

TEST REPORT

Report No.: 21010144HKG-001

Cosmo-Technology Limited

Japan RF Law Type Approval- 426MHz Band Wideband Low-power Data Communication System (WWA)

Prepared and Checked by:

Signed On File
Chan Hin Man, Oscar
Assistant Engineer

Approved by:


Digitally signed
by Lee Shui Tim, Tim
Location: Intertek
Testing Services
Hong Kong Ltd.

Lee Shui Tim, Tim
Assistant Supervisor
Date: 05 Feb 2021

1 GENERAL INFORMATION

Report No.:	21010144HKG-001
Applicant:	Cosmo-Technology Limited
Applicant Address:	Room C, 19/F., Capitol Centre Tower 2, 28 Jardine's Crescent, Causeway Bay, Hong Kong.
Equipment Under Test (EUT):	
Product Description:	Transmitter
Model:	TR-THM527
Date of Sample Submitted:	05 Jan 2021
Date of Test:	05 Jan 2021 to 02 Feb 2021
Report Date:	05 Feb 2021
Place of Testing:	Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China.
Classification of Specified Radio Equipment:	Article 2 Clause 1 Item 8
Type of emissions, Frequency and Declaration Output Power to be tested:	426.025MHz 0.0008 W
Modulation Method:	other
Environmental Conditions:	Temperature: +5 to +35°C Humidity: 45 to 85%
Test Environmental Conditions:	Temperature: 20°C Humidity: 60%
Test Category:	426MHz Band Wideband Low-power Data Communication System
Test Result:	Pass
Sample number:	1/2
Antenna Gain:	0.5 dBi
Test Requirement:	MIC Test Procedure #22-02

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2 TEST RESULTS SUMMARY FOR JAPANESE CERTIFICATION

Test Item				limit	unit	DC	4.5V	DC	4.95V	DC	4.05V	Judge
Frequency				NA	MHz		426.0250		426.0250		426.0250	ment
Frequency Error				4	ppm		-1.831		-1.784		-1.831	ok
Occupied Bandwidth				8.5	kHz		6		6		6	ok
Spreading Bandwidth				na	kHz							-
Spreading factor				na	-							-
												-
Spurious	30	~	425	MHz	-26	dBm/100kHz	-43.26		-43.29		-43.17	ok
						MHz	425		425		425	
	425	~	f0-0.0625	MHz	-25	dBm/100kHz	-25.65		-26.14		-25.94	ok
						MHz	425.9125		425.9125		425.9125	
	f0+0.0625	~	427	MHz	-25	dBm/100kHz	-26.74		-26.13		-26.32	ok
						MHz	426.1375		426.1375		426.1375	
	427	~	1000	MHz	-26	dBm/100kHz	-45.74		-46.76		-45.22	ok
						MHz	427		427		427	
	1000	~	3000	MHz	-26	dBm/MHz	-50.26		-57.98		-42.17	ok
						MHz	2456		2132		2416	
	4000	~	12500	MHz	na	dBm/MHz						-
						MHz						-
Adjacent CH Interference	-	0.0125	MHz	-40	dBc/8.5kHz		-48.17		-48.36		-48.05	
	+	0.0125	MHz	-40	dBc/8.5kHz		-48.14		-48.52		-47.64	
	-	10	MHz	na	dBc/8.5kHz							
	+	10		na	dBc/8.5kHz							
												-
Antenna Power	0.0008			0.001	W/MHz		0.00083		0.00083		0.00082	ok
				20	%		3.75		3.75		2.5	ok
				-50	%							ok
												-
Collateral emission	30	~	1000	MHz	-54	dBm/kHz	-76.6999		-76.6999		-76.6999	ok
						MHz	912.7		912.7		912.7	
	1000	~	3000	MHz	-54	MHz	-56.37555		-56.37555		-56.37555	ok
						MHz	2412		2412		2412	
	3000	~	6000	MHz	na	dBm/MHz						-
						MHz						-
	6000	~	12500	MHz	na	dBm/MHz						-
						MHz						-
Carrier Sense				NA								-
Tamperproof				yes		complies						ok
Product in one case				yes		complies						ok
System:ID				yes		complies						ok
System:TX time			156ms	<	3s	complies						ok
System:TX stop time			59s	>	2s	complies						ok

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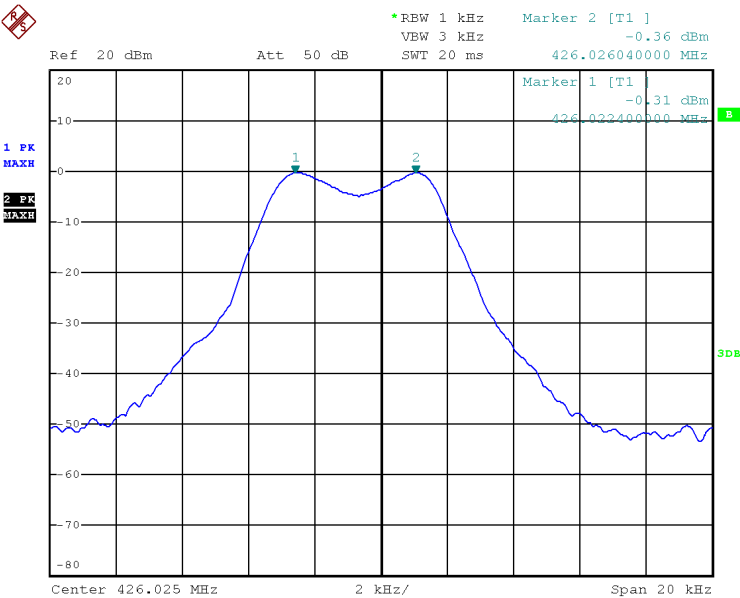
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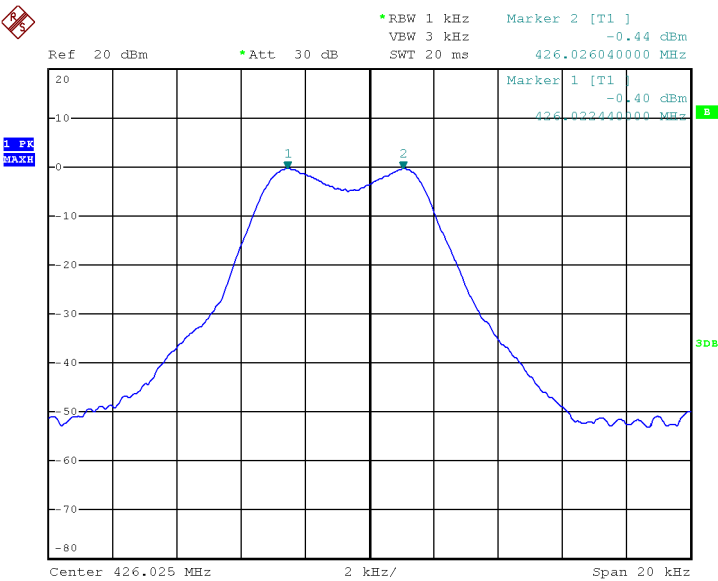
3 MEASUREMENT RESULTS

3.1 Frequency Tolerance

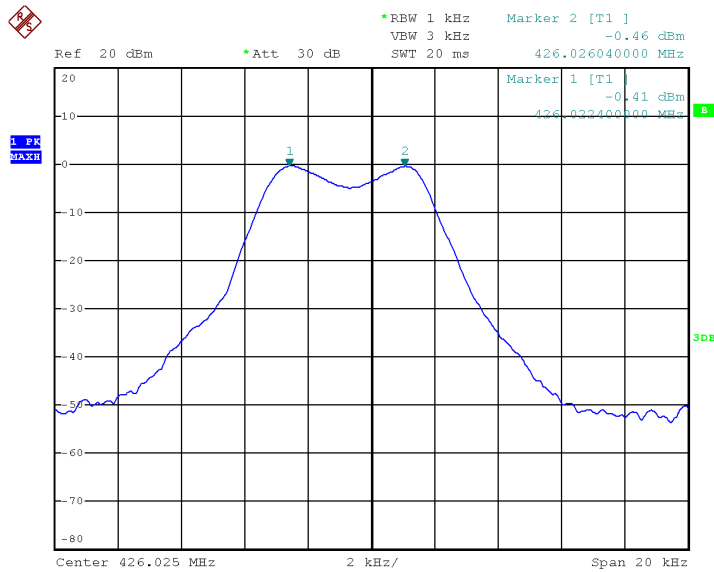
4.05V



4.5V



4.95V



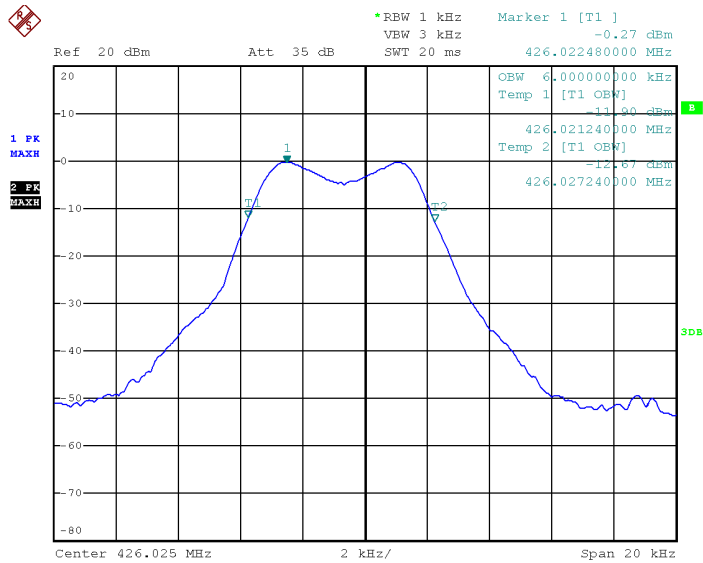
Note: Conducted measurement was preformed for this test.

Japanese Regulation:

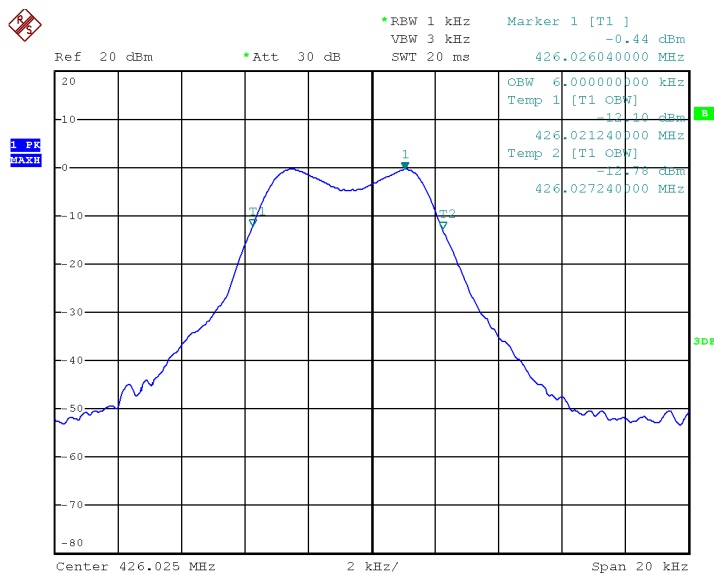
Frequency Tolerance shall be within +/-10ppm.

3.2 Occupied Bandwidth

4.05V



4.5V



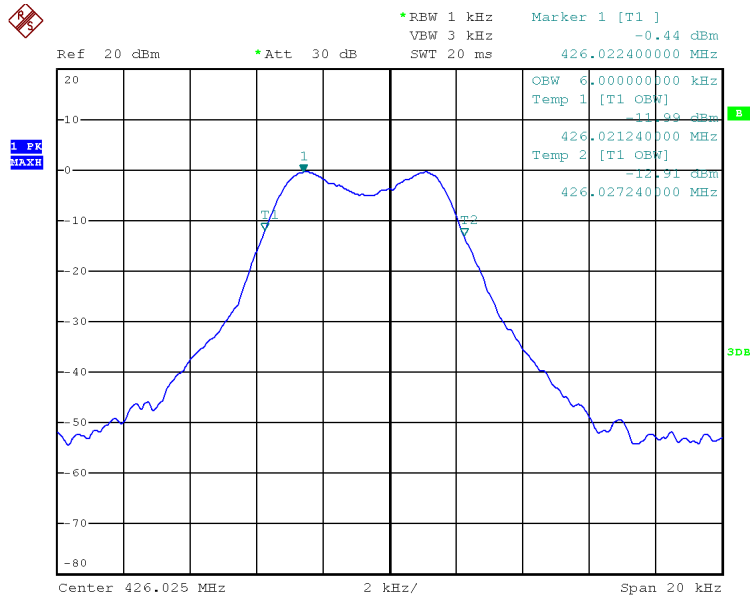
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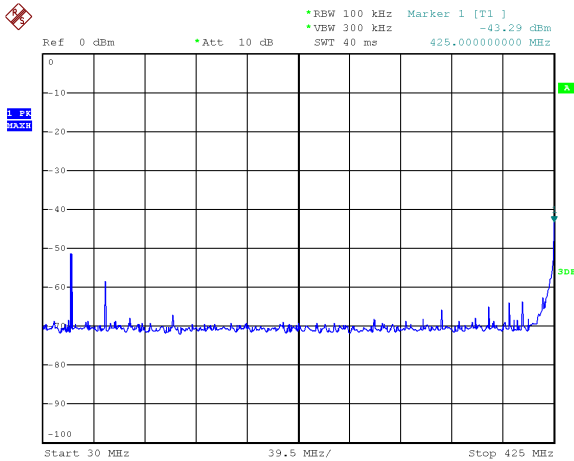
4.95V



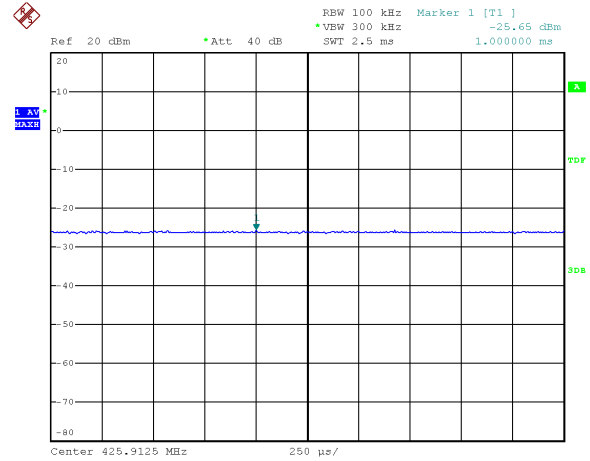
Note: Conducted measurement was preformed for this test.
Japanese Regulation:
Occupied Bandwidth shall be 12.5 kHz or below.

3.3 Spurious Strength

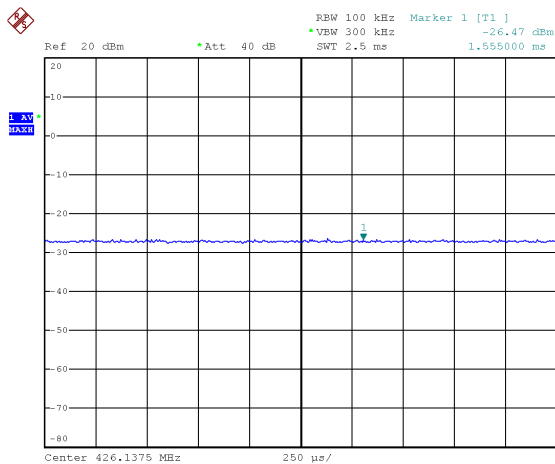
3.3.1 4.05V Channel: 426.025



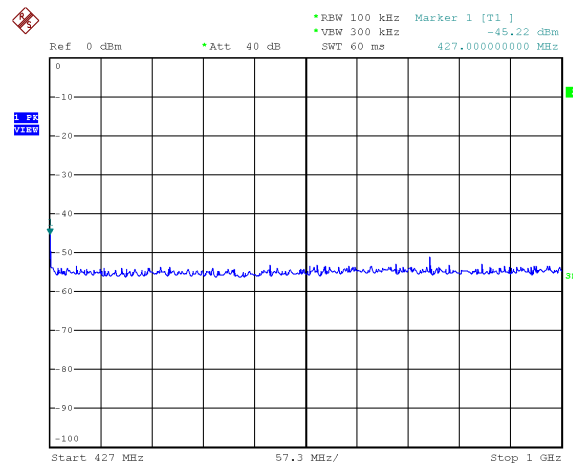
30-425MHz



425-425.9625MHz



426.0875-427MHz



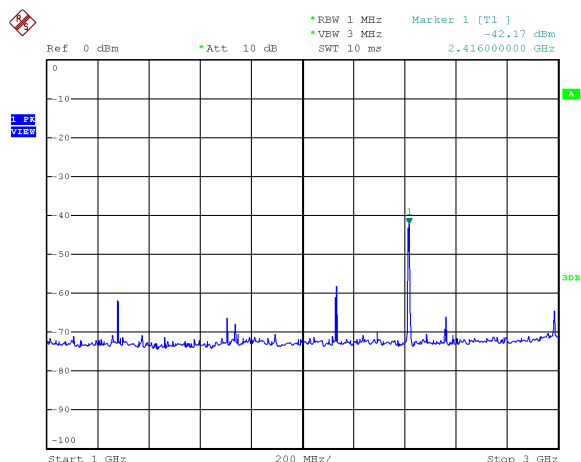
427-1000MHz

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1GHz-3GHz

Note:

1. Negative sign (-) in the margin column signify levels below the limit.
2. Other emissions found were at least 10 dB below the limit at the measurement range.
3. -16.0dBm corresponds to 25uW.
4. -26.0dBm corresponds to 2.5uW.
5. Measurement uncertainty is ± 5.3 dB at a level of confidence of 95%.
6. Radiated measurement was performed for this test.

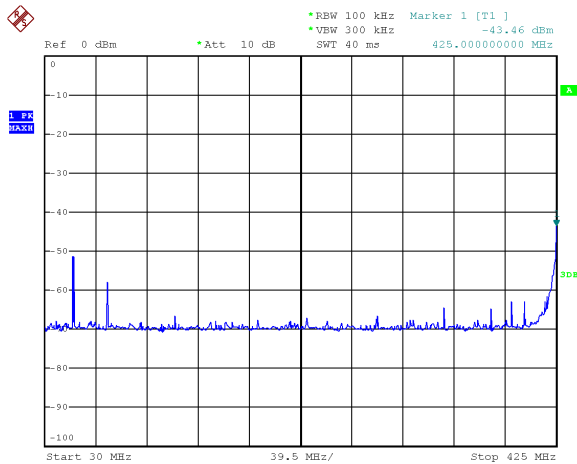
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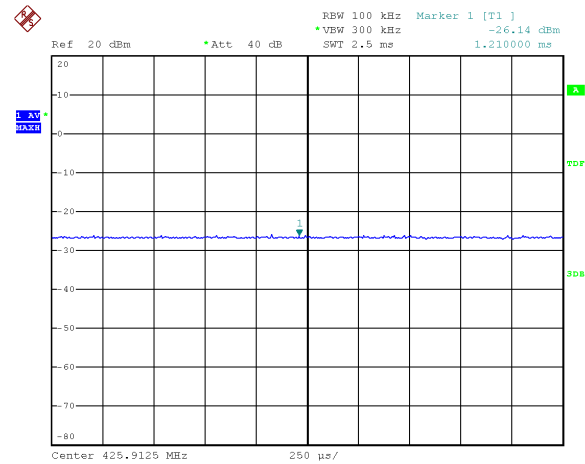
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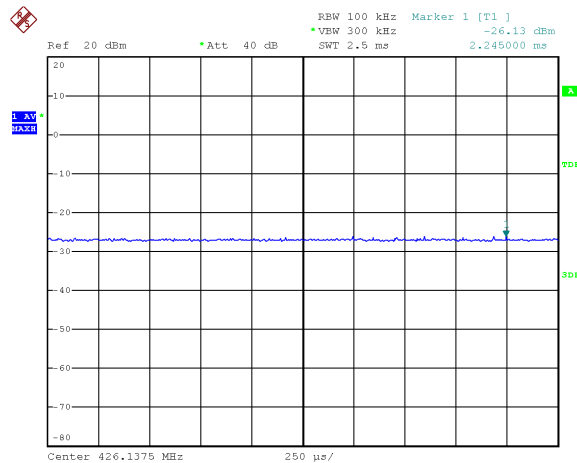
3.3.2 4.5V Channel: 426.025



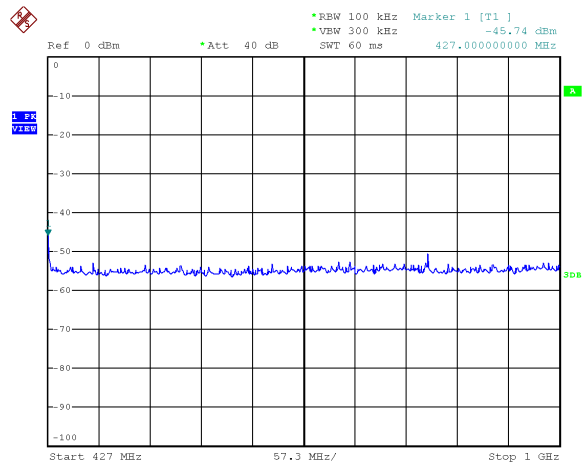
30-425MHz



425-425.9625MHz



426.0875-427MHz



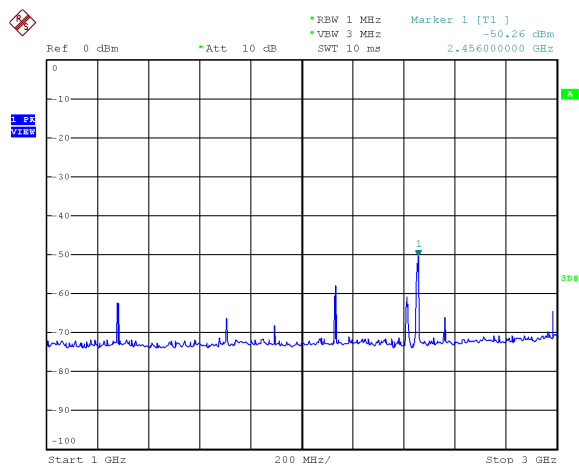
427-1000MHz

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1GHz-3GHz

Note:

7. Negative sign (-) in the margin column signify levels below the limit.
8. Other emissions found were at least 10 dB below the limit at the measurement range.
9. -16.0dBm corresponds to 25uW.
10. -26.0dBm corresponds to 2.5uW.
11. Measurement uncertainty is ± 5.3 dB at a level of confidence of 95%.
12. Radiated measurement was performed for this test.

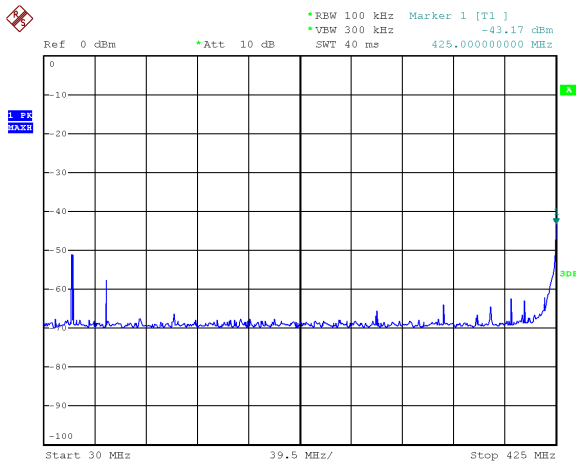
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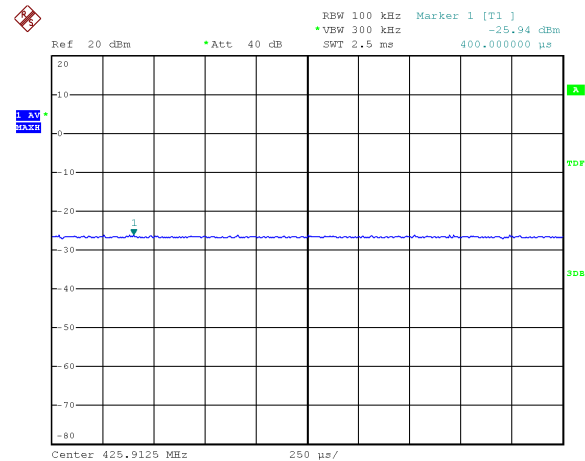
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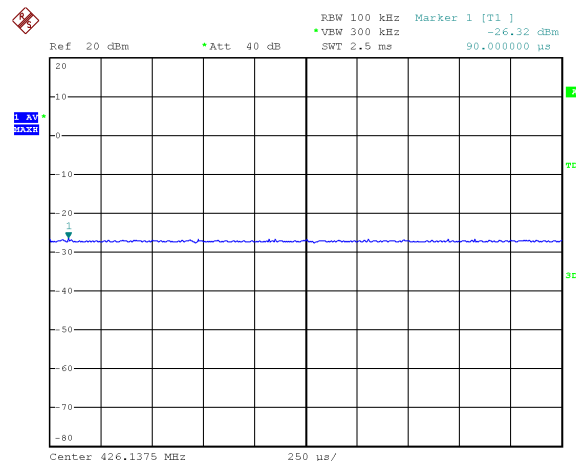
3.3.3 4.95V Channel: 426.025



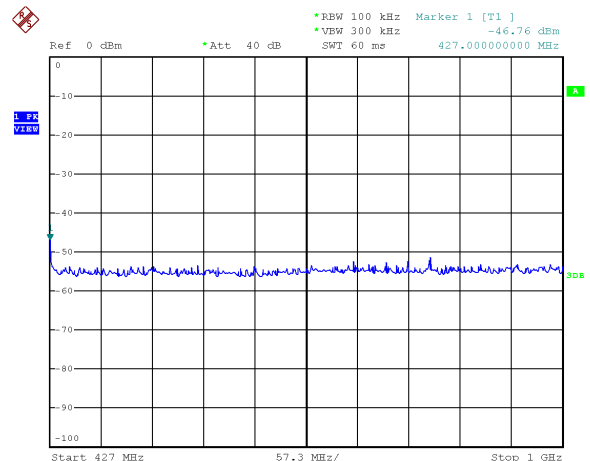
30-425MHz



425-425.9625MHz

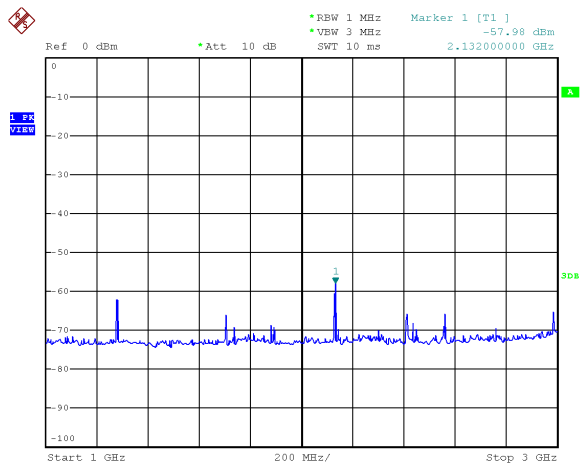


426.0875-427MHz



427-1000MHz

TEST REPORT



1GHz-3GHz

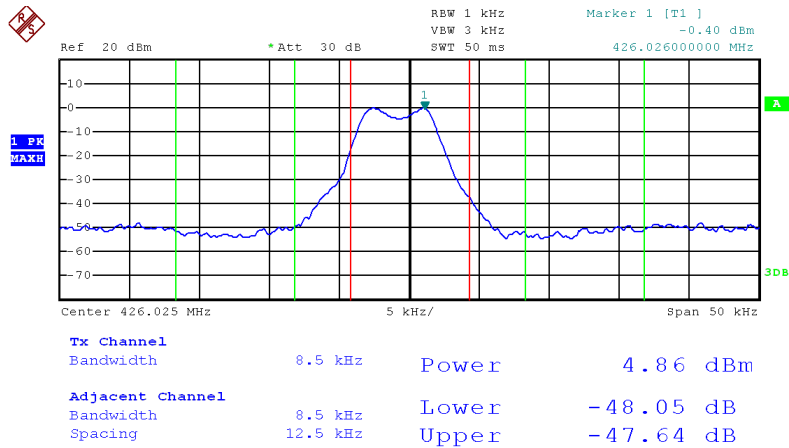
Note:

13. Negative sign (-) in the margin column signify levels below the limit.
14. Other emissions found were at least 10 dB below the limit at the measurement range.
15. -16.0dBm corresponds to 25uW.
16. -26.0dBm corresponds to 2.5uW.
17. Measurement uncertainty is ± 5.3 dB at a level of confidence of 95%.
18. Radiated measurement was performed for this test.

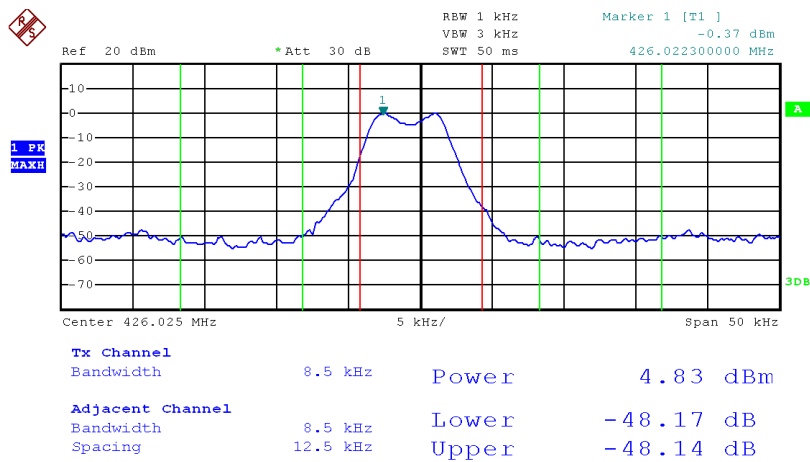
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3.4 Adjacent CH Interference

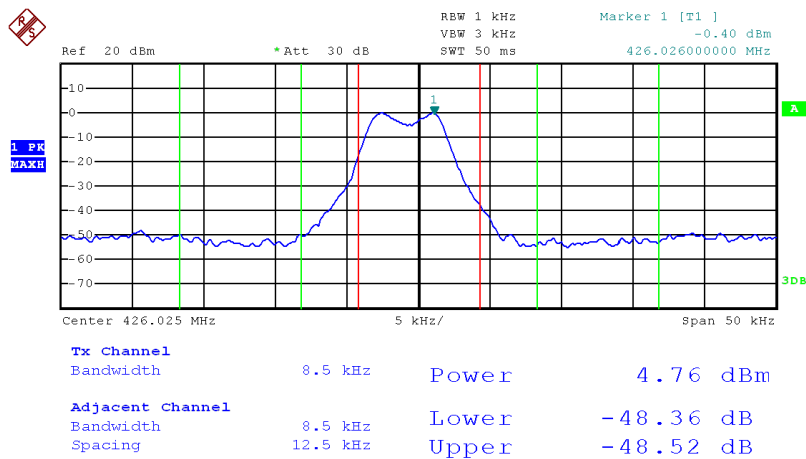
4.05V



4.5V

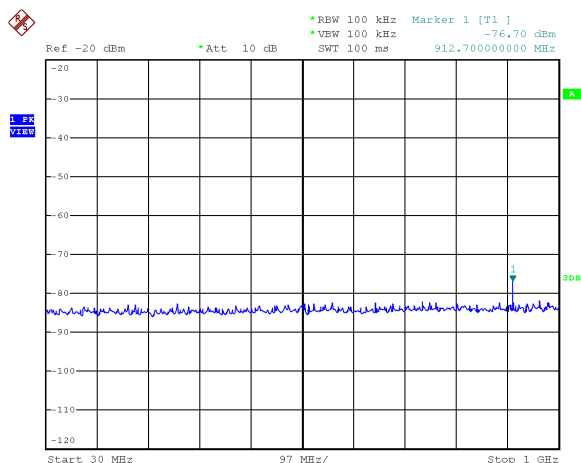


4.95V

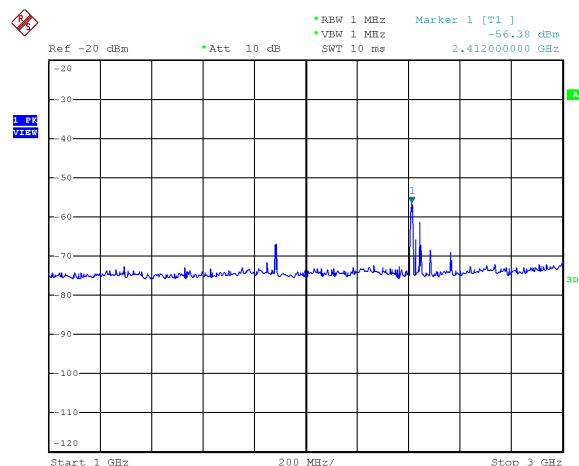


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3.5 Collateral Emission Strength



30-1000MHz



1000-3000MHz

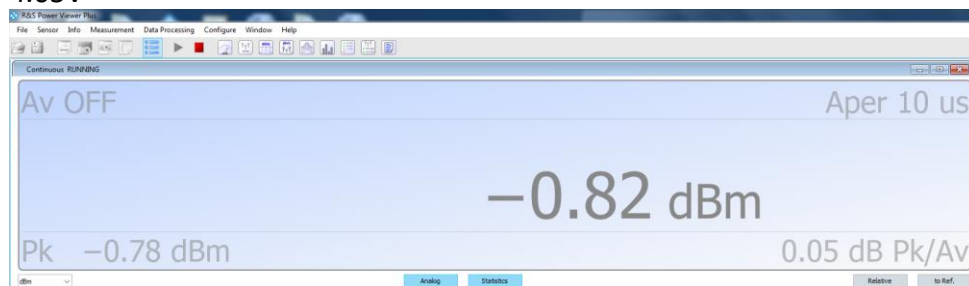
Note:

1. Negative sign (-) in the margin column signify levels below the limit.
2. Other emissions found were at least 10 dB below the limit at the measurement range.
3. -54.0dBm corresponds to 4nW.
4. -47.0dBm corresponds to 20nW.
5. Measurement uncertainty is ± 5.3 dB at a level of confidence of 95%.
6. Radiated measurement was performed for this test.

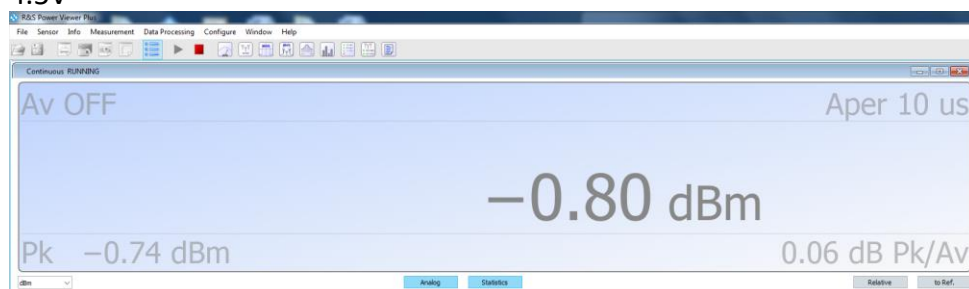
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3.6 Rated Power Measure

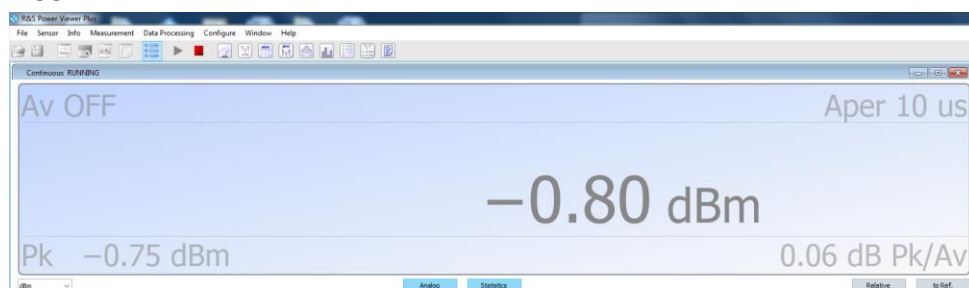
4.05V



4.5V



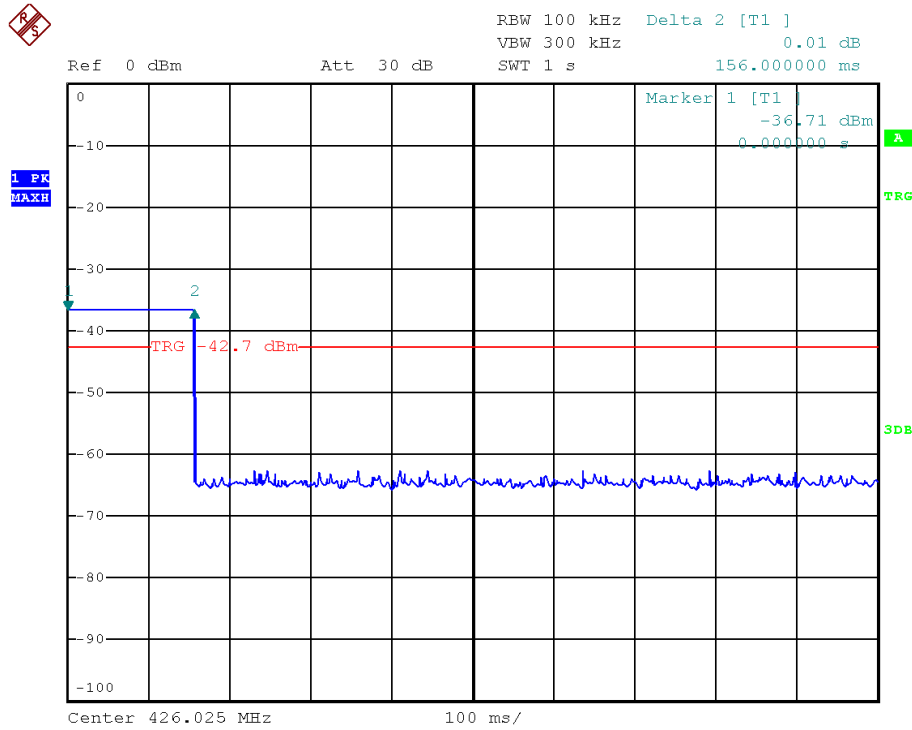
4.95V



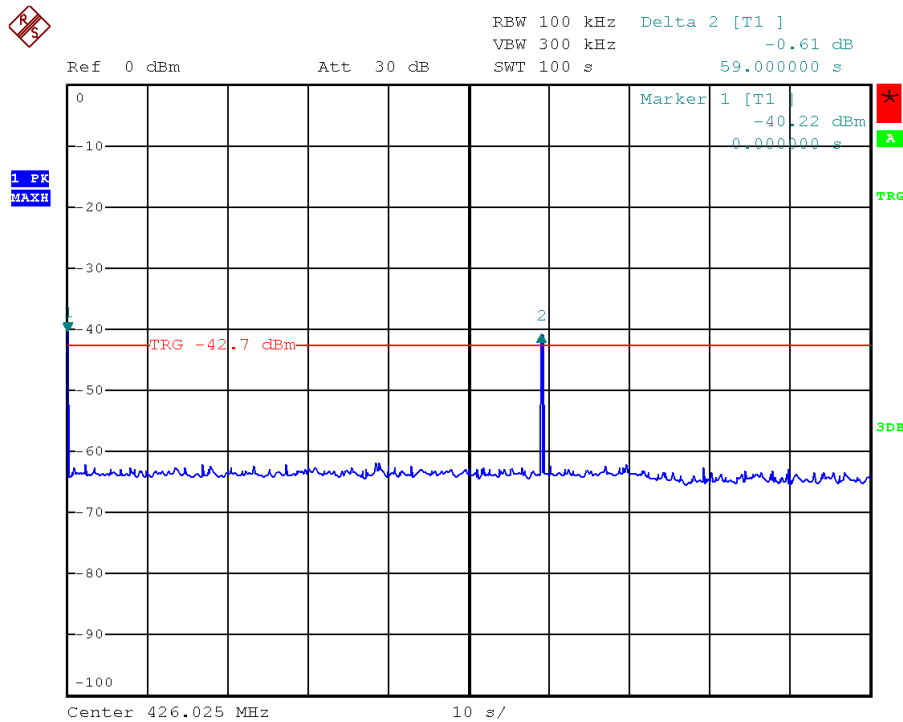
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3.7 Tx on/stop time

on time:



stop time:



TEST REPORT

4 EQUIPMENT LIST

EQUIPMENT	Signal Generator	Spectrum Analyzer	Wideband Power Sensor (50MHz - 18GHz)
Registration No.	EW-2985	EW-3281	EW-3309
Manufacturer	ROHDESCHWARZ	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	SMB100A	FSV40	NRP-Z81
Serial number	107790	101076	104375
Calibration Date	26 Jun 2020	4 Mar 2020	18 May 2020
Calibration Due Date	26 Jun 2021	4 Mar 2021	18 May 2021
Calibration Authority	R&S Germany	R&S Germany	R&S Germany

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5 EQUIPMENT PHOTOGRAPHS

