Measured Highest Pburst Values + Antenna Gain

5. Accumulated Transmit time, Frequency Occupation & Hopping Sequence

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

The Dwell Time is the time that a particular hopping frequency would be occupied by the transmitter during a single hop. The equipment itself is not required to transmit on this hopping frequency during the Dwell Time. For this Adaptive frequency hopping systems, the maximum accumulated dwell time on any hopping frequency shall be 400 ms within any period of 400 ms multiplied by the minimum number of hopping frequencies (79) that have to be used.

The Minimum Frequency Occupation Time shall be equal to one dwell time within a period not exceeding four times the product of the dwell time per hop and the number of hopping frequencies in use.

5.3. Test Procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable and an attenuator.
- (2) Refer to ETSI EN 300 328 V2.1.1 Clause 5.4.4
- (3) JS Tonscend test software is used to control the spectrum analyzer to use the following settings:

Centre Frequency:	Equal to the hopping frequency being investigated
Frequency Span:	0 Hz
RBW:	~ 50 % of the Occupied Channel Bandwidth
VBW:	\geq RBW
Detector Mode:	RMS
Sweep time:	Auto
Trace Mode	Max Hold

5.4. Test Result

Accumulated Dwell Time

Channel	Modulation	Accumulated Transmit Time (ms)	Limit (ms)	Result
LCH	GFSK	305.456	400	Pass
	8DPSK	313.883	400	Pass
HCH	GFSK	307.563	400	Pass
	8DPSK	308.616	400	Pass

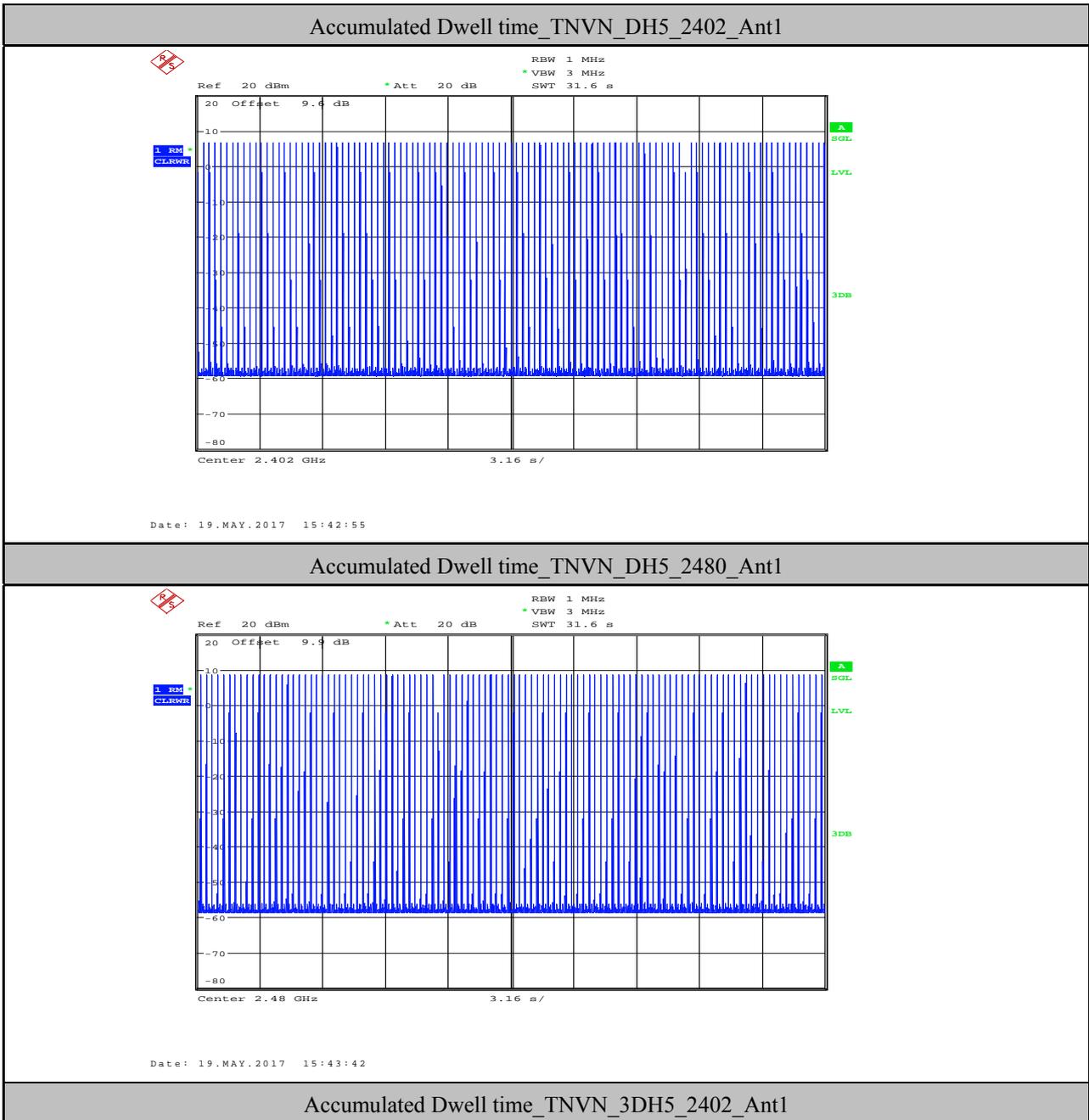
Minimum Frequency Occupation

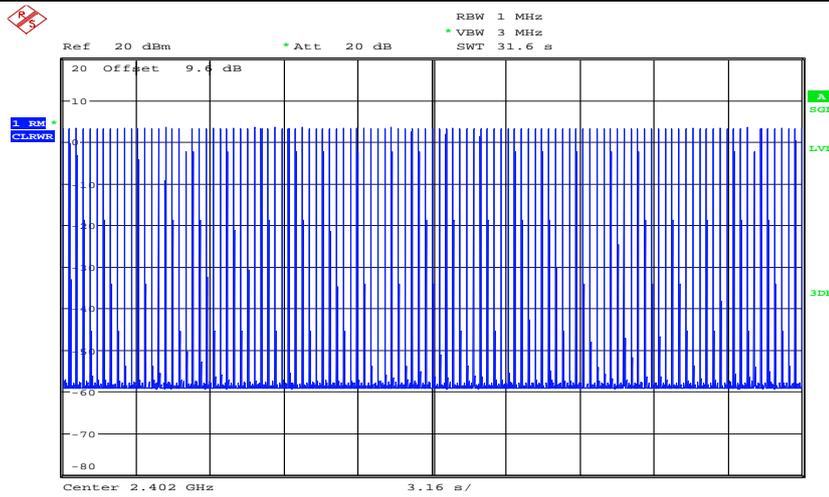
Channel	Modulation	Frequency occupation times (N)	Limit (N)	Result
LCH	GFSK	3	≥1	Pass
	8DPSK	3		Pass
HCH	GFSK	3		Pass
	8DPSK	3		Pass

Hopping Sequence

Modulation	Number of Hopping Channel	Limit	-20 dB Bandwidth (%)	Limit	Result
GFSK	79	≥15	95.55	70 % of the band 2400MHz-2483.5MHz	Pass
8DPSK	79		96.00		

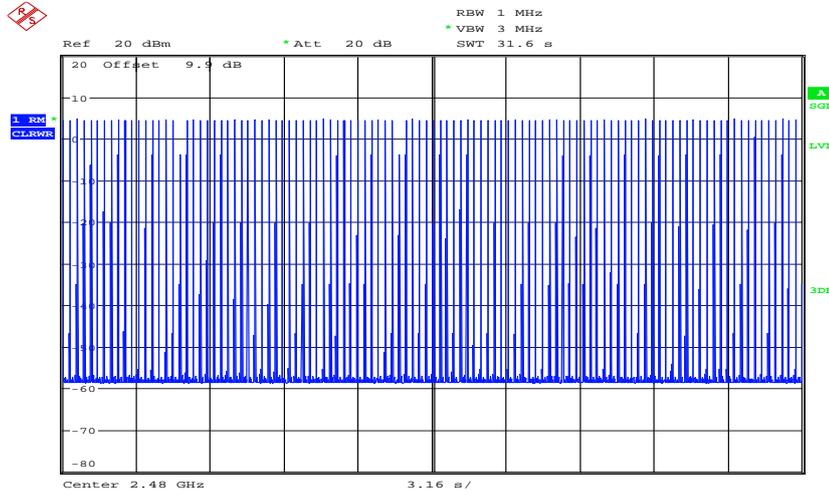
5.5. Original test data





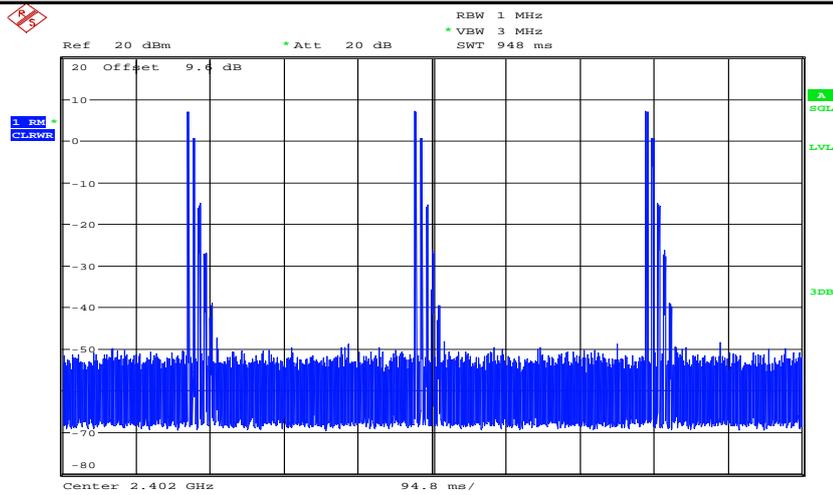
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Accumulated Dwell time_TNVN_3DH5_2480_Ant1



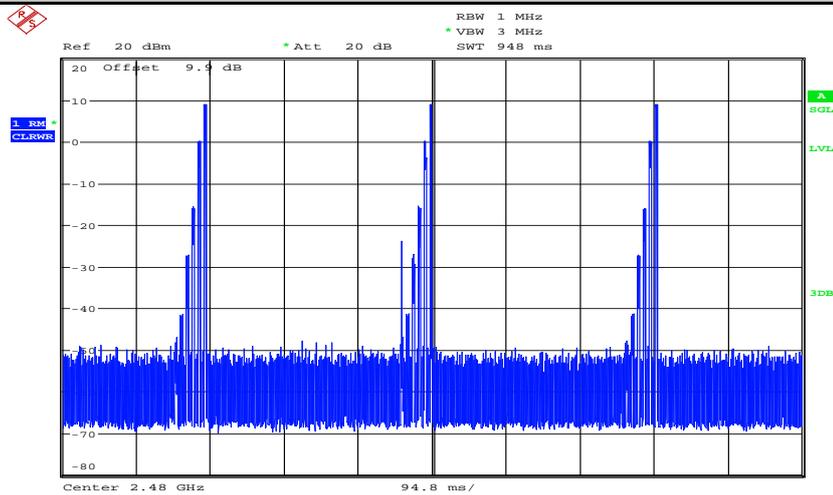
Date: 19.MAY.2017 15:58:10

Minimum Frequency Occupation_TNVN_DH5_2402_Ant1



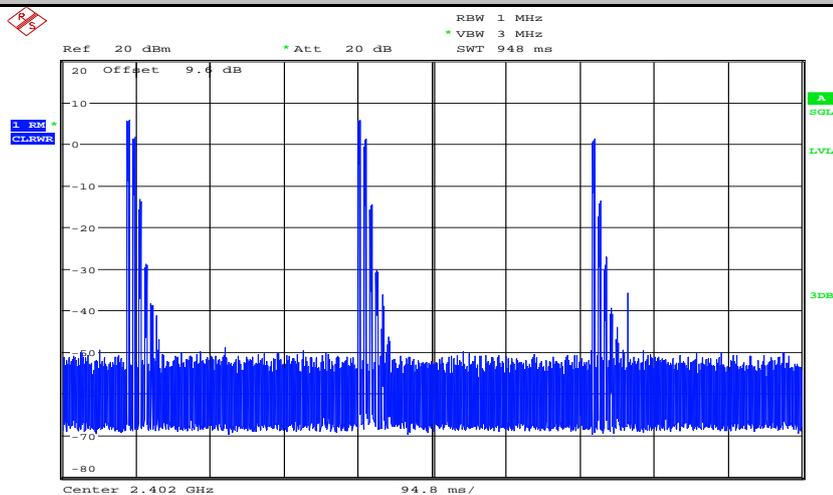
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Minimum Frequency Occupation_TNVN_DH5_2480_Ant1



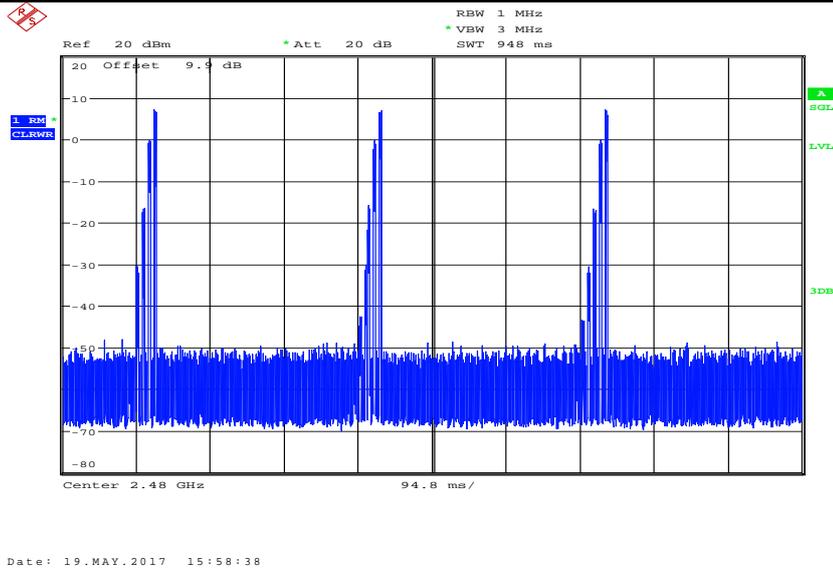
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Minimum Frequency Occupation_TNVN_3DH5_2402_Ant1

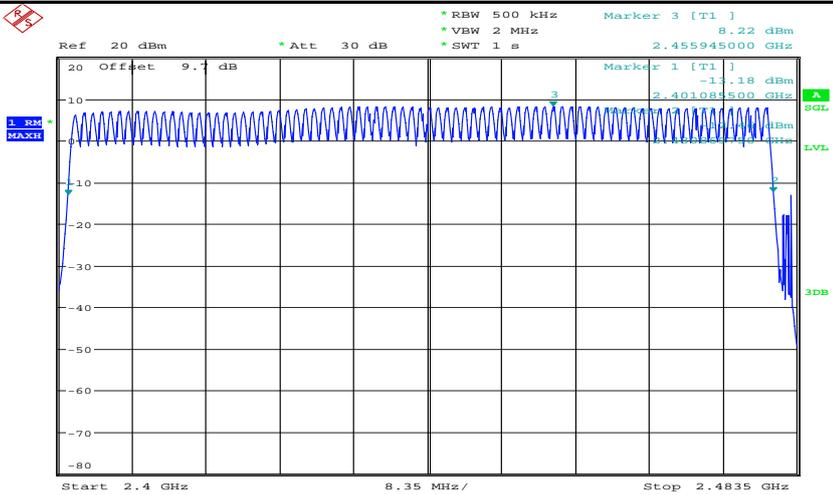


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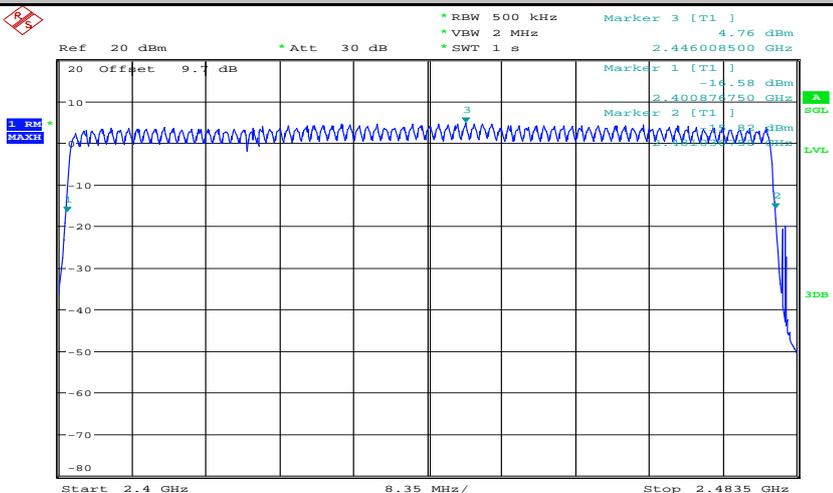
Minimum Frequency Occupation_TNVN_3DH5_2480_Ant1



Hopping Sequence_TNVN_DH5_Ant1



Hopping Sequence_TNVN_3DH5_Ant1



6. Hopping Frequency Separation

6.1. Block diagram of test setup

Same as section 4.1

6.2. Limits

- (1) For adaptive frequency hopping systems the minimum hopping frequency separation shall be 100 KHz.
- (2) For equipment with a maximum declared RF Output power level of less than 10 dBm e.i.r.p. or for non-adaptive Frequency Hopping equipment operating in a mode where the RF Output power is less than 10 dBm e.i.r.p. only the minimum Hopping Frequency Separation of 100 kHz applies.

6.3. Test Procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable and attenuator.
- (2) Configure EUT work in normal hopping mode.
- (3) Set the spectrum analyzer as follows:

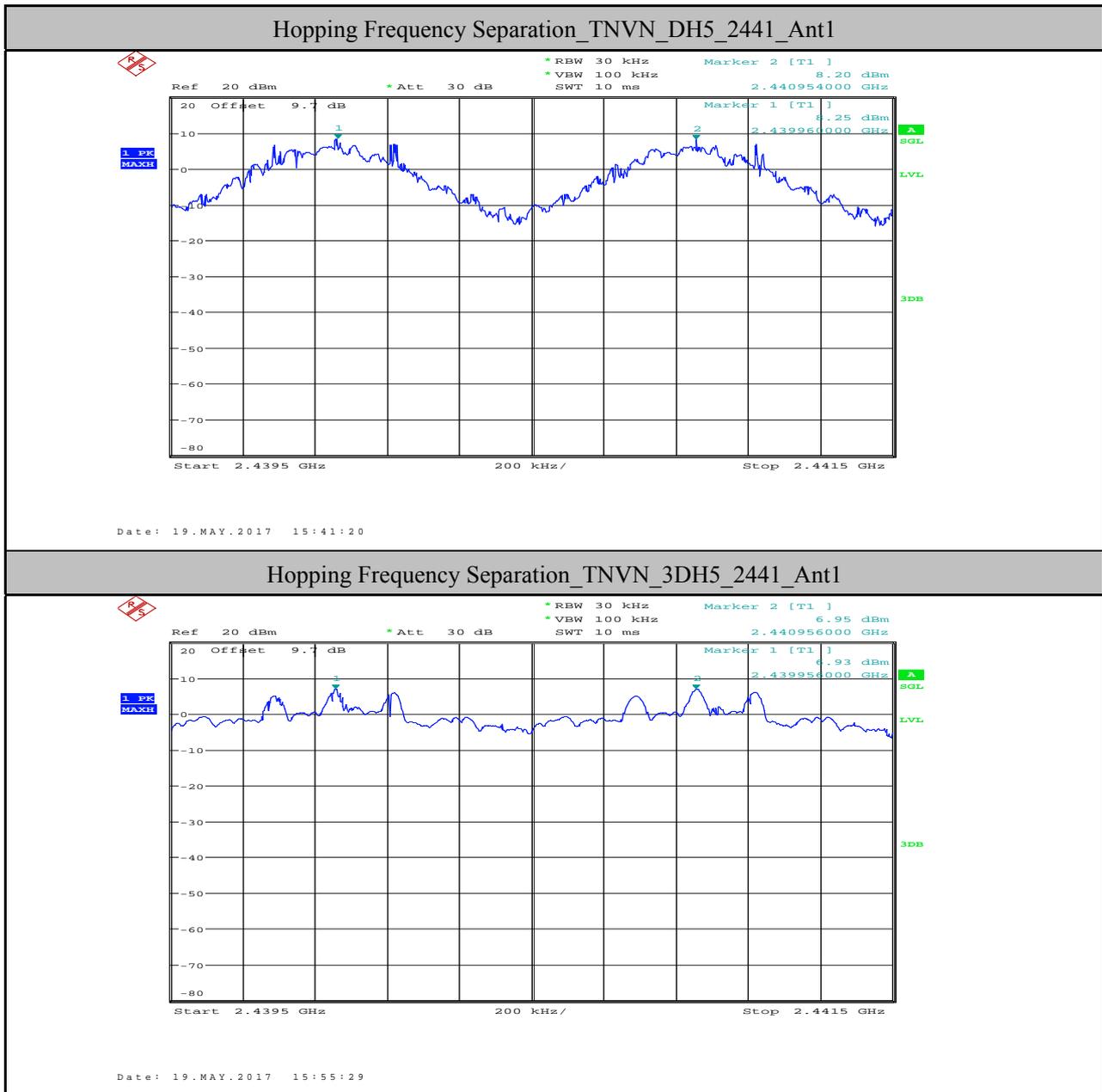
Centre Frequency:	Centre of the two adjacent hopping frequencies
Frequency Span:	Sufficient to see the complete power envelope of both hopping frequencies
RBW:	1 % of the Span
VBW:	$3 \times \text{RBW}$
Detector Mode:	Max Peak
Sweep time:	Auto
Trace Mode:	Max Hold

- (4) When the trace has completed, Use the marker-delta function to determine the Hopping Frequency Separation between the peaks of the two adjacent hopping frequencies.

6.4. Test Result

Modulation	Channel	Channel Separation (MHz)	Limit(kHz)	Result
GFSK	N/A	0.994	≥ 100	Pass
8DPSK	N/A	1.000		Pass

6.5. Original test data



7. Occupied Channel Bandwidth

7.1. Block diagram of test setup

Same as section 4.1

7.2. Limits

The Occupied Channel Bandwidth for each hopping frequency shall fall completely within the band 2400MHz to 2483.5MHz for this device.

7.3. Test Procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable and attenuator.
- (2) Configure EUT work in lowest and highest hopping frequency.
- (3) Set the spectrum analyzer as follows:

Centre Frequency:	The centre frequency of the channel under test
Frequency Span:	$2 \times$ Occupied Channel Bandwidth
RBW:	$\sim 1\%$ of the span without going below 1%
VBW:	$3 \times$ RBW
Detector Mode:	RMS
Sweep time:	1s
Trace Mode:	Max Hold

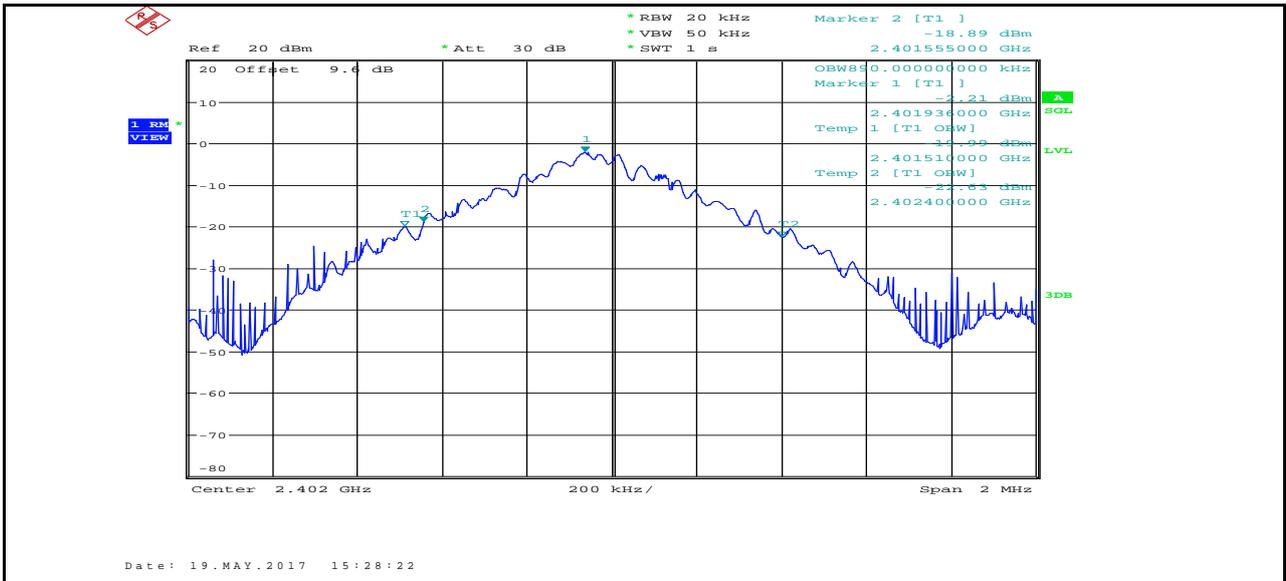
- (4) When the trace has completed, use the 99% bandwidth function of the spectrum analyzer to measure the occupied channel bandwidth of the EUT.

7.4. Test Result

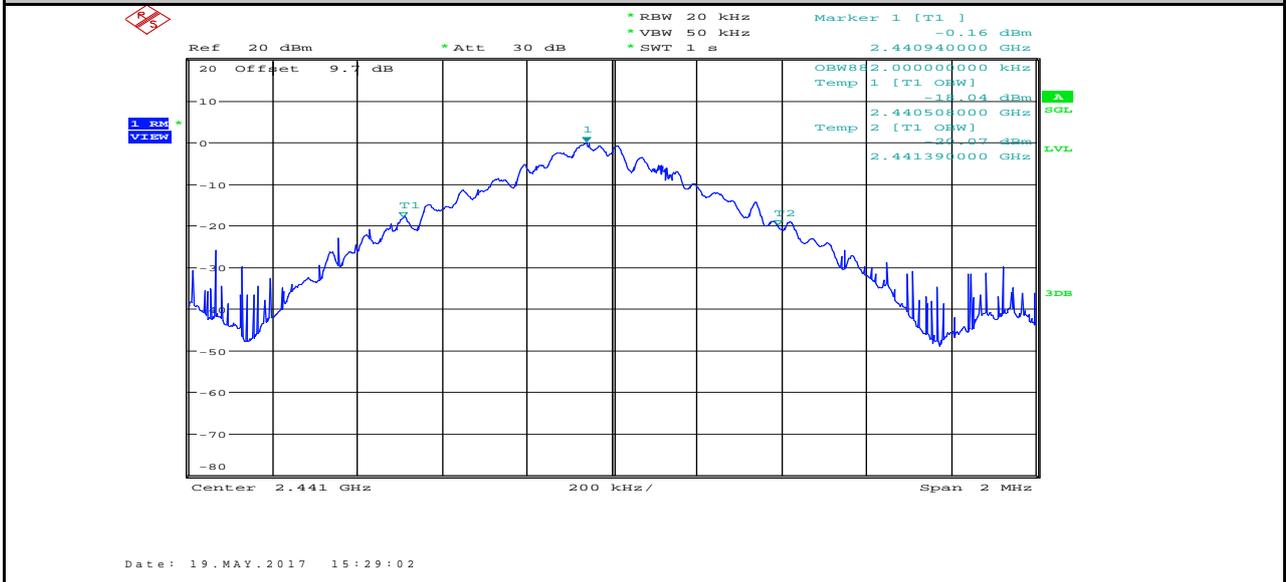
Modulation	Channel	OBW [MHz]	FL@OBW	FH@OBW	Verdict
GFSK	LCH	0.890	2401.555	---	PASS
GFSK	MCH	0.882	---	---	PASS
GFSK	HCH	0.882	---	2480.441	PASS
8DPSK	LCH	1.214	2401.393	---	PASS
8DPSK	MCH	1.218	---	---	PASS
8DPSK	HCH	1.210	---	2480.605	PASS

7.5. Original test data

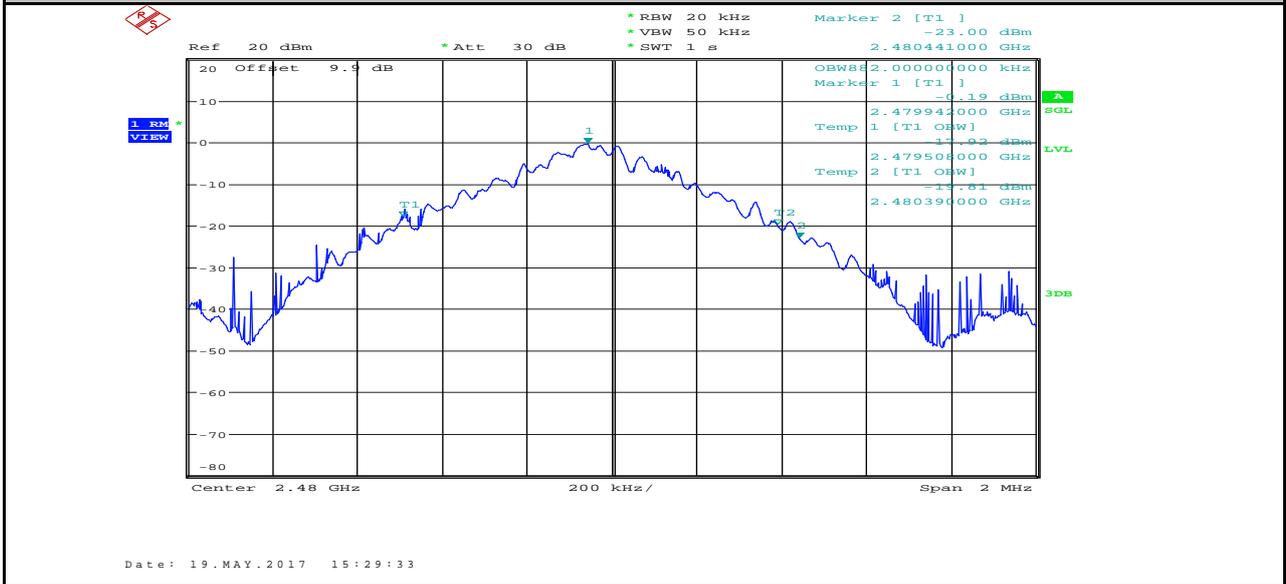
Occupied Channel Bandwidth_TNVN_DH5_2402_Ant1



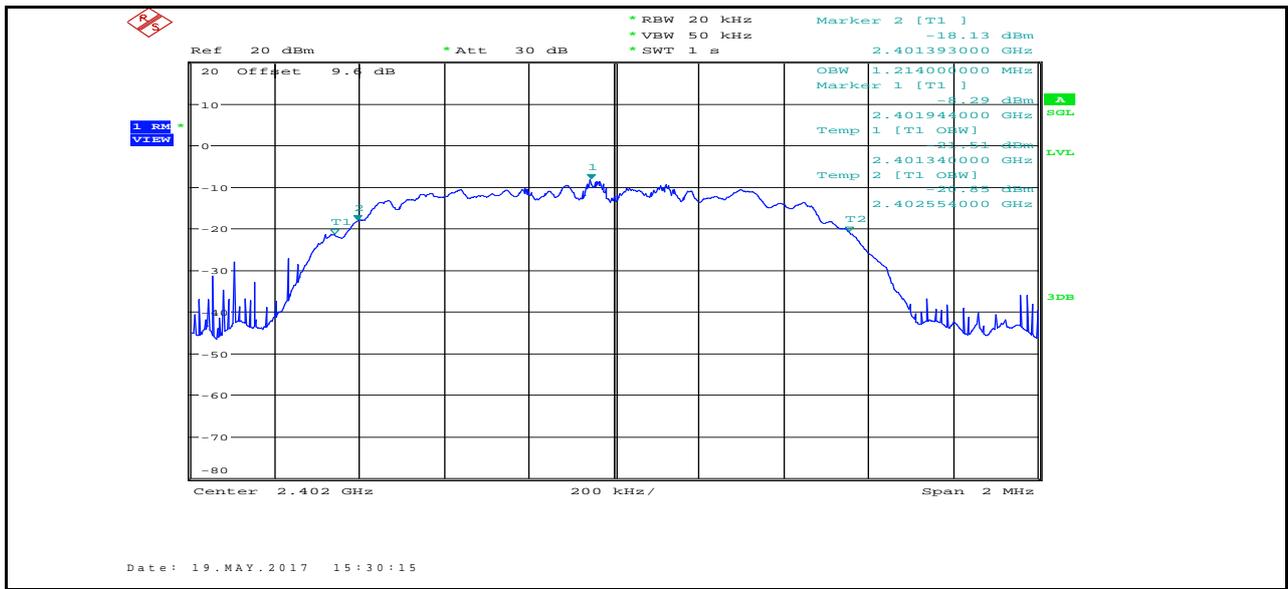
Occupied Channel Bandwidth_TNVN_DH5_2441_Ant1



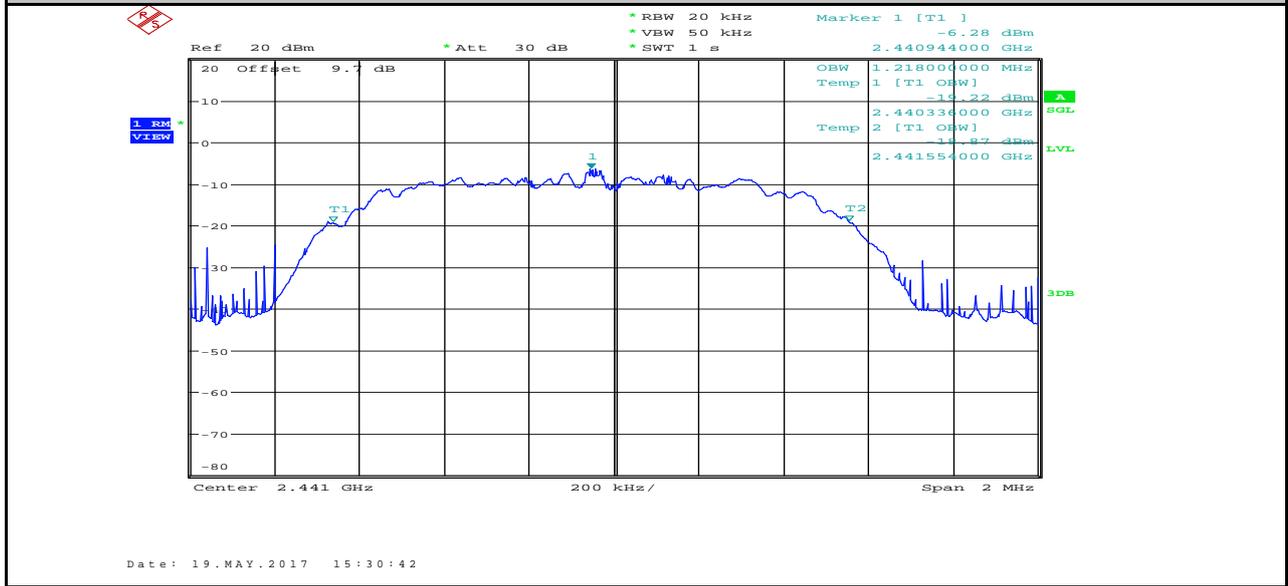
Occupied Channel Bandwidth_TNVN_DH5_2480_Ant1



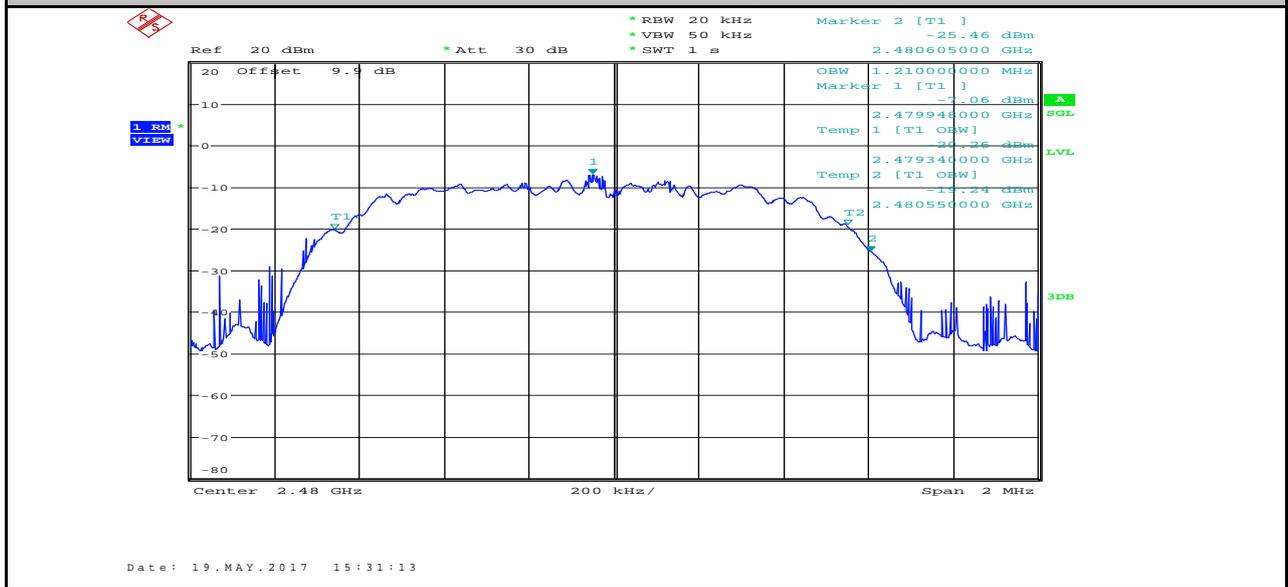
Occupied Channel Bandwidth_TNVN_3DH5_2402_Ant1



Occupied Channel Bandwidth_TNVN_3DH5_2441_Ant1



Occupied Channel Bandwidth_TNVN_3DH5_2480_Ant1



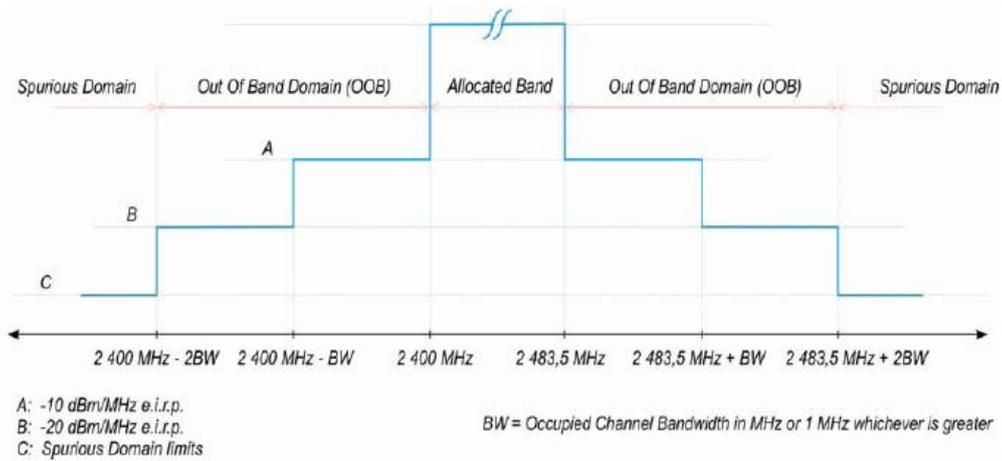
8. Transmitter unwanted emissions in the out-of-band domain

8.1. Block diagram of test setup

Same as section 4.1

8.2. Limits

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask below:



8.3. Test Procedure

- (1) Connect EUT’s antenna output to spectrum analyzer by RF cable and attenuator.
- (2) Configure EUT work in normal hopping mode.
- (3) Refer to ETSI EN 300328 V2.1.1 clause 5.4.8.2

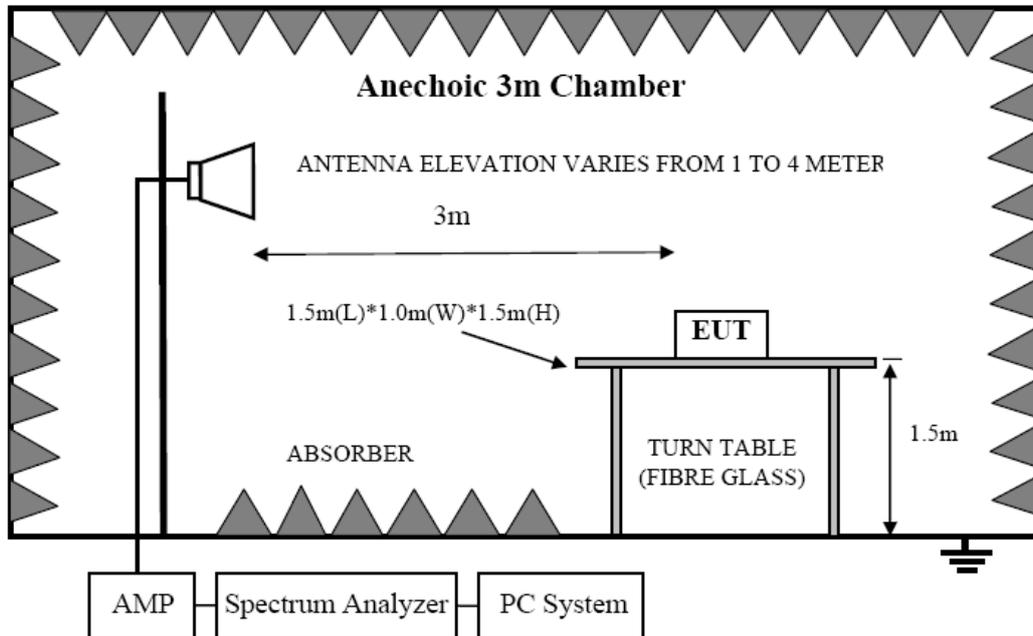
8.4. Test Result

Test Condition	Test Mode	Test Channel	Freq [MHz]	Result [dBm]	Limit [dBm]	Verdict
TNVN	DH5	2402	2398.500	-61.09	≤ -20	PASS
TNVN	DH5	2402	2399.500	-61.07	≤ -10	PASS
TNVN	DH5	2402	2484.000	-59.78	≤ -10	PASS
TNVN	DH5	2402	2485.000	-60.47	≤ -20	PASS
TNVN	DH5	2480	2398.500	-60.15	≤ -20	PASS
TNVN	DH5	2480	2399.500	-37.98	≤ -10	PASS
TNVN	DH5	2480	2484.000	-59.17	≤ -10	PASS
TNVN	DH5	2480	2485.000	-57.14	≤ -20	PASS
TNVN	3DH5	2402	2398.072	-59.32	≤ -20	PASS
TNVN	3DH5	2402	2398.286	-58.51	≤ -20	PASS
TNVN	3DH5	2402	2399.286	-58.53	≤ -10	PASS

TNVN	3DH5	2402	2399.500	-59.13	<=-10	PASS
TNVN	3DH5	2402	2484.000	-60.37	<=-10	PASS
TNVN	3DH5	2402	2484.214	-59.34	<=-10	PASS
TNVN	3DH5	2402	2485.214	-60.31	<=-20	PASS
TNVN	3DH5	2402	2485.428	-37.83	<=-20	PASS
TNVN	3DH5	2480	2398.080	-60.58	<=-20	PASS
TNVN	3DH5	2480	2398.290	-60.66	<=-20	PASS
TNVN	3DH5	2480	2399.290	-59.05	<=-10	PASS
TNVN	3DH5	2480	2399.500	-57.18	<=-10	PASS
TNVN	3DH5	2480	2484.000	-58.58	<=-10	PASS
TNVN	3DH5	2480	2484.210	-49.18	<=-10	PASS
TNVN	3DH5	2480	2485.210	-59.39	<=-20	PASS
TNVN	3DH5	2480	2485.420	-57.99	<=-20	PASS

9. Transmitter unwanted emissions in the spurious domain

9.1. Block diagram of test setup



9.2. Limits

Frequency Range	Maximum power e.r.p ($\leq 1\text{GHz}$) e.i.r.p ($>1\text{GHz}$)	Bandwidth
30MHz to 47MHz	-36 dBm	100KHz
47MHz to 74MHz	-54 dBm	100KHz
74MHz to 87.5MHz	-36 dBm	100KHz
87.5MHz to 118MHz	-54 dBm	100KHz
118MHz to 174MHz	-36 dBm	100KHz
174MHz to 230MHz	-54 dBm	100KHz
230MHz to 470MHz	-36 dBm	100KHz
470MHz to 862MHz	-54 dBm	100KHz
862MHz to 1GHz	-36 dBm	100KHz
1GHz to 12.75GHz	-30 dBm	1MHz

9.3. Test Procedure

- (1) Scan from 30MHz to 12.75GHz, find the maximum radiation frequency to measure.
- (2) The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.
- (3) Refer to ETSI EN 300 328 V2.1.1 Clause 5.4.9.2 and Annex B

9.4. Test Result

Test Mode : GFSK Tx mode				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1GHz)				
76.51	-68.27	-36.00	H	PASS
102.72	-70.31	-54.00	H	PASS
146.89	-56.95	-36.00	H	PASS
226.89	-67.29	-54.00	H	PASS
601.43	-63.89	-54.00	H	PASS
807.43	-63.62	-54.00	H	PASS
62.00	-65.26	-54.00	V	PASS
66.97	-61.57	-54.00	V	PASS
97.80	-66.90	-54.00	V	PASS
172.60	-65.56	-36.00	V	PASS
200.69	-69.40	-54.00	V	PASS
665.80	-64.81	-54.00	V	PASS
(above 1GHz)				
3890.00	-50.44	-30.00	H	PASS
6304.00	-48.78	-30.00	H	PASS
7885.00	-47.64	-30.00	H	PASS
9534.00	-46.68	-30.00	H	PASS
12730.00	-42.57	-30.00	H	PASS
13376.00	-40.46	-30.00	H	PASS
3890.00	-51.47	-30.00	V	PASS
4791.00	-40.18	-30.00	V	PASS
7069.00	-48.82	-30.00	V	PASS
8786.00	-46.48	-30.00	V	PASS
12016.00	-44.86	-30.00	V	PASS
13325.00	-41.63	-30.00	V	PASS
Note: All the emissions are measured with PK detector. Scan with GFSK, $\pi/4$ QPSK, 8-DPSK, the worst case is GFSK Mode LCH was recorded in this report.				

10. Receiver Spurious emissions

10.1. Block diagram of test setup

Same with 9.1

10.2. Limits

The spurious emissions of the receiver shall not exceed the values given in below table.

Frequency range	Maximum power	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

10.3. Test Procedure

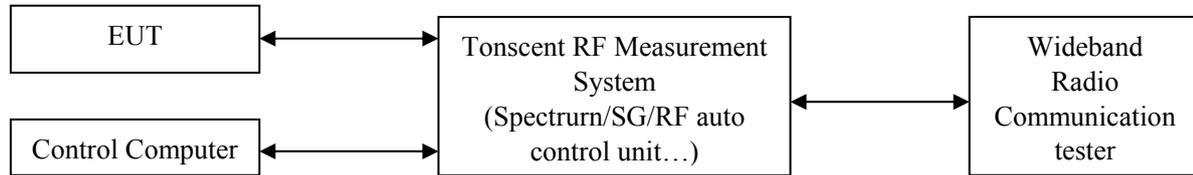
Refer to clause 9.3

10.4. Test result

Test Mode: Rx mode				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1GHz)				
76.78	-65.00	-57.00	H	PASS
83.52	-68.80	-57.00	H	PASS
147.40	-57.75	-57.00	H	PASS
153.74	-62.74	-57.00	H	PASS
224.52	-67.91	-57.00	H	PASS
616.37	-66.95	-57.00	H	PASS
32.18	-64.36	-57.00	V	PASS
67.20	-62.29	-57.00	V	PASS
77.05	-65.17	-57.00	V	PASS
148.96	-61.69	-57.00	V	PASS
170.20	-65.58	-57.00	V	PASS
229.29	-71.00	-57.00	V	PASS
(above 1GHz)				
4854.00	-56.75	-47.00	H	PASS
5970.25	-53.54	-47.00	H	PASS
6875.00	-53.71	-47.00	H	PASS
8872.50	-53.18	-47.00	H	PASS
9554.00	-52.61	-47.00	H	PASS
10952.25	-52.68	-47.00	H	PASS
3197.25	-58.45	-47.00	V	PASS
4619.00	-55.23	-47.00	V	PASS
6322.75	-53.45	-47.00	V	PASS
7956.00	-53.27	-47.00	V	PASS
9554.00	-51.38	-47.00	V	PASS
12315.25	-50.75	-47.00	V	PASS
Note: All the emissions are measured with PK detector. Scan with GFSK, $\pi/4$ QPSK, 8-DPSK, the worst case is GFSK Mode LCH was recorded in this report.				

11. Receiver Blocking

11.1. Block diagram of test setup



11.2. Limits

Table 7: Receiver Blocking parameters receiver category 2 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
$P_{min} + 6$ dB	2 380 2 503,5	-57	CW
$P_{min} + 6$ dB	2 300 2 583,5	-47	CW

NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.

Performance Criteria:

The minimum performance criterion shall be a PER less than or equal to 10 %.

11.3. Test Procedure

Refer to ETSI EN 300328 V2.1.1 clause 5.4.11.2.1

11.4. Test Result

Test Condition	Test Mode	Test Channel	Pmin [dBm]	Wanted signal Level[dBm]	Freq [MHz]	CW Level [dBm]	PER [%]	Limit [%]	Verdict
TNVN	DH1	2402	-91.61	-85.61	2380	-57	0.20	<=10	PASS
TNVN	DH1	2402	-91.61	-85.61	2503.5	-57	0.40	<=10	PASS
TNVN	DH1	2402	-91.61	-85.61	2583.5	-47	0.20	<=10	PASS
TNVN	DH1	2402	-91.61	-85.61	2300	-47	4.40	<=10	PASS
TNVN	DH1	2480	-88.34	-82.34	2583.5	-47	2.91	<=10	PASS
TNVN	DH1	2480	-88.34	-82.34	2300	-47	3.38	<=10	PASS
TNVN	DH1	2480	-88.34	-82.34	2380	-57	2.91	<=10	PASS
TNVN	DH1	2480	-88.34	-82.34	2503.5	-57	2.63	<=10	PASS
TNVN	3DH1	2402	-93.61	-87.61	2380	-57	2.25	<=10	PASS
TNVN	3DH1	2402	-93.61	-87.61	2503.5	-57	3.94	<=10	PASS
TNVN	3DH1	2402	-93.61	-87.61	2583.5	-47	2.91	<=10	PASS
TNVN	3DH1	2402	-93.61	-87.61	2300	-47	2.82	<=10	PASS
TNVN	3DH1	2480	-88.34	-82.34	2583.5	-47	5.12	<=10	PASS
TNVN	3DH1	2480	-88.34	-82.34	2300	-47	0.50	<=10	PASS
TNVN	3DH1	2480	-88.34	-82.34	2380	-57	0.40	<=10	PASS
TNVN	3DH1	2480	-88.34	-82.34	2503.5	-57	5.57	<=10	PASS

12. Test setup photograph



13. Photos of the EUT

Refer to section 14-Photos of the EUT for report “DDT-R17Q0505-8E4”.

END OF REPORT