

EMC

TEST REPORT

Report No.: 161200059TWN-001**Model No.:** PAD06**Issued Date:** Dec. 28, 2016

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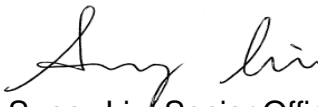
Test Method/ Standard: 47 CFR FCC Part 15.247 & ANSI C63.10 2013
KDB 558074 D01 v03r05

Test Site: 93910

Test By: Intertek Testing Services Taiwan Ltd.,
Hsinchu Laboratory
No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,
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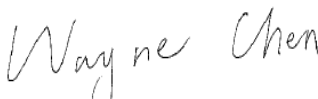
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Revision History

Report No.	Issue Date	Revision Summary
161200059TWN-001	Dec. 28, 2016	Original report

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1. Summary of Test Data

Test Requirement	Applicable Rule (Section 15.247)	Result
Minimum 6 dB Bandwidth	15.247(a)(2) KDB 558074 D01 v03r05	Pass
Maximum Peak Conducted Output Power	15.247(b)(3) KDB 558074 D01 v03r05	Pass
Power Spectral Density	15.247(e)	Pass
Emissions In Non-Restricted Frequency Bands	15.247(d)	Pass
Emissions In Restricted Frequency Bands (Radiated emission measurements)	15.247(d), 15.205, 15.209	Pass
Emission On The Band Edge	15.247(d), 15.205	Pass
AC Power Line Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass

2. General Information

2.1 Identification of the EUT

Product: Smart Dimmer Socket

Model No: PAD06

Brand name:



Operating Frequency: 2405 MHz ~ 2475 MHz

Channel Number: 15 channels

Frequency of Each Channel: 2405+5 k MHz, k=0~14

Access scheme: O-DQPSK

Rated Power: 100-240 Vac, 50-60 Hz

Power Cord: N/A

Sample receiving date: Dec. 07, 2016

Sample condition: Workable

Test Date(s): Dec. 12, 2016 ~ Dec. 27, 2016

Note 1: The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.

Note 2: When determining the test conclusion, the Measurement Uncertainty of test has been considered.

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2.2 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain : 0 dBi
Antenna Type : Monopole Antenna
Connector Type : Fixed

2.3 Operation mode

TX-MODE is based on Power on.

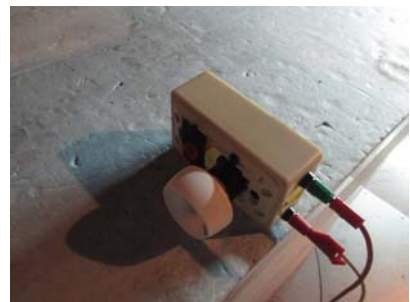
The signal is maximized through rotation and placement in the three orthogonal axes.



X axis



Y axis



Z axis

After verifying three axes, we found the maximum electromagnetic field was occurred at Z axis. The final test data was executed under this configuration.

2.4 Applied test modes and channels

Test items	Mode	Channel	Antenna
Minimum 6 dB Bandwidth	Zigbee	1,8,15	Chain0
Maximum peak conducted output power	Zigbee	1,8,15	Chain0
Power Spectral Density	Zigbee	1,8,15	Chain0
RF Antenna Conducted Spurious	Zigbee	1,8,15	Chain0
Radiated spurious Emission 9kHz~1GHz	Ch Low		
Radiated Spurious Emission 10GHz~10th Harmonic	Zigbee	1,8,15	Chain0
Restricted-Band Band edge	Zigbee	1,8,15	Chain0
AC Power Line Conducted Emission	Light on high		

3. Minimum 6 dB Bandwidth

3.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(a)(2) KDB 558074 D01 v03r05	

3.2 Limit for minimum 6dB bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

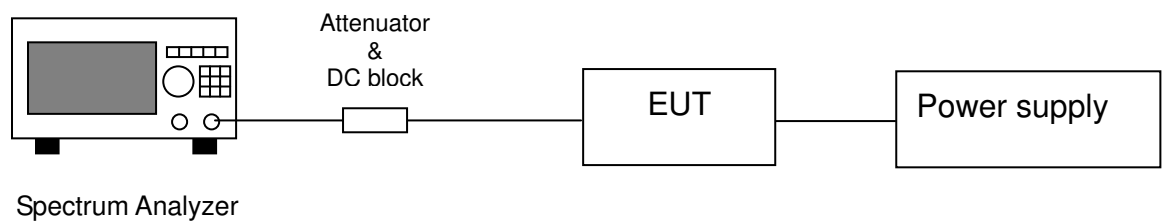
3.3 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Sweep	Auto couple
Trace	Allow the trace to stabilize.
Span	Between two times and five times the occupied bandwidth
Attenuation	Auto

3.4 Test procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Test was performed in accordance with clause 8.1 option1 of KDB 558074 D01
3. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

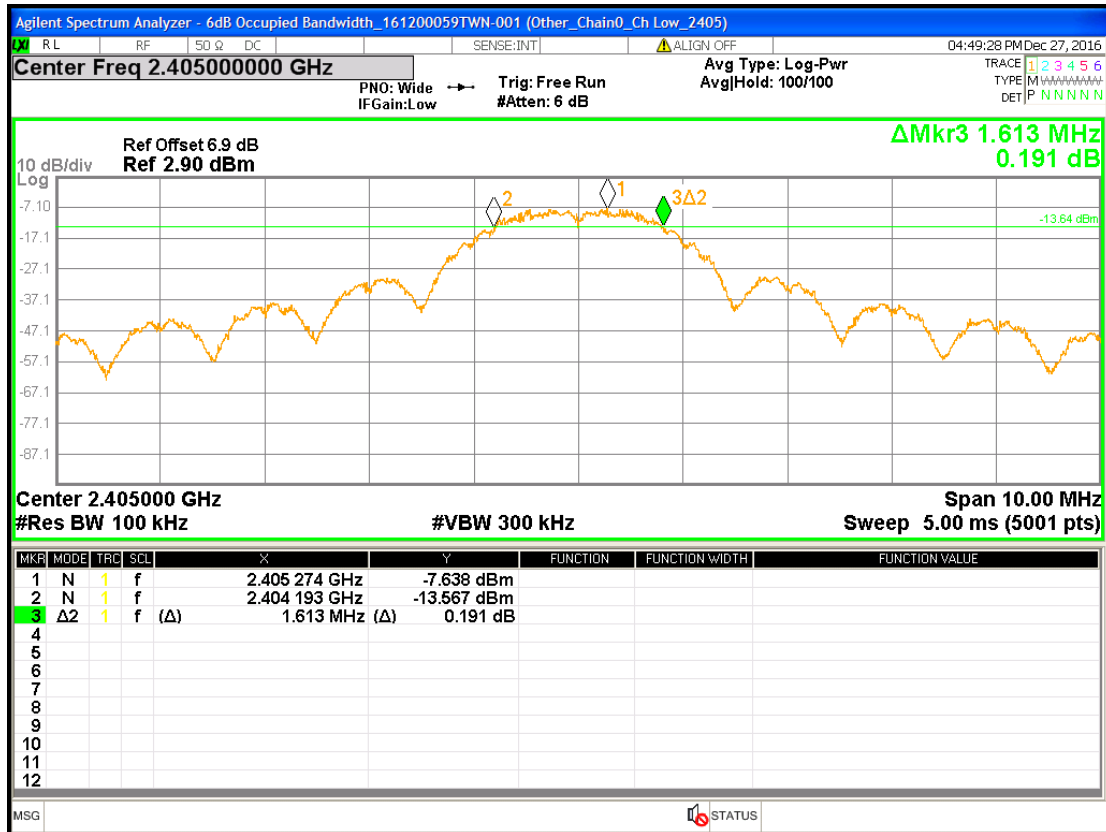
3.5 Test diagram



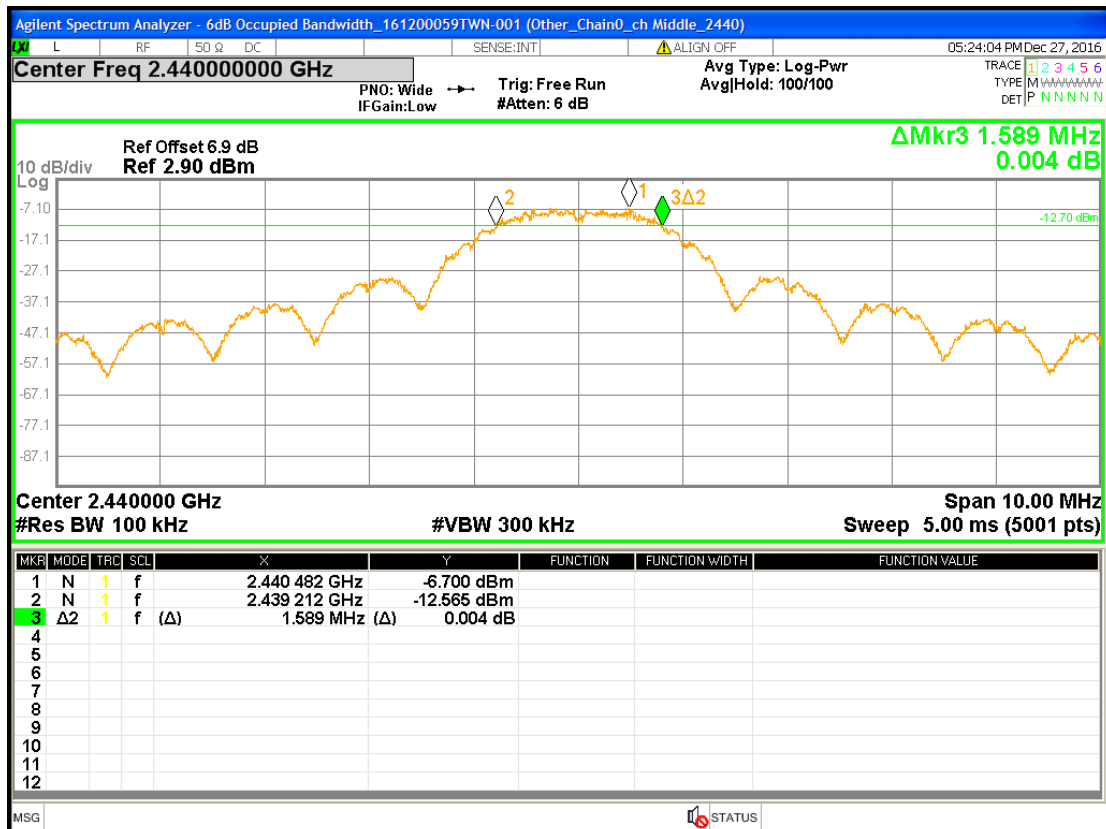
3.6 Test results

Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Pass/Fail
Zigbee	1	2405	1.613	> 0.5	Pass
	8	2440	1.589	> 0.5	Pass
	15	2475	1.509	> 0.5	Pass

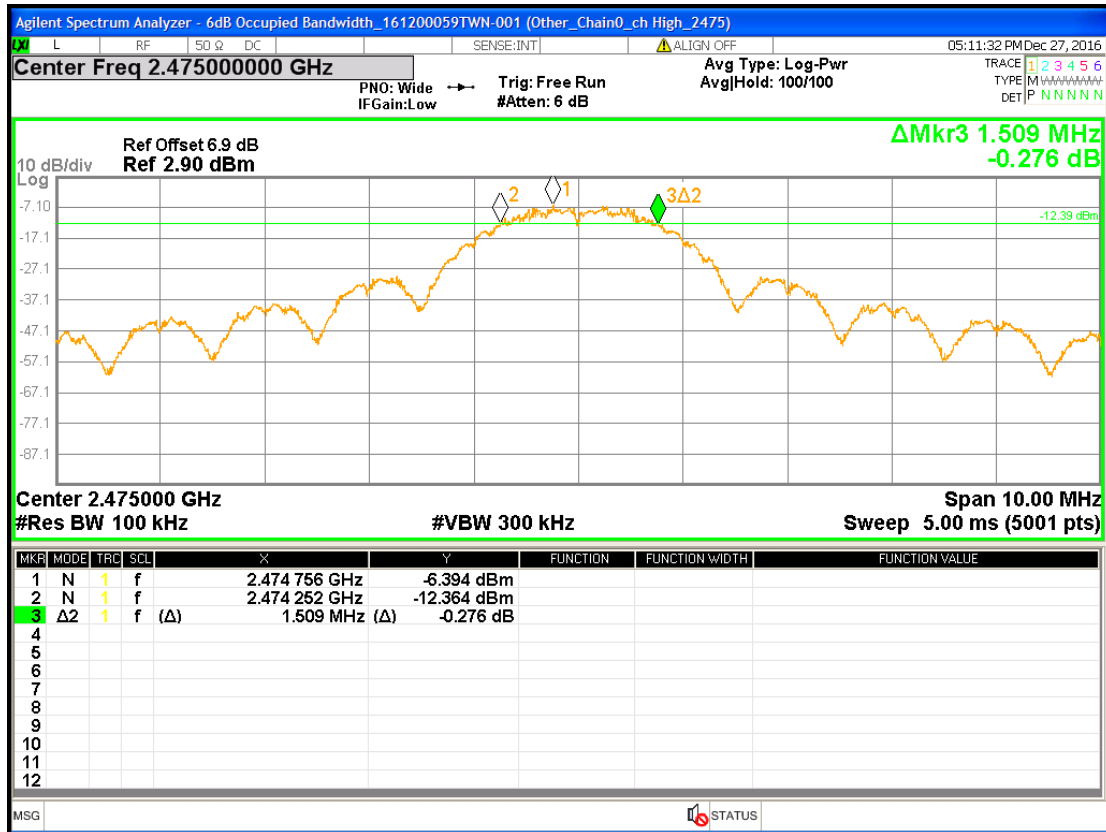
Chain0 : 6dB Bandwidth @ Zigbee mode Ch low



Chain0 : 6dB Bandwidth @ Zigbee mode Ch middle



Chain0 : 6dB Bandwidth @ Zigbee mode Ch high



4. Maximum Peak Conducted Output Power

4.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(b)(3) KDB 558074 D01 v03r05	

4.2 Limit for maximum peak conducted output power

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt (30dBm)

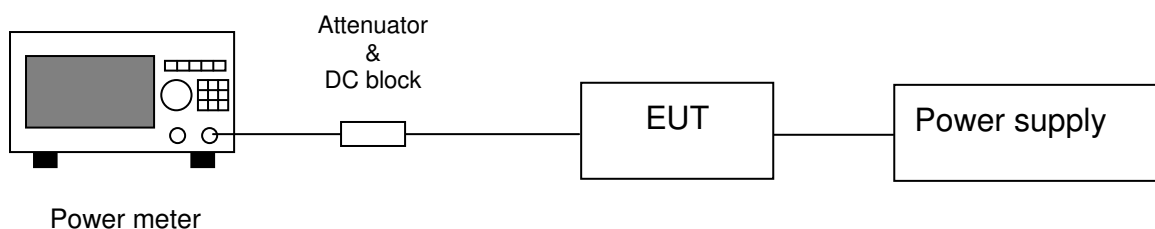
4.3 Measuring instrument setting

Power meter	
Power meter	Setting
Bandwidth	65MHz bandwidth is greater than the EUT emission bandwidth
Detector	Peak & Average

4.4 Test procedure

Test procedures refer to clause 9.1.2 peak power meter method and clause 9.2.3.2 measurement using a gated RF average power meter of KDB 558074 D01.

4.5 Test diagram



4.6 Test result

Mode	Channel	Frequency (MHz)	Maximum (PK) (dBm)	Maximum (PK) (mW)	Limit (dBm)	Margin (dB)
Zigbee	1	2405	0.92	1.24	30	-29.08
	8	2440	1.21	1.32	30	-28.79
	15	2475	0.49	1.12	30	-29.51

5. Power Spectral Density

5.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(e) KDB 558074 D01 v03r05	

5.2 Limit for power spectrum density

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

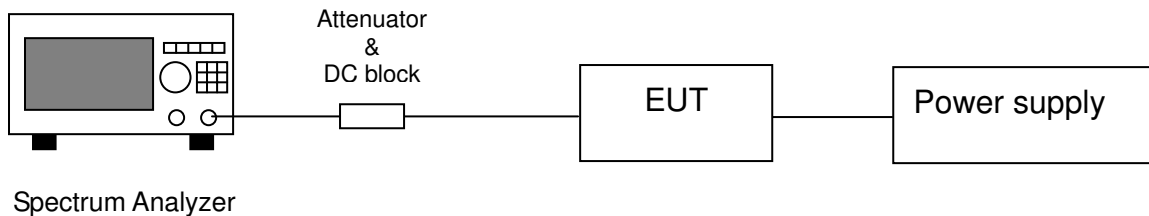
5.3 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	≥ 3 kHz
VBW	$\geq 3 \times$ RBW
Sweep	Auto couple
Trace	Max hold
Span	1.5 times x 6dB bandwidth
Attenuation	Auto

5.4 Test procedure

1. Test procedure refer to clause 10.2 method PKPSD (peak PSD) of KDB 558074 D01.
2. Using the maximum conducted output power in the fundamental emission demonstrates compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Use the peak marker function to determine the maximum amplitude level within the RBW.

5.5 Test diagram



5.6 Test results

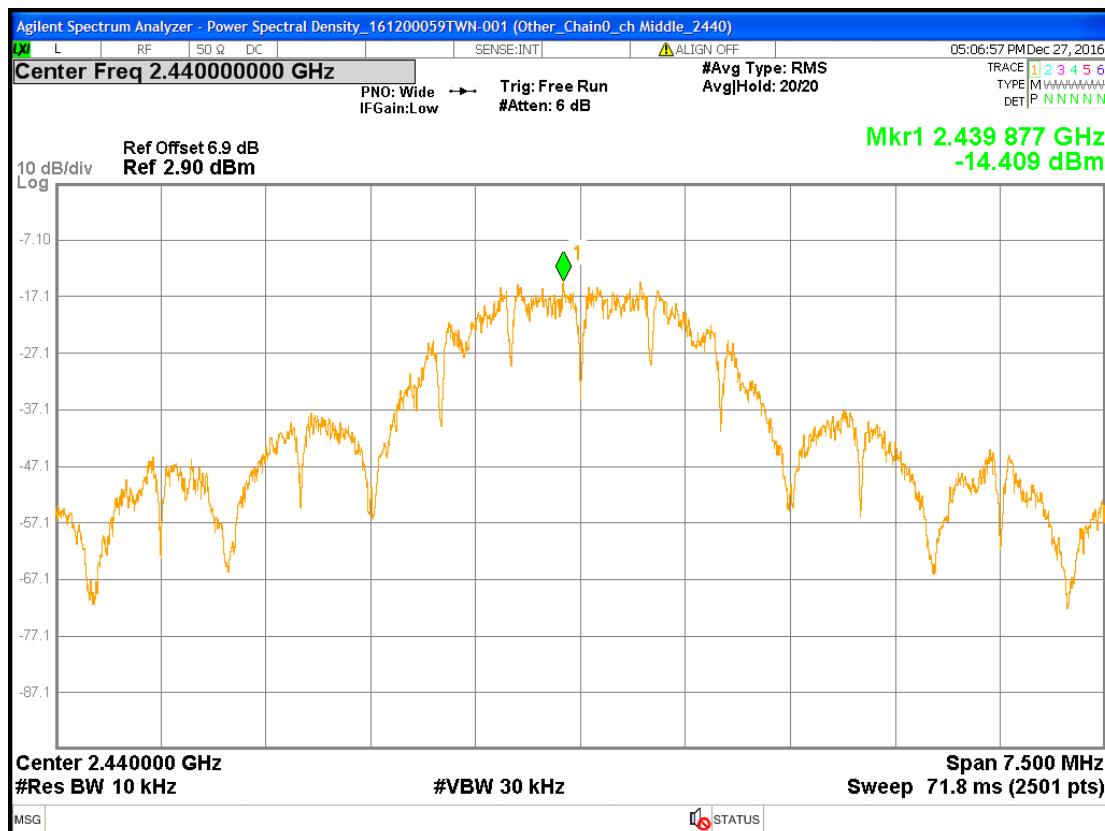
Mode	Channel	Frequency (MHz)	RBW factor	PSD in 10kHz	PSD in 3kHz		Limit (dBm)	Margin (dB)
					(dBm)	(mW)		
Zigbee	1	2405	5.23	-15.21	-20.44	0.01	8	-28.44
	8	2440	5.23	-14.41	-19.64	0.01	8	-27.64
	15	2475	5.23	-14.37	-19.60	0.01	8	-27.60

Remark: RBW Correction: $10 \cdot \log(10\text{kHz}/3\text{kHz})$

Chain0 : Power Spectral Density @ Zigbee mode Ch low



Chain0 : Power Spectral Density @ Zigbee mode Ch middle



Chain0 : Power Spectral Density @ Zigbee mode Ch high



6. Emissions In Non-Restricted Frequency Bands

6.1 Operating environment

Temperature:	20	°C
Relative Humidity:	55	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d)	

6.2 Limit for emissions in non-restricted frequency bands

The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

6.3 Measuring instruments setting

Reference level measurement

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	≥ 100 kHz
VBW	$\geq 3 \times$ RBW
Sweep	Auto couple
Trace	Max hold
Span	≥ 1.5 time 6dB bandwidth
Attenuation	Auto

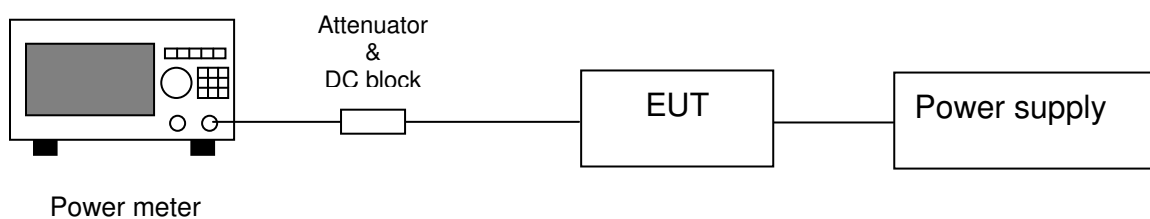
Emission level measurement

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	≥ 100 kHz
VBW	$\geq 3 \times$ RBW
Sweep	Auto couple
Trace	Max hold
Attenuation	Auto

6.4 Test procedure

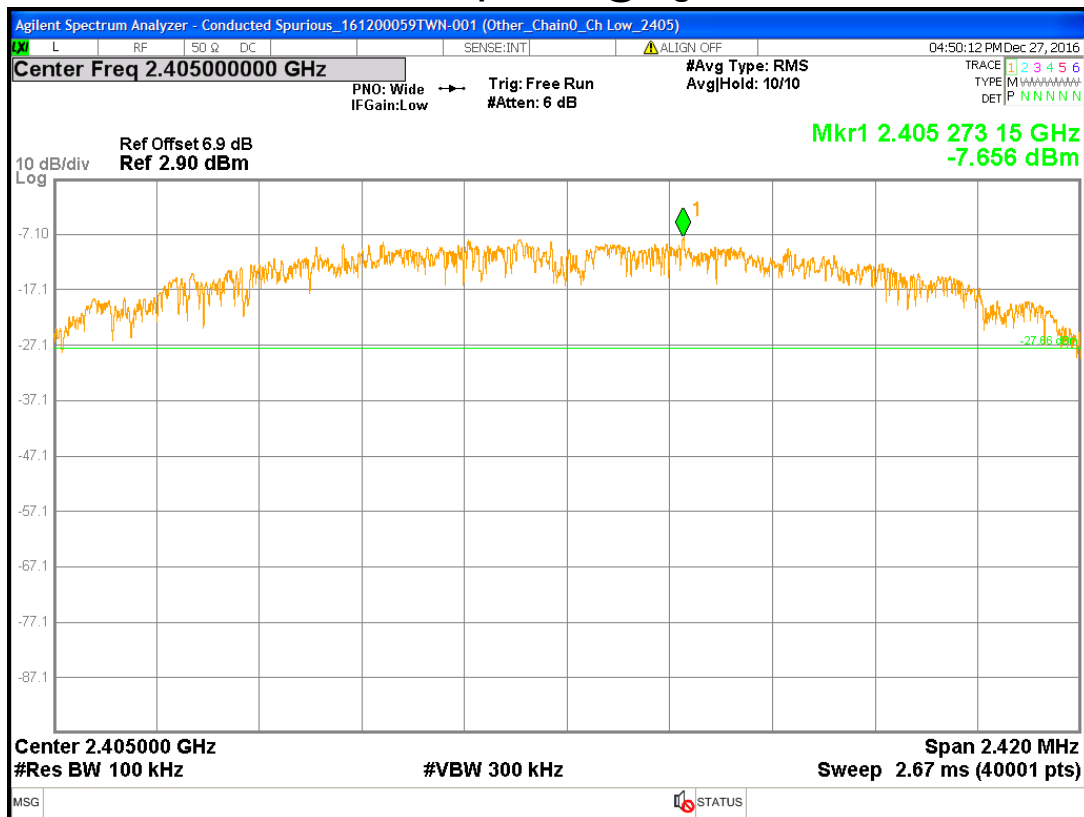
1. The procedure was used in antenna-port conducted and connected to the spectrum analyzer.
2. Set instrument center frequency to center frequency
3. Use the parameter configured in clause 6.3 to measure
4. Use the peak marker function to determine the maximum amplitude level.

6.5 Test diagram

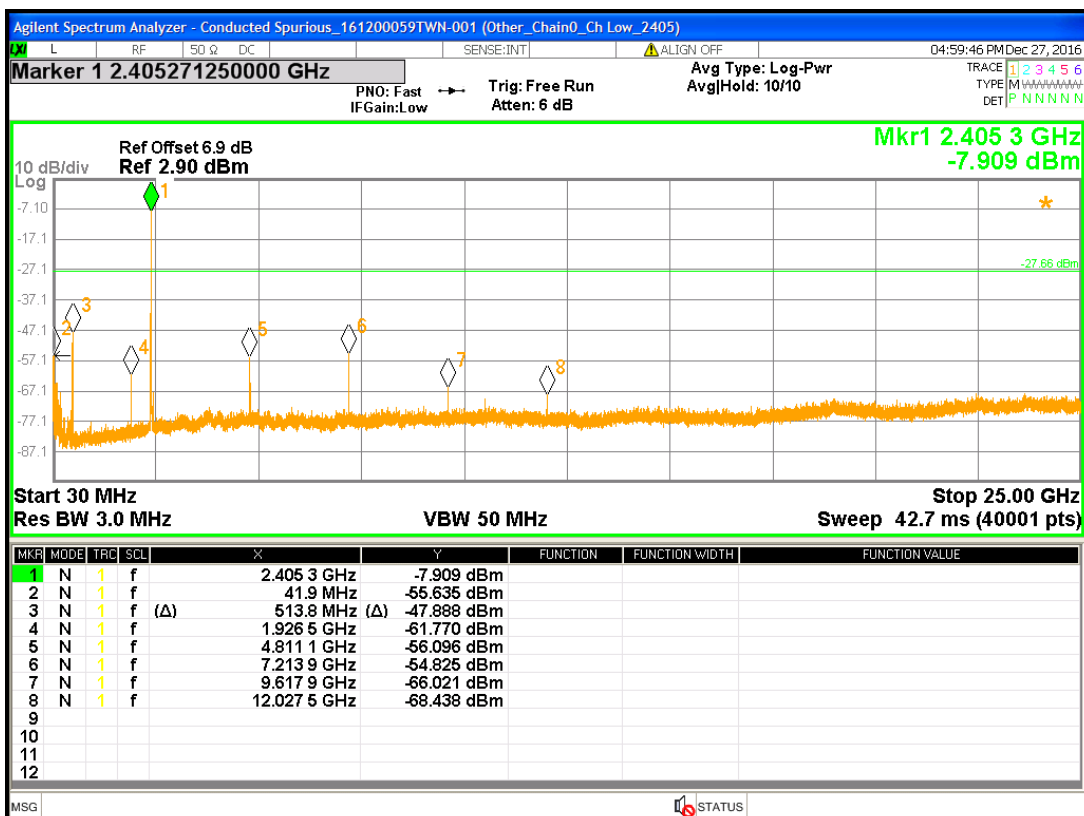


6.6 Test results

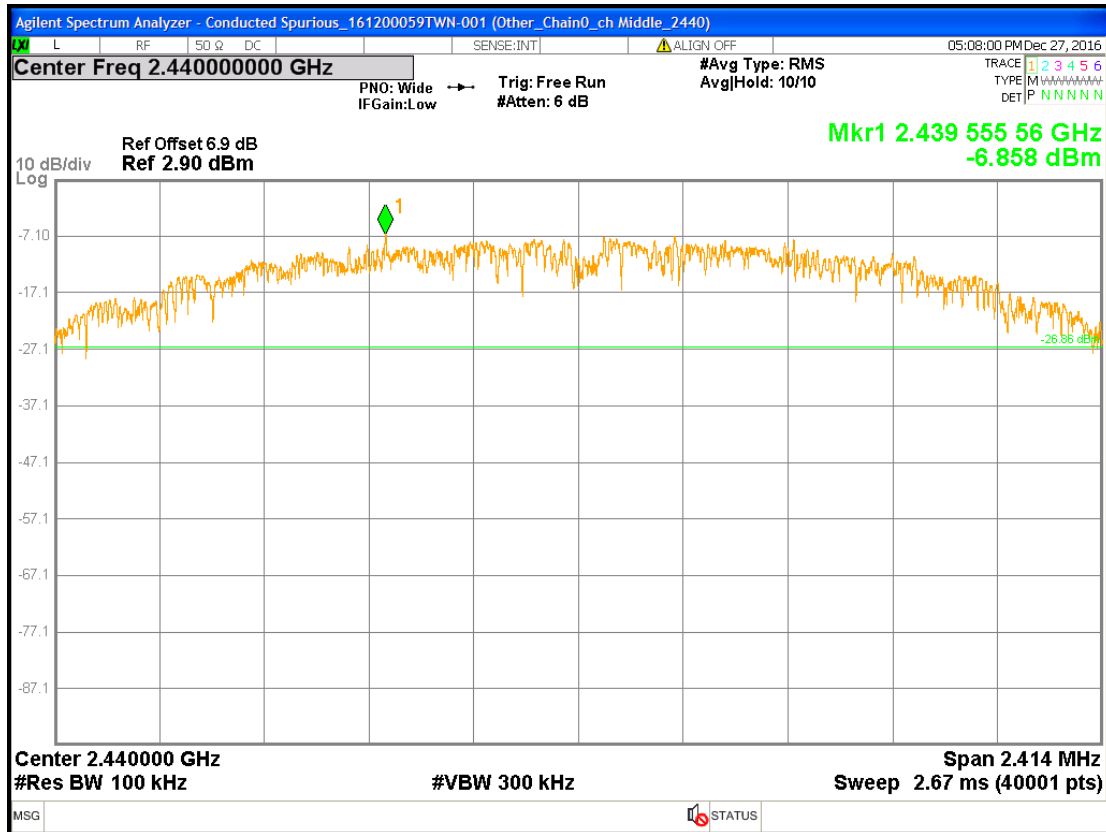
Chain0 : Conducted Spurious @ Zigbee mode Ch low



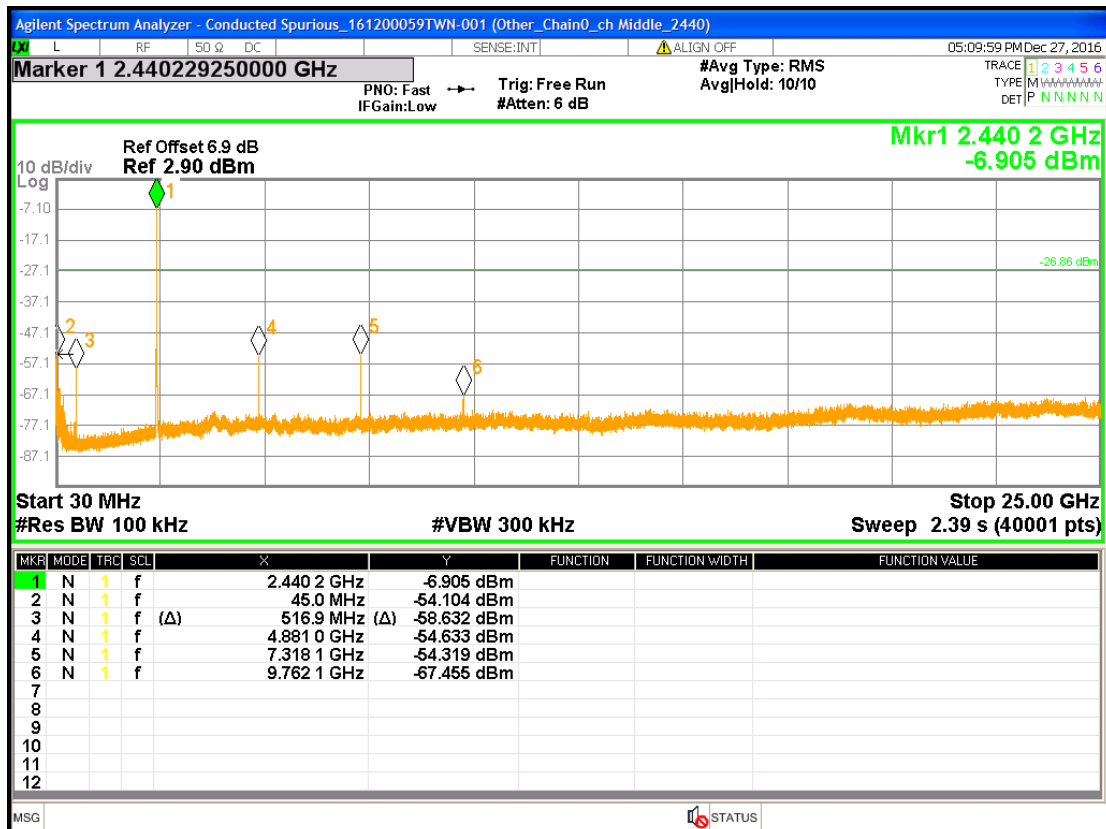
Chain0 : Conducted Spurious @ Zigbee mode Ch low



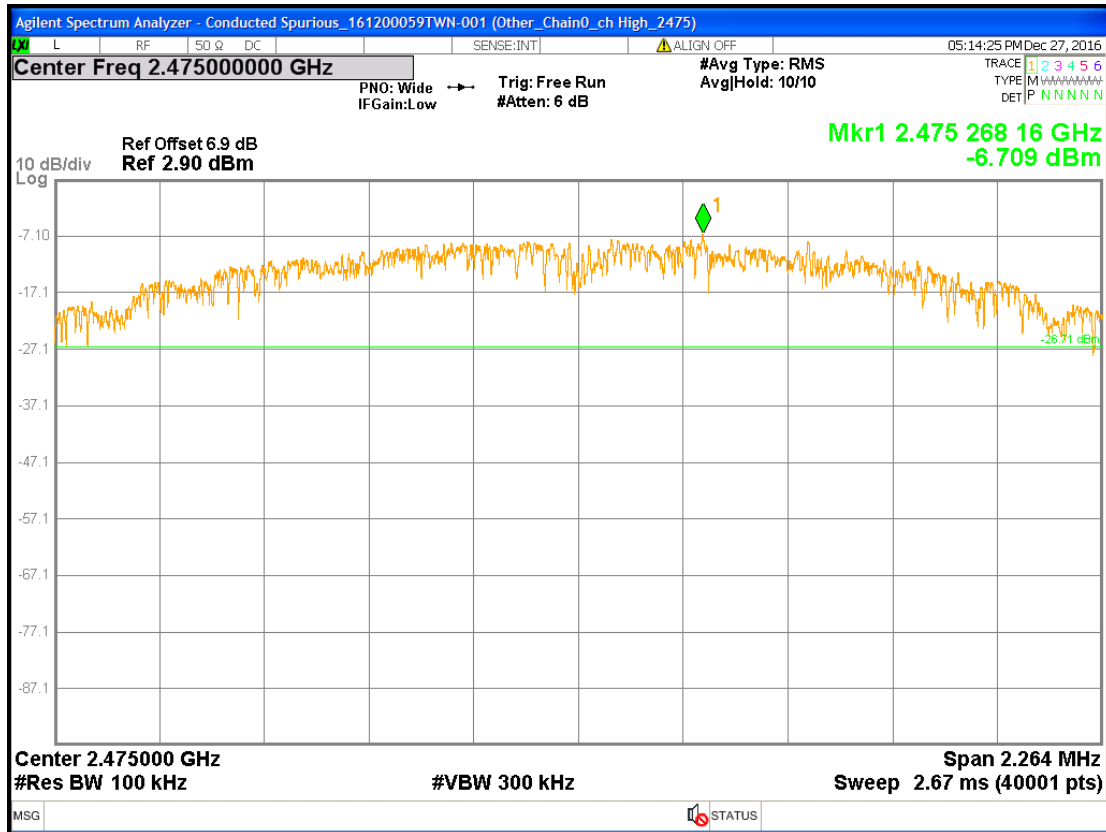
Chain0 : Conducted Spurious @ Zigbee mode Ch middle



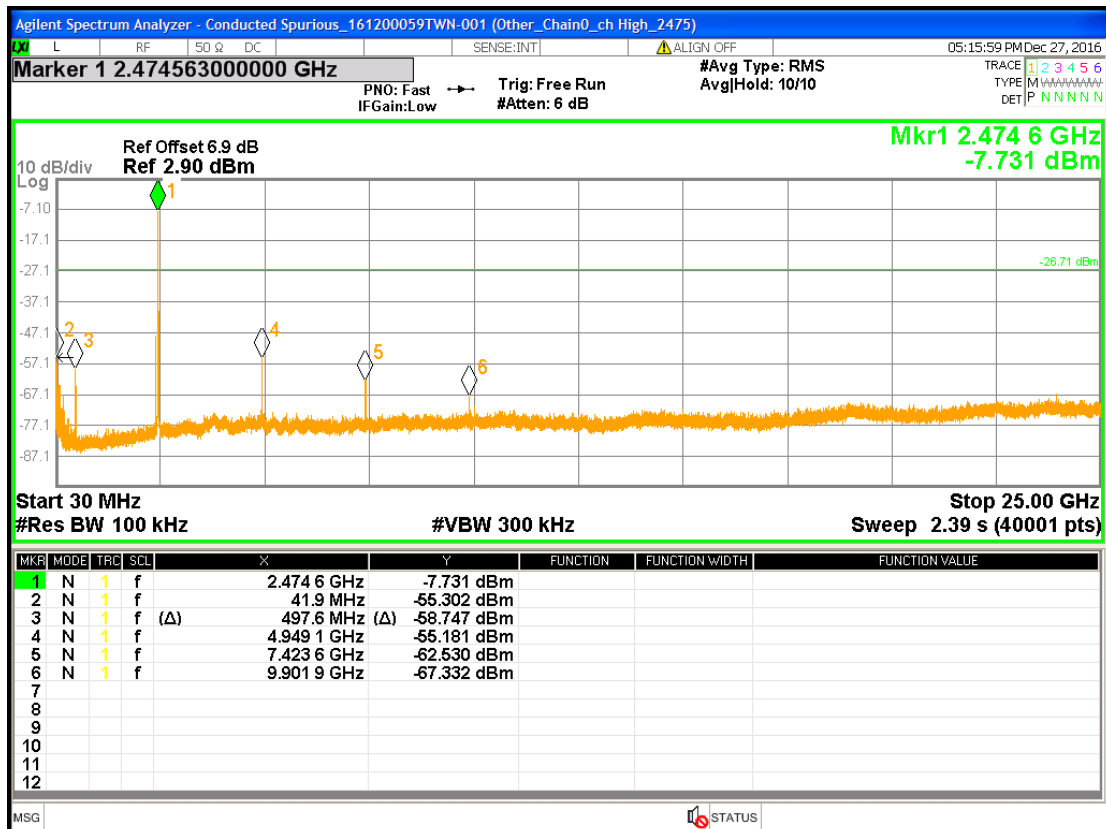
Chain0 : Conducted Spurious @ Zigbee mode Ch middle



Chain0 : Conducted Spurious @ Zigbee mode Ch high



Chain0 : Conducted Spurious @ Zigbee mode Ch high



7. Emissions In Restricted Frequency Bands (Radiated emission measurements)

7.1 Operating environment

Temperature:	20	°C
Relative Humidity:	55	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d), 15.205, 15.209	

7.2 Limit for emission in restricted frequency bands (Radiated emission measurement)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	2400/F(kHz)	30
1.705~30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

7.3 Measuring instrument setting

Below 1GHz measurement

Receiver settings	
Receiver function	Setting
Detector	QP
RBW	9-150 kHz ; 200-300 Hz 0.15-30 MHz; 9-10 kHz 30-1000 MHz; 100-120 kHz
VBW	$\geq 3 \times \text{RBW}$
Sweep	Auto couple
Attenuation	Auto

Above 1GHz measurement

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	1MHz
VBW	3MHz for Peak and Average
Sweep	Auto couple
Start Frequency	1GHz
Stop Frequency	Tenth harmonic
Attenuation	Auto

7.4 Test procedure

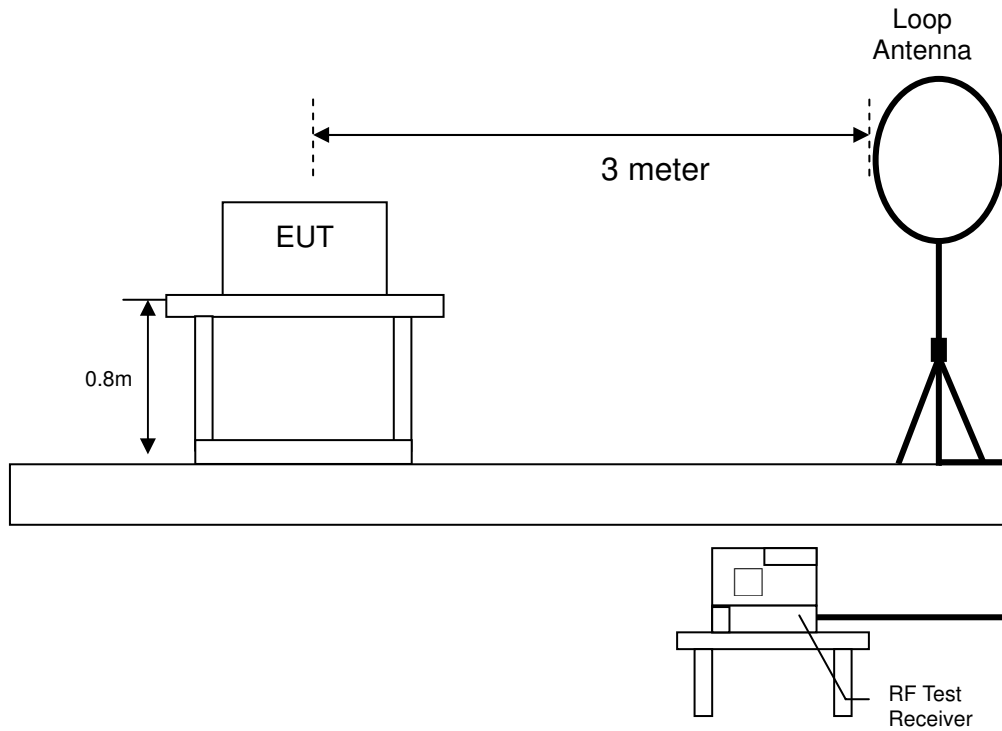
Radiated emissions were investigated cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 3MHz VBW record Peak and Average reading (15.209 paragraph) on the report.

The EUT for testing is arranged on a turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

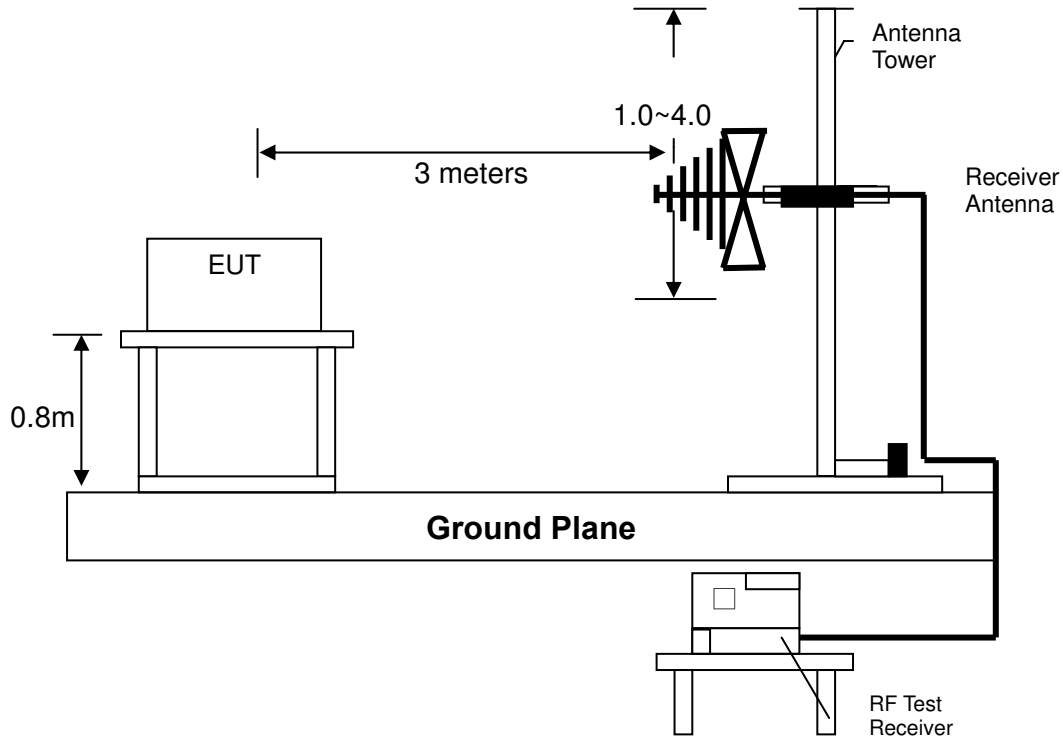
The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

7.5 Test configuration

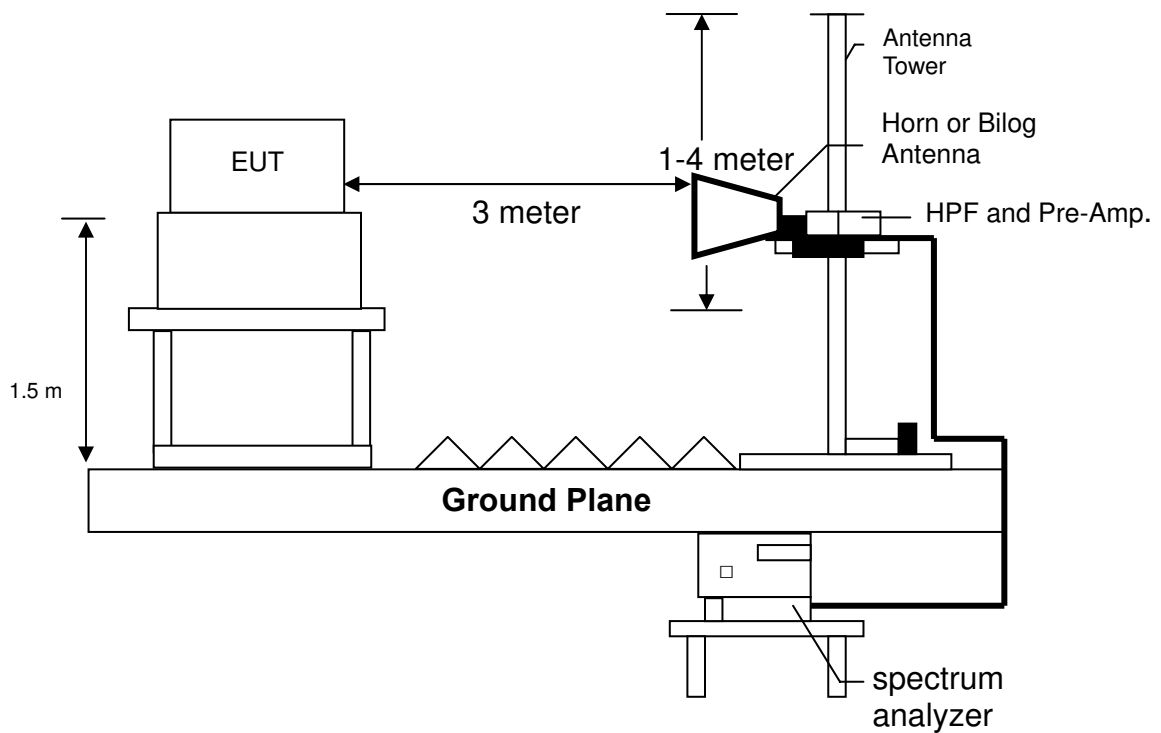
7.5.1 Radiated emission from 9kHz to 30MHz uses Loop Antenna:



7.5.2 Radiated emission below 1GHz using Bilog Antenna



7.5.3 Radiated emission above 1GHz using Horn Antenna



7.6 Test result

7.6.1 Measurement results: frequencies 9kHz to 30MHz

The test was performed on EUT under Zigbee continuously transmitting mode. The worst case occurred at channel Low.

EUT : PAD06
Test mode : Channel Low

Polarity (circle)	Frequency (MHz)	Detection value	Factor (dB/m)	Reading (dBμV)	Value (dBμV/m)	Limit @ 3m (dBμV/m)	Tolerance (dB)
Plane	0.02	QP	20.92	46.29	67.20	121.58	-54.38
Plane	0.05	QP	20.83	52.90	73.73	113.62	-39.89
Plane	0.06	QP	20.82	48.30	69.12	112.04	-42.92
Plane	0.07	QP	20.81	48.55	69.36	110.70	-41.34
Plane	0.10	QP	20.77	11.10	31.87	107.60	-75.73
Plane	0.13	QP	20.77	37.43	58.20	105.33	-47.13
Plane	0.15	QP	20.77	33.97	54.74	104.08	-49.34

Remark: Corr. Factor = Antenna Factor + Cable Loss

7.6.2 Measurement results: frequencies below 1 GHz

The test was performed on EUT under Zigbee continuously transmitting mode. The worst case occurred at channel low

EUT : PAD06
Worst Case : Channel Low

Antenna Polarized (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBμV)	Corrected Level (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Vertical	43.58	QP	14.49	12.74	35.24	40.00	-4.76
Vertical	47.46	QP	13.75	24.76	34.21	40.00	-5.79
Vertical	70.74	QP	13.83	20.92	39.52	40.00	-0.48
Vertical	76.56	QP	15.52	10.49	37.43	40.00	-2.57
Vertical	196.84	QP	20.94	10.68	36.33	43.50	-7.17
Vertical	208.48	QP	26.45	6.62	39.24	43.50	-4.26
Horizontal	130.88	QP	13.53	26.11	34.81	43.50	-8.69
Horizontal	185.20	QP	12.54	21.72	34.89	43.50	-8.61
Horizontal	196.84	QP	14.17	27.10	36.05	43.50	-7.45
Horizontal	208.48	QP	15.36	18.13	36.11	43.50	-7.39
Horizontal	220.12	QP	18.30	9.41	37.79	46.00	-8.21
Horizontal	233.70	QP	26.89	5.30	37.51	46.00	-8.49

Remark: Corr. Factor = Antenna Factor + Cable Loss

7.6.3 Measurement results: frequency above 1GHz

EUT : PAD06

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Zigbee Ch Low	4810	PK	V	40.12	-0.08	56.35	56.27	74.00	-17.73
	4810	AV	V	40.12	-0.08	41.95	41.87	54.00	-12.13
	7215	PK	V	38.10	8.13	59.78	67.91	74.00	-6.09
	7215	AV	V	38.10	8.13	44.72	52.85	54.00	-1.15
	9620	PK	V	38.15	11.37	44.04	55.41	74.00	-18.59
	9620	AV	V	38.15	11.37	29.19	40.56	54.00	-13.44
	12025	PK	V	38.81	13.18	43.80	56.98	74.00	-17.02
	12025	AV	V	38.81	13.18	27.86	41.04	54.00	-12.96
	4810	PK	H	40.12	-0.08	58.76	58.68	74.00	-15.32
	4810	AV	H	40.12	-0.08	43.15	43.07	54.00	-10.93
	7215	PK	H	38.10	8.13	52.76	60.89	74.00	-13.11
	7215	AV	H	38.10	8.13	37.43	45.56	54.00	-8.44
	9620	PK	H	38.15	11.37	42.95	54.32	74.00	-19.68
	9620	AV	H	38.15	11.37	27.89	39.26	54.00	-14.74
Zigbee Ch Middle	4880	PK	V	39.99	0.15	56.76	56.91	74.00	-17.09
	4880	AV	V	39.99	0.15	41.93	42.08	54.00	-11.92
	7320	PK	V	38.01	8.45	59.84	68.29	74.00	-5.71
	7320	AV	V	38.01	8.45	44.73	53.18	54.00	-0.82
	9760	PK	V	38.34	11.23	40.25	51.48	74.00	-22.52
	12200	PK	V	38.66	13.18	41.67	54.85	74.00	-19.15
	12200	AV	V	38.66	13.18	26.89	40.07	54.00	-13.93
	4880	PK	H	39.99	0.15	55.47	55.62	74.00	-18.38
	4880	AV	H	39.99	0.15	40.22	40.37	54.00	-13.63
	7320	PK	H	38.01	8.45	51.98	60.43	74.00	-13.57
	7320	AV	H	38.01	8.45	36.94	45.39	54.00	-8.61
	9760	PK	H	38.34	11.23	42.00	53.23	74.00	-20.77

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Zigbee Ch High	4950	PK	V	39.86	0.38	55.75	56.13	74.00	-17.87
	4950	AV	V	39.86	0.38	40.99	41.37	54.00	-12.63
	7425	PK	V	37.92	8.78	57.28	66.06	74.00	-7.94
	7425	AV	V	37.92	8.78	42.46	51.24	54.00	-2.76
	9900	PK	V	38.54	11.09	42.32	53.41	74.00	-20.59
	4950	PK	H	39.86	0.38	50.32	50.70	74.00	-23.30
	7425	PK	H	37.92	8.78	51.54	60.32	74.00	-13.68
	7425	AV	H	37.92	8.78	36.79	45.57	54.00	-8.43
	9900	PK	H	38.54	11.09	41.03	52.12	74.00	-21.88

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

8. Emission On Band Edge

8.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d), 15.205,	

8.2 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	1MHz
VBW	3MHz for Peak and Average
Sweep	Auto couple
Restrict bands	2310~2390MHz
	2483.5 ~2500MHz
Attenuation	Auto

8.3 Test procedure

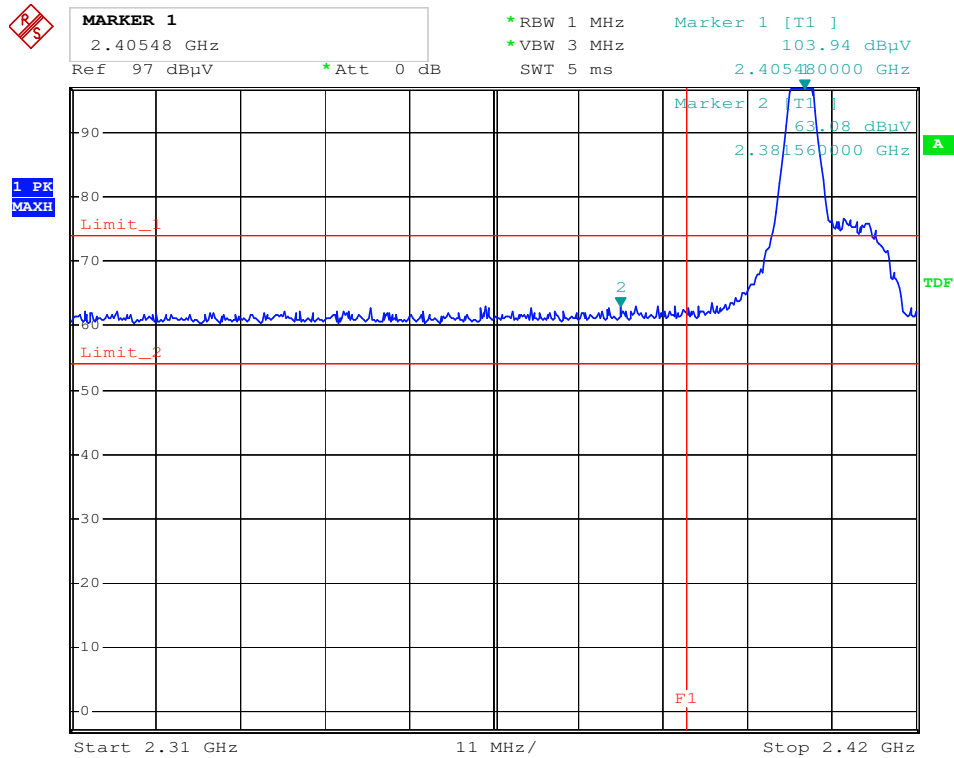
The test procedure is the same as clause 7.4

8.4 Test results

EUT : PAD06

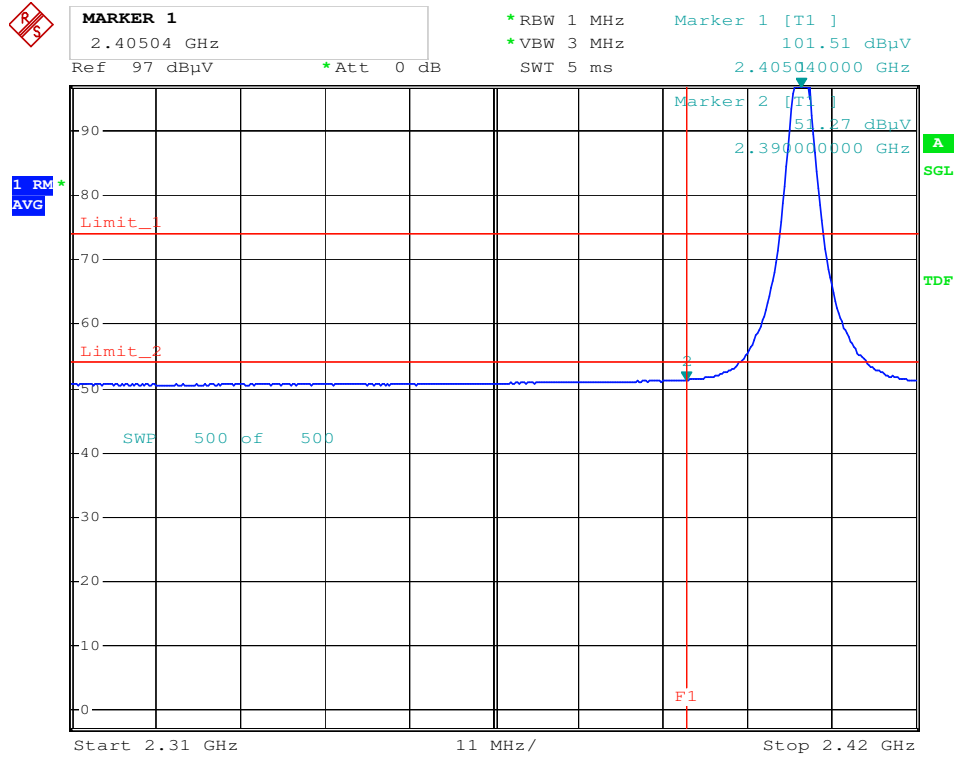
Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)	Restricted band (MHz)
Zigbee	2381.56	PK	V	33.81	29.27	63.08	74	-10.92	2310~2390
	2390.00	AV	V	33.85	17.42	51.27	54	-2.73	
	2484.38	PK	V	34.31	29.10	63.41	74	-10.59	2483.5~2500
	2483.50	AV	V	34.30	18.27	52.57	54	-1.43	
Remark: Correction Factor = Antenna Factor + Cable Loss									

Chain0 : Restricted-Band Band edge @ Zigbee Ch low Peak



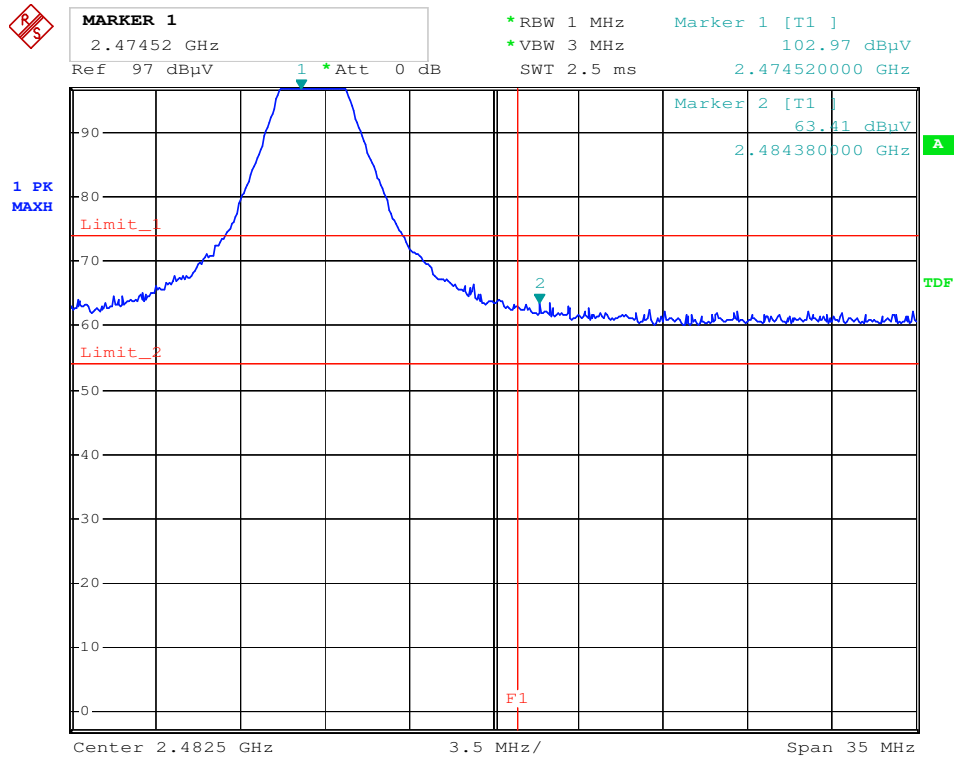
Date: 23.DEC.2016 09:45:08

Chain0 : Restricted-Band Band edge @ Zigbee Ch low Average



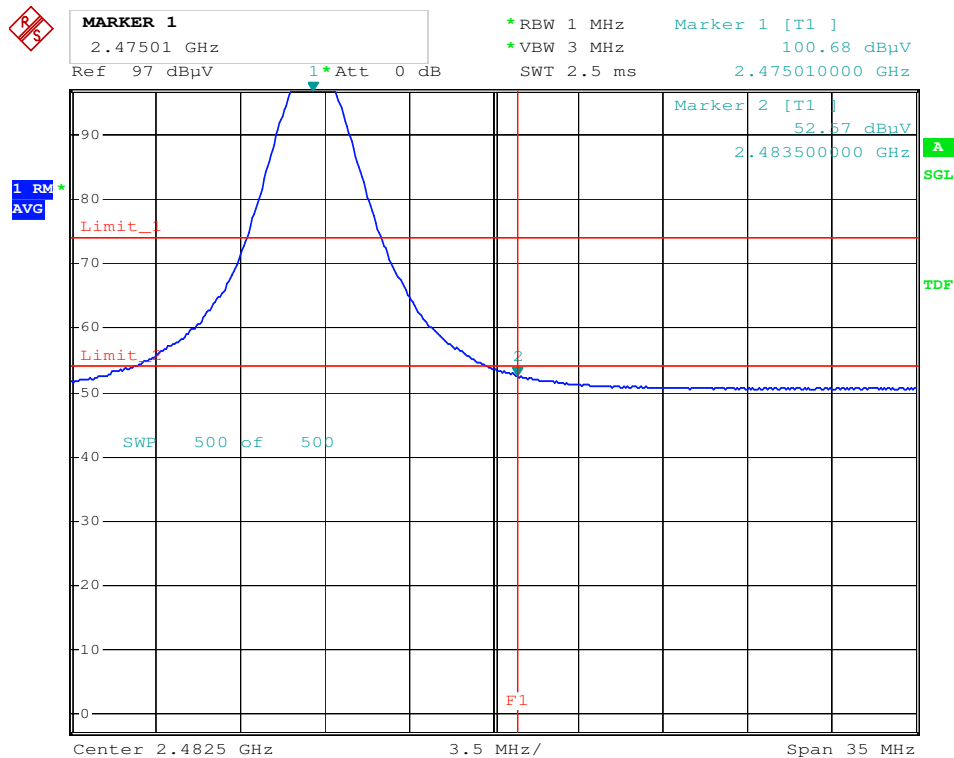
Date: 23.DEC.2016 09:46:03

Chain0 : Restricted-Band Band edge @ Zigbee Ch high Peak



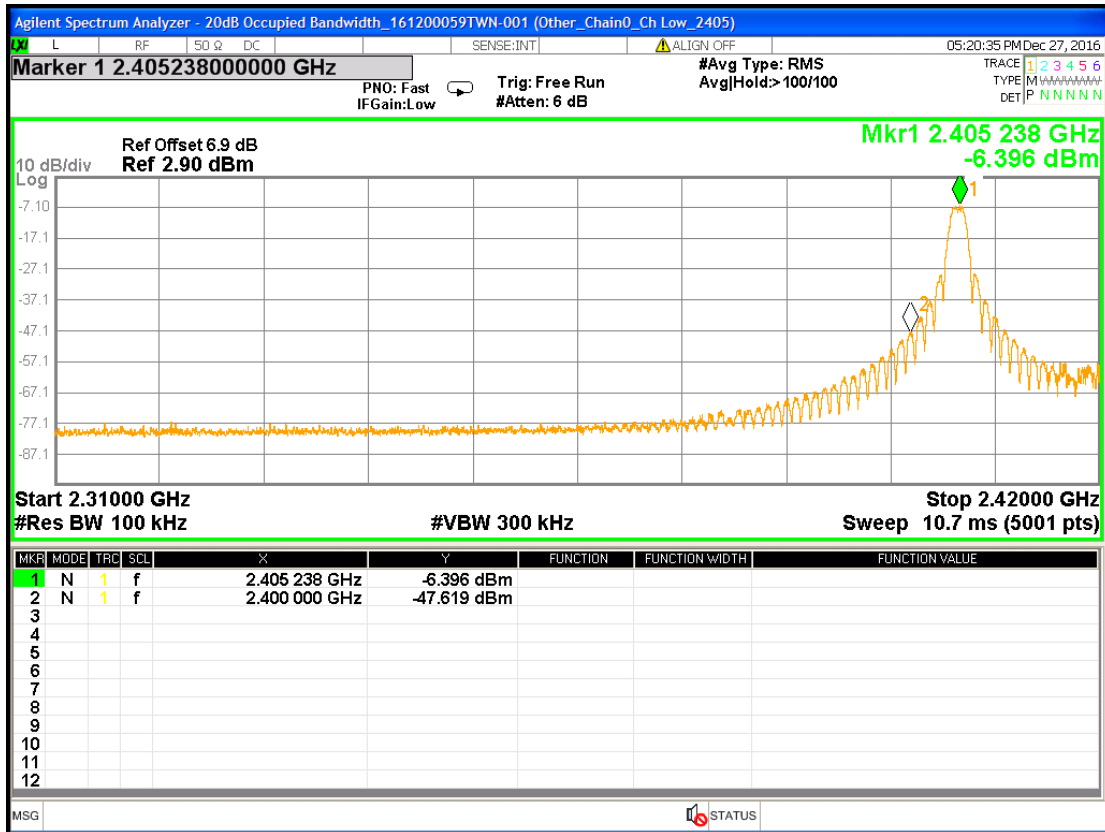
Date: 23.DEC.2016 09:59:31

Chain0 : Restricted-Band Band edge @ Zigbee Ch high Average

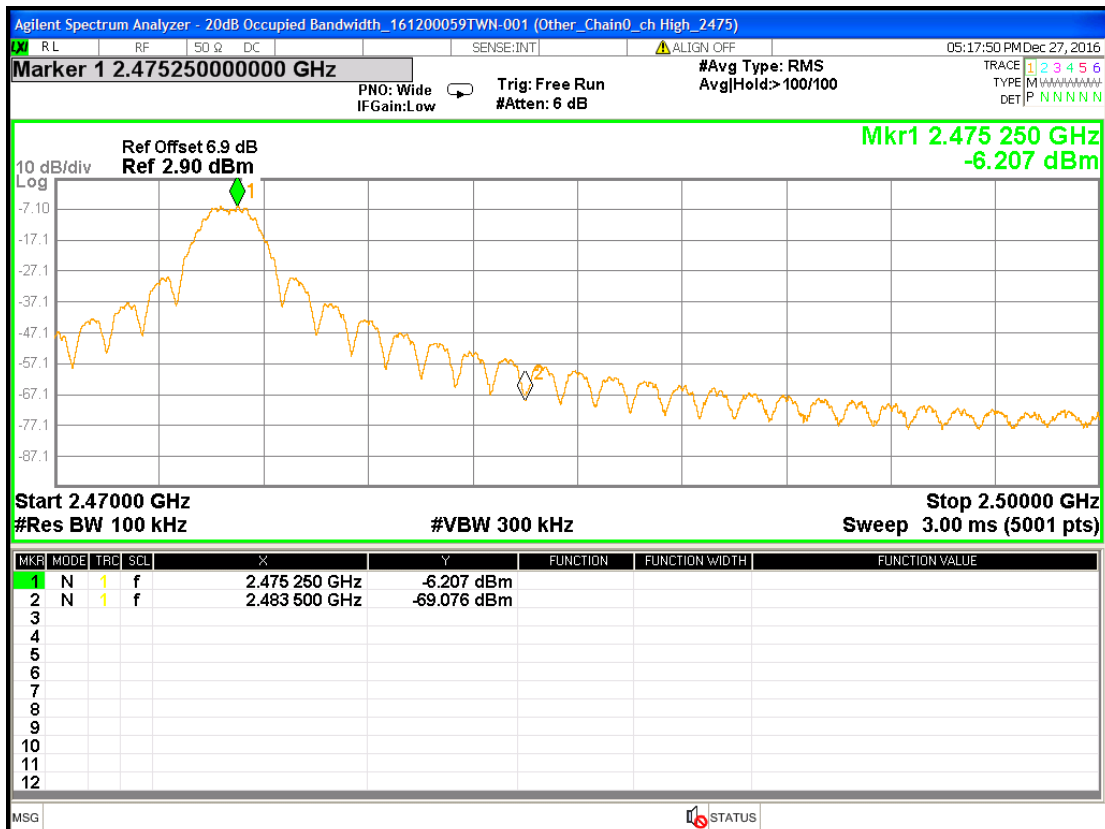


Date: 23.DEC.2016 10:00:12

Chain0 : Authorized-Band Band edge @ Zigbee mode Ch low



Chain0 : Authorized-Band Band edge @ Zigbee mode Ch high



9. AC Power Line Conducted Emission

9.1 Operating environment

Temperature:	20	°C
Relative Humidity:	58	%
Atmospheric Pressure	1009	hPa
Requirement	15.207	

9.2 Limit for AC power line conducted emission

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

9.3 Measuring instrument setting

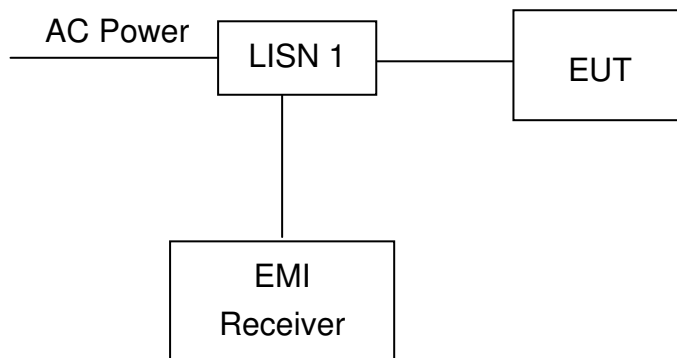
Receiver settings	
Receiver function	Setting
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

9.4 Test procedure

1. Configure the EUT according to ANSI C63.10:2013. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network.

3. All the companion devices are connected to the other LISN. The LISN should provide 50U_h/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30MHz was searched
5. Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.
6. The measurement has to be done between each power line and ground at the power terminal.

9.5 Test diagram



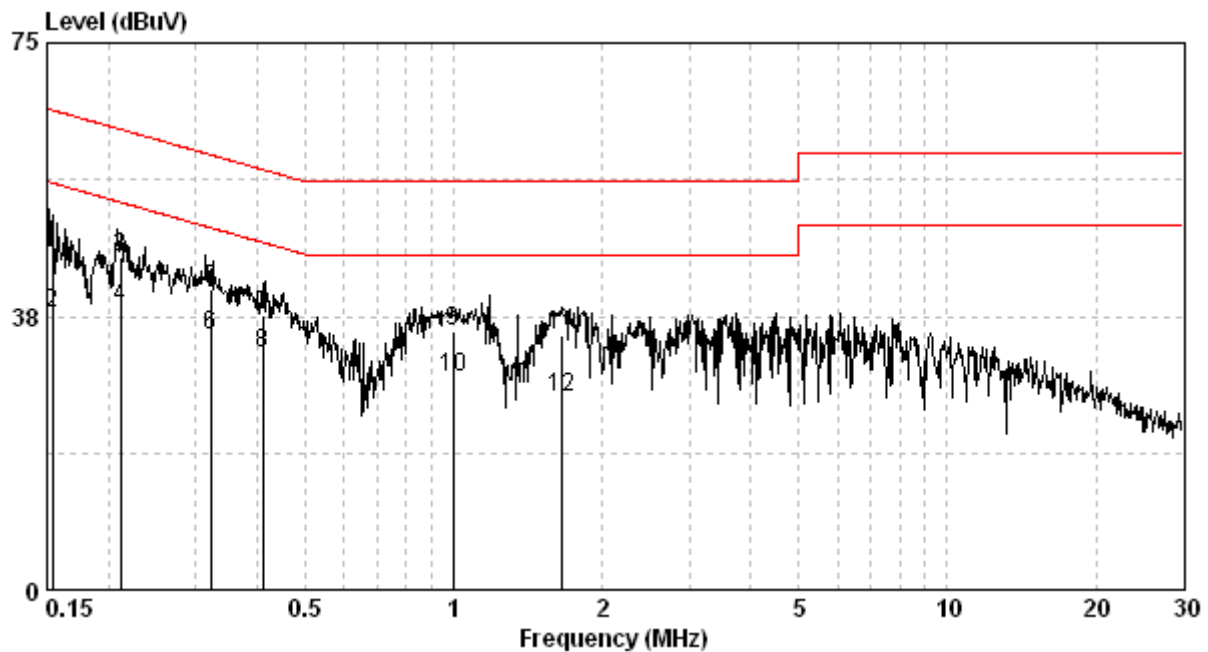
9.6 Test results

Phase: Live Line
Model No.: PAD06
Test Condition: Light on high

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.154	9.74	46.11	65.78	38.03	55.78	-19.67	-17.75
0.212	9.74	45.71	63.14	38.75	53.14	-17.43	-14.39
0.322	9.76	41.18	59.66	34.77	49.66	-18.48	-14.89
0.410	9.77	37.71	57.64	32.55	47.64	-19.93	-15.09
1.000	9.81	35.47	56.00	29.16	46.00	-20.53	-16.84
1.662	9.87	34.84	56.00	26.42	46.00	-21.16	-19.58

Remark:

1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)

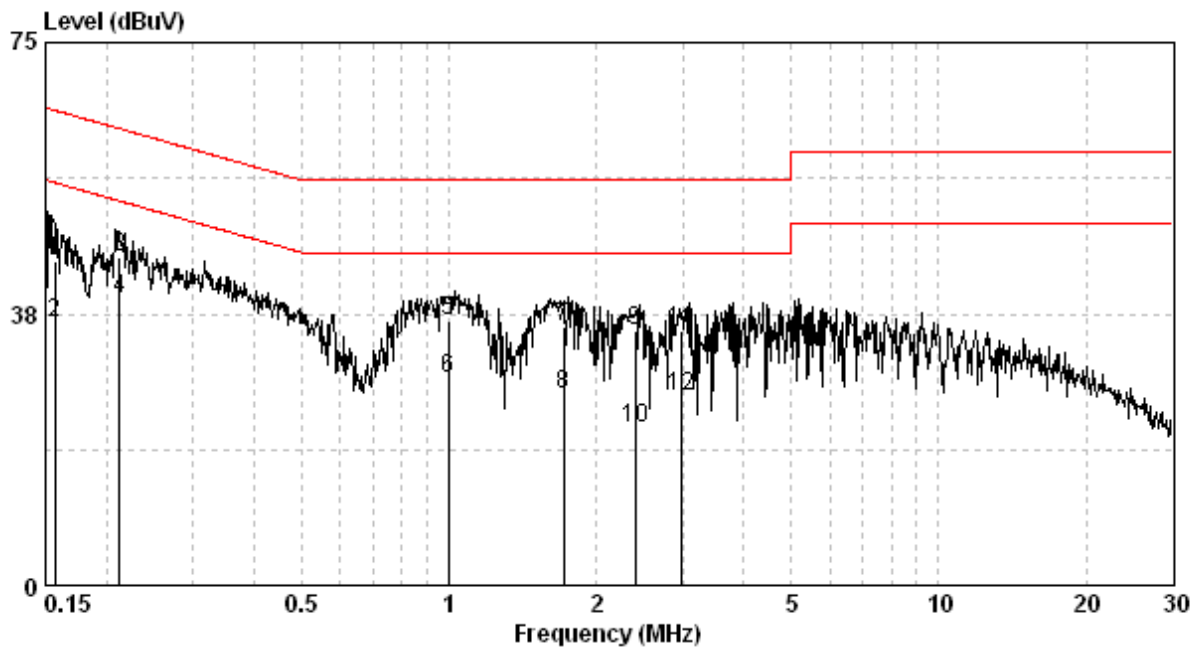


Phase: Neutral Line
Model No.: PAD06
Test Condition: Normal link

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB) Qp	Av
0.156	9.74	44.87	65.65	36.29	55.65	-20.77	-19.36
0.213	9.74	45.41	63.10	39.48	53.10	-17.69	-13.61
1.000	9.85	36.63	56.00	28.46	46.00	-19.37	-17.54
1.716	9.88	35.68	56.00	26.47	46.00	-20.32	-19.53
2.396	9.90	35.13	56.00	21.78	46.00	-20.87	-24.22
2.993	9.91	35.13	56.00	26.15	46.00	-20.87	-19.85

Remark:

1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix A: Test equipment list

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
ESCI EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2016/11/30	2017/11/29
Spectrum Analyzer	Rohde & Schwarz	FSP30	100137	2016/08/16	2017/08/15
Horn Antenna (1-18G)	SHWARZBECK	BBHA 9120 D	9120D-456	2014/08/29	2017/08/27
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2014/09/16	2017/09/14
Broadband Antenna	SHWARZBECK	VULB 9168	9168-172	2016/03/22	2017/03/21
Pre-Amplifier	EMC Co.	EMC12635SE	980205	2016/10/08	2017/10/07
Pre-Amplifier	MITEQ	JS4-26004000--27-8A	828825	2016/09/12	2017/09/11
Power Meter	Anritsu	ML2495A	0844001	2016/11/09	2017/11/08
Power Sensor	Anritsu	MA2411B	0738452	2016/11/09	2017/11/08
Signal Analyzer	Agilent	N9030A	MY51380492	2016/09/13	2017/09/12
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2016/05/05	2017/05/04
966-2(B) Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 104P	CB0005	2016/05/04	2017/05/03
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2016/05/05	2017/05/04
966-2_3m Semi-Anechoic Chamber	966_2	CEM-966_2	N/A	2016/02/24	2017/02/22
High Pass Filter	Reactel	7HS-3G/18G-S 11	N/A	2016/06/03	2017/06/02
Active Loop Antenna	SCHWARZBECK MESS-ELEKTRO NIC	FMZB1519	1519-067	2016/03/03	2017/03/02
Attenuator	PASTERNAK	N/A	PA7001-20	2016/05/06	2017/05/05
Attenuator	EMCI	N/A	AT-N0619	2016/05/06	2017/05/05

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration
EMI Receiver	R&S	ESCI	100059	2016/11/21	2017/11/20
Two-Line V-Network	R&S	ENV216	101159	2016/06/02	2017/06/01
Artificial Mains Network (LISN)	SCHAFFNER	MN2050D	1586	2016/05/25	2017/05/24
CON-1 Shielded Room	N/A	N/A	N/A	NCR	NCR
CON-1 Cable	SUHNER	SUCOFLEX-104	26438414	2016/05/05	2017/05/04
Test software	Audix	e3	4.2004-1-12k	NCR	NCR

Note: No Calibration Required (NCR).

Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k=2$.

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.14 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.22 dB
Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.7 dB
Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.7 dB
Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m	3.53 dB
Emission on the Band Edge Test	3.64 dB
RF Antenna Conducted Spurious Test	0.85 dB
Maximum Output Power Test	0.42 dB
20dB Bandwidth Test	0.85 dB
Carrier Frequency Separation Test	0.85 dB
Number of Hopping Frequencies Test	0.85 dB
Time of Occupancy (Dwell Time) Test	0.85 dB
AC Power Line Conducted Emission	2.47 dB