



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0032490(7) Date : 09 Jun 2017

Application No. : LV018460(8)

Applicant : C-MAX Asia Limited
Room 117, 1/F, Liven House,
61-63 King Yip Street, Kwun Tong, Hong Kong

Sample Description : One(1) item of submitted sample stated to be Bluetooth 4.0 Module of Model No. CMM-9301-V4.4
Sample registration no. : RV023488-002
Radio Frequency : 2402MHz – 2480MHz Transceiver
Rating : 1 x 3V button cell
No. of submitted sample : Three (3) piece (s)

Date Received : 05 Jun 2017

Test Period : 05 Jun 2017 to 09 Jun 2017

Test Requested : FCC Part 15 Certification (15.247), FCC Part 15 Verification Procedure

Test Method : 47 CFR Part 15 (10-1-15 Edition), ANSI C63.4 – 2014, ANSI C63.10 – 2013
KDB 558074 D01 DTS Meas Guidance v04


Test Engineer : Mr. LEUNG Shu-kan, Ken

Test Result : See attached sheet(s) from page 2 to 63.

Conclusion : The submitted sample was found to comply with requirement of FCC Subpart B and C.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Mr. WONG Lap-pong, Andrew
Manager
Electrical Division

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FCC ID: 2ABBXCM9301V442017



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1 General Information

1.1 General Description

The equipment under test (EUT) is a transceiver module for 2.4GHz wireless device. It is highly optimized for Bluetooth 4.0 Single Mode (Bluetooth Low Energy) link application requiring ultra low power consumption. It offers a plug and play solution for any BLE application up to the link layer, without any additional hardware nor RF layout.

The EUT is power by 3V dc. The EUT contain shielding, internal grounding and built in with a folded-dipole PCB antenna. The EUT can mount on other device through surface mount or plug in through 9-pin 1.27 mm connector.

The brief circuit description is listed as follows:

- X1 and its associated circuit act as oscillator
- Q1 and its associated circuit act as on / off switch
- L1, C9, C10 and its associated circuit act as antenna matching
- U1 and its associated circuit act as controller



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1.2 Location of the test site

FCC Registered Test Site Number: 416666

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.10 – 2013. A shielded room is located at :

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
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1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date	Calibration Period
EMI Test Receiver	R&S	ESCI	100152	15 Nov 2017	1Year
Spectrum Analyzer	R&S	FSV40	100964	08 Feb 2018	1Year
Biconical Antenna	Rohde & Schwarz	HK116	837414/004	17 Aug 2017	1Year
Log Periodic Antenna	Teseq	UPA6109	43666	27 Jul 2017	1Year
Loop Antenna	EMCO	6502	00056620	25 Jan 2018	2Years
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-531	19 Dec 2018	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9718	9718-119	21 Dec 2018	2Years
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170442	02 Aug 2017	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9719	9719-010	02 Aug 2017	2Years
Horn Antenna	Schwarzbeck	BBHA 9120C	9120C 594	26 Jul 2018	2Years
Pre-amplifier	Schwarzbeck	BBV9718	BBV9718 297	24 Jul 2018	2Years
Coaxial Cable	Schaffner	RG 213/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	RG 214/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	Sucoflex_104	N/A	20 Dec 2017	1Year
LISN	R&S	ESH3-Z5	100038	16 Jan 2018	1Year
Coaxial Cable	Tyco Electronics	RG 58C/U	N/A	12 Feb 2018	1Year
TS8997 Testing System					
Spectrum Analyzer	R&S	FSV 40	101190	12 Jun 2018	1Year
Vector Generator	R&S	SMBV100A	262024	04 Jun 2018	1Year
Generator	R&S	SMB100A	103230	24 Jun 2018	1Year
OSP	R&S	OSP	OSP120 V02	06 Jun 2018	1Year

Support equipment:

Adaptor
Model: A1299

Supply by CMA



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1.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.83dB
30MHz ~ 200MHz (Vertical)	4.84dB
200MHz ~1000MHz (Horizontal)	4.87dB
200MHz ~1000MHz (Vertical)	5.94dB
1GHz ~6GHz	4.41dB
6GHz ~18GHz	4.64dB

Line-conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz~30MHz	2.64dB



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2 Description of the emission test

2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground for below 1GHz measurement and 1.5m high above the ground for above 1GHz measurement. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

For 30MHz to 1GHz, broadband antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. And the reference point of antenna shall be 1 m above the ground.

For above 1GHz, horn antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. Preamplifier and High Pass filter was used for measurements. The reference point of antenna shall be 1 m above the ground.

The device was rotated through three orthogonal to determine which attitude and configuration produce the highest emission during measurement for Radiated Emission measurement.

The EUT will connect to TS 8997 testing system for direct conducted measurement.



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2.2 Conducted Emission Measurement Data

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	26	°C
Relative humidity:	65	%

Summary

Test	Frequency (MHz)	Nominal Power (dBm)	Nominal Bandwidth (MHz)	Result
RF output power	2402.000	0.0	1.000000	PASS
Power Spectral Density	2402.000	0.0	1.000000	PASS
Minimum Emission Bandwidth 6 dB	2402.000	0.0	1.000000	PASS
Band Edge low	2402.000	0.0	1.000000	PASS
Tx Spurious Emission	2402.000	0.0	1.000000	PASS
Rx Spurious Emission	2402.000	0.0	1.000000	PASS
RF output power	2442.000	0.0	1.000000	PASS
Power Spectral Density	2442.000	0.0	1.000000	PASS
Minimum Emission Bandwidth 6 dB	2442.000	0.0	1.000000	PASS
Tx Spurious Emission	2442.000	0.0	1.000000	PASS
Rx Spurious Emission	2442.000	0.0	1.000000	PASS
RF output power	2480.000	0.0	1.000000	PASS
Power Spectral Density	2480.000	0.0	1.000000	PASS
Minimum Emission Bandwidth 6 dB	2480.000	0.0	1.000000	PASS
Band Edge high	2480.000	0.0	1.000000	PASS
Tx Spurious Emission	2480.000	0.0	1.000000	PASS
Rx Spurious Emission	2480.000	0.0	1.000000	PASS



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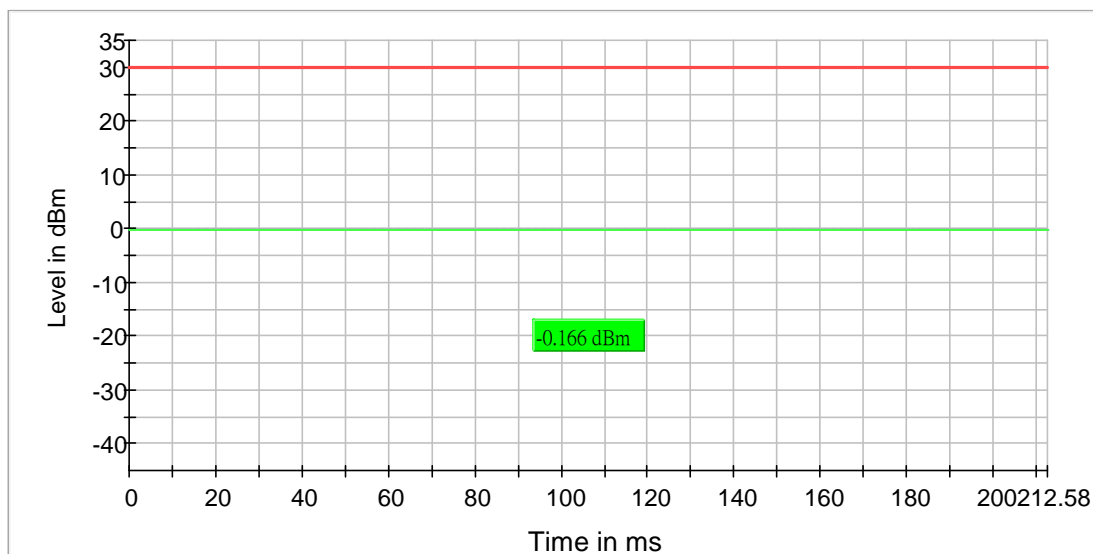
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RF output power (2402 MHz)

Result

DUT Frequency (MHz)	Gated EIRP (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2402.000000	-0.2	30.0	21.271	PASS





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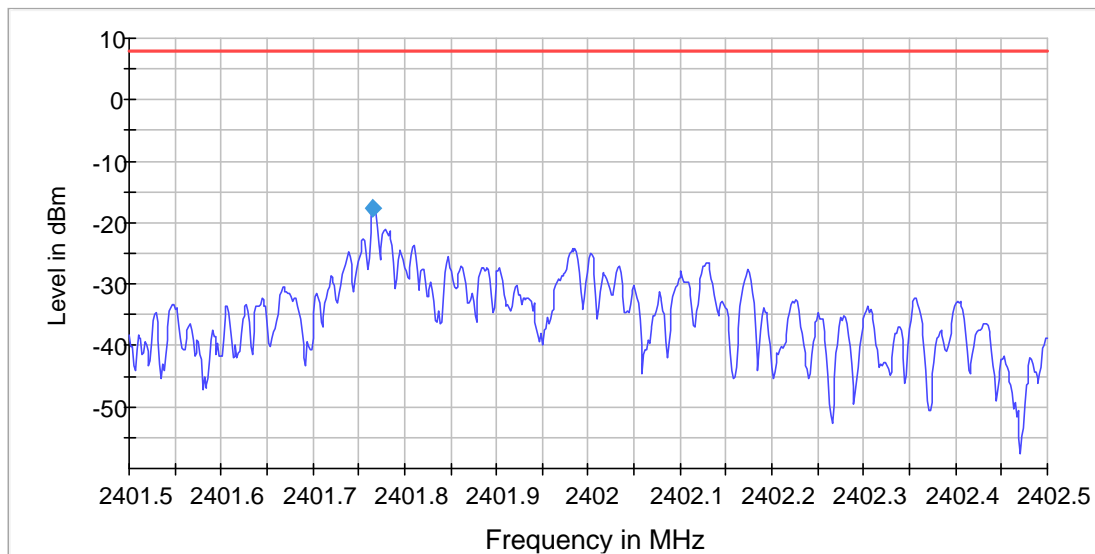
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Power Spectral Density (2402 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.765719	-17.713	8.0	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.40150 GHz	2.40150 GHz	Stablemode	Trace	Trace
Stop Frequency	2.40250 GHz	2.40250 GHz	Stablevalue	0.30	0.30
Span	1.000 MHz	1.000 MHz	Run	3 / max. 150	max. 150
RBW	3.000 kHz	<= 3.000 kHz	Stable	3 / 3	3
VBW	10.000 kHz	>= 9.000 kHz			
SweepPoints	667	~ 667			
SweepTime	667.000 ms	667.000 ms			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	RMS	RMS			
SweepCount	1	1			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
Sweeptype	Sweep	AUTO			
Preamp	off	off			



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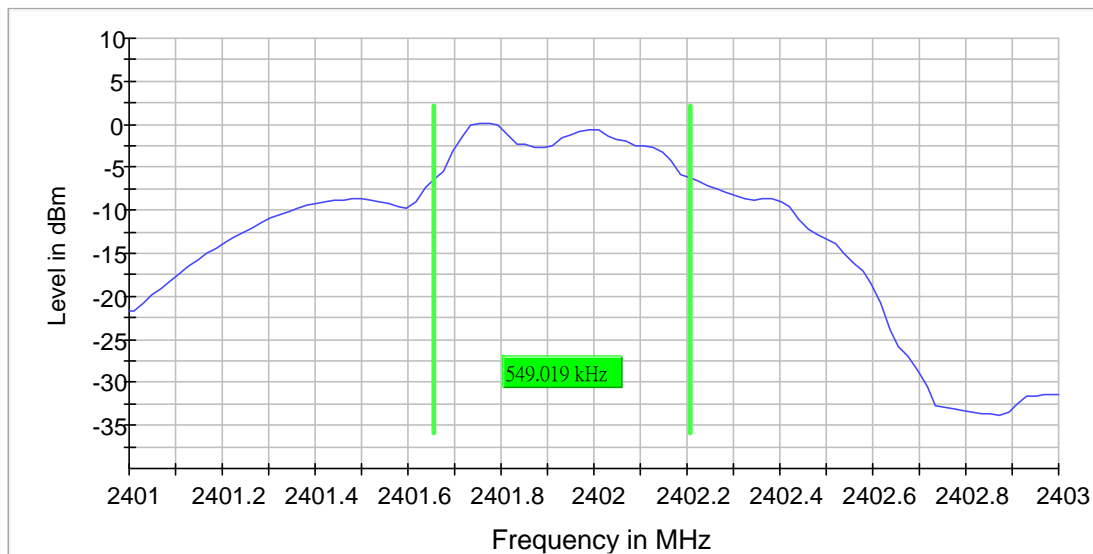
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Minimum Emission Bandwidth 6 dB (2402 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2402.000000	0.549019	0.500000	---	2401.656863	2402.205882	0.2	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz	Stablemode	Trace	Trace
Stop Frequency	2.40300 GHz	2.40300 GHz	Stablevalue	0.30	0.30
Span	2.000 MHz	2.000 MHz	Run	24 / max. 150	max. 150
RBW	100.000 kHz	~ 100.000 kHz	Stable	15 / 15	15
VBW	300.000 kHz	~ 300.000 kHz			
SweepPoints	101	~ 20			
SweepTime	18.938 μ s	AUTO			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	MaxPeak	MaxPeak			
SweepCount	100	100			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
SweepType	FFT	AUTO			
Preamp	off	off			



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Band Edge low (2402 MHz)

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2401.773938	-9.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.925042	-58.5	28.7	-29.9	PASS
2399.875069	-58.7	28.9	-29.9	PASS
2399.825097	-59.0	29.1	-29.9	PASS
2399.775125	-59.5	29.7	-29.9	PASS
2399.725153	-59.6	29.7	-29.9	PASS
2399.675180	-60.1	30.2	-29.9	PASS
2399.625208	-60.3	30.4	-29.9	PASS
2399.575236	-60.7	30.9	-29.9	PASS
2399.525264	-61.1	31.2	-29.9	PASS
2399.475292	-61.4	31.6	-29.9	PASS
2399.425319	-61.7	31.8	-29.9	PASS
2399.375347	-61.9	32.0	-29.9	PASS
2399.275403	-62.3	32.4	-29.9	PASS
2399.325375	-62.3	32.4	-29.9	PASS
2399.175458	-63.0	33.1	-29.9	PASS



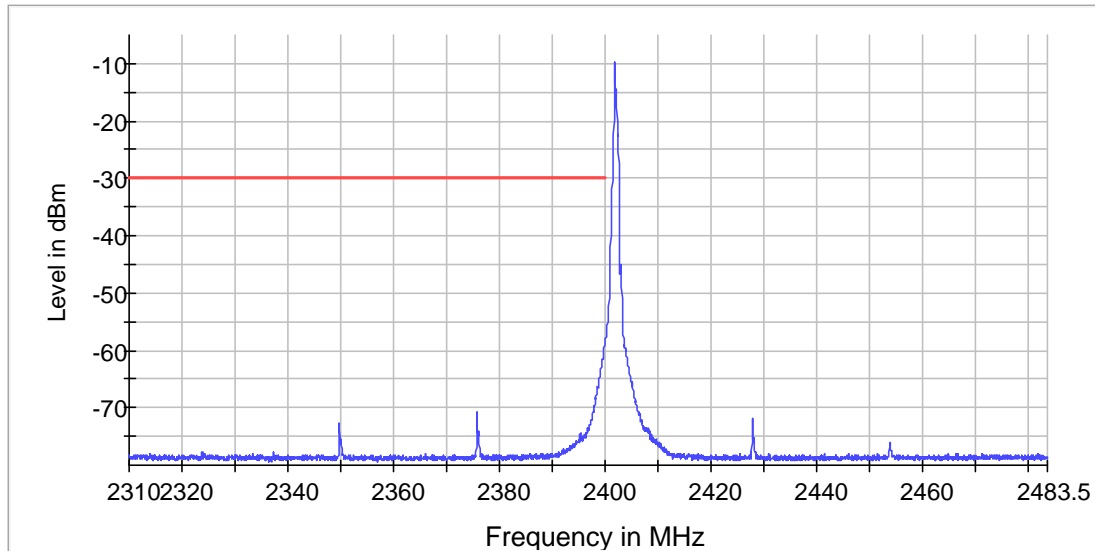
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Measurement 1

Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	1800	~ 1800
SweepTime	1.670 s	1.670 s	SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3



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Tx Spurious Emission (2402 MHz)

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
4803.493165	-36.0	-44.4	-41.2	3.2	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4803.493165	-36.0	-5.2	-41.2
4803.993109	-36.2	-5.0	-41.2
4804.493054	-36.4	-4.8	-41.2
4804.992999	-36.8	-4.4	-41.2
4802.993220	-37.1	-4.2	-41.2
4805.492943	-42.1	0.8	-41.2
4802.493275	-42.7	1.5	-41.2
4801.993331	-47.5	6.3	-41.2
4805.992888	-51.4	10.2	-41.2
2387.754373	-54.4	13.2	-41.2
2389.253838	-54.8	13.6	-41.2
12008.858821	-55.1	13.9	-41.2
12011.233673	-55.5	14.2	-41.2
12010.046247	-55.6	14.3	-41.2
12009.452534	-55.8	14.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



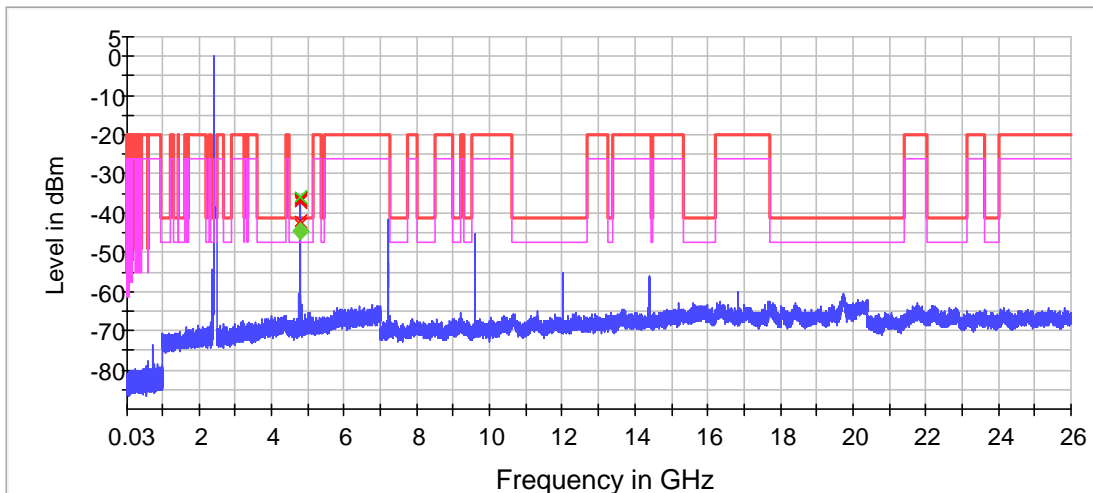
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- x Limit [limit.Result:1]
- ◆ Threshold [limit 2.Result:1]
- ◆ Sum Level [trace.Result:1]
- ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



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Rx Spurious Emission (2402 MHz)

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4799.866689	-57.5	16.3	-41.2
4800.866522	-59.3	18.1	-41.2
19746.829114	-60.2	19.0	-41.2
19716.830693	-60.4	19.2	-41.2
19708.831114	-60.6	19.3	-41.2
19709.831062	-60.8	19.5	-41.2
19778.827430	-60.8	19.5	-41.2
19736.829641	-60.8	19.6	-41.2
19680.832588	-60.8	19.6	-41.2
19795.826535	-60.8	19.6	-41.2
19745.829167	-60.9	19.7	-41.2
19725.830219	-61.0	19.7	-41.2
19748.829009	-61.0	19.7	-41.2
19726.830167	-61.0	19.8	-41.2
19790.826799	-61.0	19.8	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	7000.000000	2	2
7000.000000	26000.000000	2	2



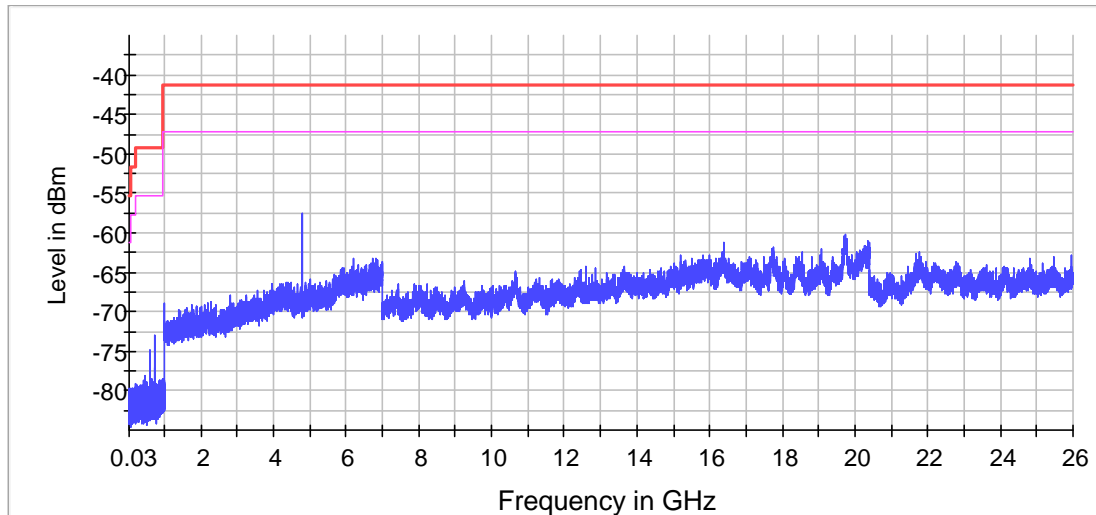
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— Limit [limit.Result:1] × Threshold [limit.2.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	9700	~ 9700	SweepPoints	6000	~ 6000
SweepTime	9.700 ms	AUTO	SweepTime	6.000 ms	AUTO
Reference Level	-67.000 dBm	-67.000 dBm	Reference Level	-67.000 dBm	-67.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	100	100	SweepCount	100	100
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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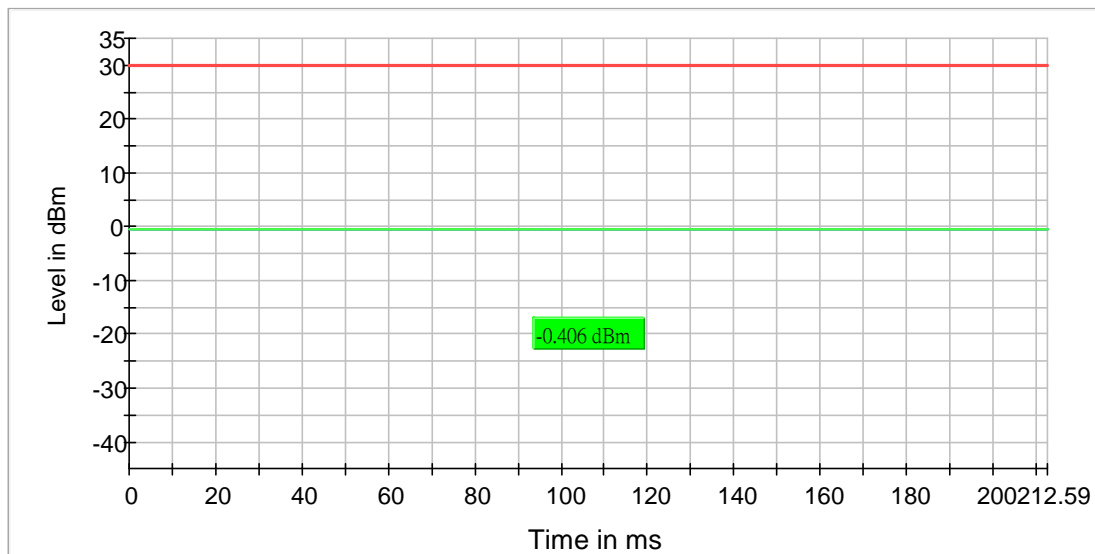
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RF output power (2442 MHz)

Result

DUT Frequency (MHz)	Gated EIRP (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2442.000000	-0.4	30.0	21.272	PASS





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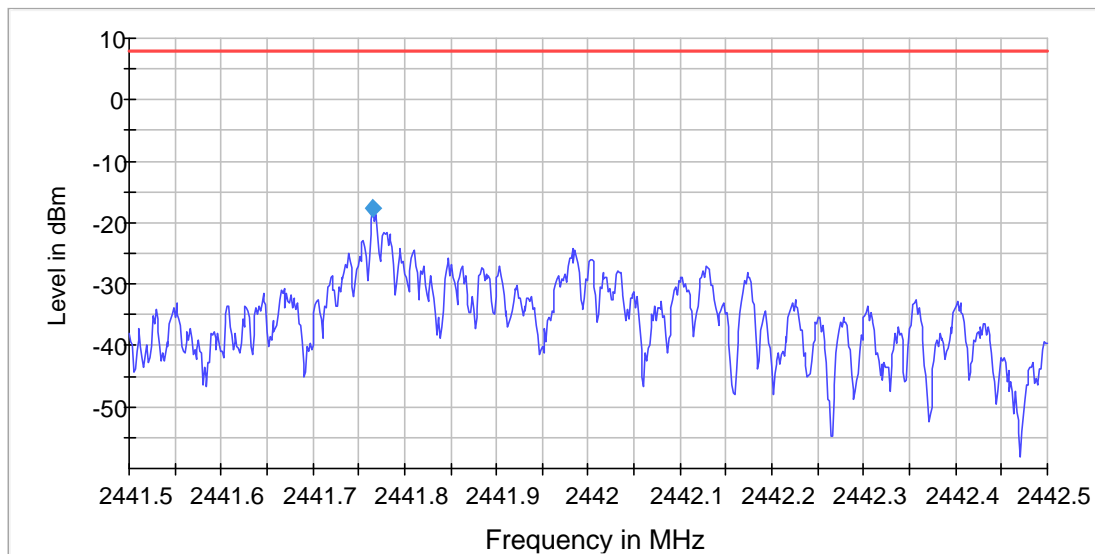
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Power Spectral Density (2442 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2442.000000	2441.765719	-17.753	8.0	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.44150 GHz	2.44150 GHz	Stablemode	Trace	Trace
Stop Frequency	2.44250 GHz	2.44250 GHz	Stablevalue	0.30	0.30
Span	1.000 MHz	1.000 MHz	Run	3 / max. 150	max. 150
RBW	3.000 kHz	<= 3.000 kHz	Stable	3 / 3	3
VBW	10.000 kHz	>= 9.000 kHz			
SweepPoints	667	~ 667			
SweepTime	667.000 ms	667.000 ms			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	RMS	RMS			
SweepCount	1	1			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
SweepType	Sweep	AUTO			
Preamp	off	off			



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TEST REPORT

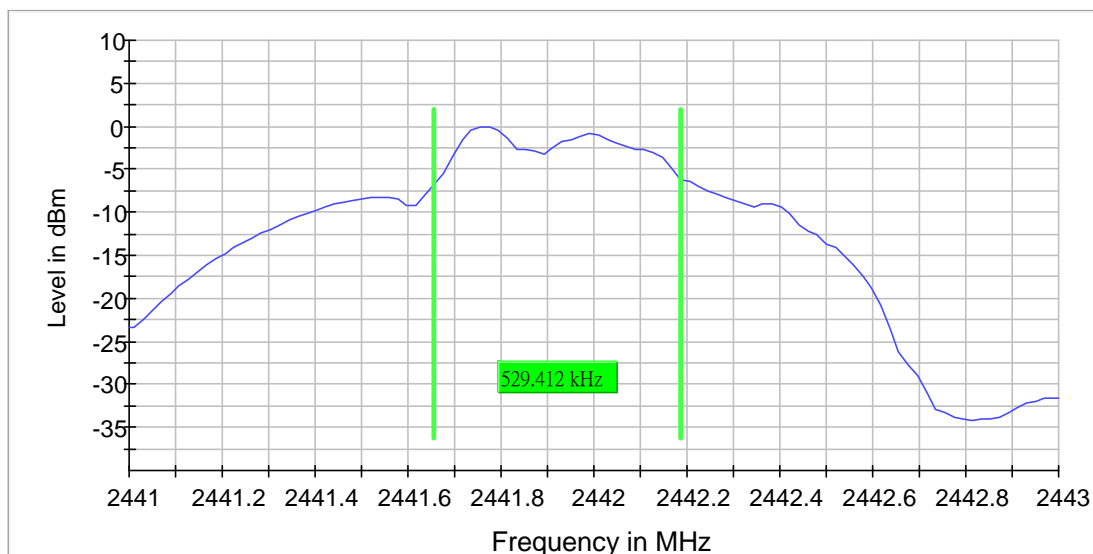
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Minimum Emission Bandwidth 6 dB (2442 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2442.000000	0.529412	0.500000	---	2441.656863	2442.186275	-0.1	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.44100 GHz	2.44100 GHz	Stablemode	Trace	Trace
Stop Frequency	2.44300 GHz	2.44300 GHz	Stablevalue	0.30	0.30
Span	2.000 MHz	2.000 MHz	Run	29 / max. 150	max. 150
RBW	100.000 kHz	~ 100.000 kHz	Stable	15 / 15	15
VBW	300.000 kHz	~ 300.000 kHz			
SweepPoints	101	~ 20			
Sweeptime	18.938 μ s	AUTO			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	MaxPeak	MaxPeak			
SweepCount	100	100			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
SweepType	FFT	AUTO			
Preamp	off	off			



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Tx Spurious Emission (2442 MHz)

Result

DUT Frequency (MHz)	Result
2442.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
4883.484309	-37.2	-45.5	-41.2	4.3	PASS
7325.651522	-44.4	-53.8	-41.2	12.6	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4883.484309	-37.2	-4.1	-41.2
4884.484199	-37.3	-3.9	-41.2
4883.984254	-37.4	-3.9	-41.2
4884.984143	-37.8	-3.4	-41.2
4882.984365	-38.1	-3.1	-41.2
4885.484088	-42.9	1.6	-41.2
4882.484420	-44.3	3.1	-41.2
7325.651522	-44.4	3.2	-41.2
7326.838948	-44.5	3.3	-41.2
7325.057809	-44.5	3.3	-41.2
7326.245235	-44.7	3.5	-41.2
7327.432660	-45.3	4.1	-41.2
7324.464096	-49.4	8.1	-41.2
4885.984033	-50.6	9.3	-41.2
7328.026373	-51.1	9.9	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



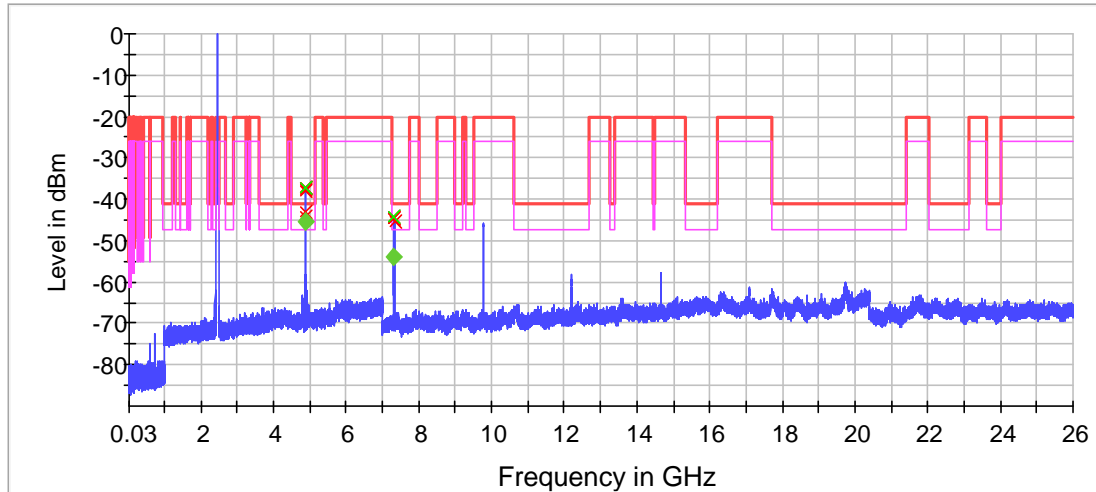
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x Limit [limit.Result:1] x Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



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Rx Spurious Emission (2442 MHz)

Result

DUT Frequency (MHz)	Result
2442.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4875.854024	-56.5	15.3	-41.2
4876.853858	-57.7	16.4	-41.2
19743.829272	-59.9	18.6	-41.2
19748.829009	-60.0	18.8	-41.2
19712.830904	-60.0	18.8	-41.2
4874.854191	-60.4	19.1	-41.2
19735.829693	-60.4	19.2	-41.2
19717.830640	-60.6	19.4	-41.2
19774.827641	-60.7	19.4	-41.2
15907.031209	-60.9	19.6	-41.2
19744.829220	-60.9	19.7	-41.2
19741.829377	-60.9	19.7	-41.2
19734.829746	-61.0	19.7	-41.2
19751.828851	-61.1	19.8	-41.2
19721.830430	-61.1	19.8	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	7000.000000	2	2
7000.000000	26000.000000	2	2



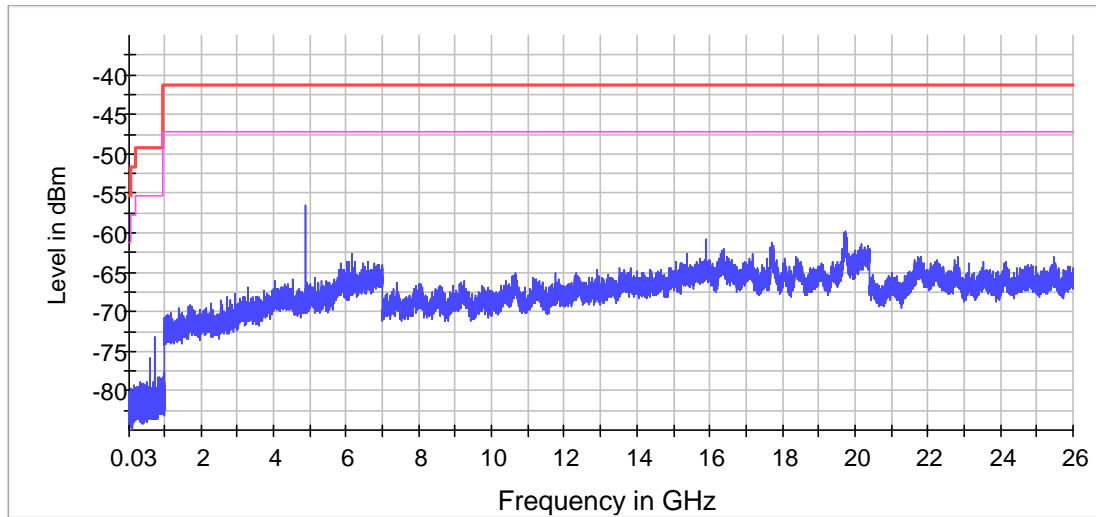
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— Limit [limit.Result:1] × Threshold [limit.2.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	9700	~ 9700	SweepPoints	6000	~ 6000
SweepTime	9.700 ms	AUTO	SweepTime	6.000 ms	AUTO
Reference Level	-67.000 dBm	-67.000 dBm	Reference Level	-67.000 dBm	-67.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	100	100	SweepCount	100	100
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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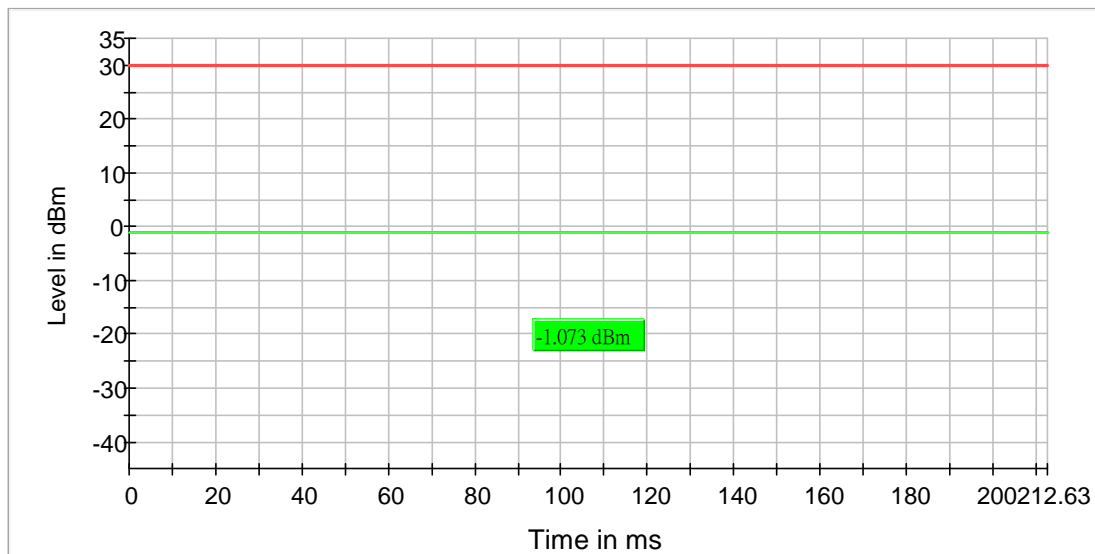
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RF output power (2480 MHz)

Result

DUT Frequency (MHz)	Gated EIRP (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2480.000000	-1.1	30.0	21.277	PASS





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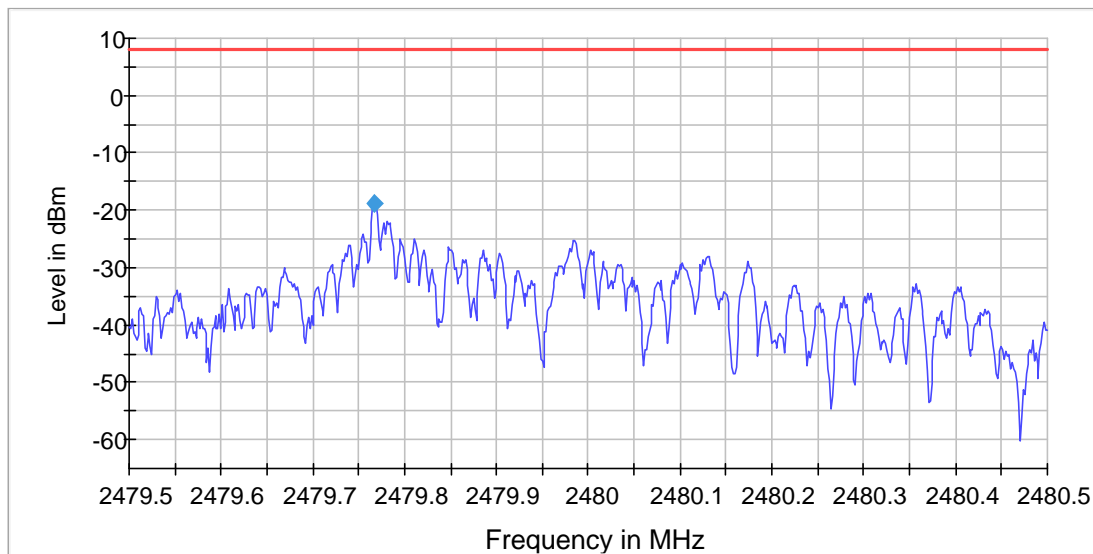
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Date : 09 Jun 2017

Power Spectral Density (2480 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.767216	-18.853	8.0	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.47950 GHz	2.47950 GHz	Stablemode	Trace	Trace
Stop Frequency	2.48050 GHz	2.48050 GHz	Stablevalue	0.30	0.30
Span	1.000 MHz	1.000 MHz	Run	3 / max. 150	max. 150
RBW	3.000 kHz	<= 3.000 kHz	Stable	3 / 3	3
VBW	10.000 kHz	>= 9.000 kHz			
SweepPoints	667	~ 667			
SweepTime	667.000 ms	667.000 ms			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	RMS	RMS			
SweepCount	1	1			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
SweepType	Sweep	AUTO			
Preamp	off	off			



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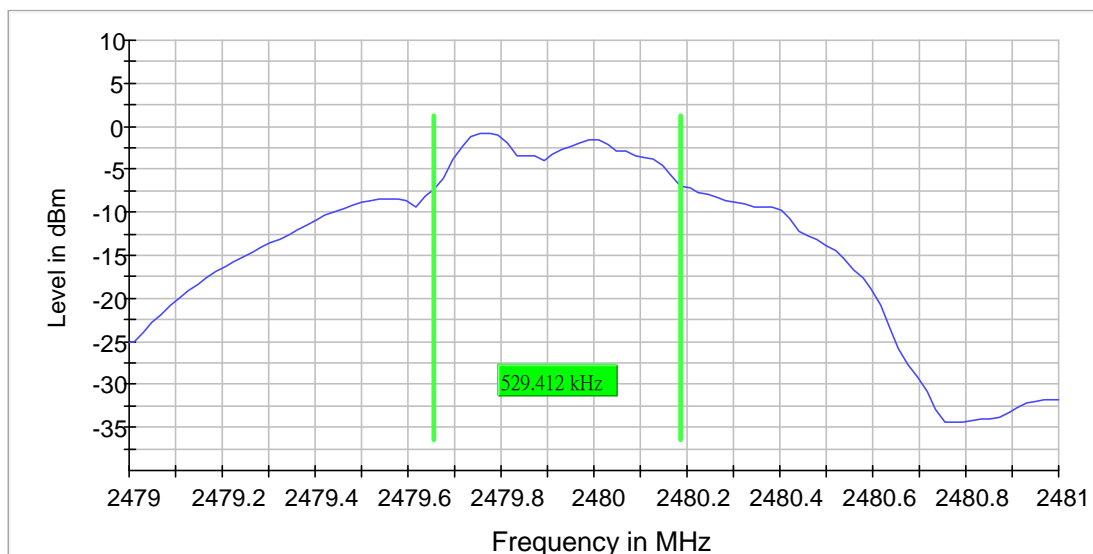
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Minimum Emission Bandwidth 6 dB (2480 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2480.000000	0.529412	0.500000	---	2479.656863	2480.186275	-0.8	PASS



Measurement

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz	Stablemode	Trace	Trace
Stop Frequency	2.48100 GHz	2.48100 GHz	Stablevalue	0.30	0.30
Span	2.000 MHz	2.000 MHz	Run	32 / max. 150	max. 150
RBW	100.000 kHz	~ 100.000 kHz	Stable	15 / 15	15
VBW	300.000 kHz	~ 300.000 kHz			
SweepPoints	101	~ 20			
Sweeptime	18.938 μ s	AUTO			
Reference Level	-10.000 dBm	-10.000 dBm			
Attenuation	10.000 dB	AUTO			
Detector	MaxPeak	MaxPeak			
SweepCount	100	100			
Filter	3 dB	3 dB			
Trace Mode	Max Hold	Max Hold			
SweepType	FFT	AUTO			
Preamp	off	off			



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Band Edge high (2480 MHz)

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2479.727259	-10.8

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.524924	-69.9	39.0	-30.8	PASS
2483.574773	-70.4	39.5	-30.8	PASS
2483.624622	-70.6	39.7	-30.8	PASS
2483.674471	-70.7	39.8	-30.8	PASS
2483.724320	-70.9	40.1	-30.8	PASS
2483.774169	-71.2	40.3	-30.8	PASS
2483.824018	-71.4	40.5	-30.8	PASS
2483.873867	-71.5	40.6	-30.8	PASS
2483.923716	-71.5	40.7	-30.8	PASS
2484.123112	-72.1	41.2	-30.8	PASS
2483.973565	-72.1	41.3	-30.8	PASS
2484.023414	-72.2	41.4	-30.8	PASS
2484.073263	-72.2	41.4	-30.8	PASS
2484.272659	-72.5	41.7	-30.8	PASS
2484.222810	-72.5	41.7	-30.8	PASS



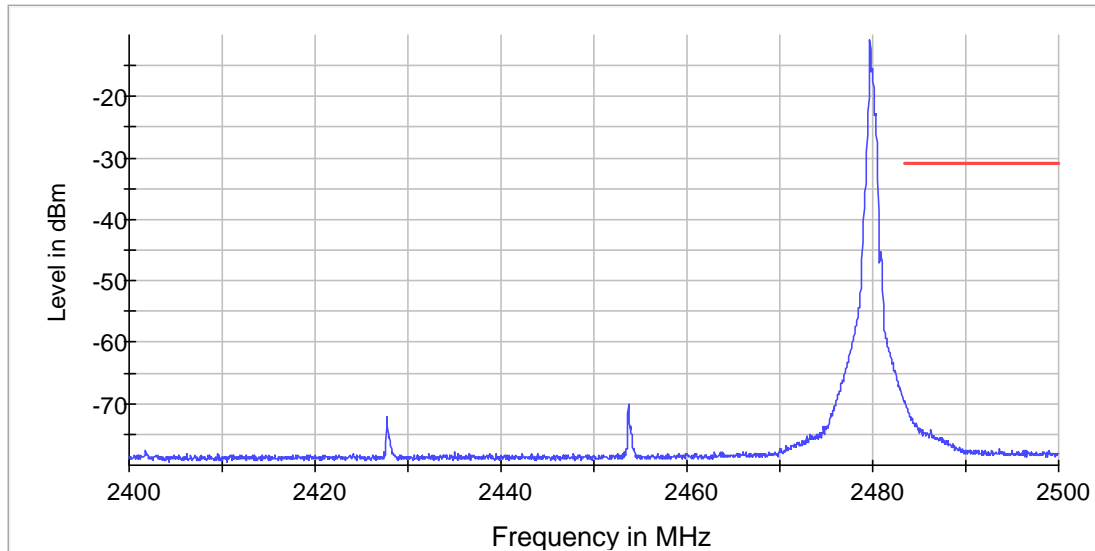
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Measurement 1

Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO	Sweeptype	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3



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Tx Spurious Emission (2480 MHz)

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
4959.475897	-39.5	-47.8	-41.2	6.6	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4959.475897	-39.5	-1.7	-41.2
4959.975841	-39.6	-1.6	-41.2
4960.475786	-39.6	-1.6	-41.2
4960.975731	-39.7	-1.5	-41.2
4958.975952	-40.7	-0.6	-41.2
4958.476007	-46.1	4.9	-41.2
4961.475675	-46.7	5.5	-41.2
7439.644397	-48.1	6.9	-41.2
7439.050684	-48.3	7.1	-41.2
7440.238110	-48.7	7.4	-41.2
7440.831823	-49.0	7.8	-41.2
7441.425536	-51.4	10.2	-41.2
7442.019249	-52.9	11.7	-41.2
7438.456971	-53.2	12.0	-41.2
2493.748865	-53.6	12.4	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



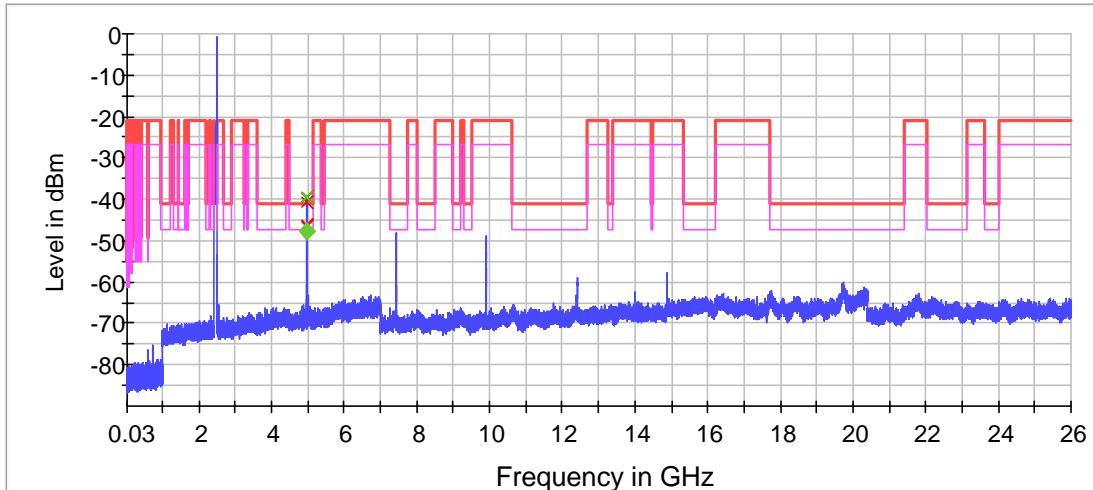
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- x Limit [limit.Result:1]
- ◆ Threshold [limit 2.Result:1]
- x Sum Level [trace.Result:1]
- ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



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Rx Spurious Emission (2480 MHz)

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4955.840693	-56.3	15.1	-41.2
4956.840527	-57.7	16.4	-41.2
4954.840860	-58.9	17.7	-41.2
19718.830588	-60.0	18.8	-41.2
19775.827588	-60.2	19.0	-41.2
19696.831746	-60.2	19.0	-41.2
20121.809378	-60.3	19.1	-41.2
19751.828851	-60.5	19.3	-41.2
19759.828430	-60.6	19.4	-41.2
19733.829798	-60.7	19.4	-41.2
19764.828167	-60.7	19.5	-41.2
19724.830272	-60.8	19.6	-41.2
19798.826378	-60.9	19.7	-41.2
19758.828483	-61.0	19.7	-41.2
20143.808221	-61.0	19.8	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	7000.000000	2	2
7000.000000	26000.000000	2	2



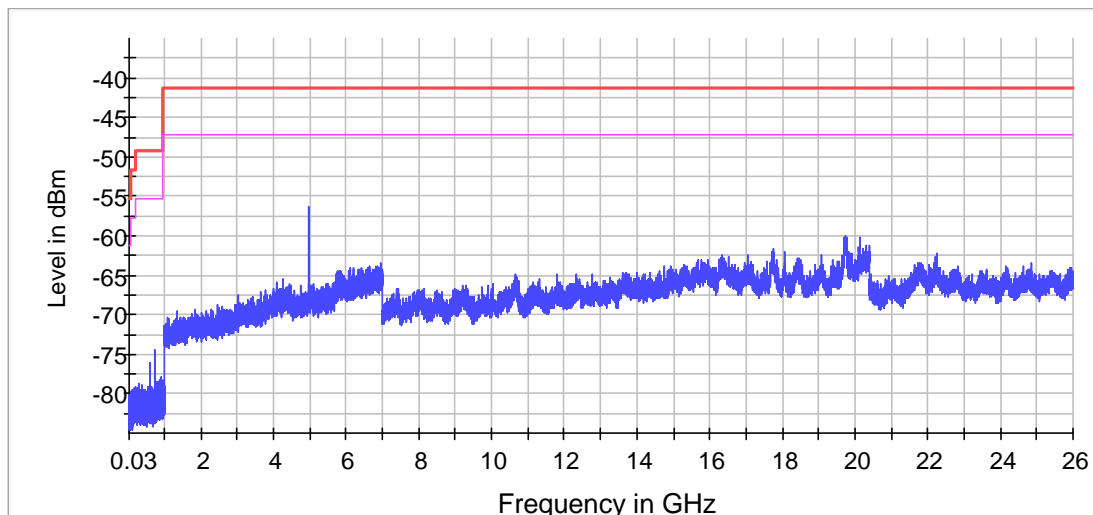
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— Limit [limit.Result:1] × Threshold [limit.2.Result:1]

Pre Measurement 1

Pre Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	9700	~ 9700	SweepPoints	6000	~ 6000
SweepTime	9.700 ms	AUTO	SweepTime	6.000 ms	AUTO
Reference Level	-67.000 dBm	-67.000 dBm	Reference Level	-67.000 dBm	-67.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	100	100	SweepCount	100	100
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3



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2.3 Radiated Emission Measurement Data

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	23	°C
Relative humidity:	65	%

Testing frequency range: 9kHz to 26GHz Mode: Transmission

Measurement: Quasi-peak (9kHz – 1GHz), Peak and Average(above 1GHz)

RBW: 9kHz (below 30MHz), 120kHz (30MHz – 1GHz), 1MHz (above 1GHz)

VBW: 30kHz (below 30MHz), 300kHz (30MHz – 1GHz.), 3MHz (above 1GHz, Peak measurement), 10Hz (above 1GHz, Average measurement)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)	Measurement (Peak/Average)
2401.770	H	103.4	- 4.2	99.2	114.0	- 14.8	Peak
2401.834	H	42.9	- 4.2	38.7	74.0	- 35.3	Average
2401.767	V	101.9	- 4.2	97.7	114.0	- 16.3	Peak
2401.839	V	42.6	- 4.2	38.4	74.0	- 35.6	Average
2442.124	H	103.6	- 4.2	99.4	114.0	- 14.6	Peak
2441.877	H	42.9	- 4.2	38.7	74.0	- 35.3	Average
2441.750	V	102.4	- 4.2	98.2	114.0	- 15.8	Peak
2441.869	V	42.7	- 4.2	38.5	74.0	- 35.5	Average
2479.744	H	103.6	- 4.3	99.3	114.0	- 14.7	Peak
2479.807	H	43.2	- 4.3	38.9	74.0	- 35.1	Average
2479.780	V	104.0	- 4.3	99.7	114.0	- 14.3	Peak
2479.846	V	43.3	- 4.3	39.0	74.0	- 35.0	Average
4803.467	V	55.7	3.7	59.4	114.0	- 54.6	Peak
4803.797	V	28.2	3.7	31.9	74.0	- 42.1	Average
4883.594	V	52.1	3.7	55.8	114.0	- 58.2	Peak
4883.734	V	27.4	3.7	31.1	74.0	- 42.9	Average
4960.509	V	53.1	4.0	57.1	114.0	- 56.9	Peak
4959.740	V	28.0	4.0	32.0	74.0	- 42.0	Average

Remark: Other emissions more than 20dB below the limit are not reported.

If Peak measurement values are lower than average limit, average measurement is not necessary.



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Report No. : AV0032490(7)

Date : 09 Jun 2017

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB μ V)	Transducer Factor (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)	Measurement (Peak/Average)
7205.135	H	49.5	12.1	61.6	114.0	- 52.4	Peak
7205.370	H	24.7	12.1	36.8	74.0	- 37.2	Average
7205.235	V	44.0	12.1	56.1	114.0	- 57.9	Peak
7205.444	V	23.4	12.1	35.5	74.0	- 38.5	Average
7325.407	H	46.1	12.1	58.2	114.0	- 55.8	Peak
7325.442	H	24.5	12.1	36.6	74.0	- 37.4	Average
7439.439	H	43.6	12.1	55.7	114.0	- 58.3	Peak
7439.340	H	23.9	12.1	36.0	74.0	- 38.0	Average
9607.195	H	49.5	14.2	63.7	114.0	- 50.3	Peak
9607.225	H	24.2	14.2	38.4	74.0	- 35.6	Average
9607.110	V	49.0	14.2	63.2	114.0	- 50.8	Peak
9607.195	V	24.0	14.2	38.2	74.0	- 35.8	Average
9767.130	H	47.9	14.2	62.1	114.0	- 51.9	Peak
9767.208	H	24.4	14.2	38.6	74.0	- 35.4	Average
9767.065	V	47.0	14.2	61.2	114.0	- 52.8	Peak
9767.230	V	24.2	14.2	38.4	74.0	- 35.6	Average
9919.050	H	42.8	14.2	57.0	114.0	- 57.0	Peak
9919.145	H	23.4	14.2	37.6	74.0	- 36.4	Average
9919.105	V	45.0	14.2	59.2	114.0	- 54.8	Peak
9919.275	V	23.8	14.2	38.0	74.0	- 36.0	Average

Remark: Other emissions more than 20dB below the limit are not reported.

If Peak measurement values are lower than average limit, average measurement is not necessary.



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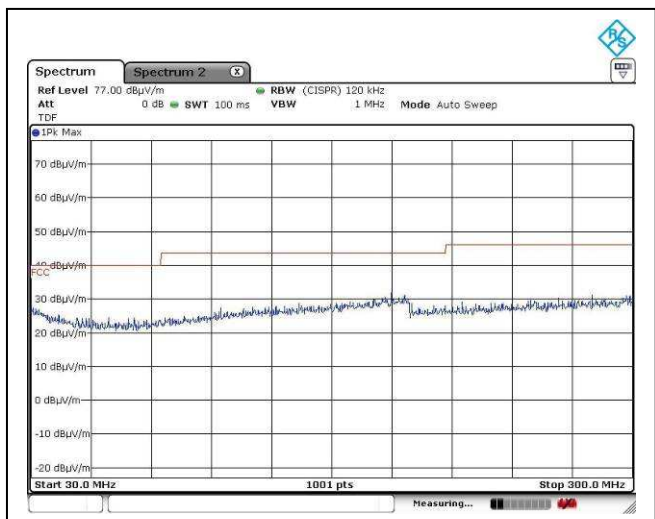
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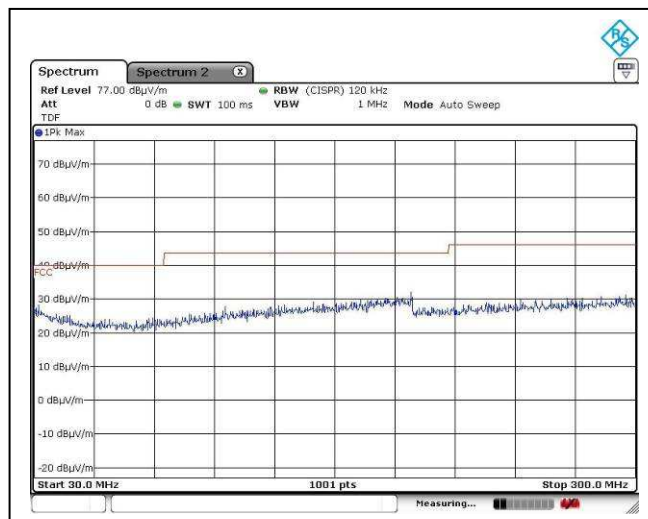
Report No. : AV0032490(7)

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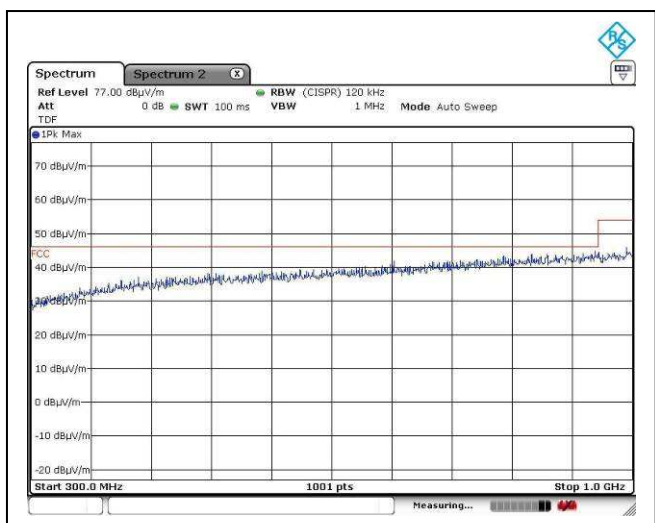
2.3 Radiated Emission Measurement Data (Con't)



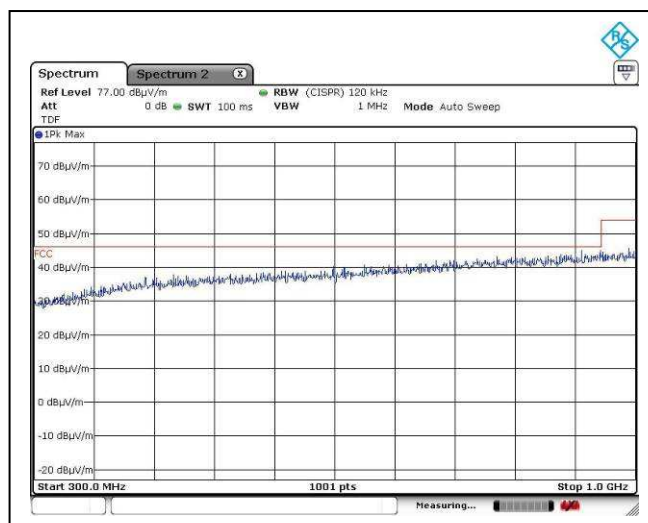
Lower channel, 30MHz – 300MHz, Horizontal



Lower channel, 30MHz – 300MHz, Vertical



Lower channel, 300MHz – 1GHz, Horizontal



Lower channel, 300MHz – 1GHz, Vertical



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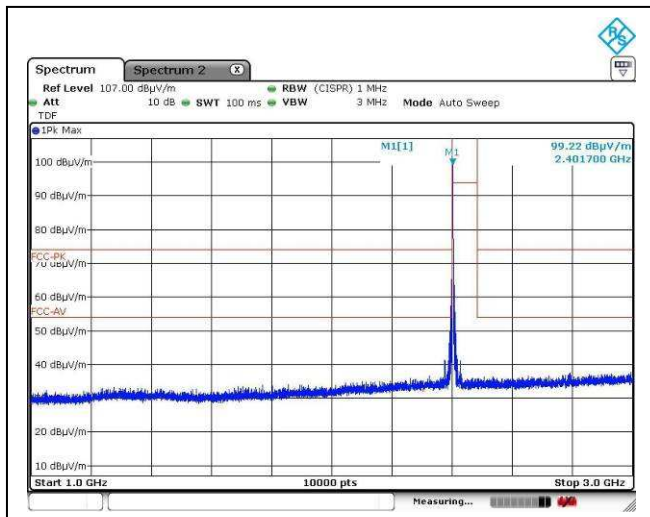
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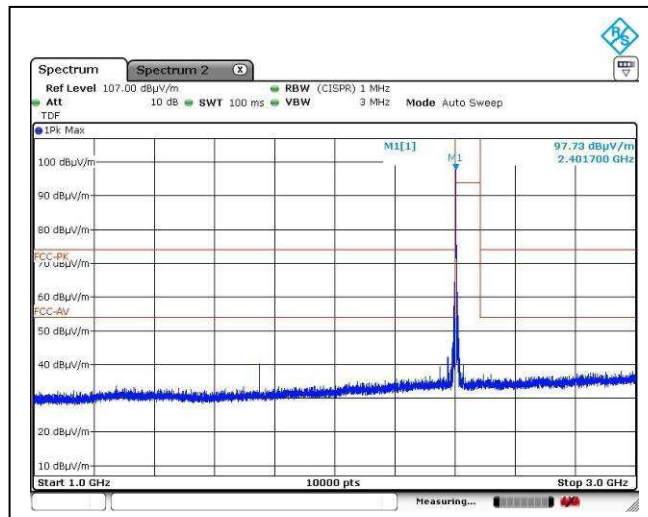
Report No. : AV0032490(7)

Date : 09 Jun 2017

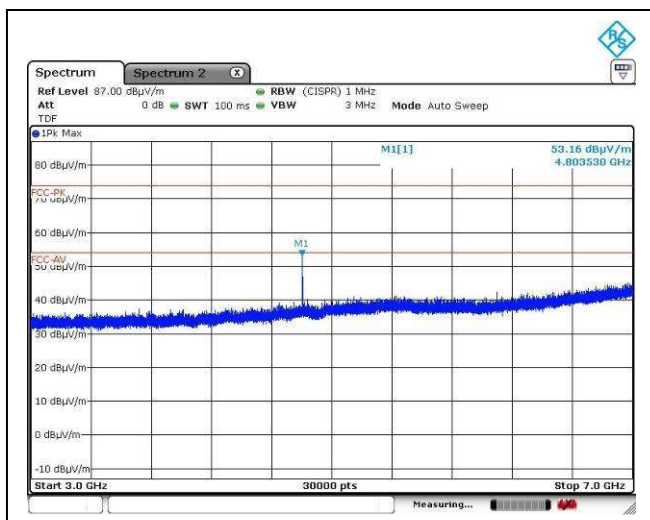
2.3 Radiated Emission Measurement Data (Con't)



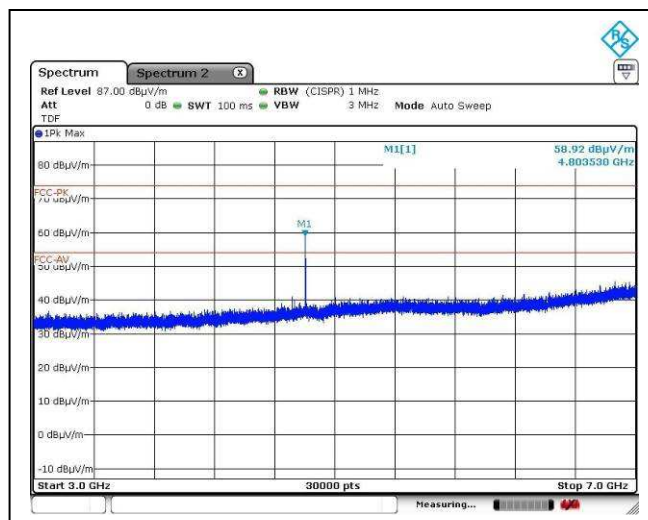
Lower channel, 1GHz – 3GHz, Horizontal



Lower channel, 1GHz – 3GHz, Vertical



Lower channel, 3GHz – 7GHz, Horizontal



Lower channel, 3GHz – 7GHz, Vertical



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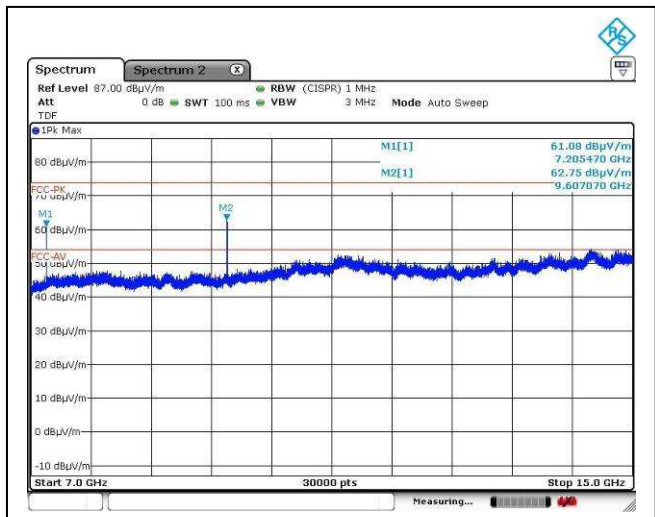
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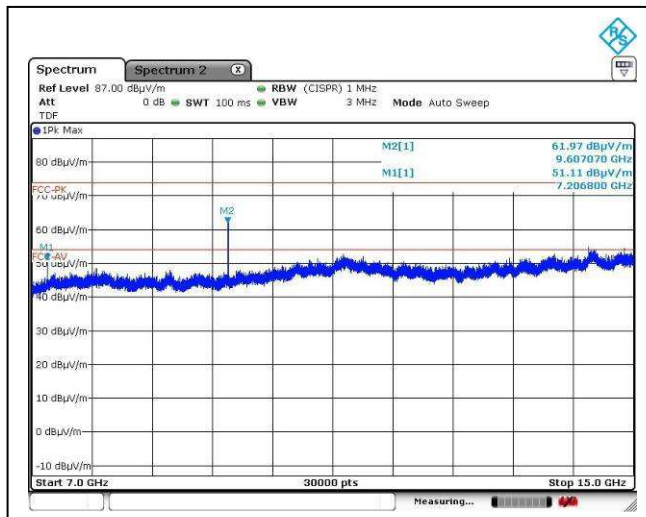
Report No. : AV0032490(7)

Date : 09 Jun 2017

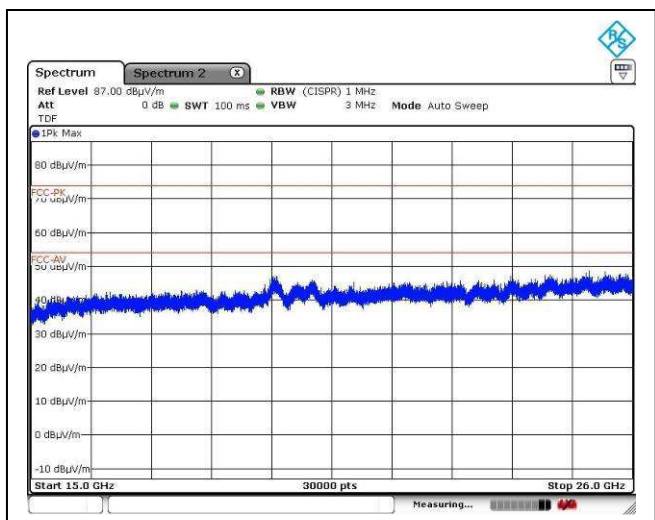
2.3 Radiated Emission Measurement Data (Con't)



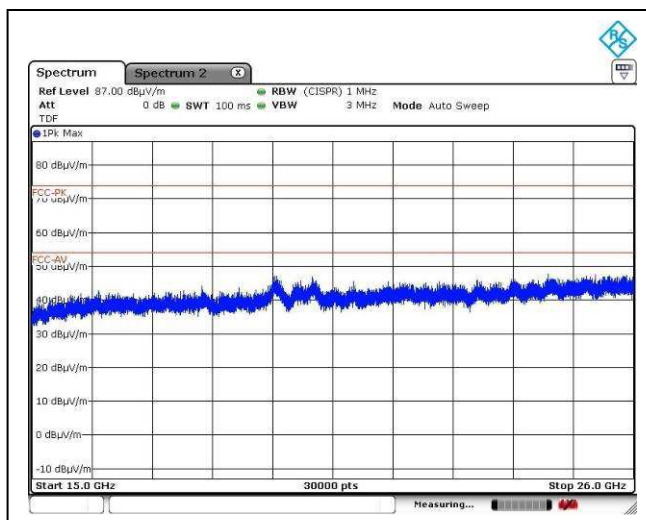
Lower channel, 7GHz – 15GHz, Horizontal



Lower channel, 7GHz – 15GHz, Vertical



Lower channel, above 15GHz, Horizontal



Lower channel, above 15GHz, Vertical



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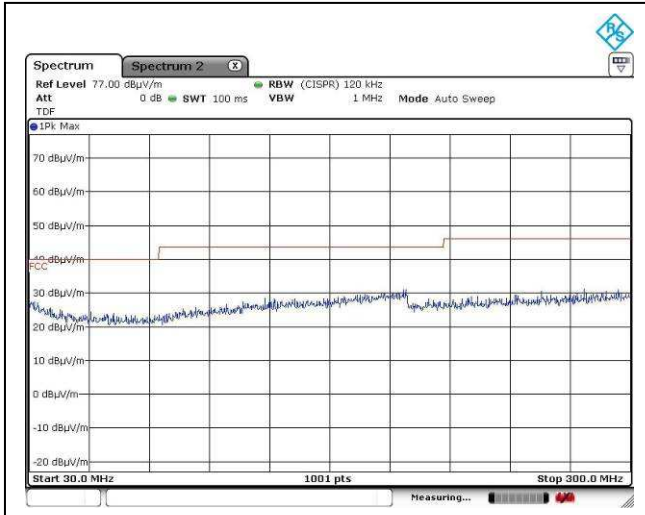
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TEST REPORT

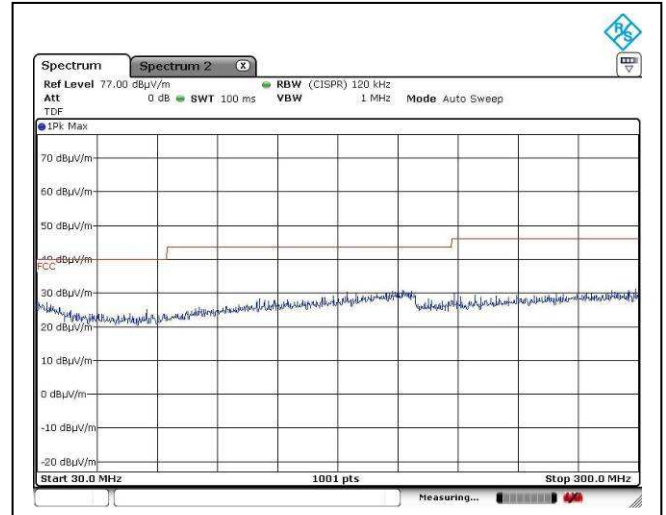
Report No. : AV0032490(7)

Date : 09 Jun 2017

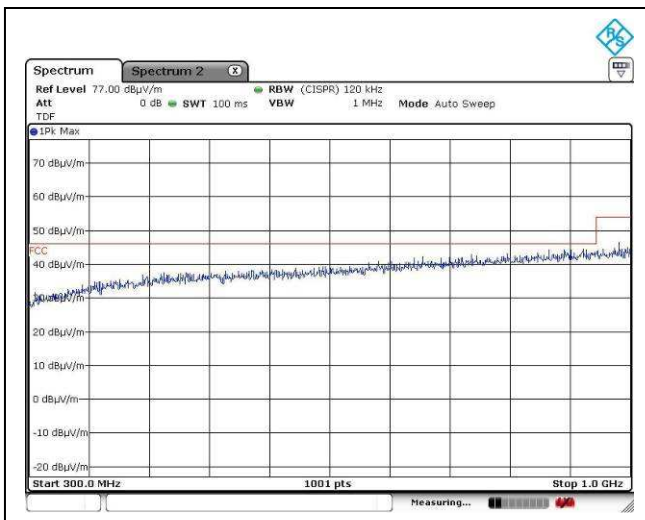
2.3 Radiated Emission Measurement Data (Con't)



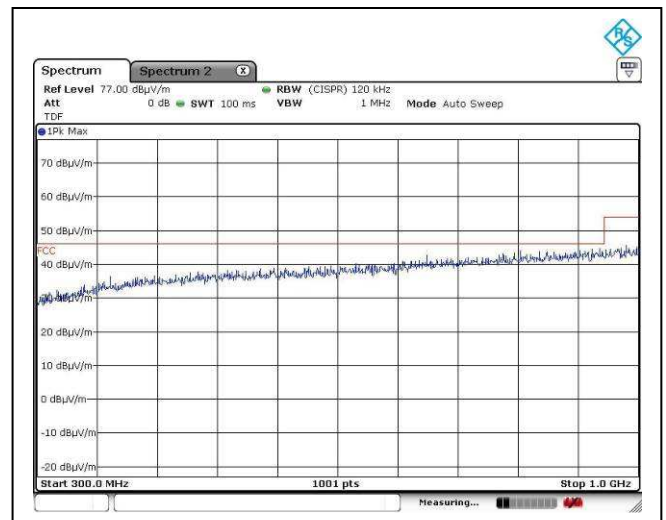
Middle channel, 30MHz – 300MHz, Horizontal



Middle channel, 30MHz – 300MHz, Vertical



Middle channel, 300MHz – 1GHz, Horizontal



Middle channel, 300MHz – 1GHz, Vertical



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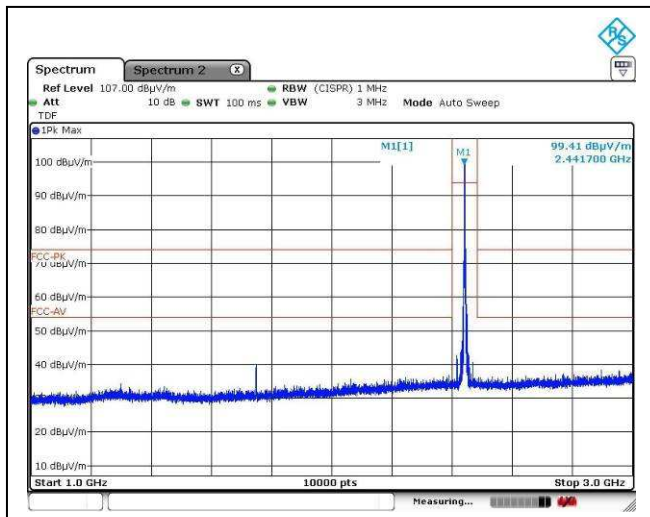
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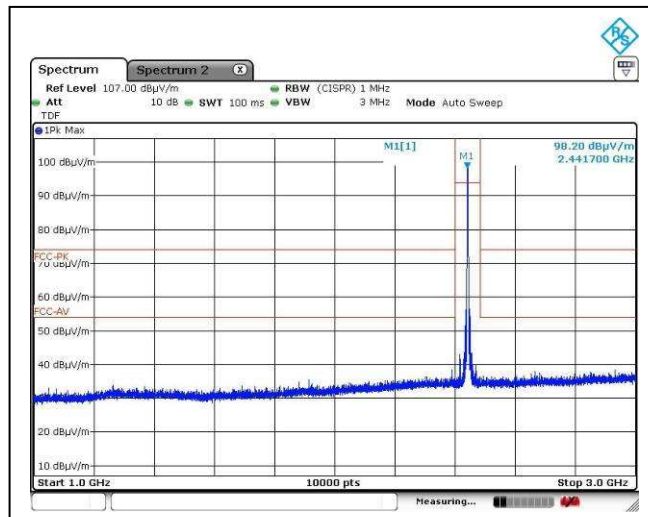
Report No. : AV0032490(7)

Date : 09 Jun 2017

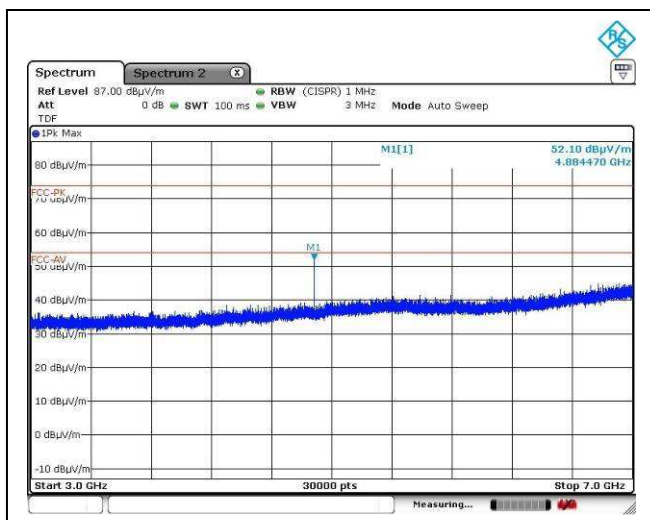
2.3 Radiated Emission Measurement Data (Con't)



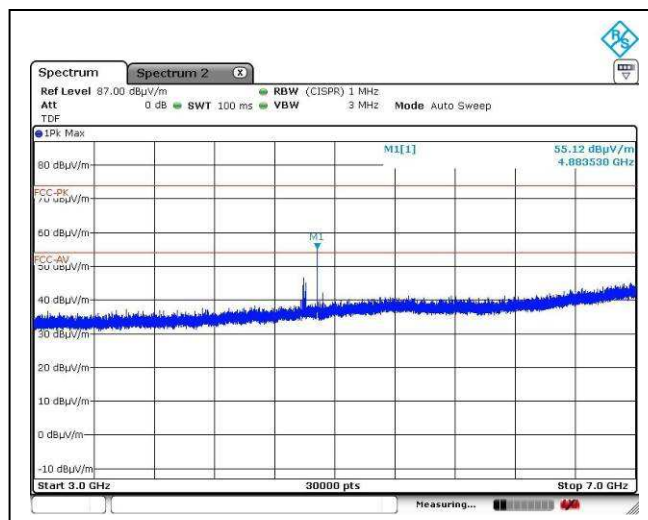
Middle channel, 1GHz – 3GHz, Horizontal



Middle channel, 1GHz – 3GHz, Vertical



Middle channel, 3GHz – 7GHz, Horizontal



Middle channel, 3GHz – 7GHz, Vertical



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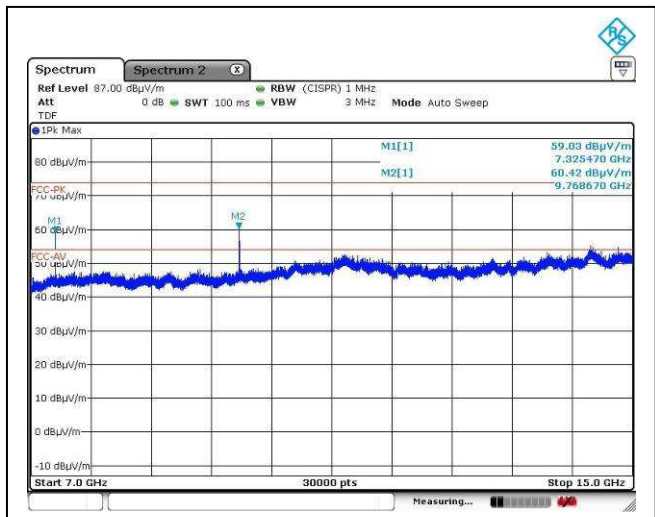
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TEST REPORT

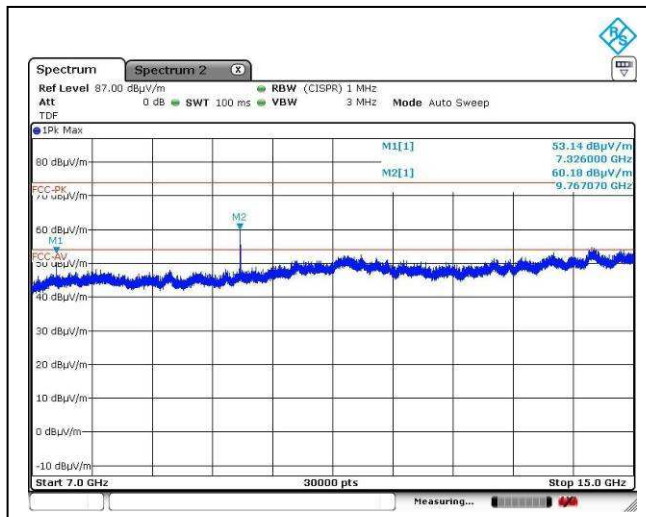
Report No. : AV0032490(7)

Date : 09 Jun 2017

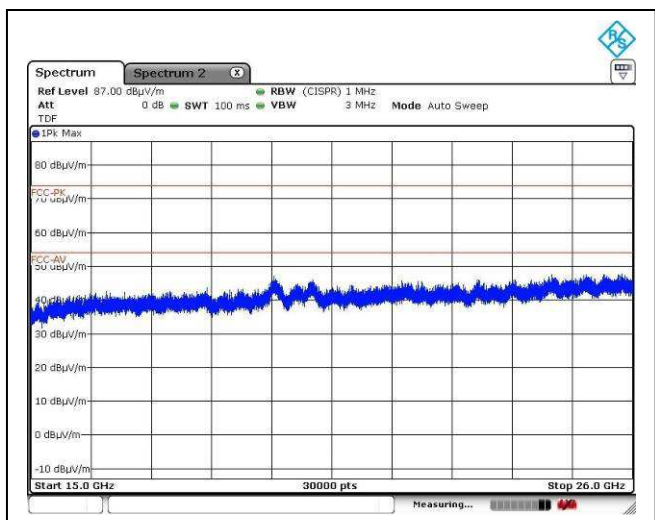
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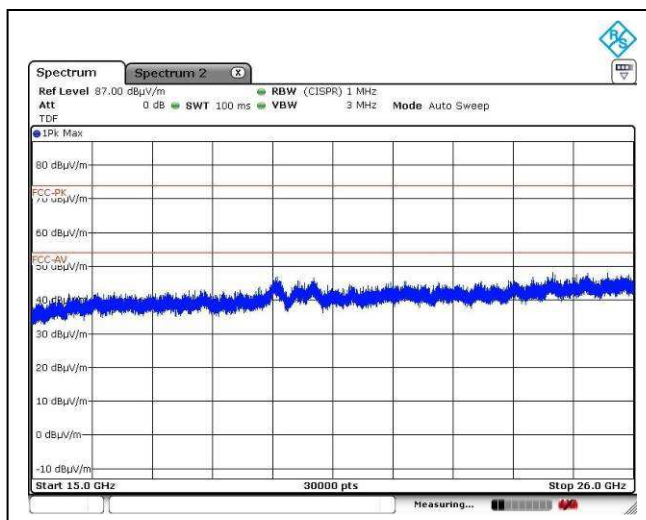
Middle channel, 7GHz – 15GHz, Horizontal



Middle channel, 7GHz – 15GHz, Vertical



Middle channel, above 15GHz, Horizontal



Middle channel, above 15GHz, Vertical



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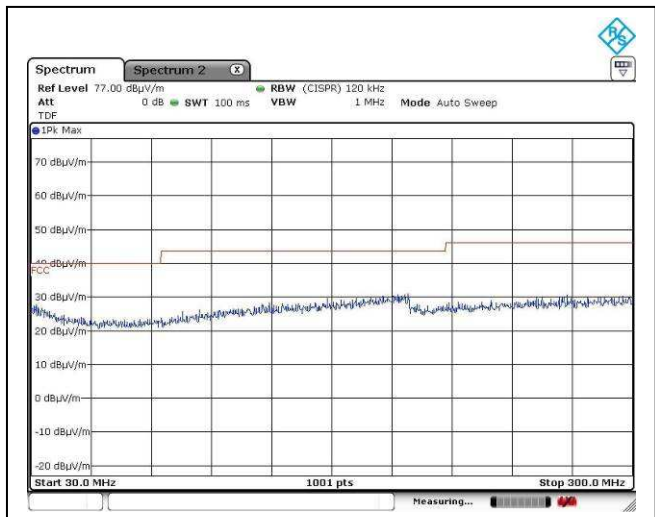
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TEST REPORT

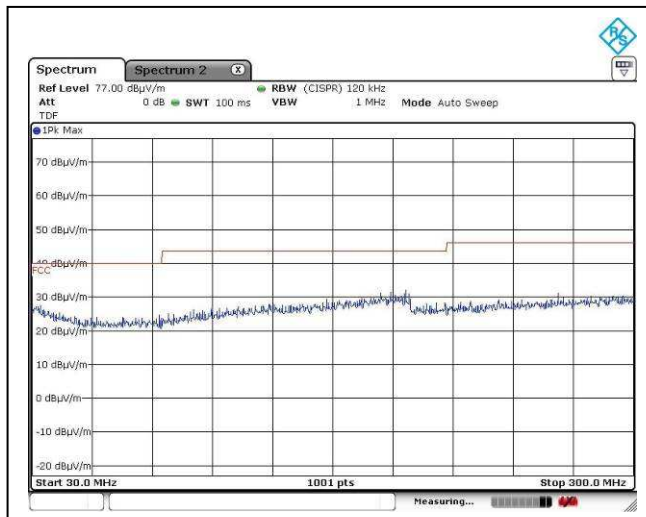
Report No. : AV0032490(7)

Date : 09 Jun 2017

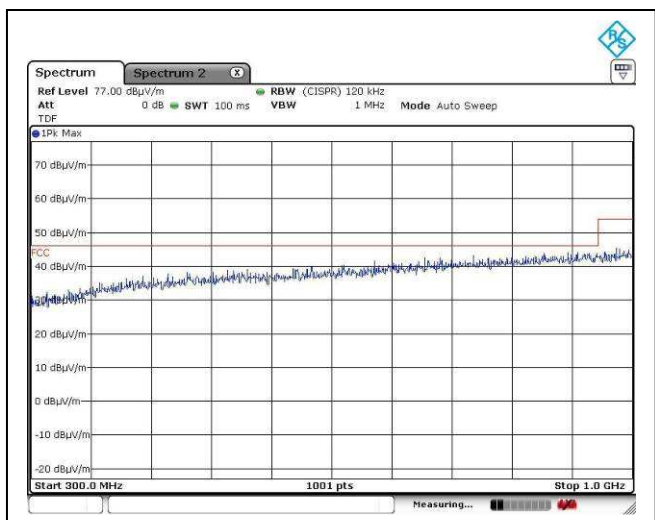
2.3 Radiated Emission Measurement Data (Con't)



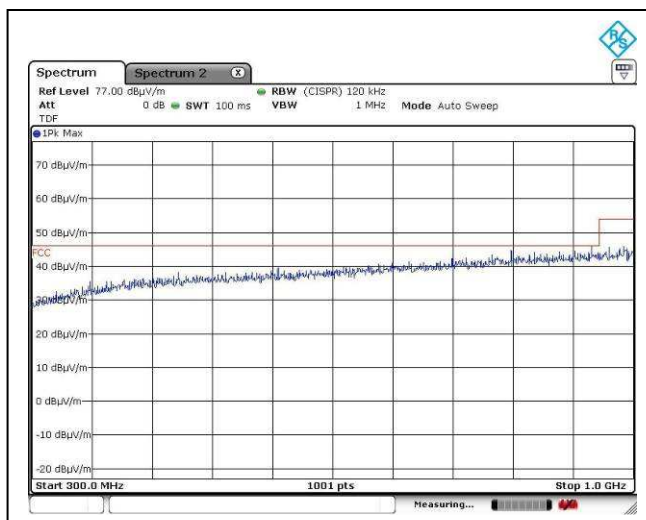
Higher channel, 30MHz – 300MHz, Horizontal



Higher channel, 30MHz – 300MHz, Vertical



Higher channel, 300MHz – 1GHz, Horizontal



Higher channel, 300MHz – 1GHz, Vertical



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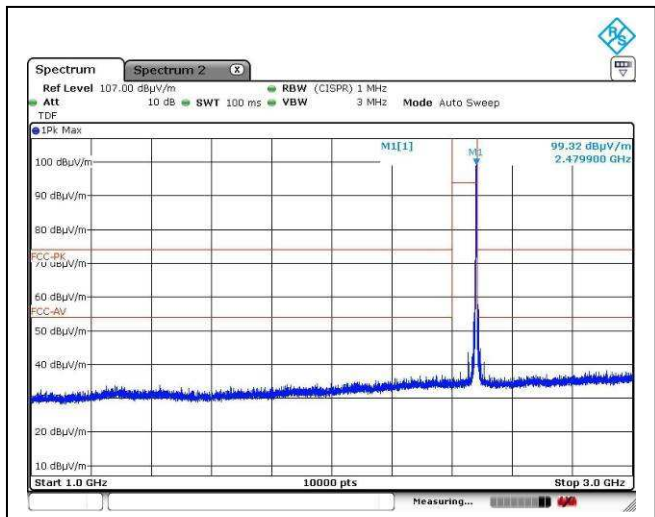
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TEST REPORT

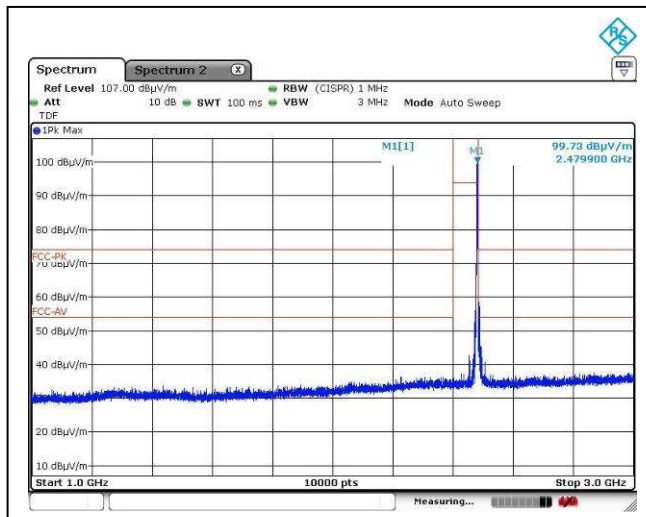
Report No. : AV0032490(7)

Date : 09 Jun 2017

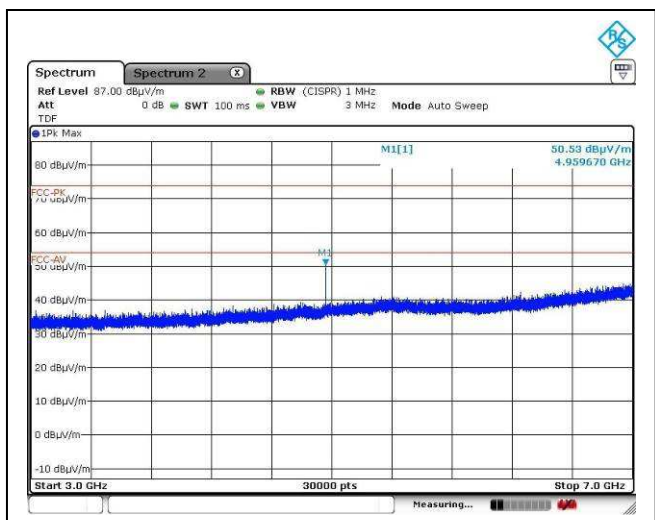
2.3 Radiated Emission Measurement Data (Con't)



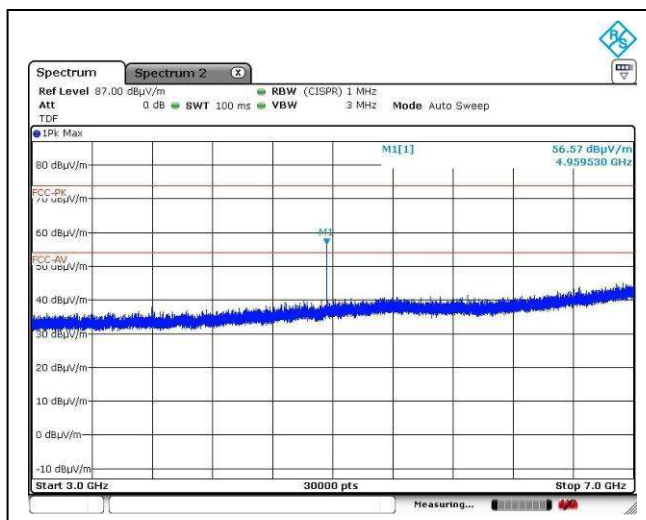
Higher channel, 1GHz – 3GHz, Horizontal



Higher channel, 1GHz – 3GHz, Vertical



Higher channel, 3GHz – 7GHz, Horizontal



Higher channel, 3GHz – 7GHz, Vertical



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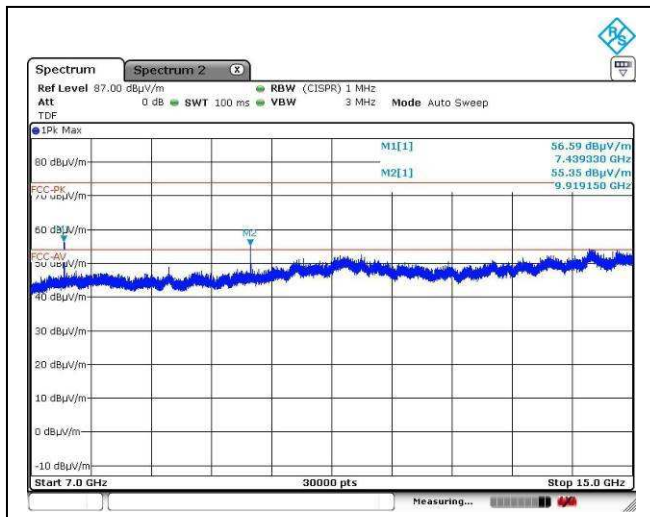
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TEST REPORT

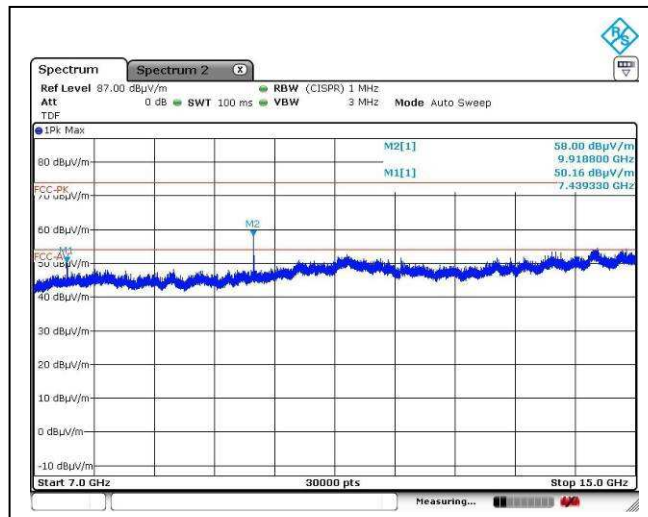
Report No. : AV0032490(7)

Date : 09 Jun 2017

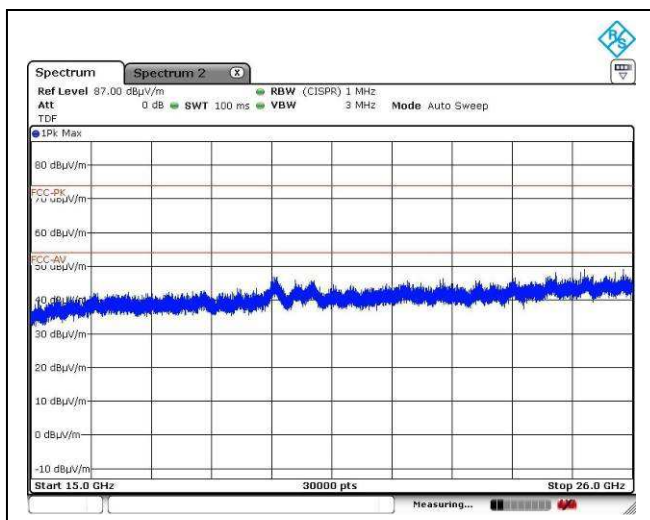
2.3 Radiated Emission Measurement Data (Con't)



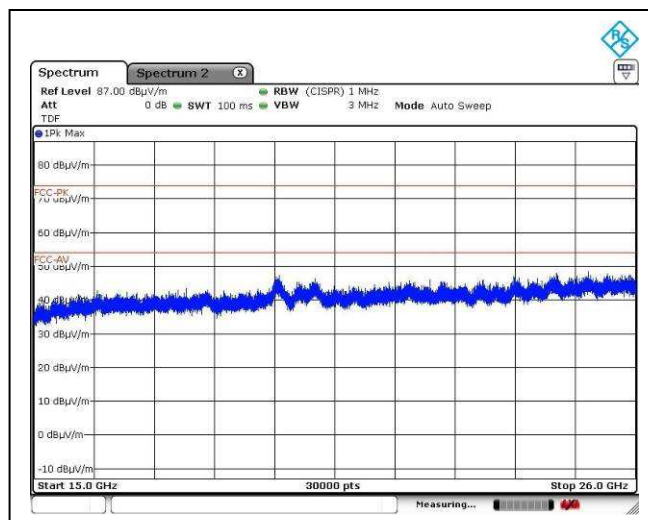
Higher channel, 7GHz – 15GHz, Horizontal



Higher channel, 7GHz – 15GHz, Vertical



Higher channel, above 15GHz, Horizontal



Higher channel, above 15GHz, Vertical



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2.3 Radiated Emission Measurement Data (Con't)

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	21	° C
Relative humidity:	61	%

Testing frequency range: 9kHz to 26GHz Mode: Receiving

Measurement: Quasi-peak (9kHz – 1GHz), Peak (above 1GHz)

RBW: 9kHz (below 30MHz), 120KHz (30MHz – 1GHz), 1MHz (above 1GHz)

VBW: 30kHz (below 30MHz), 300kHz (30MHz – 1GHz), 3MHz (above 1GHz)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)

Remark: No specified emission found



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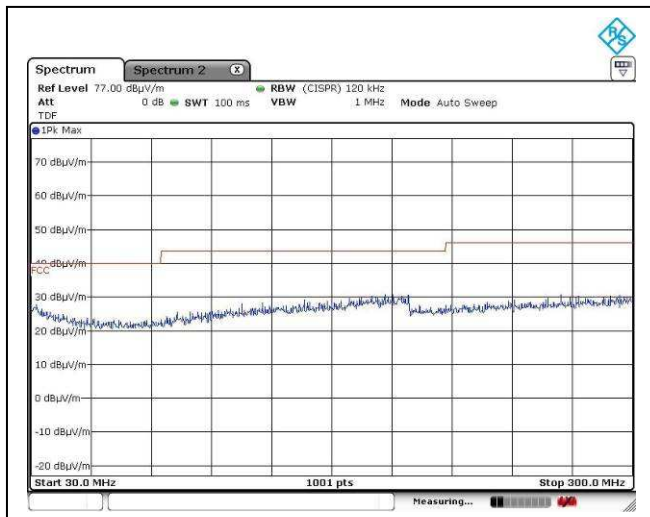
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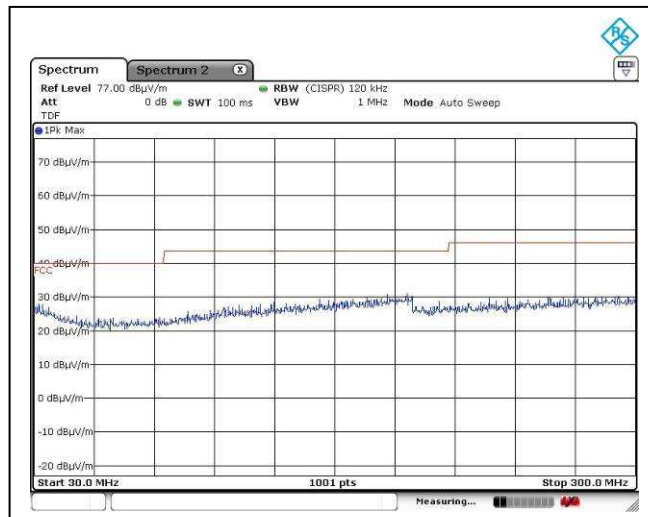
Report No. : AV0032490(7)

Date : 09 Jun 2017

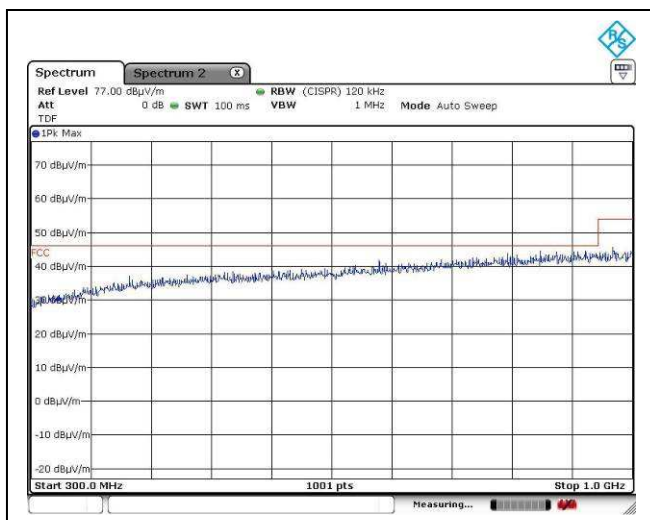
2.3 Radiated Emission Measurement Data (Con't)



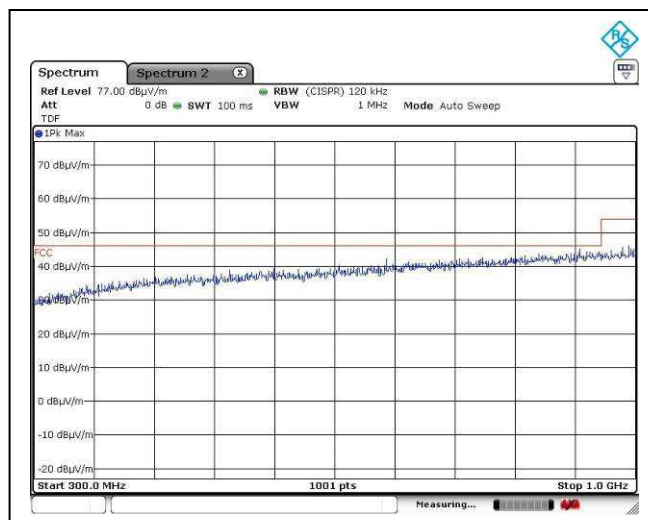
Receiving mode, 30MHz – 300MHz, Horizontal



Receiving mode, 30MHz – 300MHz, Vertical



Receiving mode, 300MHz – 1GHz, Horizontal



Receiving mode, 300MHz – 1GHz, Vertical



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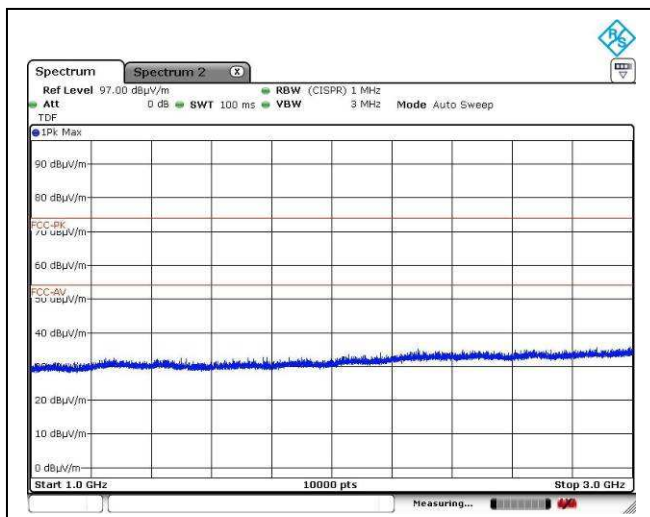
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TEST REPORT

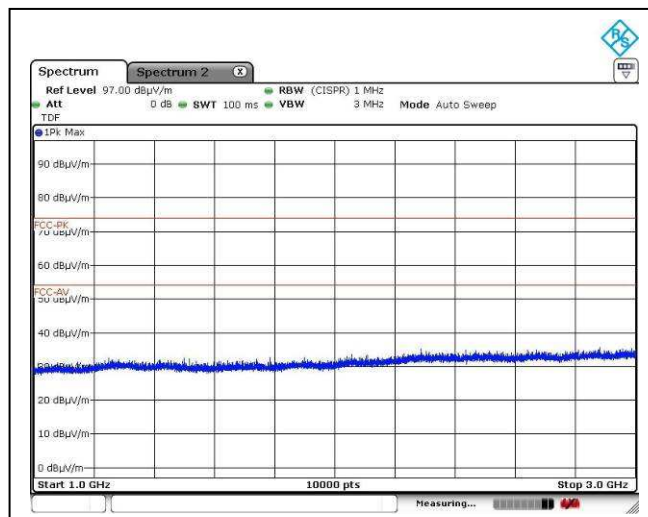
Report No. : AV0032490(7)

Date : 09 Jun 2017

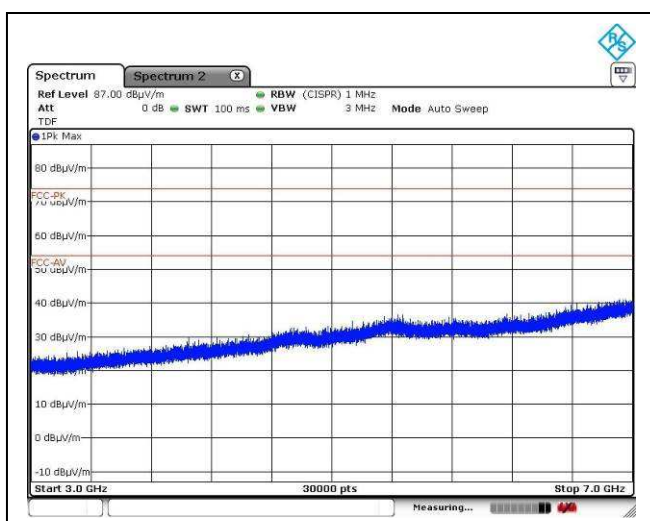
2.3 Radiated Emission Measurement Data (Con't)



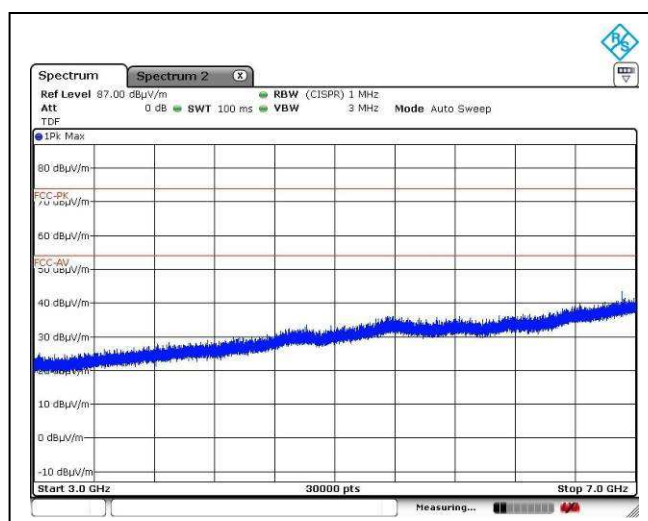
Receiving mode, 1GHz – 3GHz, Horizontal



Receiving mode, 1GHz – 3GHz, Vertical



Receiving mode, 3GHz – 7GHz, Horizontal



Receiving mode, 3GHz – 7GHz, Vertical



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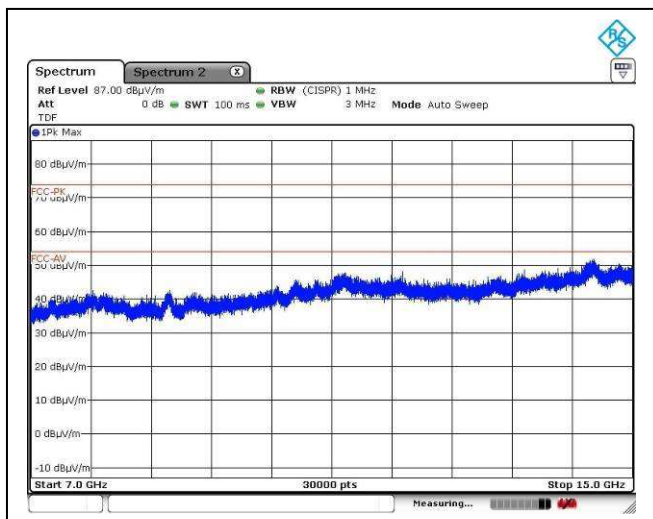
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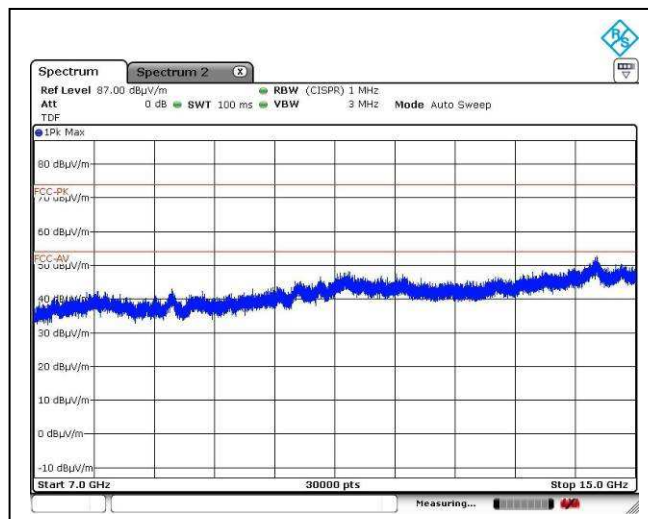
Report No. : AV0032490(7)

Date : 09 Jun 2017

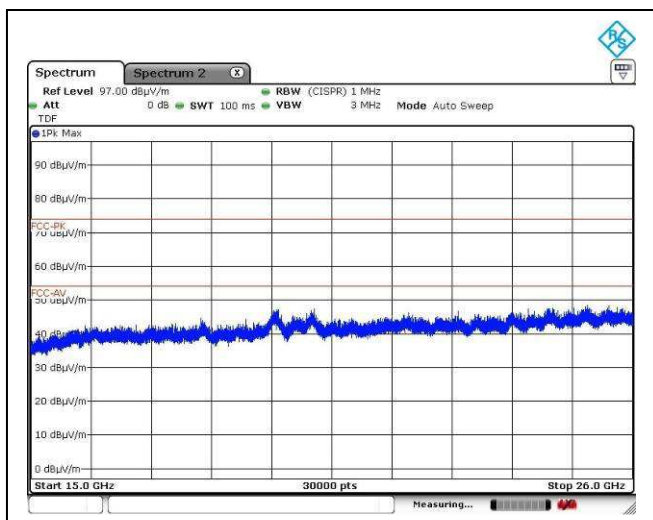
2.3 Radiated Emission Measurement Data (Con't)



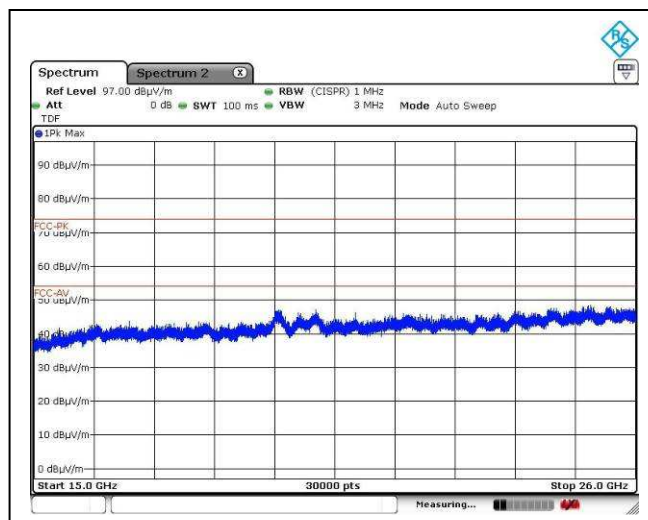
Receiving mode, 7GHz – 15GHz, Horizontal



Receiving mode, 7GHz – 15GHz, Vertical



Receiving mode, above 15GHz, Horizontal



Receiving mode, above 15GHz, Vertical



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3 Description of the Line-conducted Test

3.1 Test Procedure

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.10 – 2013. The EUT was setup as described in the procedures, and both lines were measured.

3.2 Test Result

The EUT connected to an adaptor for operating



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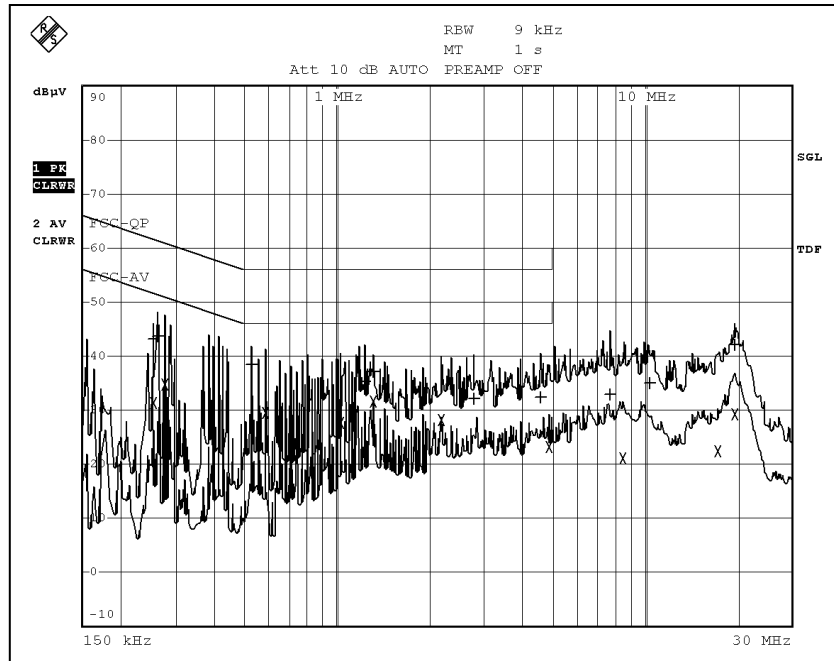
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3.3 Graph and Table of Conducted Emission Measurement Data



EDIT PEAK LIST (Final Measurement Results)				
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
Trace1:	FCC-QP			
Trace2:	FCC-AV			
Trace3:	---			
1 Quasi Peak	253.5 kHz	43.19 N gnd	-18.44	
2 Average	253.5 kHz	31.42 N gnd	-20.22	
1 Quasi Peak	262.5 kHz	43.78 N gnd	-17.56	
2 Average	276 kHz	34.70 N gnd	-16.22	
1 Quasi Peak	522.5 kHz	38.40 N gnd	-17.59	
2 Average	585.5 kHz	29.59 N gnd	-16.40	
2 Average	1.0265 MHz	27.58 N gnd	-18.41	
1 Quasi Peak	1.2335 MHz	35.26 N gnd	-20.73	
1 Quasi Peak	1.3145 MHz	37.06 N gnd	-18.93	
2 Average	1.3145 MHz	31.51 N gnd	-14.48	
2 Average	2.174 MHz	28.17 N gnd	-17.82	
1 Quasi Peak	2.795 MHz	32.08 N gnd	-23.91	
1 Quasi Peak	4.5725 MHz	32.48 L1 gnd	-23.51	
2 Average	4.9145 MHz	23.28 N gnd	-22.71	
1 Quasi Peak	7.7315 MHz	32.89 L1 gnd	-27.10	
2 Average	8.483 MHz	21.19 L1 gnd	-28.80	
1 Quasi Peak	10.4 MHz	35.11 N gnd	-24.88	
2 Average	17.303 MHz	22.44 N gnd	-27.55	
2 Average	19.6025 MHz	29.36 N gnd	-20.63	
1 Quasi Peak	19.697 MHz	42.17 N gnd	-17.82	



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Date : 09 Jun 2017

4 Photograph

4.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission

For electronic filing, the photos are saved with filename 2ABBXCM9301V442017 TSup.pdf.

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename 2ABBXCM9301V442017 ExPho.pdf and 2ABBXCM9301V442017 InPho.pdf.

4.3 Antenna requirement

Appendices A4 shows the antenna is permanently attached and cannot be changed. Therefore it fulfils the section 15.203 requirement



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5 Appendices

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A3	Photos of the set-up of Line-conducted Emissions	1	page
A4	Photos of External Configurations	2	pages
A5	Photos of Internal Configurations	1	page
A6	ID Label/Location	1	page



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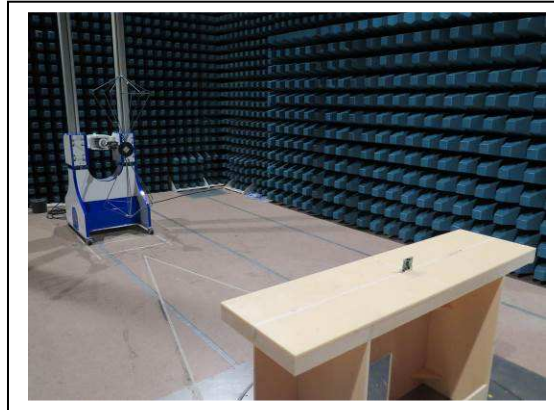
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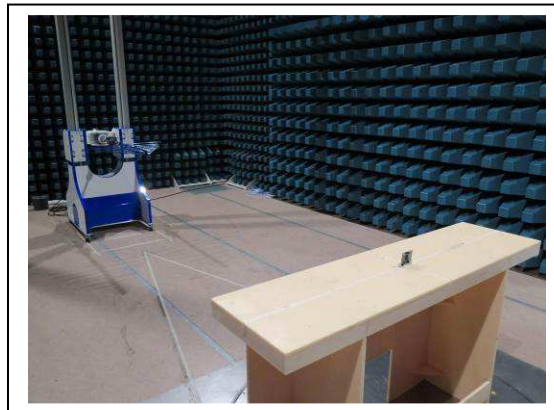
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A1. Photos of the set-up of Radiated Emissions



30MHz – 300MHz



300MHz – 1GHz

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Reviewed by:

Mr. WONG Lap-pong, Andrew

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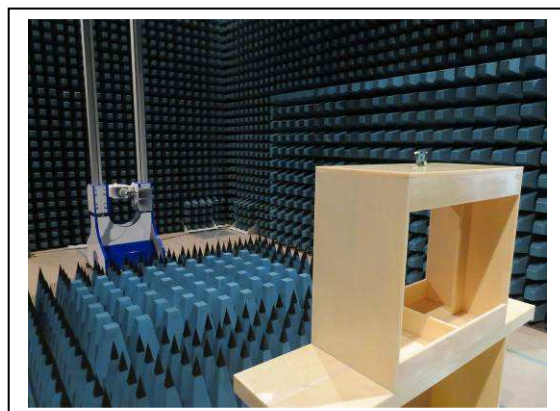
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A1. Photos of the set-up of Radiated Emissions



9kHz – 30MHz



Above 1GHz

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A2. Photos of the set-up of Conducted Emissions



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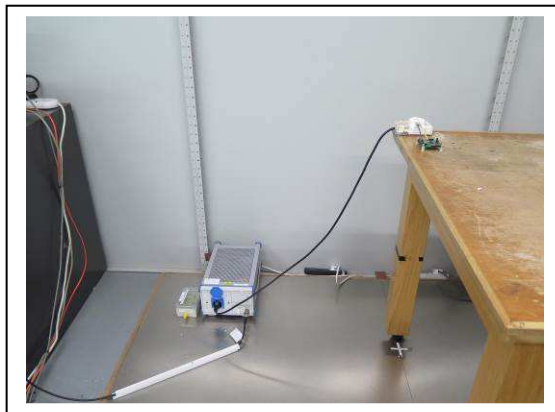
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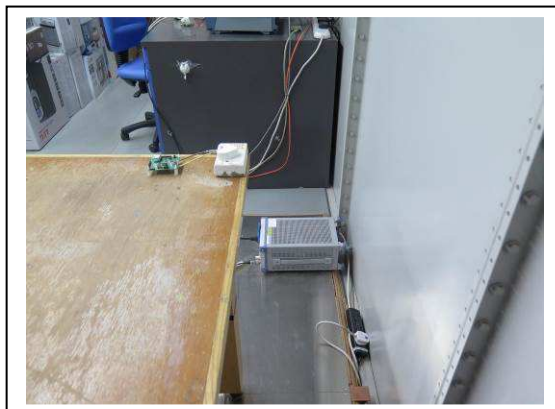
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A3. Photos of the set-up of Line-conducted Emissions



Front view



Side view

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A4 Photos of External Configurations



External Configuration 1
(with pin header)



External Configuration 2
(with pin header)

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A4 Photos of External Configurations



External Configuration 3
(without pin header)



External Configuration 4
(without pin header)

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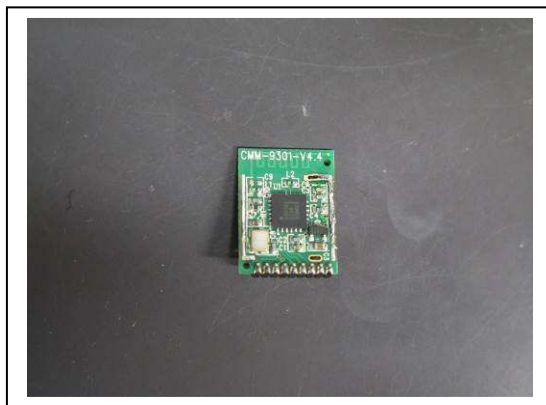
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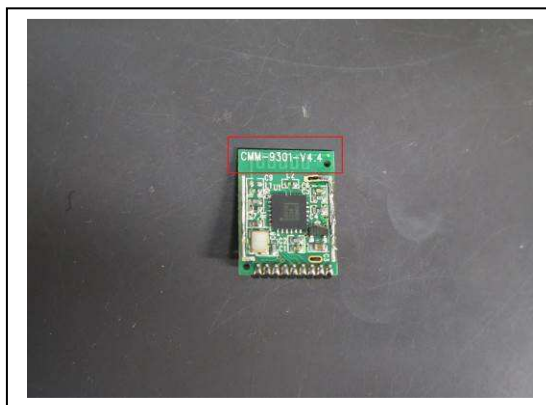
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A5 Photos of Internal Configurations



Internal Configuration 1



EUT antenna

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A6 ID Label / Location



ID Label 1



ID Label 2

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