

FCC Test Report

Report No.: RF171128C32

FCC ID: UCC-AX500

Test Model: AX500-X, AX500-S, AX500-T (Refer to item 3.1 for the more details)

Received Date: Nov. 28, 2017

Test Date: Dec. 15, 2017 ~ Mar. 06, 2018

Issued Date: Mar. 12, 2018

Applicant: Altai Technologies Limited

Address: Unit 209, 2/F, Lakeside 2, 10 Science Park West Avenue, HK Science Park, Shatin, Hong Kong

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.

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration/
Designation Number:** 788550 / TW0003



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	4
1 Certificate of Conformity.....	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information.....	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	10
3.2.1 Test Mode Applicability and Tested Channel Detail	11
3.3 Duty Cycle of Test Signal	13
3.4 Description of Support Units	14
3.4.1 Configuration of System under Test	14
3.5 General Description of Applied Standards	14
4 Test Types and Results	15
4.1 Radiated Emission and Bandedge Measurement.....	15
4.1.1 Limits of Radiated Emission and Bandedge Measurement	15
4.1.2 Test Instruments	16
4.1.3 Test Procedures.....	17
4.1.4 Deviation from Test Standard	17
4.1.5 Test Set Up	18
4.1.6 EUT Operating Conditions.....	19
4.1.7 Test Results	20
4.2 Conducted Emission Measurement	59
4.2.1 Limits of Conducted Emission Measurement	59
4.2.2 Test Instruments	59
4.2.3 Test Procedures.....	59
4.2.4 Deviation from Test Standard	60
4.2.5 Test Setup.....	60
4.2.6 EUT Operating Conditions.....	60
4.2.7 Test Results	61
4.3 6dB Bandwidth Measurement.....	67
4.3.1 Limits of 6dB Bandwidth Measurement.....	67
4.3.2 Test Setup.....	67
4.3.3 Test Instruments	67
4.3.4 Test Procedure	67
4.3.5 Deviation from Test Standard	67
4.3.6 EUT Operating Conditions.....	67
4.3.7 Test Result.....	68
4.4 Conducted Output Power Measurement.....	74
4.4.1 Limits of Conducted Output Power Measurement	74
4.4.2 Test Setup.....	74
4.4.3 Test Instruments	74
4.4.4 Test Procedures.....	74
4.4.5 Deviation from Test Standard	74
4.4.6 EUT Operating Conditions.....	74
4.4.7 Test Results	75
4.5 Power Spectral Density Measurement.....	78
4.5.1 Limits of Power Spectral Density Measurement	78
4.5.2 Test Setup.....	78
4.5.3 Test Instruments	78
4.5.4 Test Procedure	78
4.5.5 Deviation from Test Standard	78
4.5.6 EUT Operating Condition	78

4.5.7 Test Results	79
4.6 Conducted Out of Band Emission Measurement.....	88
4.6.1 Limits of Conducted Out of Band Emission Measurement	88
4.6.2 Test Setup.....	88
4.6.3 Test Instruments	88
4.6.4 Test Procedure	88
4.6.5 Deviation from Test Standard	88
4.6.6 EUT Operating Condition	88
4.6.7 Test Results	88
5 Pictures of Test Arrangements.....	113
Appendix – Information on the Testing Laboratories	114

Release Control Record

Issue No.	Description	Date Issued
RF171128C32	Original release.	Mar. 12, 2018

1 Certificate of Conformity

Product: Wireless 802.11 abgn/ac device

Brand: Altai

Test Model: AX500-X, AX500-S, AX500-T (Refer to item 3.1 for the more details)

Sample Status: Engineering sample

Applicant: Altai Technologies Limited

Test Date: Dec. 15, 2017 ~ Mar. 06, 2018

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 RF characteristics under the conditions specified in this report.

Prepared by : Polly Chien , **Date:** Mar. 12, 2018
Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Mar. 12, 2018
Bruce Chen / Project Engineer

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 -8.16dB at 0.48594MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0 dB at 4824.00MHz.
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	Model: AX500-X: Antenna connector is N-male not a standard connector. Model: AX500-S & Model: AX500-T: No antenna connector is used.

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) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless 802.11 abgn/ac device
Brand	Altai
Test Model	AX500-X, AX500-S, AX500-T (Refer to NOTE for the more details)
Status of EUT	Engineering sample
Power Supply Rating	54Vdc (PoE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for 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 300Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	EUT Model: AX500-X: 451.193mW EUT Model: AX500-S: 523.051mW EUT Model: AX500-T: 110.666mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	0.5m non-shielded power cord without core 1.8m non-shielded ground cable without core ANT(2.4GHz Band): Brand: Altai, Model: SD.AN-2M05-00 ANT(5GHz Band): Brand: Altai, Model: SD.AN-5S16-00 2.0m shielded antenna cable PoE
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Model	Remark
AX500-X	External Omni ANT& Sector ANT
AX500-S	Internal Sector Smart ANT
AX500-T	Internal Omni Smart ANT

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitter and 2 receivers.

2.4GHz Band	
Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

3. The EUT consumes power from the following PoE.

PoE	
Brand	EnGenius
Model	EPA5006GP
Input Power	100-240Vac~0.8A, 50-60Hz
Output Power	54Vdc / 0.6A PIN 4,5:54V PIN 7,8:RETURN

4. The following antennas were provided to the EUT.

	Freq. Range	Type	Connector	Gain (dBi)	
				2.4GHz Band	5GHz Band
Model: AX500-X					
1	2.4GHz Band	Omni	N-male	5	-
2	5GHz Band	Sector	2x N-female	-	16

Freq. Range	Type	Connector	Gain (dBi)						
Model: AX500-S				Vpol Azimuth			Hpol Azimuth		
				2.41 GHz	2.45 GHz	2.48 GHz	2.41 GHz	2.45 GHz	2.48 GHz
2.4GHz Band	Internal Sector Smart ANT	NA	Conf. 0	8.3	7.9	8.0	8.0	8.5	8.3
			Conf. 1	6.8	7.1	7.1	6.2	6.8	7.0
			Conf. 2	8.5	8.5	8.6	7.8	7.9	7.9
			Conf. 3	6.6	7.1	7.3	6.4	6.8	6.7
			Conf. 4	8.0	7.8	7.8	8.2	8.6	8.5
			Conf. 5	6.5	6.9	6.3	6.2	6.5	6.0
			Conf. 6	8.1	7.3	6.7	8.7	8.8	8.1
			Conf. 7	8.4	7.7	7.0	8.4	8.4	7.7
			Conf. 8	7.1	5.8	4.5	7.2	6.9	6.1
			Conf. 5+8 (RX only)	8.8	8.1	7.4	9.1	9.2	8.5
5GHz Band	Internal Sector Smart ANT	NA		Vpol Azimuth			Hpol Azimuth		
				5.2 GHz	5.5 GHz	5.8 GHz	5.2 GHz	5.5 GHz	5.8 GHz
			Conf. 0	11.4	13.1	12.6	11.1	10.1	11.2
			Conf. 1	9.8	11.5	10.2	9.7	8.4	8.7
			Conf. 2	11.4	12.3	11.3	11.9	10.0	11.0
			Conf. 3	12.2	12.1	11.4	10.0	9.4	9.6
			Conf. 4	13.0	14.1	12.8	11.8	11.3	12.1
			Conf. 5	8.5	8.6	6.3	7.1	7.4	5.0
			Conf. 6	7.5	9.1	8.8	10.2	8.0	6.1
			Conf. 7	9.5	10.8	9.0	9.8	8.5	6.8
			Conf. 8	6.9	8.9	7.4	8.1	7.2	6.6
			Conf. 5+8 (RX only)	10.2	11.5	9.7	10.9	9.2	7.5

*2.4GHz Band: Maximum antenna gain at Conf. 6 was chose for final test.

*5GHz Band: Maximum antenna gain at Conf. 4 was chose for final test.

Freq. Range	Type	Connector	Gain (dBi)			
Model: AX500-T				LEAF2GHz - Azimuth		
				2.41 GHz	2.45 GHz	2.48 GHz
2.4GHz Band	Internal Omni Smart ANT	NA	Conf. 0	3.3	2.6	2.2
			Conf. 1	4.7	4.4	4.2
			Conf. 2	3.7	3.8	3.7
			Conf. 3	5.7	5.7	5.9
			Conf. 4	5.8	5.4	5.3
			Conf. 5	6.3	5.6	5.5
			Conf. 6	5.9	4.9	4.5
			Conf. 7	5.1	4.8	4.7
			Conf. 8	4.1	3.8	3.5
				ANT3 (ZOR 2GHz) - Azimuth		
				2.41 GHz	2.45 GHz	2.48 GHz
			Conf. 0	4.4	5.0	5.4
			Conf. 1	3.8	2.7	1.1
			Conf. 2	6.6	6.3	5.2
			Conf. 3	2.8	1.5	-0.3
			Conf. 4	5.4	5.4	4.9
			Conf. 5	0	0.3	0.2
			Conf. 6	4.3	4.0	3.9
			Conf. 7	1.0	1.2	1.1
			Conf. 8	6.5	6.1	5.4
				LEAF5GHz - Azimuth		
				5.2 GHz	5.5 GHz	5.8 GHz
5GHz Band	Internal Omni Smart ANT	NA	Conf. 0	6.2	5.0	6.0
			Conf. 1	6.2	6.6	5.4
			Conf. 2	5.7	4.5	6.1
			Conf. 3	6.4	6.6	5.7
			Conf. 4	6.9	5.9	6.2
			Conf. 5	6.9	5.9	6.4
			Conf. 6	6.3	7.0	6.9
			Conf. 7	7.3	6.9	7.9
			Conf. 8	6.6	5.7	7.1
				ANT4 (CROSS 5GHz) - Azimuth		
				5.2 GHz	5.5 GHz	5.8 GHz
			Conf. 0	3.5	5.7	5.3
			Conf. 1	6.3	6.8	4.9
			Conf. 2	7.1	7.3	5.2
			Conf. 3	5.7	6.7	4.8
			Conf. 4	4.4	5.7	5.0
			Conf. 5	4.1	6.3	4.2
			Conf. 6	3.5	5.4	3.8
			Conf. 7	4.4	5.4	3.8
			Conf. 8	5.0	5.8	4.5

*2.4GHz Band: Maximum antenna gain at Conf. 2 (ANT3 (ZOR 2GHz) - Azimuth) was chose for final test.

*5GHz Band: Maximum antenna gain at Conf. 7 (LEAF5GHz - Azimuth) was chose for final test.

5. WLAN 2.4GHz and WLAN 5GHz technologies can transmit at same time.

6. Spurious emission of the simultaneous operation (WLAN 2.4GHz and WLAN 5GHz) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

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

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):

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 $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT Model: AX500-X
B	√	√	√	√	EUT Model: AX500-S
C	√	√	√	√	EUT Model: AX500-T

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

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A, B, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A, B, C	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A, B, C	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11g	1 to 11	6	OFDM	BPSK	6.0

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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11g	1 to 11	6	OFDM	BPSK	6.0

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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A, B, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A, B, C	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A, B, C	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	22deg. C, 65%RH	120Vac, 60Hz	Willy Chen
RE<1G	22deg. C, 65%RH	120Vac, 60Hz	Willy Chen
PLC	25deg. C, 75%RH	120Vac, 60Hz	Adair Peng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

If duty cycle of test signal is > 98%, duty factor is not required

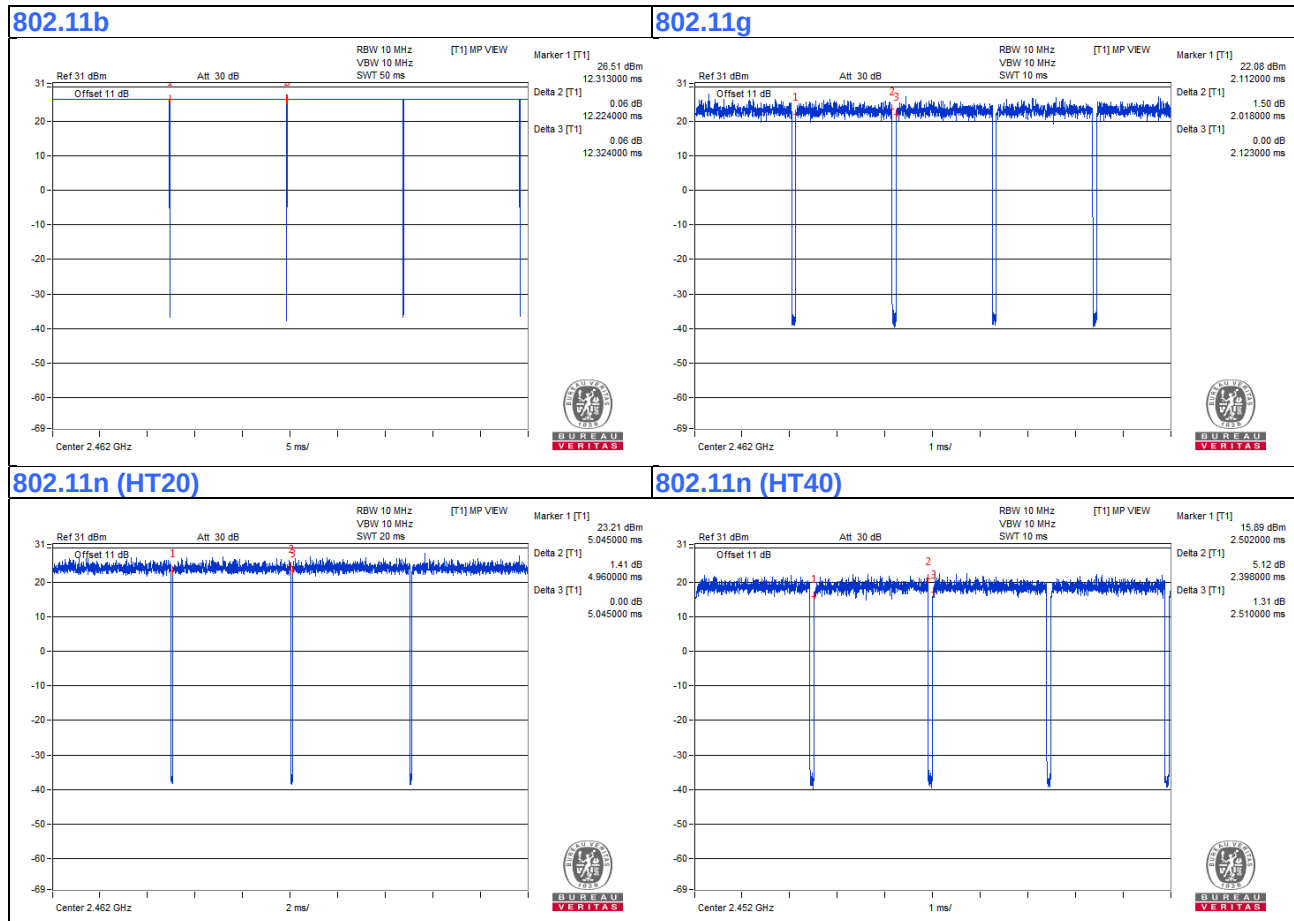
If duty cycle of test signal is < 98 %, duty factor is required

802.11b: Duty cycle = $12.224/12.324 = 0.992$

802.11g: Duty cycle = $2.018/2.123 = 0.951$, Duty factor = $10 * \log(1/0.951) = 0.22$

802.11n (HT20): Duty cycle = $4.960/5.045 = 0.983$

802.11n (HT40): Duty cycle = $2.398/2.510 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$



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.

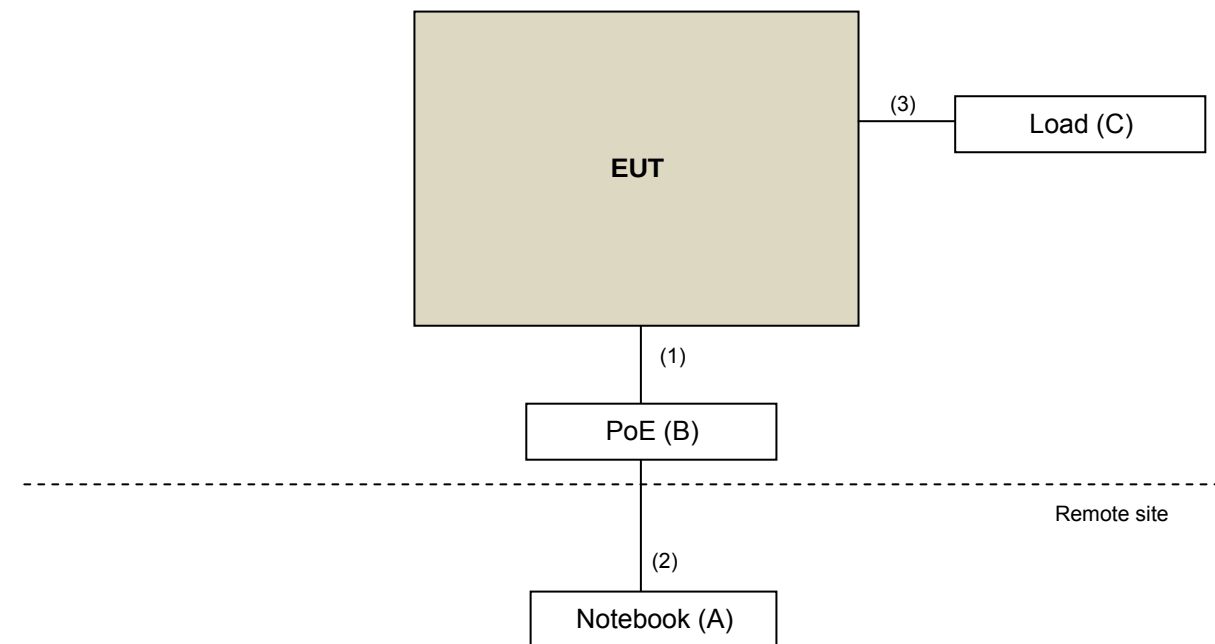
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Lenovo	80Q7	PF0KUGU6	FCC DoC Approved	-
B.	PoE	EnGenius	EPA5006GP	NA	NA	Provided by manufacturer
C.	Load	NA	NA	NA	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	1.0	N	0	Cat5e
2.	RJ45 cable	1	3	N	0	Cat5e
3.	RJ45 cable	2	1.0	N	0	Cat5e

3.4.1 Configuration of System under 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 30dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 02, 2017	May 01, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 05, 2017	Apr. 04, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018

- Note:
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 HwaYa Chamber 3.
 3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 5. The IC Site Registration No. is IC 7450F-3.

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. Parallel, perpendicular, and ground-parallel orientations 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:

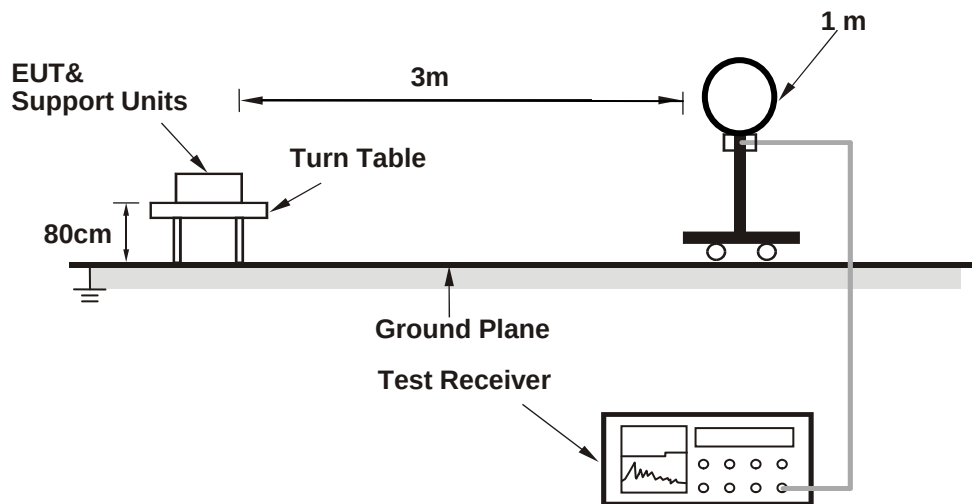
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Peak detection 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

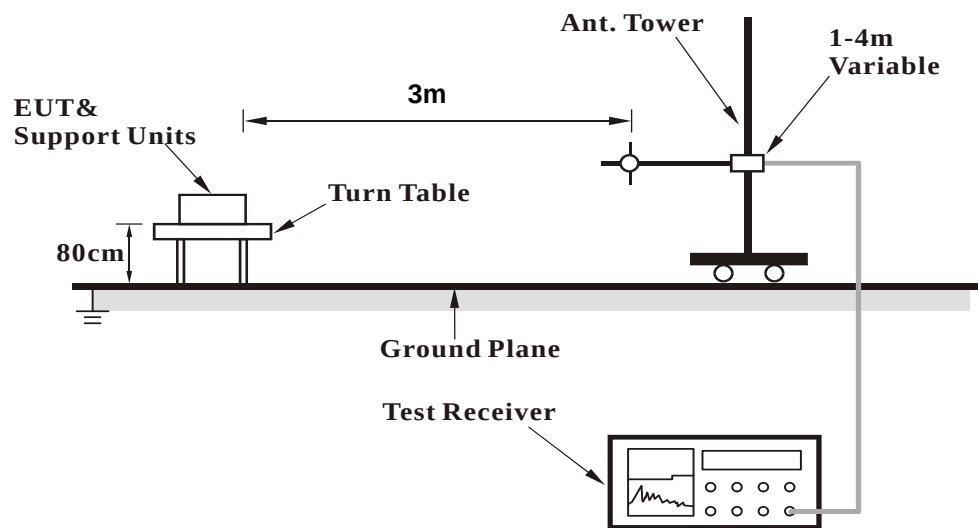
No deviation.

4.1.5 Test Set Up

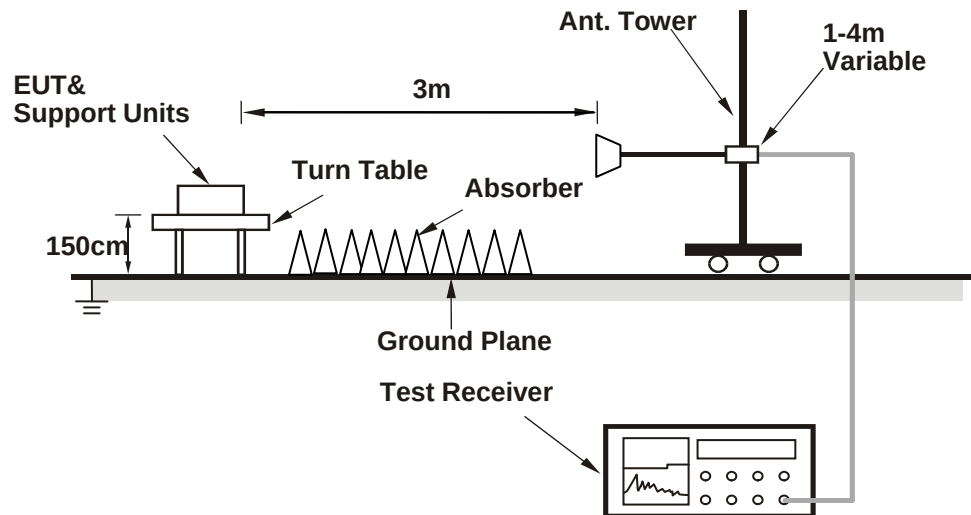
For Radiated emission below 30MHz



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

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (QRCT) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Data :

Mode A

802.11b

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

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	57.0 PK	74.0	-17.0	2.06 H	188	23.50	33.50
2	2390.00	45.9 AV	54.0	-8.1	2.06 H	188	12.40	33.50
3	*2412.00	106.2 PK			1.66 H	136	72.80	33.40
4	*2412.00	102.5 AV			1.66 H	136	69.10	33.40
5	4824.00	49.7 PK	74.0	-24.3	3.44 H	290	46.00	3.70
6	4824.00	44.6 AV	54.0	-9.4	3.44 H	290	40.90	3.70
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	57.2 PK	74.0	-16.8	1.92 V	28	23.70	33.50
2	2390.00	46.9 AV	54.0	-7.1	1.92 V	28	13.40	33.50
3	*2412.00	121.4 PK			1.60 V	19	88.00	33.40
4	*2412.00	117.6 AV			1.60 V	19	84.20	33.40
5	4824.00	55.4 PK	74.0	-18.6	2.29 V	298	51.70	3.70
6	4824.00	53.0 AV	54.0	-1.0	2.29 V	298	49.30	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	101.7 PK			1.24 H	211	68.30	33.40
2	*2437.00	98.2 AV			1.24 H	211	64.80	33.40
3	4874.00	49.7 PK	74.0	-24.3	3.35 H	288	46.20	3.50
4	4874.00	42.9 AV	54.0	-11.1	3.35 H	288	39.40	3.50
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	121.6 PK			1.45 V	17	88.20	33.40
2	*2437.00	117.8 AV			1.45 V	17	84.40	33.40
3	4874.00	55.4 PK	74.0	-18.6	1.16 V	328	51.90	3.50
4	4874.00	52.5 AV	54.0	-1.5	1.16 V	328	49.00	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	104.0 PK			1.00 H	219	70.70	33.30
2	*2462.00	100.4 AV			1.00 H	219	67.10	33.30
3	2483.50	57.8 PK	74.0	-16.2	1.50 H	349	24.60	33.20
4	2483.50	45.3 AV	54.0	-8.7	1.50 H	349	12.10	33.20
5	4924.00	48.5 PK	74.0	-25.5	4.00 H	282	45.20	3.30
6	4924.00	41.4 AV	54.0	-12.6	4.00 H	282	38.10	3.30
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	123.8 PK			1.49 V	329	90.50	33.30
2	*2462.00	120.1 AV			1.49 V	329	86.80	33.30
3	2483.50	62.0 PK	74.0	-12.0	1.48 V	14	28.80	33.20
4	2483.50	52.2 AV	54.0	-1.8	1.48 V	14	19.00	33.20
5	4924.00	55.3 PK	74.0	-18.7	1.14 V	325	52.00	3.30
6	4924.00	52.3 AV	54.0	-1.7	1.14 V	325	49.00	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	57.6 PK	74.0	-16.4	2.83 H	247	24.10	33.50
2	2390.00	45.8 AV	54.0	-8.2	2.83 H	247	12.30	33.50
3	*2412.00	101.4 PK			3.32 H	133	68.00	33.40
4	*2412.00	91.0 AV			3.32 H	133	57.60	33.40
5	4824.00	45.6 PK	74.0	-28.4	3.01 H	298	41.90	3.70
6	4824.00	32.8 AV	54.0	-21.2	3.01 H	298	29.10	3.70
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	68.2 PK	74.0	-5.8	1.60 V	16	34.70	33.50
2	2390.00	52.4 AV	54.0	-1.6	1.60 V	16	18.90	33.50
3	*2412.00	119.8 PK			1.53 V	328	86.40	33.40
4	*2412.00	109.4 AV			1.53 V	328	76.00	33.40
5	4824.00	51.8 PK	74.0	-22.2	2.26 V	303	48.10	3.70
6	4824.00	37.1 AV	54.0	-16.9	2.26 V	303	33.40	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	109.7 PK			1.82 H	137	76.30	33.40
2	*2437.00	99.1 AV			1.82 H	137	65.70	33.40
3	4874.00	45.8 PK	74.0	-28.2	3.03 H	178	42.30	3.50
4	4874.00	33.8 AV	54.0	-20.2	3.03 H	178	30.30	3.50
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	124.7 PK			1.63 V	17	91.30	33.40
2	*2437.00	113.7 AV			1.63 V	17	80.30	33.40
3	4874.00	55.3 PK	74.0	-18.7	1.14 V	306	51.80	3.50
4	4874.00	41.9 AV	54.0	-12.1	1.14 V	306	38.40	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	102.7 PK			1.00 H	223	69.40	33.30
2	*2462.00	92.5 AV			1.00 H	223	59.20	33.30
3	2483.50	58.1 PK	74.0	-15.9	2.55 H	313	24.90	33.20
4	2483.50	45.4 AV	54.0	-8.6	2.55 H	313	12.20	33.20
5	4924.00	45.1 PK	74.0	-28.9	2.87 H	79	41.80	3.30
6	4924.00	32.2 AV	54.0	-21.8	2.87 H	79	28.90	3.30
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	121.1 PK			1.52 V	202	87.80	33.30
2	*2462.00	110.9 AV			1.52 V	202	77.60	33.30
3	2483.50	69.1 PK	74.0	-4.9	1.44 V	21	35.90	33.20
4	2483.50	52.8 AV	54.0	-1.2	1.44 V	21	19.60	33.20
5	4924.00	46.8 PK	74.0	-27.2	1.02 V	333	43.50	3.30
6	4924.00	33.8 AV	54.0	-20.2	1.02 V	333	30.50	3.30

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 (HT20)

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

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	57.2 PK	74.0	-16.8	3.31 H	286	23.70	33.50
2	2390.00	45.8 AV	54.0	-8.2	3.31 H	286	12.30	33.50
3	*2412.00	102.1 PK			1.51 H	212	68.70	33.40
4	*2412.00	91.2 AV			1.51 H	212	57.80	33.40
5	4824.00	45.4 PK	74.0	-28.6	2.24 H	179	41.70	3.70
6	4824.00	32.3 AV	54.0	-21.7	2.24 H	179	28.60	3.70
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	67.3 PK	74.0	-6.7	1.72 V	301	33.80	33.50
2	2390.00	52.3 AV	54.0	-1.7	1.72 V	301	18.80	33.50
3	*2412.00	119.0 PK			1.69 V	14	85.60	33.40
4	*2412.00	108.1 AV			1.69 V	14	74.70	33.40
5	4824.00	48.9 PK	74.0	-25.1	1.25 V	302	45.20	3.70
6	4824.00	35.0 AV	54.0	-19.0	1.25 V	302	31.30	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	104.3 PK			3.09 H	126	70.90	33.40
2	*2437.00	93.0 AV			3.09 H	126	59.60	33.40
3	4874.00	45.4 PK	74.0	-28.6	2.87 H	249	41.90	3.50
4	4874.00	32.4 AV	54.0	-21.6	2.87 H	249	28.90	3.50
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	124.9 PK			1.59 V	310	91.50	33.40
2	*2437.00	113.9 AV			1.59 V	310	80.50	33.40
3	4874.00	57.3 PK	74.0	-16.7	1.17 V	69	53.80	3.50
4	4874.00	42.2 AV	54.0	-11.8	1.17 V	69	38.70	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	97.1 PK			2.81 H	60	63.80	33.30
2	*2462.00	86.8 AV			2.81 H	60	53.50	33.30
3	2483.50	57.1 PK	74.0	-16.9	3.09 H	228	23.90	33.20
4	2483.50	45.2 AV	54.0	-8.8	3.09 H	228	12.00	33.20
5	4924.00	45.5 PK	74.0	-28.5	2.53 H	157	42.20	3.30
6	4924.00	32.3 AV	54.0	-21.7	2.53 H	157	29.00	3.30
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	121.5 PK			1.51 V	199	88.20	33.30
2	*2462.00	110.0 AV			1.51 V	199	76.70	33.30
3	2483.50	67.5 PK	74.0	-6.5	1.54 V	176	34.30	33.20
4	2483.50	52.6 AV	54.0	-1.4	1.54 V	176	19.40	33.20
5	4924.00	46.9 PK	74.0	-27.1	1.11 V	84	43.60	3.30
6	4924.00	33.7 AV	54.0	-20.3	1.11 V	84	30.40	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	57.4 PK	74.0	-16.6	2.35 H	248	23.90	33.50
2	2390.00	45.7 AV	54.0	-8.3	2.35 H	248	12.20	33.50
3	*2422.00	94.5 PK			3.14 H	126	61.10	33.40
4	*2422.00	84.7 AV			3.14 H	126	51.30	33.40
5	4844.00	45.2 PK	74.0	-28.8	2.44 H	106	41.60	3.60
6	4844.00	32.2 AV	54.0	-21.8	2.44 H	106	28.60	3.60
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	65.7 PK	74.0	-8.3	1.78 V	28	32.20	33.50
2	2390.00	52.5 AV	54.0	-1.5	1.78 V	28	19.00	33.50
3	*2422.00	114.4 PK			1.52 V	336	81.00	33.40
4	*2422.00	104.2 AV			1.52 V	336	70.80	33.40
5	4844.00	45.5 PK	74.0	-28.5	1.08 V	18	41.90	3.60
6	4844.00	32.5 AV	54.0	-21.5	1.08 V	18	28.90	3.60

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	97.6 PK			2.66 H	125	64.20	33.40
2	*2437.00	87.6 AV			2.66 H	125	54.20	33.40
3	2483.50	57.1 PK	74.0	-16.9	3.12 H	279	23.90	33.20
4	2483.50	45.3 AV	54.0	-8.7	3.12 H	279	12.10	33.20
5	4874.00	45.7 PK	74.0	-28.3	2.36 H	193	42.20	3.50
6	4874.00	32.4 AV	54.0	-21.6	2.36 H	193	28.90	3.50
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	119.1 PK			1.65 V	18	85.70	33.40
2	*2437.00	108.6 AV			1.65 V	18	75.20	33.40
3	2483.50	69.7 PK	74.0	-4.3	1.48 V	25	36.50	33.20
4	2483.50	52.9 AV	54.0	-1.1	1.48 V	25	19.70	33.20
5	4874.00	48.4 PK	74.0	-25.6	1.16 V	95	44.90	3.50
6	4874.00	35.2 AV	54.0	-18.8	1.16 V	95	31.70	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	95.3 PK			2.60 H	150	61.90	33.40
2	*2452.00	85.1 AV			2.60 H	150	51.70	33.40
3	2483.50	57.4 PK	74.0	-16.6	2.67 H	183	24.20	33.20
4	2483.50	45.2 AV	54.0	-8.8	2.67 H	183	12.00	33.20
5	4904.00	45.6 PK	74.0	-28.4	2.03 H	198	42.20	3.40
6	4904.00	32.3 AV	54.0	-21.7	2.03 H	198	28.90	3.40
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	115.9 PK			1.63 V	13	82.50	33.40
2	*2452.00	106.2 AV			1.63 V	13	72.80	33.40
3	2483.50	65.5 PK	74.0	-8.5	1.59 V	11	32.30	33.20
4	2483.50	52.5 AV	54.0	-1.5	1.59 V	11	19.30	33.20
5	4904.00	45.7 PK	74.0	-28.3	1.14 V	29	42.30	3.40
6	4904.00	33.0 AV	54.0	-21.0	1.14 V	29	29.60	3.40

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.

Mode B

802.11b

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

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	57.7 PK	74.0	-16.3	1.43 H	356	24.20	33.50
2	2390.00	45.7 AV	54.0	-8.3	1.43 H	356	12.20	33.50
3	*2412.00	114.4 PK			1.26 H	0	81.00	33.40
4	*2412.00	111.5 AV			1.26 H	0	78.10	33.40
5	4824.00	51.0 PK	74.0	-23.0	1.44 H	298	47.30	3.70
6	4824.00	46.2 AV	54.0	-7.8	1.44 H	298	42.50	3.70
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	57.6 PK	74.0	-16.4	2.18 V	30	24.10	33.50
2	2390.00	45.8 AV	54.0	-8.2	2.18 V	30	12.30	33.50
3	*2412.00	116.1 PK			2.10 V	7	82.70	33.40
4	*2412.00	112.4 AV			2.10 V	7	79.00	33.40
5	4824.00	55.7 PK	74.0	-18.3	3.59 V	6	52.00	3.70
6	4824.00	52.9 AV	54.0	-1.1	3.59 V	6	49.20	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	117.0 PK			1.14 H	347	83.60	33.40
2	*2437.00	113.3 AV			1.14 H	347	79.90	33.40
3	4874.00	50.2 PK	74.0	-23.8	1.64 H	297	46.70	3.50
4	4874.00	44.8 AV	54.0	-9.2	1.64 H	297	41.30	3.50
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	116.1 PK			1.59 V	3	82.70	33.40
2	*2437.00	112.5 AV			1.59 V	3	79.10	33.40
3	4874.00	52.0 PK	74.0	-22.0	2.76 V	354	48.50	3.50
4	4874.00	48.1 AV	54.0	-5.9	2.76 V	354	44.60	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	117.4 PK			1.22 H	348	84.10	33.30
2	*2462.00	113.6 AV			1.22 H	348	80.30	33.30
3	2483.50	57.9 PK	74.0	-16.1	2.03 H	314	24.70	33.20
4	2483.50	45.7 AV	54.0	-8.3	2.03 H	314	12.50	33.20
5	4924.00	46.6 PK	74.0	-27.4	2.27 H	345	43.30	3.30
6	4924.00	38.7 AV	54.0	-15.3	2.27 H	345	35.40	3.30
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	116.1 PK			1.08 V	357	82.80	33.30
2	*2462.00	112.5 AV			1.08 V	357	79.20	33.30
3	2483.50	57.4 PK	74.0	-16.6	1.55 V	333	24.20	33.20
4	2483.50	45.6 AV	54.0	-8.4	1.55 V	333	12.40	33.20
5	4924.00	47.7 PK	74.0	-26.3	3.13 V	310	44.40	3.30
6	4924.00	40.1 AV	54.0	-13.9	3.13 V	310	36.80	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	67.3 PK	74.0	-6.7	1.05 H	336	33.80	33.50
2	2390.00	51.6 AV	54.0	-2.4	1.05 H	336	18.10	33.50
3	*2412.00	115.1 PK			1.17 H	337	81.70	33.40
4	*2412.00	104.7 AV			1.17 H	337	71.30	33.40
5	4824.00	47.1 PK	74.0	-26.9	1.44 H	347	43.40	3.70
6	4824.00	33.9 AV	54.0	-20.1	1.44 H	347	30.20	3.70
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	67.0 PK	74.0	-7.0	1.66 V	8	33.50	33.50
2	2390.00	52.4 AV	54.0	-1.6	1.66 V	8	18.90	33.50
3	*2412.00	115.9 PK			1.64 V	9	82.50	33.40
4	*2412.00	104.4 AV			1.64 V	9	71.00	33.40
5	4824.00	47.3 PK	74.0	-26.7	3.09 V	312	43.60	3.70
6	4824.00	34.0 AV	54.0	-20.0	3.09 V	312	30.30	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	120.0 PK			1.02 H	345	86.60	33.40
2	*2437.00	108.8 AV			1.02 H	345	75.40	33.40
3	4874.00	45.7 PK	74.0	-28.3	2.88 H	345	42.20	3.50
4	4874.00	34.6 AV	54.0	-19.4	2.88 H	345	31.10	3.50
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	118.6 PK			1.79 V	12	85.20	33.40
2	*2437.00	107.7 AV			1.79 V	12	74.30	33.40
3	4874.00	50.9 PK	74.0	-23.1	3.19 V	314	47.40	3.50
4	4874.00	36.7 AV	54.0	-17.3	3.19 V	314	33.20	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	116.7 PK			1.23 H	344	83.40	33.30
2	*2462.00	105.2 AV			1.23 H	344	71.90	33.30
3	2483.50	69.2 PK	74.0	-4.8	1.05 H	343	36.00	33.20
4	2483.50	51.6 AV	54.0	-2.4	1.05 H	343	18.40	33.20
5	4924.00	44.3 PK	74.0	-29.7	2.78 H	314	41.00	3.30
6	4924.00	33.5 AV	54.0	-20.5	2.78 H	314	30.20	3.30
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	115.9 PK			1.11 V	357	82.60	33.30
2	*2462.00	104.5 AV			1.11 V	357	71.20	33.30
3	2483.50	70.9 PK	74.0	-3.1	1.22 V	356	37.70	33.20
4	2483.50	52.7 AV	54.0	-1.3	1.22 V	356	19.50	33.20
5	4924.00	45.4 PK	74.0	-28.6	3.21 V	302	42.10	3.30
6	4924.00	31.9 AV	54.0	-22.1	3.21 V	302	28.60	3.30

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 (HT20)

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

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	63.9 PK	74.0	-10.1	1.07 H	1	30.40	33.50
2	2390.00	49.3 AV	54.0	-4.7	1.07 H	1	15.80	33.50
3	*2412.00	113.3 PK			1.19 H	338	79.90	33.40
4	*2412.00	102.6 AV			1.19 H	338	69.20	33.40
5	4824.00	45.0 PK	74.0	-29.0	2.64 H	321	41.30	3.70
6	4824.00	33.9 AV	54.0	-20.1	2.64 H	321	30.20	3.70
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	68.8 PK	74.0	-5.2	1.48 V	359	35.30	33.50
2	2390.00	52.8 AV	54.0	-1.2	1.48 V	359	19.30	33.50
3	*2412.00	114.7 PK			1.79 V	6	81.30	33.40
4	*2412.00	103.8 AV			1.79 V	6	70.40	33.40
5	4824.00	47.6 PK	74.0	-26.4	3.29 V	314	43.90	3.70
6	4824.00	33.7 AV	54.0	-20.3	3.29 V	314	30.00	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	118.7 PK			1.00 H	348	85.30	33.40
2	*2437.00	107.6 AV			1.00 H	348	74.20	33.40
3	4874.00	45.7 PK	74.0	-28.3	2.66 H	308	42.20	3.50
4	4874.00	35.4 AV	54.0	-18.6	2.66 H	308	31.90	3.50
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	119.1 PK			1.74 V	11	85.70	33.40
2	*2437.00	107.6 AV			1.74 V	11	74.20	33.40
3	4874.00	47.2 PK	74.0	-26.8	3.24 V	339	43.70	3.50
4	4874.00	35.8 AV	54.0	-18.2	3.24 V	339	32.30	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	115.4 PK			1.42 H	338	82.10	33.30
2	*2462.00	104.6 AV			1.42 H	338	71.30	33.30
3	2483.50	66.9 PK	74.0	-7.1	1.73 H	346	33.70	33.20
4	2483.50	51.4 AV	54.0	-2.6	1.73 H	346	18.20	33.20
5	4924.00	44.7 PK	74.0	-29.3	3.11 H	264	41.40	3.30
6	4924.00	34.5 AV	54.0	-19.5	3.11 H	264	31.20	3.30
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	114.5 PK			1.20 V	3	81.20	33.30
2	*2462.00	103.4 AV			1.20 V	3	70.10	33.30
3	2483.50	68.3 PK	74.0	-5.7	1.49 V	13	35.10	33.20
4	2483.50	52.8 AV	54.0	-1.2	1.49 V	13	19.60	33.20
5	4924.00	45.4 PK	74.0	-28.6	3.31 V	342	42.10	3.30
6	4924.00	33.6 AV	54.0	-20.4	3.31 V	342	30.30	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	63.3 PK	74.0	-10.7	1.11 H	332	29.80	33.50
2	2390.00	51.7 AV	54.0	-2.3	1.11 H	332	18.20	33.50
3	*2422.00	109.3 PK			1.14 H	331	75.90	33.40
4	*2422.00	99.1 AV			1.14 H	331	65.70	33.40
5	4844.00	44.4 PK	74.0	-29.6	3.18 H	248	40.80	3.60
6	4844.00	32.9 AV	54.0	-21.1	3.18 H	248	29.30	3.60
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	66.3 PK	74.0	-7.7	1.31 V	344	32.80	33.50
2	2390.00	52.8 AV	54.0	-1.2	1.31 V	344	19.30	33.50
3	*2422.00	111.3 PK			1.37 V	7	77.90	33.40
4	*2422.00	100.4 AV			1.37 V	7	67.00	33.40
5	4844.00	44.8 PK	74.0	-29.2	3.17 V	328	41.20	3.60
6	4844.00	32.1 AV	54.0	-21.9	3.17 V	328	28.50	3.60

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	62.5 PK	74.0	-11.5	1.43 H	329	29.00	33.50
2	2390.00	48.7 AV	54.0	-5.3	1.43 H	329	15.20	33.50
3	*2437.00	112.5 PK			1.38 H	352	79.10	33.40
4	*2437.00	102.3 AV			1.38 H	352	68.90	33.40
5	4874.00	43.8 PK	74.0	-30.2	3.15 H	264	40.30	3.50
6	4874.00	33.4 AV	54.0	-20.6	3.15 H	264	29.90	3.50
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	67.2 PK	74.0	-6.8	1.71 V	6	33.70	33.50
2	2390.00	52.3 AV	54.0	-1.7	1.71 V	6	18.80	33.50
3	*2437.00	114.5 PK			1.76 V	6	81.10	33.40
4	*2437.00	103.9 AV			1.76 V	6	70.50	33.40
5	4874.00	45.7 PK	74.0	-28.3	3.08 V	331	42.20	3.50
6	4874.00	32.8 AV	54.0	-21.2	3.08 V	331	29.30	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	109.7 PK			1.26 H	344	76.30	33.40
2	*2452.00	100.5 AV			1.26 H	344	67.10	33.40
3	2483.50	65.4 PK	74.0	-8.6	1.34 H	346	32.20	33.20
4	2483.50	52.4 AV	54.0	-1.6	1.34 H	346	19.20	33.20
5	4904.00	44.7 PK	74.0	-29.3	3.01 H	294	41.30	3.40
6	4904.00	32.5 AV	54.0	-21.5	3.01 H	294	29.10	3.40
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	112.0 PK			1.16 V	358	78.60	33.40
2	*2452.00	101.3 AV			1.16 V	358	67.90	33.40
3	2483.50	71.4 PK	74.0	-2.6	1.60 V	356	38.20	33.20
4	2483.50	52.9 AV	54.0	-1.1	1.60 V	356	19.70	33.20
5	4904.00	45.1 PK	74.0	-28.9	3.43 V	359	41.70	3.40
6	4904.00	32.8 AV	54.0	-21.2	3.43 V	359	29.40	3.40

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.

Mode C

802.11b

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

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	57.9 PK	74.0	-16.1	3.34 H	161	24.40	33.50
2	2390.00	46.6 AV	54.0	-7.4	3.34 H	161	13.10	33.50
3	*2412.00	100.3 PK			3.34 H	160	66.90	33.40
4	*2412.00	96.6 AV			3.34 H	160	63.20	33.40
5	4824.00	55.6 PK	74.0	-18.4	2.84 H	260	51.90	3.70
6	4824.00	52.3 AV	54.0	-1.7	2.84 H	260	48.60	3.70
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	58.2 PK	74.0	-15.8	3.13 V	76	24.70	33.50
2	2390.00	46.4 AV	54.0	-7.6	3.13 V	76	12.90	33.50
3	*2412.00	99.5 PK			3.31 V	47	66.10	33.40
4	*2412.00	95.7 AV			3.31 V	47	62.30	33.40
5	4824.00	53.8 PK	74.0	-20.2	2.85 V	326	50.10	3.70
6	4824.00	50.0 AV	54.0	-4.0	2.85 V	326	46.30	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	100.5 PK			3.50 H	208	67.10	33.40
2	*2437.00	96.8 AV			3.50 H	208	63.40	33.40
3	4874.00	55.9 PK	74.0	-18.1	2.85 H	259	52.40	3.50
4	4874.00	52.9 AV	54.0	-1.1	2.85 H	259	49.40	3.50
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	103.0 PK			2.79 V	55	69.60	33.40
2	*2437.00	99.3 AV			2.79 V	55	65.90	33.40
3	4874.00	53.3 PK	74.0	-20.7	2.84 V	320	49.80	3.50
4	4874.00	49.5 AV	54.0	-4.5	2.84 V	320	46.00	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	98.9 PK			3.23 H	165	65.60	33.30
2	*2462.00	95.2 AV			3.23 H	165	61.90	33.30
3	2483.50	57.6 PK	74.0	-16.4	2.97 H	131	24.40	33.20
4	2483.50	45.9 AV	54.0	-8.1	2.97 H	131	12.70	33.20
5	4924.00	55.6 PK	74.0	-18.4	2.75 H	258	52.30	3.30
6	4924.00	52.5 AV	54.0	-1.5	2.75 H	258	49.20	3.30
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	58.1 PK	74.0	-15.9	2.88 V	101	24.60	33.50
2	2390.00	46.5 AV	54.0	-7.5	2.88 V	101	13.00	33.50
3	*2462.00	101.0 PK			2.96 V	77	67.70	33.30
4	*2462.00	97.4 AV			2.96 V	77	64.10	33.30
5	4924.00	54.3 PK	74.0	-19.7	2.99 V	319	51.00	3.30
6	4924.00	51.7 AV	54.0	-2.3	2.99 V	319	48.40	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	58.4 PK	74.0	-15.6	1.76 H	289	24.90	33.50
2	2390.00	46.9 AV	54.0	-7.1	1.76 H	289	13.40	33.50
3	*2412.00	108.5 PK			3.84 H	209	75.10	33.40
4	*2412.00	97.6 AV			3.84 H	209	64.20	33.40
5	4824.00	67.1 PK	74.0	-6.9	2.79 H	266	63.40	3.70
6	4824.00	52.4 AV	54.0	-1.6	2.79 H	266	48.70	3.70
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	59.0 PK	74.0	-15.0	2.87 V	141	25.50	33.50
2	2390.00	47.0 AV	54.0	-7.0	2.87 V	141	13.50	33.50
3	*2412.00	109.2 PK			2.55 V	54	75.80	33.40
4	*2412.00	98.6 AV			2.55 V	54	65.20	33.40
5	4824.00	62.4 PK	74.0	-11.6	3.02 V	20	58.70	3.70
6	4824.00	47.8 AV	54.0	-6.2	3.02 V	20	44.10	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	109.6 PK			3.37 H	213	76.20	33.40
2	*2437.00	98.8 AV			3.37 H	213	65.40	33.40
3	4874.00	67.2 PK	74.0	-6.8	2.60 H	255	63.70	3.50
4	4874.00	52.9 AV	54.0	-1.1	2.60 H	255	49.40	3.50
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	110.9 PK			2.82 V	52	77.50	33.40
2	*2437.00	100.6 AV			2.82 V	52	67.20	33.40
3	4874.00	63.5 PK	74.0	-10.5	2.82 V	322	60.00	3.50
4	4874.00	48.2 AV	54.0	-5.8	2.82 V	322	44.70	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	110.0 PK			3.25 H	215	76.70	33.30
2	*2462.00	99.1 AV			3.25 H	215	65.80	33.30
3	2483.50	58.1 PK	74.0	-15.9	3.08 H	264	24.90	33.20
4	2483.50	46.7 AV	54.0	-7.3	3.08 H	264	13.50	33.20
5	4924.00	67.1 PK	74.0	-6.9	2.46 H	255	63.80	3.30
6	4924.00	52.5 AV	54.0	-1.5	2.46 H	255	49.20	3.30
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	111.5 PK			2.50 V	60	78.20	33.30
2	*2462.00	101.2 AV			2.50 V	60	67.90	33.30
3	2483.50	65.9 PK	74.0	-8.1	2.75 V	44	32.70	33.20
4	2483.50	49.7 AV	54.0	-4.3	2.75 V	44	16.50	33.20
5	4924.00	64.1 PK	74.0	-9.9	2.34 V	353	60.80	3.30
6	4924.00	49.3 AV	54.0	-4.7	2.34 V	353	46.00	3.30

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 (HT20)

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

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	59.0 PK	74.0	-15.0	3.56 H	191	25.50	33.50
2	2390.00	47.7 AV	54.0	-6.3	3.56 H	191	14.20	33.50
3	*2412.00	108.5 PK			3.56 H	191	75.10	33.40
4	*2412.00	97.9 AV			3.56 H	191	64.50	33.40
5	4824.00	67.5 PK	74.0	-6.5	2.82 H	265	63.80	3.70
6	4824.00	52.6 AV	54.0	-1.4	2.82 H	265	48.90	3.70
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	58.5 PK	74.0	-15.5	2.68 V	79	25.00	33.50
2	2390.00	47.1 AV	54.0	-6.9	2.68 V	79	13.60	33.50
3	*2412.00	109.7 PK			2.55 V	53	76.30	33.40
4	*2412.00	99.1 AV			2.55 V	53	65.70	33.40
5	4824.00	63.8 PK	74.0	-10.2	2.86 V	20	60.10	3.70
6	4824.00	48.3 AV	54.0	-5.7	2.86 V	20	44.60	3.70

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	108.5 PK			3.50 H	214	75.10	33.40
2	*2437.00	97.9 AV			3.50 H	214	64.50	33.40
3	4874.00	68.7 PK	74.0	-5.3	2.52 H	264	65.20	3.50
4	4874.00	52.5 AV	54.0	-1.5	2.52 H	264	49.00	3.50
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	112.2 PK			2.84 V	47	78.80	33.40
2	*2437.00	101.0 AV			2.84 V	47	67.60	33.40
3	4874.00	67.6 PK	74.0	-6.4	2.97 V	19	64.10	3.50
4	4874.00	51.4 AV	54.0	-2.6	2.97 V	19	47.90	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	109.9 PK			3.62 H	200	76.60	33.30
2	*2462.00	99.2 AV			3.62 H	200	65.90	33.30
3	2483.50	59.4 PK	74.0	-14.6	3.77 H	200	26.20	33.20
4	2483.50	47.1 AV	54.0	-6.9	3.77 H	200	13.90	33.20
5	4924.00	68.9 PK	74.0	-5.1	2.72 H	160	65.60	3.30
6	4924.00	52.8 AV	54.0	-1.2	2.72 H	160	49.50	3.30
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	111.6 PK			2.48 V	61	78.30	33.30
2	*2462.00	101.4 AV			2.48 V	61	68.10	33.30
3	2483.50	66.9 PK	74.0	-7.1	2.86 V	40	33.70	33.20
4	2483.50	51.8 AV	54.0	-2.2	2.86 V	40	18.60	33.20
5	4924.00	66.5 PK	74.0	-7.5	2.74 V	20	63.20	3.30
6	4924.00	50.6 AV	54.0	-3.4	2.74 V	20	47.30	3.30

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	62.8 PK	74.0	-11.2	3.62 H	188	29.30	33.50
2	2390.00	50.9 AV	54.0	-3.1	3.62 H	188	17.40	33.50
3	*2422.00	107.1 PK			3.86 H	213	73.70	33.40
4	*2422.00	97.2 AV			3.86 H	213	63.80	33.40
5	4844.00	65.7 PK	74.0	-8.3	2.83 H	163	62.10	3.60
6	4844.00	51.9 AV	54.0	-2.1	2.83 H	163	48.30	3.60
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	64.8 PK	74.0	-9.2	2.86 V	54	31.30	33.50
2	2390.00	52.5 AV	54.0	-1.5	2.86 V	54	19.00	33.50
3	*2422.00	109.2 PK			2.65 V	54	75.80	33.40
4	*2422.00	99.1 AV			2.65 V	54	65.70	33.40
5	4844.00	62.4 PK	74.0	-11.6	2.80 V	21	58.80	3.60
6	4844.00	49.2 AV	54.0	-4.8	2.80 V	21	45.60	3.60

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	107.5 PK			3.32 H	210	74.10	33.40
2	*2437.00	97.0 AV			3.32 H	210	63.60	33.40
3	4874.00	66.3 PK	74.0	-7.7	2.77 H	164	62.80	3.50
4	4874.00	52.4 AV	54.0	-1.6	2.77 H	164	48.90	3.50
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	109.6 PK			2.86 V	52	76.20	33.40
2	*2437.00	99.8 AV			2.86 V	52	66.40	33.40
3	4874.00	64.5 PK	74.0	-9.5	2.79 V	21	61.00	3.50
4	4874.00	49.7 AV	54.0	-4.3	2.79 V	21	46.20	3.50

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	107.4 PK			3.59 H	211	74.00	33.40
2	*2452.00	97.4 AV			3.59 H	211	64.00	33.40
3	2483.50	62.6 PK	74.0	-11.4	3.08 H	233	29.40	33.20
4	2483.50	49.8 AV	54.0	-4.2	3.08 H	233	16.60	33.20
5	4904.00	64.0 PK	74.0	-10.0	2.75 H	162	60.60	3.40
6	4904.00	51.5 AV	54.0	-2.5	2.75 H	162	48.10	3.40
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	109.0 PK			2.85 V	54	75.60	33.40
2	*2452.00	98.6 AV			2.85 V	54	65.20	33.40
3	2483.50	67.2 PK	74.0	-6.8	2.82 V	46	34.00	33.20
4	2483.50	52.4 AV	54.0	-1.6	2.82 V	46	19.20	33.20
5	4904.00	62.2 PK	74.0	-11.8	2.74 V	20	58.80	3.40
6	4904.00	47.9 AV	54.0	-6.1	2.74 V	20	44.50	3.40

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 Data:

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	57.12	27.3 QP	40.0	-12.7	2.00 H	354	41.70	-14.40
2	70.73	29.5 QP	40.0	-10.5	1.49 H	217	45.70	-16.20
3	94.06	29.9 QP	43.5	-13.6	2.00 H	229	49.10	-19.20
4	136.84	27.1 QP	43.5	-16.4	2.00 H	259	41.90	-14.80
5	175.72	27.6 QP	43.5	-15.9	2.00 H	78	42.10	-14.50
6	344.87	26.6 QP	46.0	-19.4	1.00 H	90	38.70	-12.10
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	53.23	33.8 QP	40.0	-6.2	1.49 V	15	48.00	-14.20
2	71.98	35.8 QP	40.0	-4.2	1.00 V	10	52.20	-16.40
3	86.28	32.8 QP	40.0	-7.2	1.00 V	191	52.20	-19.40
4	97.95	31.0 QP	43.5	-12.5	1.00 V	53	49.60	-18.60
5	158.22	28.9 QP	43.5	-14.6	1.00 V	130	42.70	-13.80
6	401.26	27.6 QP	46.0	-18.4	1.49 V	194	38.70	-11.10

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	45.45	27.4 QP	40.0	-12.6	1.99 H	73	41.80	-14.40
2	97.95	27.7 QP	43.5	-15.8	1.99 H	253	46.30	-18.60
3	156.28	25.7 QP	43.5	-17.8	1.99 H	260	39.40	-13.70
4	218.50	32.2 QP	46.0	-13.8	1.49 H	92	48.50	-16.30
5	327.38	26.7 QP	46.0	-19.3	1.00 H	86	38.80	-12.10
6	673.46	32.3 QP	46.0	-13.7	1.99 H	355	38.60	-6.30
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	49.59	35.5 QP	40.0	-4.5	1.00 V	26	49.60	-14.10
2	62.95	35.3 QP	40.0	-4.7	1.00 V	322	50.20	-14.90
3	152.39	26.3 QP	43.5	-17.2	1.00 V	147	40.10	-13.80
4	216.55	26.8 QP	46.0	-19.2	1.00 V	325	43.20	-16.40
5	290.43	28.5 QP	46.0	-17.5	1.49 V	160	41.50	-13.00
6	467.36	21.8 QP	46.0	-24.2	1.00 V	345	31.70	-9.90

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	C

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	41.57	30.7 QP	40.0	-9.3	1.49 H	82	45.30	-14.60
2	105.73	29.2 QP	43.5	-14.3	1.49 H	77	47.00	-17.80
3	214.61	34.6 QP	43.5	-8.9	1.00 H	82	51.00	-16.40
4	290.43	28.0 QP	46.0	-18.0	1.00 H	237	41.00	-13.00
5	329.32	28.8 QP	46.0	-17.2	1.00 H	270	40.90	-12.10
6	426.53	22.1 QP	46.0	-23.9	2.00 H	252	32.60	-10.50
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	47.06	36.4 QP	40.0	-3.6	1.00 V	18	50.70	-14.30
2	63.72	33.6 QP	40.0	-6.4	1.00 V	346	48.60	-15.00
3	177.67	31.1 QP	43.5	-12.4	1.00 V	118	45.80	-14.70
4	288.49	25.0 QP	46.0	-21.0	1.49 V	137	38.00	-13.00
5	329.32	23.9 QP	46.0	-22.1	1.00 V	91	36.00	-12.10
6	383.76	25.4 QP	46.0	-20.6	1.00 V	198	36.90	-11.50

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

Tested date: Dec. 20, 2017

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 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 HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

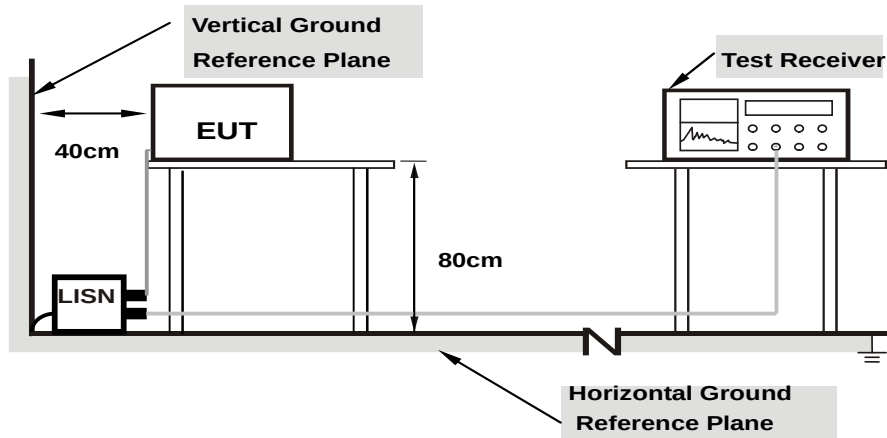
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

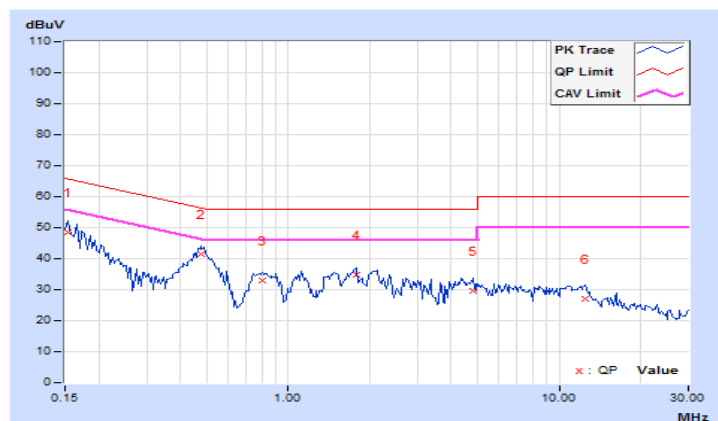
Worst-case data: 802.11g

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.45	38.24	25.26	48.69	35.71	65.79	55.79	-17.10	-20.08
2	0.47422	10.31	31.06	26.36	41.37	36.67	56.44	46.44	-15.07	-9.77
3	0.79844	10.37	22.54	19.37	32.91	29.74	56.00	46.00	-23.09	-16.26
4	1.78125	10.38	24.50	21.01	34.88	31.39	56.00	46.00	-21.12	-14.61
5	4.78906	10.48	19.29	13.86	29.77	24.34	56.00	46.00	-26.23	-21.66
6	12.44141	10.60	16.41	11.39	27.01	21.99	60.00	50.00	-32.99	-28.01

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.

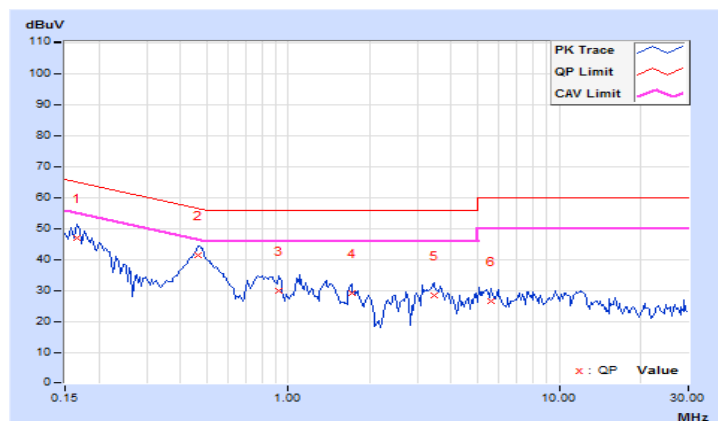


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]	(dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	10.26	36.68	23.09	46.94	33.35	65.18	55.18	-18.24	-21.83
2	0.46641	10.33	31.21	27.18	41.54	37.51	56.58	46.58	-15.04	-9.07
3	0.92734	10.32	19.71	16.18	30.03	26.50	56.00	46.00	-25.97	-19.50
4	1.71094	10.38	18.94	15.18	29.32	25.56	56.00	46.00	-26.68	-20.44
5	3.44531	10.55	18.07	11.68	28.62	22.23	56.00	46.00	-27.38	-23.77
6	5.62500	10.58	16.09	9.48	26.67	20.06	60.00	50.00	-33.33	-29.94

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.

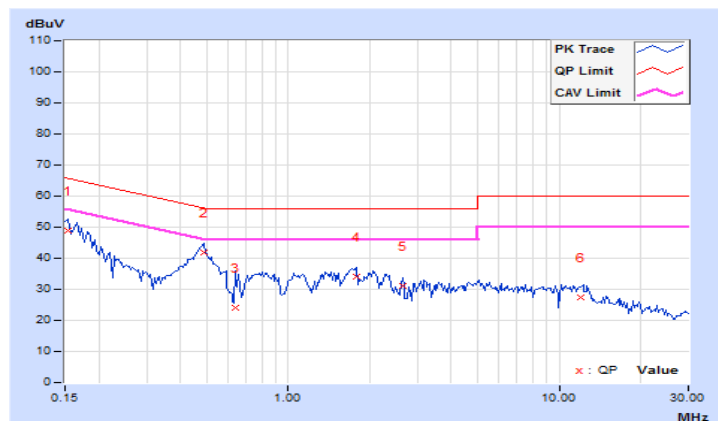


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.45	38.55	25.12	49.00	35.57	65.79	55.79	-16.79	-20.22
2	0.48594	10.31	31.67	27.77	41.98	38.08	56.24	46.24	-14.26	-8.16
3	0.64219	10.34	13.81	5.69	24.15	16.03	56.00	46.00	-31.85	-29.97
4	1.79688	10.38	23.57	19.58	33.95	29.96	56.00	46.00	-22.05	-16.04
5	2.65234	10.40	20.74	16.87	31.14	27.27	56.00	46.00	-24.86	-18.73
6	12.03906	10.59	16.97	11.72	27.56	22.31	60.00	50.00	-32.44	-27.69

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.

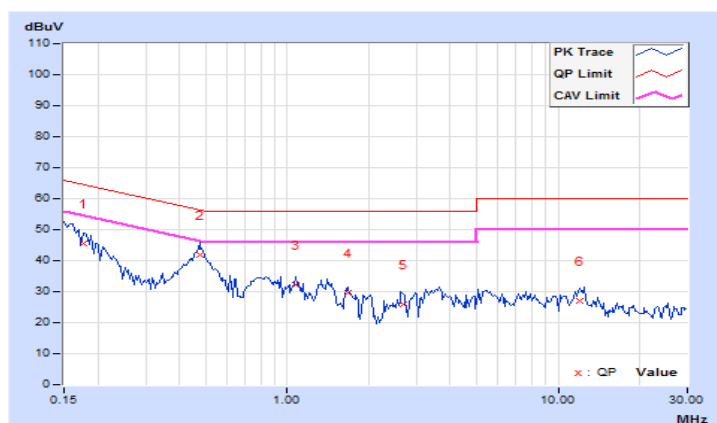


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	10.24	35.23	22.21	45.47	32.45	64.61	54.61	-19.14	-22.16
2	0.47422	10.33	31.37	26.38	41.70	36.71	56.44	46.44	-14.74	-9.73
3	1.07031	10.33	21.90	18.93	32.23	29.26	56.00	46.00	-23.77	-16.74
4	1.68359	10.38	19.35	15.53	29.73	25.91	56.00	46.00	-26.27	-20.09
5	2.67969	10.47	15.47	10.63	25.94	21.10	56.00	46.00	-30.06	-24.90
6	12.04297	10.60	16.58	11.48	27.18	22.08	60.00	50.00	-32.82	-27.92

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.

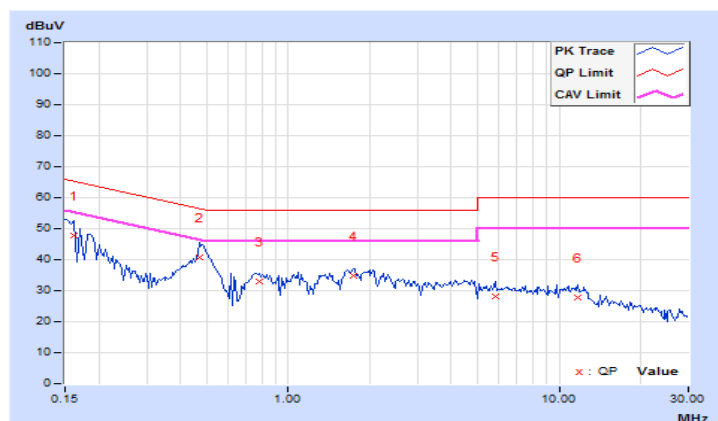


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	10.43	37.37	23.74	47.80	34.17	65.38	55.38	-17.58	-21.21
2	0.47031	10.31	30.55	26.59	40.86	36.90	56.51	46.51	-15.65	-9.61
3	0.77891	10.37	22.74	19.67	33.11	30.04	56.00	46.00	-22.89	-15.96
4	1.73828	10.38	24.44	20.43	34.82	30.81	56.00	46.00	-21.18	-15.19
5	5.79688	10.49	17.62	11.98	28.11	22.47	60.00	50.00	-31.89	-27.53
6	11.77344	10.58	17.10	11.67	27.68	22.25	60.00	50.00	-32.32	-27.75

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.

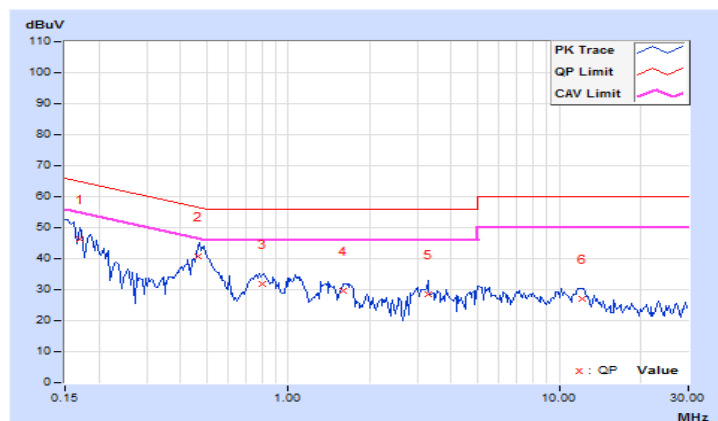


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	10.25	36.21	22.48	46.46	32.73	64.98	54.98	-18.52	-22.25
2	0.46641	10.33	30.42	26.39	40.75	36.72	56.58	46.58	-15.83	-9.86
3	0.80625	10.33	21.56	17.95	31.89	28.28	56.00	46.00	-24.11	-17.72
4	1.60156	10.37	19.12	14.05	29.49	24.42	56.00	46.00	-26.51	-21.58
5	3.27734	10.53	17.94	12.86	28.47	23.39	56.00	46.00	-27.53	-22.61
6	12.15625	10.61	16.54	11.57	27.15	22.18	60.00	50.00	-32.85	-27.82

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.

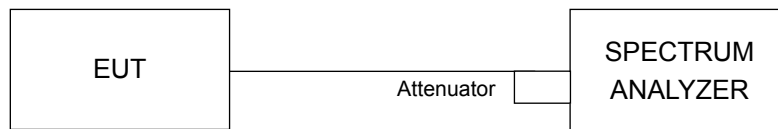


4.3 6dB Bandwidth Measurement

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

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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 from Test 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

Mode A

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.09	8.09	0.5	Pass
6	2437	8.06	8.10	0.5	Pass
11	2462	8.10	8.57	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.38	16.39	0.5	Pass
6	2437	16.37	16.38	0.5	Pass
11	2462	16.39	16.39	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.63	17.60	0.5	Pass
6	2437	17.60	17.60	0.5	Pass
11	2462	17.60	17.62	0.5	Pass

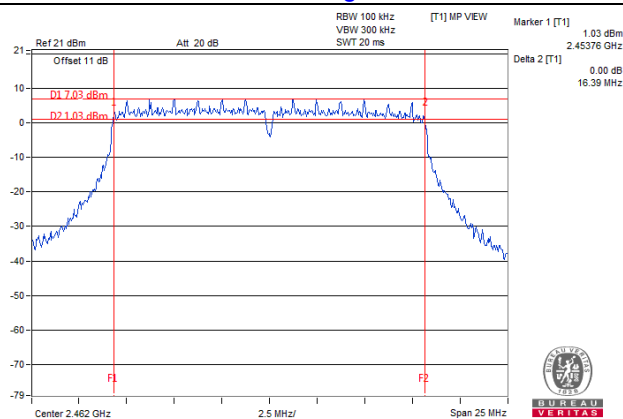
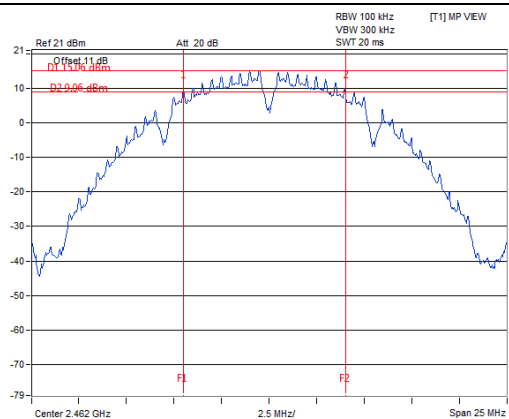
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	34.08	35.27	0.5	Pass
6	2437	35.22	35.21	0.5	Pass
9	2452	35.53	35.21	0.5	Pass

Spectrum Plot of Worst Value

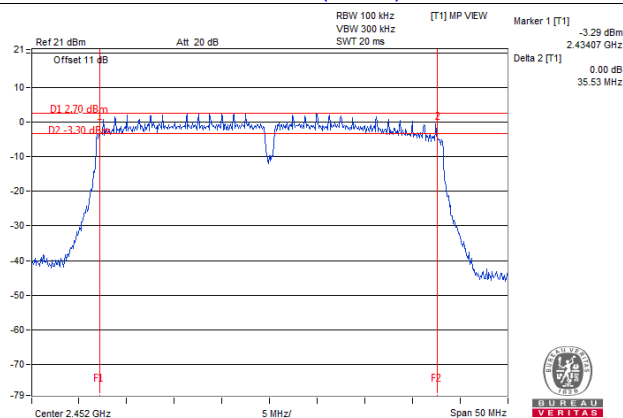
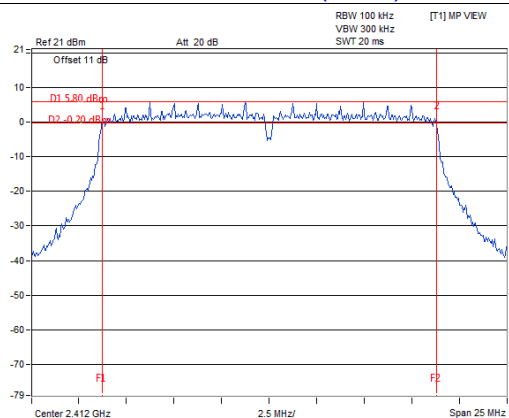
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Mode B

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.59	8.11	0.5	Pass
6	2437	8.08	8.07	0.5	Pass
11	2462	8.10	8.11	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.38	16.39	0.5	Pass
6	2437	16.36	16.35	0.5	Pass
11	2462	16.39	16.37	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.59	17.62	0.5	Pass
6	2437	17.59	17.60	0.5	Pass
11	2462	17.60	17.60	0.5	Pass

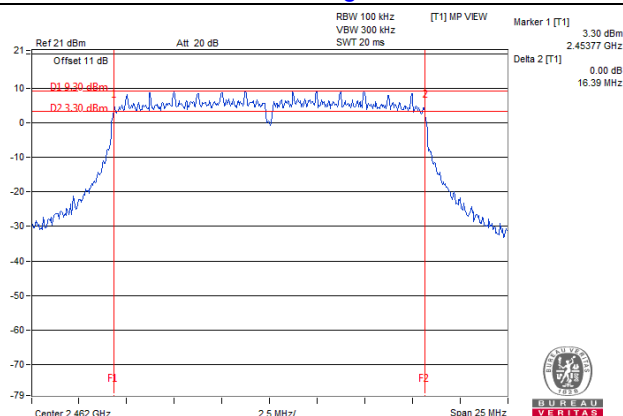
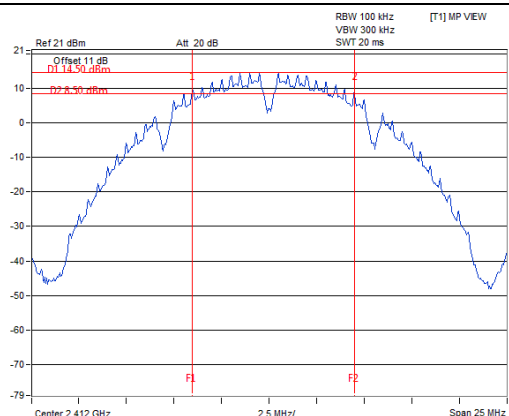
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.43	35.35	0.5	Pass
6	2437	35.20	35.16	0.5	Pass
9	2452	35.59	35.81	0.5	Pass

Spectrum Plot of Worst Value

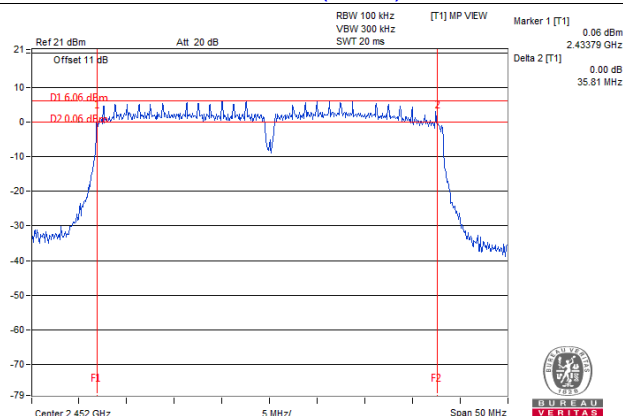
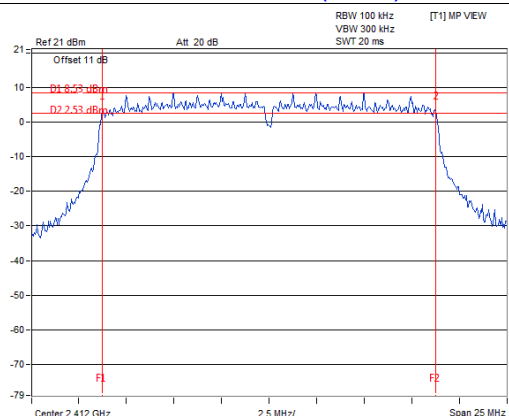
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Mode C

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.08	9.09	0.5	Pass
6	2437	8.10	7.58	0.5	Pass
11	2462	8.10	8.10	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.99	16.40	0.5	Pass
6	2437	16.33	16.37	0.5	Pass
11	2462	16.37	16.37	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.38	17.55	0.5	Pass
6	2437	17.20	16.97	0.5	Pass
11	2462	17.58	17.35	0.5	Pass

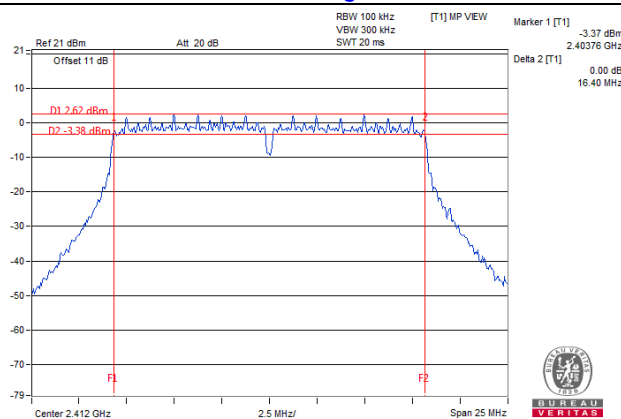
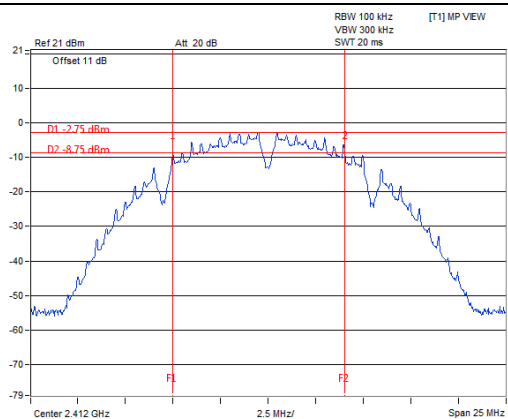
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.22	35.22	0.5	Pass
6	2437	35.17	33.88	0.5	Pass
9	2452	35.26	35.44	0.5	Pass

Spectrum Plot of Worst Value

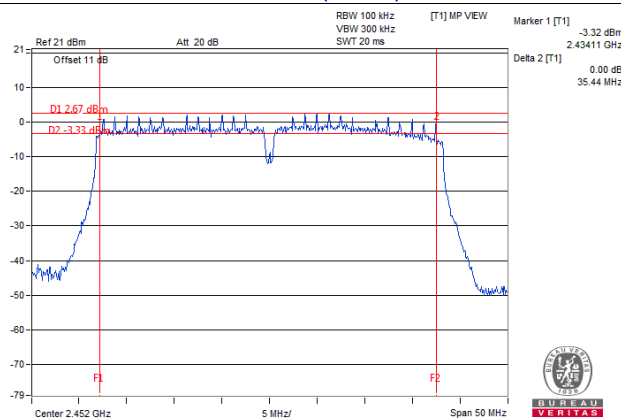
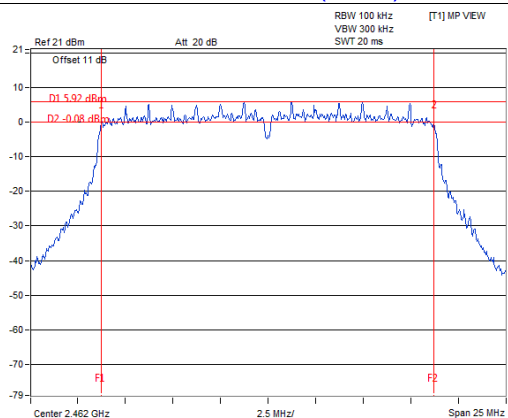
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



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,

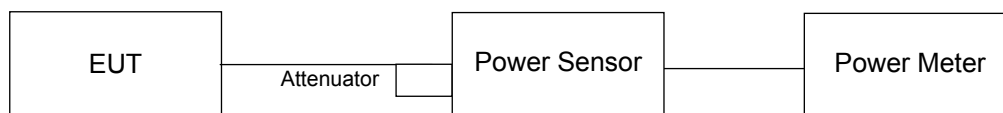
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

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

Mode A

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.85	21.99	311.234	24.93	30	Pass
6	2437	21.66	21.63	292.101	24.66	30	Pass
11	2462	23.25	23.57	438.859	26.42	30	Pass

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.53	18.52	142.406	21.54	30	Pass
6	2437	23.70	23.36	451.193	26.54	30	Pass
11	2462	18.54	18.71	145.752	21.64	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.39	17.52	111.322	20.47	30	Pass
6	2437	23.63	23.34	446.449	26.50	30	Pass
11	2462	18.46	18.75	145.135	21.62	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.88	15.91	77.720	18.91	30	Pass
6	2437	19.83	19.93	194.562	22.89	30	Pass
9	2452	16.87	16.95	98.186	19.92	30	Pass

Mode B

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.11	23.22	414.538	26.18	27.20	Pass
6	2437	24.14	24.21	523.051	27.19	27.20	Pass
11	2462	23.81	23.85	483.097	26.84	27.20	Pass

*Max Gain: 8.8dBi, so the power limit shall be reduced to $30-(8.8-6) = 27.20\text{dBm}$.

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.93	20.19	202.873	23.07	27.20	Pass
6	2437	23.91	23.83	487.583	26.88	27.20	Pass
11	2462	20.85	21.03	248.384	23.95	27.20	Pass

*Max Gain: 8.8dBi, so the power limit shall be reduced to $30-(8.8-6) = 27.20\text{dBm}$.

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.84	20.04	197.308	22.95	27.20	Pass
6	2437	23.79	23.91	485.369	26.86	27.20	Pass
11	2462	20.63	20.89	238.355	23.77	27.20	Pass

*Max Gain: 8.8dBi, so the power limit shall be reduced to $30-(8.8-6) = 27.20\text{dBm}$.

802.11n (HT40)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.96	18.98	157.773	21.98	27.20	Pass
6	2437	20.71	20.98	243.075	23.86	27.20	Pass
9	2452	20.03	20.22	205.889	23.14	27.20	Pass

*Max Gain: 8.8dBi, so the power limit shall be reduced to $30-(8.8-6) = 27.20\text{dBm}$.

Mode C

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	6.85	6.60	9.413	9.74	29.40	Pass
6	2437	8.52	8.72	14.559	11.63	29.40	Pass
11	2462	10.02	10.35	20.885	13.20	29.40	Pass

*Max Gain: 6.6dBi, so the power limit shall be reduced to $30-(6.6-6) = 29.40\text{dBm}$.

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.81	13.95	48.875	16.89	29.40	Pass
6	2437	15.63	15.67	73.457	18.66	29.40	Pass
11	2462	16.91	17.13	100.733	20.03	29.40	Pass

*Max Gain: 6.6dBi, so the power limit shall be reduced to $30-(6.6-6) = 29.40\text{dBm}$.

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.25	14.42	54.276	17.35	29.40	Pass
6	2437	16.87	16.52	93.516	19.71	29.40	Pass
11	2462	17.22	17.63	110.666	20.44	29.40	Pass

*Max Gain: 6.6dBi, so the power limit shall be reduced to $30-(6.6-6) = 29.40\text{dBm}$.

802.11n (HT40)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.77	15.74	75.254	18.77	29.40	Pass
6	2437	17.12	16.78	99.166	19.96	29.40	Pass
9	2452	16.45	16.69	90.823	19.58	29.40	Pass

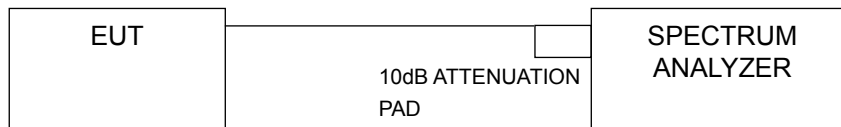
*Max Gain: 6.6dBi, so the power limit shall be reduced to $30-(6.6-6) = 29.40\text{dBm}$.

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

For duty cycle $\geq 98\%$

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

For duty cycle $< 98\%$

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Don't use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $10 \log(1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

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

Mode A

802.11b

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-6.54	3.01	-3.53	5.99	Pass
	6	2437	-6.80	3.01	-3.79	5.99	Pass
	11	2462	-4.31	3.01	-1.30	5.99	Pass
1	1	2412	-5.95	3.01	-2.94	5.99	Pass
	6	2437	-6.75	3.01	-3.74	5.99	Pass
	11	2462	-4.44	3.01	-1.43	5.99	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.

802.11g

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-13.10	3.01	0.22	-9.87	5.99	Pass
	6	2437	-7.78	3.01	0.22	-4.55	5.99	Pass
	11	2462	-12.46	3.01	0.22	-9.23	5.99	Pass
1	1	2412	-12.86	3.01	0.22	-9.63	5.99	Pass
	6	2437	-7.88	3.01	0.22	-4.65	5.99	Pass
	11	2462	-12.75	3.01	0.22	-9.52	5.99	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-14.30	3.01	-11.29	5.99	Pass
	6	2437	-7.92	3.01	-4.91	5.99	Pass
	11	2462	-13.11	3.01	-10.10	5.99	Pass
1	1	2412	-14.30	3.01	-11.29	5.99	Pass
	6	2437	-8.57	3.01	-5.56	5.99	Pass
	11	2462	-13.18	3.01	-10.17	5.99	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-18.40	3.01	0.20	-15.19	5.99	Pass
	6	2437	-14.71	3.01	0.20	-11.50	5.99	Pass
	9	2452	-17.54	3.01	0.20	-14.33	5.99	Pass
1	3	2422	-18.59	3.01	0.20	-15.38	5.99	Pass
	6	2437	-14.92	3.01	0.20	-11.71	5.99	Pass
	9	2452	-18.05	3.01	0.20	-14.84	5.99	Pass

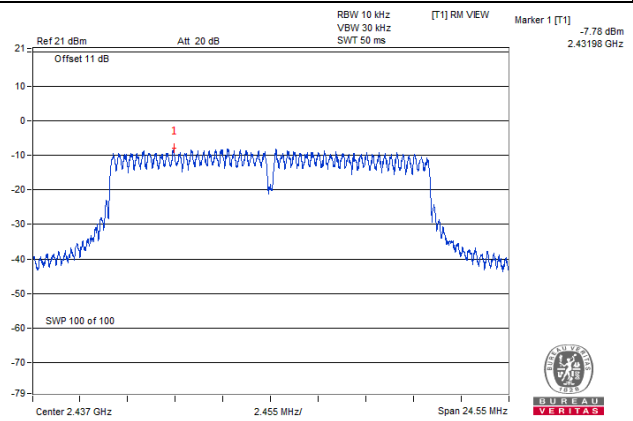
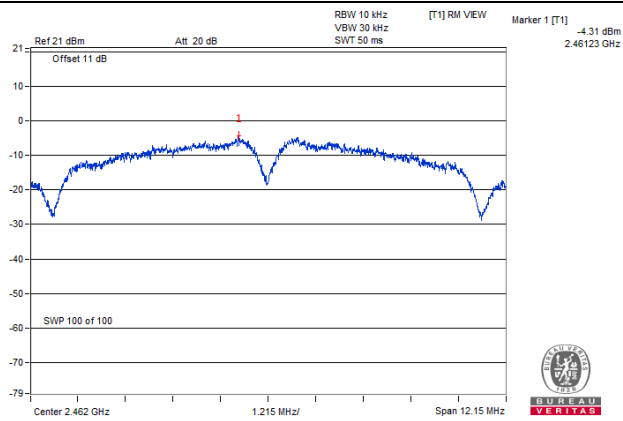
Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

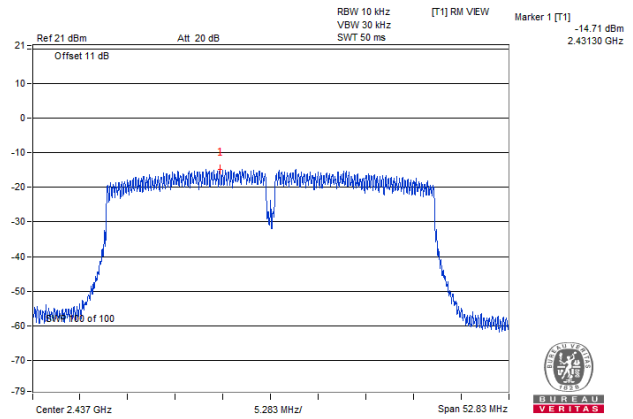
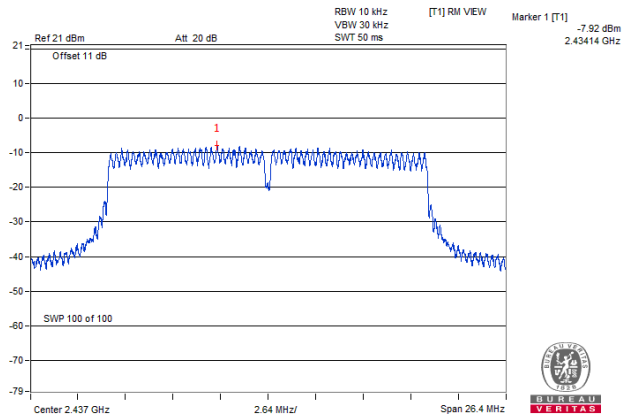
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Mode B

802.11b

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-4.96	3.01	-1.95	2.19	Pass
	6	2437	-3.54	3.01	-0.53	2.19	Pass
	11	2462	-4.36	3.01	-1.35	2.19	Pass
1	1	2412	-4.50	3.01	-1.49	2.19	Pass
	6	2437	-3.97	3.01	-0.96	2.19	Pass
	11	2462	-4.12	3.01	-1.11	2.19	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $8.8\text{dBi} + 10\log(2) = 11.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (11.81 - 6) = 2.19\text{dBm}$.

802.11g

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-10.91	3.01	0.22	-7.68	2.19	Pass
	6	2437	-6.64	3.01	0.22	-3.41	2.19	Pass
	11	2462	-10.54	3.01	0.22	-7.31	2.19	Pass
1	1	2412	-11.04	3.01	0.22	-7.81	2.19	Pass
	6	2437	-7.33	3.01	0.22	-4.10	2.19	Pass
	11	2462	-9.77	3.01	0.22	-6.54	2.19	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $8.8\text{dBi} + 10\log(2) = 11.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (11.81 - 6) = 2.19\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-11.72	3.01	-8.71	2.19	Pass
	6	2437	-7.13	3.01	-4.12	2.19	Pass
	11	2462	-10.61	3.01	-7.60	2.19	Pass
1	1	2412	-11.57	3.01	-8.56	2.19	Pass
	6	2437	-7.68	3.01	-4.67	2.19	Pass
	11	2462	-10.83	3.01	-7.82	2.19	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $8.8\text{dBi} + 10\log(2) = 11.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (11.81 - 6) = 2.19\text{dBm}$.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-15.24	3.01	0.20	-12.03	2.19	Pass
	6	2437	-13.42	3.01	0.20	-10.21	2.19	Pass
	9	2452	-14.64	3.01	0.20	-11.43	2.19	Pass
1	3	2422	-15.49	3.01	0.20	-12.28	2.19	Pass
	6	2437	-13.08	3.01	0.20	-9.87	2.19	Pass
	9	2452	-14.40	3.01	0.20	-11.19	2.19	Pass

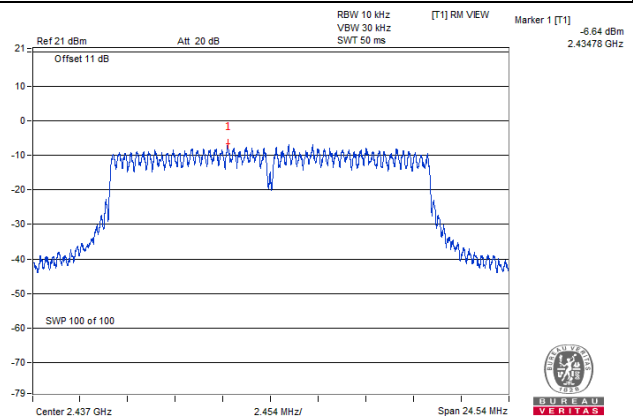
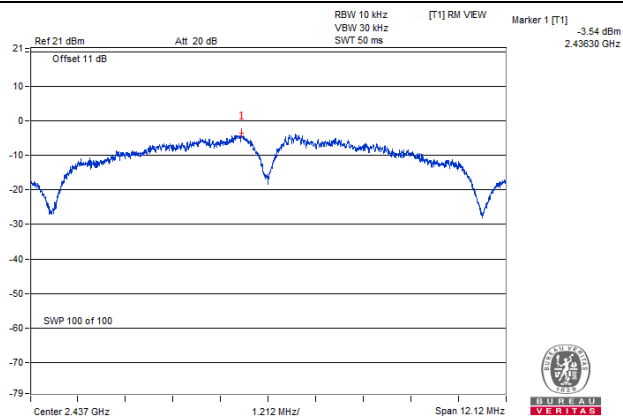
Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $8.8\text{dBi} + 10\log(2) = 11.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (11.81 - 6) = 2.19\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

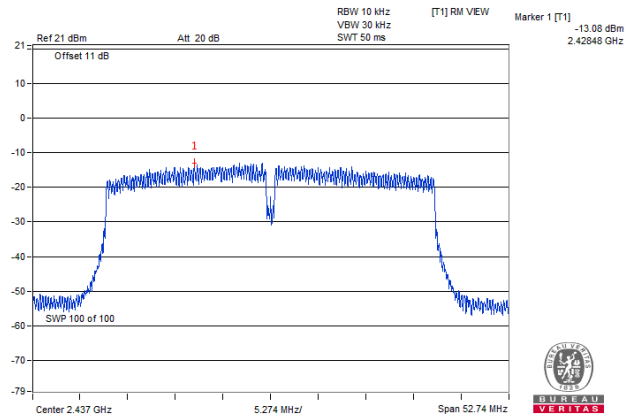
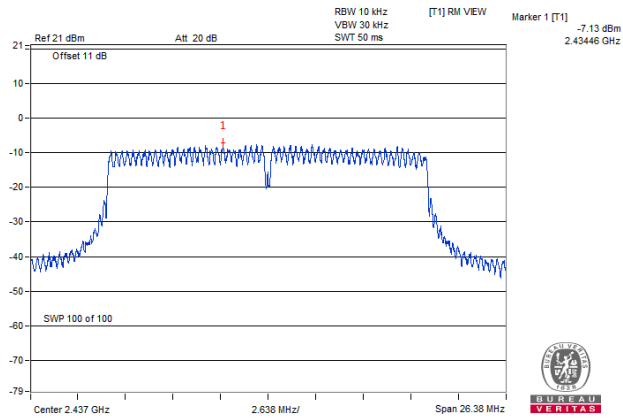
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Mode C

802.11b

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-19.96	3.01	-16.95	4.39	Pass
	6	2437	-18.68	3.01	-15.67	4.39	Pass
	11	2462	-16.86	3.01	-13.85	4.39	Pass
1	1	2412	-20.20	3.01	-17.19	4.39	Pass
	6	2437	-18.48	3.01	-15.47	4.39	Pass
	11	2462	-16.45	3.01	-13.44	4.39	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $6.6\text{dBi} + 10\log(2) = 9.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.61-6) = 4.39\text{dBm}$.

802.11g

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-16.14	3.01	0.22	-12.91	4.39	Pass
	6	2437	-14.77	3.01	0.22	-11.54	4.39	Pass
	11	2462	-13.19	3.01	0.22	-9.96	4.39	Pass
1	1	2412	-15.94	3.01	0.22	-12.71	4.39	Pass
	6	2437	-14.54	3.01	0.22	-11.31	4.39	Pass
	11	2462	-12.90	3.01	0.22	-9.67	4.39	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $6.6\text{dBi} + 10\log(2) = 9.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.61-6) = 4.39\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-15.17	3.01	-12.16	4.39	Pass
	6	2437	-12.40	3.01	-9.39	4.39	Pass
	11	2462	-12.67	3.01	-9.66	4.39	Pass
1	1	2412	-15.18	3.01	-12.17	4.39	Pass
	6	2437	-12.67	3.01	-9.66	4.39	Pass
	11	2462	-11.27	3.01	-8.26	4.39	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $6.6\text{dBi} + 10\log(2) = 9.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.61-6) = 4.39\text{dBm}$.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-17.16	3.01	0.20	-13.95	4.39	Pass
	6	2437	-14.87	3.01	0.20	-11.66	4.39	Pass
	9	2452	-16.51	3.01	0.20	-13.30	4.39	Pass
1	3	2422	-17.31	3.01	0.20	-14.10	4.39	Pass
	6	2437	-15.92	3.01	0.20	-12.71	4.39	Pass
	9	2452	-16.63	3.01	0.20	-13.42	4.39	Pass

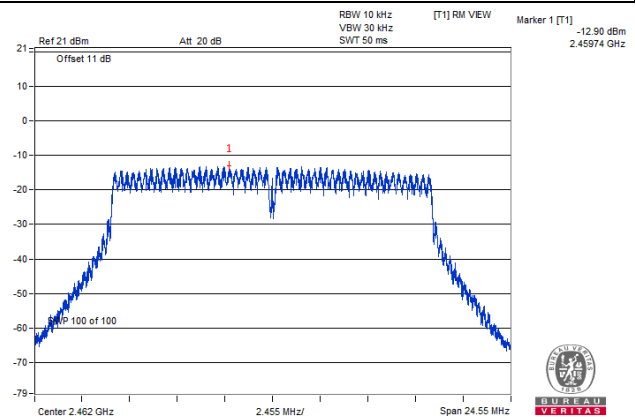
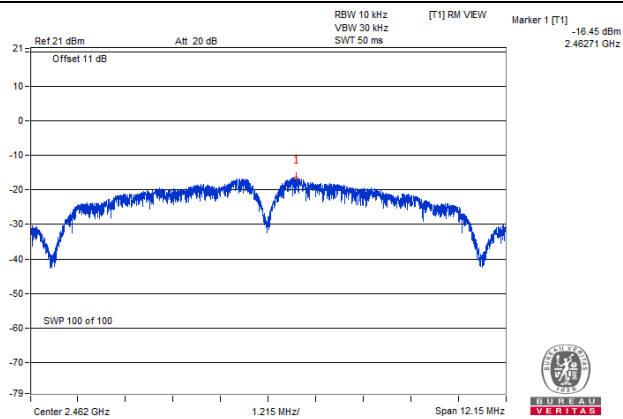
Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $6.6\text{dBi} + 10\log(2) = 9.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.61-6) = 4.39\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

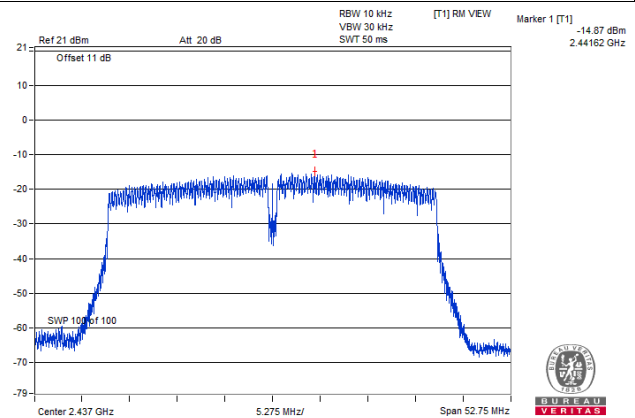
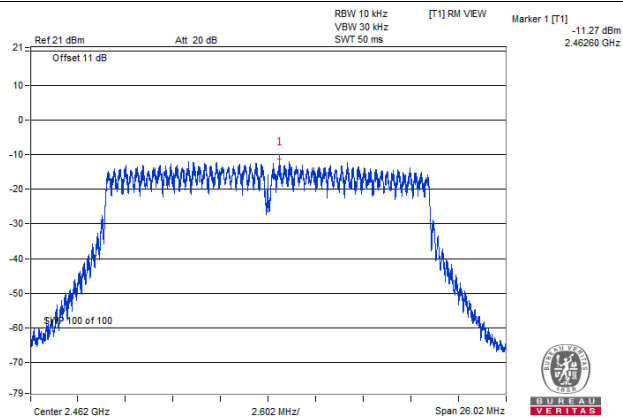
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)

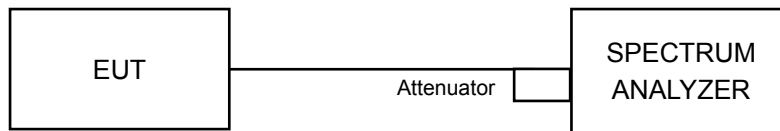


4.6 Conducted Out of Band Emission Measurement

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

- Set the RBW = 100 kHz.
- Set the VBW $\geq$ 300 kHz.
- Detector = average.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW $\geq$ 300 kHz.
- Ensure that the number of measurement points $\geq$ span/RBW
- According to measurement points to set differ measurement span.
- Detector = average.
- Trace Mode = max hold.
- Sweep = auto couple.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as Item 4.3.6

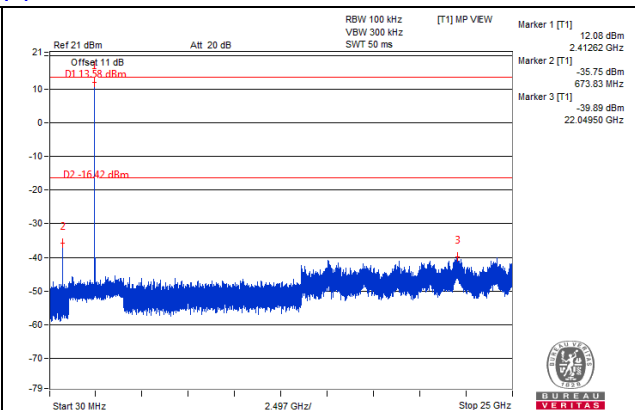
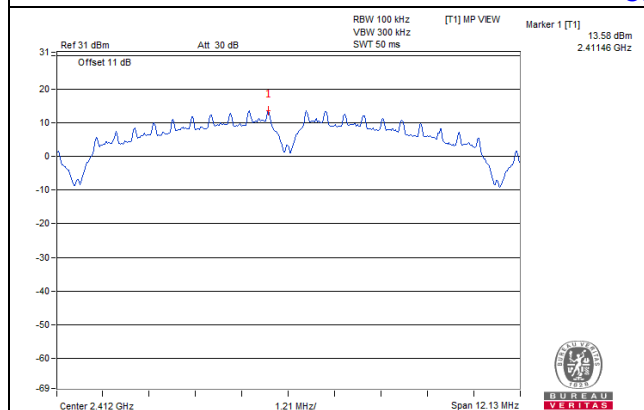
4.6.7 Test Results

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.

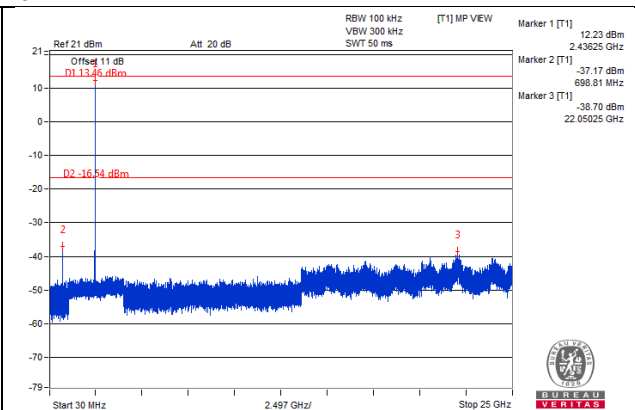
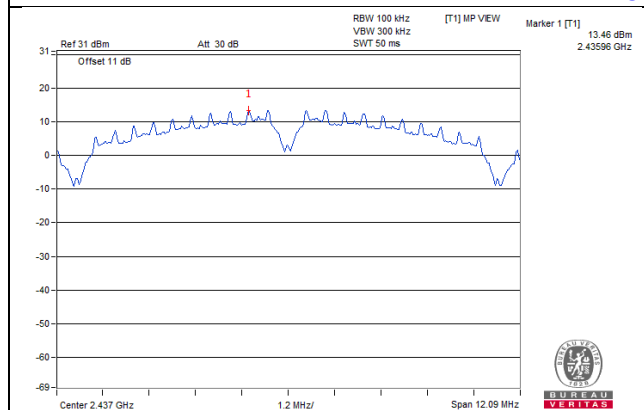
Mode A

802.11b_CHAIN 0

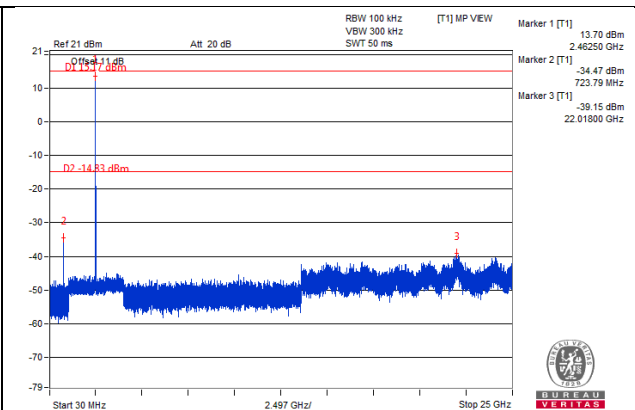
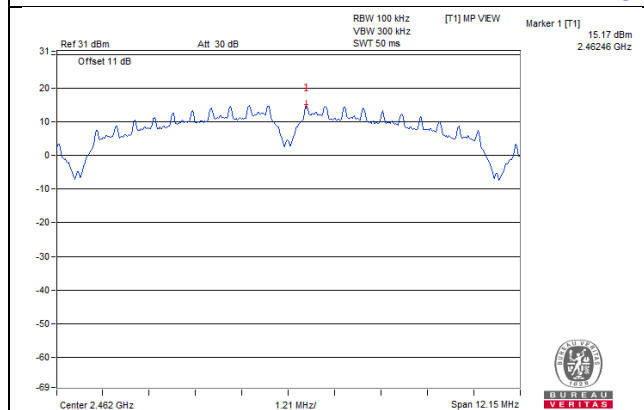
CH 1



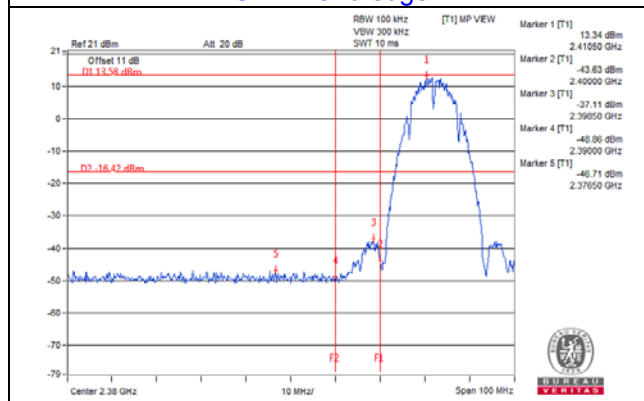
CH 6



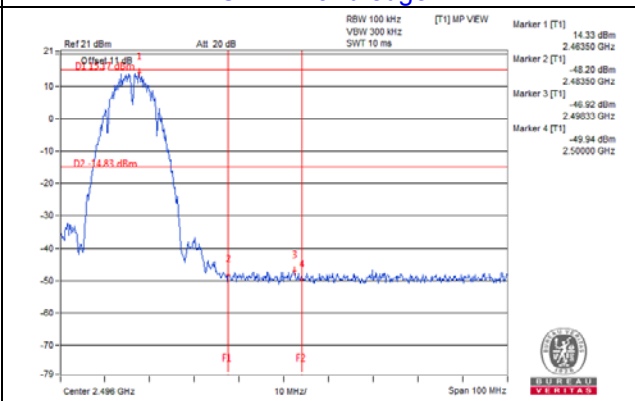
CH 11



CH 1 Band edge

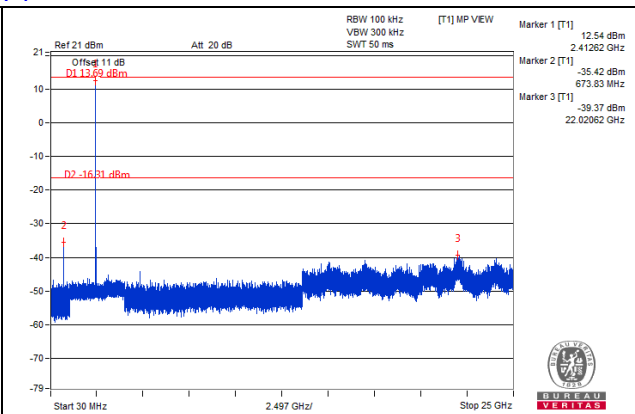
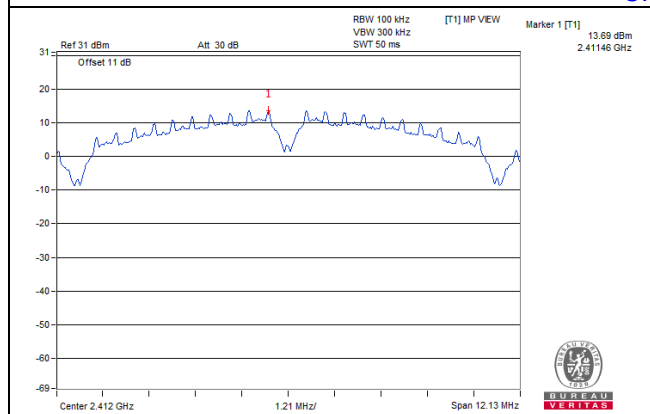


CH 11 Band edge

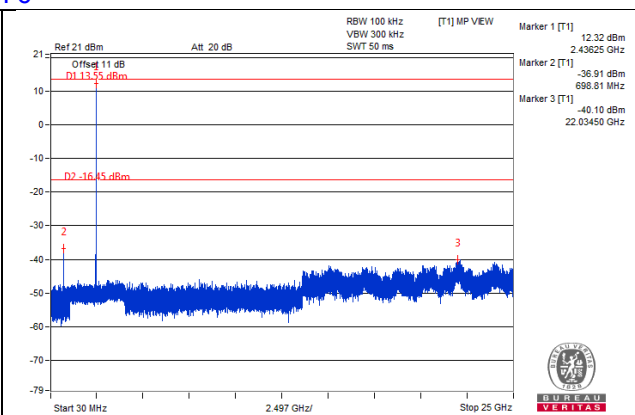
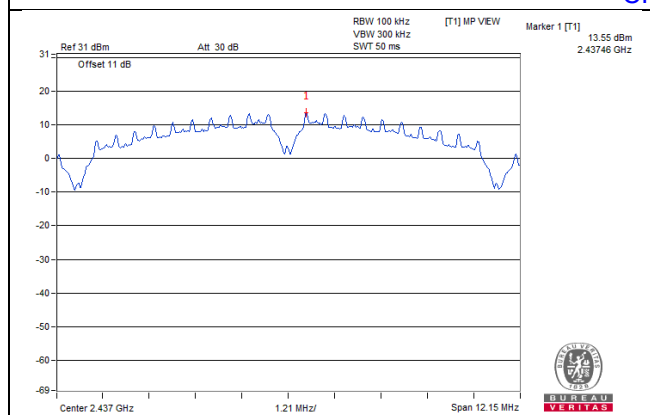


CHAIN 1

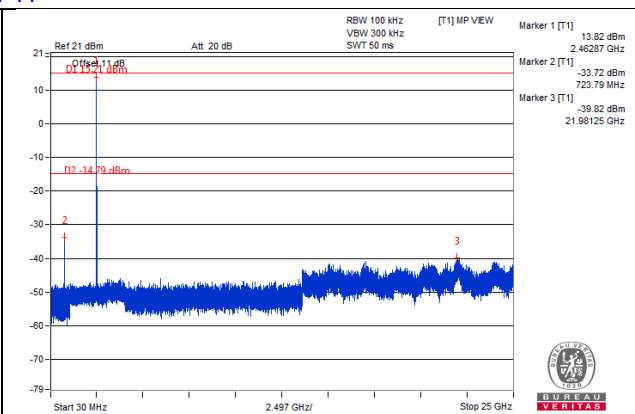
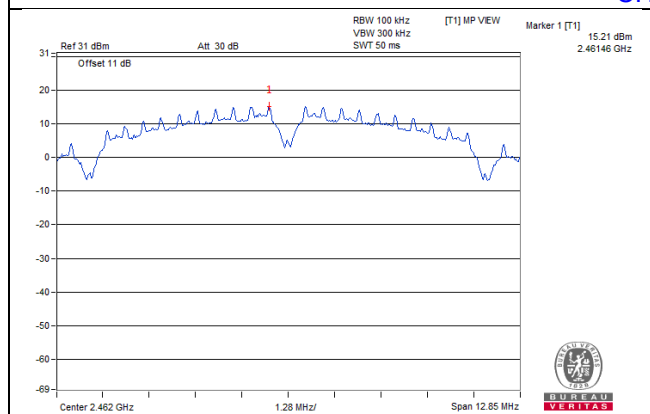
CH 1



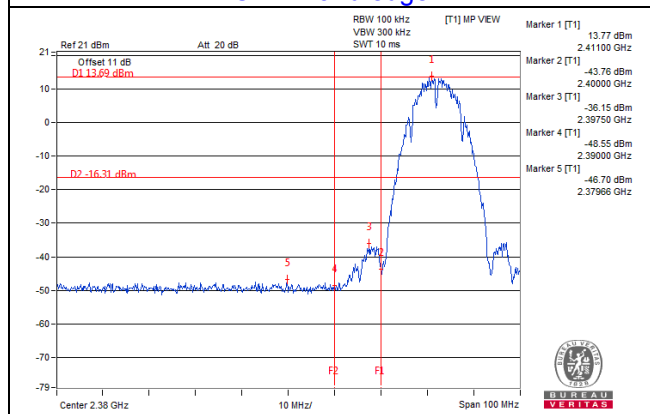
CH 6



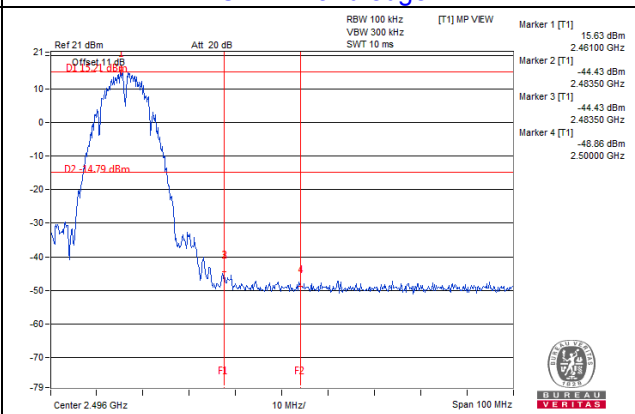
CH 11



CH 1 Band edge

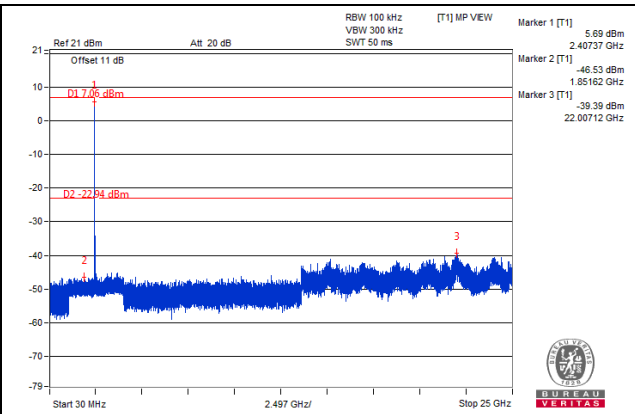
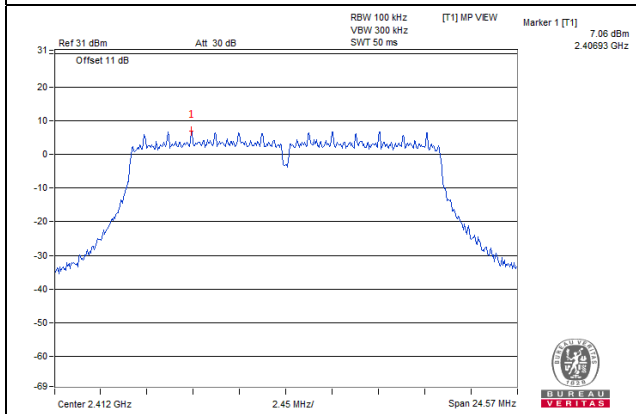


CH 11 Band edge

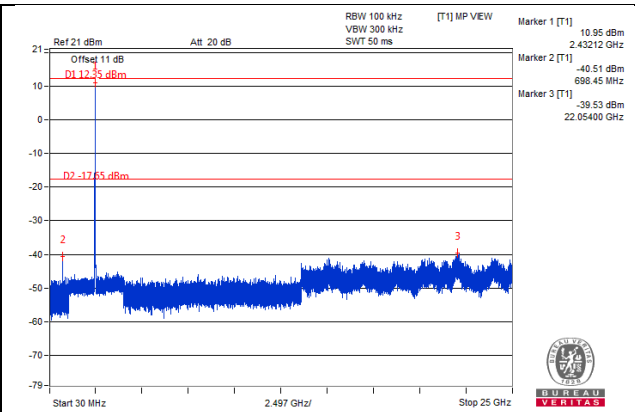
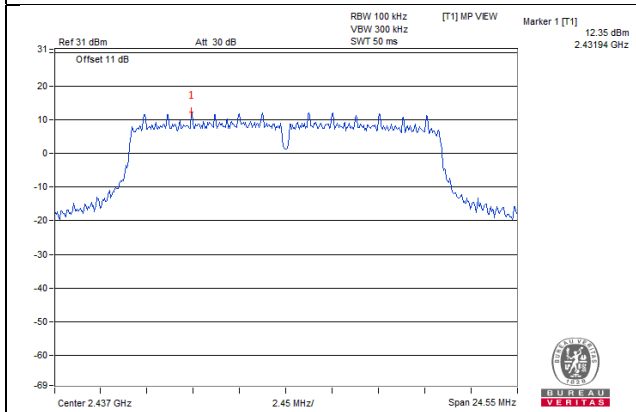


802.11g CHAIN 0

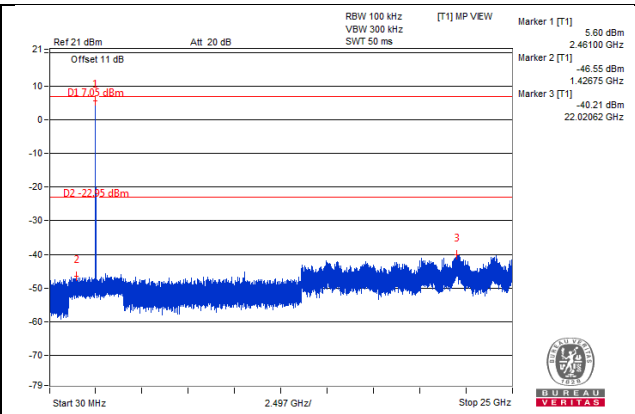
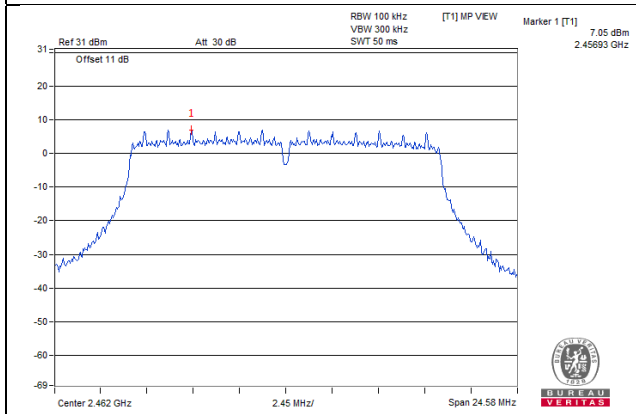
CH 1



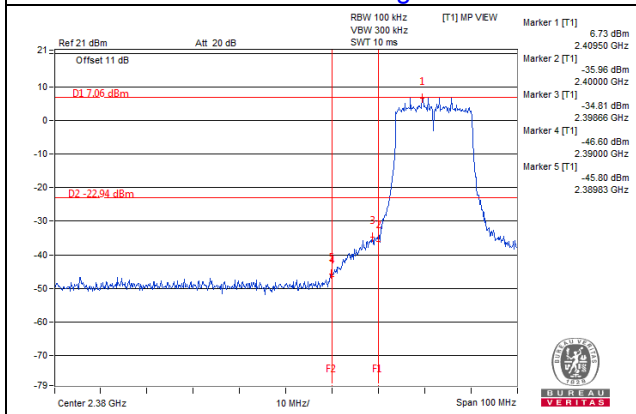
CH 6



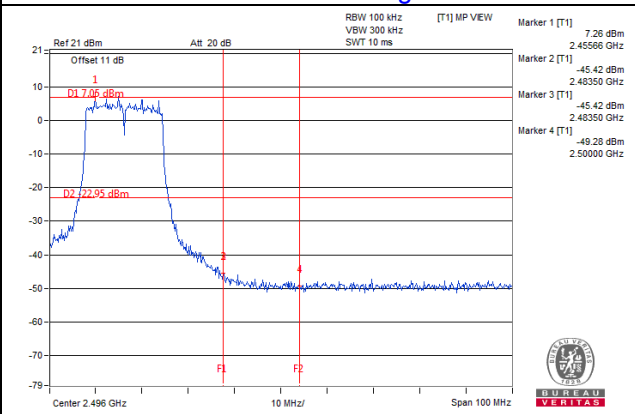
CH 11



CH 1 Band edge

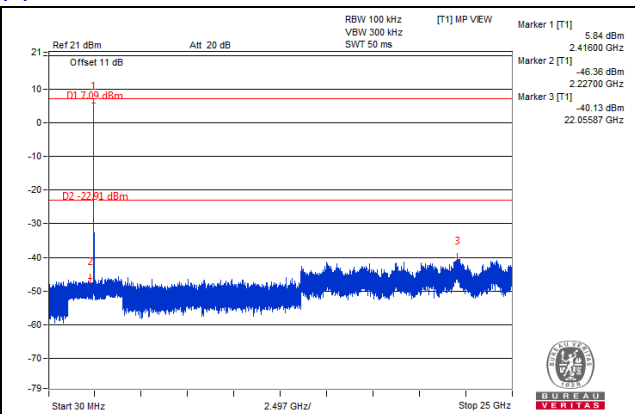
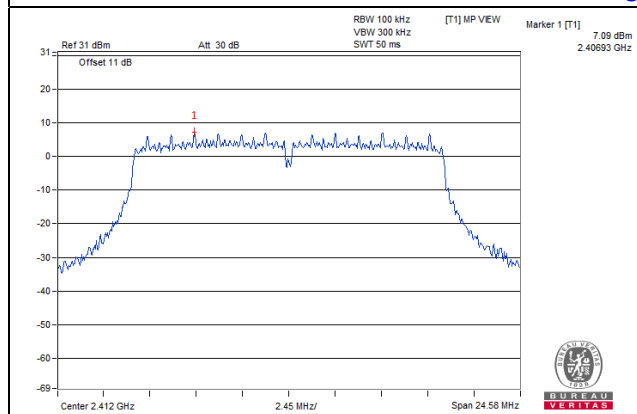


CH 11 Band edge

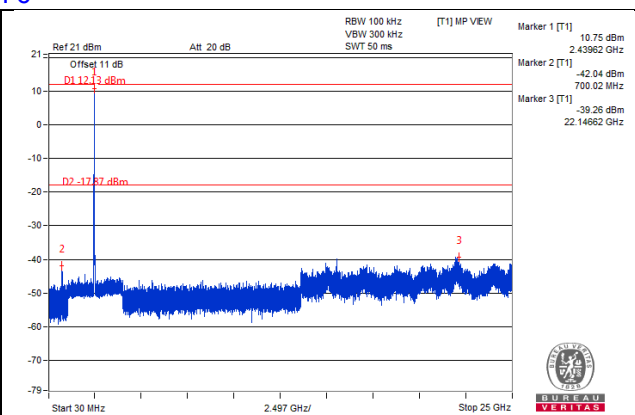
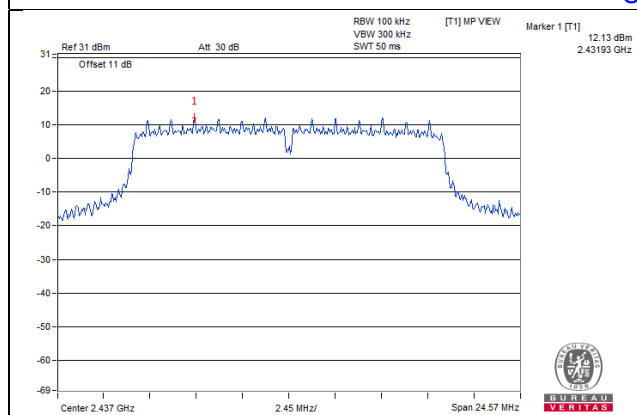


CHAIN 1

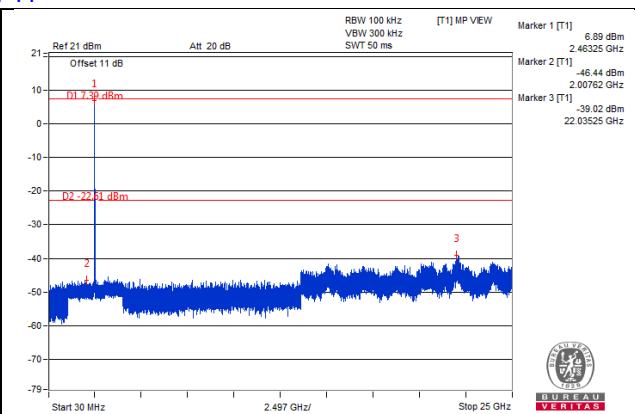
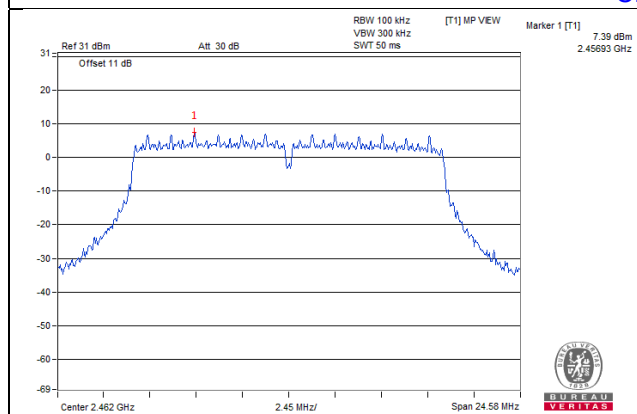
CH 1



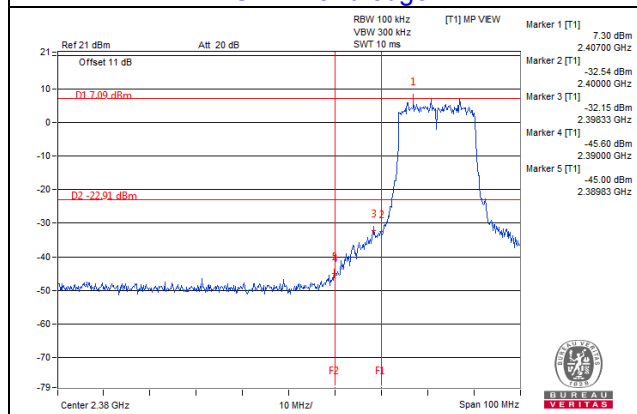
CH 6



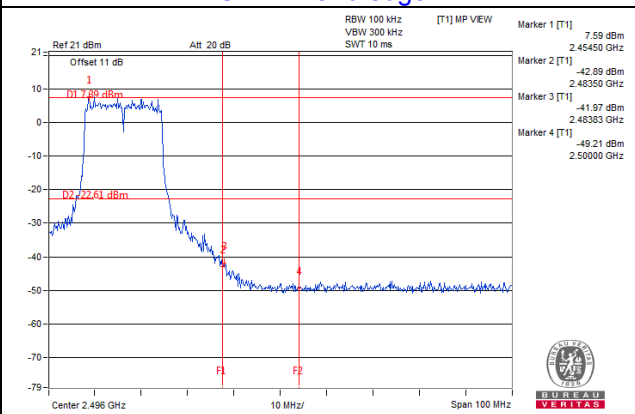
CH 11



CH 1 Band edge

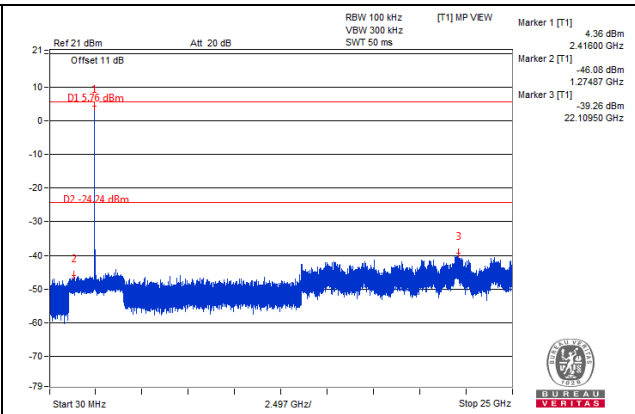
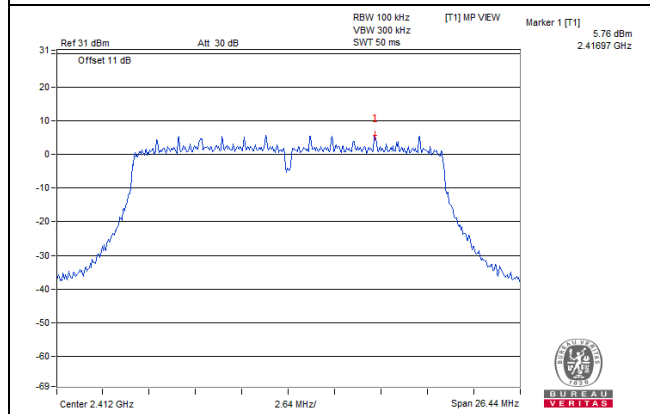


CH 11 Band edge

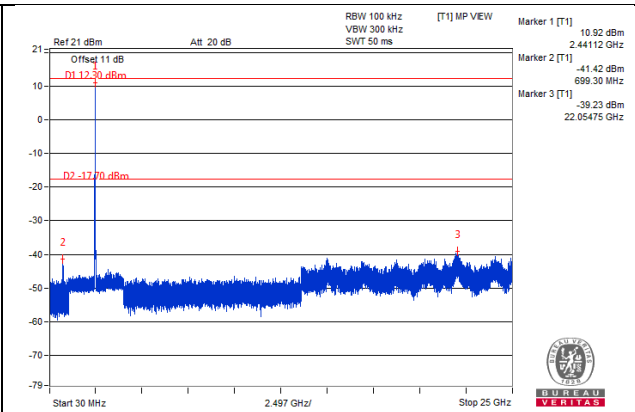
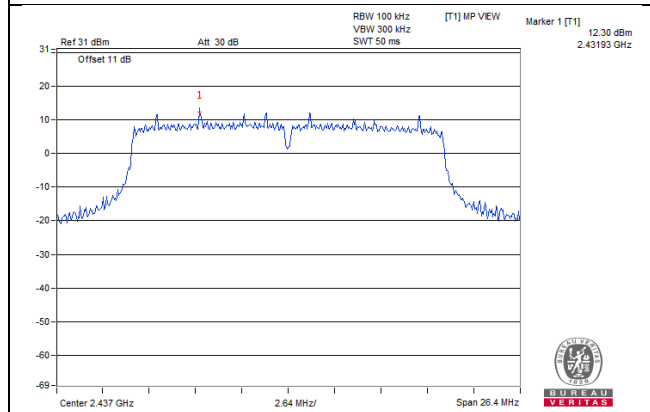


802.11n (HT20) CHAIN 0

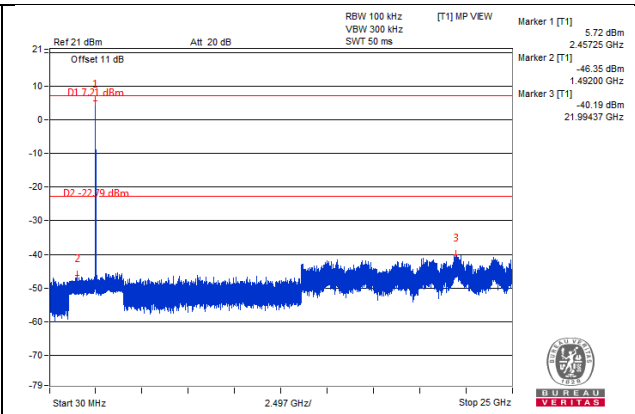
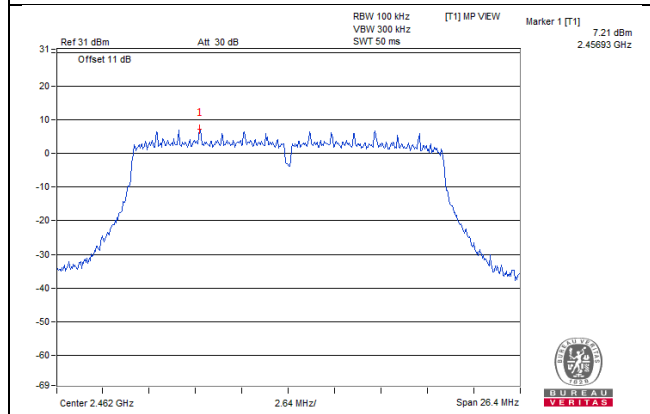
CH 1



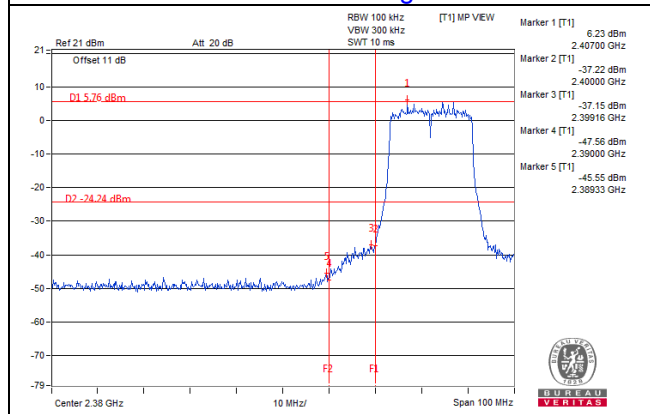
CH 6



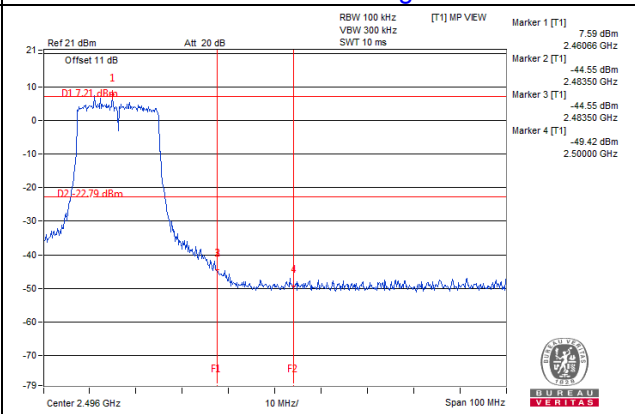
CH 11



CH 1 Band edge

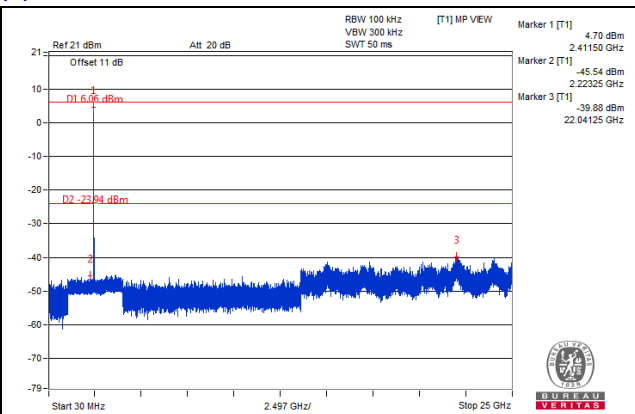
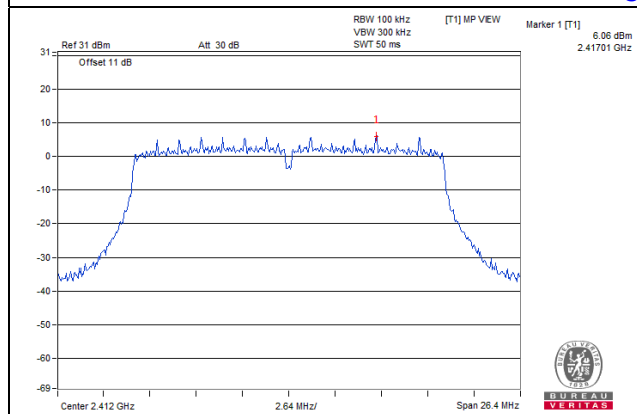


CH 11 Band edge

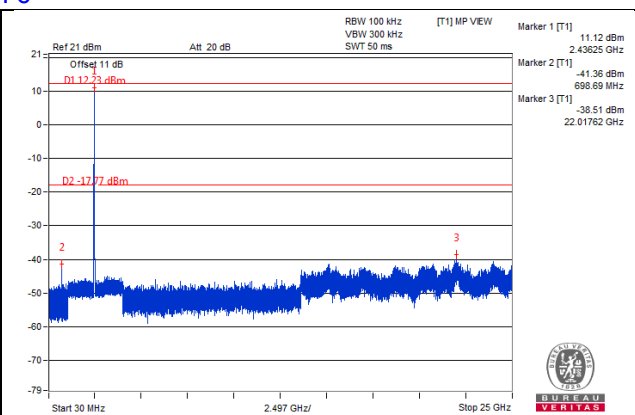
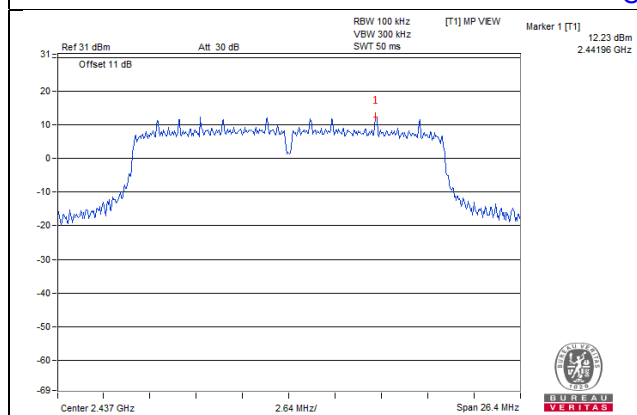


CHAIN 1

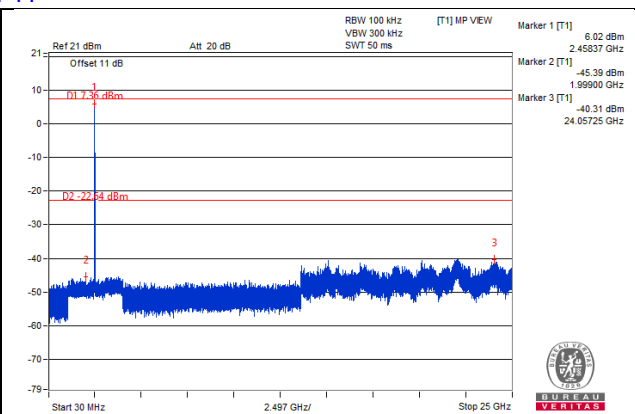
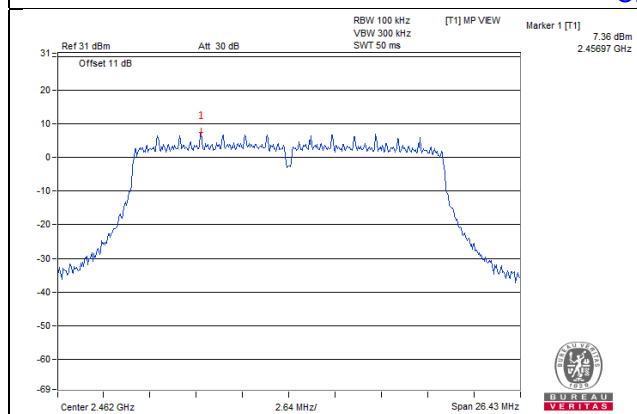
CH 1



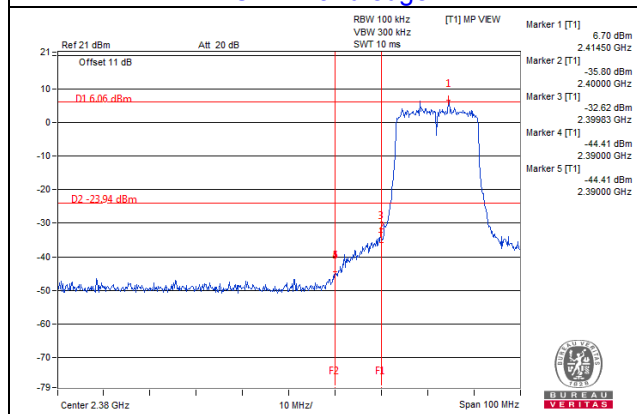
CH 6



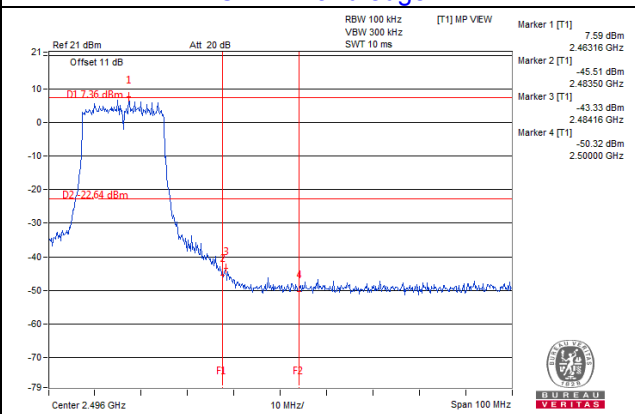
CH 11



CH 1 Band edge

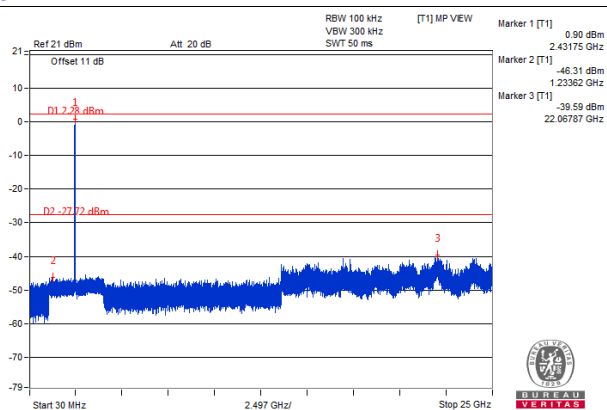
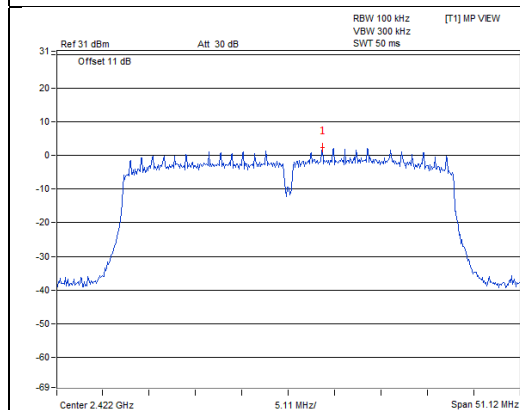


CH 11 Band edge

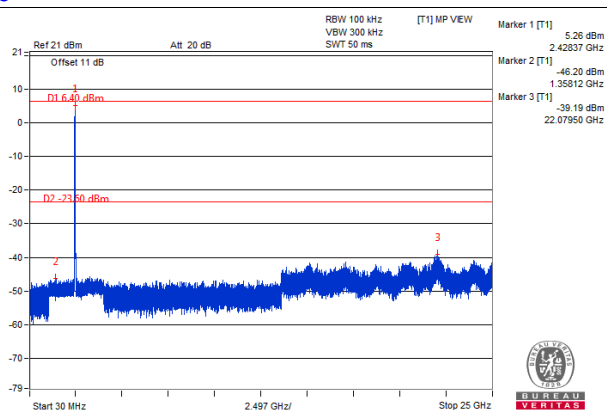
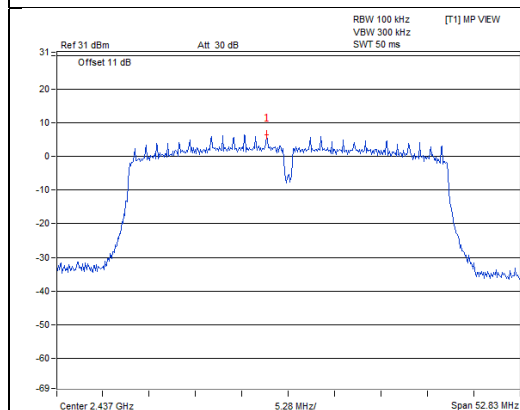


802.11n (HT40)
CHAIN 0

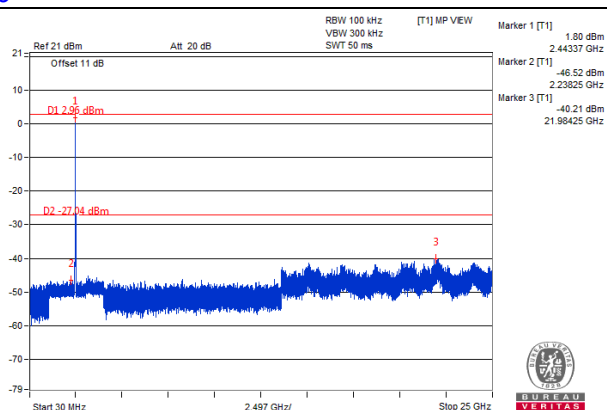
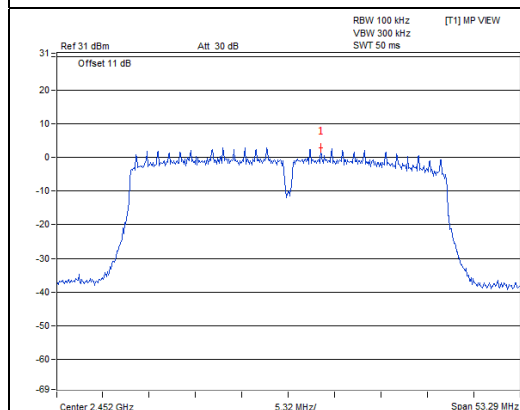
CH 3



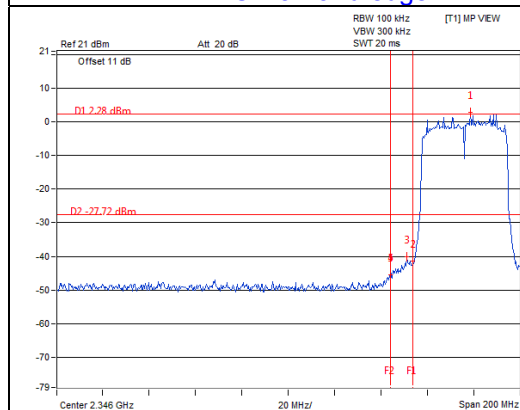
CH 6



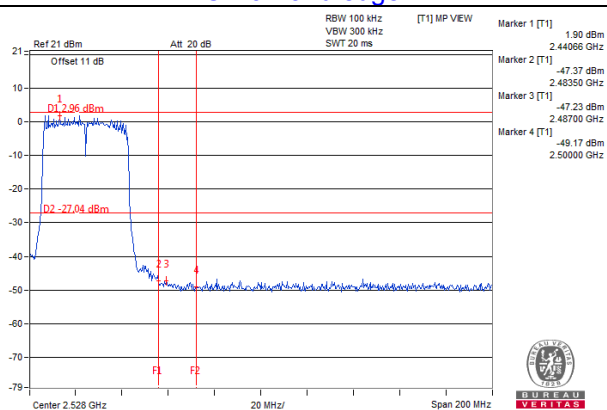
CH 9



CH 3 Band edge

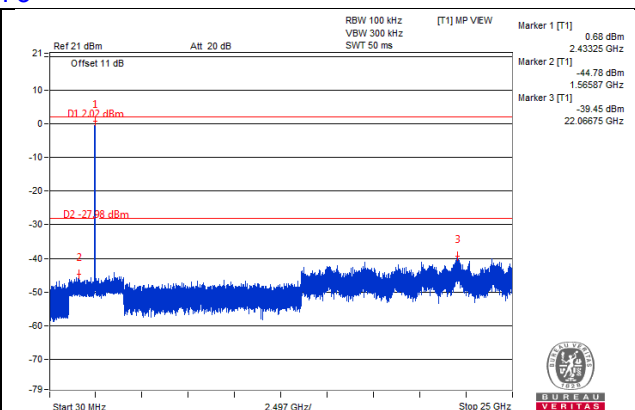
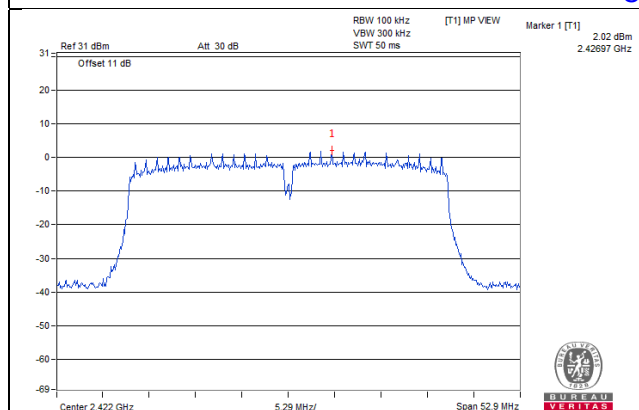


CH 9 Band edge

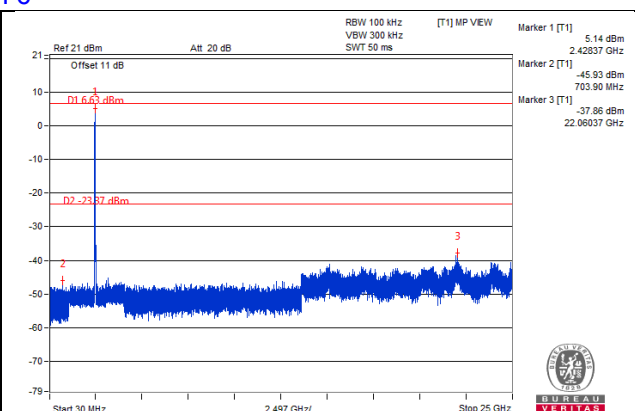
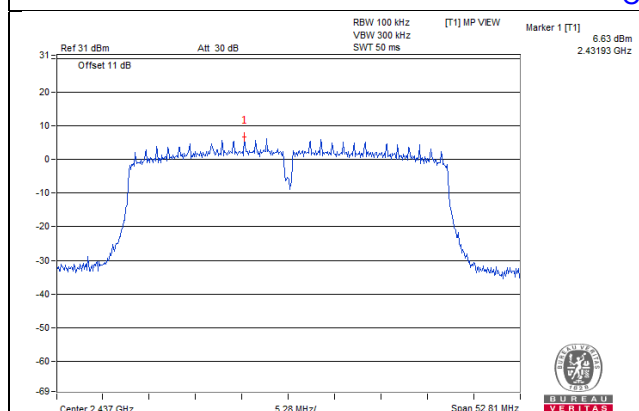


CHAIN 1

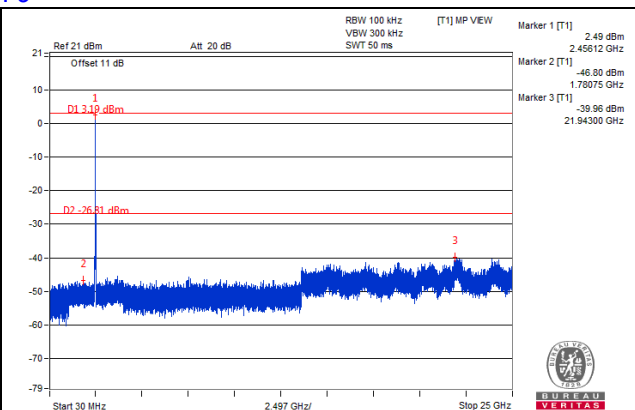
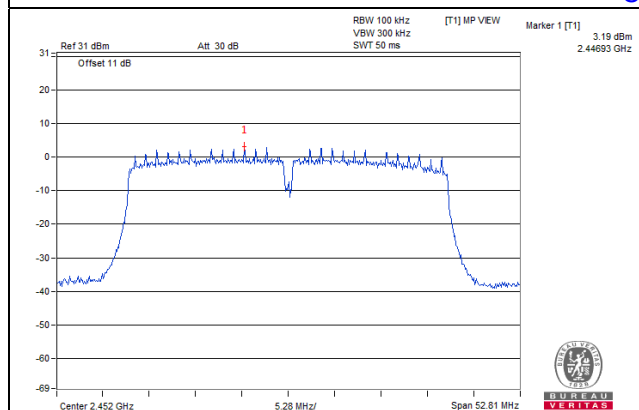
CH 3



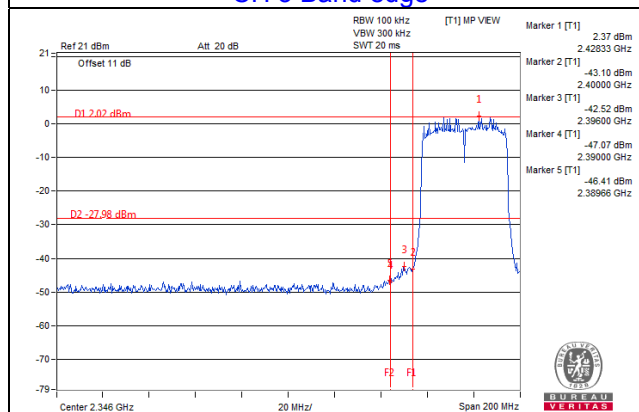
CH 6



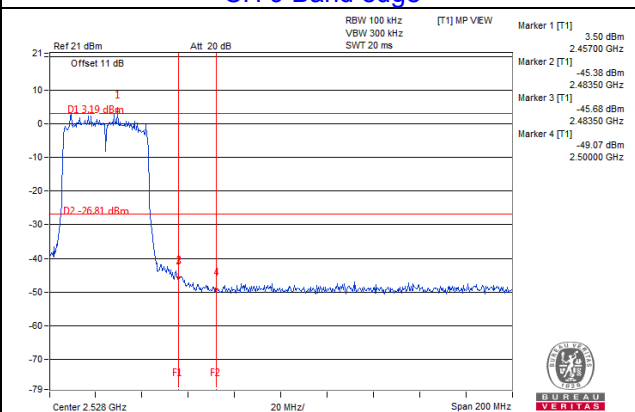
CH 9



CH 3 Band edge



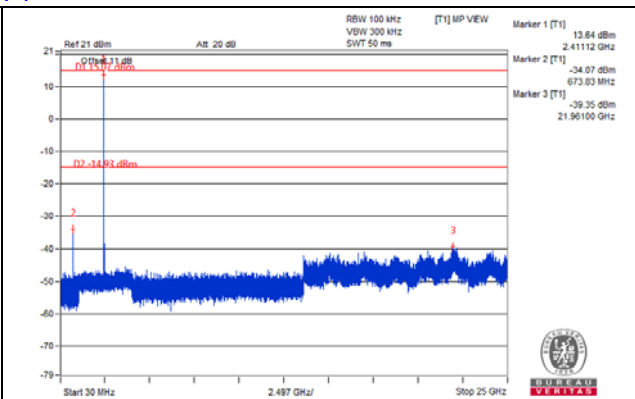
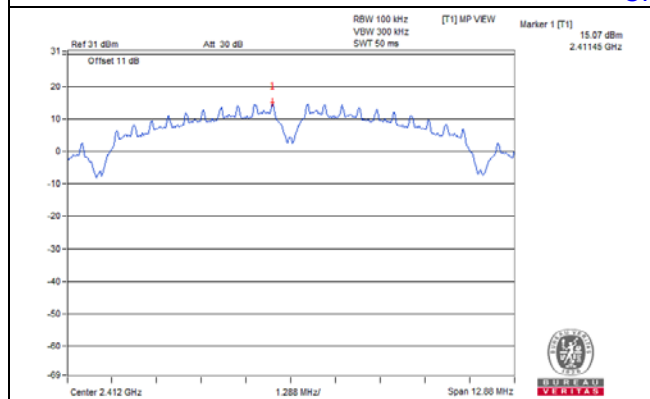
CH 9 Band edge



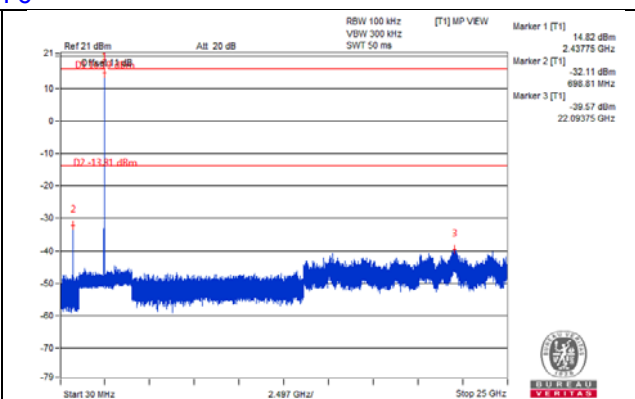
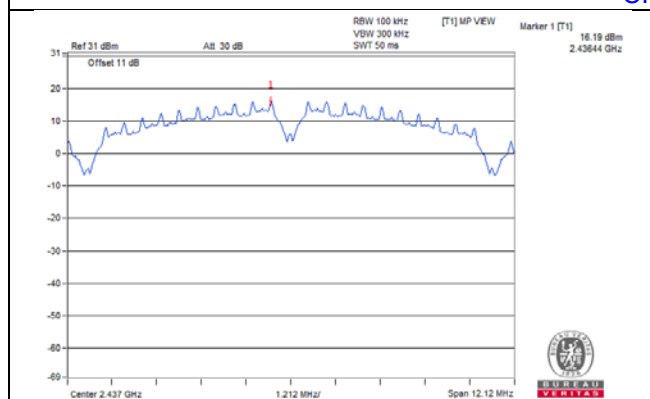
Mode B

802.11b_CHAIN 0

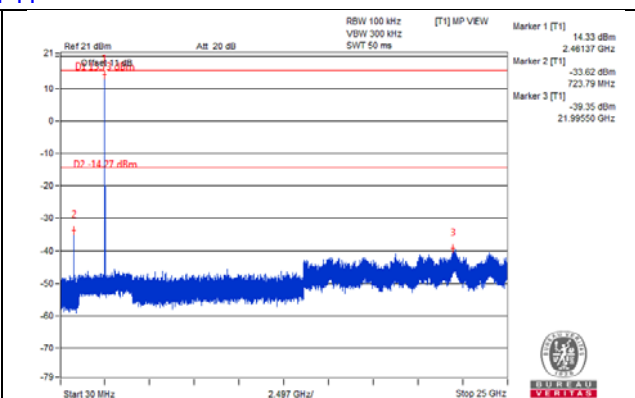
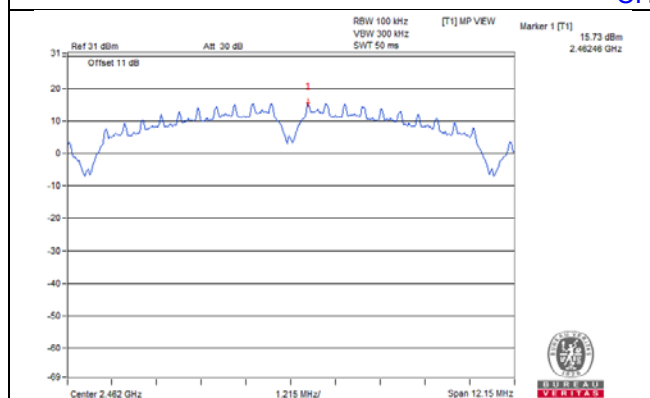
CH 1



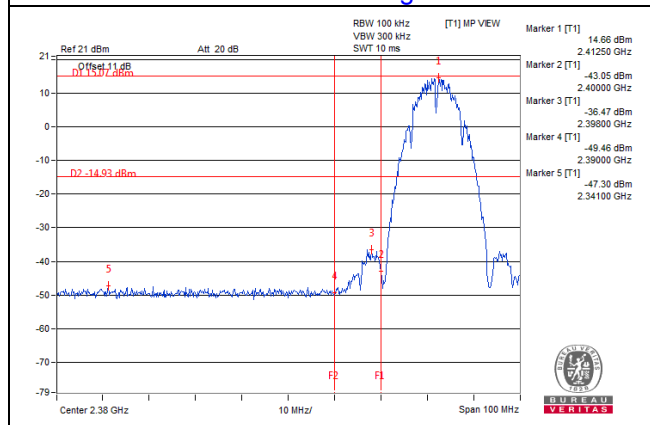
CH 6



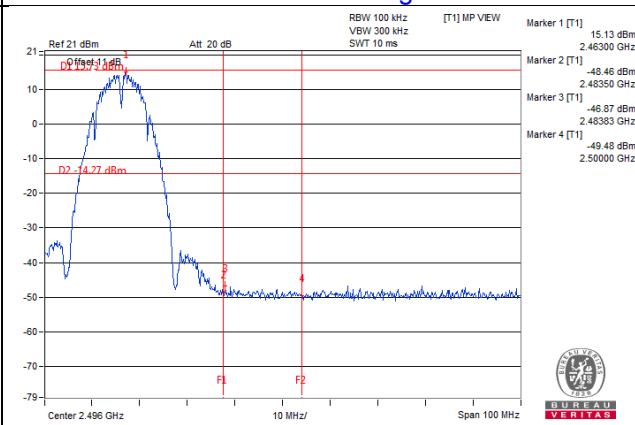
CH 11



CH 1 Band edge

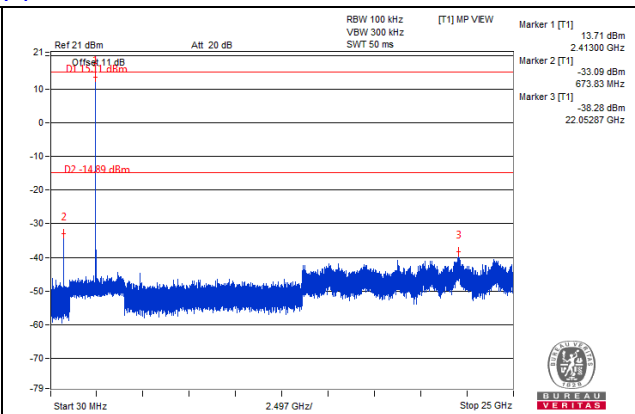
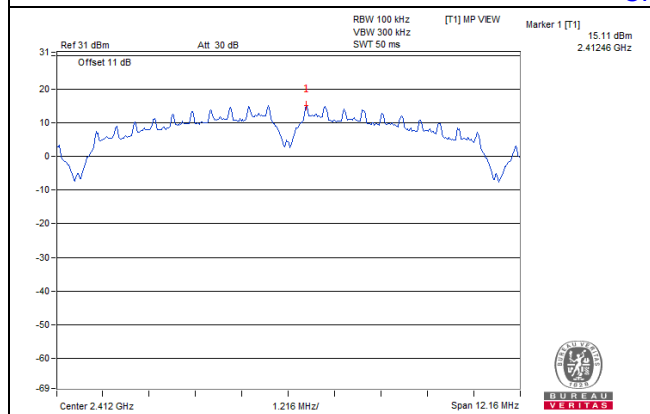


CH 11 Band edge

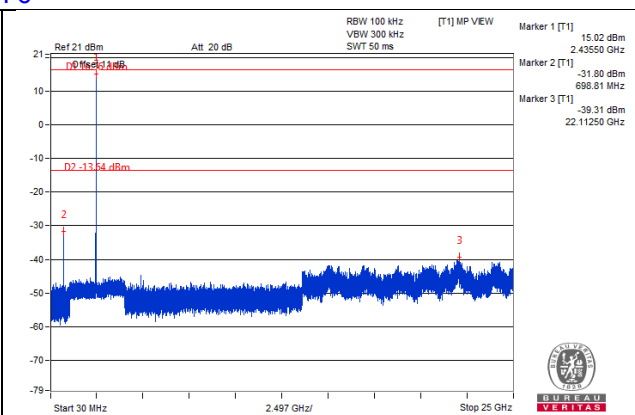
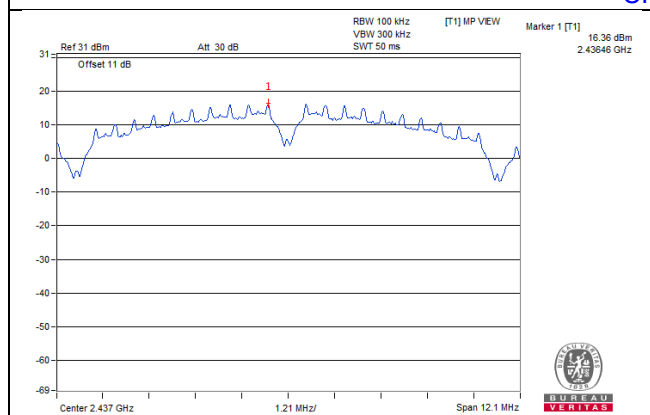


CHAIN 1

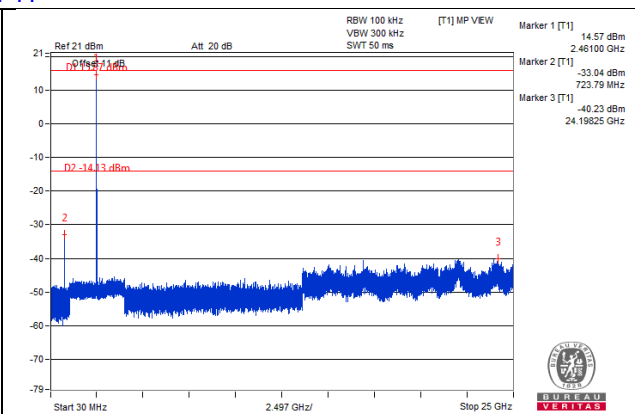
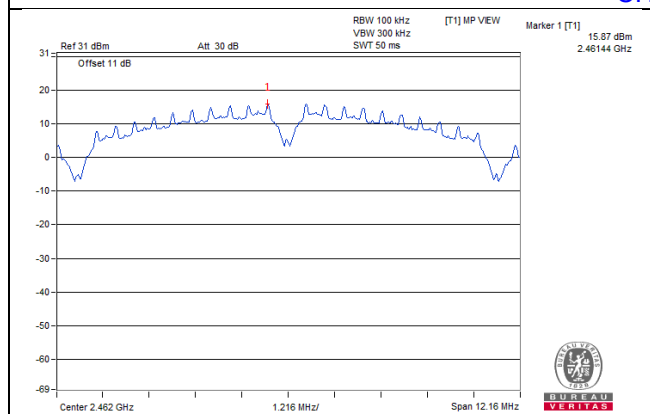
CH 1



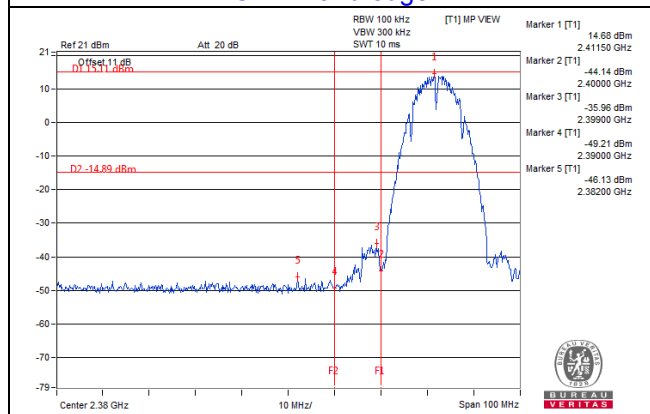
CH 6



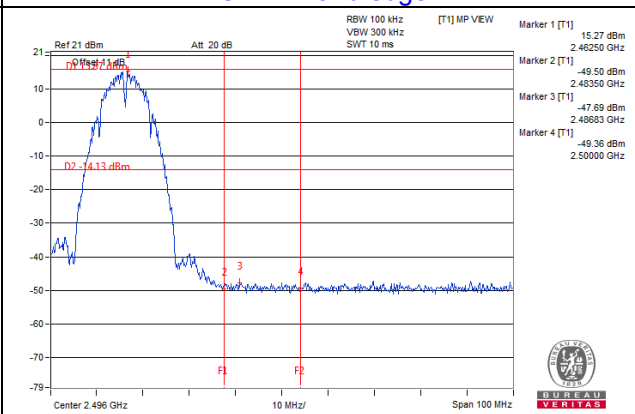
CH 11



CH 1 Band edge

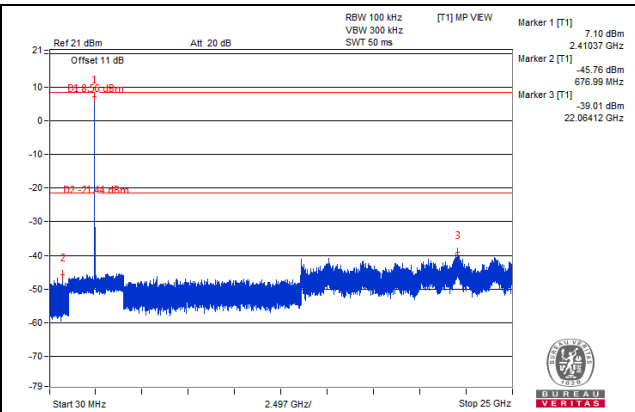
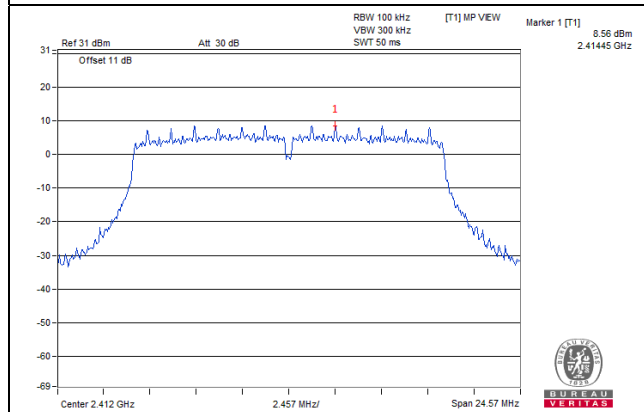


CH 11 Band edge

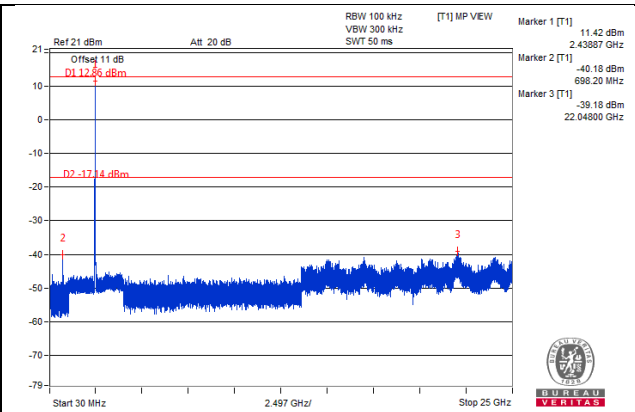
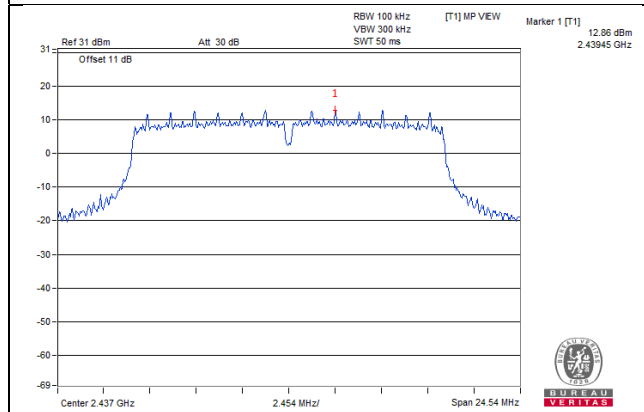


802.11g CHAIN 0

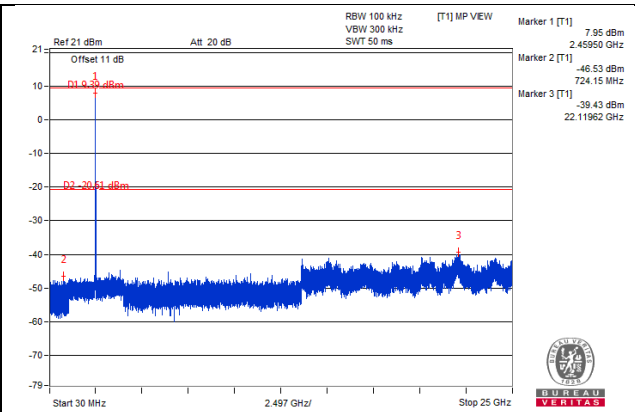
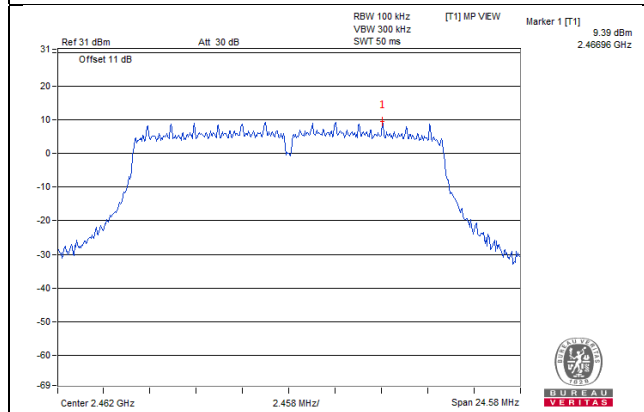
CH 1



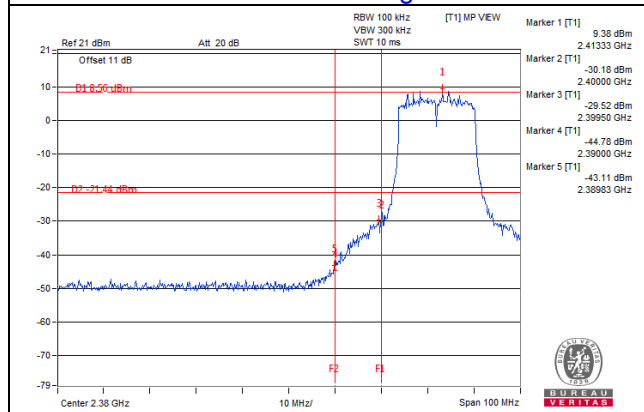
CH 6



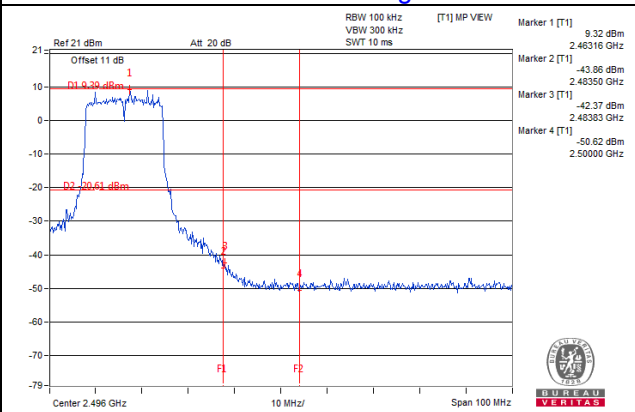
CH 11



CH 1 Band edge

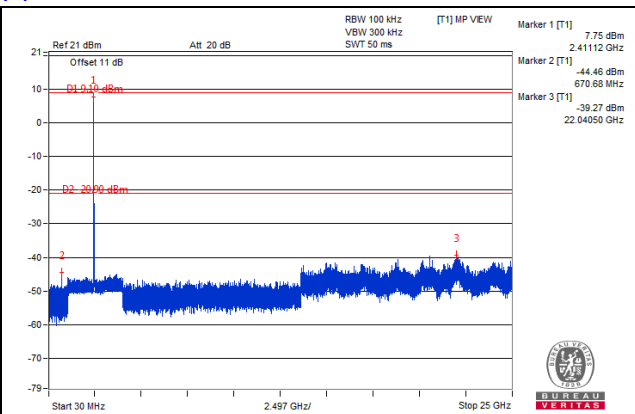
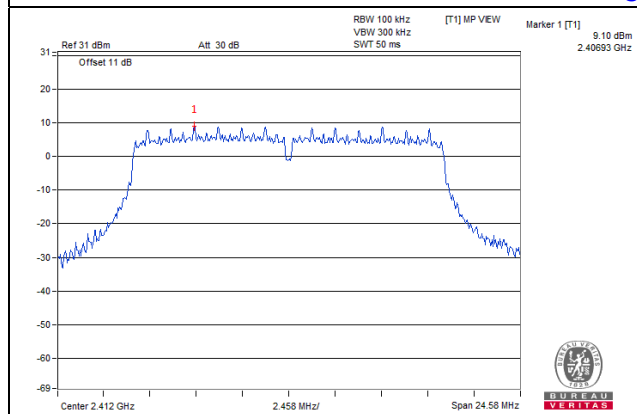


CH 11 Band edge

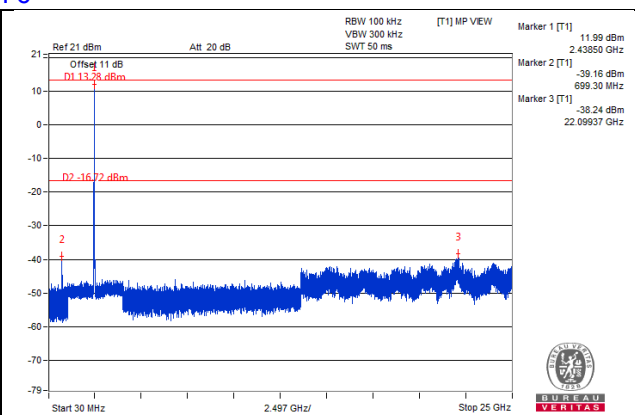
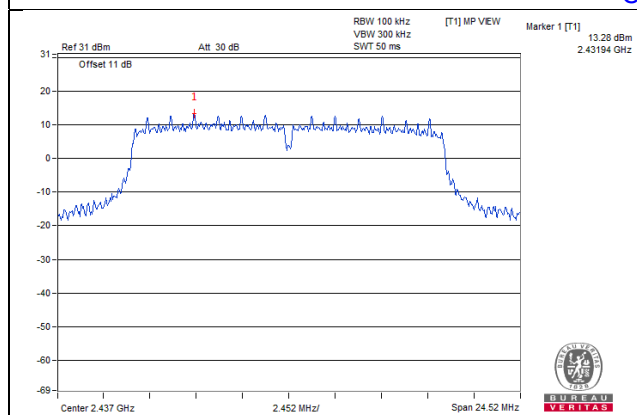


CHAIN 1

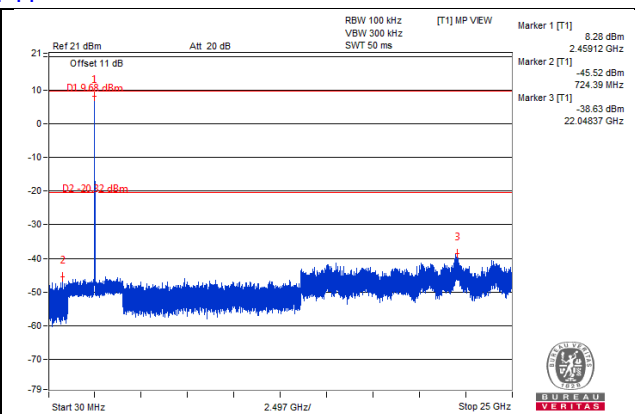
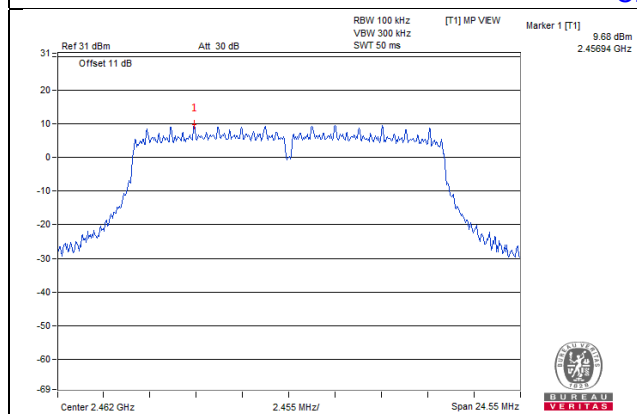
CH 1



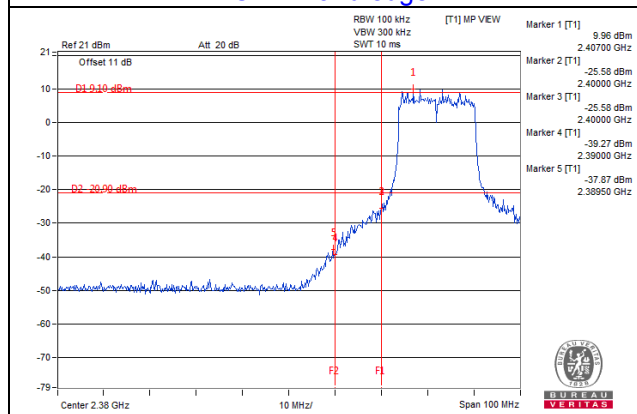
CH 6



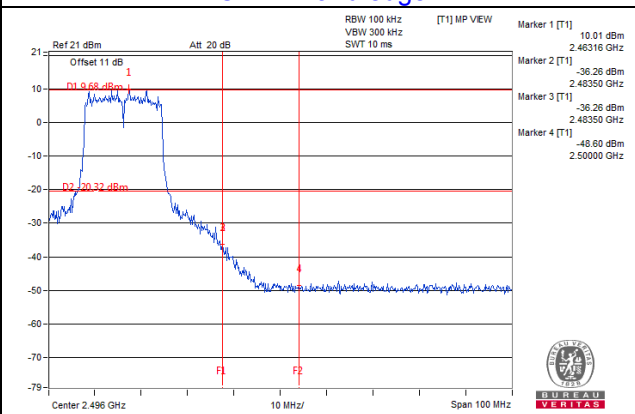
CH 11



CH 1 Band edge

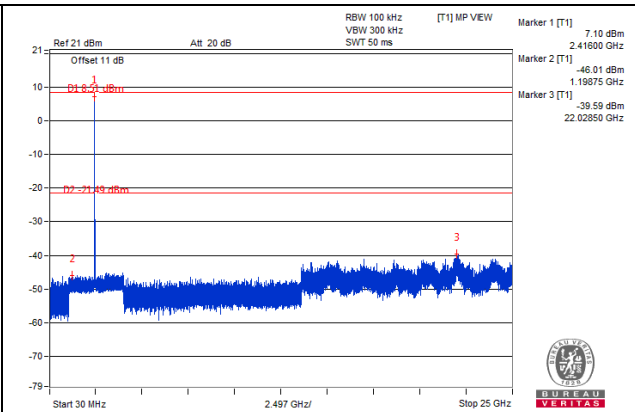
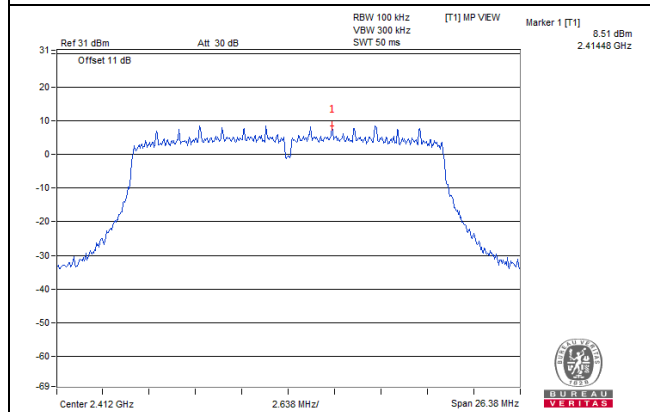


CH 11 Band edge

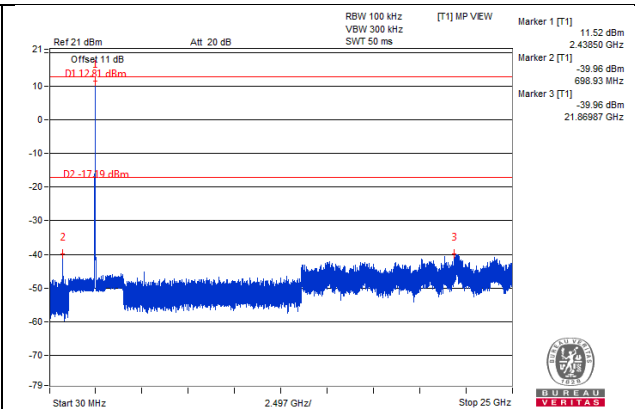
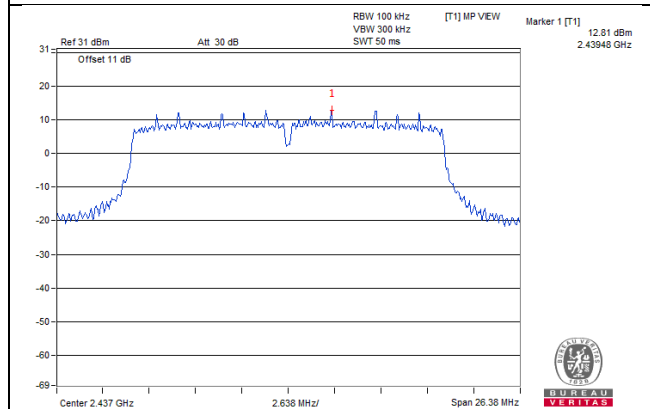


802.11n (HT20) CHAIN 0

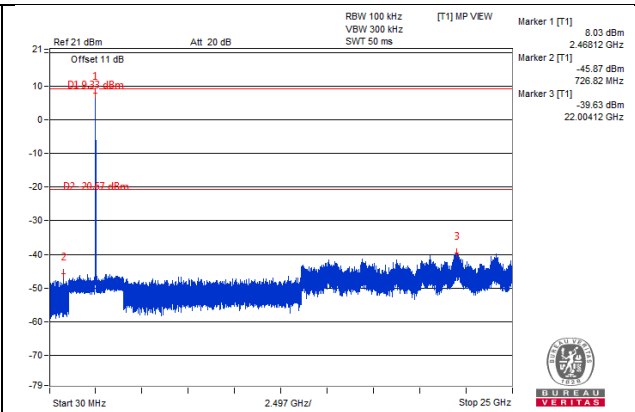
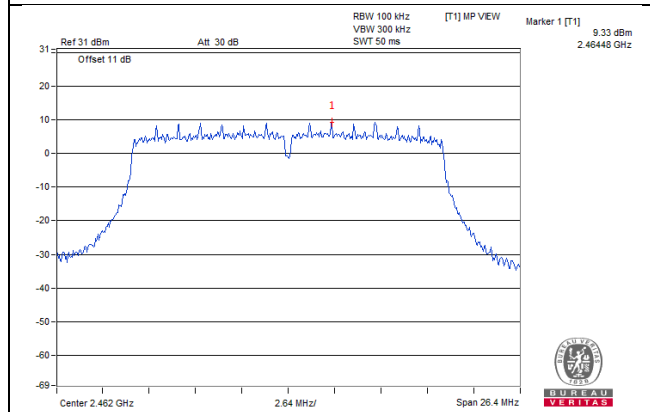
CH 1



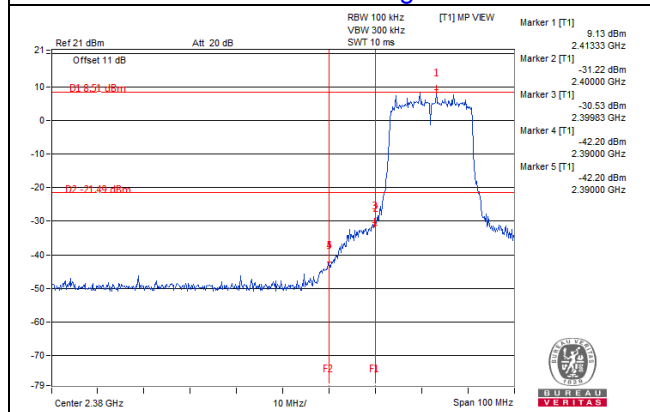
CH 6



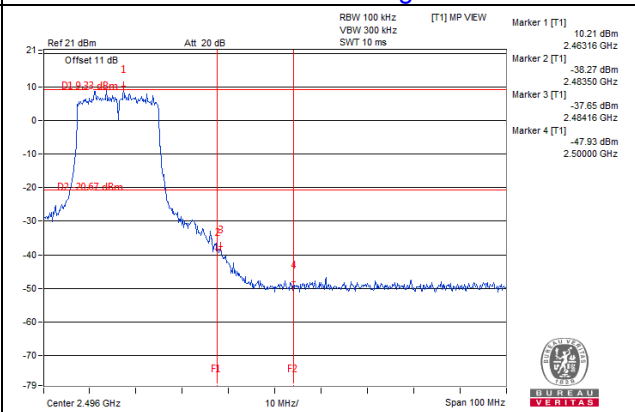
CH 11



CH 1 Band edge

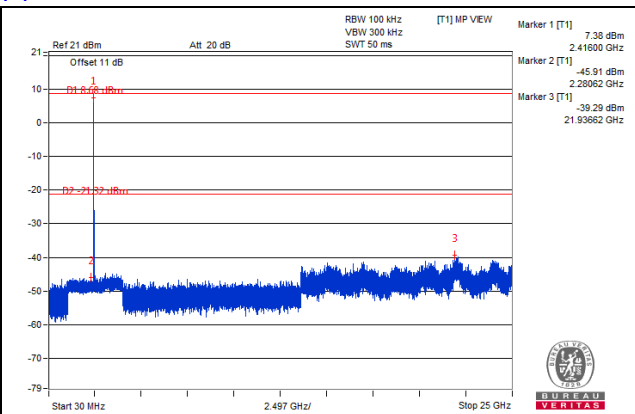
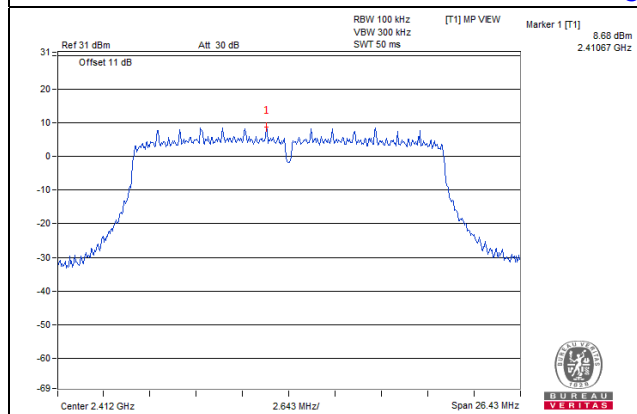


CH 11 Band edge

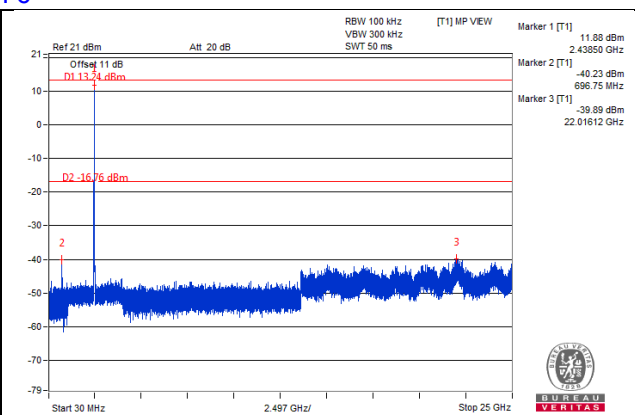
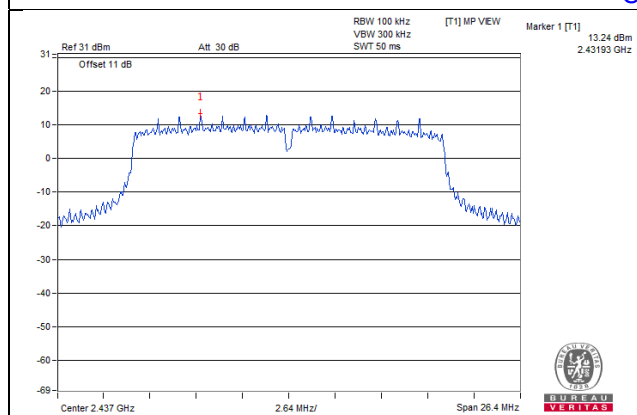


CHAIN 1

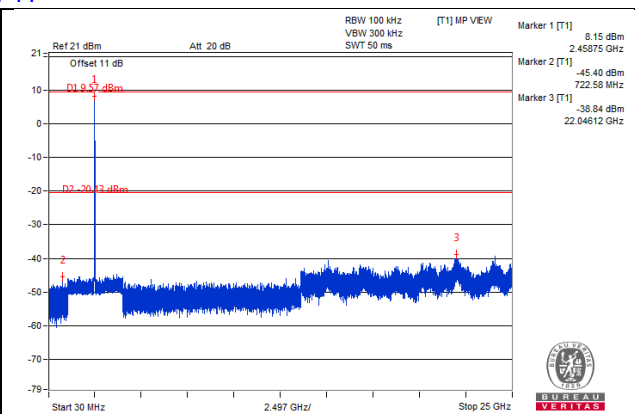
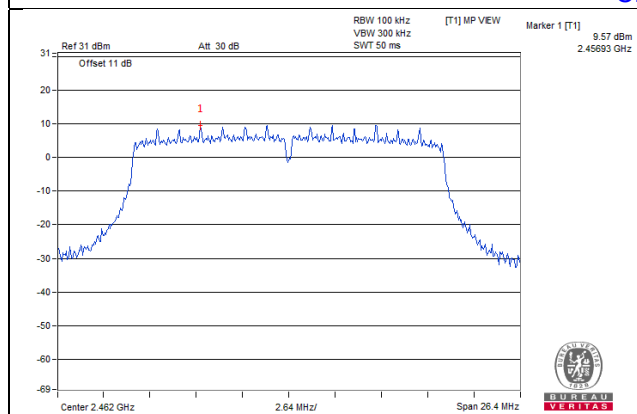
CH 1



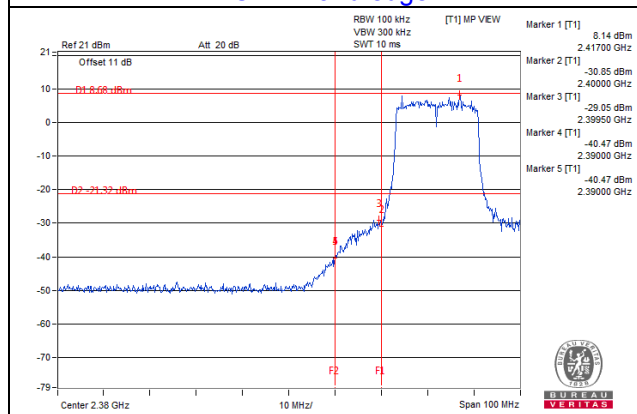
CH 6



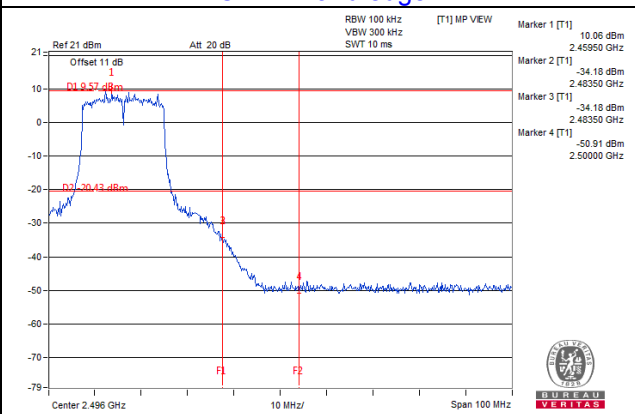
CH 11



CH 1 Band edge

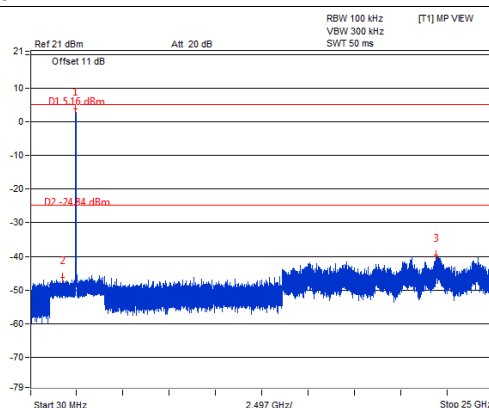
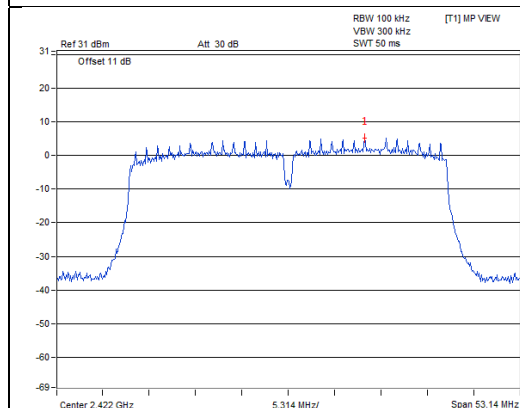


CH 11 Band edge

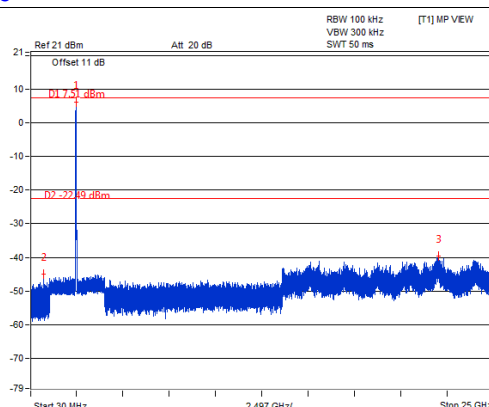
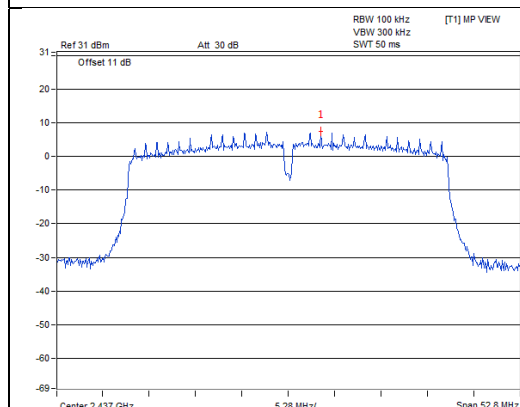


802.11n (HT40)
CHAIN 0

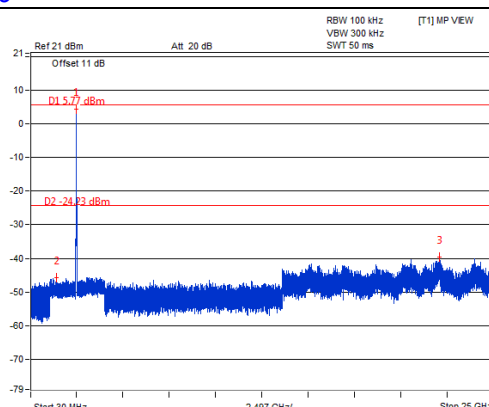
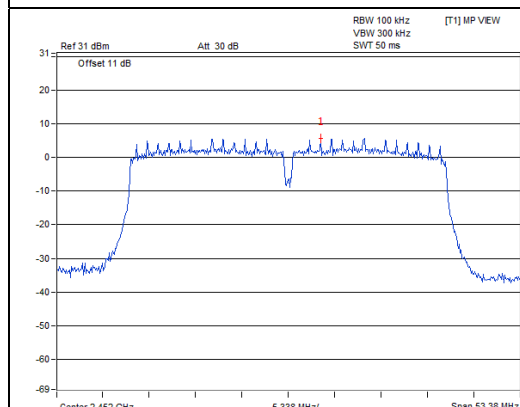
CH 3



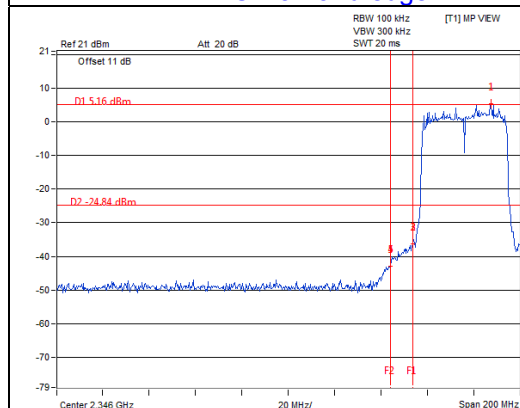
CH 6



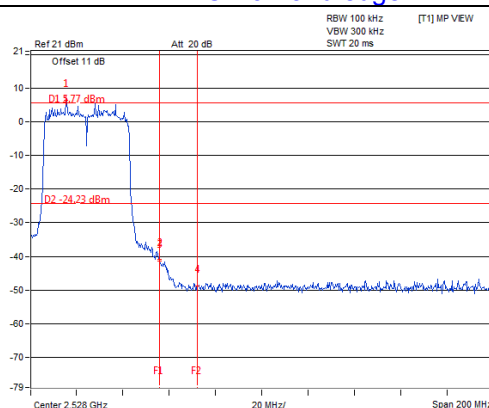
CH 9



CH 3 Band edge

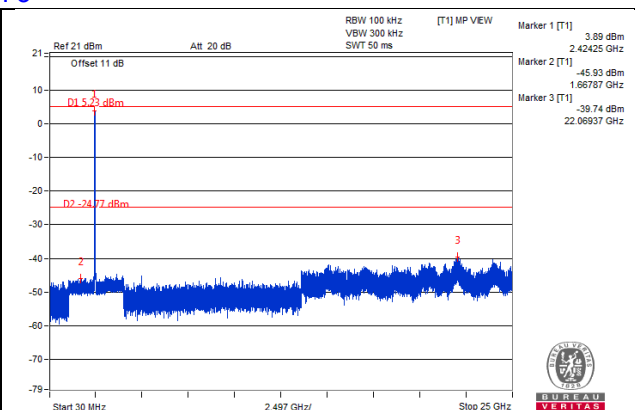
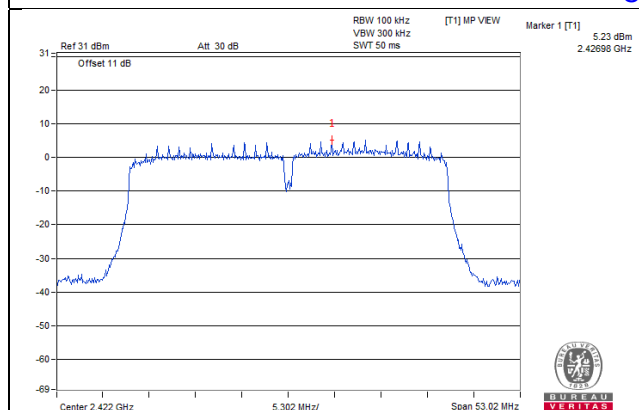


CH 9 Band edge

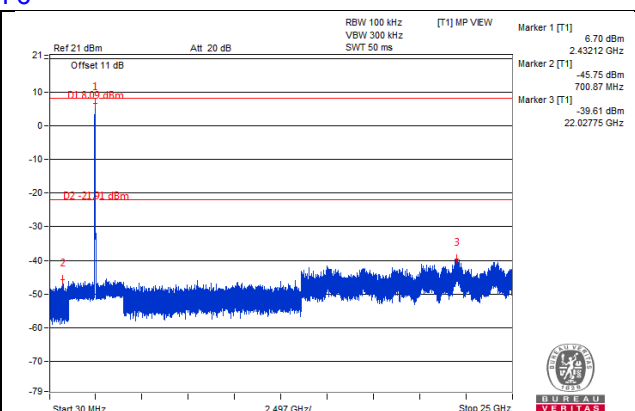
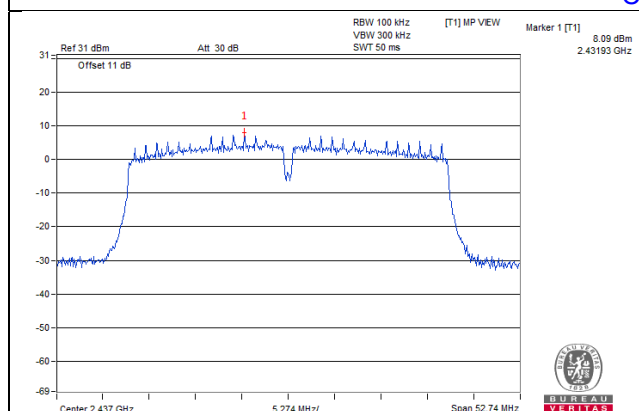


CHAIN 1

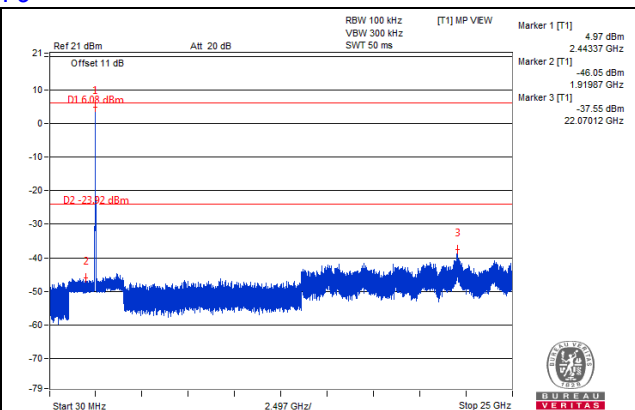
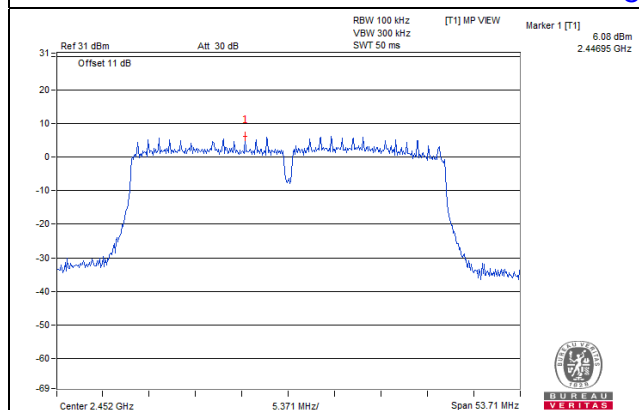
CH 3



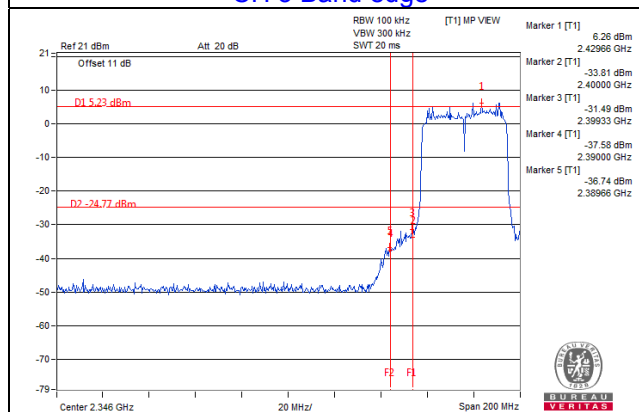
CH 6



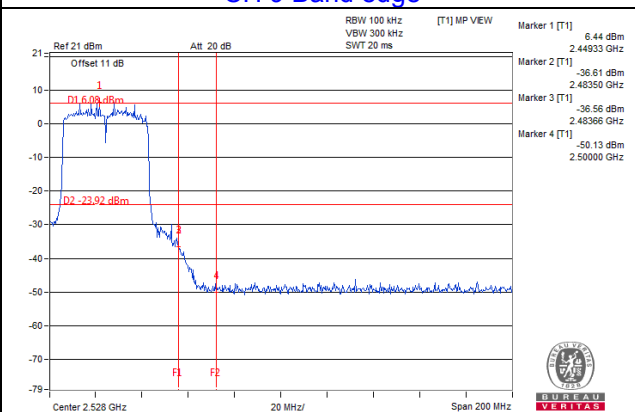
CH 9



CH 3 Band edge



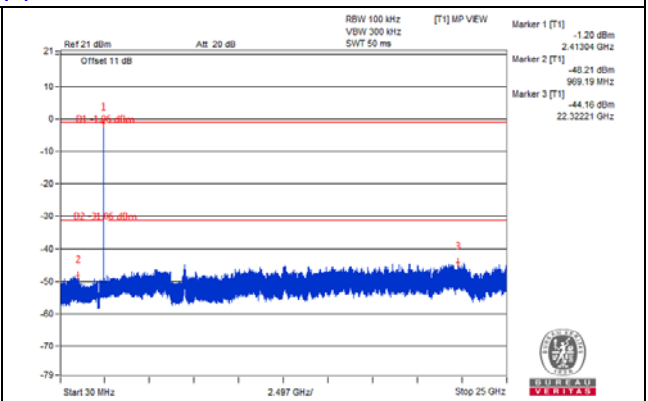
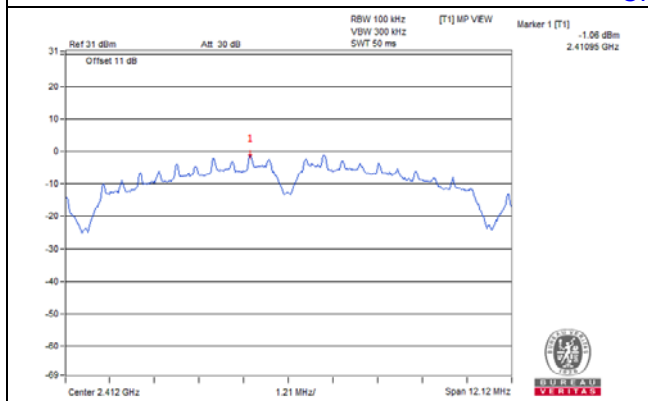
CH 9 Band edge



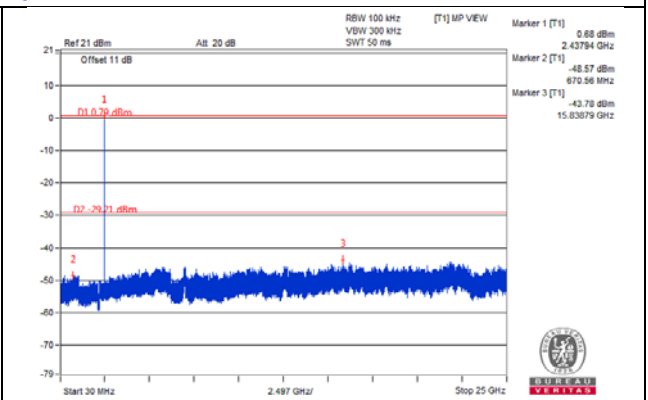
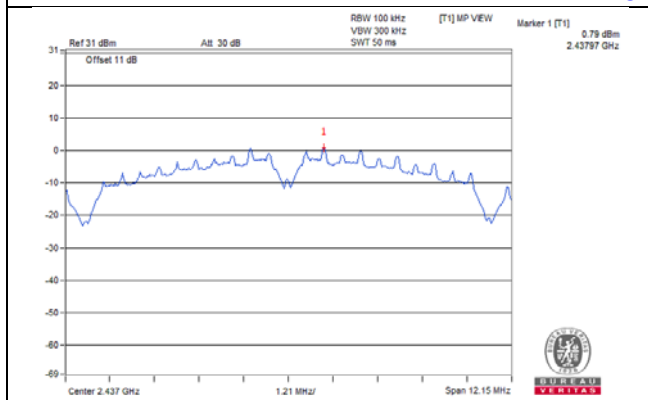
Mode C

802.11b_CHAIN 0

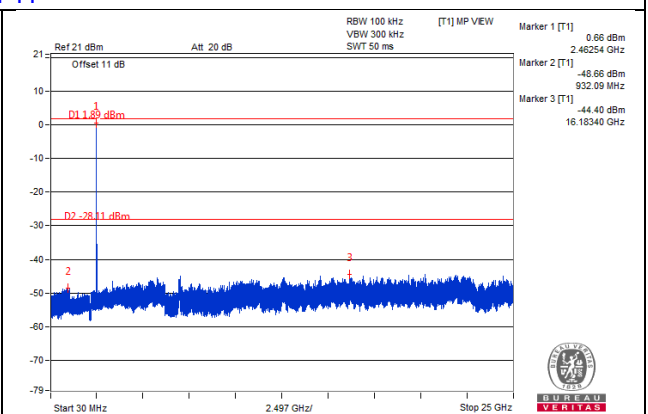
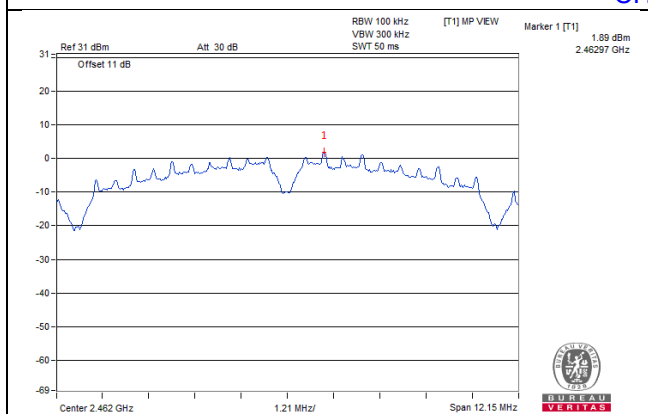
CH 1



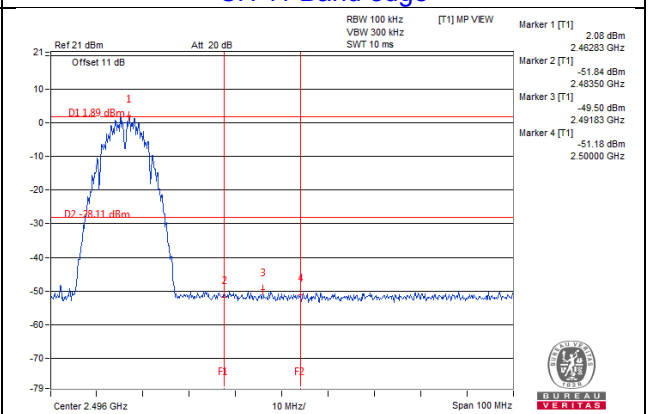
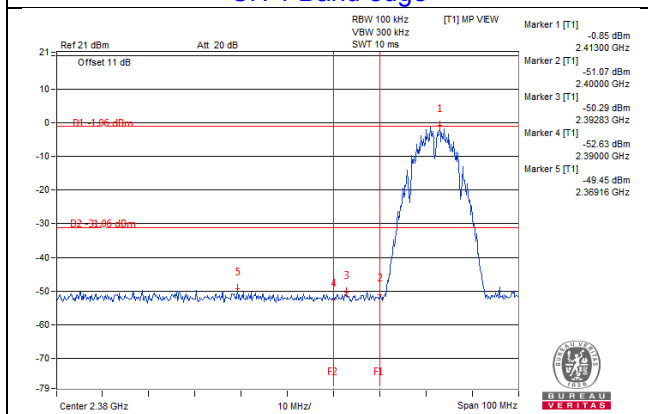
CH 6



CH 11

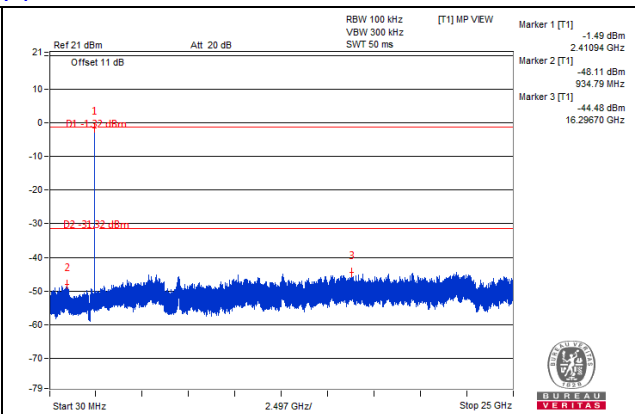
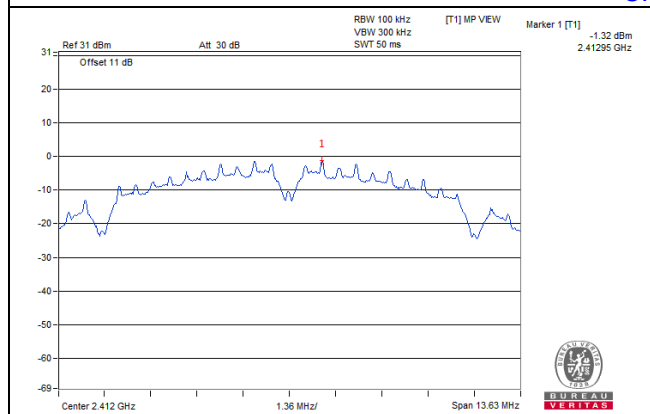


CH 1 Band edge

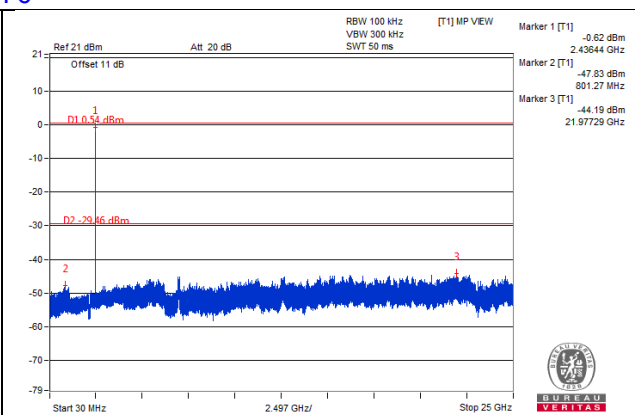
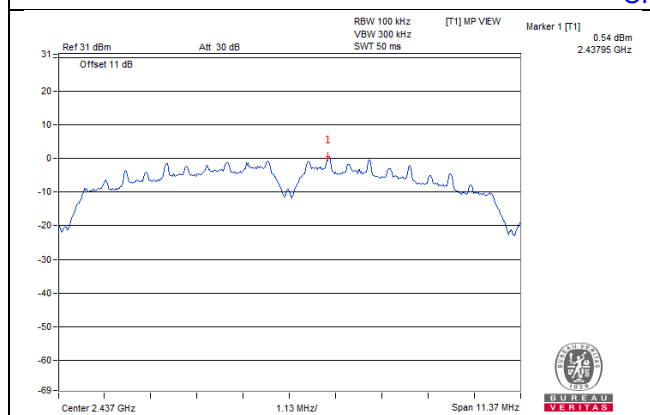


CHAIN 1

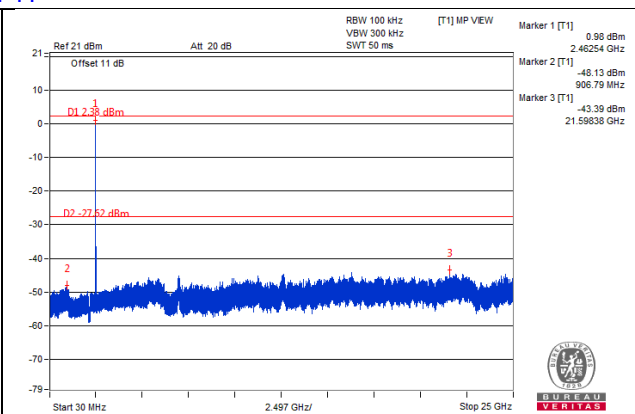
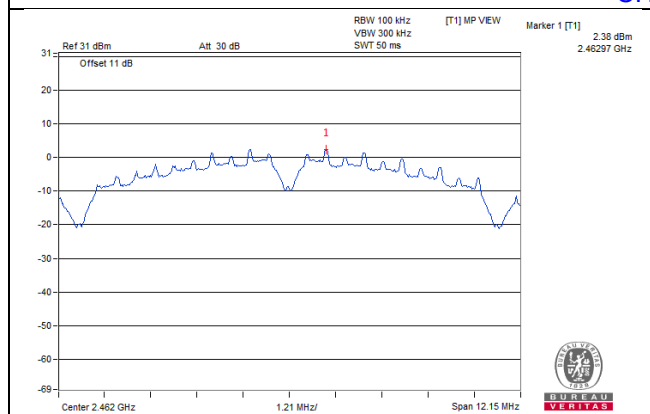
CH 1



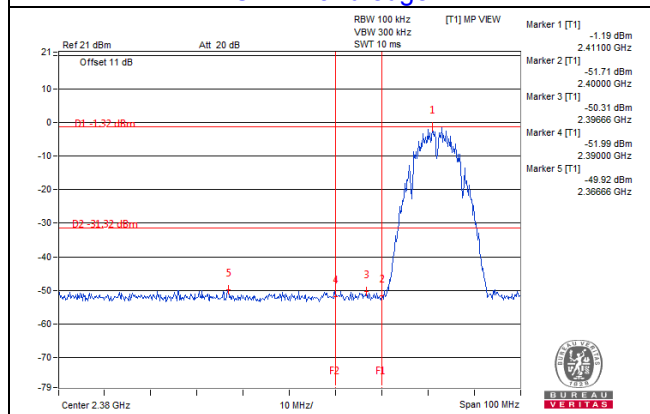
CH 6



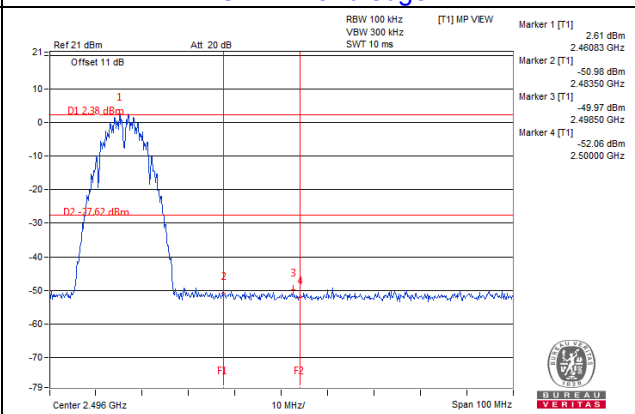
CH 11



CH 1 Band edge

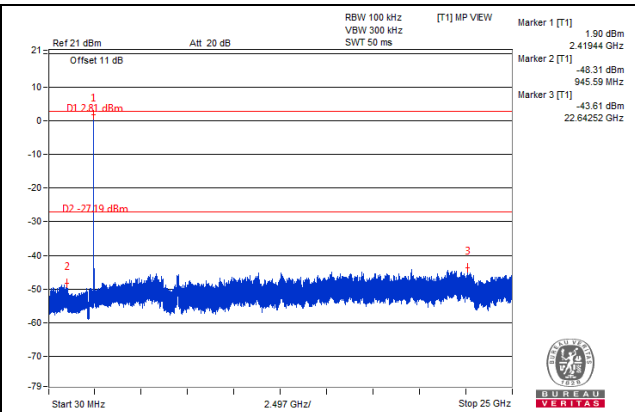
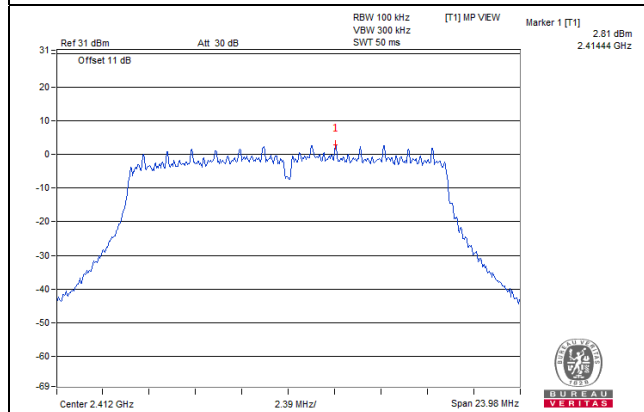


CH 11 Band edge

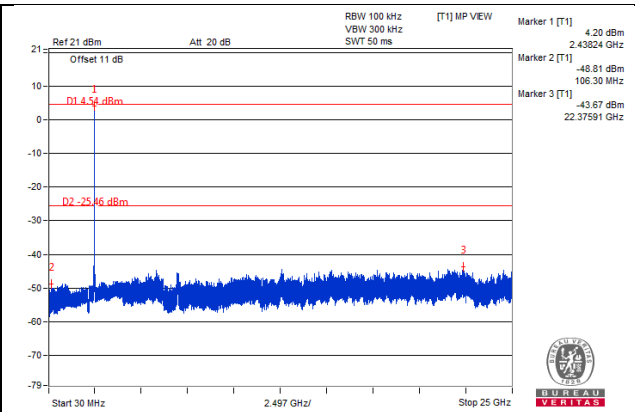
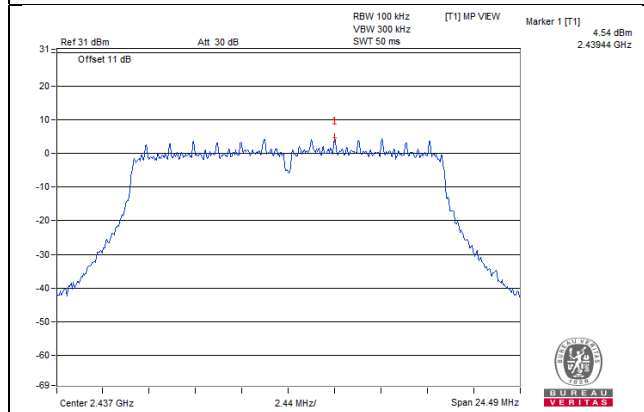


802.11g CHAIN 0

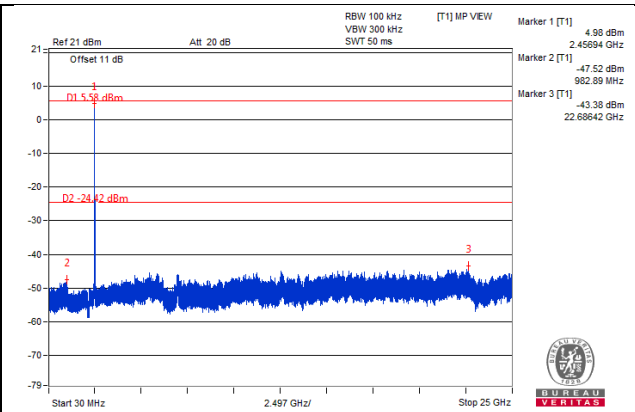
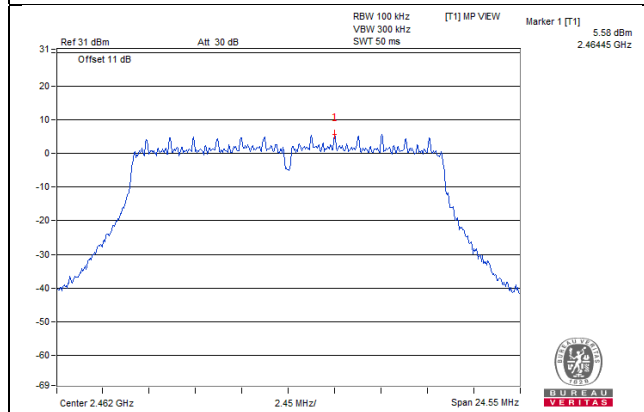
CH 1



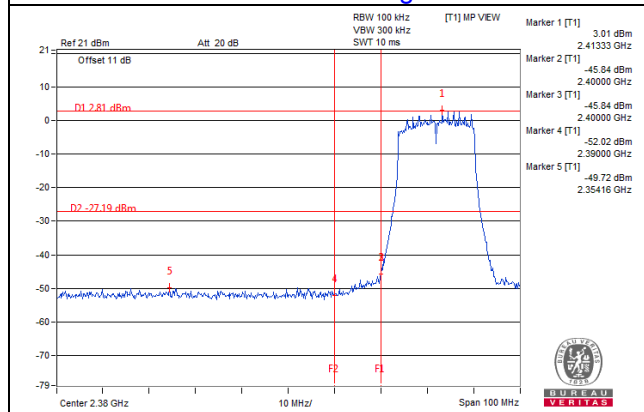
CH 6



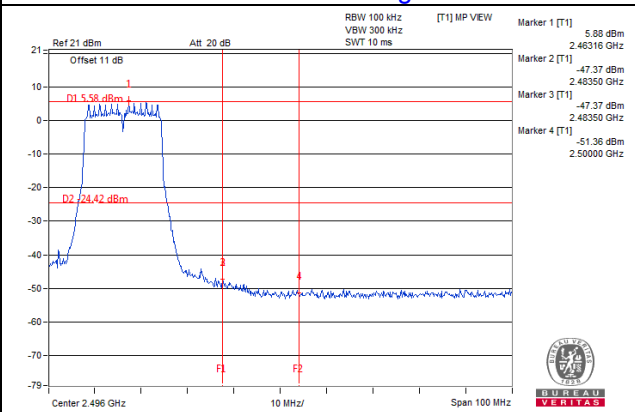
CH 11



CH 1 Band edge

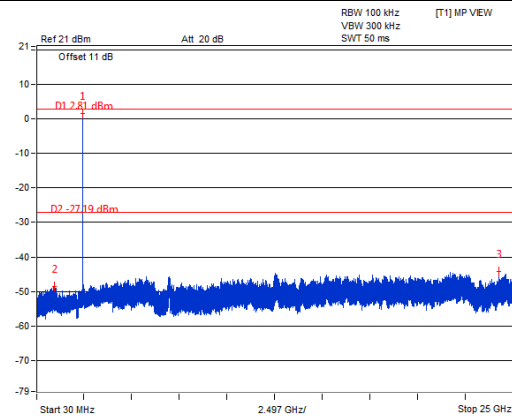
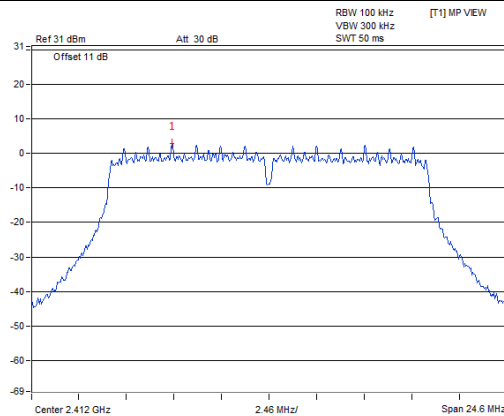


CH 11 Band edge

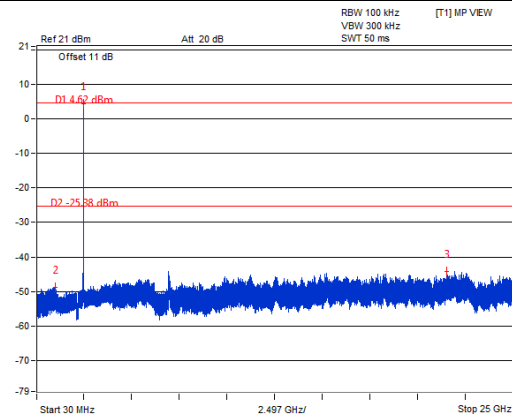
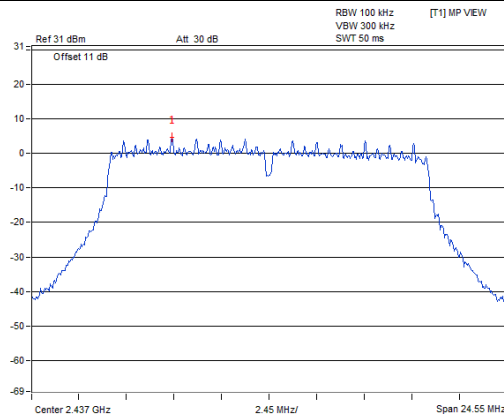


CHAIN 1

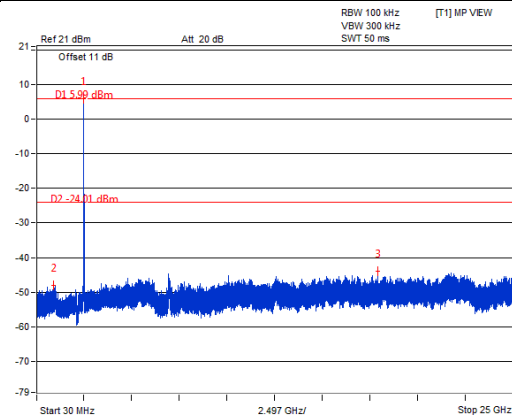
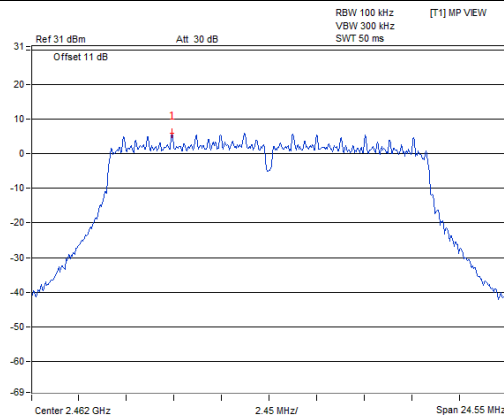
CH 1



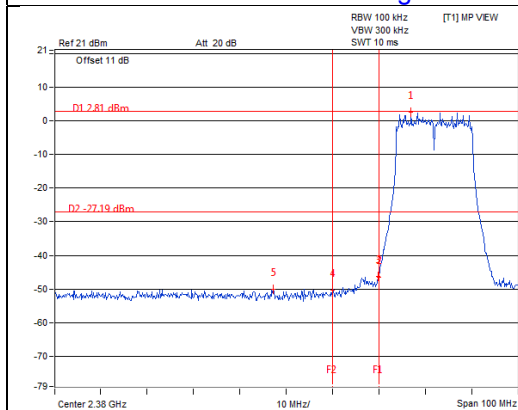
CH 6



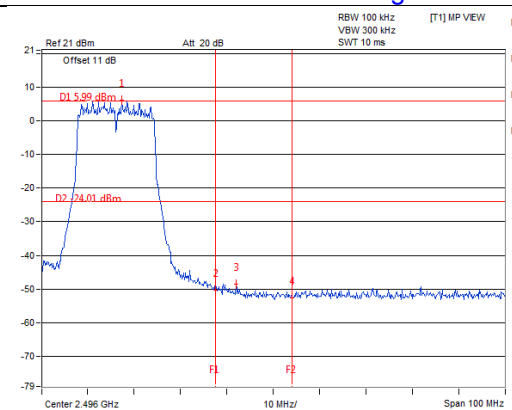
CH 11



CH 1 Band edge

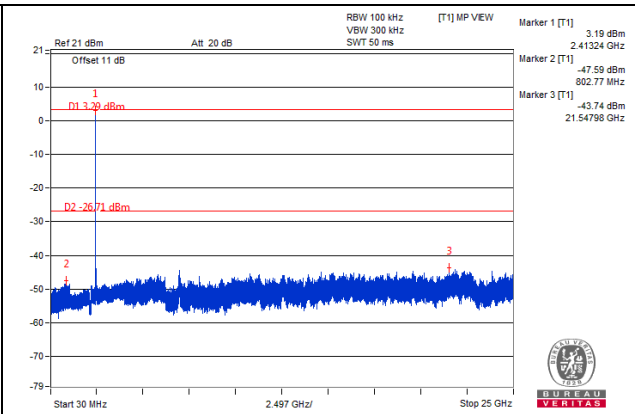
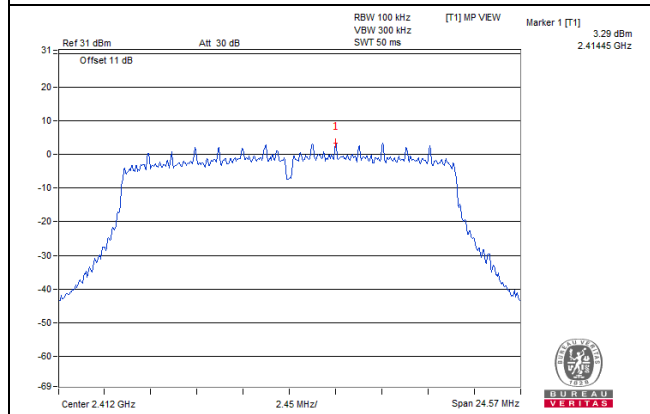


CH 11 Band edge

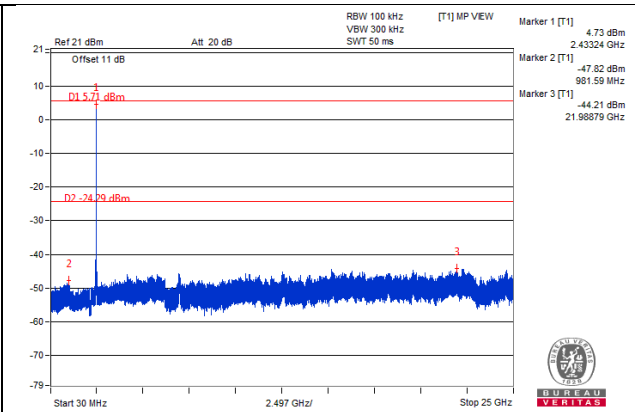
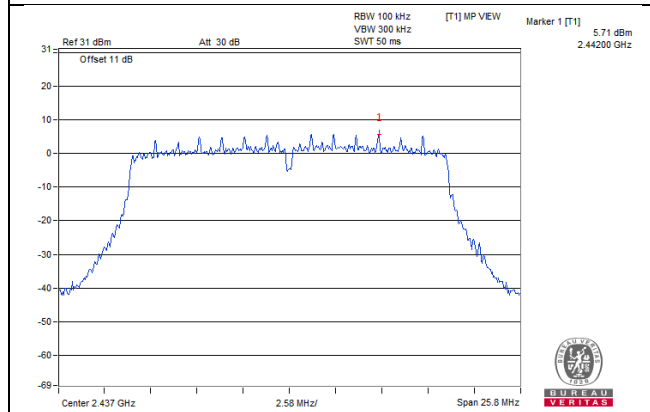


802.11n (HT20) CHAIN 0

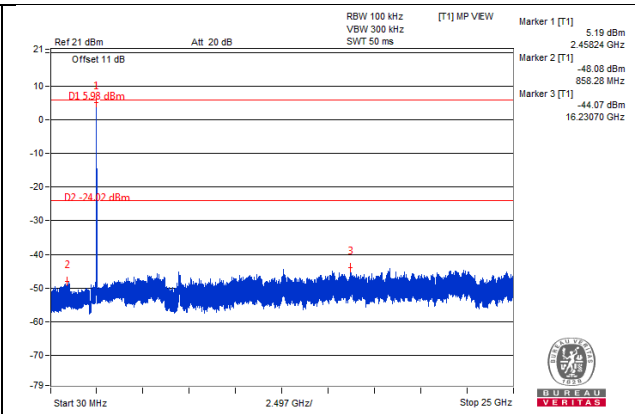
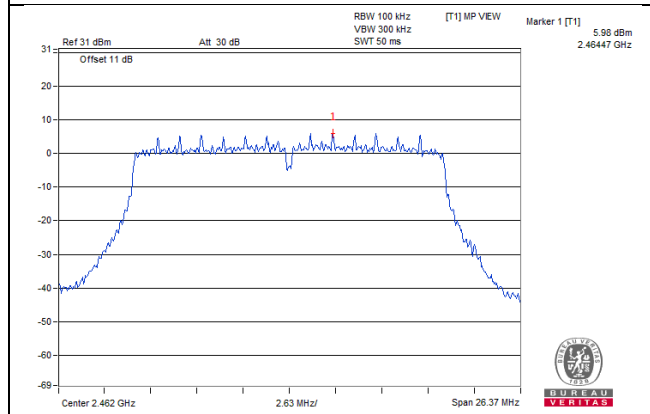
CH 1



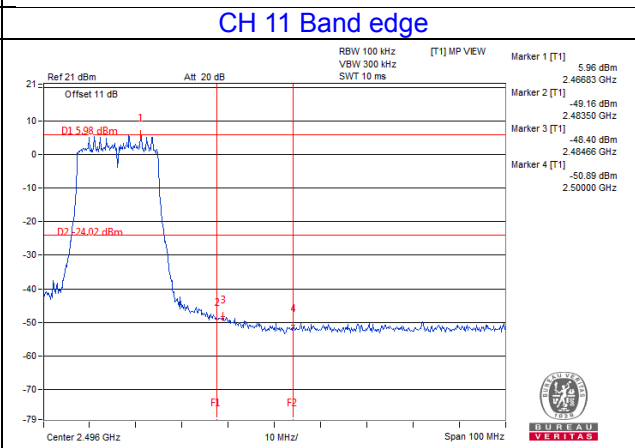
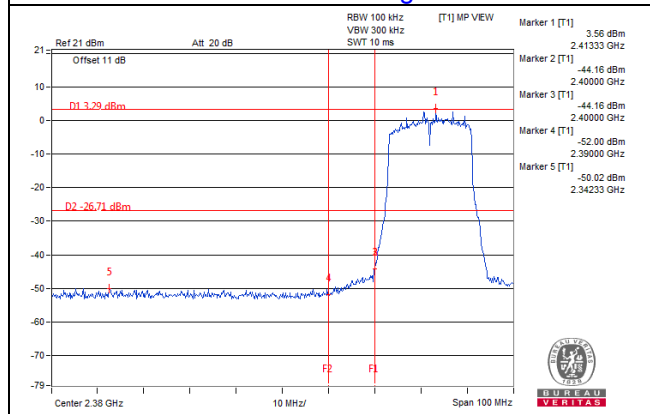
CH 6



CH 11

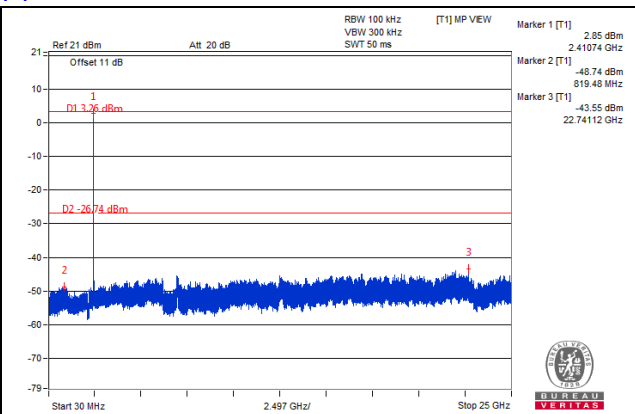
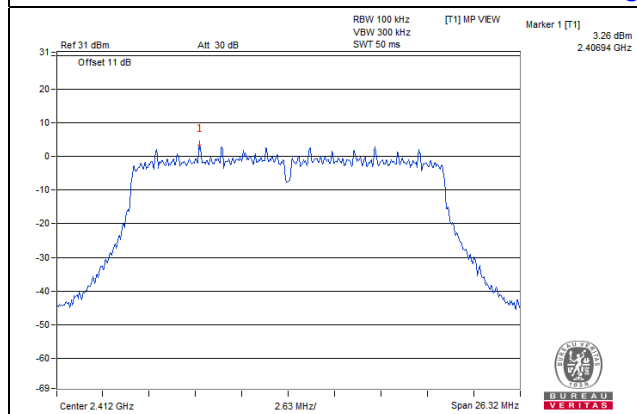


CH 1 Band edge

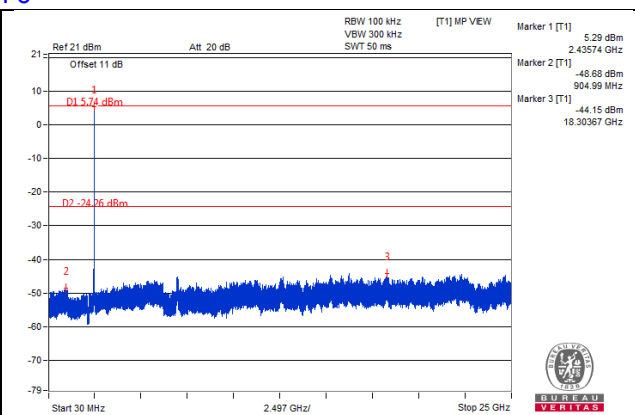
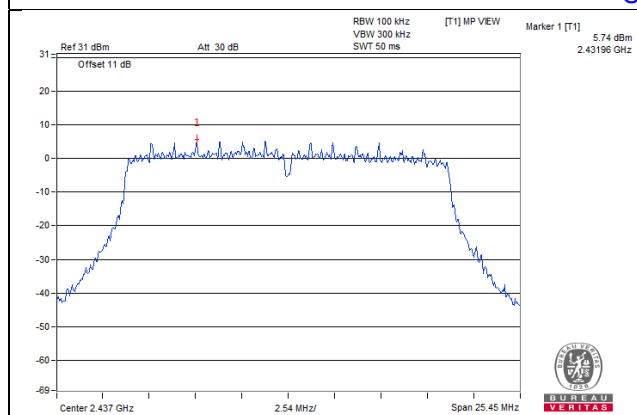


CHAIN 1

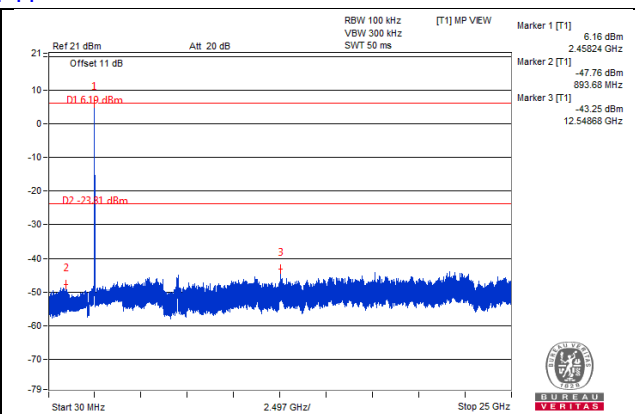
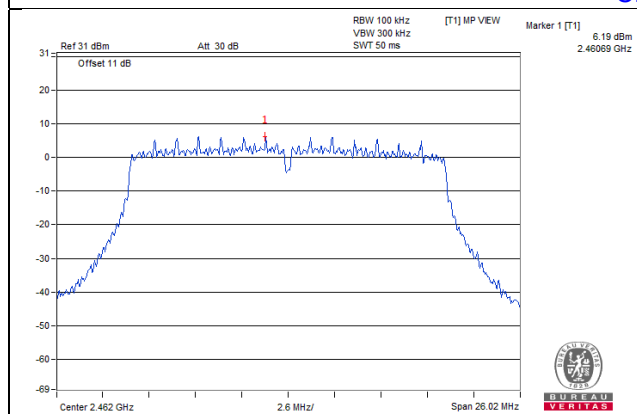
CH 1



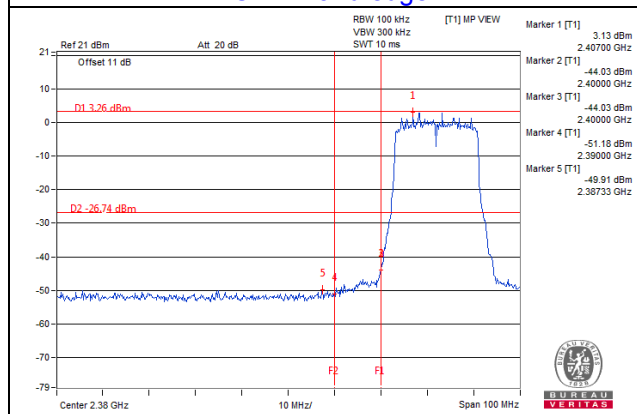
CH 6



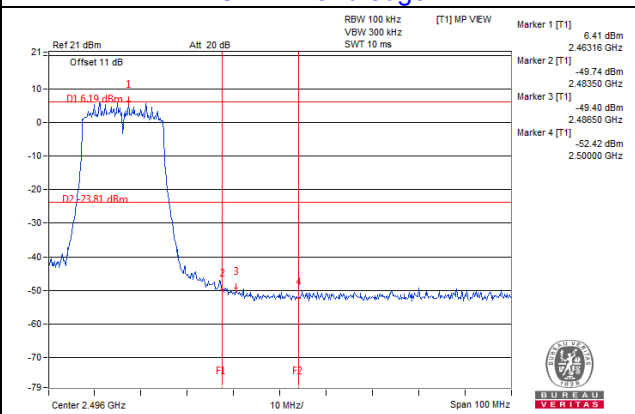
CH 11



CH 1 Band edge

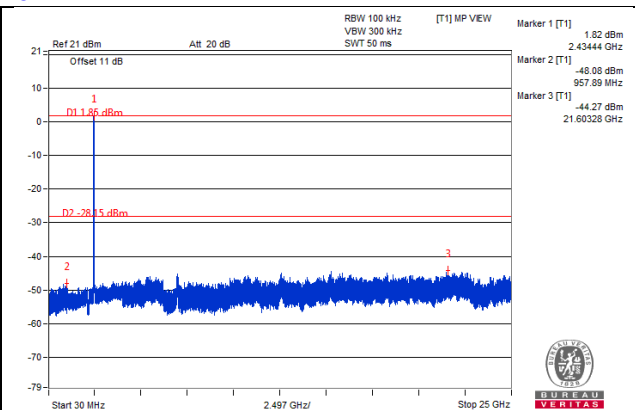
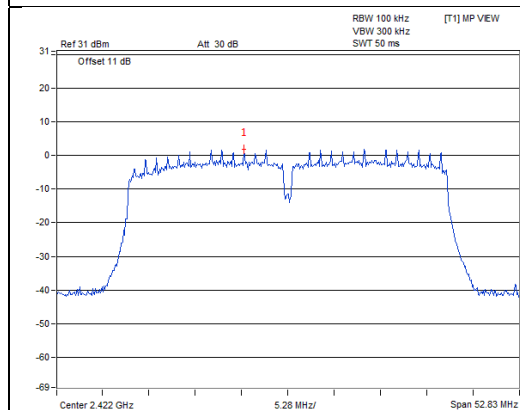


CH 11 Band edge

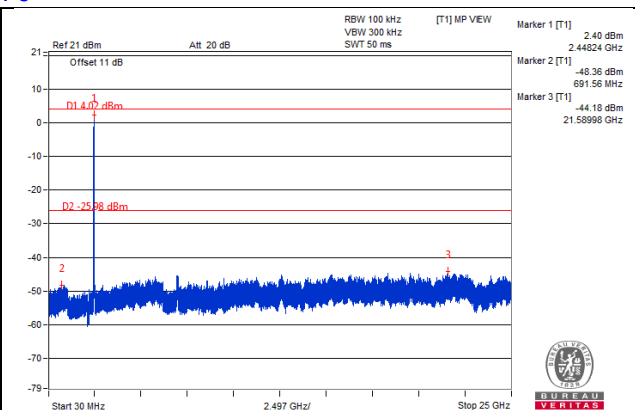
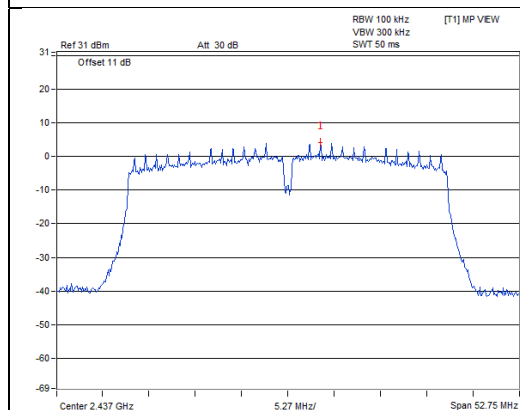


802.11n (HT40) CHAIN 0

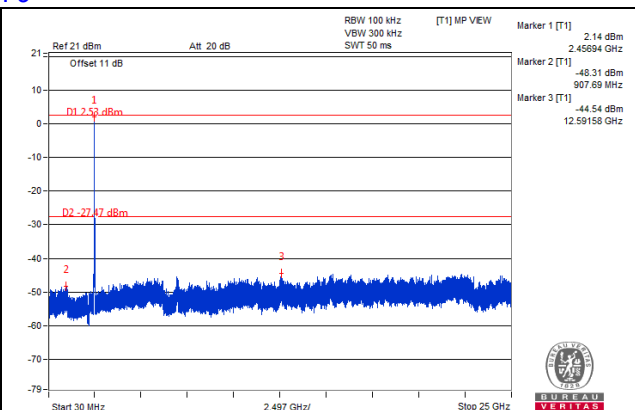
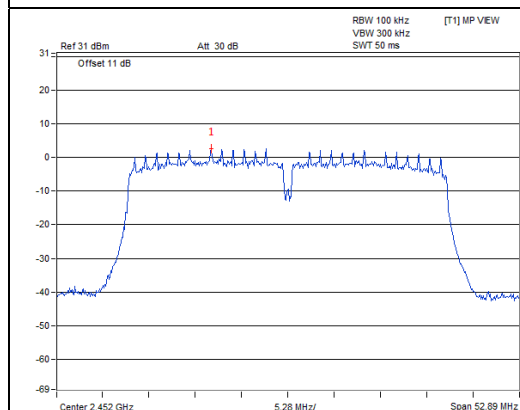
CH 3



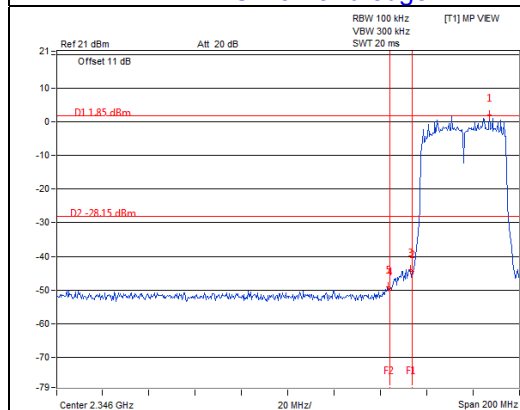
CH 6



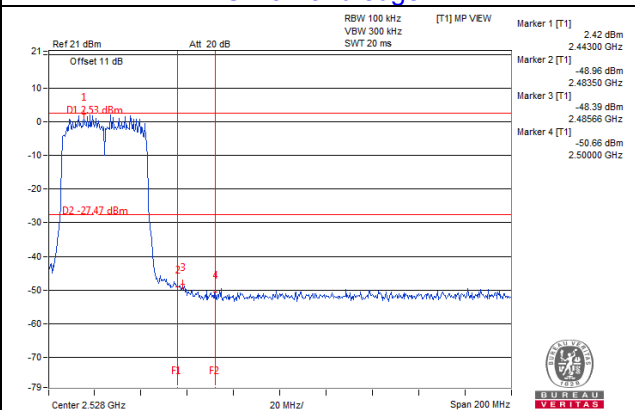
CH 9



CH 3 Band edge

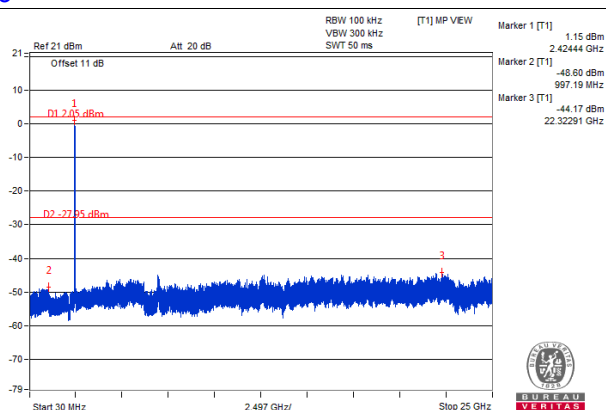
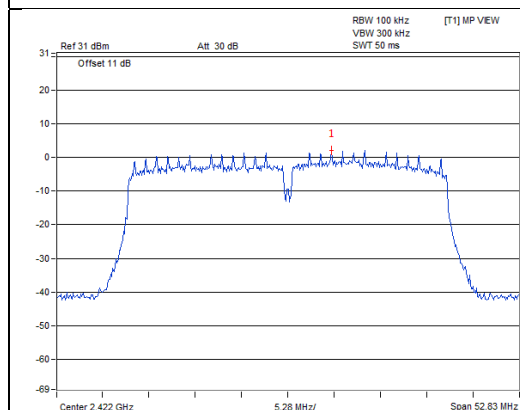


CH 9 Band edge

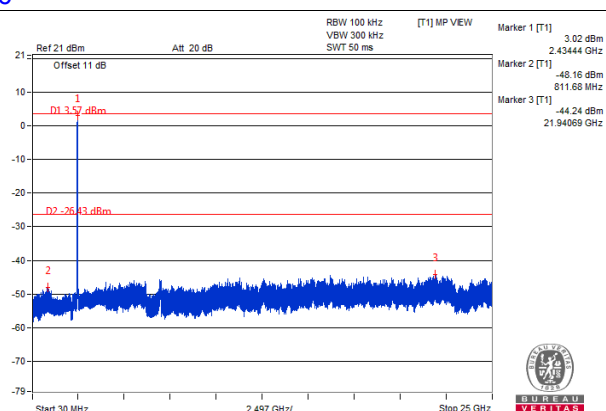
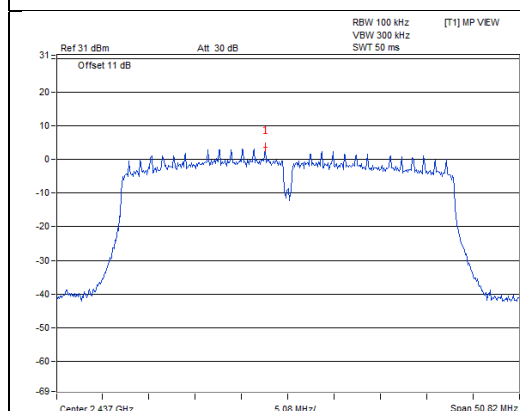


CHAIN 1

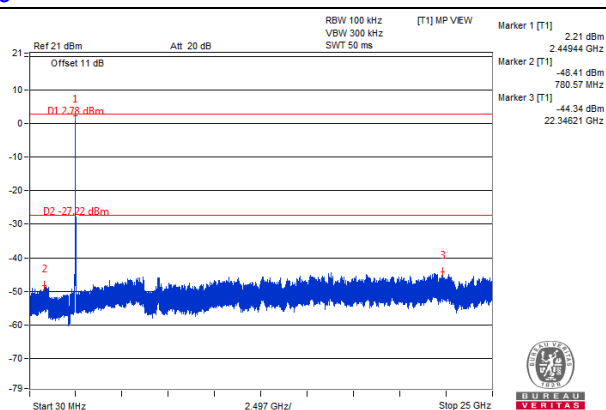
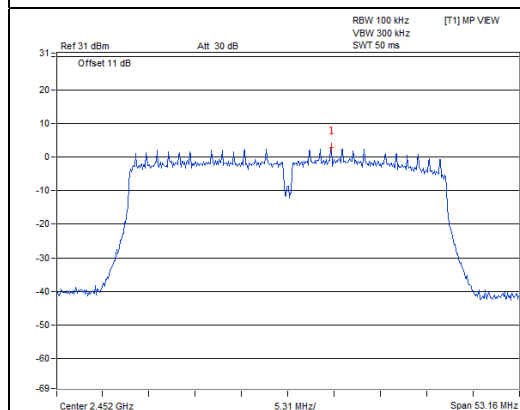
CH 3



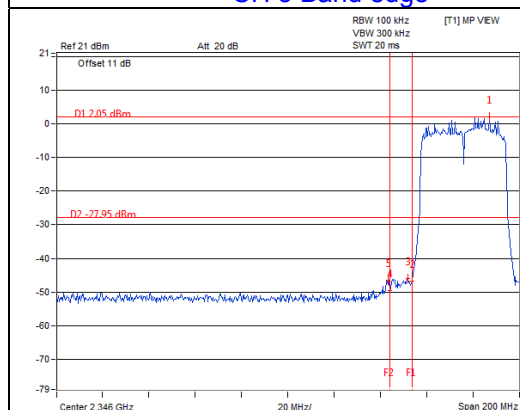
CH 6



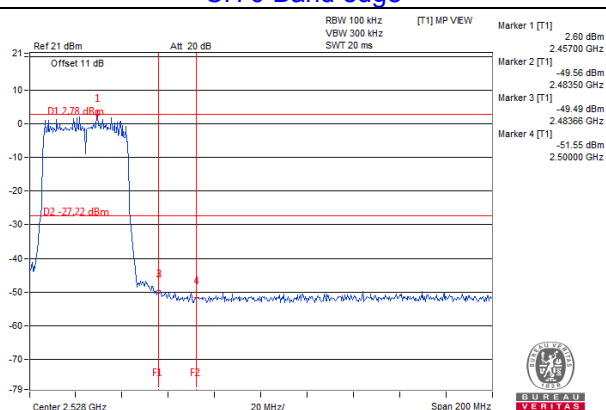
CH 9



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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---