FCC Test Report

Report No.:	RF161028D01C
FCC ID:	PY316200344
Test Model:	R6800
Series Model:	R6700v2, R6900v2
Received Date:	Oct. 28, 2016
Test Date:	Nov. 9 ~ Dec. 7, 2016 & Jul. 19, 2017
Issued Date:	Jul. 21, 2017
Applicant:	NETGEAR INC.
Address:	350 East Plumeria Drive, San Jose, CA 95134, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF161028D01C	Original release.	Jul. 21, 2017

1 Certificate of Conformity

Product:	AC1900 Smart WiFi Router / AC1750 Smart WiFi Router
Brand:	NETGEAR
Test Model:	R6800 (**Product:** AC1900 Smart WiFi Router)
Series Model:	R6700v2 (**Product:** AC1750 Smart WiFi Router) R6900v2 (**Product:** AC1900 Smart WiFi Router)
Sample Status:	Engineering sample
Applicant:	NETGEAR INC.
Test Date:	Nov. 9 ~ Dec. 7, 2016 & Jul. 19, 2017
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Annie Chang , **Date:** Jul. 21, 2017

Annie Chang / Senior Specialist

Approved by : Rex. Lai , **Date:** Jul. 21, 2017

Rex Lai / Assistant Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.11dB at 0.30625MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.3dB at 2390.00 & 2483.500 MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA or I-PEX not a standard connector.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.77 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1000MHz	5.54 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.77 dB
	6GHz ~ 18GHz	5.48 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC1900 Smart WiFi Router / AC1750 Smart WiFi Router
Brand	NETGEAR
Test Model	R6800 (**Product:** AC1900 Smart WiFi Router)
Series Model	R6700v2 (**Product:** AC1750 Smart WiFi Router)
	R6900v2 (**Product:** AC1900 Smart WiFi Router)
Model Difference	Refer to note as below
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter (refer to note as below) Power Cord: Non-shielded DC cable (1.8m)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT20/40 mode
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 800Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20), VHT20 7 for 802.11n (HT40), VHT40
Output Power	824.640mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	N/A
Data Cable Supplied	Non-shielded Ethernet cable (1.5m)

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides four completed transmitters and four receivers.

Modulation Mode	TX Function
802.11b	4TX
802.11g	4TX
802.11n (20MHz)	4TX
802.11n (40MHz)	4TX
VHT20	4TX
VHT40	4TX

* The modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and VHT20, VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. All models are listed as below.

Model		R6700v2	R6900v2	R6800	Remark
Product Name		AC1750 Smart WiFi Router	AC1900 Smart WiFi Router	AC1900 Smart WiFi Router	
HW	USB 2.0	NO	NO	YES	
	USB 3.0	YES	YES	YES	
	LED- USB LED	NO	NO	YES	PCBA Components is no difference. Only silkscreen on top housing is different.
	LED-Wireless Guest LED	YES	YES	NO	
SW	2.4G 256 QAM	Disable	Enable	Enable	

3. The EUT uses following adapter.

Adapter	1	2
Brand	NETGEAR	NETGEAR
Model	2ABL030F 1 NA	AD2067F10
P/N	332-10758-01	332-10797-01
AC Input Power	100-120V, 50/60Hz, 1.0A	100-120V, 50/60Hz, 1.0A
DC Output Power	12.0V, 2.5A	12.0V, 2.5A
Plug Type	US Plug	US Plug
Power Cord	Non-shielded DC cable (1.8m)	Non-shielded DC cable (1.8m)

After pre-tested, the **adapter 1** was the worst case for final test.

4. The antennas provided to the EUT, please refer to the following table:

Chain No.	Antenna Type	Antenna Gain (dBi)	Connector Type
Chain 0	Dipole	3.14	R-SMA
Chain 1	Dipole	3.74	R-SMA
Chain 2	Dipole	2.98	R-SMA
Chain 3	PIFA	3.06	I-PEX

5. The directional gain table:

Frequency (MHz)	Max. Gain (dBi)
2412 ~ 2462	9.26

Note:

(i) If transmit signals are *correlated*, then

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

6. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), VHT20:

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40), VHT40:

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming_NSS1 MODE (Output Power Only)						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

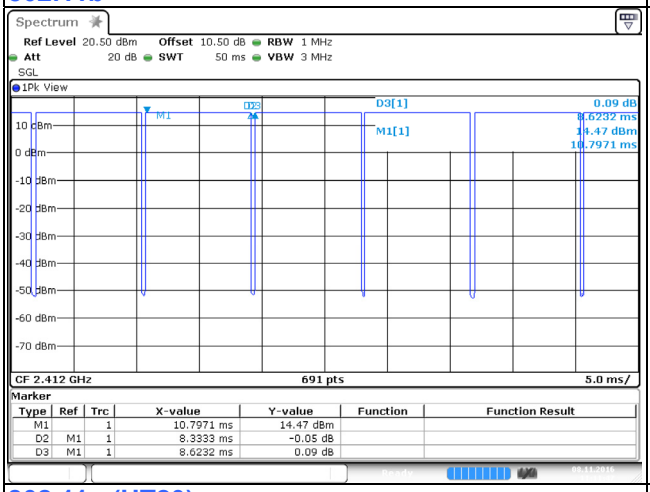
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 75%RH	120Vac, 60Hz	Ian Chang
RE<1G	22deg. C, 74%RH	120Vac, 60Hz	Aaron You
PLC	23deg. C, 77%RH	120Vac, 60Hz	Vhenson Huang
APCM	20deg. C, 60%RH	120Vac, 60Hz	Saxon Lee

3.3 Duty Cycle of Test Signal

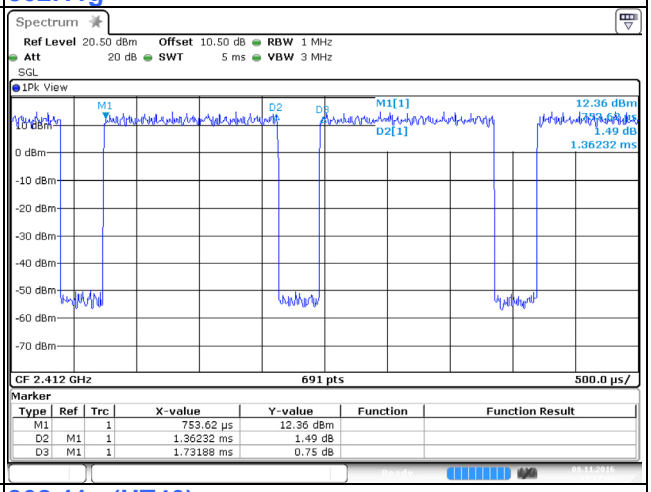
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 8.333/8.623 = 0.966, Duty factor = 10 * log(1/0.966) = 0.15
802.11g: Duty cycle = 1.362/1.731 = 0.787, Duty factor = 10 * log(1/0.787) = 1.04
802.11n (HT20): Duty cycle = 0.357/0.708 = 0.504, Duty factor = 10 * log(1/0.504) = 2.98
802.11n (HT40): Duty cycle = 0.192/0.502 = 0.382, Duty factor = 10 * log(1/0.382) = 4.18

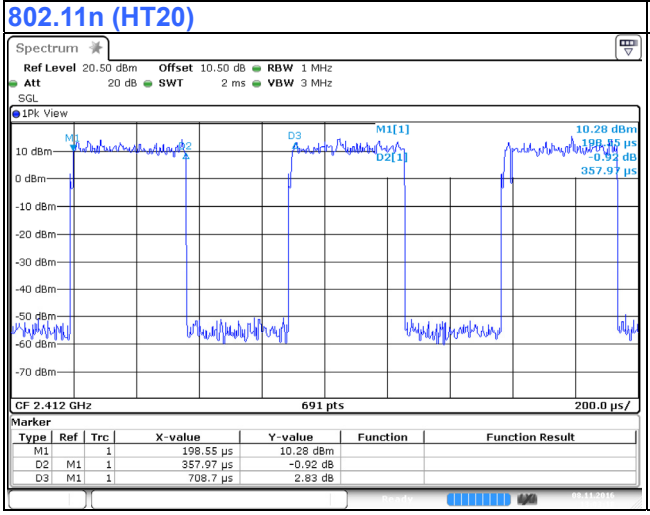
802.11b



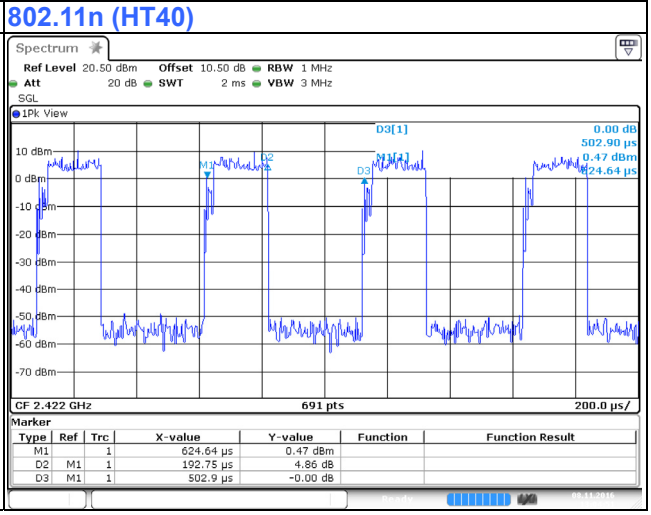
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

For Conducted Emission Test:

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	USB 3.0 Flash Drive	HP	v250w	N/A	FCC DoC Approved	Provided by Lab
B.	USB 3.0 Flash Drive	Transend	16GB	N/A	N/A	Provided by Lab
C.	Notebook PC	DELL	P41G	FT4W952	FCC DoC Approved	Provided by Lab
D.	Notebook PC	DELL	P41G	GT4W952	FCC DoC Approved	Provided by Lab
	Notebook PC	DELL	P41G	HT4W952	FCC DoC Approved	Provided by Lab
	Notebook PC	ASUS	PU401L	E9NXBC002007372	FCC DoC Approved	Provided by Lab
	Notebook PC	ASUS	PU401L	ECNXBC012528528	FCC DoC Approved	Provided by Lab
E.	Notebook PC	DELL	XPS 13-9350	0V5D5A01	FCC DoC Approved	Provided by Lab
F.	Notebook PC	SONY	SVS151A12P	275548477001024	FCC DoC Approved	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items C~F acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.8	N	0	Supplied by client
2.	LAN cable	1	10	N	0	Provided by Lab
3.	LAN cable	4	10	N	0	Provided by Lab

Note: The core(s) is(are) originally attached to the cable(s).

For Radiated Emission Test:

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	USB 3.0 Hard Disk	WD	WDBACY5000ABL-PESN	WX11E91JE773	FCC DoC Approved	Provided by Lab
B.	USB 3.0 Hard Disk	WD	WDBACY5000ABL-PESN	WX81E81YSM98	FCC DoC Approved	Provided by Lab
C.	Load	N/A	N/A	N/A	N/A	Provided by Lab
D.	Notebook PC	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab
E.	Notebook PC	DELL	E6530	9331GV1	FCC DoC Approved	Provided by Lab

Note:

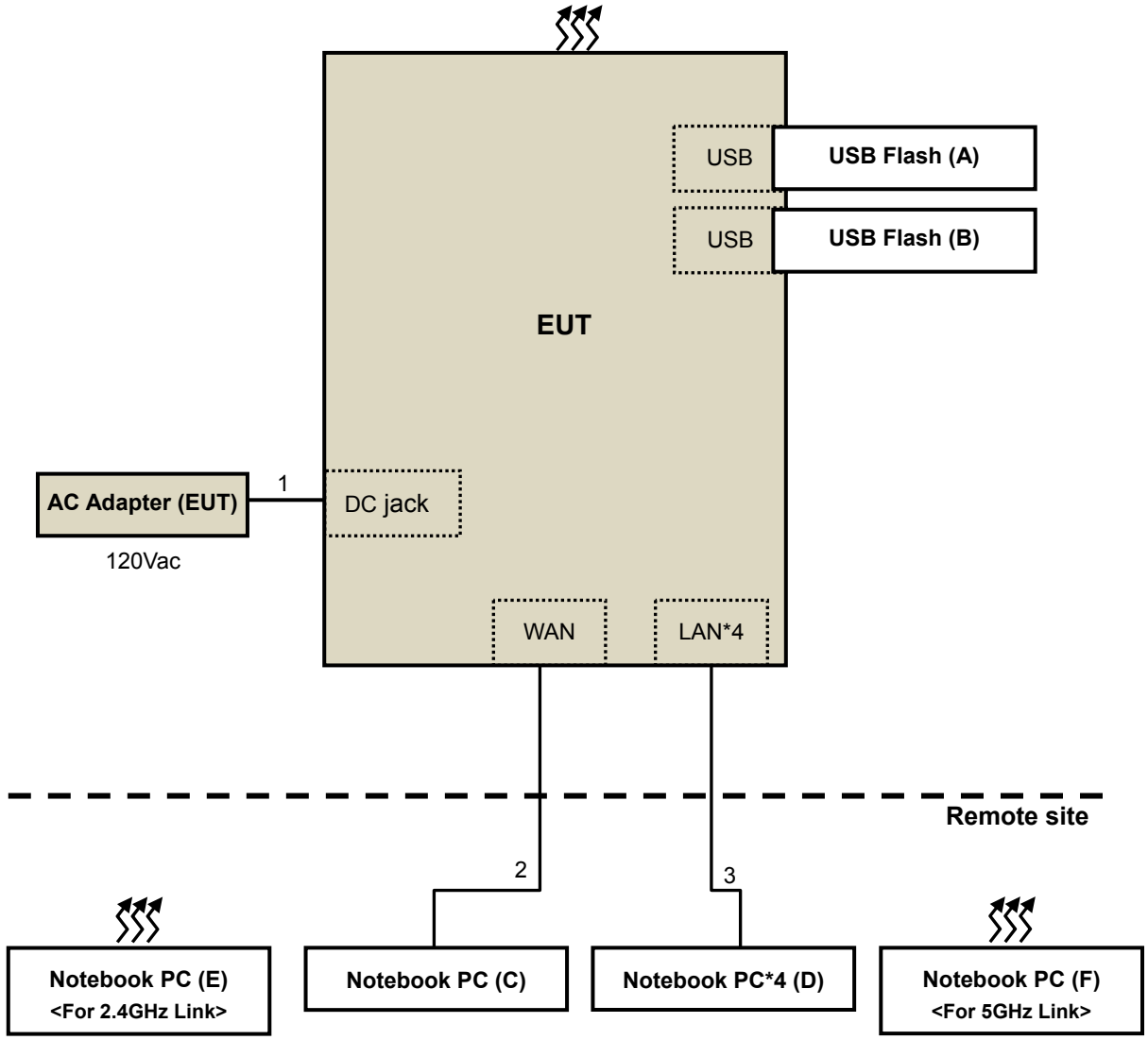
1. All power cords of the above support units are non-shielded (1.8m).
2. Items D~E acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	0.5	Y	0	Provided by Lab
2.	USB cable	1	0.5	Y	0	Provided by Lab
3.	LAN cable	3	1.8	N	0	Provided by Lab
4.	DC cable	1	1.8	N	0	Supplied by client
5.	LAN cable	1	10	N	0	Provided by Lab
6.	LAN cable	1	10	N	0	Provided by Lab

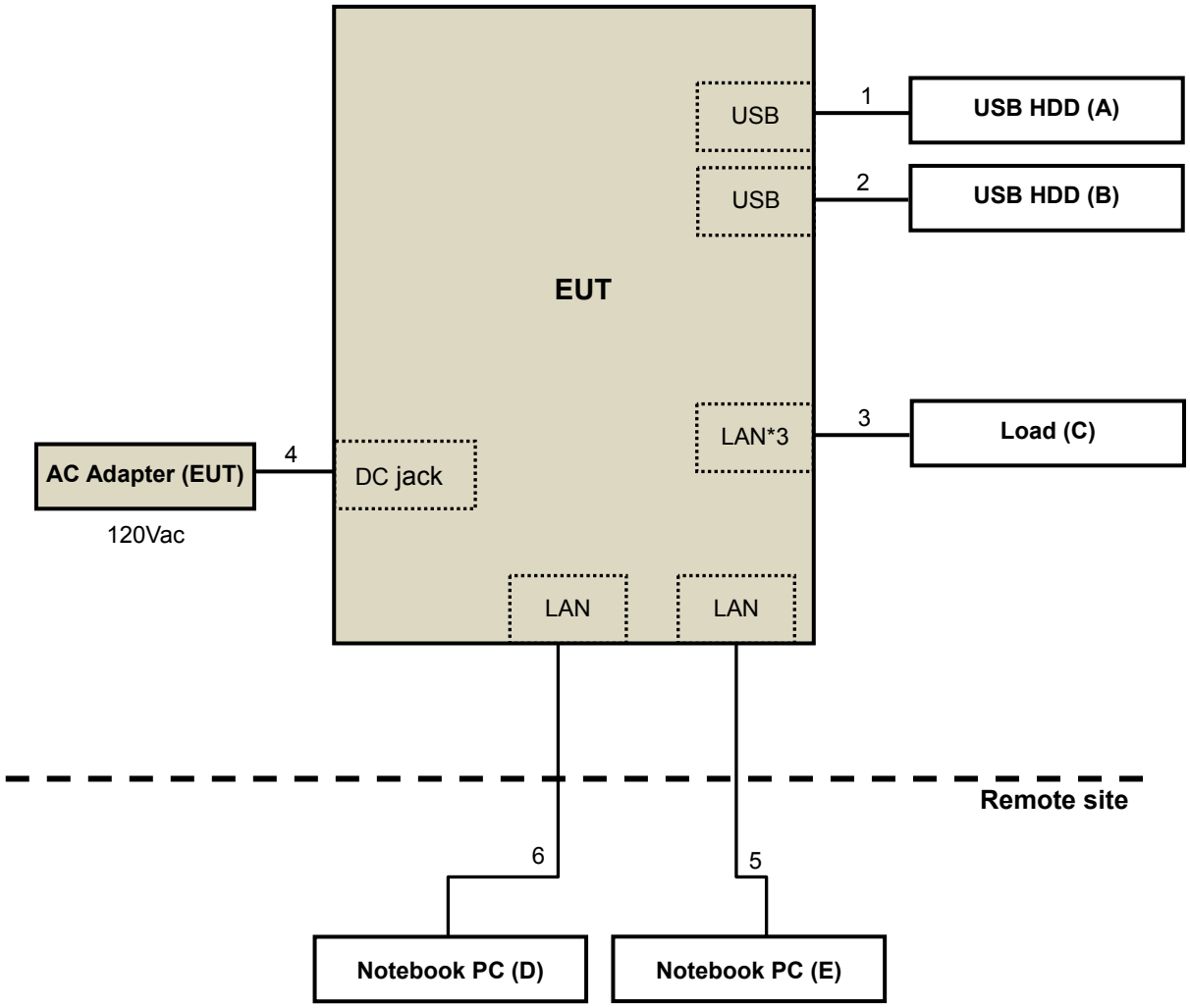
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

For Conducted Emission Test:



For Radiated Emission Test:



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v04
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2016	Feb. 25, 2017
HP Preamplifier	8449B	3008A01201	Feb. 26, 2016	Feb. 25, 2017
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Mar. 01, 2016	Feb. 28, 2017
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 02, 2016	Feb. 01, 2017
Schwarzbeck Antenna	VULB 9168	139	Jan. 04, 2016	Jan. 03, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2015	May 28, 2017
Schwarzbeck Horn Antenna	BBHA-9170	212	Jan. 08, 2016	Jan. 07, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Jan. 21, 2016	Jan. 20, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2016	Aug. 14, 2017
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2016	Aug. 14, 2017
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 25, 2016	May 24, 2017
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2016	Jul. 25, 2017
Loop Antenna EMCI	LPA600	270	Aug. 20, 2015	Aug. 19, 2017
EMCO Horn Antenna	3115	00028257	Jan. 19, 2016	Jan. 18, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 30, 2016	Sep. 29, 2017
Anritsu Power Sensor	MA2411B	0738404	Apr. 28, 2016	Apr. 27, 2017
Anritsu Power Meter	ML2495A	0842014	Apr. 28, 2016	Apr. 27, 2017

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.
6. Tested Date: Nov. 9 ~ Dec. 7, 2016

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 21, 2017	Feb. 20, 2018
HP Preamplifier	8449B	3008A01201	Feb. 22, 2017	Feb. 21, 2018
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2017	Feb. 20, 2018
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 08, 2017	Feb. 07, 2018
Schwarzbeck Antenna	VULB 9168	139	Dec. 13, 2016	Dec. 12, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 19, 2017	May 18, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 27, 2016	Dec. 26, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2016	Aug. 14, 2017
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2016	Aug. 14, 2017
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2016	Jul. 25, 2017
Loop Antenna EMCI	LPA600	270	Aug. 20, 2015	Aug. 19, 2017
EMCO Horn Antenna	3115	00028257	Dec. 15, 2016	Dec. 14, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 30, 2016	Sep. 29, 2017
Anritsu Power Sensor	MA2411B	0738404	Apr. 24, 2017	Apr. 23, 2018
Anritsu Power Meter	ML2495A	0842014	Apr. 24, 2017	Apr. 23, 2018

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.
6. Tested Date: Jul. 19, 2017

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Both X and Y axes of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

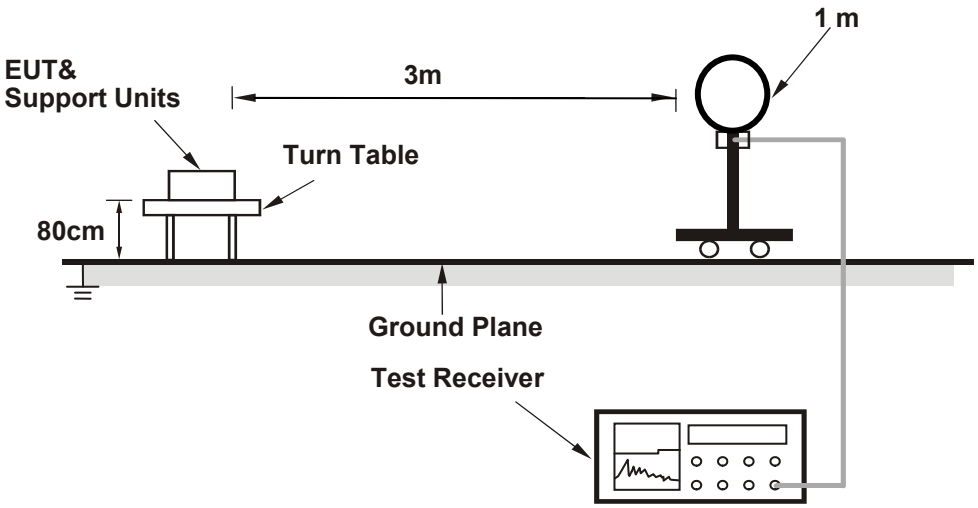
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

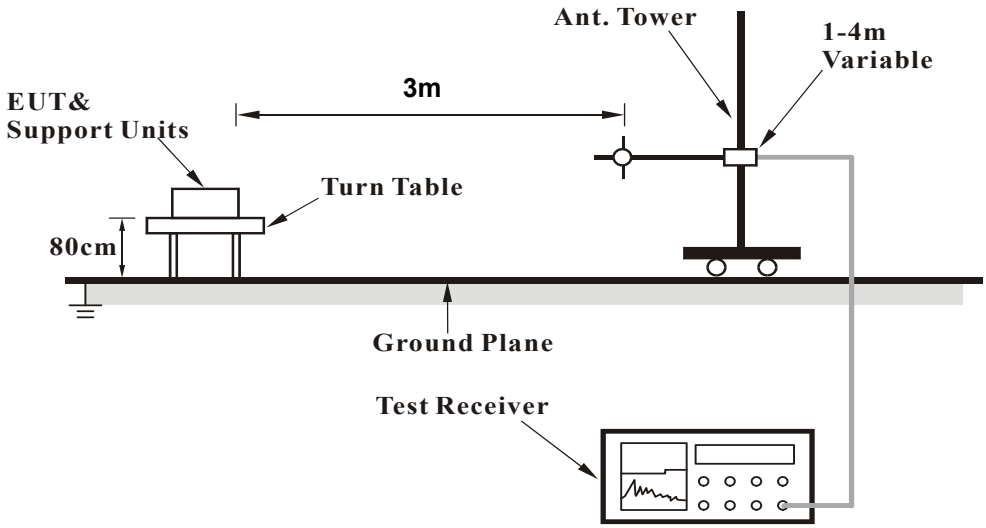
No deviation.

4.1.5 Test Setup

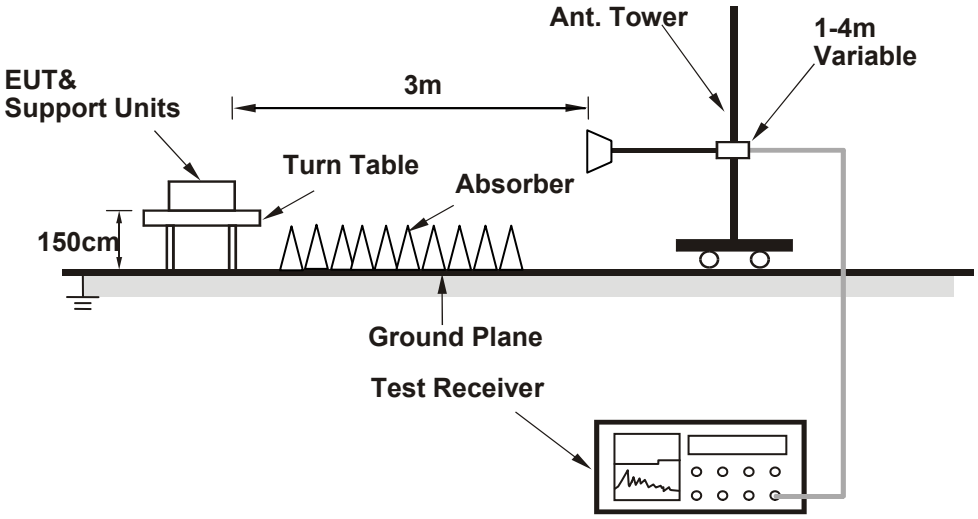
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

a. Connected the EUT with AC adapter placed on testing table.
b. The EUT perform R/W function with USB HDD from AE notebooks via LAN cables.
c. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

CDD MODE

ABOVE 1GHz DATA

802.11b

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	57.5 PK	74.0	-16.5	2.79 H	262	57.1	0.4
2	2390.00	47.0 AV	54.0	-7.1	2.79 H	262	46.5	0.4
3	*2412.00	114.4 PK			2.79 H	262	113.8	0.6
4	*2412.00	111.8 AV			2.79 H	262	111.2	0.6
5	4824.00	46.1 PK	74.0	-27.9	1.71 H	199	39.3	6.8
6	4824.00	34.0 AV	54.0	-20.1	1.71 H	199	27.1	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	63.0 PK	74.0	-11.0	3.66 V	4	62.6	0.4
2	**2390.00**	**53.7 AV**	**54.0**	**-0.3**	**3.66 V**	**4**	**53.3**	**0.4**
3	*2412.00	120.0 PK			3.66 V	4	119.4	0.6
4	*2412.00	117.1 AV			3.66 V	4	116.5	0.6
5	4824.00	47.1 PK	74.0	-26.9	3.67 V	181	40.3	6.8
6	4824.00	39.4 AV	54.0	-14.6	3.67 V	181	32.5	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	114.3 PK			3.21 H	286	113.6	0.7
2	*2437.00	112.1 AV			3.21 H	286	111.4	0.7
3	2483.50	59.8 PK	74.0	-14.2	3.21 H	286	58.8	1.0
4	2483.50	47.1 AV	54.0	-6.9	3.21 H	286	46.1	1.0
5	4874.00	44.4 PK	74.0	-29.6	2.17 H	104	37.6	6.8
6	4874.00	32.5 AV	54.0	-21.5	2.17 H	104	25.7	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.3 PK			3.99 V	180	116.6	0.7
2	*2437.00	114.9 AV			3.99 V	180	114.2	0.7
3	2483.50	63.8 PK	74.0	-10.3	3.99 V	180	62.8	1.0
4	2483.50	53.6 AV	54.0	-0.4	3.99 V	180	52.6	1.0
5	4874.00	45.3 PK	74.0	-28.7	2.55 V	231	38.5	6.8
6	4874.00	33.4 AV	54.0	-20.6	2.55 V	231	26.6	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.0 PK			2.82 H	269	111.2	0.9
2	*2462.00	110.1 AV			2.82 H	269	109.3	0.9
3	2483.50	58.1 PK	74.0	-15.9	2.82 H	269	57.2	1.0
4	2483.50	46.2 AV	54.0	-7.9	2.82 H	269	45.2	1.0
5	4924.00	45.9 PK	74.0	-28.1	1.58 H	174	39.0	6.9
6	4924.00	33.1 AV	54.0	-20.9	1.58 H	174	26.2	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.3 PK			3.96 V	6	116.4	0.9
2	*2462.00	115.0 AV			3.96 V	6	114.1	0.9
3	2483.50	61.9 PK	74.0	-12.1	3.96 V	6	60.9	1.0
4	**2483.50**	**53.7 AV**	**54.0**	**-0.3**	**3.96 V**	**6**	**52.7**	**1.0**
5	4924.00	46.7 PK	74.0	-27.3	3.25 V	144	39.8	6.9
6	4924.00	34.6 AV	54.0	-19.4	3.25 V	144	27.7	6.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.2 PK	74.0	-5.8	3.57 H	258	67.8	0.4
2	2390.00	50.2 AV	54.0	-3.8	3.57 H	258	49.8	0.4
3	*2412.00	113.1 PK			3.57 H	258	112.5	0.6
4	*2412.00	103.4 AV			3.57 H	258	102.8	0.6
5	4824.00	45.9 PK	74.0	-28.1	2.95 H	12	39.1	6.8
6	4824.00	33.3 AV	54.0	-20.7	2.95 H	12	26.5	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.0 PK	74.0	-2.0	2.96 V	176	71.6	0.4
2	**2390.00**	**53.7 AV**	**54.0**	**-0.3**	**2.96 V**	**176**	**53.3**	**0.4**
3	*2412.00	117.9 PK			2.96 V	176	117.4	0.6
4	*2412.00	107.7 AV			2.96 V	176	107.1	0.6
5	4824.00	47.5 PK	74.0	-26.5	1.75 V	16	40.7	6.8
6	4824.00	34.8 AV	54.0	-19.2	1.75 V	16	28.0	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.6 PK			3.22 H	283	116.9	0.7
2	*2437.00	108.3 AV			3.22 H	283	107.5	0.7
3	2483.50	59.5 PK	74.0	-14.6	3.22 H	283	58.5	1.0
4	2483.50	45.9 AV	54.0	-8.1	3.22 H	283	44.9	1.0
5	4874.00	46.6 PK	74.0	-27.4	3.02 H	8	39.8	6.8
6	4874.00	33.8 AV	54.0	-20.2	3.02 H	8	26.9	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	119.8 PK			3.99 V	179	119.1	0.7
2	*2437.00	110.2 AV			3.99 V	179	109.5	0.7
3	2483.50	69.4 PK	74.0	-4.6	3.99 V	179	68.4	1.0
4	2483.50	48.5 AV	54.0	-5.5	3.99 V	179	47.5	1.0
5	4874.00	48.5 PK	74.0	-25.5	1.68 V	45	41.7	6.8
6	4874.00	34.9 AV	54.0	-19.2	1.68 V	45	28.0	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.5 PK			3.78 H	260	113.7	0.9
2	*2462.00	105.0 AV			3.78 H	260	104.2	0.9
3	2483.50	73.4 PK	74.0	-0.6	3.78 H	260	72.4	1.0
4	2483.50	52.2 AV	54.0	-1.9	3.78 H	260	51.2	1.0
5	4924.00	46.3 PK	74.0	-27.7	2.34 H	205	39.4	6.9
6	4924.00	33.8 AV	54.0	-20.3	2.34 H	205	26.9	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.5 PK			3.16 V	187	115.7	0.9
2	*2462.00	107.2 AV			3.16 V	187	106.3	0.9
3	2483.50	73.6 PK	74.0	-0.4	3.16 V	187	72.7	1.0
4	2483.50	52.4 AV	54.0	-1.6	3.16 V	187	51.4	1.0
5	4924.00	47.7 PK	74.0	-26.3	1.85 V	145	40.8	6.9
6	4924.00	34.4 AV	54.0	-19.6	1.85 V	145	27.5	6.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.8 PK	74.0	-2.2	1.35 H	261	71.4	0.4
2	2390.00	49.0 AV	54.0	-5.0	1.35 H	261	48.6	0.4
3	*2412.00	111.9 PK			1.35 H	261	111.4	0.6
4	*2412.00	102.2 AV			1.35 H	261	101.6	0.6
5	4824.00	46.7 PK	74.0	-27.3	2.15 H	336	39.9	6.8
6	4824.00	32.7 AV	54.0	-21.3	2.15 H	336	25.8	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**2390.00**	**73.7 PK**	**74.0**	**-0.3**	**1.53 V**	**177**	**73.2**	**0.4**
2	2390.00	49.9 AV	54.0	-4.1	1.53 V	177	49.5	0.4
3	*2412.00	116.6 PK			1.53 V	177	116.1	0.6
4	*2412.00	104.7 AV			1.53 V	177	104.2	0.6
5	4824.00	47.0 PK	74.0	-27.0	1.68 V	264	40.2	6.8
6	4824.00	33.8 AV	54.0	-20.2	1.68 V	264	27.0	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.9 PK			1.02 H	303	115.2	0.7
2	*2437.00	105.4 AV			1.02 H	303	104.7	0.7
3	2483.50	63.3 PK	74.0	-10.7	1.02 H	303	62.3	1.0
4	2483.50	47.0 AV	54.0	-7.0	1.02 H	303	46.1	1.0
5	4874.00	46.8 PK	74.0	-27.2	2.13 H	300	40.0	6.8
6	4874.00	33.7 AV	54.0	-20.3	2.13 H	300	26.8	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	119.8 PK			3.62 V	202	119.0	0.7
2	*2437.00	108.1 AV			3.62 V	202	107.4	0.7
3	2483.50	65.7 PK	74.0	-8.3	3.62 V	202	64.7	1.0
4	2483.50	48.4 AV	54.0	-5.6	3.62 V	202	47.4	1.0
5	4874.00	47.5 PK	74.0	-26.6	1.73 V	271	40.6	6.8
6	4874.00	34.5 AV	54.0	-19.5	1.73 V	271	27.7	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.7 PK			2.54 H	268	112.8	0.9
2	*2462.00	103.5 AV			2.54 H	268	102.6	0.9
3	2483.50	71.5 PK	74.0	-2.5	2.54 H	268	70.5	1.0
4	2483.50	48.9 AV	54.0	-5.2	2.54 H	268	47.9	1.0
5	4924.00	47.1 PK	74.0	-27.0	1.23 H	312	40.2	6.9
6	4924.00	32.9 AV	54.0	-21.1	1.23 H	312	26.0	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.4 PK			3.13 V	172	117.6	0.9
2	*2462.00	106.5 AV			3.13 V	172	105.6	0.9
3	**2483.50**	**73.8 PK**	**74.0**	**-0.3**	**3.13 V**	**172**	**72.8**	**1.0**
4	2483.50	50.4 AV	54.0	-3.6	3.13 V	172	49.4	1.0
5	4924.00	48.1 PK	74.0	-25.9	1.78 V	241	41.2	6.9
6	4924.00	34.7 AV	54.0	-19.3	1.78 V	241	27.8	6.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.3 PK	74.0	-0.7	1.06 H	257	72.9	0.4
2	2390.00	48.4 AV	54.0	-5.6	1.06 H	257	48.0	0.4
3	*2422.00	108.4 PK			1.06 H	257	107.8	0.6
4	*2422.00	98.8 AV			1.06 H	257	98.2	0.6
5	4844.00	46.9 PK	74.0	-27.1	2.51 H	284	40.1	6.8
6	4844.00	33.8 AV	54.0	-20.2	2.51 H	284	27.0	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.6 PK	74.0	-0.4	2.73 V	357	73.2	0.4
2	2390.00	47.8 AV	54.0	-6.3	2.73 V	357	47.3	0.4
3	*2422.00	110.0 PK			2.73 V	257	109.4	0.6
4	*2422.00	99.9 AV			2.73 V	257	99.3	0.6
5	4844.00	49.0 PK	74.0	-25.0	1.96 V	205	42.2	6.8
6	4844.00	35.5 AV	54.0	-18.5	1.96 V	205	28.6	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.7 PK	74.0	-1.3	1.21 H	284	72.3	0.4
2	2390.00	48.7 AV	54.0	-5.3	1.21 H	284	48.3	0.4
3	*2437.00	108.2 PK			1.21 H	284	107.5	0.7
4	*2437.00	100.1 AV			1.21 H	284	99.4	0.7
5	2483.50	68.3 PK	74.0	-5.7	1.21 H	284	67.3	1.0
6	2483.50	48.3 AV	54.0	-5.7	1.21 H	284	47.3	1.0
7	4874.00	49.6 PK	74.0	-24.4	1.76 H	155	42.7	6.8
8	4874.00	35.3 AV	54.0	-18.7	1.76 H	155	28.4	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**2390.00**	**73.7 PK**	**74.0**	**-0.3**	**3.67 V**	**188**	**73.3**	**0.4**
2	2390.00	49.3 AV	54.0	-4.7	3.67 V	188	48.8	0.4
3	*2437.00	114.1 PK			3.67 V	188	113.4	0.7
4	*2437.00	104.5 AV			3.67 V	188	103.8	0.7
5	2483.50	73.2 PK	74.0	-0.8	3.67 V	188	72.2	1.0
6	2483.50	49.4 AV	54.0	-4.6	3.67 V	188	48.4	1.0
7	4874.00	51.7 PK	74.0	-22.3	1.83 V	214	44.9	6.8
8	4874.00	37.0 AV	54.0	-17.0	1.83 V	214	30.2	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.1 PK			1.12 H	263	108.3	0.8
2	*2452.00	99.8 AV			1.12 H	263	99.0	0.8
3	2483.50	72.6 PK	74.0	-1.4	1.12 H	263	71.6	1.0
4	2483.50	46.3 AV	54.0	-7.7	1.12 H	263	45.4	1.0
5	4904.00	47.8 PK	74.0	-26.2	1.83 H	162	41.0	6.8
6	4904.00	34.4 AV	54.0	-19.6	1.83 H	162	27.5	6.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	111.7 PK			3.55 V	11	110.9	0.8
2	*2452.00	101.8 AV			3.55 V	11	101.0	0.8
3	**2483.50**	**73.7 PK**	**74.0**	**-0.3**	**3.55 V**	**11**	**72.7**	**1.0**
4	2483.50	47.1 AV	54.0	-6.9	3.55 V	11	46.1	1.0
5	4904.00	49.5 PK	74.0	-24.5	2.20 V	178	42.6	6.8
6	4904.00	35.5 AV	54.0	-18.5	2.20 V	178	28.6	6.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

BELOW 1GHz WORST-CASE DATA: 802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	70.16	20.1 QP	40.0	-19.9	4.00 H	243	31.3	-11.2
2	157.26	25.6 QP	43.5	-17.9	4.00 H	89	34.8	-9.2
3	280.21	23.2 QP	46.0	-22.8	2.58 H	62	31.3	-8.1
4	447.29	26.9 QP	46.0	-19.1	2.03 H	227	31.5	-4.6
5	667.82	27.7 QP	46.0	-18.3	1.25 H	13	28.0	-0.2
6	997.72	33.6 QP	54.0	-20.4	1.00 H	352	28.7	5.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	60.22	32.1 QP	40.0	-7.9	1.71 V	232	42.0	-9.9
2	101.05	30.3 QP	43.5	-13.2	1.00 V	260	44.3	-13.9
3	155.81	29.6 QP	43.5	-13.9	1.00 V	96	38.9	-9.3
4	447.29	27.5 QP	46.0	-18.5	2.24 V	168	32.1	-4.6
5	918.81	32.9 QP	46.0	-13.1	2.68 V	206	28.9	4.0
6	991.22	33.1 QP	54.0	-20.9	1.94 V	131	28.2	4.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 12, 2016	Apr. 11, 2017
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	May 04, 2016	May 03, 2017
LISN With Adapter (for EUT)	AD10	C10Ada-002	May 04, 2016	May 03, 2017
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 25, 2015	Nov. 24, 2016
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 04, 2016	May 03, 2017
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 15, 2016	Feb. 14, 2017
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 12, 2016	May 11, 2017
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 08, 2016	Nov. 07, 2017
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 08, 2016	Nov. 07, 2017

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 10.
3. The VCCI Site Registration No. C-1852.
4. Tested Date:Nov. 18, 2016

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

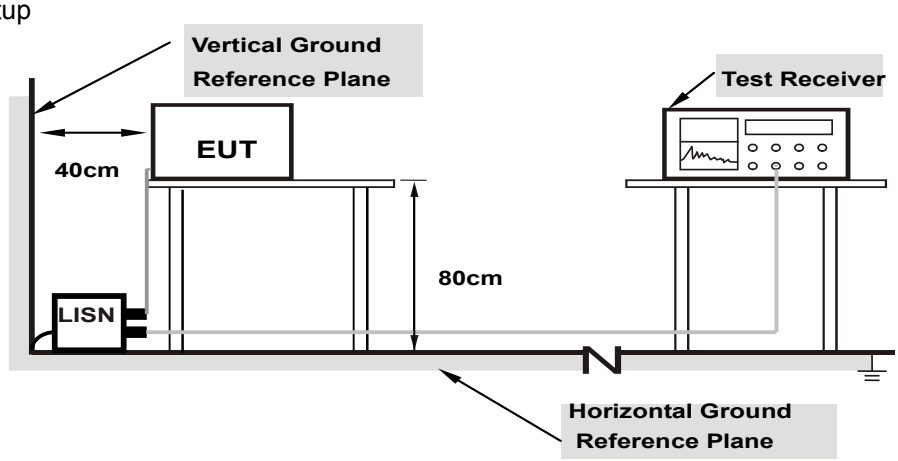
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

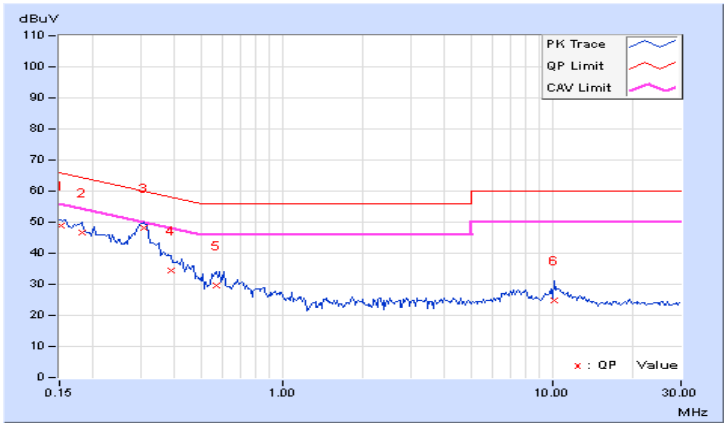
CDD MODE

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15182	9.70	39.04	28.20	48.74	37.90	65.90	55.90	-17.16	-18.00
2	0.18125	9.70	37.03	26.96	46.73	36.66	64.43	54.43	-17.70	-17.77
3	**0.30625**	**9.72**	**38.56**	**30.24**	**48.28**	**39.96**	**60.07**	**50.07**	**-11.79**	**-10.11**
4	0.38828	9.73	24.54	14.24	34.27	23.97	58.10	48.10	-23.83	-24.13
5	0.56797	9.76	19.78	12.75	29.54	22.51	56.00	46.00	-26.46	-23.49
6	10.23438	10.14	14.65	9.32	24.79	19.46	60.00	50.00	-35.21	-30.54

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

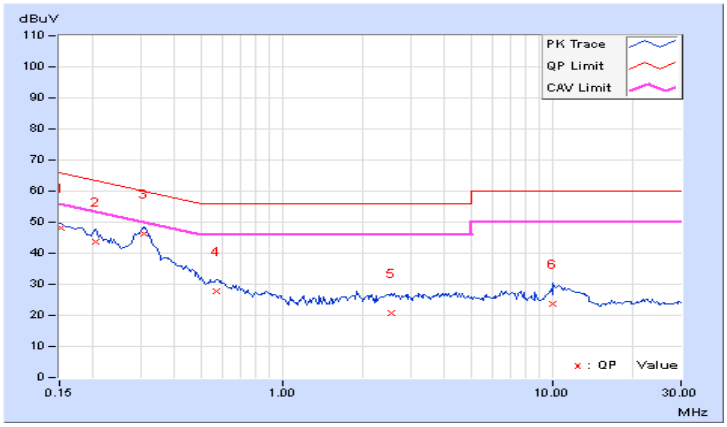


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15255	9.70	38.34	30.22	48.04	39.92	65.86	55.86	-17.82	-15.94
2	0.20469	9.69	33.97	22.30	43.66	31.99	63.42	53.42	-19.76	-21.43
3	0.30625	9.71	36.76	27.67	46.47	37.38	60.07	50.07	-13.60	-12.69
4	0.56797	9.75	17.99	10.64	27.74	20.39	56.00	46.00	-28.26	-25.61
5	2.54688	9.96	10.93	3.63	20.89	13.59	56.00	46.00	-35.11	-32.41
6	10.05704	10.19	13.59	8.53	23.78	18.72	60.00	50.00	-36.22	-31.28

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

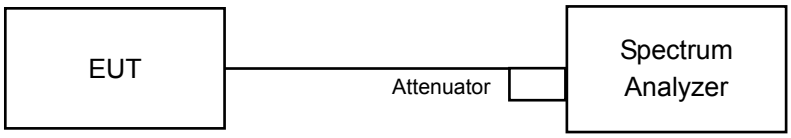


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

CDD MODE

802.11b

Channel	Frequency (MHz)	6db Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	9.08	9.09	9.08	9.09	0.5	PASS
6	2437	10.05	10.07	10.07	10.03	0.5	PASS
11	2462	9.05	9.08	9.05	9.05	0.5	PASS

802.11g

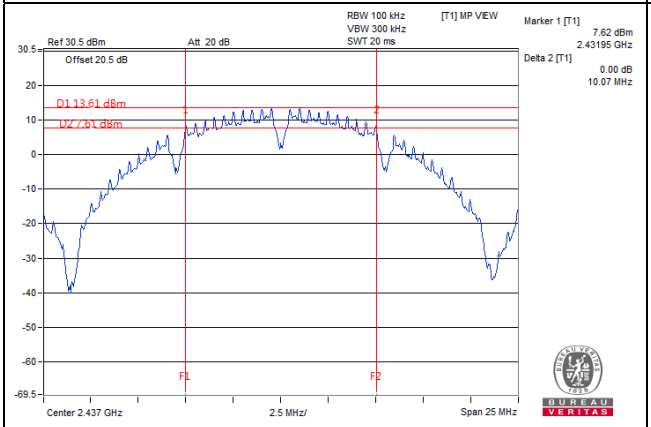
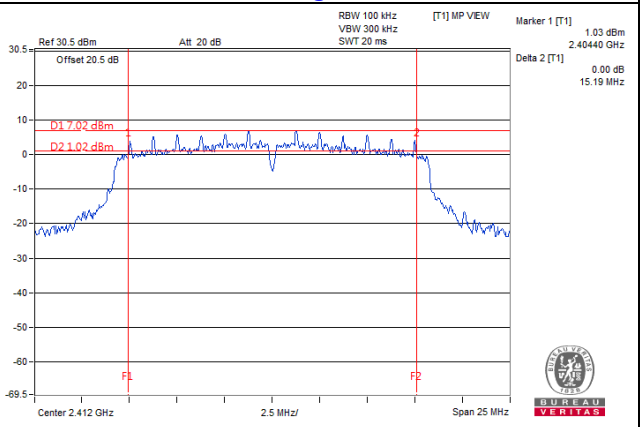
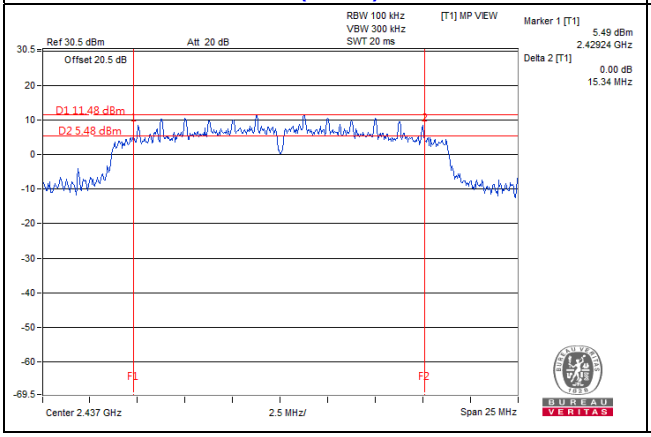
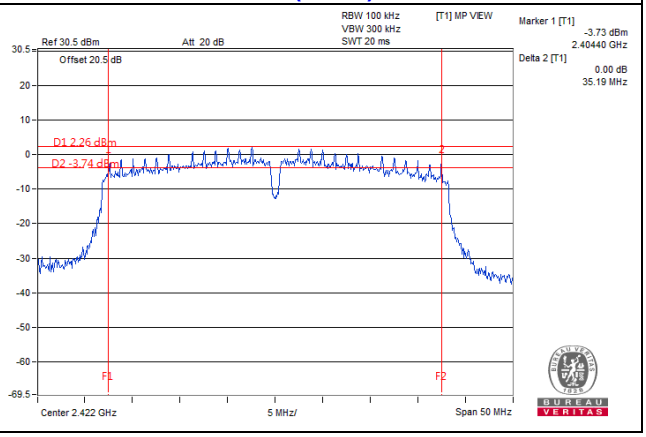
Channel	Frequency (MHz)	6db Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	15.17	15.18	15.19	15.16	0.5	PASS
6	2437	15.18	15.17	15.16	15.18	0.5	PASS
11	2462	15.18	15.17	15.17	15.17	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6db Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	15.18	15.18	15.19	15.19	0.5	PASS
6	2437	15.17	15.19	15.33	15.34	0.5	PASS
11	2462	15.18	15.17	15.18	15.17	0.5	PASS

802.11n (HT40)

Channel	Frequency (MHz)	6db Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	35.19	35.19	35.19	35.18	0.5	PASS
6	2437	35.18	35.18	35.17	35.17	0.5	PASS
9	2452	35.19	35.19	35.18	35.19	0.5	PASS

Spectrum Plot of Worst Value	
802.11b / CH6	**802.11g / CH1**
	
802.11n (HT20) / CH6	**802.11n (HT40) / CH3**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

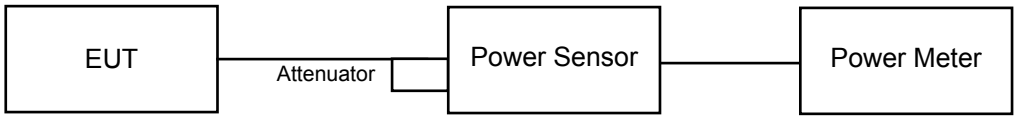
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

A average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD MODE

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.32	21.28	21.49	21.17	541.642	27.34	30	Pass
6	2437	21.62	21.52	21.68	21.65	580.566	27.64	30	Pass
11	2462	20.08	19.91	20.13	19.93	401.248	26.03	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	18.02	17.89	18.34	18.13	258.152	24.12	30	Pass
6	2437	23.19	22.91	23.24	23.22	**824.640**	29.16	30	Pass
11	2462	18.10	17.93	18.24	18.16	258.797	24.13	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.96	17.82	18.27	18.02	253.581	24.04	30	Pass
6	2437	23.09	22.98	23.19	23.11	815.406	29.11	30	Pass
11	2462	17.02	16.71	17.12	16.72	195.743	22.92	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	16.09	15.93	16.43	16.13	164.792	22.17	30	Pass
6	2437	19.74	19.47	20.03	19.83	379.555	25.79	30	Pass
9	2452	15.72	15.32	16.02	15.92	150.444	21.77	30	Pass

Beamforming_NSS1 MODE

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	14.62	14.50	14.93	14.75	118.128	20.72	26.74	Pass
6	2437	20.26	20.39	20.67	20.20	435.516	26.40	26.74	Pass
11	2462	14.68	14.51	14.92	14.78	118.732	20.75	26.74	Pass

NOTE:
Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$ / 4] = 9.26dBi >6dBi, so the Conducted Power limit shall be reduced to 30-(9.26-6) = 26.74dBm

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.26	14.18	14.54	13.34	102.873	20.12	26.74	Pass
6	2437	17.12	16.94	17.44	17.24	209.383	23.21	26.74	Pass
9	2452	13.35	13.17	13.59	13.48	87.516	19.42	26.74	Pass

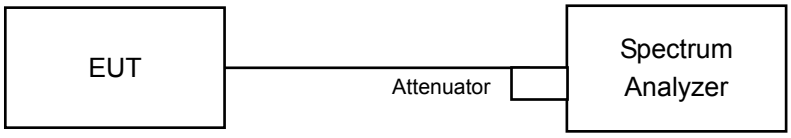
NOTE:
Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$ / 4] = 9.26dBi >6dBi, so the Conducted Power limit shall be reduced to 30-(9.26-6) = 26.74dBm

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 10 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

CDD Mode

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-2.25	6.02	3.77	4.74	Pass
	6	2437	-1.57	6.02	4.45	4.74	Pass
	11	2462	-2.78	6.02	3.24	4.74	Pass
1	1	2412	-1.77	6.02	4.25	4.74	Pass
	6	2437	-1.68	6.02	4.34	4.74	Pass
	11	2462	-2.70	6.02	3.32	4.74	Pass
2	1	2412	-2.52	6.02	3.50	4.74	Pass
	6	2437	-1.74	6.02	4.28	4.74	Pass
	11	2462	-3.11	6.02	2.91	4.74	Pass
3	1	2412	-1.80	6.02	4.22	4.74	Pass
	6	2437	-1.85	6.02	4.17	4.74	Pass
	11	2462	-3.10	6.02	2.92	4.74	Pass

NOTE:
Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + ... + $10^{GN/20}$)^2 / 4] = 9.26dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(9.26-6) = 4.74dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-9.45	6.02	-3.43	4.74	Pass
	6	2437	-4.69	6.02	1.33	4.74	Pass
	11	2462	-9.35	6.02	-3.33	4.74	Pass
1	1	2412	-9.69	6.02	-3.67	4.74	Pass
	6	2437	-5.21	6.02	0.81	4.74	Pass
	11	2462	-10.24	6.02	-4.22	4.74	Pass
2	1	2412	-8.81	6.02	-2.79	4.74	Pass
	6	2437	-5.14	6.02	0.88	4.74	Pass
	11	2462	-10.21	6.02	-4.19	4.74	Pass
3	1	2412	-8.85	6.02	-2.83	4.74	Pass
	6	2437	-5.17	6.02	0.85	4.74	Pass
	11	2462	-9.48	6.02	-3.46	4.74	Pass

NOTE:
Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + ... + $10^{GN/20}$)^2 / 4] = 9.26dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(9.26-6) = 4.74dBm.

802.11n (HT20)

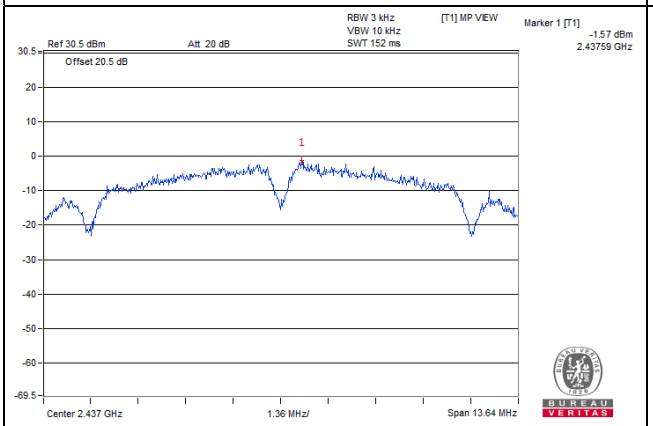
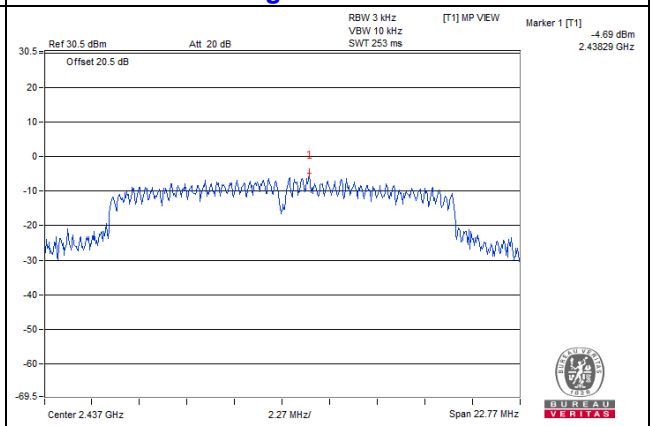
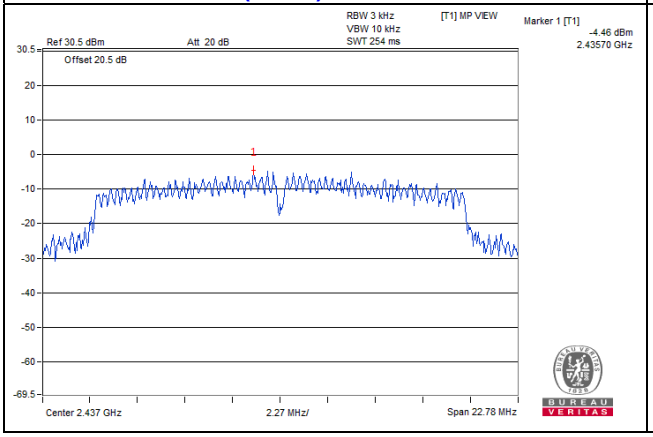
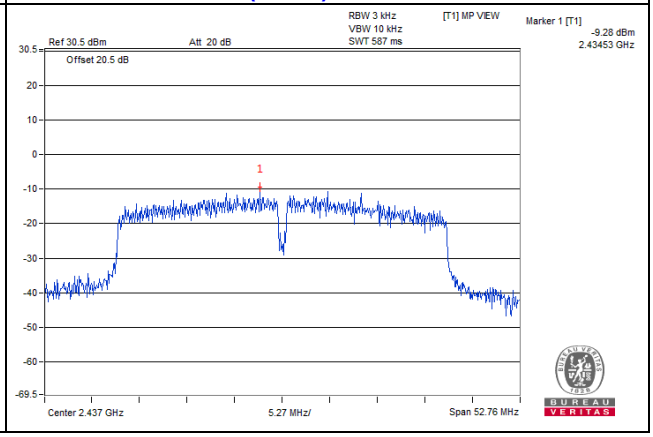
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-9.15	6.02	-3.13	4.74	Pass
	6	2437	-5.15	6.02	0.87	4.74	Pass
	11	2462	-10.70	6.02	-4.68	4.74	Pass
1	1	2412	-10.06	6.02	-4.04	4.74	Pass
	6	2437	-4.46	6.02	1.56	4.74	Pass
	11	2462	-10.13	6.02	-4.11	4.74	Pass
2	1	2412	-9.06	6.02	-3.04	4.74	Pass
	6	2437	-4.87	6.02	1.15	4.74	Pass
	11	2462	-9.67	6.02	-3.65	4.74	Pass
3	1	2412	-9.46	6.02	-3.44	4.74	Pass
	6	2437	-5.41	6.02	0.61	4.74	Pass
	11	2462	-9.83	6.02	-3.81	4.74	Pass

NOTE:
Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$ / 4] = 9.26dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(9.26-6) = 4.74dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-13.67	6.02	-7.65	4.74	Pass
	6	2437	-9.45	6.02	-3.43	4.74	Pass
	9	2452	-13.94	6.02	-7.92	4.74	Pass
1	3	2422	-13.79	6.02	-7.77	4.74	Pass
	6	2437	-10.13	6.02	-4.11	4.74	Pass
	9	2452	-13.66	6.02	-7.64	4.74	Pass
2	3	2422	-14.03	6.02	-8.01	4.74	Pass
	6	2437	-9.49	6.02	-3.47	4.74	Pass
	9	2452	-14.84	6.02	-8.82	4.74	Pass
3	3	2422	-14.83	6.02	-8.81	4.74	Pass
	6	2437	-9.28	6.02	-3.26	4.74	Pass
	9	2452	-14.25	6.02	-8.23	4.74	Pass

NOTE:
Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$ / 4] = 9.26dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(9.26-6) = 4.74dBm.

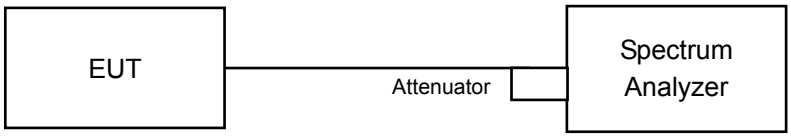
Spectrum Plot of Worst Value	
802.11b / Chain 0: CH6	**802.11g / Chain 0: CH6**
	
802.11n (HT20) / Chain 1: CH6	**802.11n (HT40) / Chain 3:CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

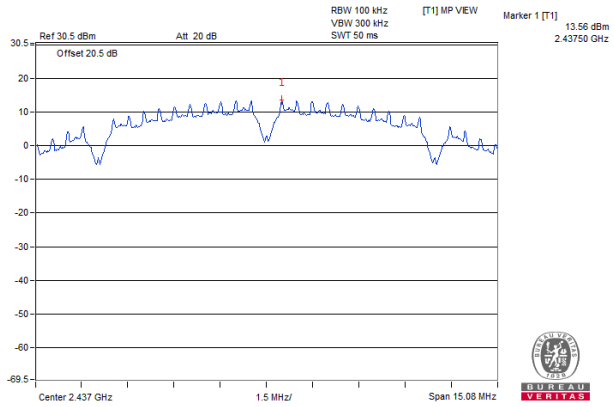
Same as Item 4.3.6

4.6.7 Test Results

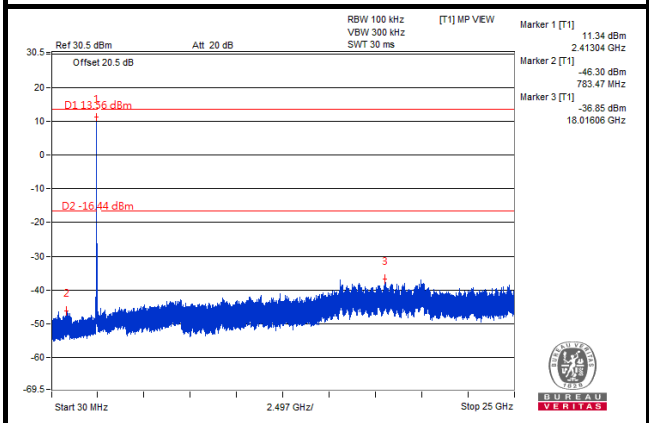
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b: CHAIN 0

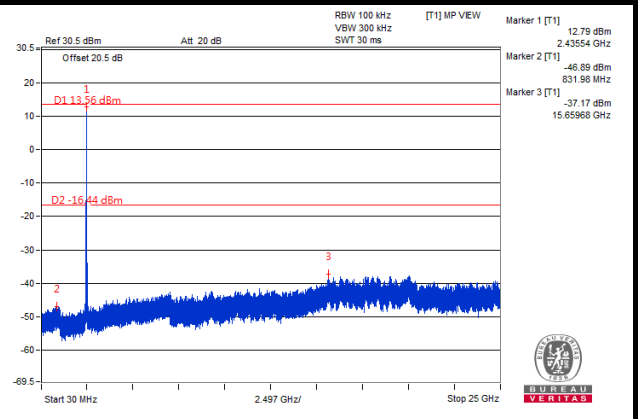
Reference Level



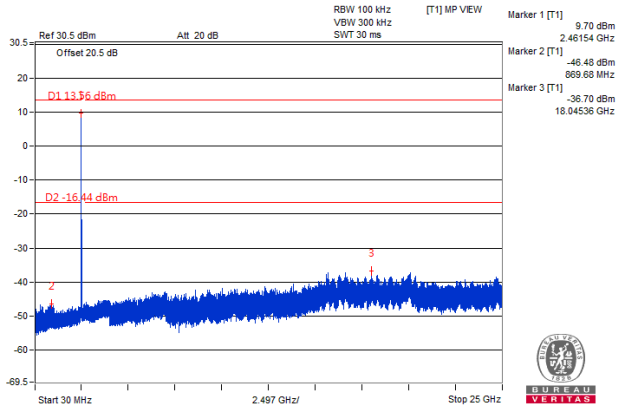
CH 1



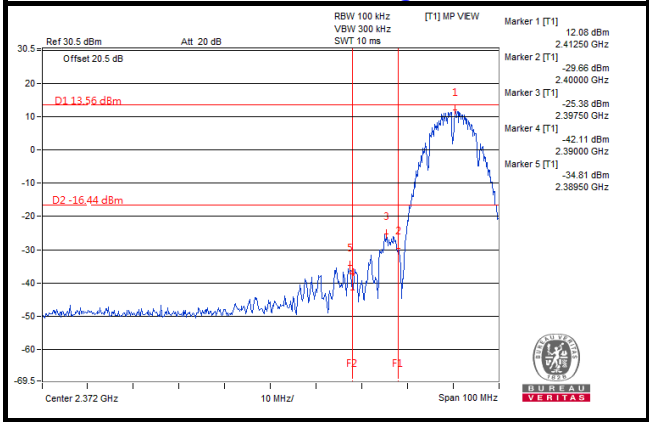
CH 6



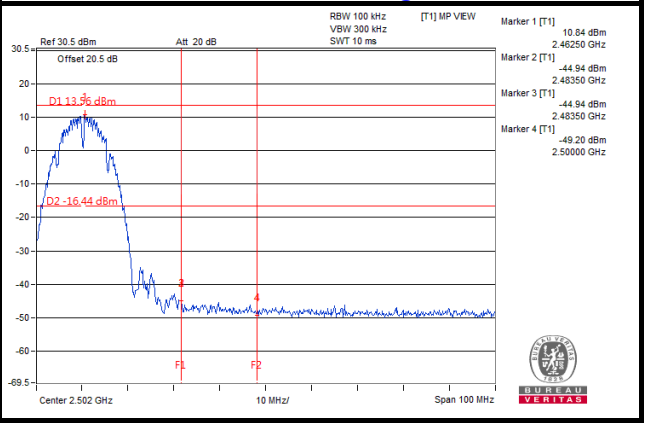
CH 11



CH 1 Band edge

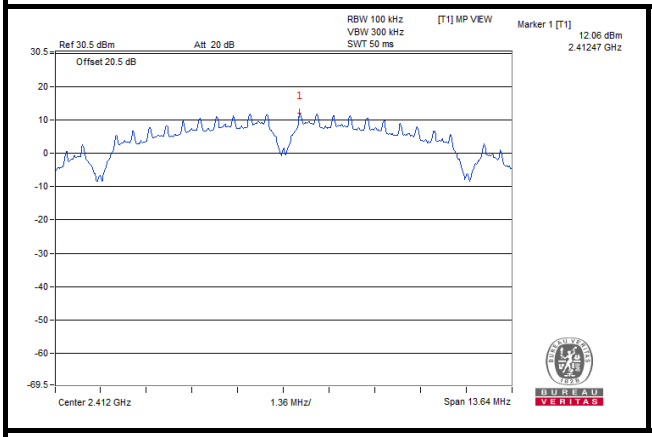


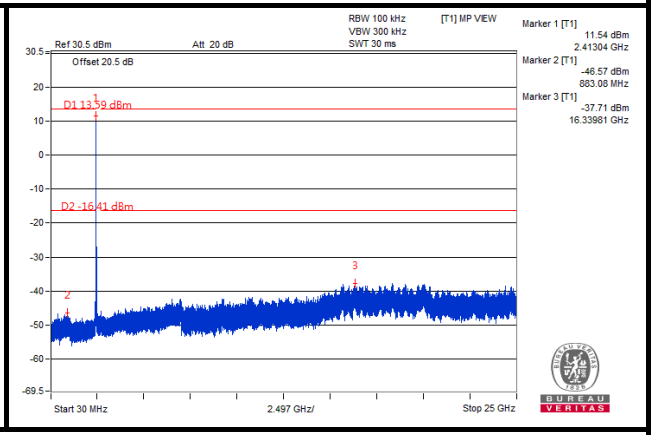
CH 11 Band edge



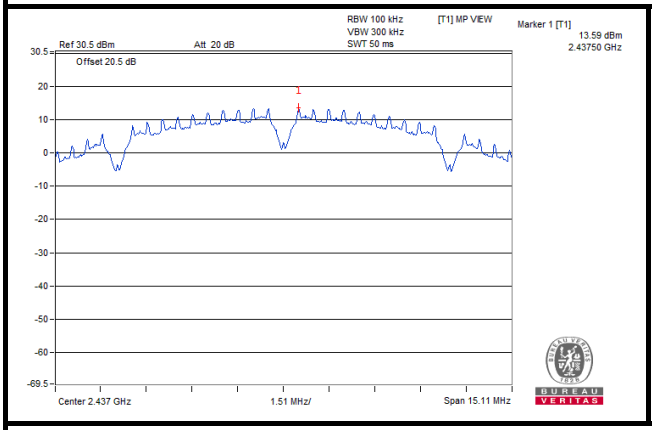
CHAIN 1

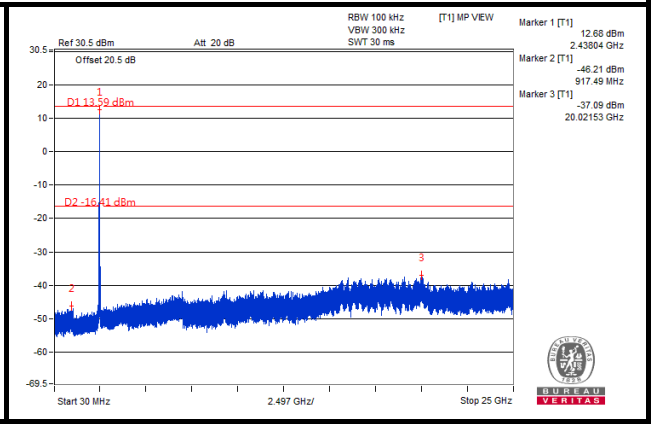
CH 1



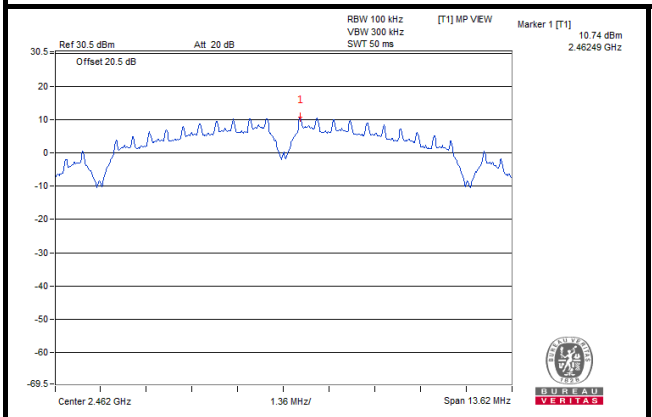


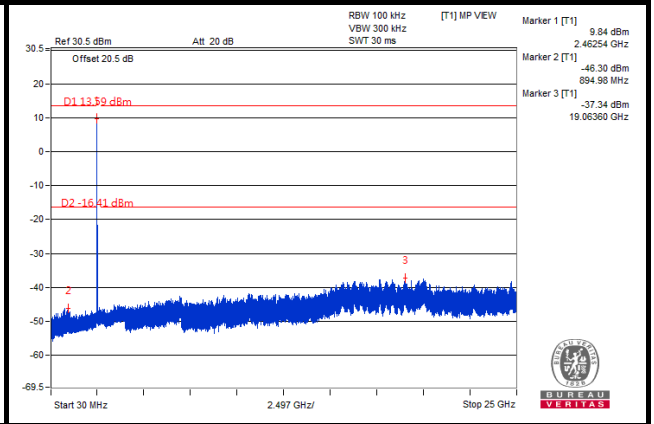
CH 6



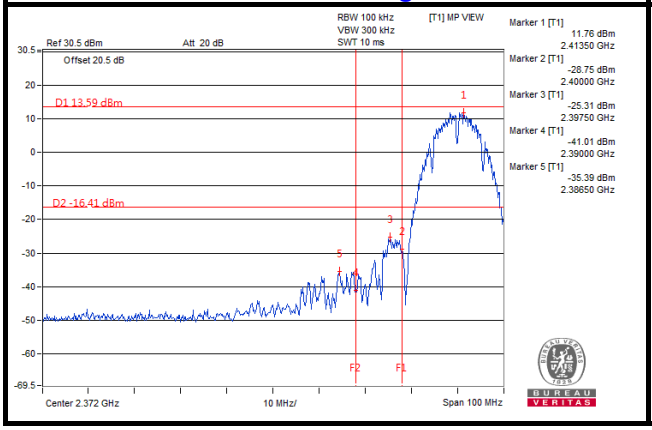


CH 11

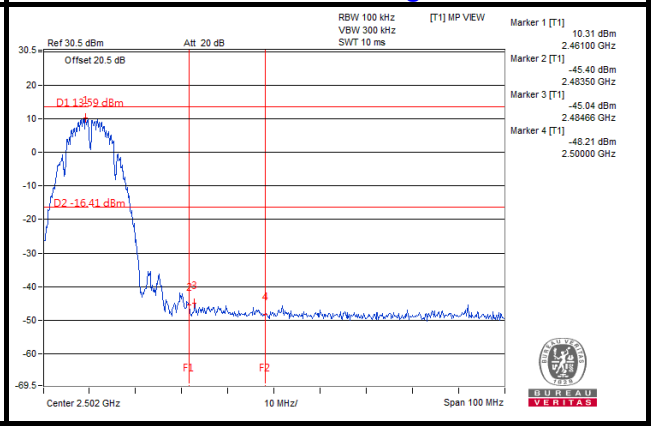




CH 1 Band edge

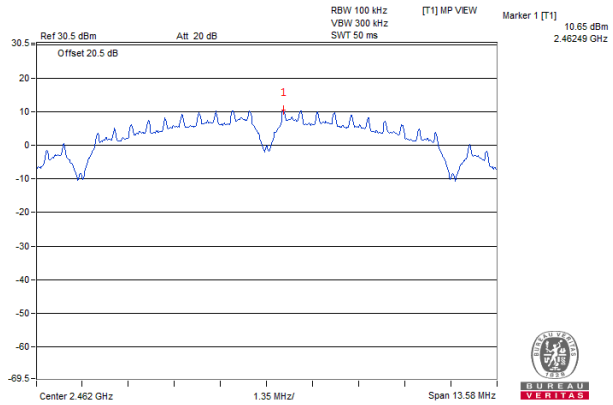


CH 11 Band edge

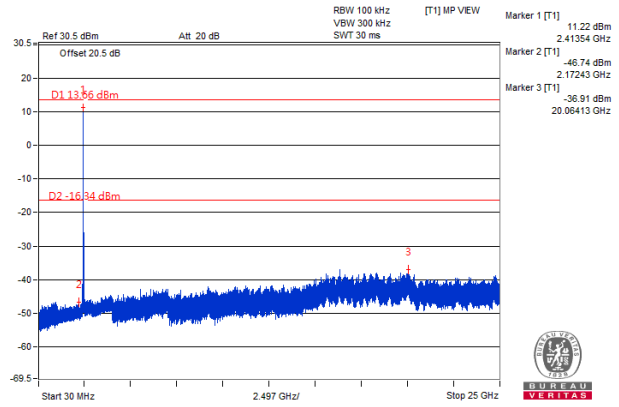


CHAIN 2

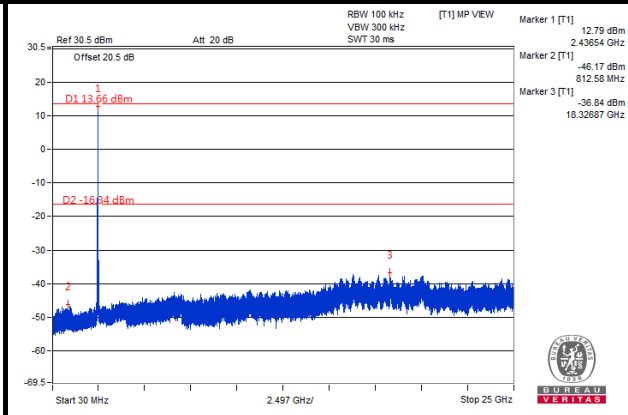
Reference Level



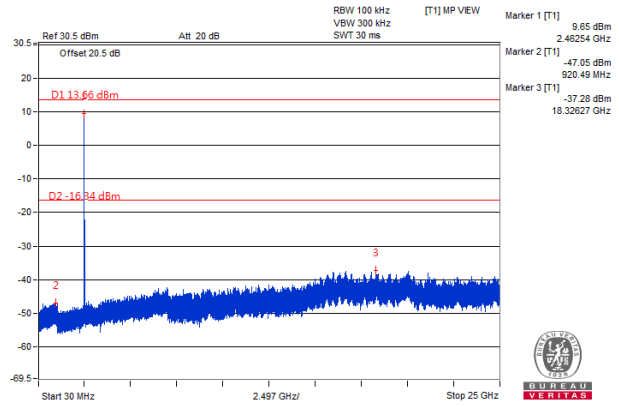
CH 1



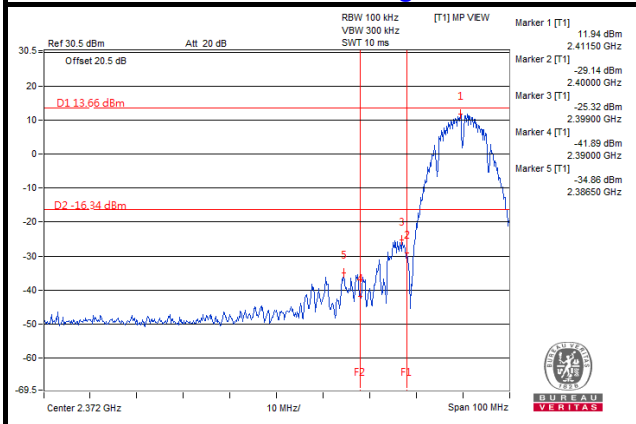
CH 6



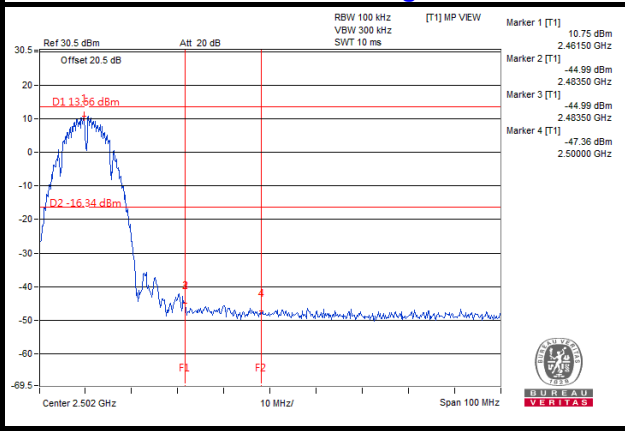
CH 11



CH 1 Band edge

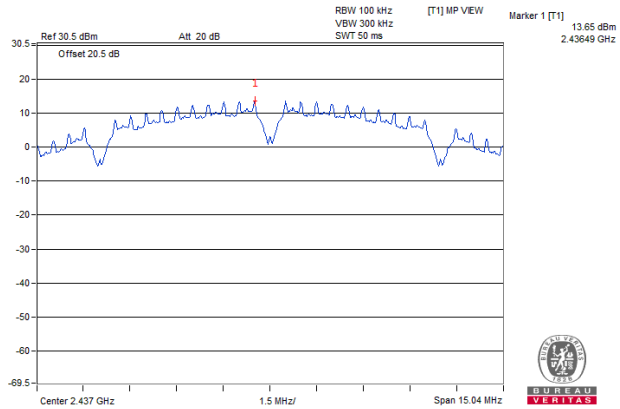


CH 11 Band edge

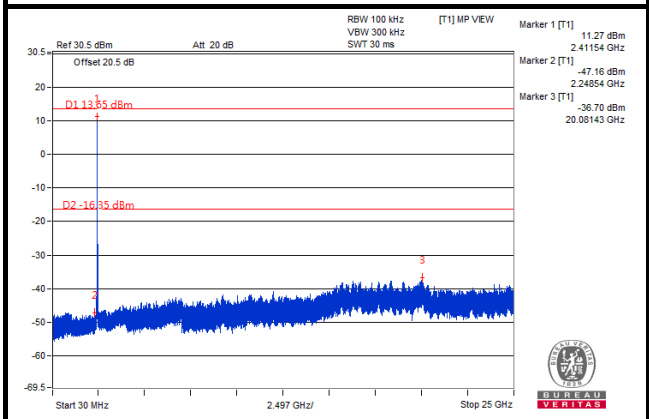


CHAIN 3

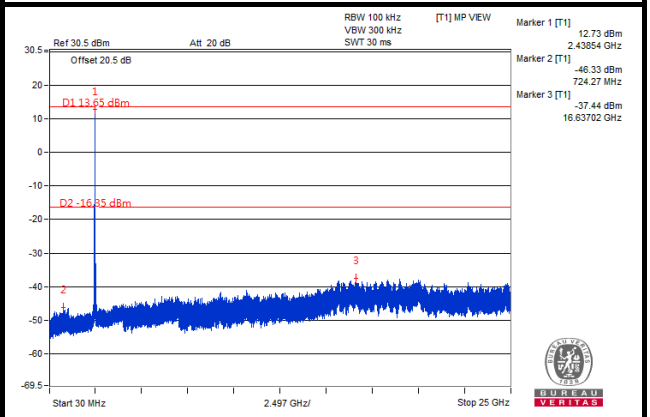
Reference Level



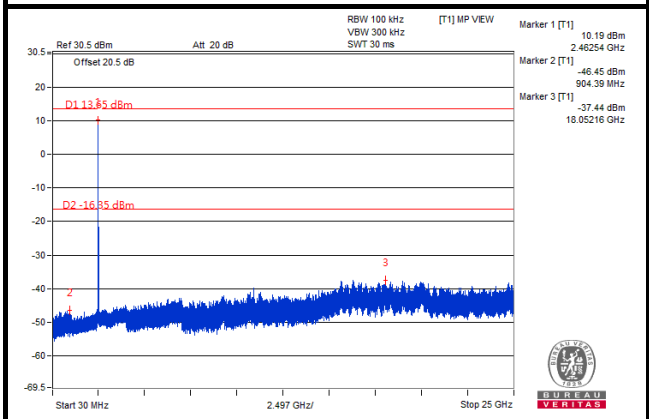
CH 1



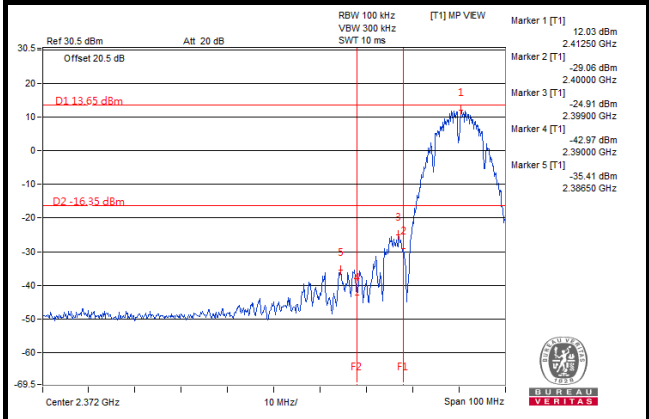
CH 6



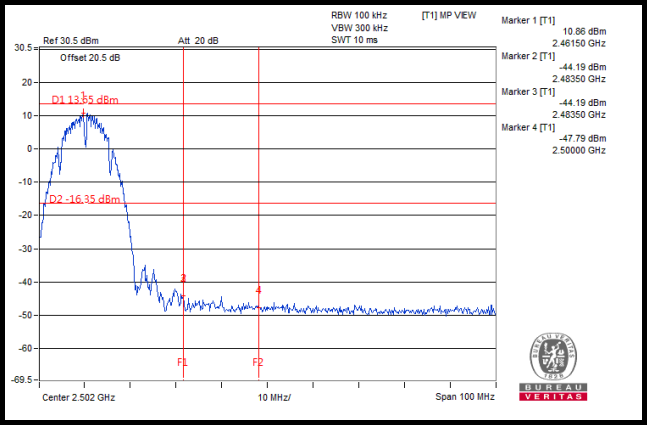
CH 11



CH 1 Band edge

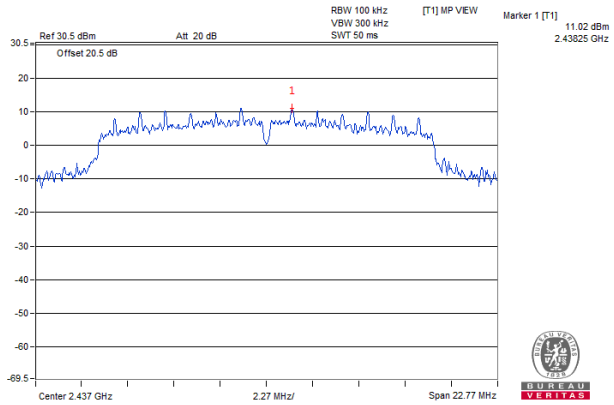


CH 11 Band edge

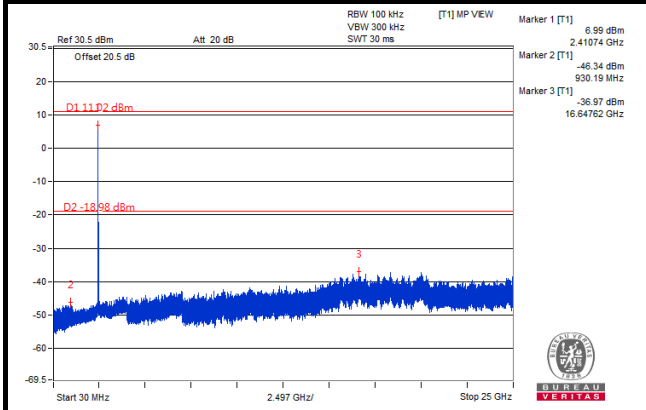


802.11g CHAIN 0

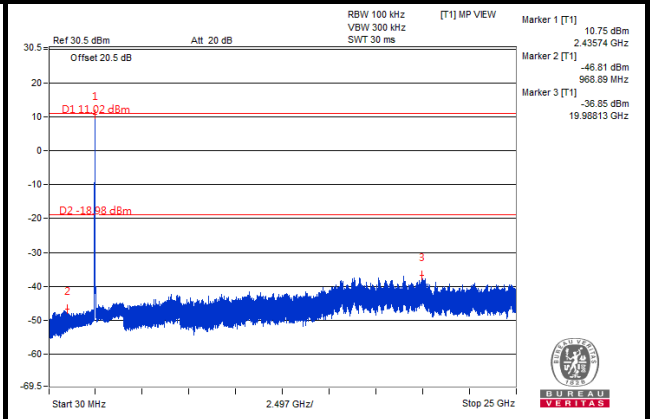
Reference Level



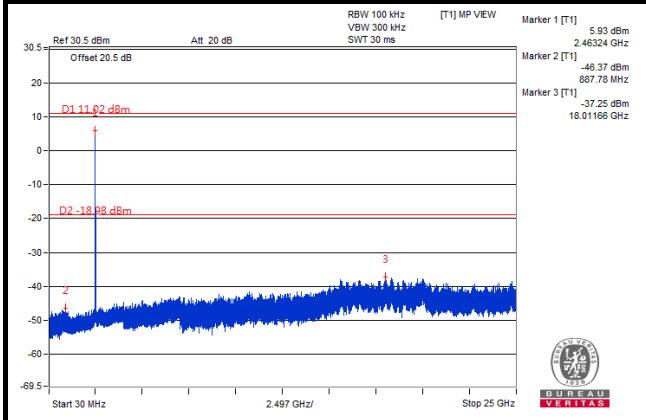
CH 1



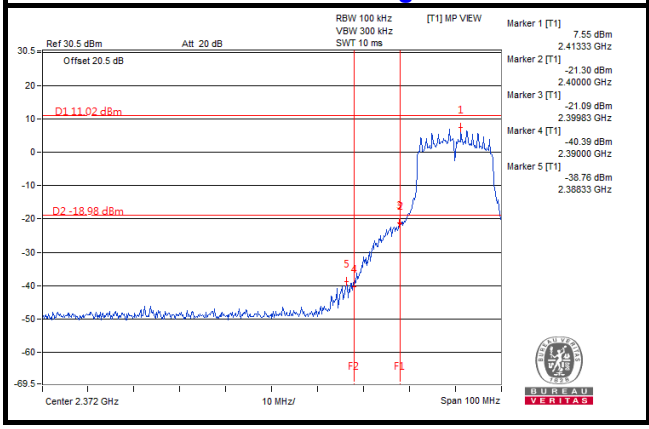
CH 6



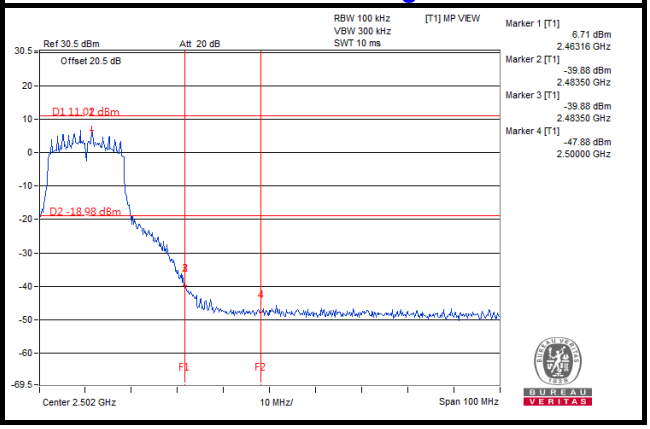
CH 11



CH 1 Band edge

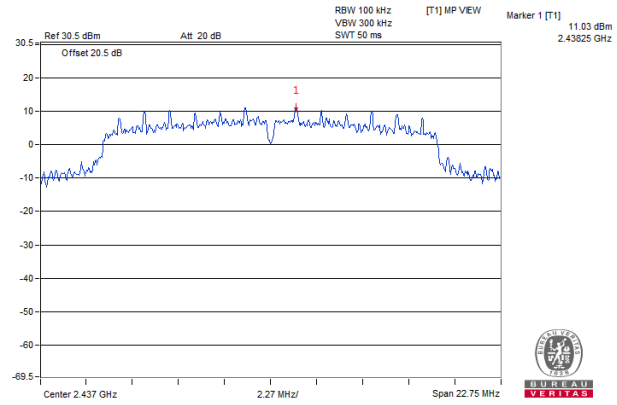


CH 11 Band edge

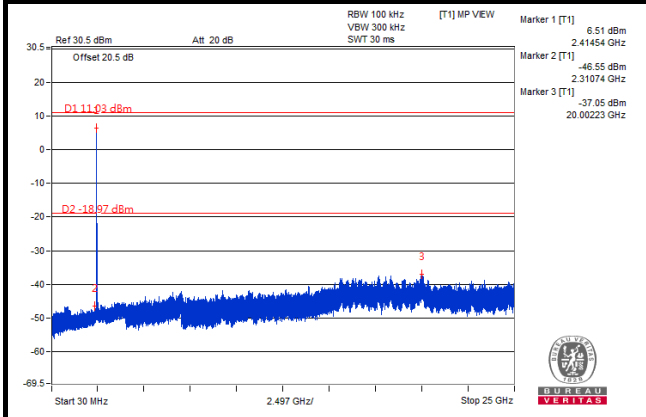


CHAIN 1

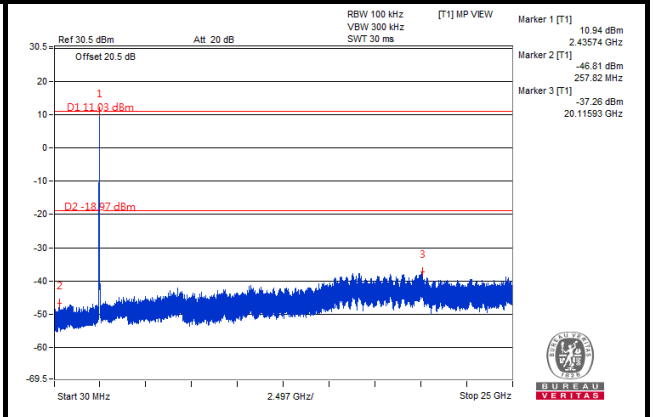
Reference Level



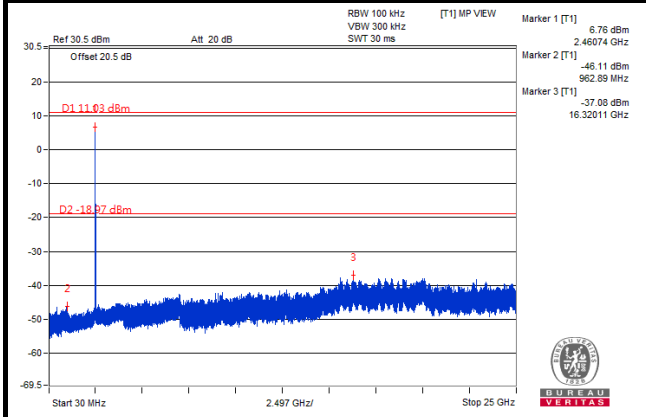
CH 1



CH 6



CH 11



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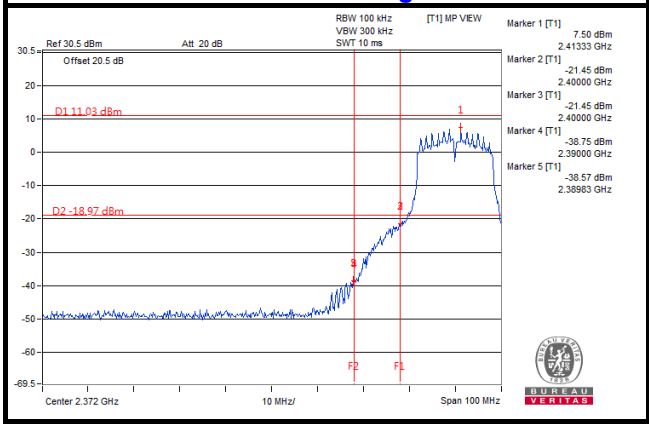

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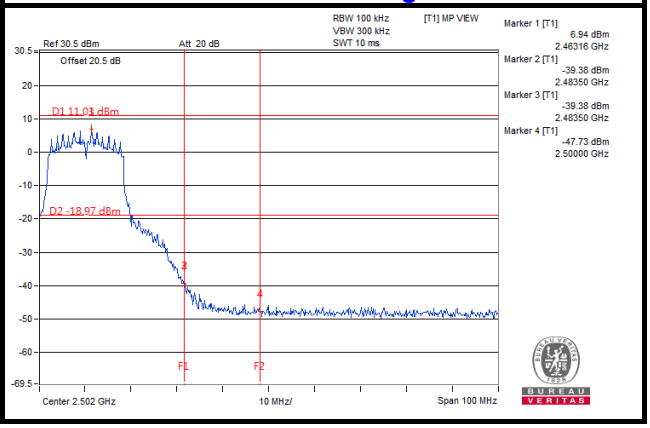

CHAIN 2

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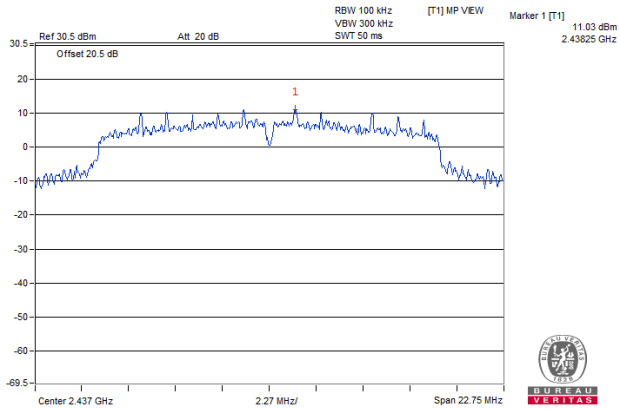

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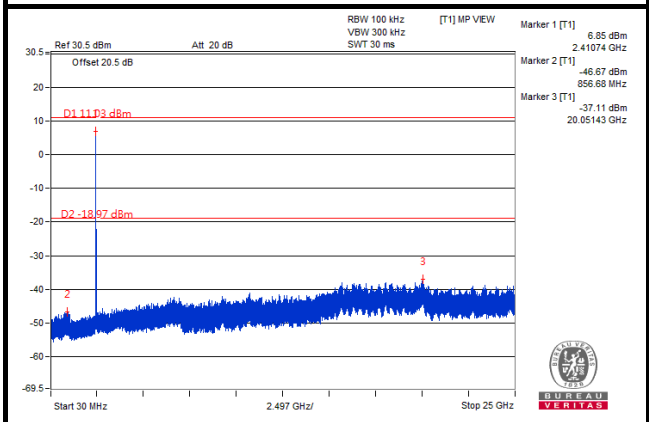

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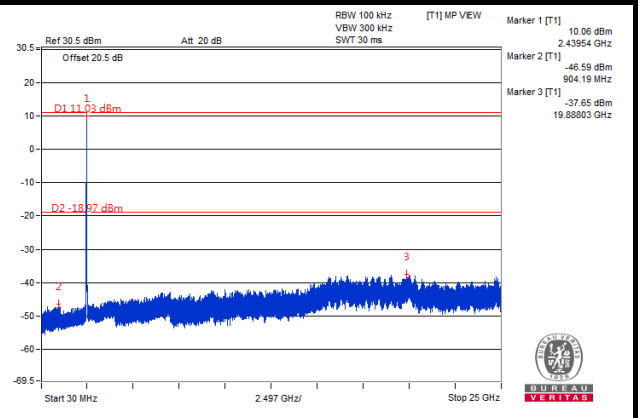

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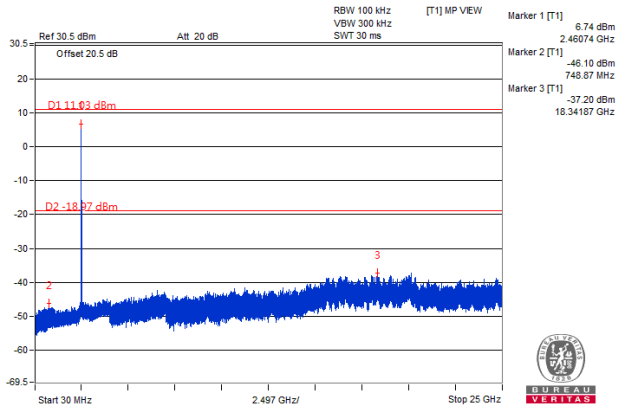

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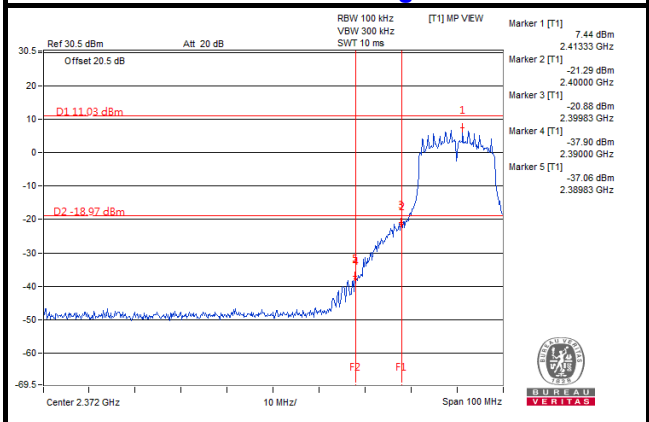

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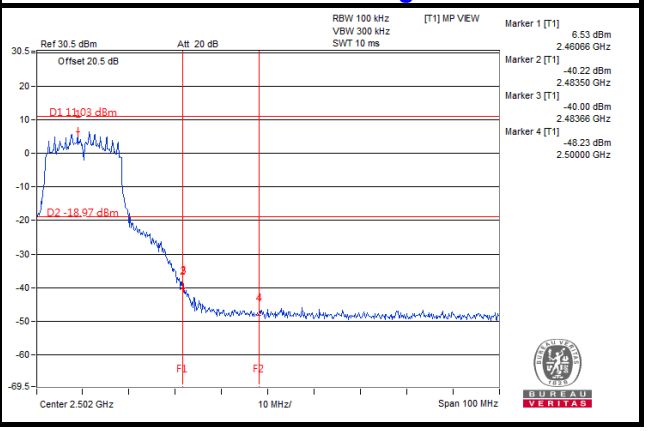

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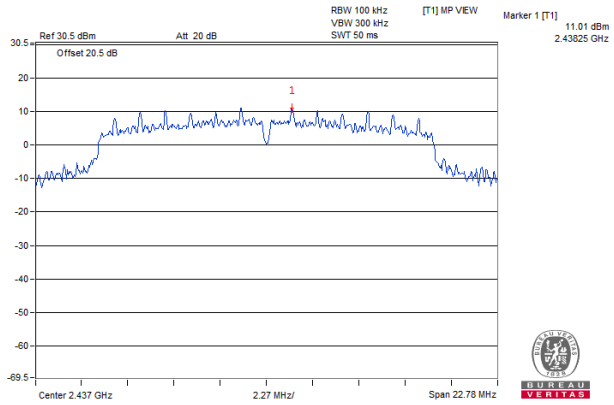

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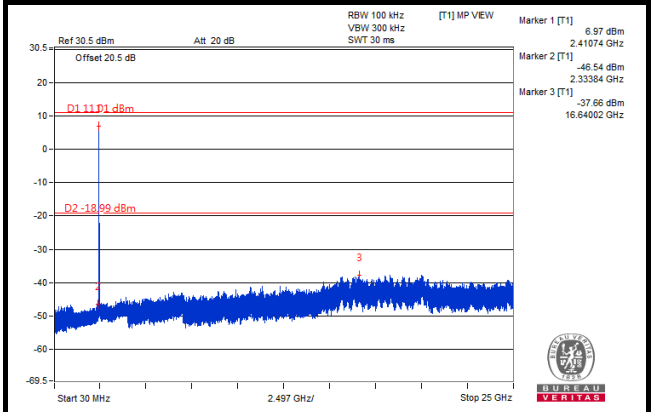

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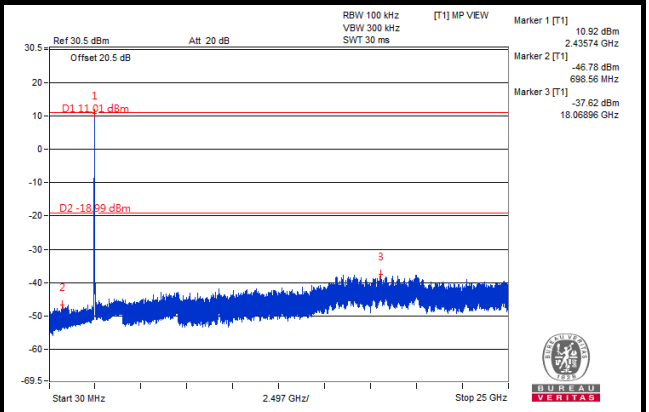

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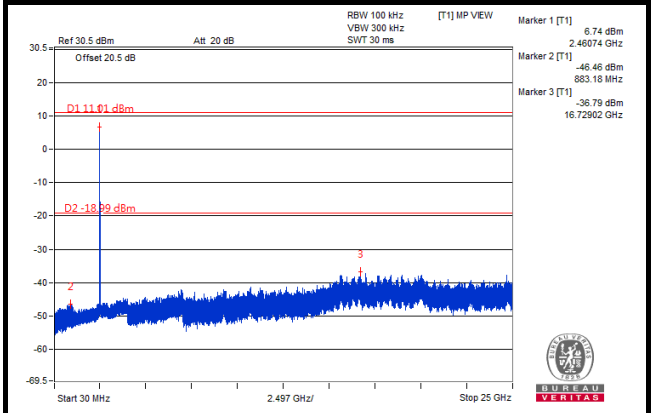

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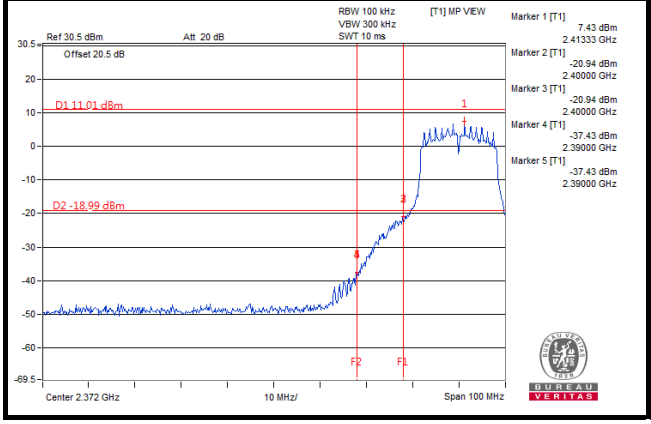

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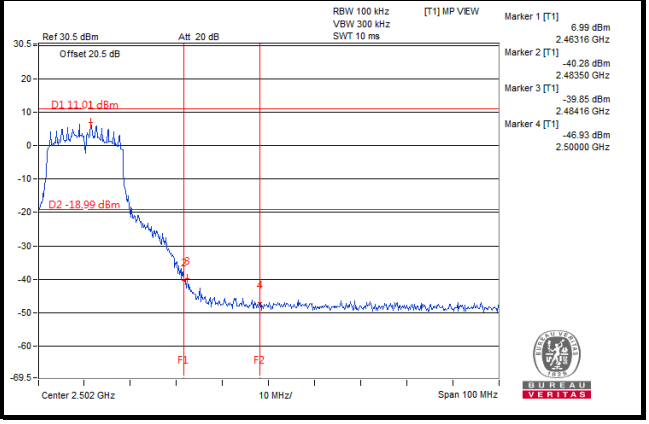

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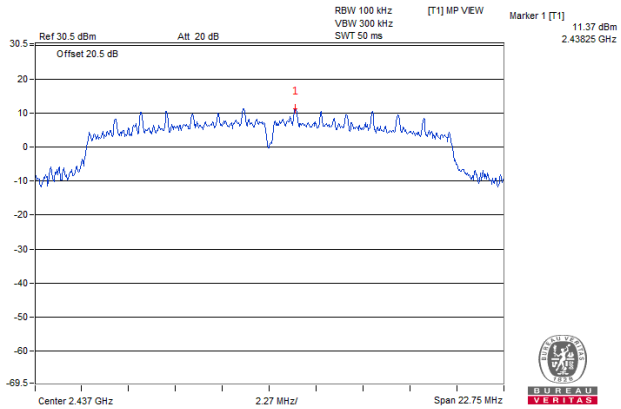

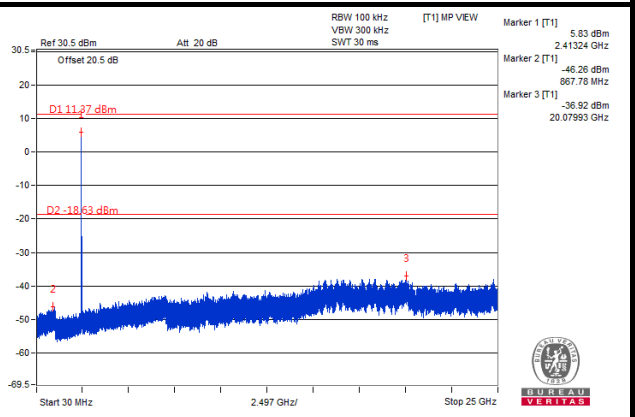

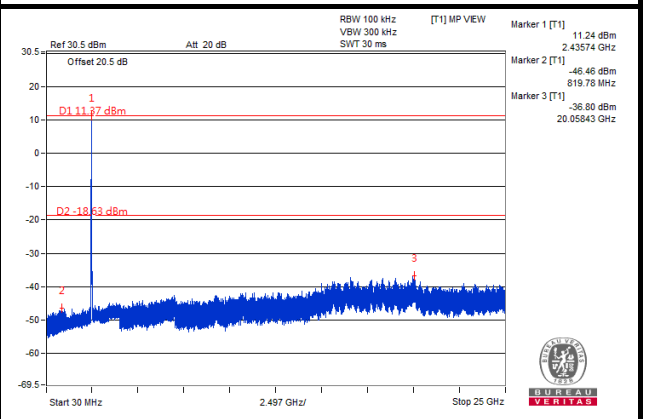

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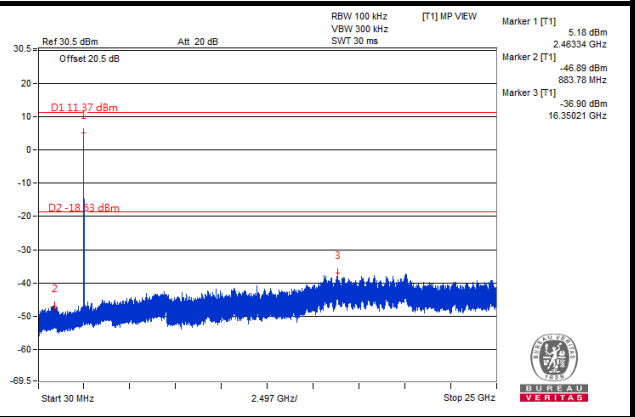

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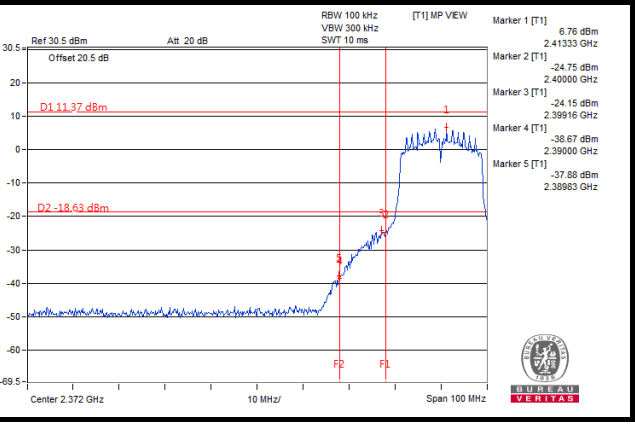

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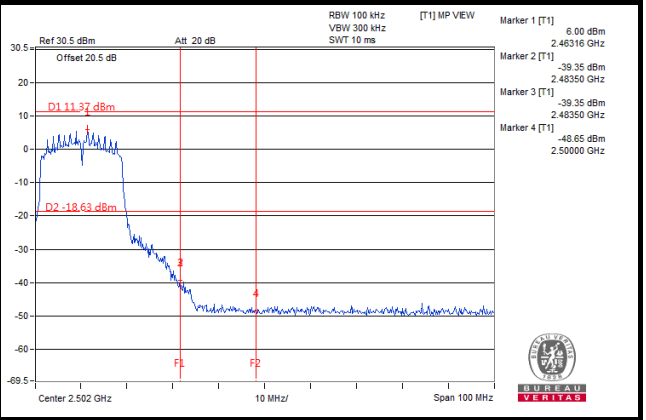

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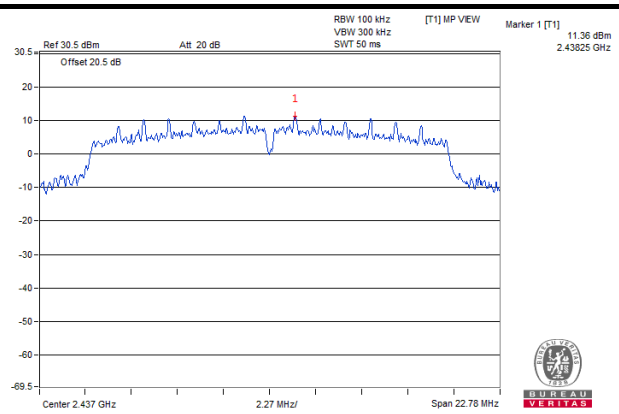
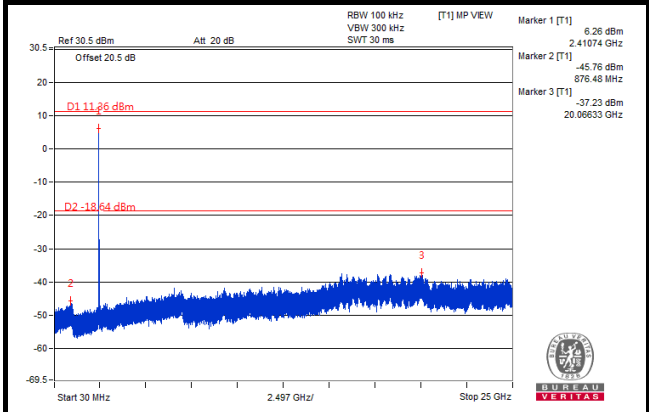
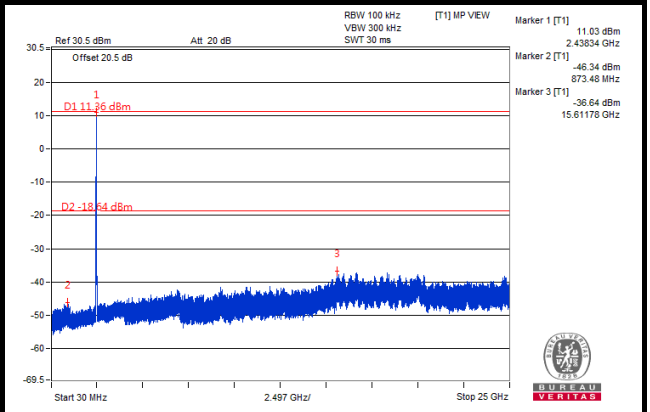


CH 1



CH 6



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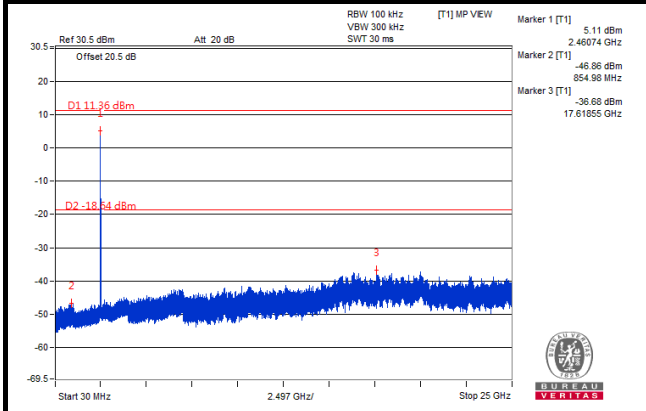

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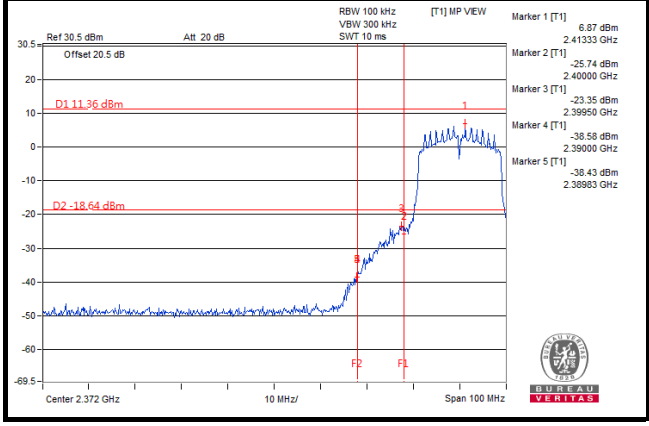

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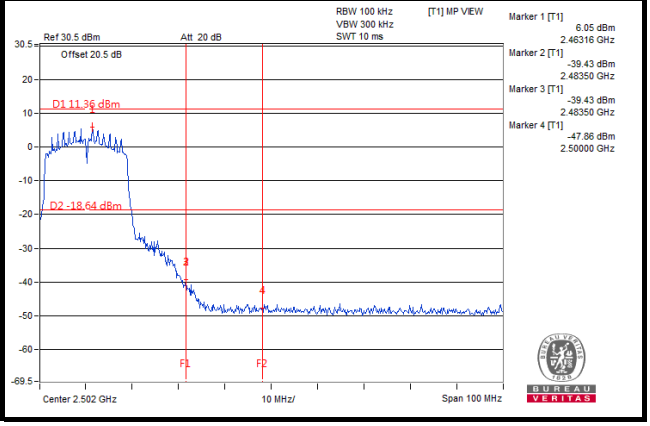

CHAIN 2

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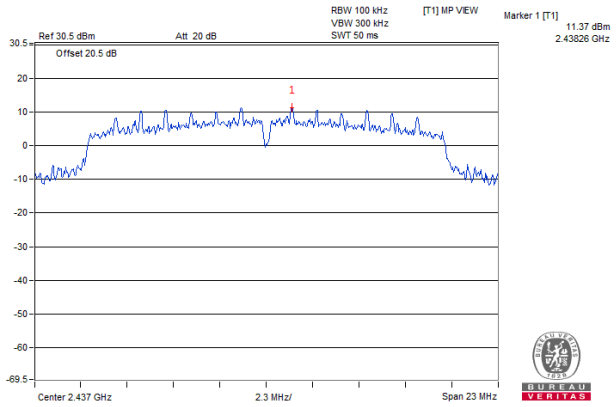
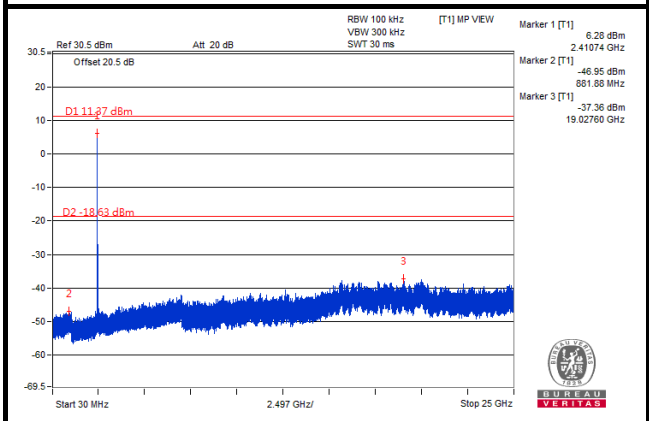


CH 1



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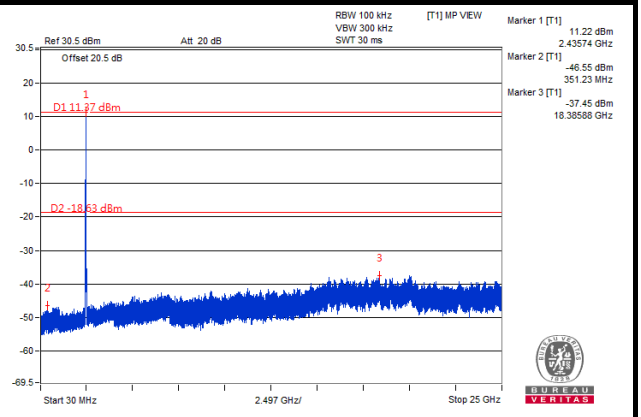

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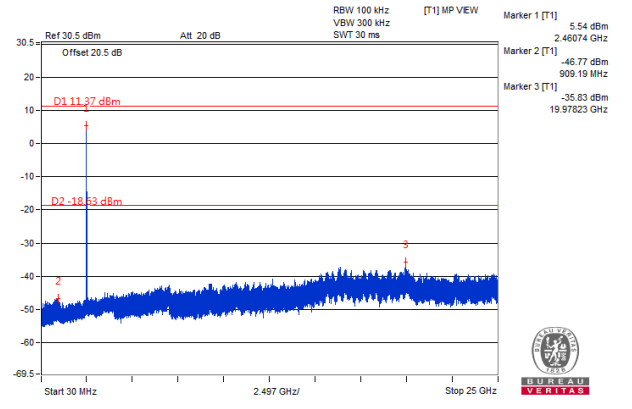

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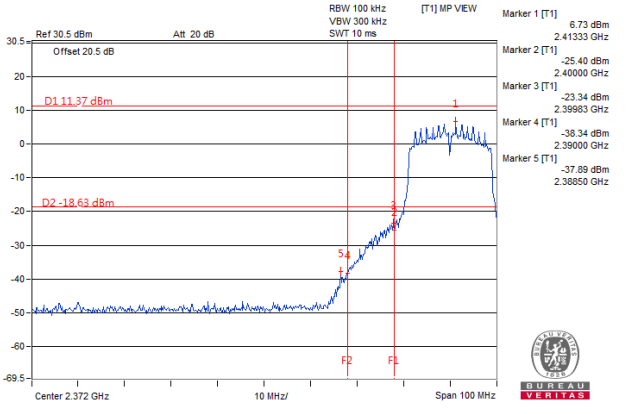

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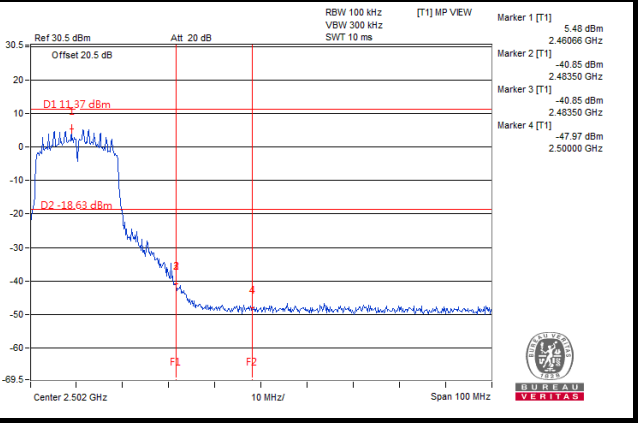

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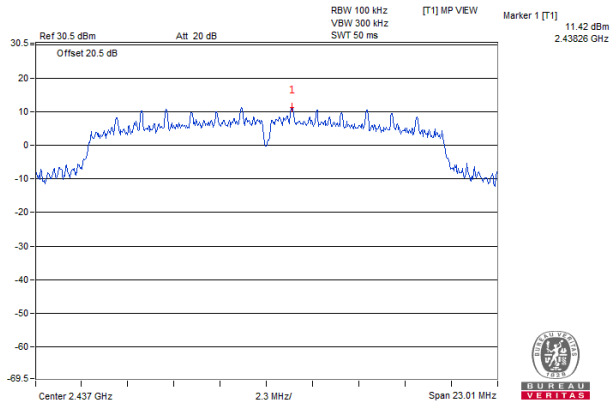
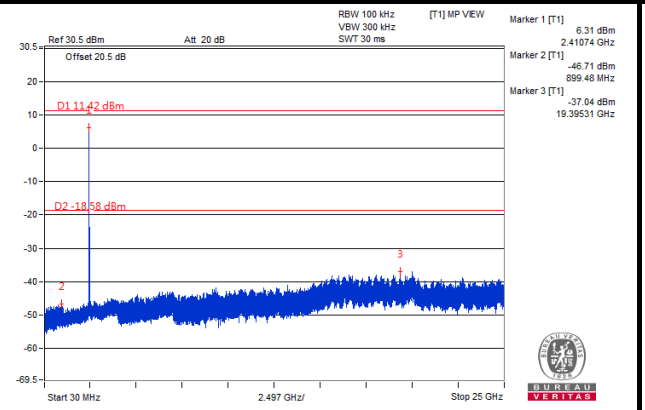
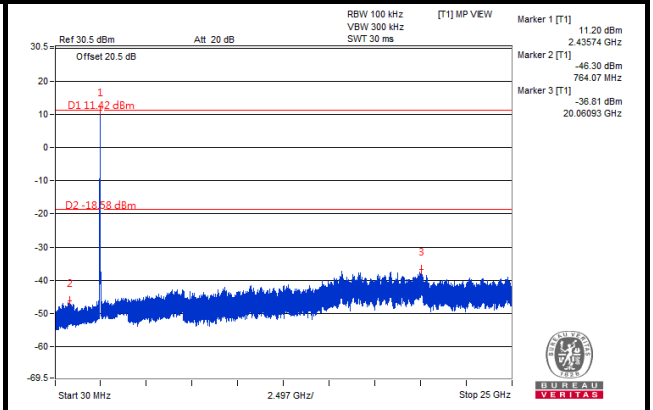


CH 1



CH 6



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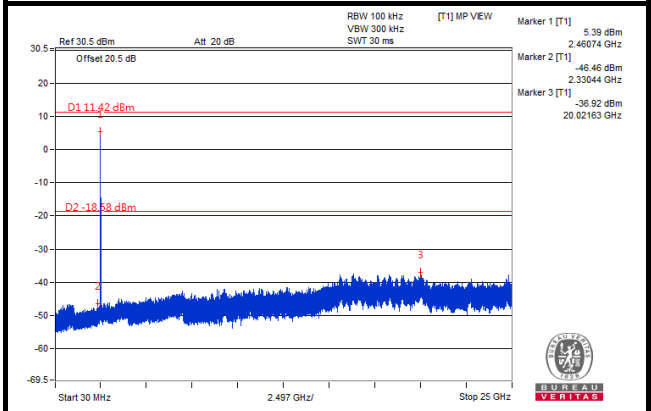

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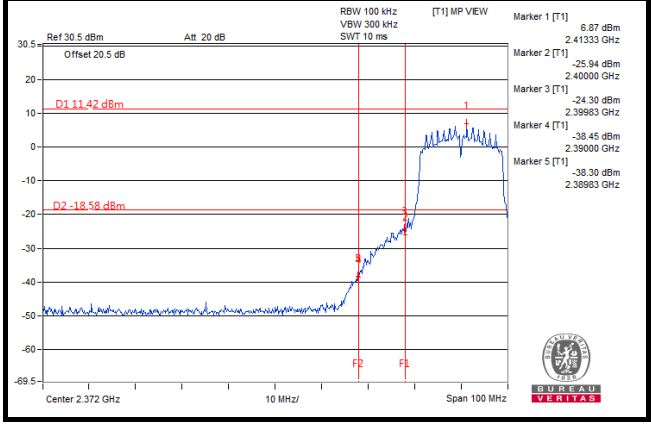

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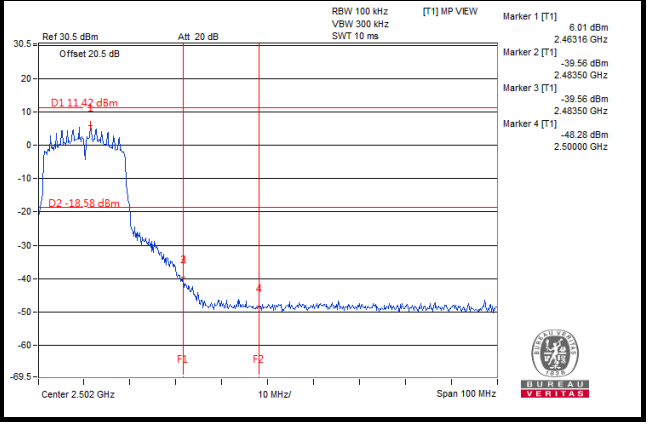

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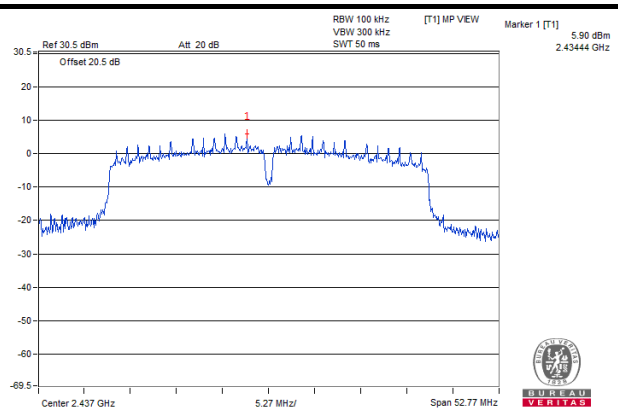

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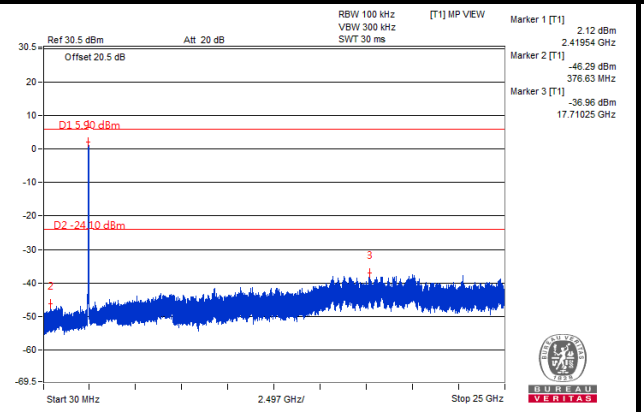

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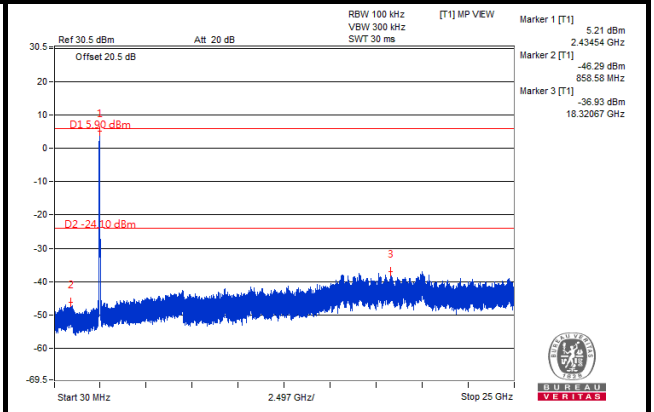

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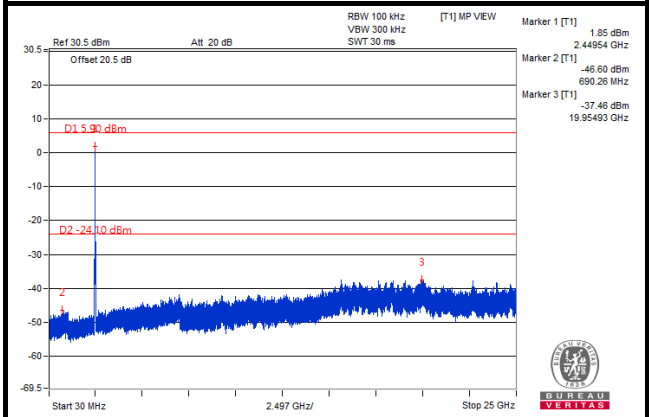

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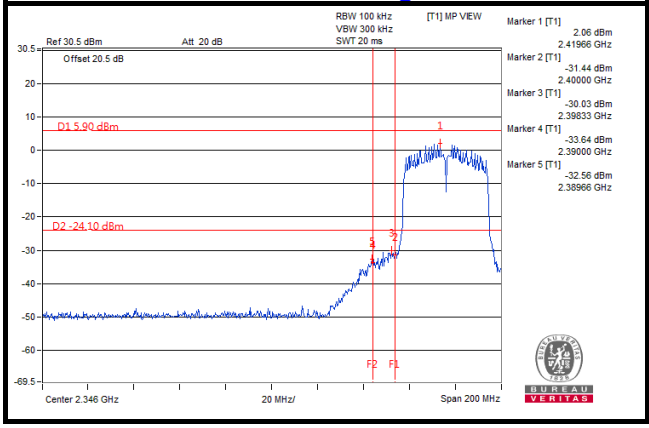
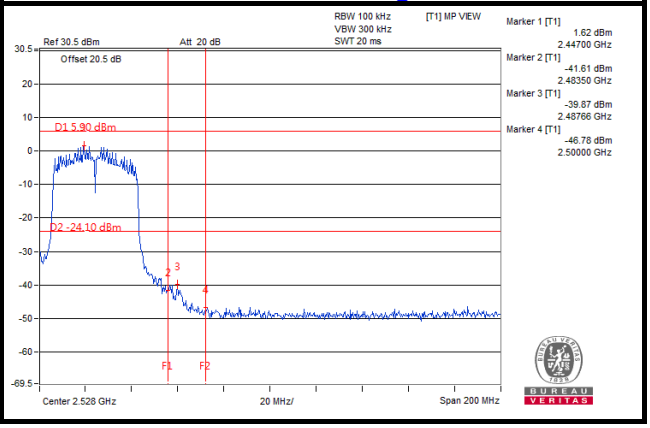


CH 9 Band edge



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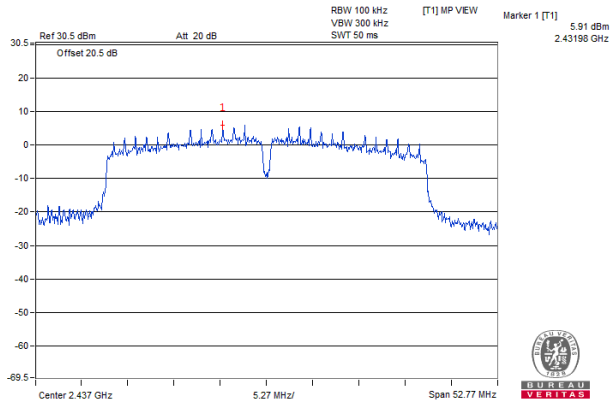

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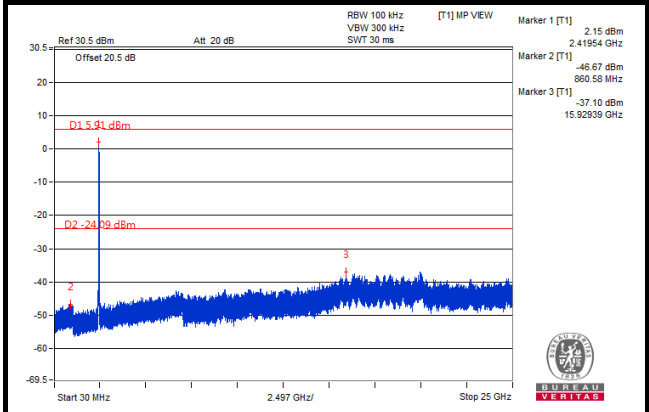

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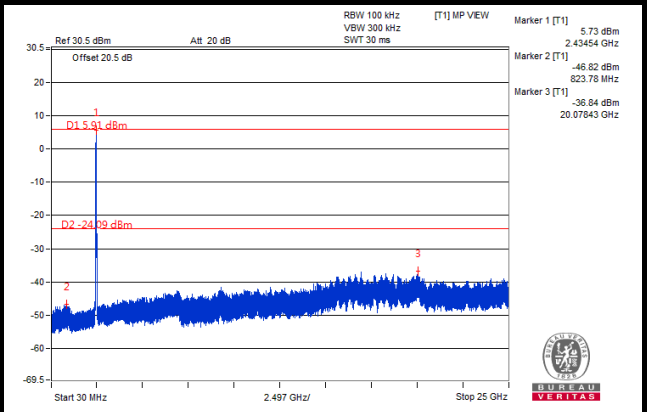

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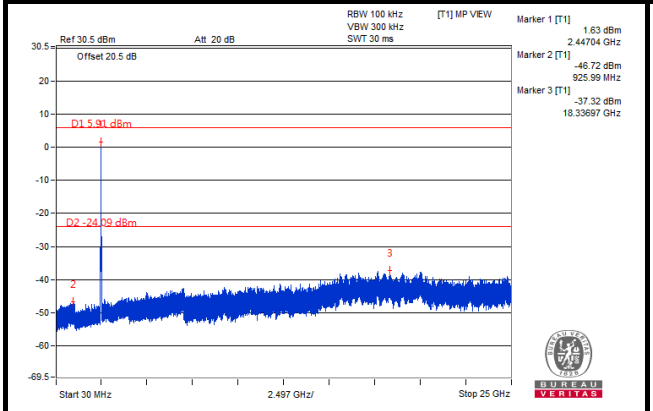
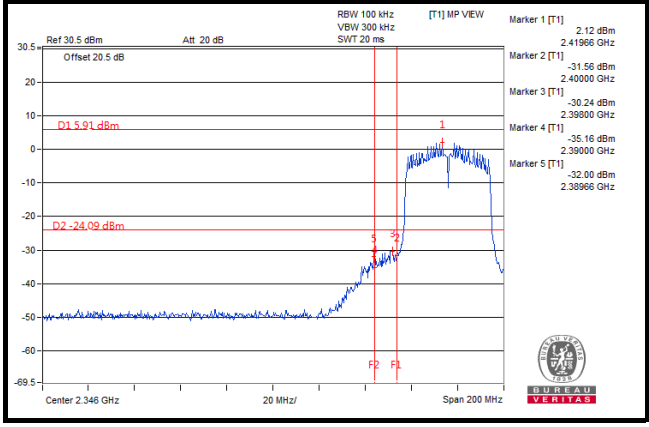


CH 3 Band edge



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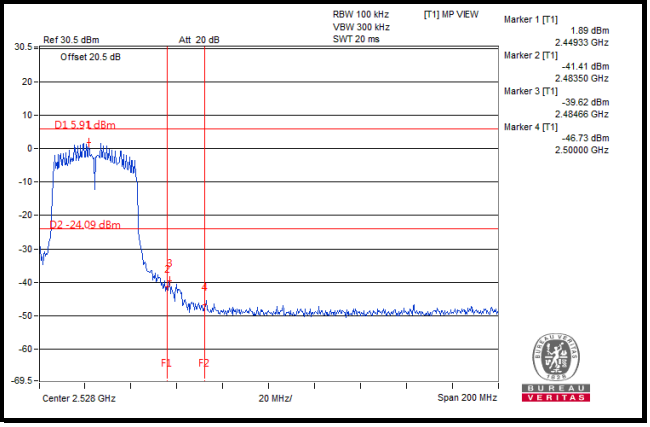

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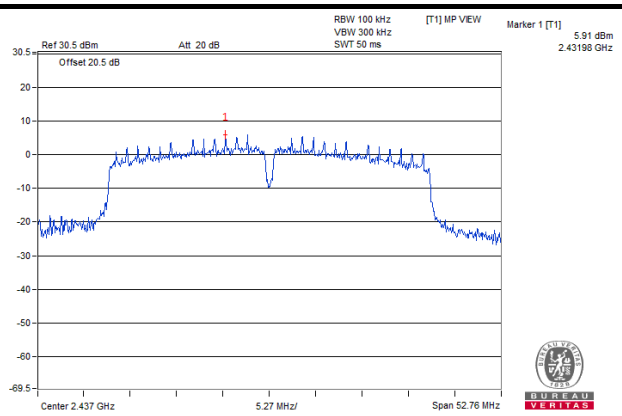

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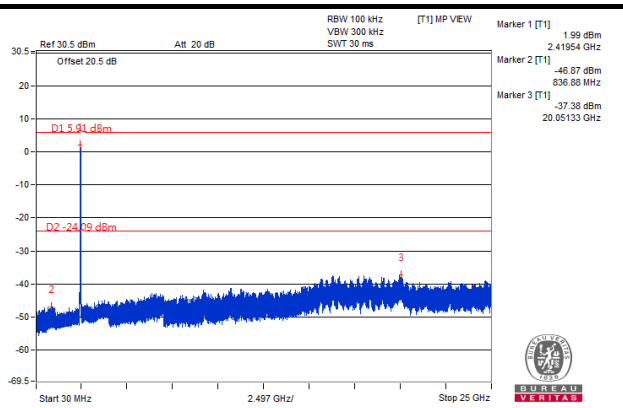
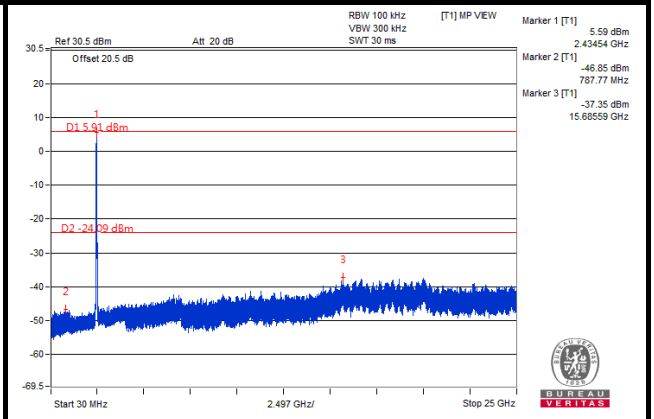


CH 6



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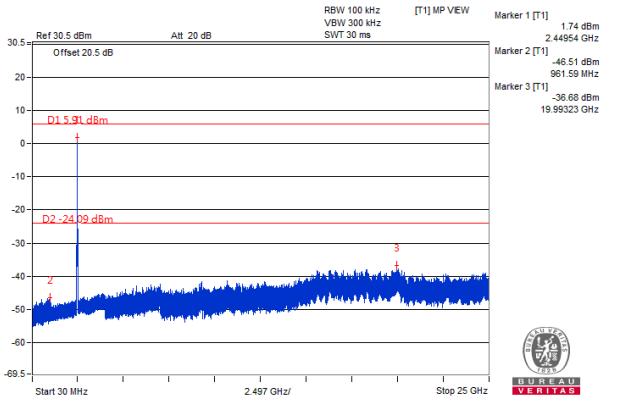
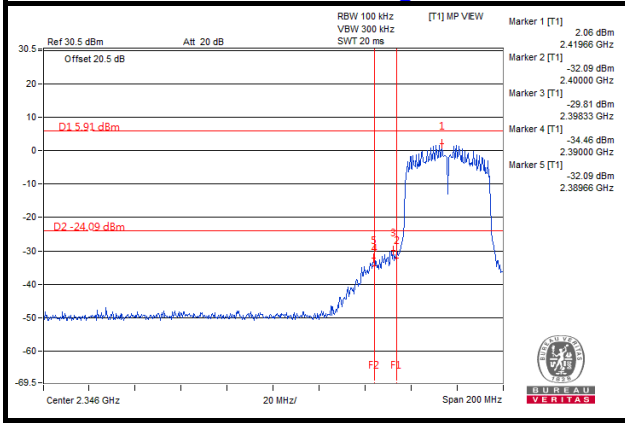
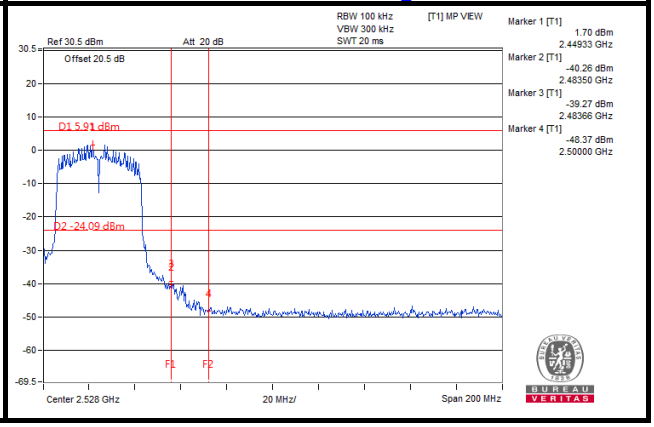


CH 3 Band edge



CH 9 Band edge



CHAIN 3

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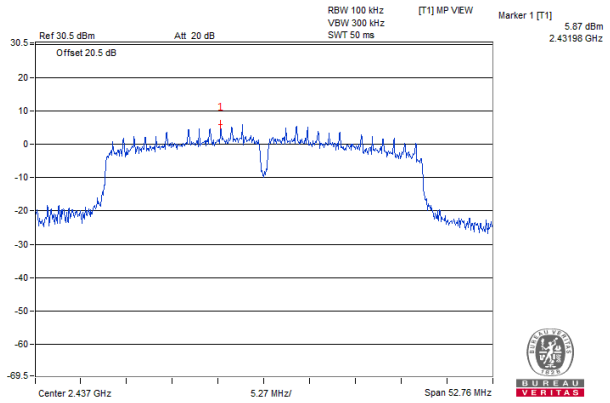

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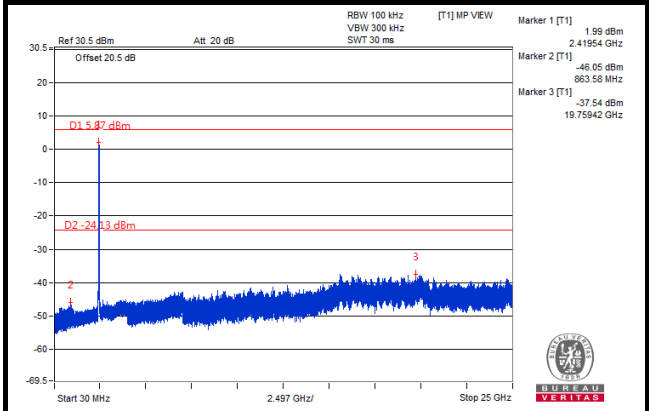
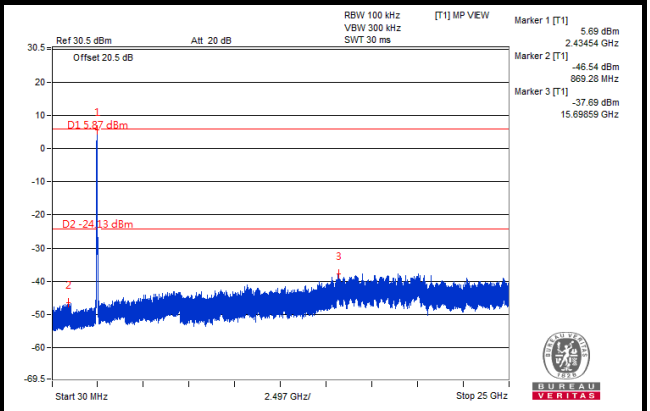
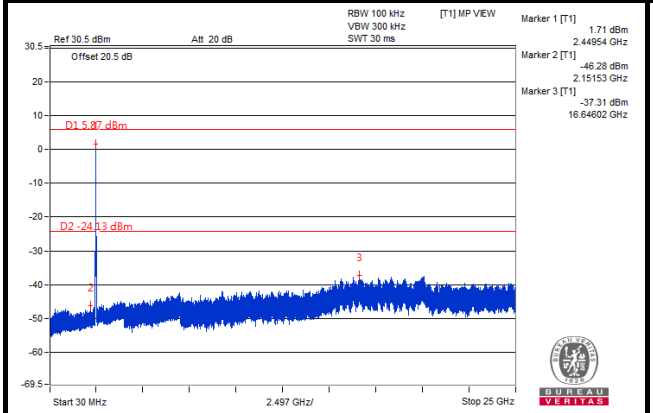


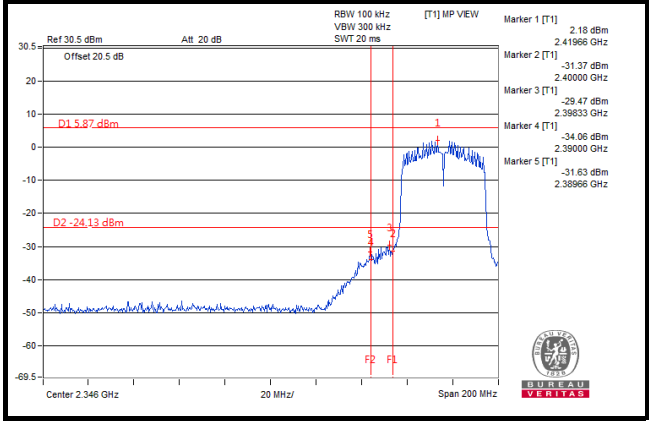
CH 6



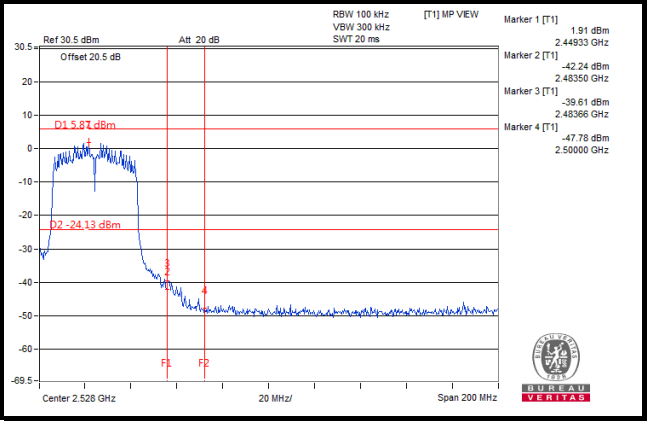
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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