

FCC Test Report

Report No.: RF170619E02

FCC ID: 2ACTO-APX530

Test Model: APX 530

Received Date: June 22, 2017

Test Date: June 28 to July 18, 2017

Issued Date: Sep. 06, 2017

Applicant: Sophos Ltd

Address: The Pentagon, Abingdon Science Park, Abingdon, OX14 3YP, United Kingdom

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.



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	15
3.5 General Description of Applied Standards	17
4 Test Types and Results	18
4.1 Radiated Emission and Bandedge Measurement	18
4.1.1 Limits of Radiated Emission and Bandedge Measurement	18
4.1.2 Test Instruments	19
4.1.3 Test Procedures	21
4.1.4 Deviation from Test Standard	21
4.1.5 Test Setup	22
4.1.6 EUT Operating Conditions	23
4.1.7 Test Results (Mode 1)	24
4.1.8 Test Results (Mode 2)	37
4.1.9 Test Results (Mode 3)	49
4.2 Conducted Emission Measurement	61
4.2.1 Limits of Conducted Emission Measurement	61
4.2.2 Test Instruments	61
4.2.3 Test Procedures	62
4.2.4 Deviation from Test Standard	62
4.2.5 Test Setup	62
4.2.6 EUT Operating Conditions	62
4.2.7 Test Results	63
4.3 6dB Bandwidth Measurement	65
4.3.1 Limits of 6dB Bandwidth Measurement	65
4.3.2 Test Setup	65
4.3.3 Test Instruments	65
4.3.4 Test Procedure	65
4.3.5 Deviation from Test Standard	65
4.3.6 EUT Operating Conditions	65
4.3.7 Test Result (Mode 1)	66
4.3.8 Test Result (Mode 2)	68
4.3.9 Test Result (Mode 3)	70
4.4 Conducted Output Power Measurement	72
4.4.1 Limits of Conducted Output Power Measurement	72
4.4.2 Test Setup	72
4.4.3 Test Instruments	72
4.4.4 Test Procedures	72
4.4.5 Deviation from Test Standard	72
4.4.6 EUT Operating Conditions	72
4.4.7 Test Results (Mode 1)	73
4.4.8 Test Results (Mode 2)	75
4.4.9 Test Results (Mode 3)	77
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 (Mode 1).....	79
4.5.8	Test Results (Mode 2).....	82
4.5.9	Test Results (Mode 3).....	85
4.6	Conducted Out of Band Emission Measurement	87
4.6.1	Limits of Conducted Out of Band Emission Measurement.....	87
4.6.2	Test Setup	87
4.6.3	Test Instruments	87
4.6.4	Test Procedure	87
4.6.5	Deviation from Test Standard	87
4.6.6	EUT Operating Condition	87
4.6.7	Test Results	87
5	Pictures of Test Arrangements	112
	Appendix – Information on the Testing Laboratories	113

Release Control Record

Issue No.	Description	Date Issued
RF170619E02	Original release.	Sep. 06, 2017

1 Certificate of Conformity

Product: Sophos Access Point

Brand: SOPHOS

Test Model: APX 530

Sample Status: ENGINEERING SAMPLE

Applicant: Sophos Ltd

Test Date: June 28 to July 18, 2017

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013

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

Prepared by : Wendy Wu, **Date:** Sep. 06, 2017
Wendy Wu / Specialist

Approved by : May Chen, **Date:** Sep. 06, 2017
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -7.49dB at 0.40928MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz, 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.32 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.14 dB
	6GHz ~ 18GHz	5.04 dB
	18GHz ~ 40GHz	5.25 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Sophos Access Point
Brand	SOPHOS
Test Model	APX 530
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 55V from POE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	2.4GHz: CDD Mode: 3TX: 779.535mW (28.92dBm) 2TX: 530.649mW (27.25dBm) 1TX: 249.459mW (23.97dBm) Beamforming Mode: 3TX: 491.308mW (26.91dBm) 2TX: 442.117mW (26.46dBm) 5GHz: CDD Mode: 5.18 ~ 5.24GHz: 3TX: 353.293mW (25.48dBm) 2TX: 428.481mW (26.32dBm) 1TX: 231.739mW (23.65dBm) 5.745 ~ 5.825GHz: 3TX: 650.435mW (28.13dBm) 2TX: 449.526mW (26.53dBm) 1TX: 260.016mW (24.15dBm) Beamforming Mode: 5.18 ~ 5.24GHz: 3TX: 353.293mW (25.48dBm) 2TX: 428.481mW (26.32dBm) 5.745 ~ 5.825GHz: 3TX: 353.913mW (25.49dBm) 2TX: 449.526mW (26.53dBm)
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The EUT has three radio transceivers, radio 1 is WLAN technologies for single band (2.4GHz), radio 2 is WLAN technology for single band (5GHz), and radio 3 is Bluetooth low energy (BT-LE) technology only.
2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz (Radio 1)	WLAN 5GHz (Radio 2)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

3. The EUT must be supplied with a POE (only for test not for sale) as following table:

Brand	Model No.	Spec.
Microsemi	PD-9001GR/AC	Input: 100-240Vac, 50/60Hz, 0.67A Output: 55Vdc, 0.6A

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

Radio 1								
2.4GHz								
Antenna No.	Transmitter Circuit	Brand	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	*Cable Length
1	Chain (0)	NA	NA	4.71	2.4~2.4835	PIFA	i-pex(MHF)	48
2	Chain (1)	NA	NA	3.54	2.4~2.4835	PIFA	i-pex(MHF)	138
3	Chain (2)	NA	NA	4.6	2.4~2.4835	PIFA	i-pex(MHF)	145
Radio 2								
5GHz								
Antenna No.	Transmitter Circuit	Brand	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	*Cable Length
1	Chain (0)	NA	NA	5.5	5.15~5.85	PIFA	i-pex(MHF)	42
2	Chain (1)	NA	NA	5.76	5.15~5.85	PIFA	i-pex(MHF)	140
3	Chain (2)	NA	NA	5.91	5.15~5.85	PIFA	i-pex(MHF)	145
Radio 3								
Bluetooth								
Antenna No.	Transmitter Circuit	Brand	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	*Cable Length
1	Chain (0)	NA	NA	2.95	2.4~2.4835	PIFA	i-pex(MHF)	74

Note: For 1TX/2TX configuration mode, max gain was selected for the final test.

5. The EUT incorporates a MIMO function:

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	3TX/2TX/1TX diversity	3RX
802.11g	6 ~ 54Mbps	3TX/2TX/1TX diversity	3RX
802.11n (HT20)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX/2TX diversity	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX/2TX diversity	3RX
	MCS 16~23	3TX	3RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	3TX/2TX/1TX diversity	3RX
802.11n (HT20)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX/2TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX/2TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS 0~8, Nss=1	3TX/2TX/1TX diversity	3RX
	MCS 0~8, Nss=2	3TX/2TX	3RX
	MCS 0~9, Nss=3	/3TX	3RX
802.11ac (VHT40)	MCS 0~9, Nss=1	3TX/2TX/1TX diversity	3RX
	MCS 0~9, Nss=2	3TX/2TX	3RX
	MCS 0~9, Nss=3	/3TX	3RX
802.11ac (VHT80)	MCS 0~9, Nss=1	3TX/2TX/1TX diversity	3RX
	MCS 0~9, Nss=2	3TX/2TX	3RX
	MCS 0~9, Nss=3	3TX	3RX

Note:

1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

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

3.2 Description of Test Modes

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

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	
1	√	√	√	√	3TX Mode
2	√	-	-	√	2TX Mode
3	√	-	-	√	1TX Mode

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 **X-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

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

Radiated Emission Test (Below 1GHz):

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Power Line Conducted Emission Test:

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Antenna Port Conducted Measurement:

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

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

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	21deg. C, 65%RH	120Vac, 60Hz	Weiwei Lo
RE<1G	23deg. C, 69%RH	120Vac, 60Hz	Weiwei Lo
PLC	24deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

If duty cycle of test signal is $\geq 98\%$, duty factor is not required.

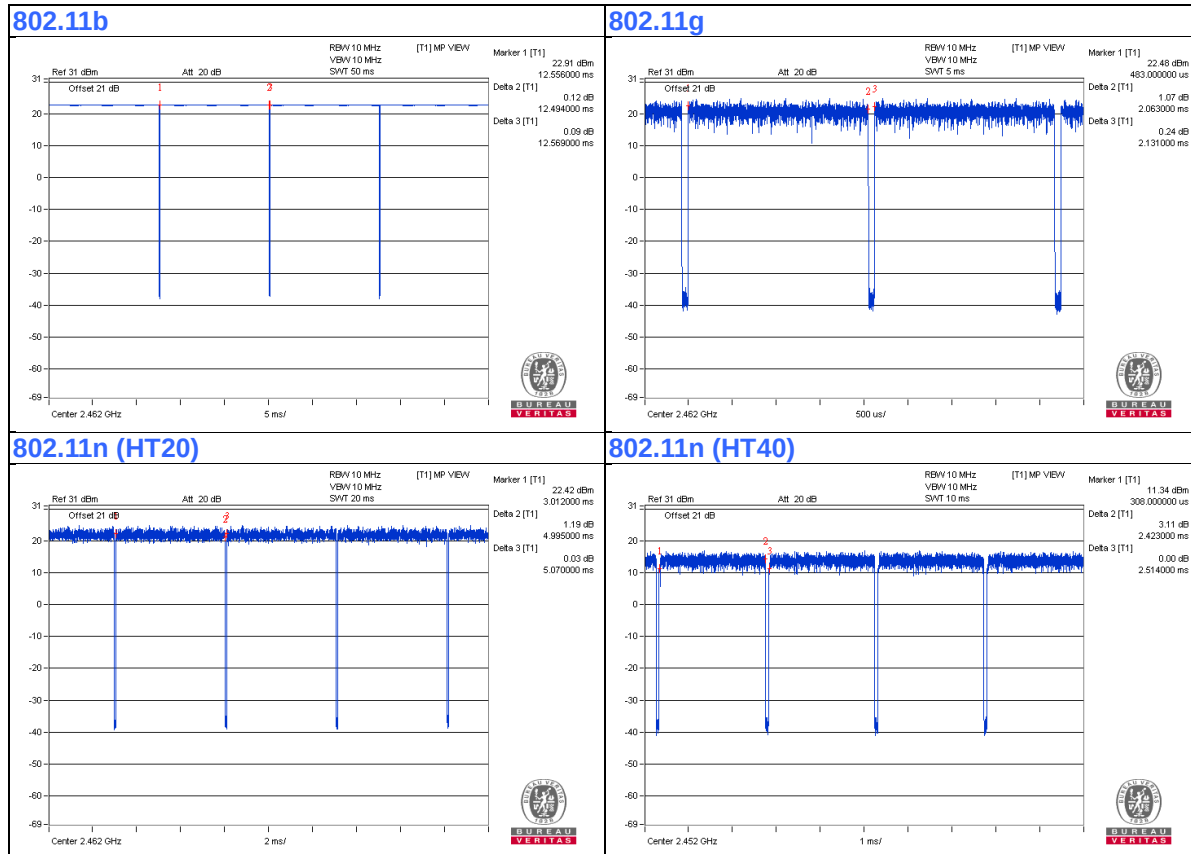
If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11b: Duty cycle = $12.494/12.569 = 0.994$

802.11g: Duty cycle = $2.063/2.131 = 0.968$, Duty factor = $10 * \log(1/0.968) = 0.14$

802.11n (HT20): Duty cycle = $4.995/5.07 = 0.985$

802.11n (HT40): Duty cycle = $2.423/2.514 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$



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.	Laptop	DELL	E6440	F9LYQ32	FCC DoC	Provided by Lab
B.	PoE	Microsemi	PD-9001GR/AC	NA	NA	Supplied by client
C.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

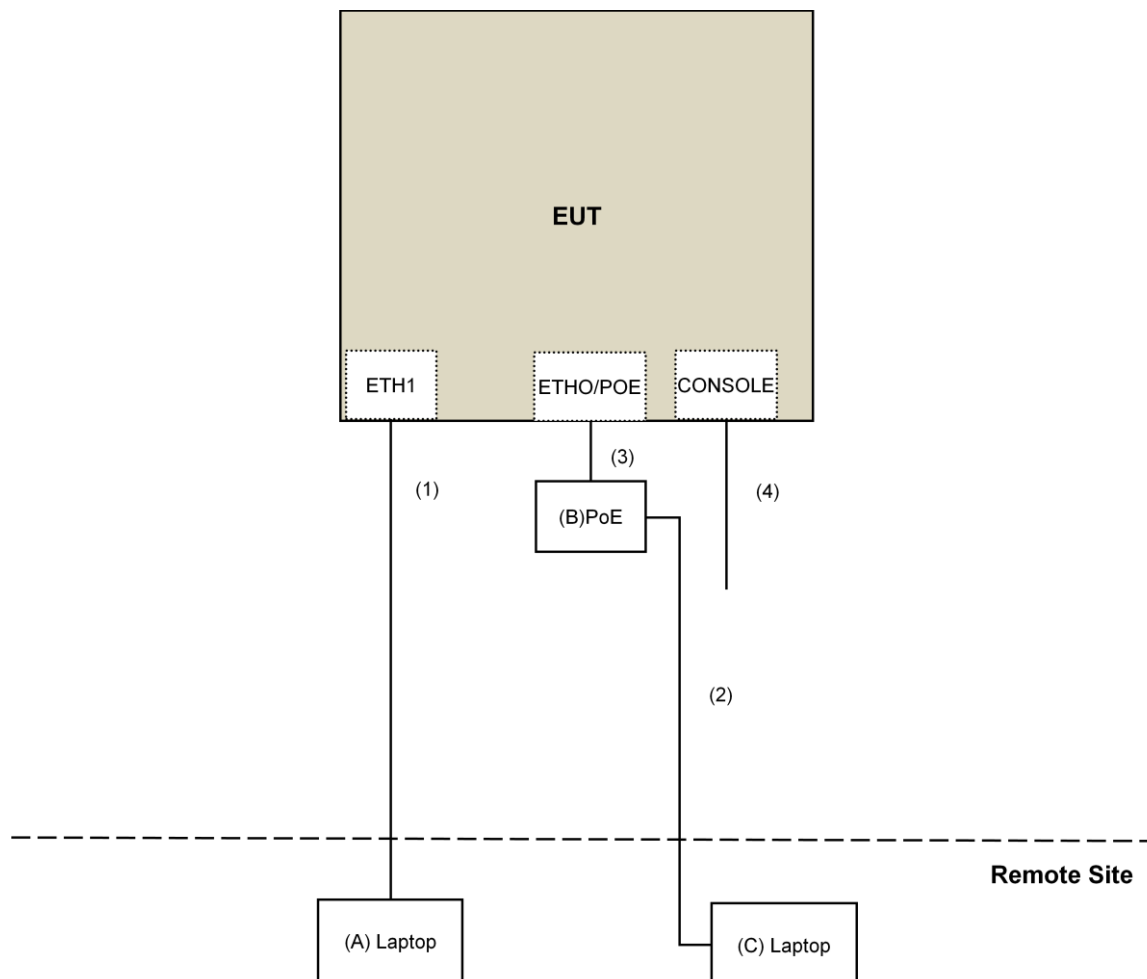
Note:

1. All power cords of the above support units are non-shielded (1.8m).

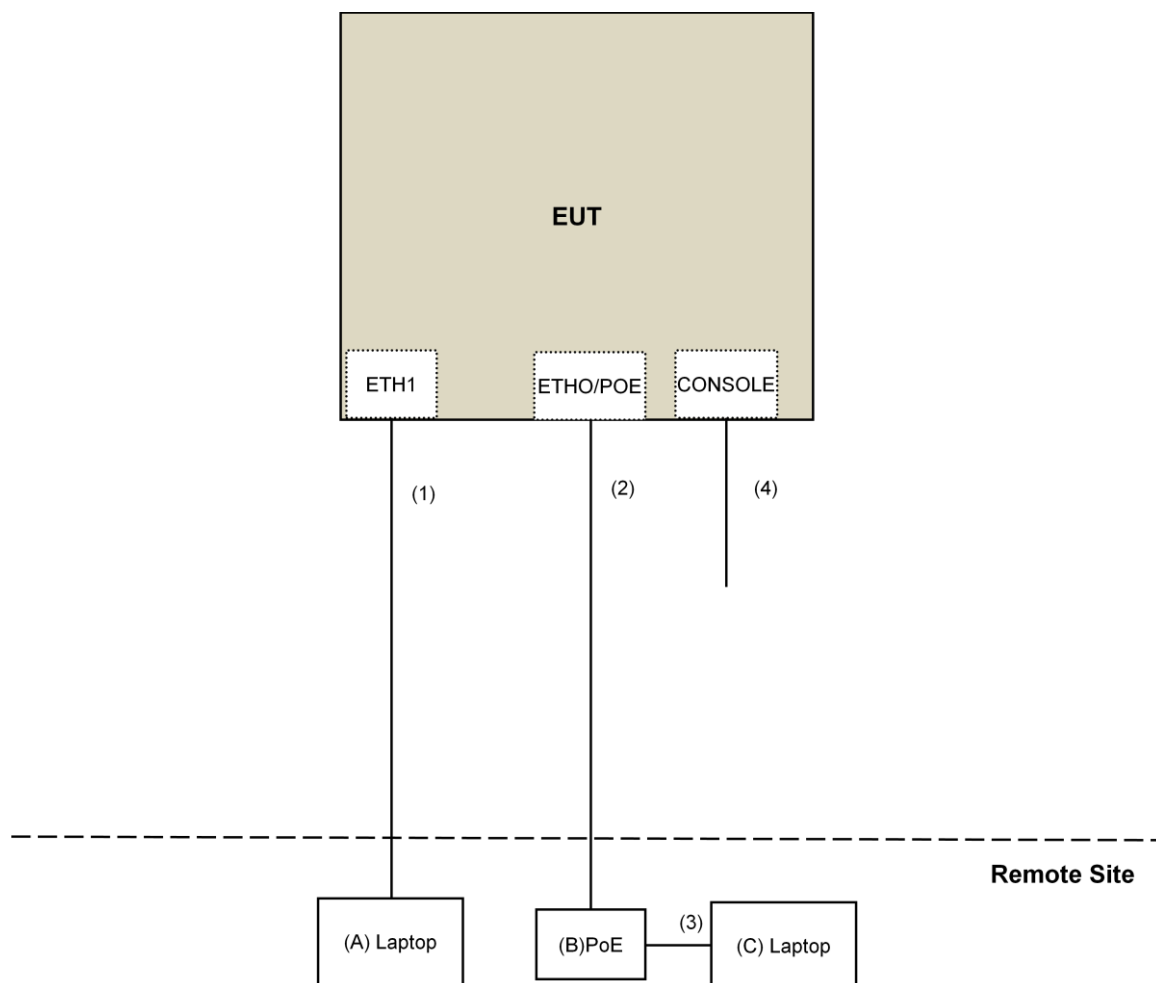
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	1	3	No	0	Provided by Lab
4.	Console Cable	1	3	No	0	Provided by Lab

3.4.1 Configuration of System under Test

For Conducted Emission:



For other 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.

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

4.1.2 Test Instruments

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 18, 2016	Aug. 17, 2017
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-05	May 06, 2017	May 05, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Dec. 29, 2016	Dec. 28, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 05, 2016	Oct. 04, 2017
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 3.
4. The FCC Site Registration No. is 147459
5. The CANADA Site Registration No. is 20331-1
6. Loop antenna was used for all emissions below 30 MHz.
7. Tested Date: June 28, 2017

For other test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 18, 2016	Aug. 17, 2017
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 28, 2016	Dec. 27, 2017
Pre-Amplifier EMCI	EMC12630SE	980384	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160922 150317 150322	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Spectrum Analyzer Keysight	N9030A	MY54490520	July 29, 2016	July 28, 2017
Pre-Amplifier EMCI	EMC184045S E	980386	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 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 966 Chamber No. 3.
3. The FCC Site Registration No. is 147459
4. The CANADA Site Registration No. is 20331-1
5. Tested Date: July 06 to 13, 2017

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

NOTE:

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

For Radiated emission above 30MHz

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

Note:

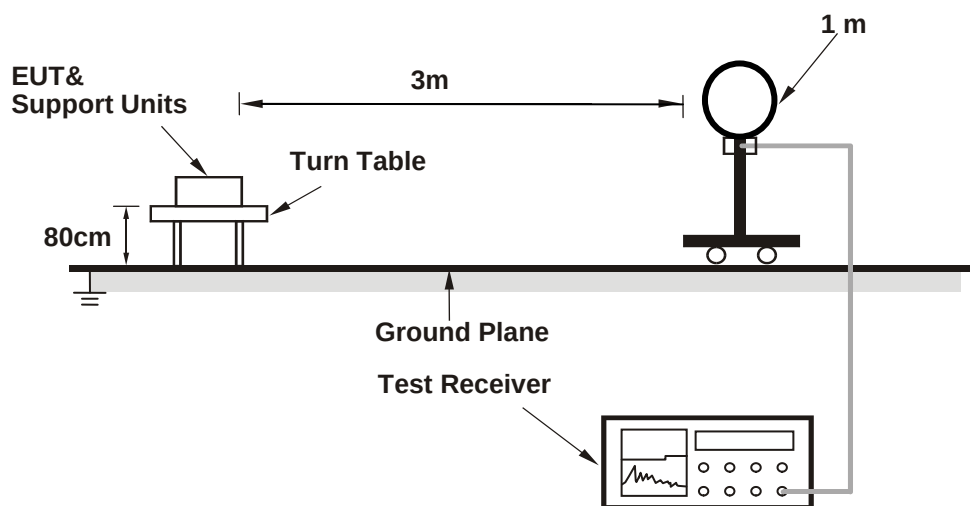
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

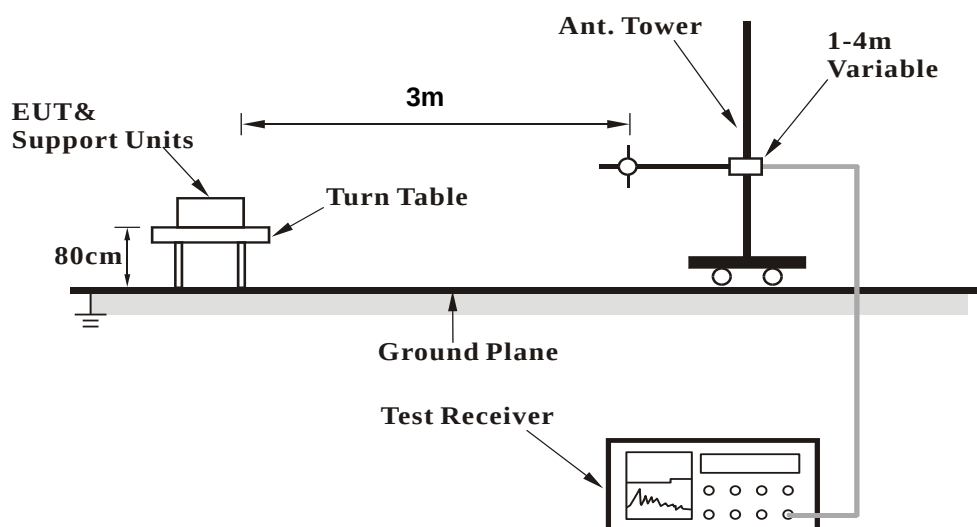
No deviation.

4.1.5 Test Setup

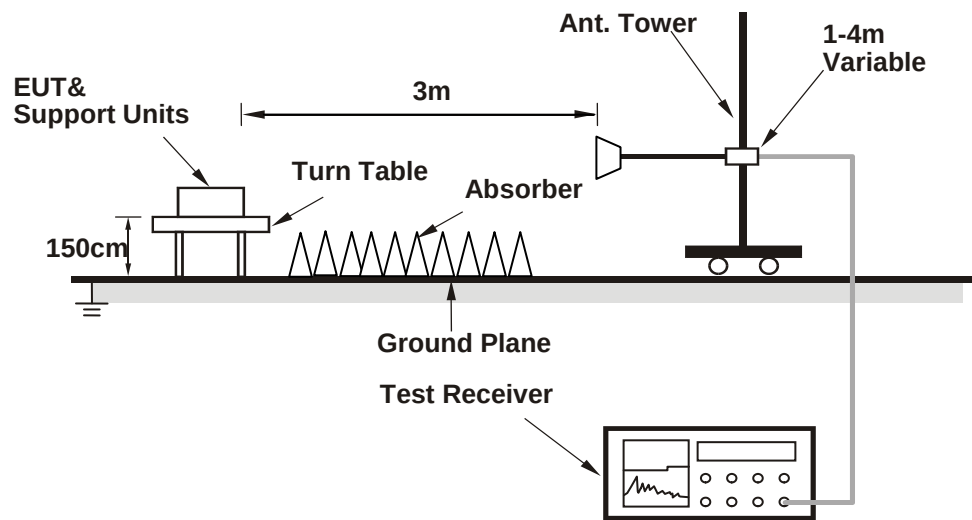
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Connected the EUT with the Laptop which is placed on remote site.
- Controlling software (QDART-Connectivity100039.exe) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

802.11b

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	56.6 PK	74.0	-17.4	1.01 H	207	58.2	-1.6
2	2390.00	48.8 AV	54.0	-5.2	1.01 H	207	50.4	-1.6
3	*2412.00	107.6 PK			1.01 H	207	109.1	-1.5
4	*2412.00	105.3 AV			1.01 H	207	106.8	-1.5
5	3659.00	43.4 PK	74.0	-30.6	1.27 H	302	42.7	0.7
6	3659.00	37.4 AV	54.0	-16.6	1.27 H	302	36.7	0.7
7	4824.00	37.9 PK	74.0	-36.1	2.03 H	193	34.9	3.0
8	4824.00	25.1 AV	54.0	-28.9	2.03 H	193	22.1	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.8 PK	74.0	-15.2	2.34 V	360	60.4	-1.6
2	2390.00	53.6 AV	54.0	-0.4	2.34 V	360	55.2	-1.6
3	*2412.00	115.7 PK			2.34 V	360	117.2	-1.5
4	*2412.00	113.3 AV			2.34 V	360	114.8	-1.5
5	3659.00	45.5 PK	74.0	-28.5	2.77 V	226	44.8	0.7
6	3659.00	42.2 AV	54.0	-11.8	2.77 V	226	41.5	0.7
7	4824.00	37.5 PK	74.0	-36.5	1.63 V	214	34.5	3.0
8	4824.00	25.1 AV	54.0	-28.9	1.63 V	214	22.1	3.0

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	54.1 PK	74.0	-19.9	1.01 H	208	55.7	-1.6
2	2390.00	42.1 AV	54.0	-11.9	1.01 H	208	43.7	-1.6
3	*2437.00	110.9 PK			1.01 H	208	112.4	-1.5
4	*2437.00	108.6 AV			1.01 H	208	110.1	-1.5
5	2483.50	57.1 PK	74.0	-16.9	1.01 H	208	58.5	-1.4
6	2483.50	45.8 AV	54.0	-8.2	1.01 H	208	47.2	-1.4
7	4874.00	38.5 PK	74.0	-35.5	1.92 H	197	35.3	3.2
8	4874.00	25.6 AV	54.0	-28.4	1.92 H	197	22.4	3.2
9	7311.00	43.1 PK	74.0	-30.9	1.95 H	313	34.2	8.9
10	7311.00	30.3 AV	54.0	-23.7	1.95 H	313	21.4	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.3 PK	74.0	-17.7	2.55 V	360	57.9	-1.6
2	2390.00	46.8 AV	54.0	-7.2	2.55 V	360	48.4	-1.6
3	*2437.00	118.9 PK			2.55 V	360	120.4	-1.5
4	*2437.00	116.6 AV			2.55 V	360	118.1	-1.5
5	2483.50	59.0 PK	74.0	-15.0	2.55 V	360	60.4	-1.4
6	2483.50	50.5 AV	54.0	-3.5	2.55 V	360	51.9	-1.4
7	4874.00	38.6 PK	74.0	-35.4	1.62 V	213	35.4	3.2
8	4874.00	25.7 AV	54.0	-28.3	1.62 V	213	22.5	3.2
9	7311.00	43.2 PK	74.0	-30.8	1.68 V	248	34.3	8.9
10	7311.00	30.4 AV	54.0	-23.6	1.68 V	248	21.5	8.9

REMARKS:

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

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	107.5 PK			1.05 H	203	108.9	-1.4
2	*2462.00	105.1 AV			1.05 H	203	106.5	-1.4
3	2483.50	58.2 PK	74.0	-15.8	1.05 H	203	59.6	-1.4
4	2483.50	48.5 AV	54.0	-5.5	1.05 H	203	49.9	-1.4
5	4924.00	37.8 PK	74.0	-36.2	1.97 H	203	34.5	3.3
6	4924.00	24.9 AV	54.0	-29.1	1.97 H	203	21.6	3.3
7	7386.00	42.4 PK	74.0	-31.6	2.01 H	302	33.3	9.1
8	7386.00	29.6 AV	54.0	-24.4	2.01 H	302	20.5	9.1
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	115.5 PK			2.86 V	360	116.9	-1.4
2	*2462.00	113.0 AV			2.86 V	360	114.4	-1.4
3	2483.50	60.5 PK	74.0	-13.5	2.86 V	360	61.9	-1.4
4	2483.50	53.5 AV	54.0	-0.5	2.86 V	360	54.9	-1.4
5	4924.00	37.9 PK	74.0	-36.1	1.64 V	207	34.6	3.3
6	4924.00	25.0 AV	54.0	-29.0	1.64 V	207	21.7	3.3
7	7386.00	42.5 PK	74.0	-31.5	1.67 V	254	33.4	9.1
8	7386.00	29.7 AV	54.0	-24.3	1.67 V	254	20.6	9.1

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	66.0 PK	74.0	-8.0	1.08 H	202	67.6	-1.6
2	2390.00	48.9 AV	54.0	-5.1	1.08 H	202	50.5	-1.6
3	*2412.00	109.8 PK			1.08 H	202	111.3	-1.5
4	*2412.00	100.9 AV			1.08 H	202	102.4	-1.5
5	4824.00	37.5 PK	74.0	-36.5	2.01 H	193	34.5	3.0
6	4824.00	24.6 AV	54.0	-29.4	2.01 H	193	21.6	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.2 PK	74.0	-5.8	2.32 V	183	69.8	-1.6
2	2390.00	53.8 AV	54.0	-0.2	2.32 V	183	55.4	-1.6
3	*2412.00	117.4 PK			2.32 V	183	118.9	-1.5
4	*2412.00	107.4 AV			2.32 V	183	108.9	-1.5
5	4824.00	37.6 PK	74.0	-36.4	1.64 V	215	34.6	3.0
6	4824.00	24.7 AV	54.0	-29.3	1.64 V	215	21.7	3.0

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	65.8 PK	74.0	-8.2	1.04 H	205	67.4	-1.6
2	2390.00	49.1 AV	54.0	-4.9	1.04 H	205	50.7	-1.6
3	*2437.00	115.2 PK			1.04 H	205	116.7	-1.5
4	*2437.00	105.8 AV			1.04 H	205	107.3	-1.5
5	2483.50	66.4 PK	74.0	-7.6	1.04 H	205	67.8	-1.4
6	2483.50	48.6 AV	54.0	-5.4	1.04 H	205	50.0	-1.4
7	4874.00	38.4 PK	74.0	-35.6	1.90 H	196	35.2	3.2
8	4874.00	25.4 AV	54.0	-28.6	1.90 H	196	22.2	3.2
9	7311.00	43.0 PK	74.0	-31.0	1.96 H	307	34.1	8.9
10	7311.00	29.9 AV	54.0	-24.1	1.96 H	307	21.0	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.0 PK	74.0	-6.0	2.65 V	184	69.6	-1.6
2	2390.00	53.9 AV	54.0	-0.1	2.65 V	184	55.5	-1.6
3	*2437.00	122.7 PK			2.65 V	184	124.2	-1.5
4	*2437.00	112.3 AV			2.65 V	184	113.8	-1.5
5	2483.50	68.3 PK	74.0	-5.7	2.65 V	184	69.7	-1.4
6	2483.50	53.3 AV	54.0	-0.7	2.65 V	184	54.7	-1.4
7	4874.00	38.9 PK	74.0	-35.1	1.65 V	228	35.7	3.2
8	4874.00	25.8 AV	54.0	-28.2	1.65 V	228	22.6	3.2
9	7311.00	42.7 PK	74.0	-31.3	1.70 V	255	33.8	8.9
10	7311.00	30.0 AV	54.0	-24.0	1.70 V	255	21.1	8.9

REMARKS:

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

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	109.4 PK			1.08 H	190	110.8	-1.4
2	*2462.00	99.7 AV			1.08 H	190	101.1	-1.4
3	2483.50	66.1 PK	74.0	-7.9	1.08 H	190	67.5	-1.4
4	2483.50	48.8 AV	54.0	-5.2	1.08 H	190	50.2	-1.4
5	4924.00	38.1 PK	74.0	-35.9	1.94 H	218	34.8	3.3
6	4924.00	25.1 AV	54.0	-28.9	1.94 H	218	21.8	3.3
7	7386.00	42.1 PK	74.0	-31.9	1.95 H	293	33.0	9.1
8	7386.00	29.4 AV	54.0	-24.6	1.95 H	293	20.3	9.1
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	116.9 PK			2.90 V	186	118.3	-1.4
2	*2462.00	106.1 AV			2.90 V	186	107.5	-1.4
3	2483.50	68.3 PK	74.0	-5.7	2.90 V	186	69.7	-1.4
4	2483.50	53.8 AV	54.0	-0.2	2.90 V	186	55.2	-1.4
5	4924.00	37.3 PK	74.0	-36.7	1.66 V	218	34.0	3.3
6	4924.00	24.7 AV	54.0	-29.3	1.66 V	218	21.4	3.3
7	7386.00	42.2 PK	74.0	-31.8	1.65 V	253	33.1	9.1
8	7386.00	29.2 AV	54.0	-24.8	1.65 V	253	20.1	9.1

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	63.4 PK	74.0	-10.6	1.04 H	190	65.0	-1.6
2	2390.00	48.2 AV	54.0	-5.8	1.04 H	190	49.8	-1.6
3	*2412.00	109.5 PK			1.04 H	190	111.0	-1.5
4	*2412.00	98.8 AV			1.04 H	190	100.3	-1.5
5	4824.00	37.7 PK	74.0	-36.3	2.03 H	209	34.7	3.0
6	4824.00	24.6 AV	54.0	-29.4	2.03 H	209	21.6	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	2.37 V	183	67.2	-1.6
2	2390.00	53.1 AV	54.0	-0.9	2.37 V	183	54.7	-1.6
3	*2412.00	117.1 PK			2.37 V	183	118.6	-1.5
4	*2412.00	105.4 AV			2.37 V	183	106.9	-1.5
5	4824.00	38.2 PK	74.0	-35.8	1.64 V	214	35.2	3.0
6	4824.00	25.2 AV	54.0	-28.8	1.64 V	214	22.2	3.0

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	62.6 PK	74.0	-11.4	1.10 H	194	64.2	-1.6
2	2390.00	44.9 AV	54.0	-9.1	1.10 H	194	46.5	-1.6
3	*2437.00	114.0 PK			1.10 H	194	115.5	-1.5
4	*2437.00	103.9 AV			1.10 H	194	105.4	-1.5
5	2483.50	67.2 PK	74.0	-6.8	1.10 H	194	68.6	-1.4
6	2483.50	48.9 AV	54.0	-5.1	1.10 H	194	50.3	-1.4
7	4874.00	37.9 PK	74.0	-36.1	1.87 H	212	34.7	3.2
8	4874.00	25.1 AV	54.0	-28.9	1.87 H	212	21.9	3.2
9	7311.00	42.9 PK	74.0	-31.1	1.97 H	308	34.0	8.9
10	7311.00	29.9 AV	54.0	-24.1	1.97 H	308	21.0	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.6 PK	74.0	-9.4	2.64 V	177	66.2	-1.6
2	2390.00	49.6 AV	54.0	-4.4	2.64 V	177	51.2	-1.6
3	*2437.00	121.6 PK			2.64 V	177	123.1	-1.5
4	*2437.00	110.5 AV			2.64 V	177	112.0	-1.5
5	2483.50	69.5 PK	74.0	-4.5	2.64 V	177	70.9	-1.4
6	2483.50	53.9 AV	54.0	-0.1	2.64 V	177	55.3	-1.4
7	4874.00	38.1 PK	74.0	-35.9	1.66 V	226	34.9	3.2
8	4874.00	25.5 AV	54.0	-28.5	1.66 V	226	22.3	3.2
9	7311.00	42.7 PK	74.0	-31.3	1.64 V	263	33.8	8.9
10	7311.00	30.1 AV	54.0	-23.9	1.64 V	263	21.2	8.9

REMARKS:

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

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	109.6 PK			1.00 H	214	111.0	-1.4
2	*2462.00	99.2 AV			1.00 H	214	100.6	-1.4
3	2483.50	65.6 PK	74.0	-8.4	1.00 H	214	67.0	-1.4
4	2483.50	48.7 AV	54.0	-5.3	1.00 H	214	50.1	-1.4
5	4924.00	37.7 PK	74.0	-36.3	1.93 H	217	34.4	3.3
6	4924.00	24.7 AV	54.0	-29.3	1.93 H	217	21.4	3.3
7	7386.00	42.4 PK	74.0	-31.6	2.01 H	314	33.3	9.1
8	7386.00	29.6 AV	54.0	-24.4	2.01 H	314	20.5	9.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.1 PK			2.86 V	175	118.5	-1.4
2	*2462.00	105.7 AV			2.86 V	175	107.1	-1.4
3	2483.50	67.9 PK	74.0	-6.1	2.86 V	175	69.3	-1.4
4	2483.50	53.7 AV	54.0	-0.3	2.86 V	175	55.1	-1.4
5	4924.00	38.4 PK	74.0	-35.6	1.64 V	217	35.1	3.3
6	4924.00	25.6 AV	54.0	-28.4	1.64 V	217	22.3	3.3
7	7386.00	42.4 PK	74.0	-31.6	1.70 V	253	33.3	9.1
8	7386.00	29.7 AV	54.0	-24.3	1.70 V	253	20.6	9.1

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	69.4 PK	74.0	-4.6	1.10 H	213	71.0	-1.6
2	2390.00	48.8 AV	54.0	-5.2	1.10 H	213	50.4	-1.6
3	*2422.00	105.2 PK			1.10 H	213	106.8	-1.6
4	*2422.00	96.2 AV			1.10 H	213	97.8	-1.6
5	4844.00	38.5 PK	74.0	-35.5	1.85 H	220	35.4	3.1
6	4844.00	25.3 AV	54.0	-28.7	1.85 H	220	22.2	3.1
7	7266.00	41.9 PK	74.0	-32.1	1.85 H	319	33.0	8.9
8	7266.00	29.1 AV	54.0	-24.9	1.85 H	319	20.2	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.6 PK	74.0	-2.4	2.62 V	184	73.2	-1.6
2	2390.00	53.8 AV	54.0	-0.2	2.62 V	184	55.4	-1.6
3	*2422.00	112.6 PK			2.62 V	184	114.2	-1.6
4	*2422.00	102.8 AV			2.62 V	184	104.4	-1.6
5	4844.00	36.8 PK	74.0	-37.2	1.76 V	205	33.7	3.1
6	4844.00	24.4 AV	54.0	-29.6	1.76 V	205	21.3	3.1
7	7266.00	42.4 PK	74.0	-31.6	1.67 V	246	33.5	8.9
8	7266.00	29.5 AV	54.0	-24.5	1.67 V	246	20.6	8.9

REMARKS:

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

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	62.8 PK	74.0	-11.2	1.02 H	213	64.4	-1.6
2	2390.00	42.4 AV	54.0	-11.6	1.02 H	213	44.0	-1.6
3	*2437.00	107.1 PK			1.02 H	213	108.6	-1.5
4	*2437.00	97.7 AV			1.02 H	213	99.2	-1.5
5	2483.50	66.2 PK	74.0	-7.8	1.02 H	213	67.6	-1.4
6	2483.50	48.9 AV	54.0	-5.1	1.02 H	213	50.3	-1.4
7	4874.00	38.6 PK	74.0	-35.4	1.88 H	222	35.4	3.2
8	4874.00	25.4 AV	54.0	-28.6	1.88 H	222	22.2	3.2
9	7311.00	42.0 PK	74.0	-32.0	1.89 H	309	33.1	8.9
10	7311.00	29.3 AV	54.0	-24.7	1.89 H	309	20.4	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.9 PK	74.0	-9.1	2.62 V	13	66.5	-1.6
2	2390.00	47.1 AV	54.0	-6.9	2.62 V	13	48.7	-1.6
3	*2437.00	114.6 PK			2.62 V	13	116.1	-1.5
4	*2437.00	104.2 AV			2.62 V	13	105.7	-1.5
5	2483.50	68.5 PK	74.0	-5.5	2.62 V	13	69.9	-1.4
6	2483.50	53.9 AV	54.0	-0.1	2.62 V	13	55.3	-1.4
7	4874.00	36.9 PK	74.0	-37.1	1.70 V	215	33.7	3.2
8	4874.00	24.5 AV	54.0	-29.5	1.70 V	215	21.3	3.2
9	7311.00	42.6 PK	74.0	-31.4	1.68 V	258	33.7	8.9
10	7311.00	29.7 AV	54.0	-24.3	1.68 V	258	20.8	8.9

REMARKS:

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

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	103.0 PK			1.07 H	217	104.5	-1.5
2	*2452.00	93.4 AV			1.07 H	217	94.9	-1.5
3	2483.50	70.1 PK	74.0	-3.9	1.07 H	217	71.5	-1.4
4	2483.50	48.8 AV	54.0	-5.2	1.07 H	217	50.2	-1.4
5	4904.00	38.4 PK	74.0	-35.6	1.86 H	207	35.2	3.2
6	4904.00	25.2 AV	54.0	-28.8	1.86 H	207	22.0	3.2
7	7356.00	41.8 PK	74.0	-32.2	1.85 H	307	32.7	9.1
8	7356.00	29.1 AV	54.0	-24.9	1.85 H	307	20.0	9.1
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	110.6 PK			2.62 V	188	112.1	-1.5
2	*2452.00	99.9 AV			2.62 V	188	101.4	-1.5
3	2483.50	72.6 PK	74.0	-1.4	2.62 V	188	74.0	-1.4
4	2483.50	53.8 AV	54.0	-0.2	2.62 V	188	55.2	-1.4
5	4904.00	36.7 PK	74.0	-37.3	1.70 V	219	33.5	3.2
6	4904.00	24.3 AV	54.0	-29.7	1.70 V	219	21.1	3.2
7	7356.00	42.3 PK	74.0	-31.7	1.68 V	263	33.2	9.1
8	7356.00	29.3 AV	54.0	-24.7	1.68 V	263	20.2	9.1

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:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	60.39	34.1 QP	40.0	-5.9	3.00 H	81	42.9	-8.8
2	92.18	40.4 QP	43.5	-3.1	2.00 H	105	54.2	-13.8
3	100.25	39.7 QP	43.5	-3.8	3.00 H	269	52.2	-12.5
4	164.18	28.7 QP	43.5	-14.8	2.00 H	290	37.1	-8.4
5	204.02	31.1 QP	43.5	-12.4	1.00 H	66	42.6	-11.5
6	255.23	32.3 QP	46.0	-13.7	1.00 H	265	41.7	-9.4
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	92.73	37.0 QP	43.5	-6.5	3.00 V	346	50.7	-13.7
2	136.80	27.4 QP	43.5	-16.1	1.00 V	82	36.2	-8.8
3	167.74	26.8 QP	43.5	-16.7	1.00 V	112	35.5	-8.7
4	205.13	26.0 QP	43.5	-17.5	1.00 V	199	37.5	-11.5
5	250.00	28.7 QP	46.0	-17.3	1.00 V	352	38.3	-9.6
6	284.16	26.6 QP	46.0	-19.4	1.00 V	0	34.6	-8.0

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

4.1.8 Test Results (Mode 2)

Above 1GHz Data:

802.11b

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	60.0 PK	74.0	-14.0	1.95 H	44	61.6	-1.6
2	2390.00	48.9 AV	54.0	-5.1	1.95 H	44	50.5	-1.6
3	*2412.00	106.2 PK			1.95 H	44	107.7	-1.5
4	*2412.00	104.5 AV			1.95 H	44	106.0	-1.5
5	4824.00	37.5 PK	74.0	-36.5	1.86 H	227	34.5	3.0
6	4824.00	24.6 AV	54.0	-29.4	1.86 H	227	21.6	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.2 PK	74.0	-11.8	3.19 V	360	63.8	-1.6
2	2390.00	53.8 AV	54.0	-0.2	3.19 V	360	55.4	-1.6
3	*2412.00	114.6 PK			3.19 V	360	116.1	-1.5
4	*2412.00	112.0 AV			3.19 V	360	113.5	-1.5
5	4824.00	37.2 PK	74.0	-36.8	1.68 V	317	34.2	3.0
6	4824.00	26.4 AV	54.0	-27.6	1.68 V	317	23.4	3.0

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	53.0 PK	74.0	-21.0	1.99 H	50	54.6	-1.6
2	2390.00	39.2 AV	54.0	-14.8	1.99 H	50	40.8	-1.6
3	*2437.00	108.6 PK			1.99 H	50	110.1	-1.5
4	*2437.00	106.9 AV			1.99 H	50	108.4	-1.5
5	2483.50	55.6 PK	74.0	-18.4	1.99 H	50	57.0	-1.4
6	2483.50	44.7 AV	54.0	-9.3	1.99 H	50	46.1	-1.4
7	4874.00	37.4 PK	74.0	-36.6	1.96 H	185	34.2	3.2
8	4874.00	24.8 AV	54.0	-29.2	1.96 H	185	21.6	3.2
9	7311.00	42.9 PK	74.0	-31.1	2.01 H	290	34.0	8.9
10	7311.00	30.1 AV	54.0	-23.9	2.01 H	290	21.2	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.9 PK	74.0	-19.1	3.15 V	360	56.5	-1.6
2	2390.00	43.9 AV	54.0	-10.1	3.15 V	360	45.5	-1.6
3	*2437.00	117.1 PK			3.15 V	360	118.6	-1.5
4	*2437.00	114.6 AV			3.15 V	360	116.1	-1.5
5	2483.50	57.9 PK	74.0	-16.1	3.15 V	360	59.3	-1.4
6	2483.50	49.7 AV	54.0	-4.3	3.15 V	360	51.1	-1.4
7	4874.00	37.8 PK	74.0	-36.2	1.56 V	167	34.6	3.2
8	4874.00	24.7 AV	54.0	-29.3	1.56 V	167	21.5	3.2
9	7311.00	43.0 PK	74.0	-31.0	1.77 V	236	34.1	8.9
10	7311.00	29.8 AV	54.0	-24.2	1.77 V	236	20.9	8.9

REMARKS:

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

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	104.4 PK			1.92 H	47	105.8	-1.4
2	*2462.00	103.0 AV			1.92 H	47	104.4	-1.4
3	2483.50	59.9 PK	74.0	-14.1	1.92 H	47	61.3	-1.4
4	2483.50	48.8 AV	54.0	-5.2	1.92 H	47	50.2	-1.4
5	4924.00	37.6 PK	74.0	-36.4	1.91 H	188	34.3	3.3
6	4924.00	25.1 AV	54.0	-28.9	1.91 H	188	21.8	3.3
7	7386.00	42.7 PK	74.0	-31.3	2.07 H	315	33.6	9.1
8	7386.00	30.0 AV	54.0	-24.0	2.07 H	315	20.9	9.1
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	113.1 PK			2.46 V	352	114.5	-1.4
2	*2462.00	110.7 AV			2.46 V	352	112.1	-1.4
3	2483.50	59.2 PK	74.0	-14.8	2.46 V	352	60.6	-1.4
4	2483.50	53.8 AV	54.0	-0.2	2.46 V	352	55.2	-1.4
5	4924.00	37.3 PK	74.0	-36.7	1.64 V	206	34.0	3.3
6	4924.00	24.5 AV	54.0	-29.5	1.64 V	206	21.2	3.3
7	7386.00	42.9 PK	74.0	-31.1	1.72 V	248	33.8	9.1
8	7386.00	30.1 AV	54.0	-23.9	1.72 V	248	21.0	9.1

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	65.6 PK	74.0	-8.4	1.95 H	44	67.2	-1.6
2	2390.00	50.1 AV	54.0	-3.9	1.95 H	44	51.7	-1.6
3	*2412.00	105.6 PK			1.95 H	44	107.1	-1.5
4	*2412.00	95.9 AV			1.95 H	44	97.4	-1.5
5	4824.00	36.6 PK	74.0	-37.4	1.83 H	216	33.6	3.0
6	4824.00	24.3 AV	54.0	-29.7	1.83 H	216	21.3	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	3.62 V	360	70.2	-1.6
2	2390.00	53.9 AV	54.0	-0.1	3.62 V	360	55.5	-1.6
3	*2412.00	113.1 PK			3.62 V	360	114.6	-1.5
4	*2412.00	102.5 AV			3.62 V	360	104.0	-1.5
5	4824.00	37.2 PK	74.0	-36.8	1.62 V	322	34.2	3.0
6	4824.00	26.1 AV	54.0	-27.9	1.62 V	322	23.1	3.0

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	56.0 PK	74.0	-18.0	1.87 H	50	57.6	-1.6
2	2390.00	39.1 AV	54.0	-14.9	1.87 H	50	40.7	-1.6
3	*2437.00	113.2 PK			1.87 H	50	114.7	-1.5
4	*2437.00	102.7 AV			1.87 H	50	104.2	-1.5
5	2483.50	63.5 PK	74.0	-10.5	1.87 H	50	64.9	-1.4
6	2483.50	47.1 AV	54.0	-6.9	1.87 H	50	48.5	-1.4
7	4874.00	37.3 PK	74.0	-36.7	1.92 H	192	34.1	3.2
8	4874.00	24.3 AV	54.0	-29.7	1.92 H	192	21.1	3.2
9	7311.00	42.8 PK	74.0	-31.2	2.03 H	306	33.9	8.9
10	7311.00	29.8 AV	54.0	-24.2	2.03 H	306	20.9	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.6 PK	74.0	-15.4	3.50 V	360	60.2	-1.6
2	2390.00	45.1 AV	54.0	-8.9	3.50 V	360	46.7	-1.6
3	*2437.00	120.8 PK			3.50 V	360	122.3	-1.5
4	*2437.00	109.3 AV			3.50 V	360	110.8	-1.5
5	2483.50	66.7 PK	74.0	-7.3	3.50 V	360	68.1	-1.4
6	2483.50	50.8 AV	54.0	-3.2	3.50 V	360	52.2	-1.4
7	4874.00	38.8 PK	74.0	-35.2	1.64 V	175	35.6	3.2
8	4874.00	25.5 AV	54.0	-28.5	1.64 V	175	22.3	3.2
9	7311.00	42.6 PK	74.0	-31.4	1.68 V	258	33.7	8.9
10	7311.00	29.8 AV	54.0	-24.2	1.68 V	258	20.9	8.9

REMARKS:

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

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	104.8 PK			1.87 H	56	106.2	-1.4
2	*2462.00	94.2 AV			1.87 H	56	95.6	-1.4
3	2483.50	66.5 PK	74.0	-7.5	1.87 H	56	67.9	-1.4
4	2483.50	50.4 AV	54.0	-3.6	1.87 H	56	51.8	-1.4
5	4924.00	37.9 PK	74.0	-36.1	1.94 H	173	34.6	3.3
6	4924.00	24.8 AV	54.0	-29.2	1.94 H	173	21.5	3.3
7	7386.00	42.8 PK	74.0	-31.2	1.95 H	284	33.7	9.1
8	7386.00	30.0 AV	54.0	-24.0	1.95 H	284	20.9	9.1
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	112.4 PK			3.72 V	360	113.8	-1.4
2	*2462.00	100.9 AV			3.72 V	360	102.3	-1.4
3	2483.50	69.6 PK	74.0	-4.4	3.72 V	360	71.0	-1.4
4	2483.50	53.9 AV	54.0	-0.1	3.72 V	360	55.3	-1.4
5	4924.00	37.6 PK	74.0	-36.4	1.77 V	166	34.3	3.3
6	4924.00	24.6 AV	54.0	-29.4	1.77 V	166	21.3	3.3
7	7386.00	43.5 PK	74.0	-30.5	1.68 V	268	34.4	9.1
8	7386.00	30.5 AV	54.0	-23.5	1.68 V	268	21.4	9.1

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	64.4 PK	74.0	-9.6	1.92 H	61	66.0	-1.6
2	2390.00	50.0 AV	54.0	-4.0	1.92 H	61	51.6	-1.6
3	*2412.00	104.4 PK			1.92 H	61	105.9	-1.5
4	*2412.00	94.4 AV			1.92 H	61	95.9	-1.5
5	4824.00	37.8 PK	74.0	-36.2	1.89 H	199	34.8	3.0
6	4824.00	25.1 AV	54.0	-28.9	1.89 H	199	22.1	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.5 PK	74.0	-6.5	3.60 V	344	69.1	-1.6
2	2390.00	53.8 AV	54.0	-0.2	3.60 V	344	55.4	-1.6
3	*2412.00	111.8 PK			3.60 V	344	113.3	-1.5
4	*2412.00	100.9 AV			3.60 V	344	102.4	-1.5
5	4824.00	36.6 PK	74.0	-37.4	1.76 V	294	33.6	3.0
6	4824.00	25.7 AV	54.0	-28.3	1.76 V	294	22.7	3.0

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	55.0 PK	74.0	-19.0	1.85 H	66	56.6	-1.6
2	2390.00	41.3 AV	54.0	-12.7	1.85 H	66	42.9	-1.6
3	*2437.00	112.8 PK			1.85 H	66	114.3	-1.5
4	*2437.00	102.1 AV			1.85 H	66	103.6	-1.5
5	2483.50	61.6 PK	74.0	-12.4	1.85 H	66	63.0	-1.4
6	2483.50	43.8 AV	54.0	-10.2	1.85 H	66	45.2	-1.4
7	4874.00	36.7 PK	74.0	-37.3	1.92 H	203	33.5	3.2
8	4874.00	24.1 AV	54.0	-29.9	1.92 H	203	20.9	3.2
9	7311.00	41.7 PK	74.0	-32.3	2.03 H	288	32.8	8.9
10	7311.00	28.6 AV	54.0	-25.4	2.03 H	288	19.7	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.8 PK	74.0	-16.2	3.51 V	346	59.4	-1.6
2	2390.00	44.8 AV	54.0	-9.2	3.51 V	346	46.4	-1.6
3	*2437.00	119.5 PK			3.51 V	346	121.0	-1.5
4	*2437.00	108.2 AV			3.51 V	346	109.7	-1.5
5	2483.50	64.2 PK	74.0	-9.8	3.51 V	346	65.6	-1.4
6	2483.50	47.2 AV	54.0	-6.8	3.51 V	346	48.6	-1.4
7	4874.00	37.9 PK	74.0	-36.1	1.67 V	174	34.7	3.2
8	4874.00	24.7 AV	54.0	-29.3	1.67 V	174	21.5	3.2
9	7311.00	43.2 PK	74.0	-30.8	1.67 V	246	34.3	8.9
10	7311.00	30.7 AV	54.0	-23.3	1.67 V	246	21.8	8.9

REMARKS:

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

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	105.6 PK			1.86 H	58	107.0	-1.4
2	*2462.00	95.3 AV			1.86 H	58	96.7	-1.4
3	2483.50	64.1 PK	74.0	-9.9	1.86 H	58	65.5	-1.4
4	2483.50	50.2 AV	54.0	-3.8	1.86 H	58	51.6	-1.4
5	4924.00	37.4 PK	74.0	-36.6	1.95 H	197	34.1	3.3
6	4924.00	24.3 AV	54.0	-29.7	1.95 H	197	21.0	3.3
7	7386.00	43.1 PK	74.0	-30.9	2.08 H	271	34.0	9.1
8	7386.00	30.5 AV	54.0	-23.5	2.08 H	271	21.4	9.1
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	112.8 PK			3.52 V	360	114.2	-1.4
2	*2462.00	101.9 AV			3.52 V	360	103.3	-1.4
3	2483.50	67.2 PK	74.0	-6.8	3.52 V	360	68.6	-1.4
4	2483.50	53.8 AV	54.0	-0.2	3.52 V	360	55.2	-1.4
5	4924.00	38.6 PK	74.0	-35.4	1.70 V	174	35.3	3.3
6	4924.00	25.4 AV	54.0	-28.6	1.70 V	174	22.1	3.3
7	7386.00	42.9 PK	74.0	-31.1	1.76 V	241	33.8	9.1
8	7386.00	29.7 AV	54.0	-24.3	1.76 V	241	20.6	9.1

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	65.3 PK	74.0	-8.7	1.81 H	58	66.9	-1.6
2	2390.00	51.4 AV	54.0	-2.6	1.81 H	58	53.0	-1.6
3	*2422.00	101.1 PK			1.81 H	58	102.7	-1.6
4	*2422.00	90.9 AV			1.81 H	58	92.5	-1.6
5	4844.00	37.5 PK	74.0	-36.5	1.92 H	222	34.4	3.1
6	4844.00	24.9 AV	54.0	-29.1	1.92 H	222	21.8	3.1
7	7266.00	42.3 PK	74.0	-31.7	1.95 H	289	33.4	8.9
8	7266.00	29.2 AV	54.0	-24.8	1.95 H	289	20.3	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.9 PK	74.0	-6.1	3.08 V	360	69.5	-1.6
2	2390.00	53.9 AV	54.0	-0.1	3.08 V	360	55.5	-1.6
3	*2422.00	107.6 PK			3.08 V	360	109.2	-1.6
4	*2422.00	96.8 AV			3.08 V	360	98.4	-1.6
5	4844.00	39.2 PK	74.0	-34.8	1.68 V	184	36.1	3.1
6	4844.00	25.8 AV	54.0	-28.2	1.68 V	184	22.7	3.1
7	7266.00	43.0 PK	74.0	-31.0	1.74 V	253	34.1	8.9
8	7266.00	30.2 AV	54.0	-23.8	1.74 V	253	21.3	8.9

REMARKS:

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

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	62.6 PK	74.0	-11.4	1.90 H	62	64.2	-1.6
2	2390.00	48.1 AV	54.0	-5.9	1.90 H	62	49.7	-1.6
3	*2437.00	105.0 PK			1.90 H	62	106.5	-1.5
4	*2437.00	94.4 AV			1.90 H	62	95.9	-1.5
5	2483.50	67.2 PK	74.0	-6.8	1.90 H	62	68.6	-1.4
6	2483.50	51.3 AV	54.0	-2.7	1.90 H	62	52.7	-1.4
7	4874.00	37.6 PK	74.0	-36.4	1.88 H	211	34.4	3.2
8	4874.00	24.4 AV	54.0	-29.6	1.88 H	211	21.2	3.2
9	7311.00	42.5 PK	74.0	-31.5	1.98 H	289	33.6	8.9
10	7311.00	29.8 AV	54.0	-24.2	1.98 H	289	20.9	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	3.11 V	360	67.5	-1.6
2	2390.00	51.3 AV	54.0	-2.7	3.11 V	360	52.9	-1.6
3	*2437.00	111.2 PK			3.11 V	360	112.7	-1.5
4	*2437.00	99.9 AV			3.11 V	360	101.4	-1.5
5	2483.50	70.3 PK	74.0	-3.7	3.11 V	360	71.7	-1.4
6	2483.50	53.9 AV	54.0	-0.1	3.11 V	360	55.3	-1.4
7	4874.00	37.5 PK	74.0	-36.5	1.75 V	191	34.3	3.2
8	4874.00	24.5 AV	54.0	-29.5	1.75 V	191	21.3	3.2
9	7311.00	43.0 PK	74.0	-31.0	1.73 V	255	34.1	8.9
10	7311.00	30.0 AV	54.0	-24.0	1.73 V	255	21.1	8.9

REMARKS:

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

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	99.7 PK			1.86 H	58	101.2	-1.5
2	*2452.00	90.5 AV			1.86 H	58	92.0	-1.5
3	2483.50	64.7 PK	74.0	-9.3	1.86 H	58	66.1	-1.4
4	2483.50	50.6 AV	54.0	-3.4	1.86 H	58	52.0	-1.4
5	4904.00	37.8 PK	74.0	-36.2	1.87 H	183	34.6	3.2
6	4904.00	24.8 AV	54.0	-29.2	1.87 H	183	21.6	3.2
7	7356.00	42.4 PK	74.0	-31.6	2.07 H	267	33.3	9.1
8	7356.00	29.4 AV	54.0	-24.6	2.07 H	267	20.3	9.1
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	106.4 PK			3.13 V	360	107.9	-1.5
2	*2452.00	96.2 AV			3.13 V	360	97.7	-1.5
3	2483.50	68.5 PK	74.0	-5.5	3.13 V	360	69.9	-1.4
4	2483.50	53.9 AV	54.0	-0.1	3.13 V	360	55.3	-1.4
5	4904.00	37.9 PK	74.0	-36.1	1.68 V	152	34.7	3.2
6	4904.00	24.4 AV	54.0	-29.6	1.68 V	152	21.2	3.2
7	7356.00	43.2 PK	74.0	-30.8	1.76 V	226	34.1	9.1
8	7356.00	30.3 AV	54.0	-23.7	1.76 V	226	21.2	9.1

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.

4.1.9 Test Results (Mode 3)

Above 1GHz Data:

802.11b

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	55.3 PK	74.0	-18.7	1.56 H	207	56.9	-1.6
2	2390.00	42.9 AV	54.0	-11.1	1.56 H	207	44.5	-1.6
3	*2412.00	103.9 PK			1.56 H	207	105.4	-1.5
4	*2412.00	101.3 AV			1.56 H	207	102.8	-1.5
5	4824.00	37.6 PK	74.0	-36.4	1.91 H	215	34.6	3.0
6	4824.00	24.7 AV	54.0	-29.3	1.91 H	215	21.7	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.9 PK	74.0	-17.1	1.97 V	355	58.5	-1.6
2	2390.00	53.6 AV	54.0	-0.4	1.97 V	355	55.2	-1.6
3	*2412.00	109.5 PK			1.97 V	355	111.0	-1.5
4	*2412.00	107.2 AV			1.97 V	355	108.7	-1.5
5	4824.00	36.7 PK	74.0	-37.3	1.72 V	323	33.7	3.0
6	4824.00	25.9 AV	54.0	-28.1	1.72 V	323	22.9	3.0

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	53.5 PK	74.0	-20.5	1.52 H	207	55.1	-1.6
2	2390.00	34.8 AV	54.0	-19.2	1.52 H	207	36.4	-1.6
3	*2437.00	105.7 PK			1.52 H	207	107.2	-1.5
4	*2437.00	103.0 AV			1.52 H	207	104.5	-1.5
5	2483.50	54.6 PK	74.0	-19.4	1.52 H	207	56.0	-1.4
6	2483.50	40.8 AV	54.0	-13.2	1.52 H	207	42.2	-1.4
7	4874.00	37.3 PK	74.0	-36.7	1.92 H	188	34.1	3.2
8	4874.00	24.5 AV	54.0	-29.5	1.92 H	188	21.3	3.2
9	7311.00	42.4 PK	74.0	-31.6	2.05 H	290	33.5	8.9
10	7311.00	29.7 AV	54.0	-24.3	2.05 H	290	20.8	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.78 V	356	57.8	-1.6
2	2390.00	45.5 AV	54.0	-8.5	1.78 V	356	47.1	-1.6
3	*2437.00	111.6 PK			1.78 V	356	113.1	-1.5
4	*2437.00	109.2 AV			1.78 V	356	110.7	-1.5
5	2483.50	56.9 PK	74.0	-17.1	1.78 V	356	58.3	-1.4
6	2483.50	46.5 AV	54.0	-7.5	1.78 V	356	47.9	-1.4
7	4874.00	38.3 PK	74.0	-35.7	1.61 V	181	35.1	3.2
8	4874.00	25.1 AV	54.0	-28.9	1.61 V	181	21.9	3.2
9	7311.00	43.0 PK	74.0	-31.0	1.71 V	228	34.1	8.9
10	7311.00	30.0 AV	54.0	-24.0	1.71 V	228	21.1	8.9

REMARKS:

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

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	104.3 PK			1.61 H	222	105.7	-1.4
2	*2462.00	101.2 AV			1.61 H	222	102.6	-1.4
3	2483.50	56.3 PK	74.0	-17.7	1.61 H	222	57.7	-1.4
4	2483.50	42.4 AV	54.0	-11.6	1.61 H	222	43.8	-1.4
5	4924.00	37.4 PK	74.0	-36.6	1.93 H	197	34.1	3.3
6	4924.00	24.6 AV	54.0	-29.4	1.93 H	197	21.3	3.3
7	7386.00	42.7 PK	74.0	-31.3	2.01 H	301	33.6	9.1
8	7386.00	29.8 AV	54.0	-24.2	2.01 H	301	20.7	9.1
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	109.8 PK			1.78 V	360	111.2	-1.4
2	*2462.00	107.3 AV			1.78 V	360	108.7	-1.4
3	2483.50	58.2 PK	74.0	-15.8	1.78 V	360	59.6	-1.4
4	2483.50	53.6 AV	54.0	-0.4	1.78 V	360	55.0	-1.4
5	4924.00	37.5 PK	74.0	-36.5	1.64 V	194	34.2	3.3
6	4924.00	24.6 AV	54.0	-29.4	1.64 V	194	21.3	3.3
7	7386.00	43.0 PK	74.0	-31.0	1.68 V	238	33.9	9.1
8	7386.00	29.9 AV	54.0	-24.1	1.68 V	238	20.8	9.1

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	61.9 PK	74.0	-12.1	1.64 H	225	63.5	-1.6
2	2390.00	46.9 AV	54.0	-7.1	1.64 H	225	48.5	-1.6
3	*2412.00	104.6 PK			1.64 H	225	106.1	-1.5
4	*2412.00	92.0 AV			1.64 H	225	93.5	-1.5
5	4824.00	37.3 PK	74.0	-36.7	1.87 H	200	34.3	3.0
6	4824.00	24.8 AV	54.0	-29.2	1.87 H	200	21.8	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	2.55 V	360	70.4	-1.6
2	2390.00	53.9 AV	54.0	-0.1	2.55 V	360	55.5	-1.6
3	*2412.00	111.3 PK			2.55 V	360	112.8	-1.5
4	*2412.00	99.3 AV			2.55 V	360	100.8	-1.5
5	4824.00	36.4 PK	74.0	-37.6	1.67 V	314	33.4	3.0
6	4824.00	25.6 AV	54.0	-28.4	1.67 V	314	22.6	3.0

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	55.2 PK	74.0	-18.8	1.65 H	231	56.8	-1.6
2	2390.00	36.0 AV	54.0	-18.0	1.65 H	231	37.6	-1.6
3	*2437.00	111.7 PK			1.65 H	231	113.2	-1.5
4	*2437.00	93.5 AV			1.65 H	231	95.0	-1.5
5	2483.50	59.5 PK	74.0	-14.5	1.65 H	231	60.9	-1.4
6	2483.50	38.5 AV	54.0	-15.5	1.65 H	231	39.9	-1.4
7	4874.00	37.2 PK	74.0	-36.8	1.94 H	191	34.0	3.2
8	4874.00	24.5 AV	54.0	-29.5	1.94 H	191	21.3	3.2
9	7311.00	42.1 PK	74.0	-31.9	1.99 H	293	33.2	8.9
10	7311.00	29.3 AV	54.0	-24.7	1.99 H	293	20.4	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.2 PK	74.0	-16.8	2.52 V	357	58.8	-1.6
2	2390.00	45.3 AV	54.0	-8.7	2.52 V	357	46.9	-1.6
3	*2437.00	114.5 PK			2.52 V	357	116.0	-1.5
4	*2437.00	103.3 AV			2.52 V	357	104.8	-1.5
5	2483.50	62.1 PK	74.0	-11.9	2.52 V	357	63.5	-1.4
6	2483.50	48.1 AV	54.0	-5.9	2.52 V	357	49.5	-1.4
7	4874.00	38.3 PK	74.0	-35.7	1.67 V	179	35.1	3.2
8	4874.00	25.1 AV	54.0	-28.9	1.67 V	179	21.9	3.2
9	7311.00	43.1 PK	74.0	-30.9	1.70 V	243	34.2	8.9
10	7311.00	30.2 AV	54.0	-23.8	1.70 V	243	21.3	8.9

REMARKS:

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

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	102.8 PK			1.55 H	235	104.2	-1.4
2	*2462.00	91.5 AV			1.55 H	235	92.9	-1.4
3	2483.50	66.6 PK	74.0	-7.4	1.55 H	235	68.0	-1.4
4	2483.50	44.7 AV	54.0	-9.3	1.55 H	235	46.1	-1.4
5	4924.00	37.8 PK	74.0	-36.2	1.95 H	188	34.5	3.3
6	4924.00	24.9 AV	54.0	-29.1	1.95 H	188	21.6	3.3
7	7386.00	42.4 PK	74.0	-31.6	1.94 H	298	33.3	9.1
8	7386.00	29.6 AV	54.0	-24.4	1.94 H	298	20.5	9.1
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	109.6 PK			2.52 V	352	111.0	-1.4
2	*2462.00	98.5 AV			2.52 V	352	99.9	-1.4
3	2483.50	68.9 PK	74.0	-5.1	2.52 V	352	70.3	-1.4
4	2483.50	53.9 AV	54.0	-0.1	2.52 V	352	55.3	-1.4
5	4924.00	37.9 PK	74.0	-36.1	1.73 V	173	34.6	3.3
6	4924.00	24.6 AV	54.0	-29.4	1.73 V	173	21.3	3.3
7	7386.00	43.6 PK	74.0	-30.4	1.66 V	256	34.5	9.1
8	7386.00	30.5 AV	54.0	-23.5	1.66 V	256	21.4	9.1

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	66.5 PK	74.0	-7.5	1.56 H	230	68.1	-1.6
2	2390.00	44.2 AV	54.0	-9.8	1.56 H	230	45.8	-1.6
3	*2412.00	103.4 PK			1.56 H	230	104.9	-1.5
4	*2412.00	91.4 AV			1.56 H	230	92.9	-1.5
5	4824.00	37.1 PK	74.0	-36.9	1.93 H	194	34.1	3.0
6	4824.00	24.6 AV	54.0	-29.4	1.93 H	194	21.6	3.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	2.54 V	352	70.4	-1.6
2	2390.00	53.9 AV	54.0	-0.1	2.54 V	352	55.5	-1.6
3	*2412.00	110.3 PK			2.54 V	352	111.8	-1.5
4	*2412.00	98.6 AV			2.54 V	352	100.1	-1.5
5	4824.00	36.5 PK	74.0	-37.5	1.71 V	310	33.5	3.0
6	4824.00	25.4 AV	54.0	-28.6	1.71 V	310	22.4	3.0

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	56.5 PK	74.0	-17.5	1.53 H	222	58.1	-1.6
2	2390.00	35.1 AV	54.0	-18.9	1.53 H	222	36.7	-1.6
3	*2437.00	111.1 PK			1.53 H	222	112.6	-1.5
4	*2437.00	92.9 AV			1.53 H	222	94.4	-1.5
5	2483.50	59.7 PK	74.0	-14.3	1.53 H	222	61.1	-1.4
6	2483.50	38.7 AV	54.0	-15.3	1.53 H	222	40.1	-1.4
7	4874.00	37.2 PK	74.0	-36.8	1.90 H	201	34.0	3.2
8	4874.00	24.6 AV	54.0	-29.4	1.90 H	201	21.4	3.2
9	7311.00	41.6 PK	74.0	-32.4	1.98 H	304	32.7	8.9
10	7311.00	28.9 AV	54.0	-25.1	1.98 H	304	20.0	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.3 PK	74.0	-14.7	2.75 V	360	60.9	-1.6
2	2390.00	45.2 AV	54.0	-8.8	2.75 V	360	46.8	-1.6
3	*2437.00	113.2 PK			2.75 V	360	114.7	-1.5
4	*2437.00	102.2 AV			2.75 V	360	103.7	-1.5
5	2483.50	62.9 PK	74.0	-11.1	2.75 V	360	64.3	-1.4
6	2483.50	48.7 AV	54.0	-5.3	2.75 V	360	50.1	-1.4
7	4874.00	37.7 PK	74.0	-36.3	1.71 V	173	34.5	3.2
8	4874.00	24.7 AV	54.0	-29.3	1.71 V	173	21.5	3.2
9	7311.00	43.5 PK	74.0	-30.5	1.72 V	255	34.6	8.9
10	7311.00	30.7 AV	54.0	-23.3	1.72 V	255	21.8	8.9

REMARKS:

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

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	107.5 PK			1.52 H	227	108.9	-1.4
2	*2462.00	91.0 AV			1.52 H	227	92.4	-1.4
3	2483.50	65.2 PK	74.0	-8.8	1.52 H	227	66.6	-1.4
4	2483.50	44.4 AV	54.0	-9.6	1.52 H	227	45.8	-1.4
5	4924.00	37.4 PK	74.0	-36.6	1.99 H	196	34.1	3.3
6	4924.00	24.5 AV	54.0	-29.5	1.99 H	196	21.2	3.3
7	7386.00	42.8 PK	74.0	-31.2	2.04 H	284	33.7	9.1
8	7386.00	29.7 AV	54.0	-24.3	2.04 H	284	20.6	9.1
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	109.5 PK			2.72 V	359	110.9	-1.4
2	*2462.00	97.4 AV			2.72 V	359	98.8	-1.4
3	2483.50	67.3 PK	74.0	-6.7	2.72 V	359	68.7	-1.4
4	2483.50	53.8 AV	54.0	-0.2	2.72 V	359	55.2	-1.4
5	4924.00	38.0 PK	74.0	-36.0	1.69 V	176	34.7	3.3
6	4924.00	24.9 AV	54.0	-29.1	1.69 V	176	21.6	3.3
7	7386.00	43.2 PK	74.0	-30.8	1.75 V	236	34.1	9.1
8	7386.00	30.1 AV	54.0	-23.9	1.75 V	236	21.0	9.1

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	66.2 PK	74.0	-7.8	1.55 H	230	67.8	-1.6
2	2390.00	44.9 AV	54.0	-9.1	1.55 H	230	46.5	-1.6
3	*2422.00	100.1 PK			1.55 H	230	101.7	-1.6
4	*2422.00	88.1 AV			1.55 H	230	89.7	-1.6
5	4844.00	37.3 PK	74.0	-36.7	1.94 H	206	34.2	3.1
6	4844.00	24.8 AV	54.0	-29.2	1.94 H	206	21.7	3.1
7	7266.00	41.8 PK	74.0	-32.2	1.96 H	277	32.9	8.9
8	7266.00	28.8 AV	54.0	-25.2	1.96 H	277	19.9	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.2 PK	74.0	-3.8	2.54 V	360	71.8	-1.6
2	2390.00	53.9 AV	54.0	-0.1	2.54 V	360	55.5	-1.6
3	*2422.00	107.2 PK			2.45 V	360	108.8	-1.6
4	*2422.00	95.6 AV			2.45 V	360	97.2	-1.6
5	4844.00	39.0 PK	74.0	-35.0	1.65 V	180	35.9	3.1
6	4844.00	25.6 AV	54.0	-28.4	1.65 V	180	22.5	3.1
7	7266.00	43.7 PK	74.0	-30.3	1.69 V	238	34.8	8.9
8	7266.00	30.7 AV	54.0	-23.3	1.69 V	238	21.8	8.9

REMARKS:

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

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	60.1 PK	74.0	-13.9	1.54 H	246	61.7	-1.6
2	2390.00	38.6 AV	54.0	-15.4	1.54 H	246	40.2	-1.6
3	*2437.00	98.2 PK			1.54 H	246	99.7	-1.5
4	*2437.00	87.3 AV			1.54 H	246	88.8	-1.5
5	2483.50	60.9 PK	74.0	-13.1	1.54 H	246	62.3	-1.4
6	2483.50	45.2 AV	54.0	-8.8	1.54 H	246	46.6	-1.4
7	4874.00	37.2 PK	74.0	-36.8	1.93 H	205	34.0	3.2
8	4874.00	24.5 AV	54.0	-29.5	1.93 H	205	21.3	3.2
9	7311.00	41.8 PK	74.0	-32.2	2.00 H	279	32.9	8.9
10	7311.00	29.2 AV	54.0	-24.8	2.00 H	279	20.3	8.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.6 PK	74.0	-10.4	2.47 V	359	65.2	-1.6
2	2390.00	47.4 AV	54.0	-6.6	2.47 V	359	49.0	-1.6
3	*2437.00	105.9 PK			2.47 V	359	107.4	-1.5
4	*2437.00	95.4 AV			2.47 V	359	96.9	-1.5
5	2483.50	64.4 PK	74.0	-9.6	2.47 V	359	65.8	-1.4
6	2483.50	53.7 AV	54.0	-0.3	2.47 V	359	55.1	-1.4
7	4874.00	37.8 PK	74.0	-36.2	1.73 V	178	34.6	3.2
8	4874.00	24.7 AV	54.0	-29.3	1.73 V	178	21.5	3.2
9	7311.00	42.4 PK	74.0	-31.6	1.76 V	245	33.5	8.9
10	7311.00	29.7 AV	54.0	-24.3	1.76 V	245	20.8	8.9

REMARKS:

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

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	96.5 PK			1.50 H	225	98.0	-1.5
2	*2452.00	85.1 AV			1.50 H	225	86.6	-1.5
3	2483.50	66.8 PK	74.0	-7.2	1.50 H	225	68.2	-1.4
4	2483.50	45.1 AV	54.0	-8.9	1.50 H	225	46.5	-1.4
5	4904.00	37.7 PK	74.0	-36.3	1.89 H	180	34.5	3.2
6	4904.00	24.8 AV	54.0	-29.2	1.89 H	180	21.6	3.2
7	7356.00	42.4 PK	74.0	-31.6	2.03 H	277	33.3	9.1
8	7356.00	29.6 AV	54.0	-24.4	2.03 H	277	20.5	9.1
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	103.9 PK			2.51 V	348	105.4	-1.5
2	*2452.00	92.6 AV			2.51 V	348	94.1	-1.5
3	2483.50	70.3 PK	74.0	-3.7	2.51 V	348	71.7	-1.4
4	2483.50	53.6 AV	54.0	-0.4	2.51 V	348	55.0	-1.4
5	4904.00	38.1 PK	74.0	-35.9	1.68 V	165	34.9	3.2
6	4904.00	24.8 AV	54.0	-29.2	1.68 V	165	21.6	3.2
7	7356.00	43.4 PK	74.0	-30.6	1.76 V	241	34.3	9.1
8	7356.00	30.7 AV	54.0	-23.3	1.76 V	241	21.6	9.1

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.

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2016	Oct. 23, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 29, 2016	Sep. 28, 2017
RF Cable	5D-FB	COCCAB-001	Sep. 30, 2016	Sep. 29, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
- 3 Tested Date: July 18, 2017

4.2.3 Test Procedures

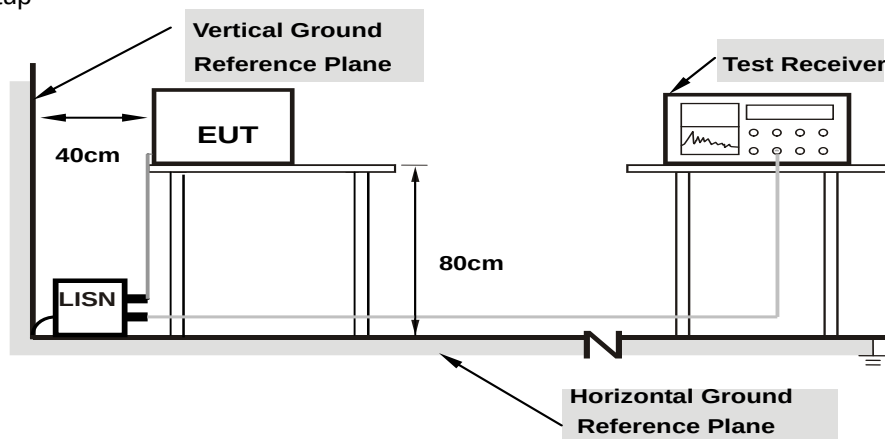
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

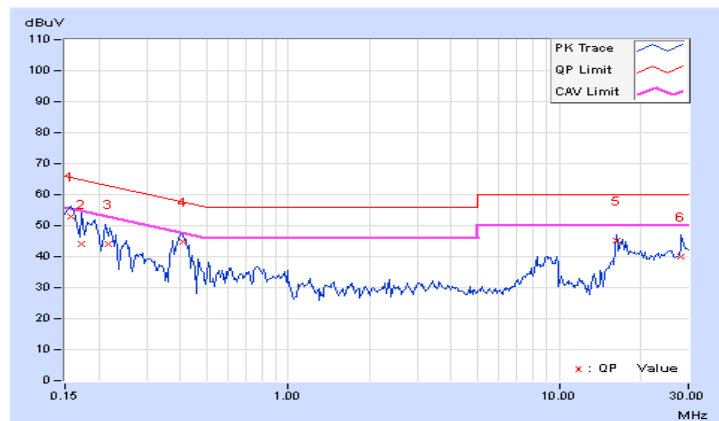
4.2.7 Test Results

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

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.07	42.80	34.45	52.87	44.52	65.58	55.58	-12.71	-11.06
2	0.17344	10.07	33.90	13.53	43.97	23.60	64.79	54.79	-20.82	-31.19
3	0.21750	10.06	34.05	25.71	44.11	35.77	62.91	52.91	-18.80	-17.14
4	0.40928	10.11	34.79	30.06	44.90	40.17	57.66	47.66	-12.76	-7.49
5	16.22744	11.04	34.00	31.15	45.04	42.19	60.00	50.00	-14.96	-7.81
6	28.19922	11.36	28.49	23.42	39.85	34.78	60.00	50.00	-20.15	-15.22

REMARKS:

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

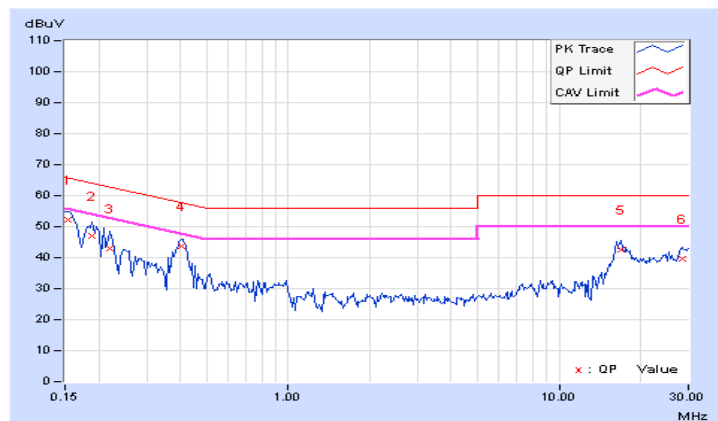


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	-----------------------------------

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.06	42.21	32.45	52.27	42.51	65.78	55.78	-13.51	-13.27
2	0.18906	10.04	36.91	28.33	46.95	38.37	64.08	54.08	-17.13	-15.71
3	0.22031	10.04	33.01	25.25	43.05	35.29	62.81	52.81	-19.76	-17.52
4	0.40641	10.10	33.63	28.49	43.73	38.59	57.72	47.72	-13.99	-9.13
5	16.83984	10.87	31.87	27.95	42.74	38.82	60.00	50.00	-17.26	-11.18
6	28.61328	10.96	28.62	23.55	39.58	34.51	60.00	50.00	-20.42	-15.49

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.

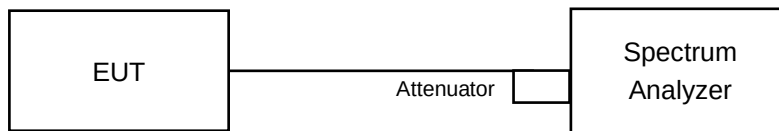


4.3 6dB Bandwidth Measurement

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 1)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	9.07	7.66	7.63	0.5	PASS
6	2437	9.08	9.60	9.57	0.5	PASS
11	2462	8.13	8.13	8.13	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.33	16.09	16.10	0.5	PASS
6	2437	16.34	16.33	16.34	0.5	PASS
11	2462	16.34	16.34	16.31	0.5	PASS

802.11n (HT20)

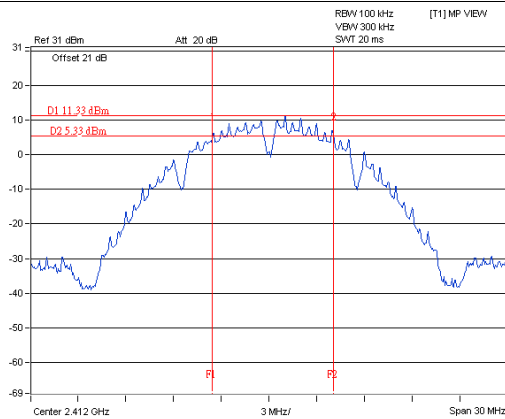
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.85	16.87	17.19	0.5	Pass
6	2437	17.22	17.59	16.96	0.5	Pass
11	2462	16.90	16.88	16.86	0.5	Pass

802.11n (HT40)

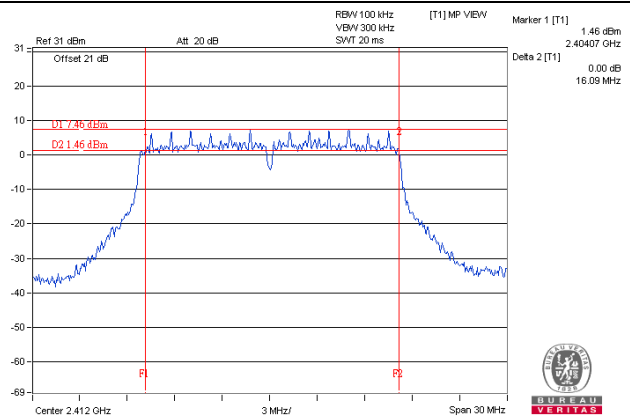
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	35.17	33.93	35.22	0.5	Pass
6	2437	35.18	35.27	35.14	0.5	Pass
9	2452	33.91	34.04	35.14	0.5	Pass

Spectrum Plot of Worst Value

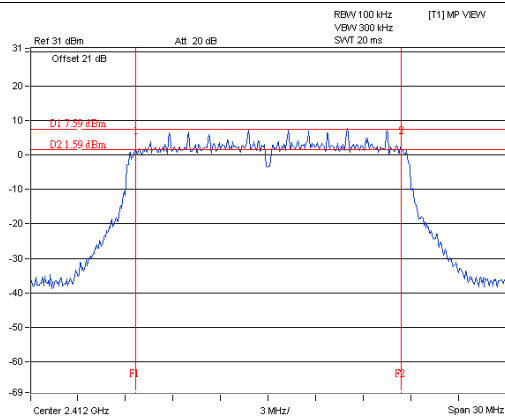
802.11b / Chain 2 : CH1



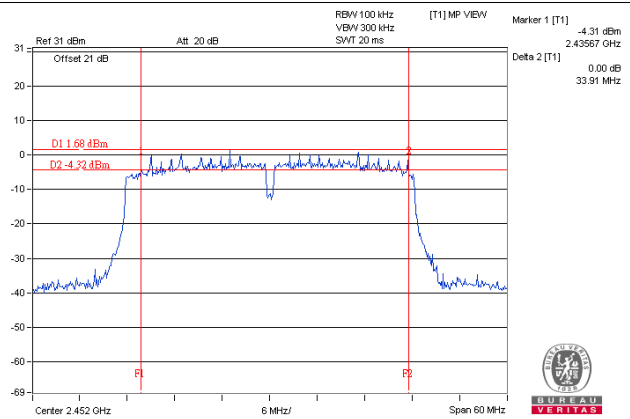
802.11g / Chain 1 : CH1



802.11n (HT20) / Chain 0 : CH1



802.11n (HT40) / Chain 0 : CH9



4.3.8 Test Result (Mode 2)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2		
1	2412	7.64	8.16	0.5	PASS
6	2437	9.08	9.57	0.5	PASS
11	2462	8.14	8.14	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2		
1	2412	16.34	16.35	0.5	PASS
6	2437	16.01	16.34	0.5	PASS
11	2462	16.34	16.34	0.5	PASS

802.11n (HT20)

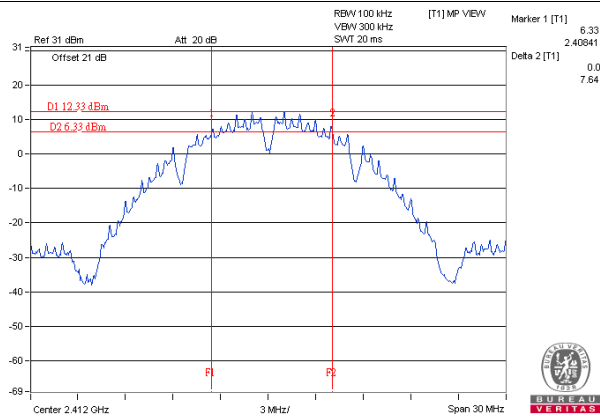
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2		
1	2412	16.89	16.60	0.5	Pass
6	2437	17.22	16.96	0.5	Pass
11	2462	16.88	17.24	0.5	Pass

802.11n (HT40)

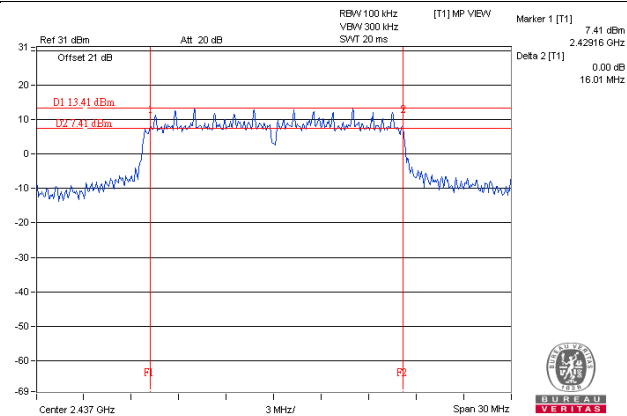
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2		
3	2422	35.20	35.19	0.5	Pass
6	2437	35.24	35.21	0.5	Pass
9	2452	35.34	35.20	0.5	Pass

Spectrum Plot of Worst Value

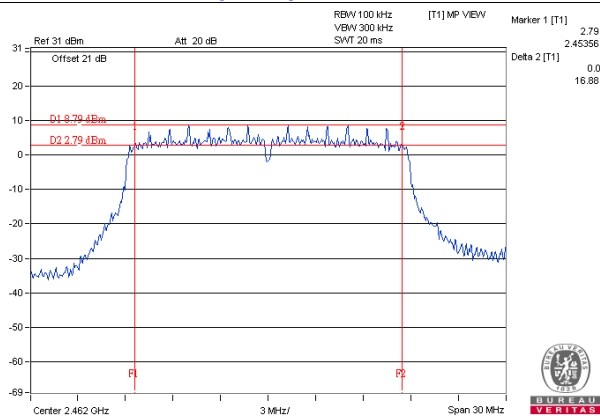
802.11b / Chain 0 : CH1



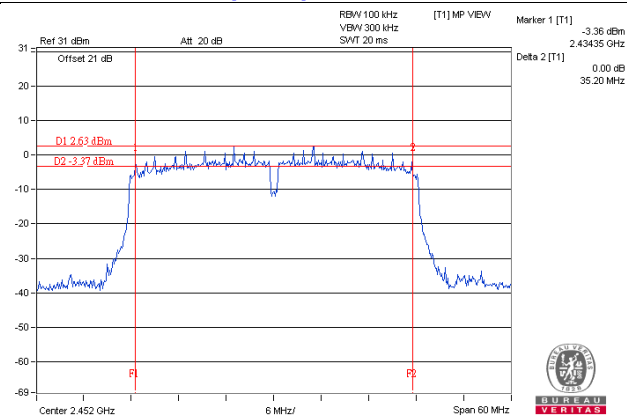
802.11g / Chain 0 : CH6



802.11n (HT20) / Chain 0 : CH11



802.11n (HT40) / Chain 2 : CH9



4.3.9 Test Result (Mode 3)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	7.67	0.5	PASS
6	2437	9.08	0.5	PASS
11	2462	8.14	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.35	0.5	PASS
6	2437	16.01	0.5	PASS
11	2462	16.32	0.5	PASS

802.11n (HT20)

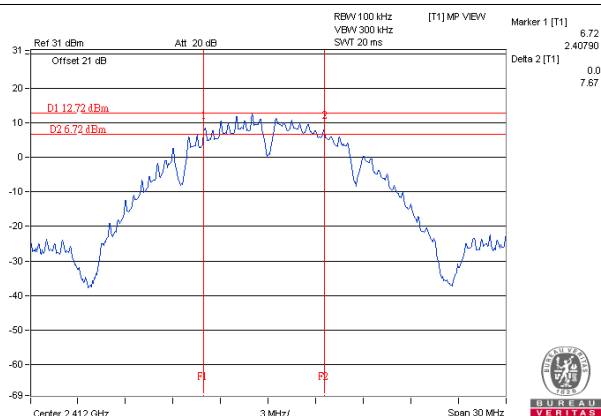
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.89	0.5	PASS
6	2437	17.22	0.5	PASS
11	2462	16.89	0.5	PASS

802.11n (HT40)

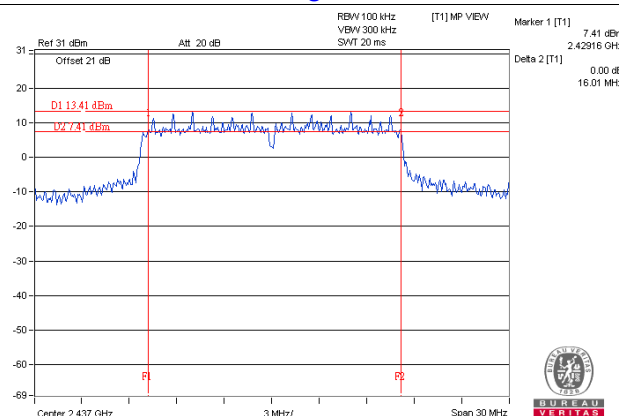
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.14	0.5	Pass
6	2437	35.12	0.5	Pass
9	2452	35.29	0.5	Pass

Spectrum Plot of Worst Value

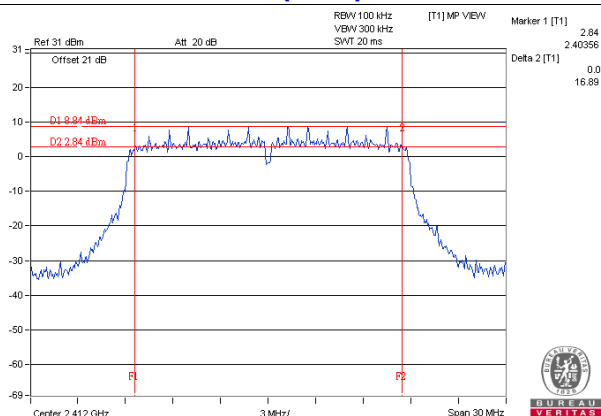
802.11b : CH1



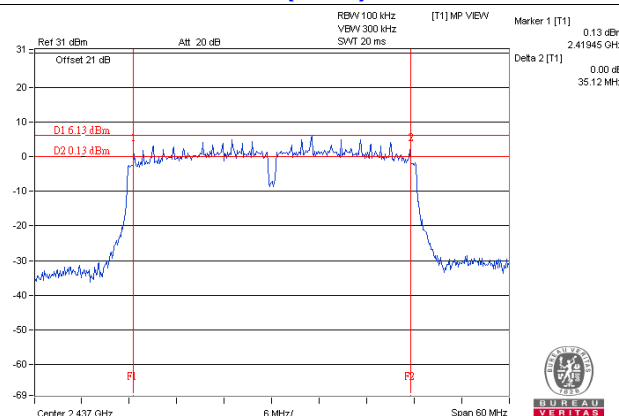
802.11g : CH6



802.11n (HT20) : CH1



802.11n (HT40) : CH6



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,

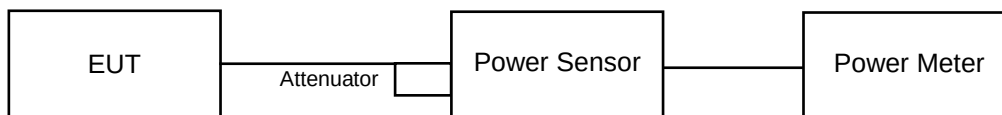
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results (Mode 1)

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.25	20.24	19.84	286.205	24.57	30	Pass
6	2437	23.97	23.96	24.49	779.535	28.92	30	Pass
11	2462	19.07	19.39	19.10	248.903	23.96	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.23	17.56	18.26	190.531	22.80	30	Pass
6	2437	23.05	22.32	23.34	588.219	27.70	30	Pass
11	2462	17.50	17.14	18.01	171.236	22.34	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	17.92	17.21	18.06	178.519	22.52	30	Pass
6	2437	23.47	22.53	23.42	621.178	27.93	30	Pass
11	2462	18.75	18.20	19.34	226.959	23.56	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	16.69	16.23	16.71	135.523	21.32	30	Pass
6	2437	17.71	17.08	17.98	172.876	22.38	30	Pass
9	2452	15.15	14.56	15.41	96.064	19.83	30	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	17.92	17.21	18.06	178.519	22.52	26.93	Pass
6	2437	22.44	21.44	22.47	491.308	26.91	26.93	Pass
11	2462	18.75	18.20	19.34	226.959	23.56	26.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.07 - 6) = 26.93\text{dBm}$.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	16.69	16.23	16.71	135.523	21.32	26.93	Pass
6	2437	17.71	17.08	17.98	172.876	22.38	26.93	Pass
9	2452	15.15	14.56	15.41	96.064	19.83	26.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.07 - 6) = 26.93\text{dBm}$.

4.4.8 Test Results (Mode 2)

CDD Mode

802.11b

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
1	2412	20.91	21.06	250.954	24.00	30.00	Pass
6	2437	23.97	24.49	530.649	27.25	30.00	Pass
11	2462	19.92	20.17	202.167	23.06	30.00	Pass

802.11g

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
1	2412	18.53	18.56	143.064	21.56	30.00	Pass
6	2437	23.74	23.65	468.331	26.71	30.00	Pass
11	2462	18.06	18.38	132.838	21.23	30.00	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
1	2412	18.24	18.27	133.824	21.27	30.00	Pass
6	2437	23.47	23.42	442.117	26.46	30.00	Pass
11	2462	19.39	19.58	177.678	22.50	30.00	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
3	2422	17.26	17.21	105.813	20.25	30.00	Pass
6	2437	18.45	18.24	136.665	21.36	30.00	Pass
9	2452	15.75	15.71	74.823	18.74	30.00	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
1	2412	18.24	18.27	133.824	21.27	28.33	Pass
6	2437	23.47	23.42	442.117	26.46	28.33	Pass
11	2462	19.39	19.58	177.678	22.50	28.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.67 - 6) = 28.33\text{dBm}$.

802.11n (HT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 2				
3	2422	17.26	17.21	105.813	20.25	28.33	Pass
6	2437	18.45	18.24	136.665	21.36	28.33	Pass
9	2452	15.75	15.71	74.823	18.74	28.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.67 - 6) = 28.33\text{dBm}$.

4.4.9 Test Results (Mode 3)

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	142.233	21.53	30	Pass
6	2437	249.459	23.97	30	Pass
11	2462	111.944	20.49	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	93.541	19.71	30	Pass
6	2437	236.592	23.74	30	Pass
11	2462	104.954	20.21	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	88.92	19.49	30	Pass
6	2437	222.331	23.47	30	Pass
11	2462	98.855	19.95	30	Pass

802.11n (HT40)

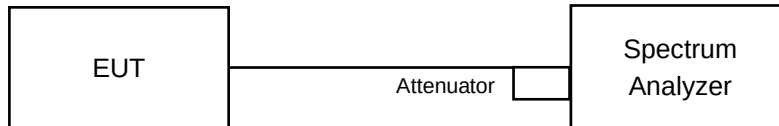
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	68.865	18.38	30	Pass
6	2437	85.114	19.30	30	Pass
9	2452	48.865	16.89	30	Pass

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

802.11b, 802.11n (HT20)

- 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.

802.11g, 802.11n (HT40)

- 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.
- Do not 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 1)

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-9.04	4.77	-4.27	4.93	Pass
	6	2437	-5.02	4.77	-0.25	4.93	Pass
	11	2462	-9.82	4.77	-5.05	4.93	Pass
1	1	2412	-8.56	4.77	-3.79	4.93	Pass
	6	2437	-4.88	4.77	-0.11	4.93	Pass
	11	2462	-9.83	4.77	-5.06	4.93	Pass
2	1	2412	-8.82	4.77	-4.05	4.93	Pass
	6	2437	-4.82	4.77	-0.05	4.93	Pass
	11	2462	-9.63	4.77	-4.86	4.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.07-6) = 4.93\text{dBm}$.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=3) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.48	4.77	0.14	-8.57	4.93	Pass
	6	2437	-9.27	4.77	0.14	-4.36	4.93	Pass
	11	2462	-14.53	4.77	0.14	-9.62	4.93	Pass
1	1	2412	-14.42	4.77	0.14	-9.51	4.93	Pass
	6	2437	-9.48	4.77	0.14	-4.57	4.93	Pass
	11	2462	-14.74	4.77	0.14	-9.83	4.93	Pass
2	1	2412	-14.50	4.77	0.14	-9.59	4.93	Pass
	6	2437	-8.83	4.77	0.14	-3.92	4.93	Pass
	11	2462	-13.83	4.77	0.14	-8.92	4.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.07-6) = 4.93\text{dBm}$.

2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.95	4.77	-9.18	4.93	Pass
	6	2437	-9.41	4.77	-4.64	4.93	Pass
	11	2462	-15.07	4.77	-10.30	4.93	Pass
1	1	2412	-15.26	4.77	-10.49	4.93	Pass
	6	2437	-8.72	4.77	-3.95	4.93	Pass
	11	2462	-13.51	4.77	-8.74	4.93	Pass
2	1	2412	-13.45	4.77	-8.68	4.93	Pass
	6	2437	-9.29	4.77	-4.52	4.93	Pass
	11	2462	-12.06	4.77	-7.29	4.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.07-6) = 4.93\text{dBm}$.

802.11n (HT40)

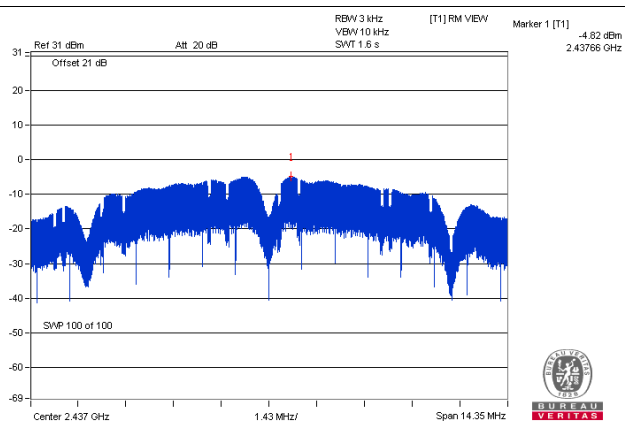
TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=3) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-17.92	4.77	0.16	-13.59	4.93	Pass
	6	2437	-20.60	4.77	0.16	-12.99	4.93	Pass
	9	2452	-18.73	4.77	0.16	-15.67	4.93	Pass
1	3	2422	-17.85	4.77	0.16	-13.80	4.93	Pass
	6	2437	-20.36	4.77	0.16	-12.92	4.93	Pass
	9	2452	-19.15	4.77	0.16	-15.43	4.93	Pass
2	3	2422	-17.88	4.77	0.16	-14.22	4.93	Pass
	6	2437	-20.59	4.77	0.16	-12.95	4.93	Pass
	9	2452	-17.92	4.77	0.16	-15.66	4.93	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.07\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.07-6) = 4.93\text{dBm}$.

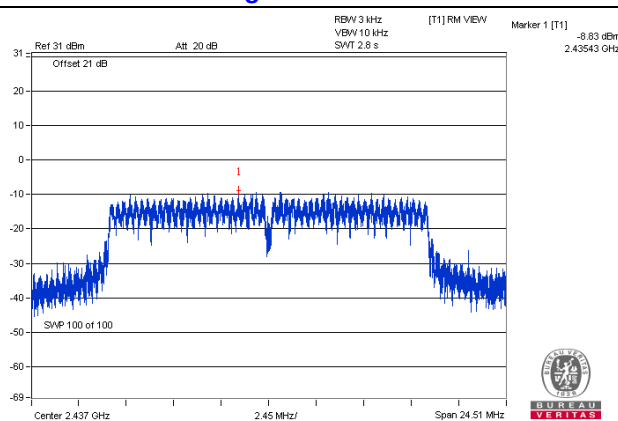
2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

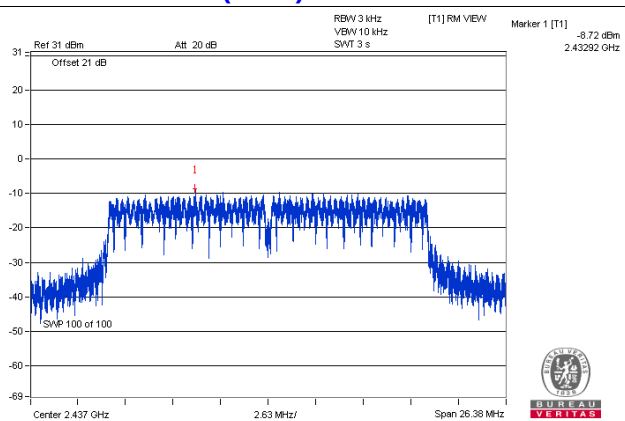
802.11b / Chain 2 : CH6



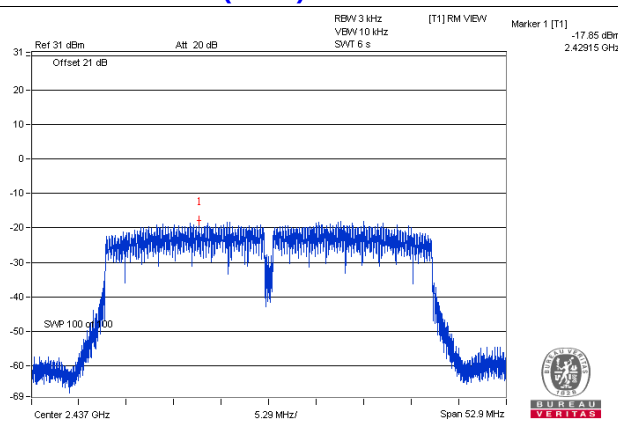
802.11g / Chain 2 : CH6



802.11n (HT20) / Chain 1 : CH6



802.11n (HT40) / Chain 1 : CH6



4.5.8 Test Results (Mode 2)

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-7.93	3.01	-4.92	6.33	Pass
	6	2437	-5.02	3.01	-2.01	6.33	Pass
	11	2462	-8.75	3.01	-5.74	6.33	Pass
2	1	2412	-7.70	3.01	-4.69	6.33	Pass
	6	2437	-4.82	3.01	-1.81	6.33	Pass
	11	2462	-8.55	3.01	-5.54	6.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.67-6) = 6.33\text{dBm}$.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.18	3.01	0.14	-11.03	6.33	Pass
	6	2437	-8.52	3.01	0.14	-5.37	6.33	Pass
	11	2462	-14.52	3.01	0.14	-11.37	6.33	Pass
2	1	2412	-13.87	3.01	0.14	-10.72	6.33	Pass
	6	2437	-9.41	3.01	0.14	-6.26	6.33	Pass
	11	2462	-14.11	3.01	0.14	-10.96	6.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.67-6) = 6.33\text{dBm}$.

2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.32	3.01	-11.31	6.33	Pass
	6	2437	-9.41	3.01	-6.40	6.33	Pass
	11	2462	-13.08	3.01	-10.07	6.33	Pass
2	1	2412	-12.88	3.01	-9.87	6.33	Pass
	6	2437	-9.29	3.01	-6.28	6.33	Pass
	11	2462	-12.65	3.01	-9.64	6.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.67-6) = 6.33\text{dBm}$.

802.11n (HT40)

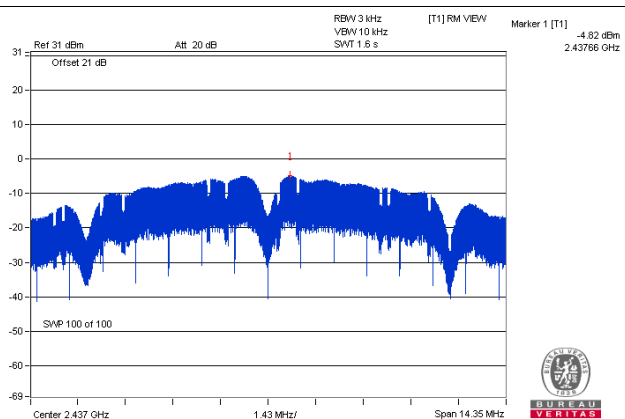
TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-18.43	3.01	0.16	-15.26	6.33	Pass
	6	2437	-17.38	3.01	0.16	-14.21	6.33	Pass
	9	2452	-20.12	3.01	0.16	-16.95	6.33	Pass
2	3	2422	-17.97	3.01	0.16	-14.80	6.33	Pass
	6	2437	-16.73	3.01	0.16	-13.56	6.33	Pass
	9	2452	-19.88	3.01	0.16	-16.71	6.33	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G3/20})^2 / 2] = 7.67\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.67-6) = 6.33\text{dBm}$.

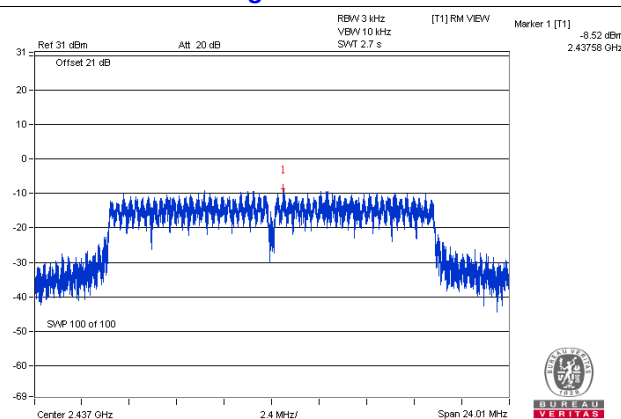
2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

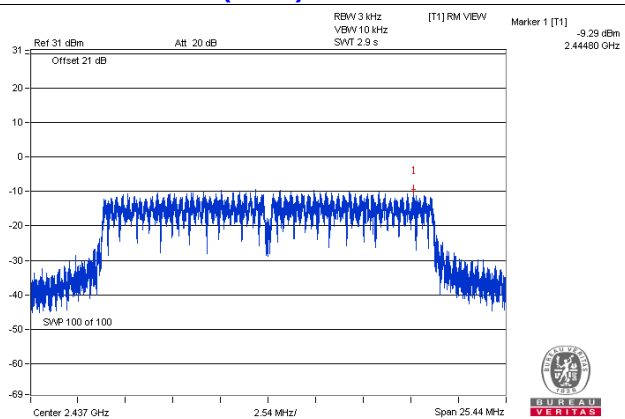
802.11b / Chain 2 : CH6



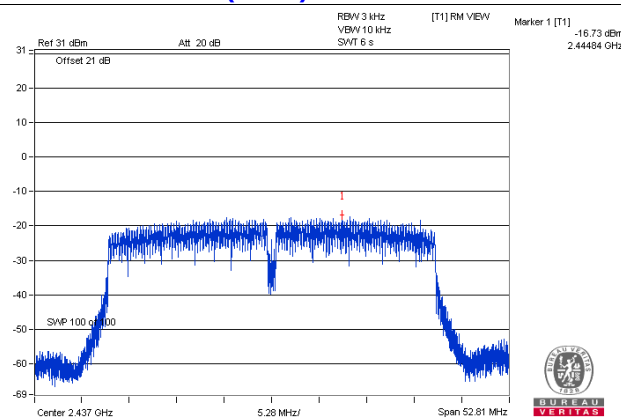
802.11g / Chain 0 : CH6



802.11n (HT20) / Chain 2 : CH6



802.11n (HT40) / Chain 2 : CH6



4.5.9 Test Results (Mode 3)

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-7.39	8	Pass
6	2437	-5.02	8	Pass
11	2462	-8.30	8	Pass

802.11g

Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-12.04	0.14	-11.90	8	Pass
6	2437	-8.52	0.14	-8.38	8	Pass
11	2462	-12.61	0.14	-12.47	8	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-13.25	8	Pass
6	2437	-9.41	8	Pass
11	2462	-13.04	8	Pass

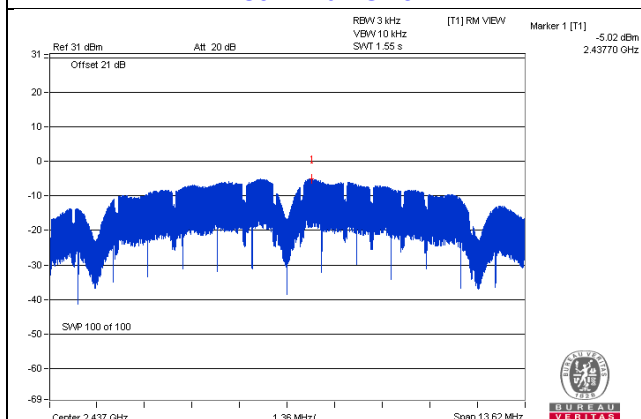
802.11n (HT40)

Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-17.13	0.16	-16.97	8	Pass
6	2437	-16.35	0.16	-16.19	8	Pass
9	2452	-19.33	0.16	-19.17	8	Pass

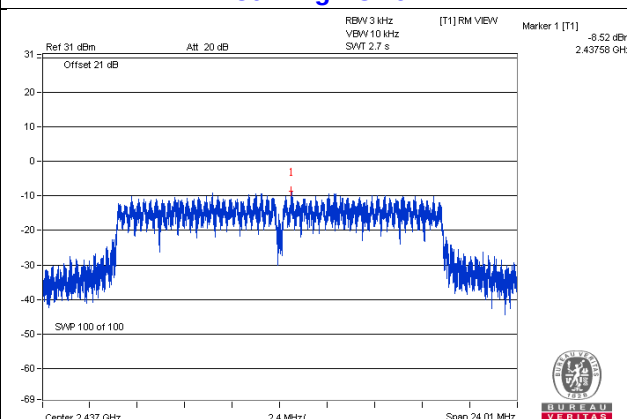
Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

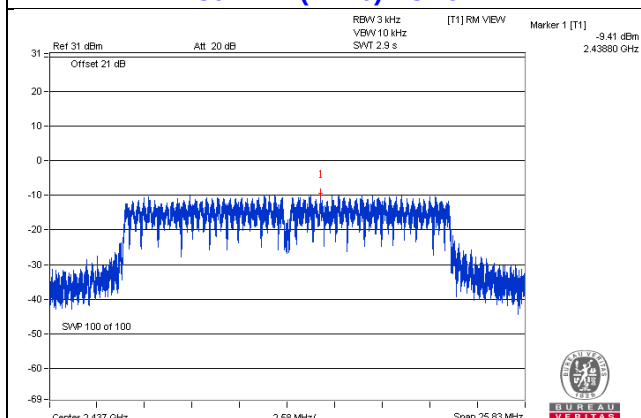
802.11b : CH6



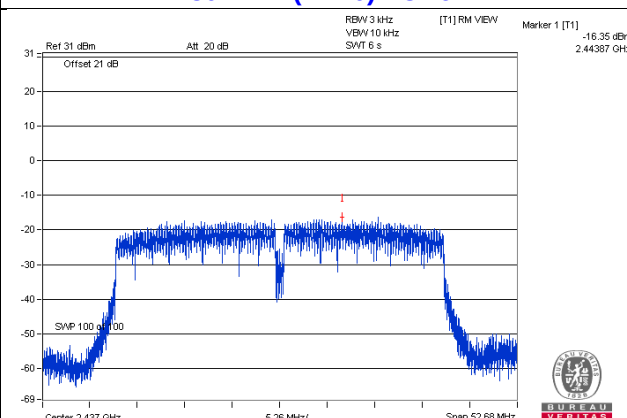
802.11g : CH6



802.11n (HT20) : CH6



802.11n (HT40) : CH6

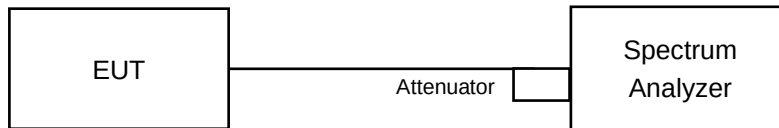


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

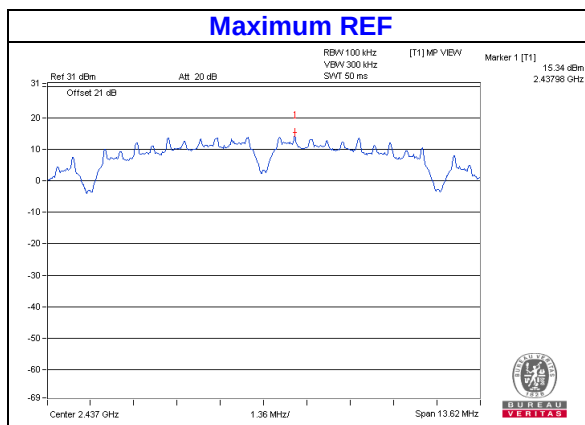
Same as Item 4.3.6

4.6.7 Test Results

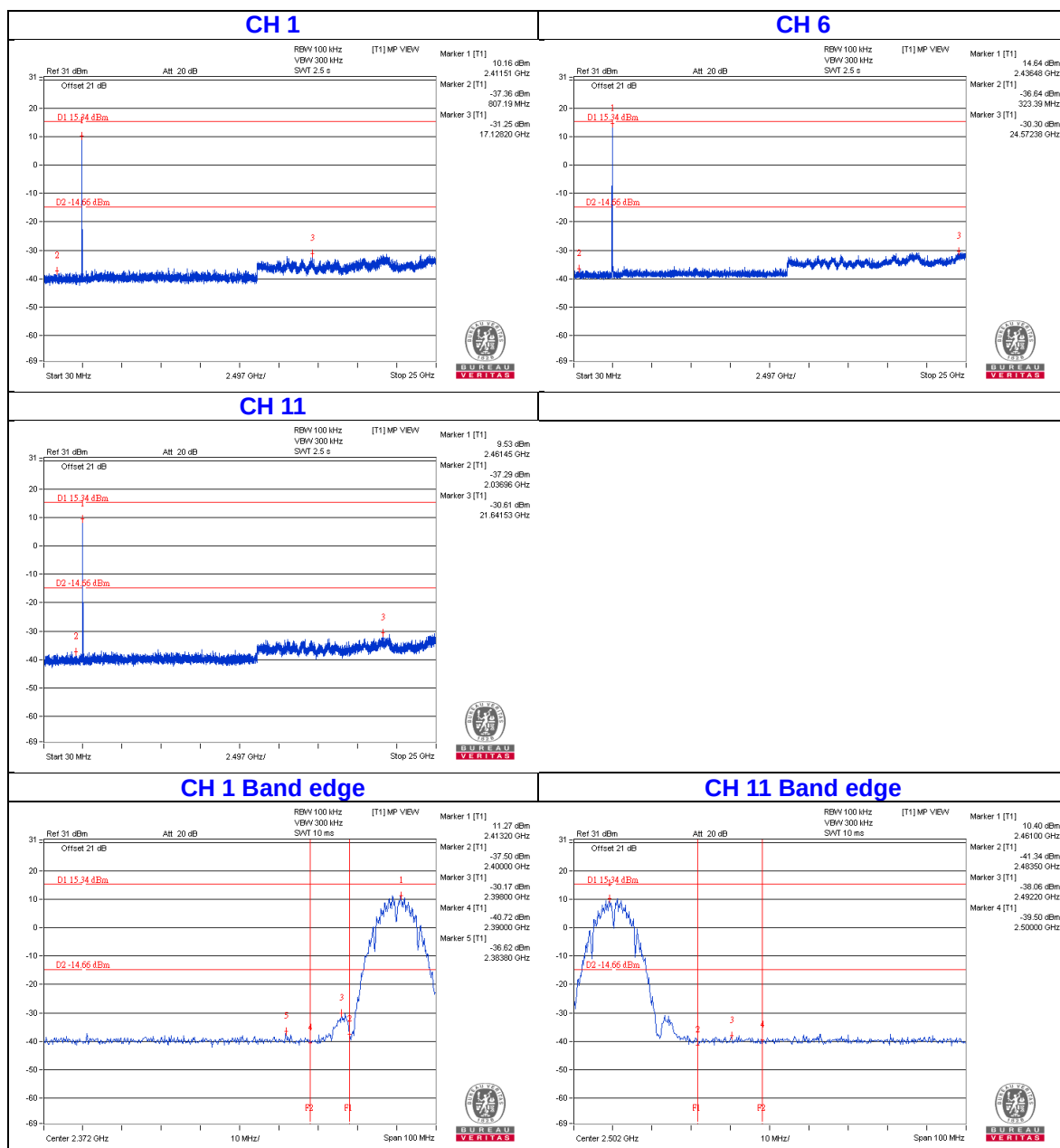
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

3TX Mode

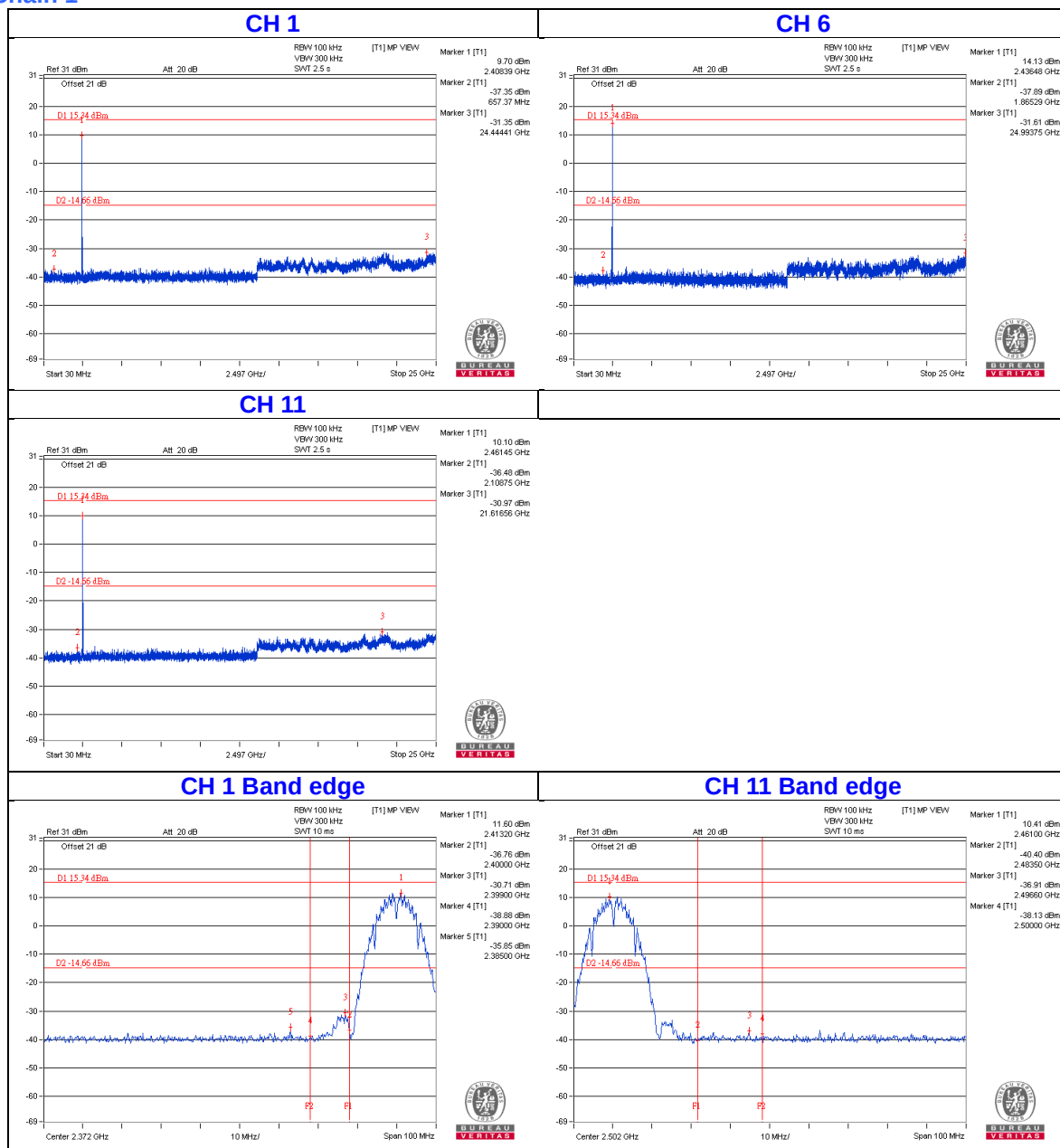
802.11b



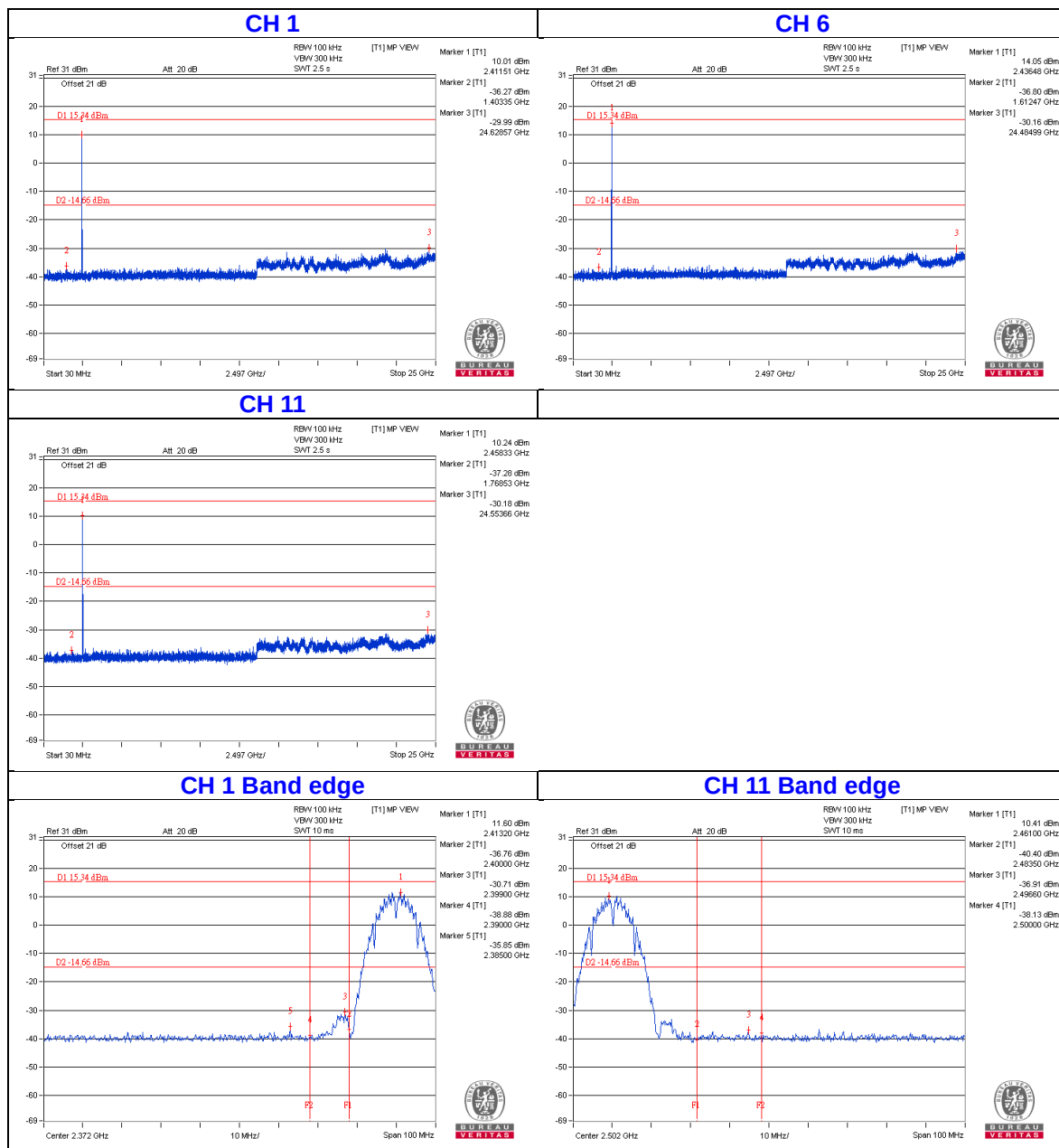
Chain 0



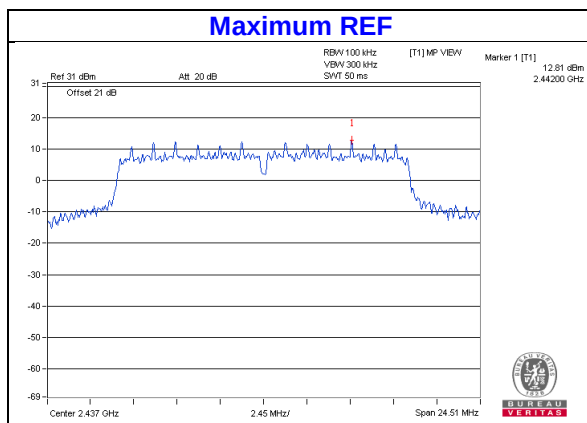
Chain 1



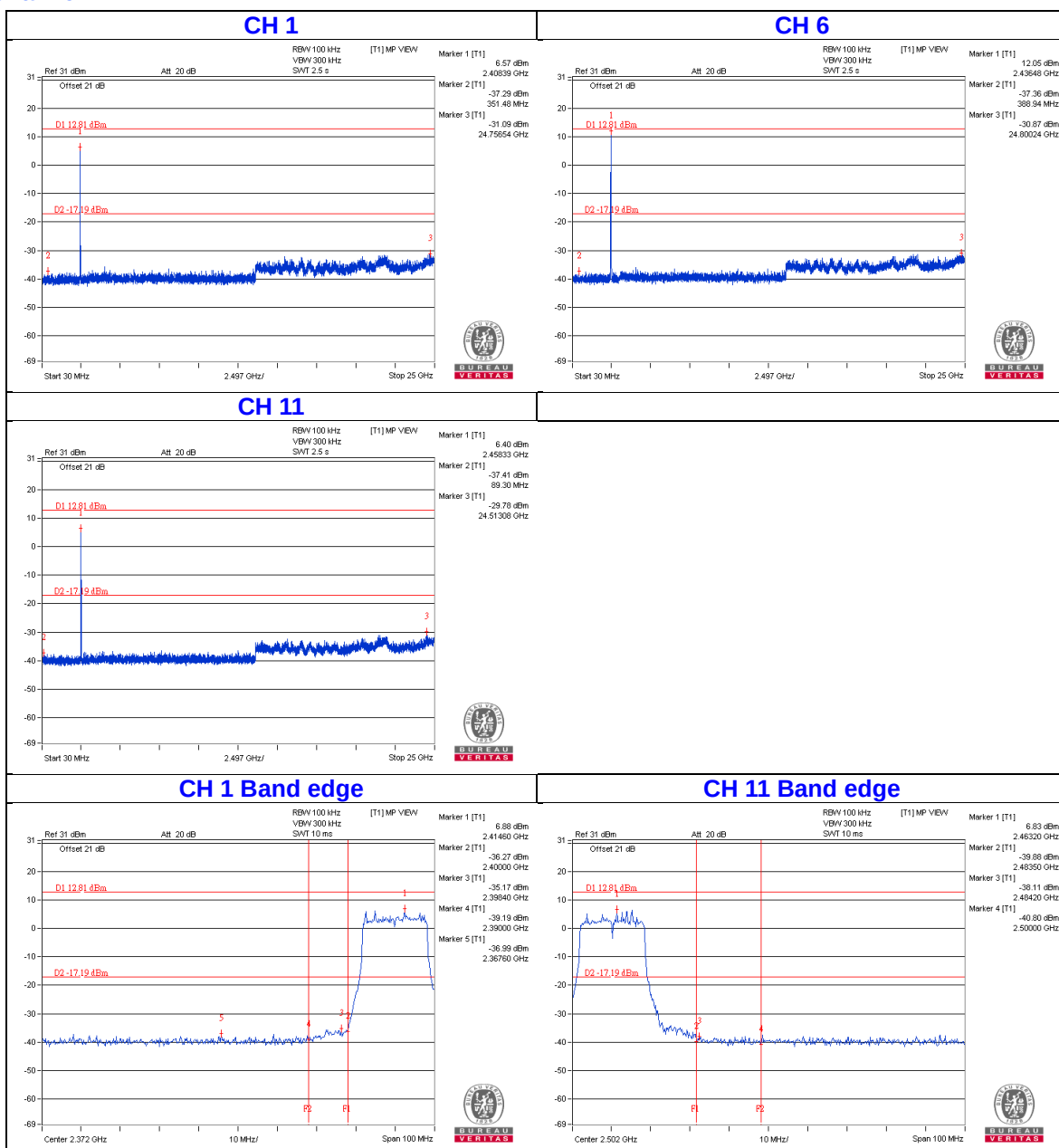
Chain 2



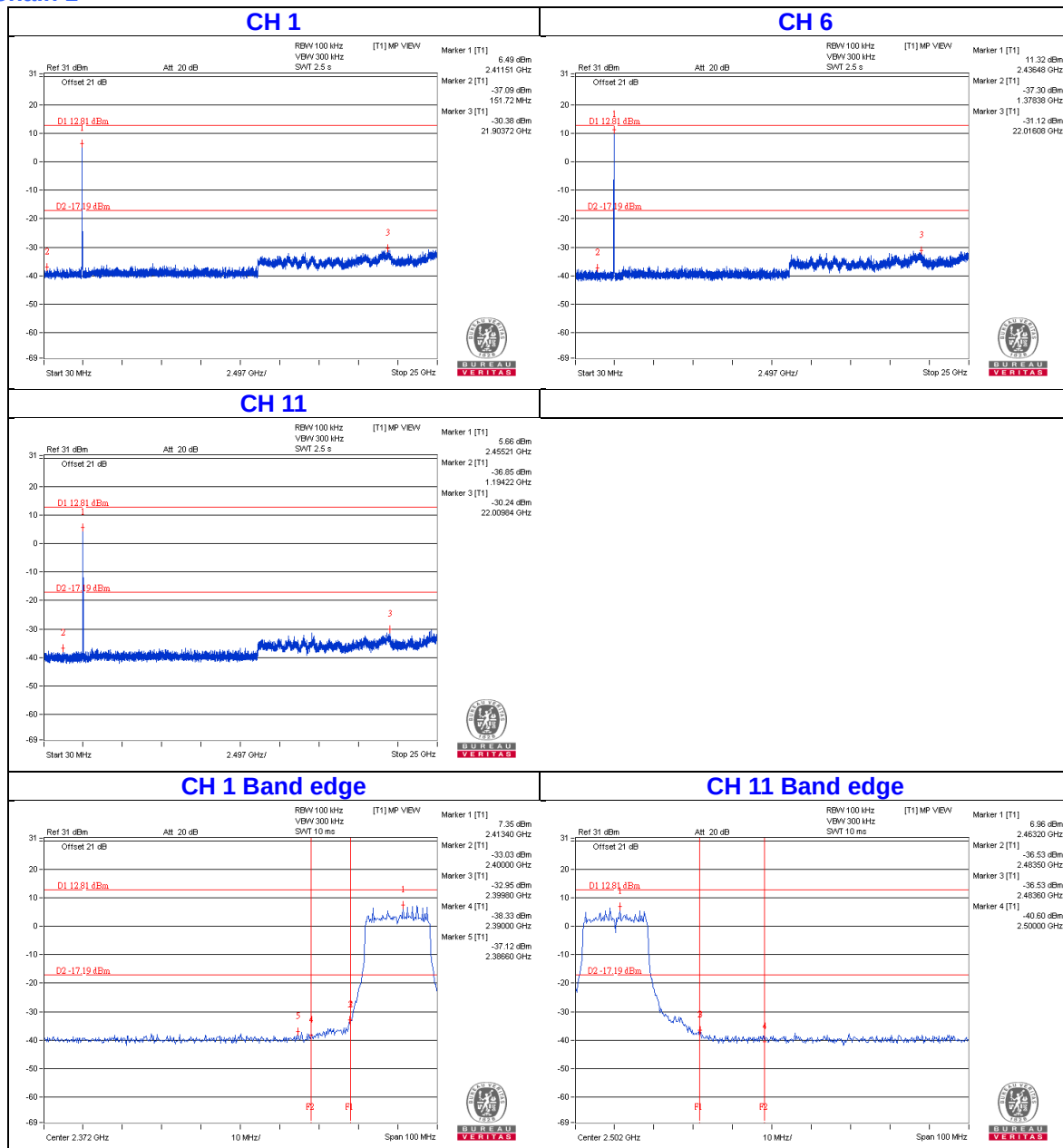
802.11g



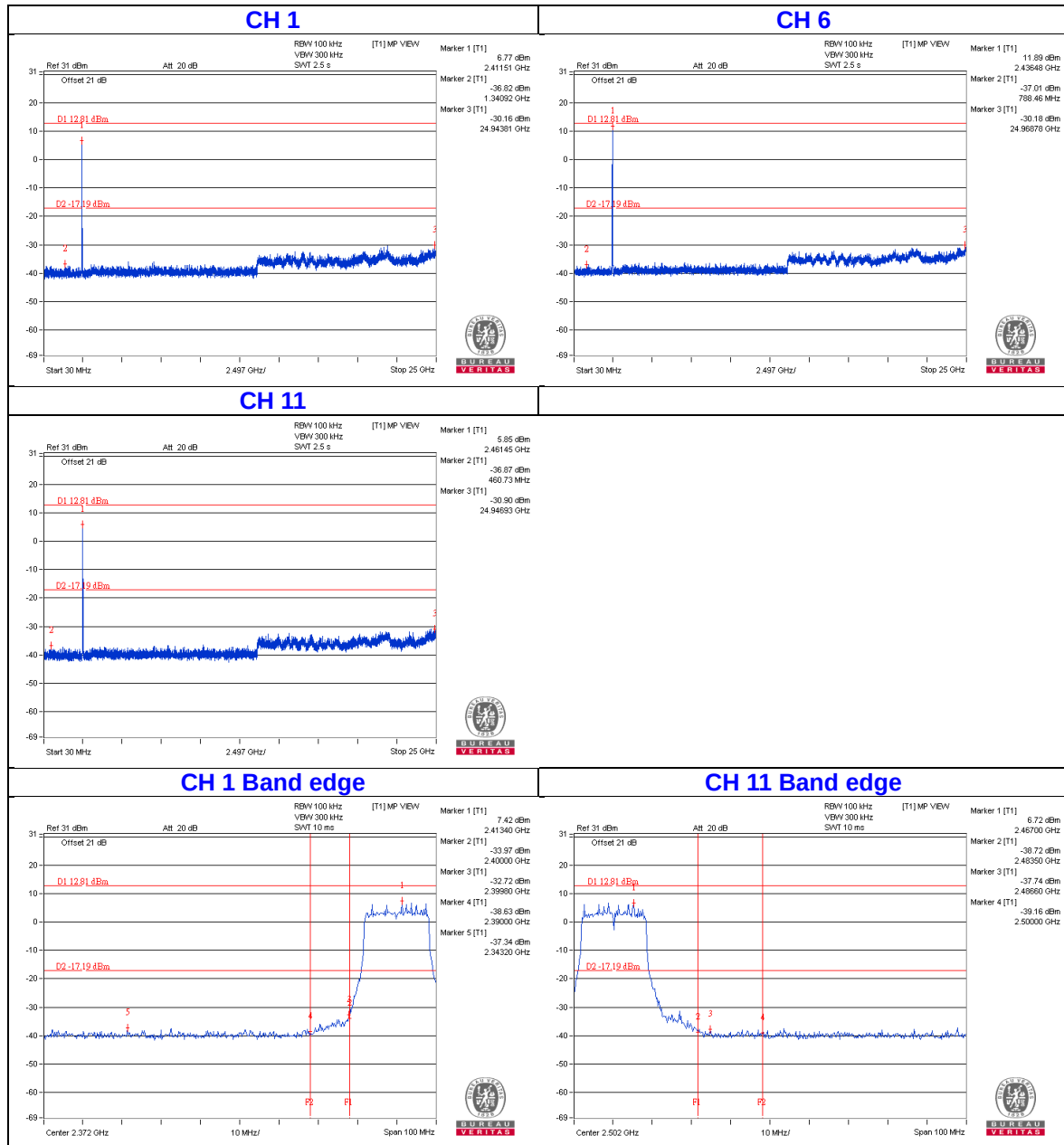
Chain 0



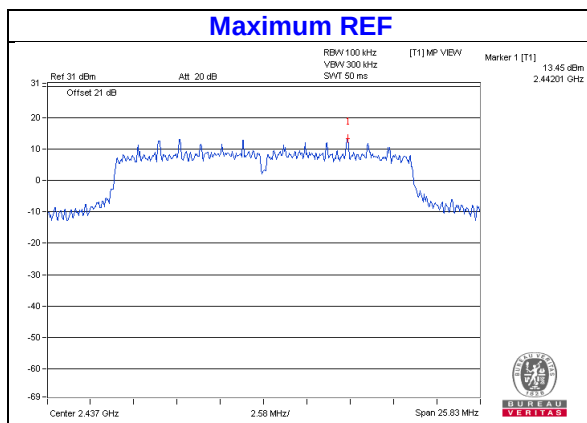
Chain 1



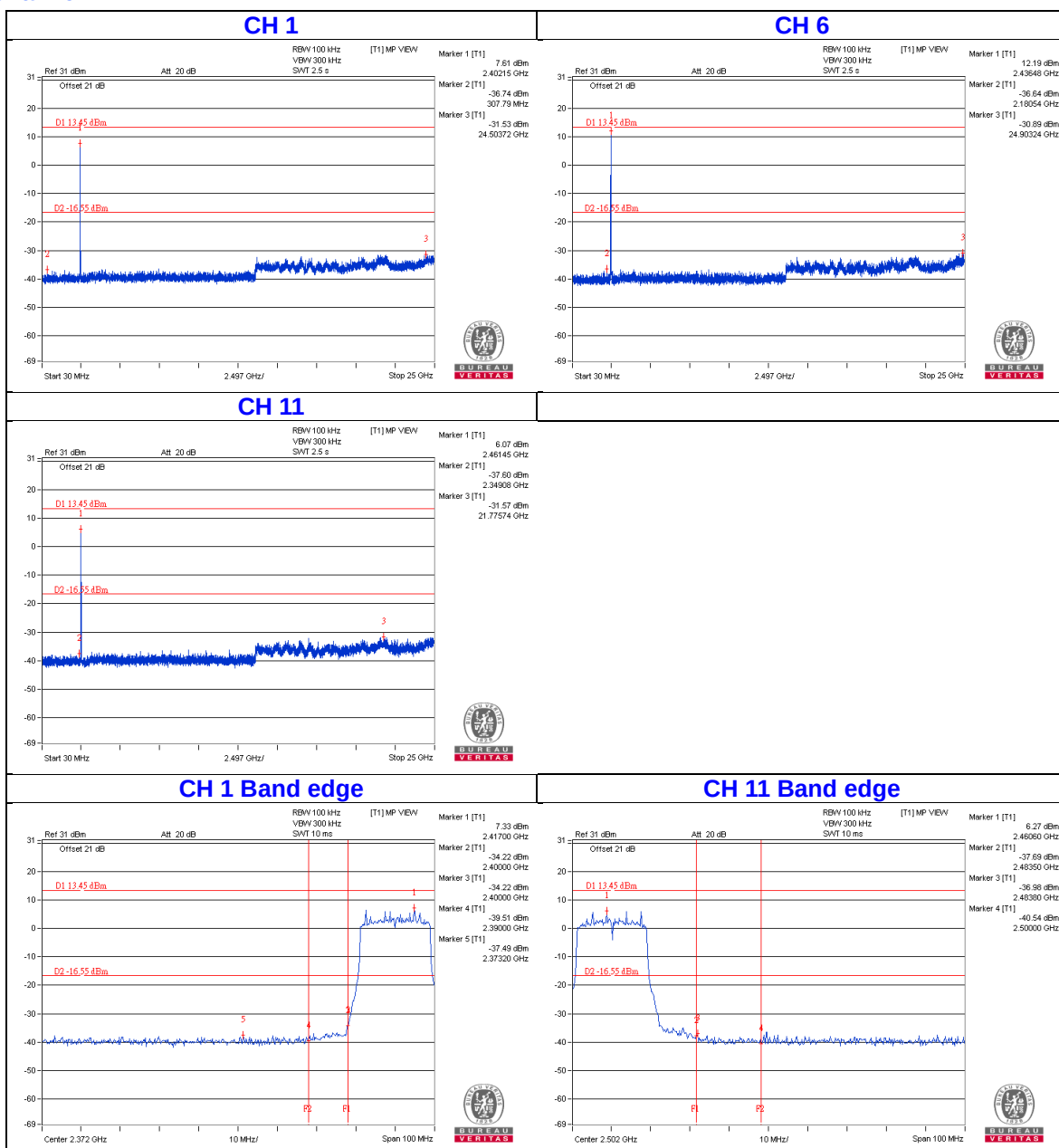
Chain 2



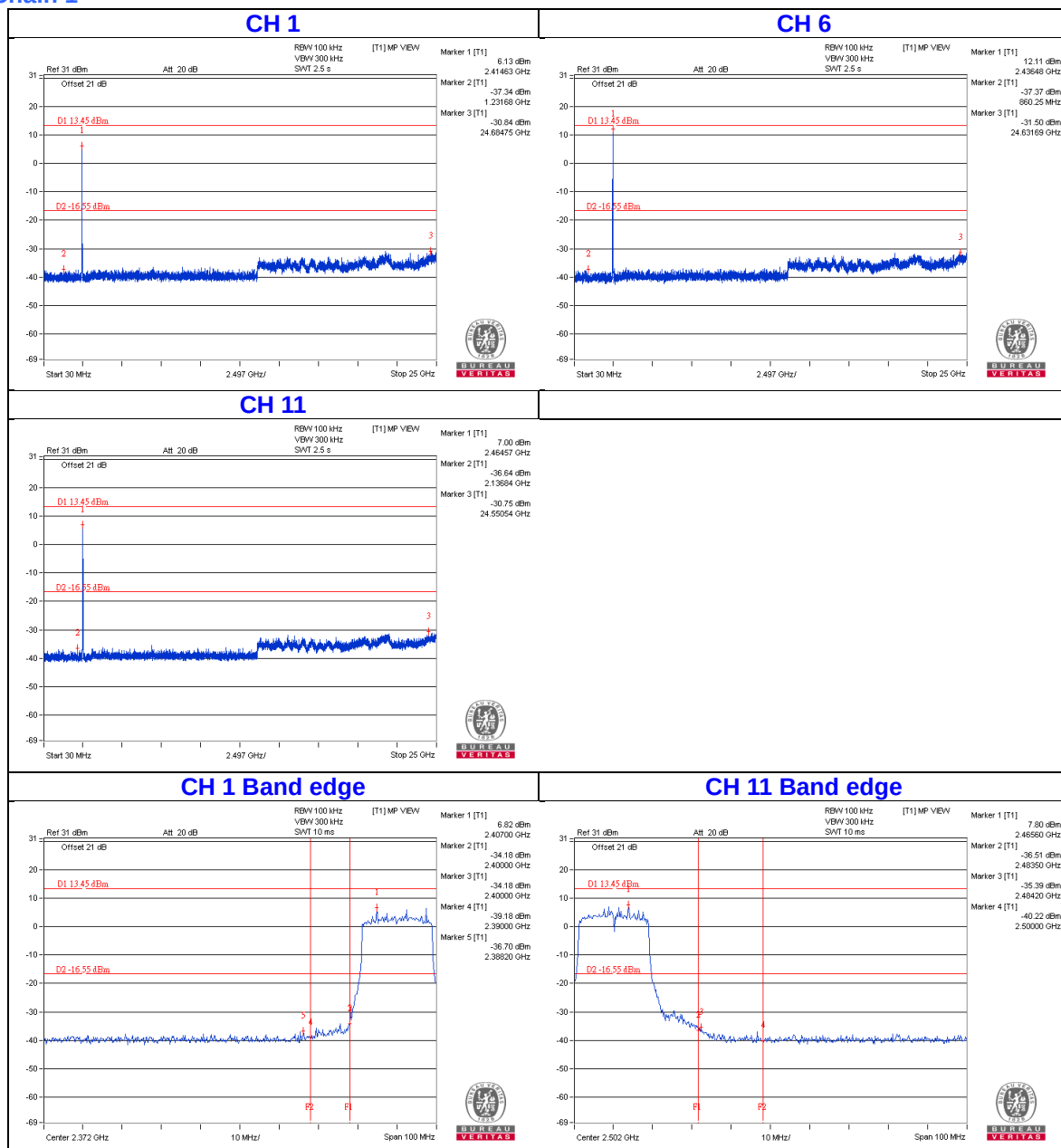
802.11n (HT20)



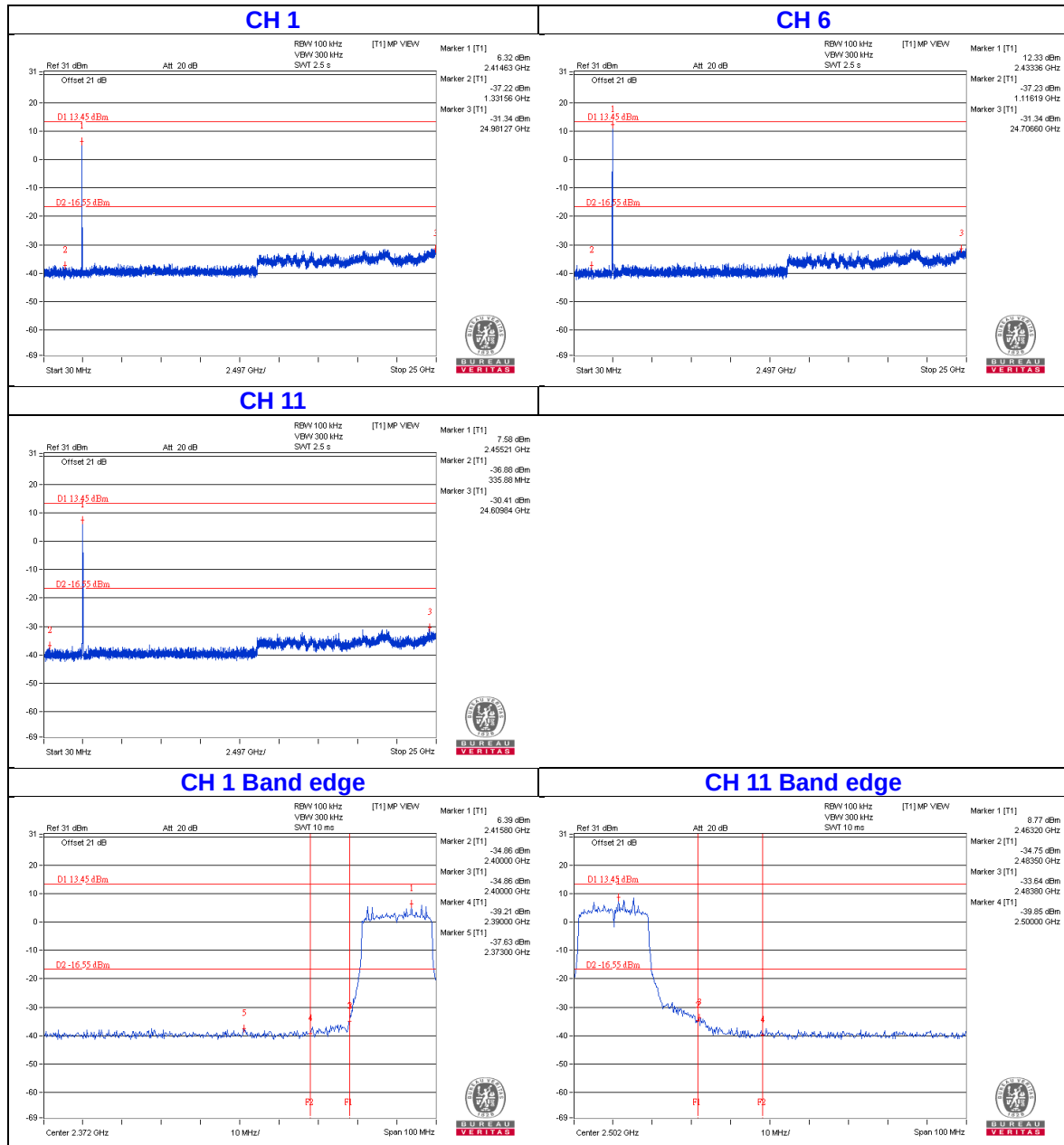
Chain 0



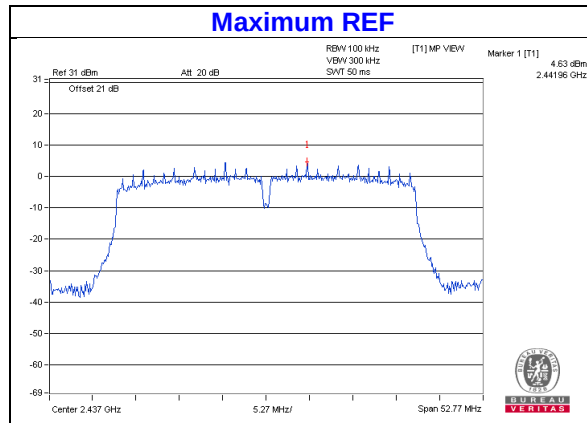
Chain 1



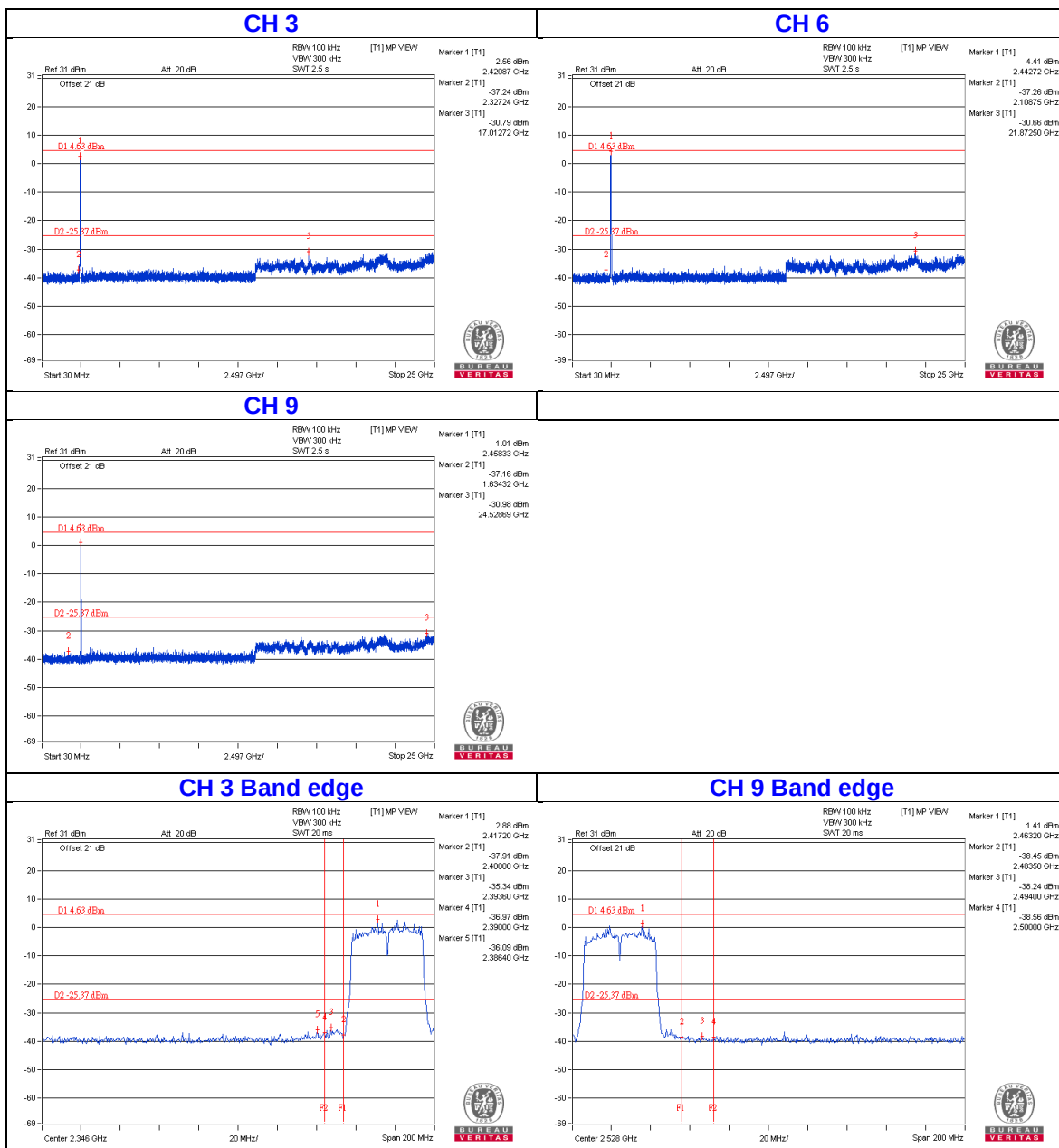
Chain 2



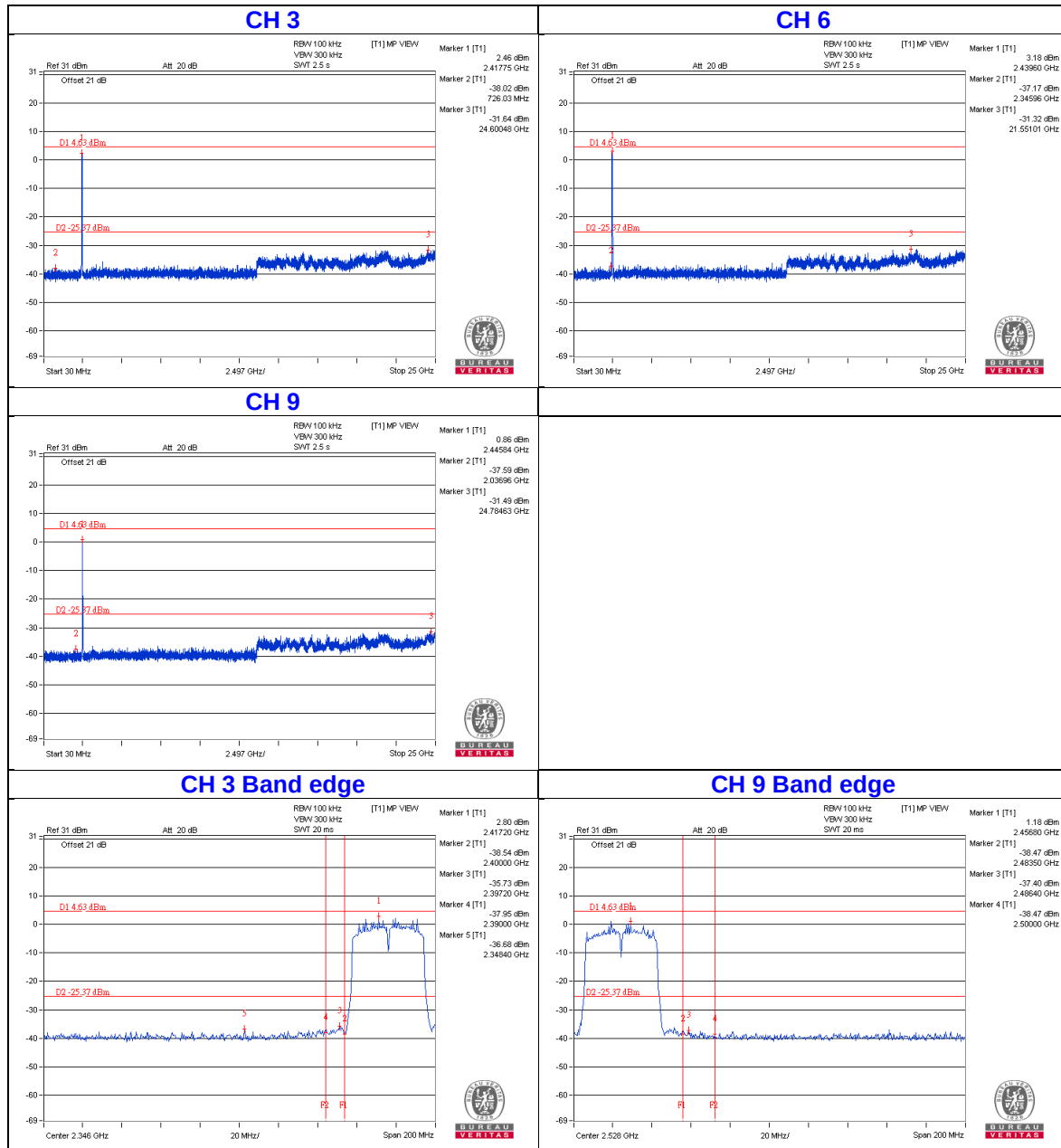
802.11n (HT40)



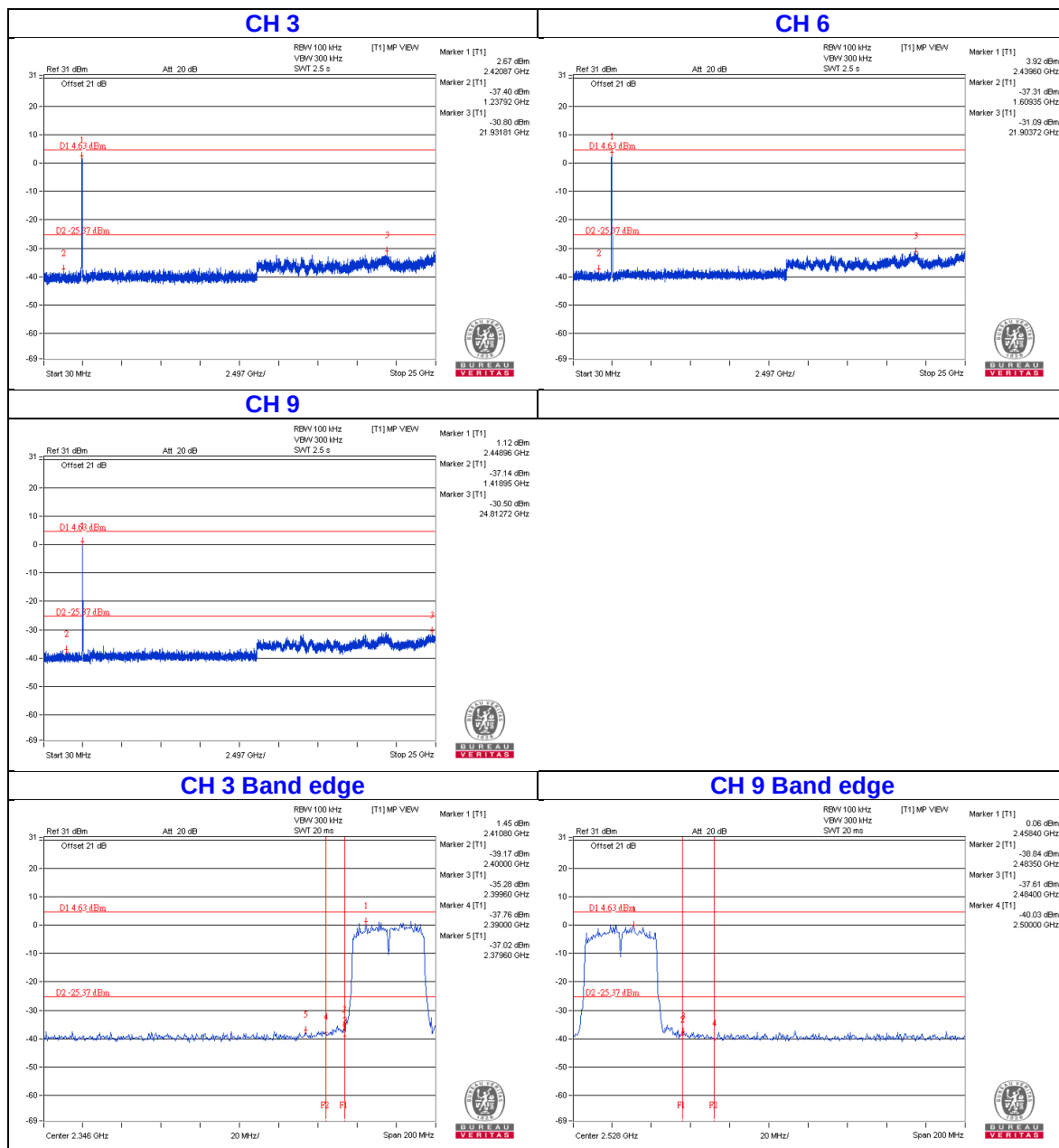
Chain 0



Chain 1

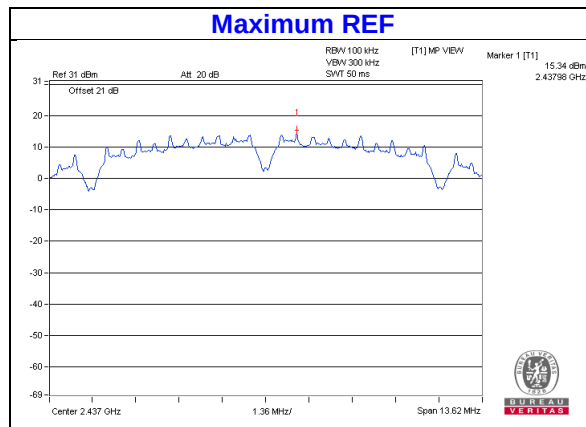


Chain 2

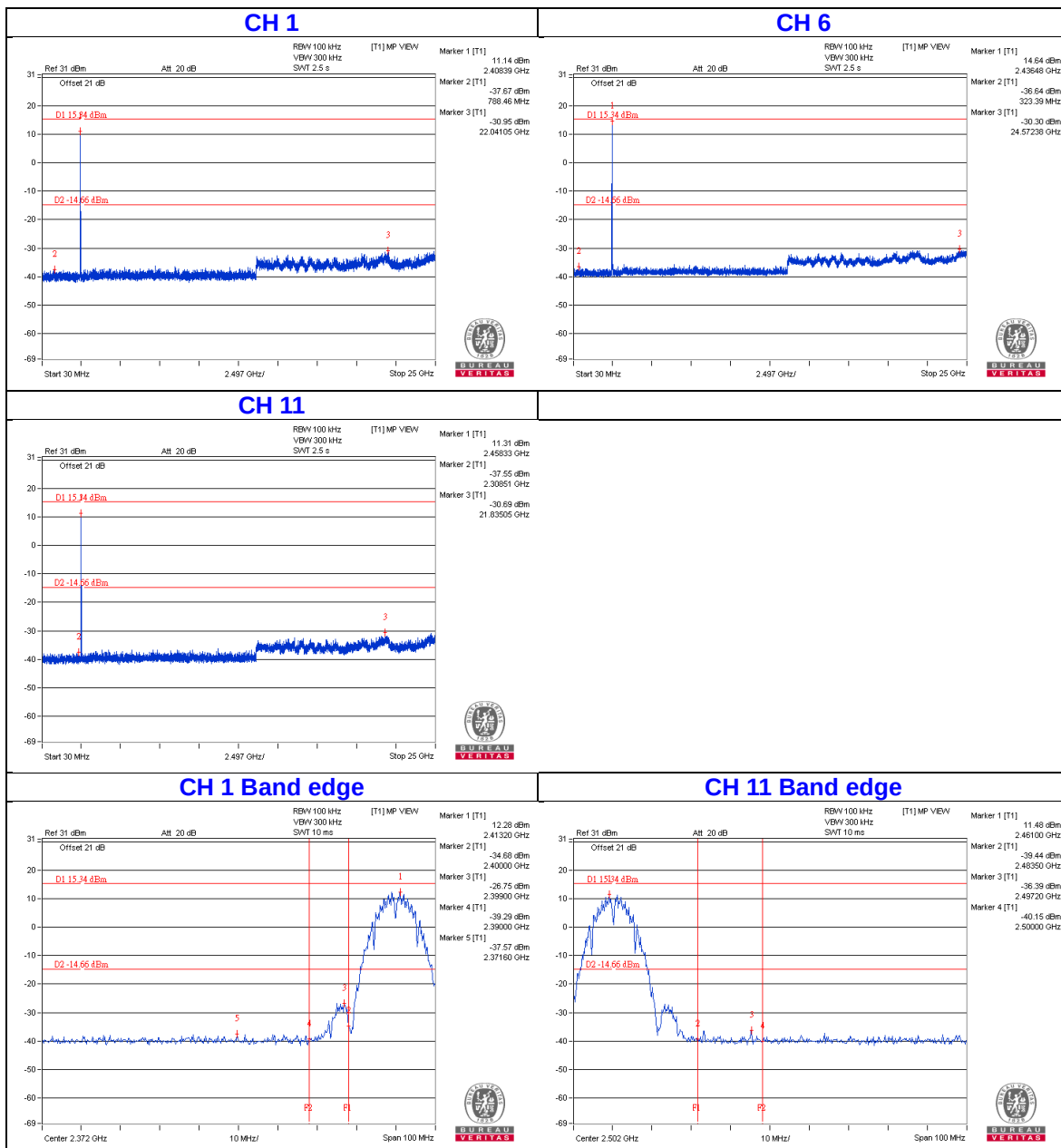


2TX Mode

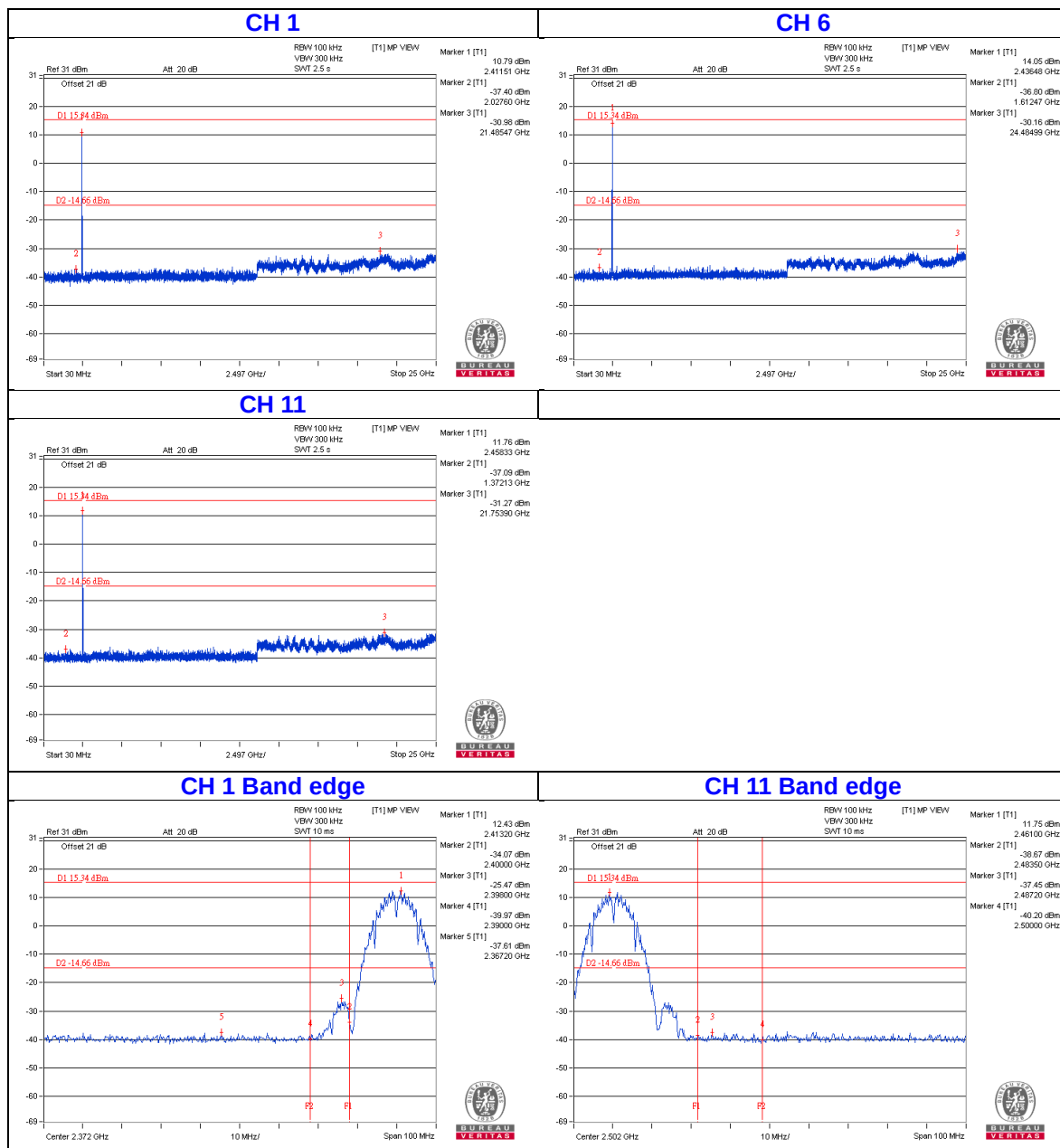
802.11b



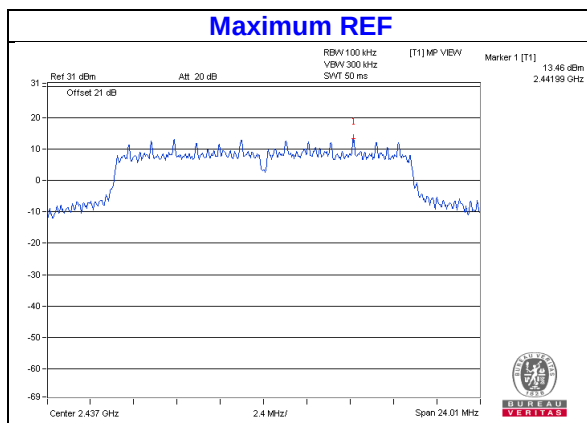
Chain 0



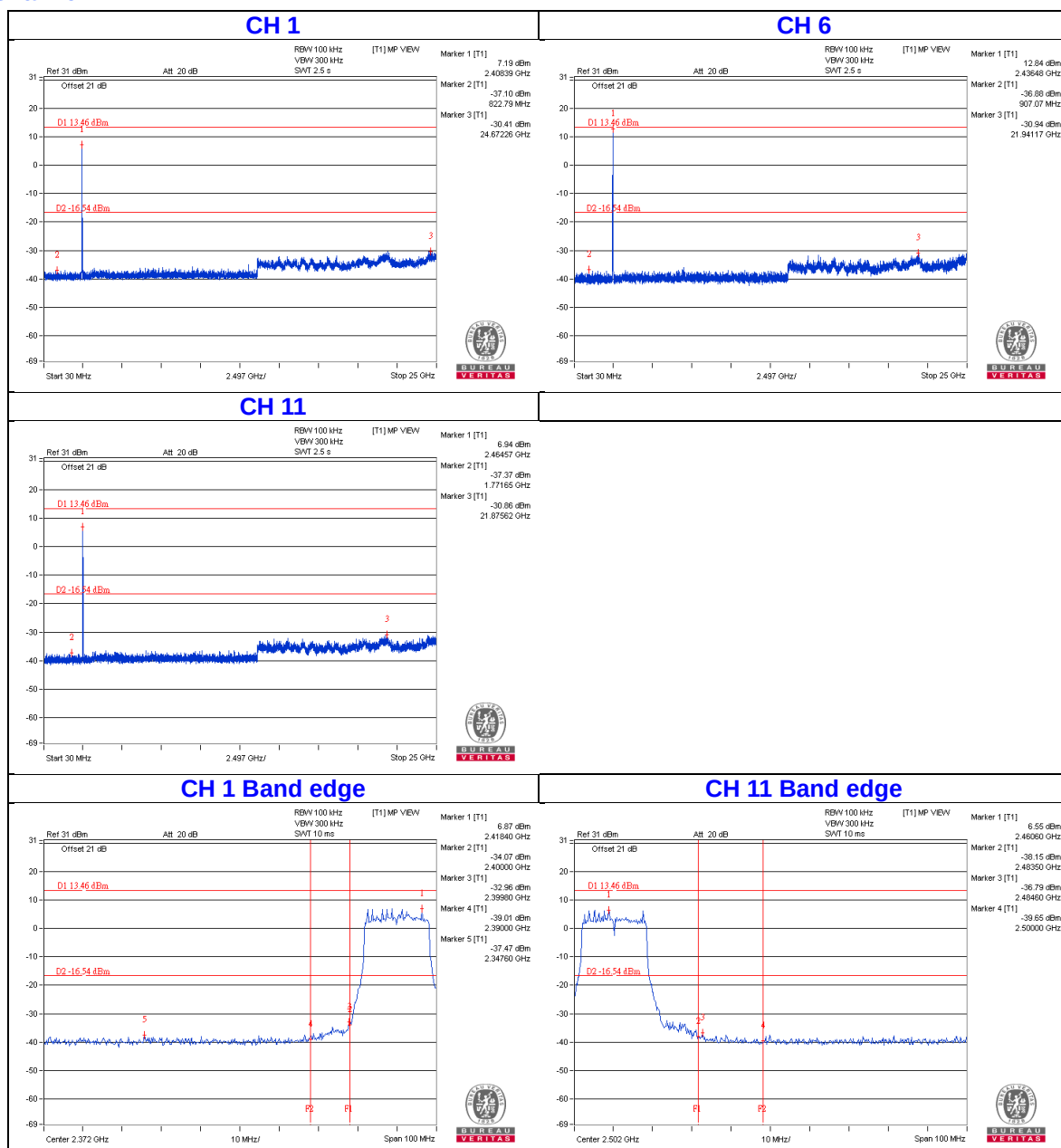
Chain 2



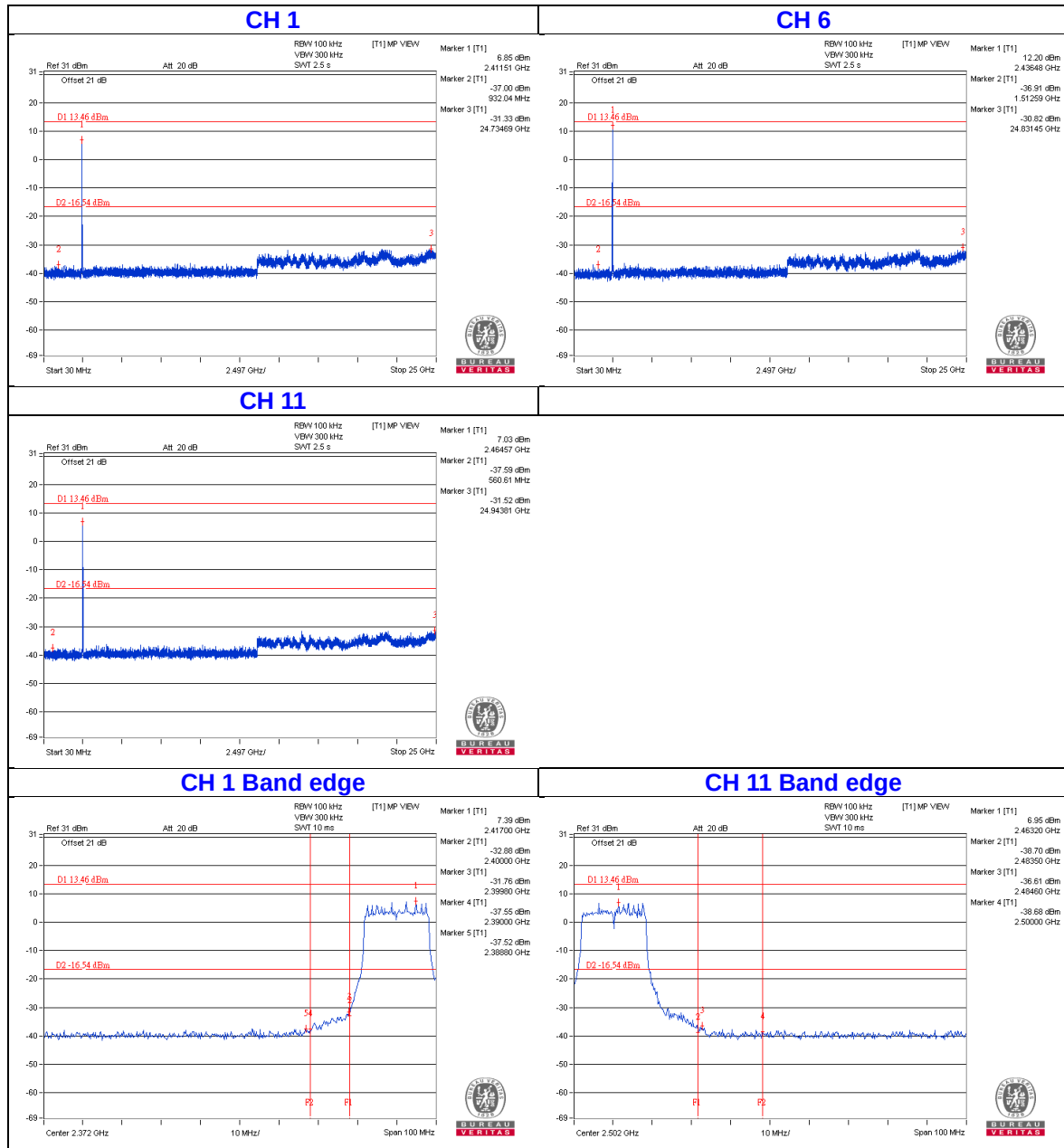
802.11g



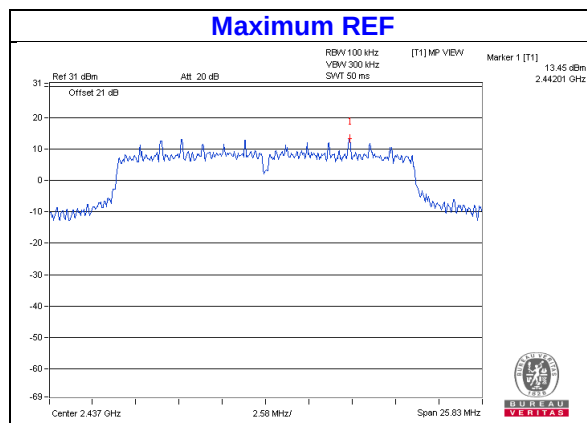
Chain 0



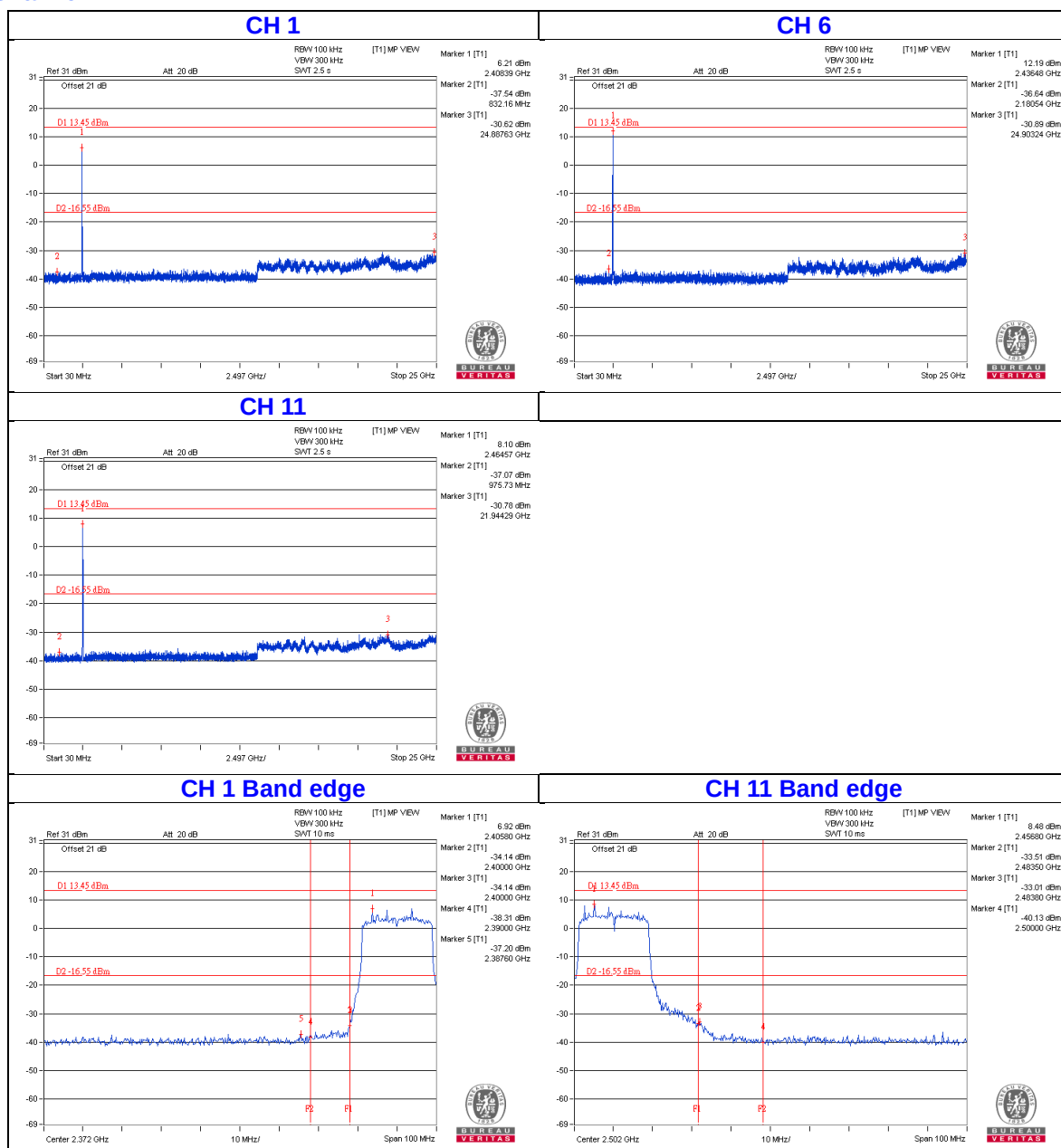
Chain 2



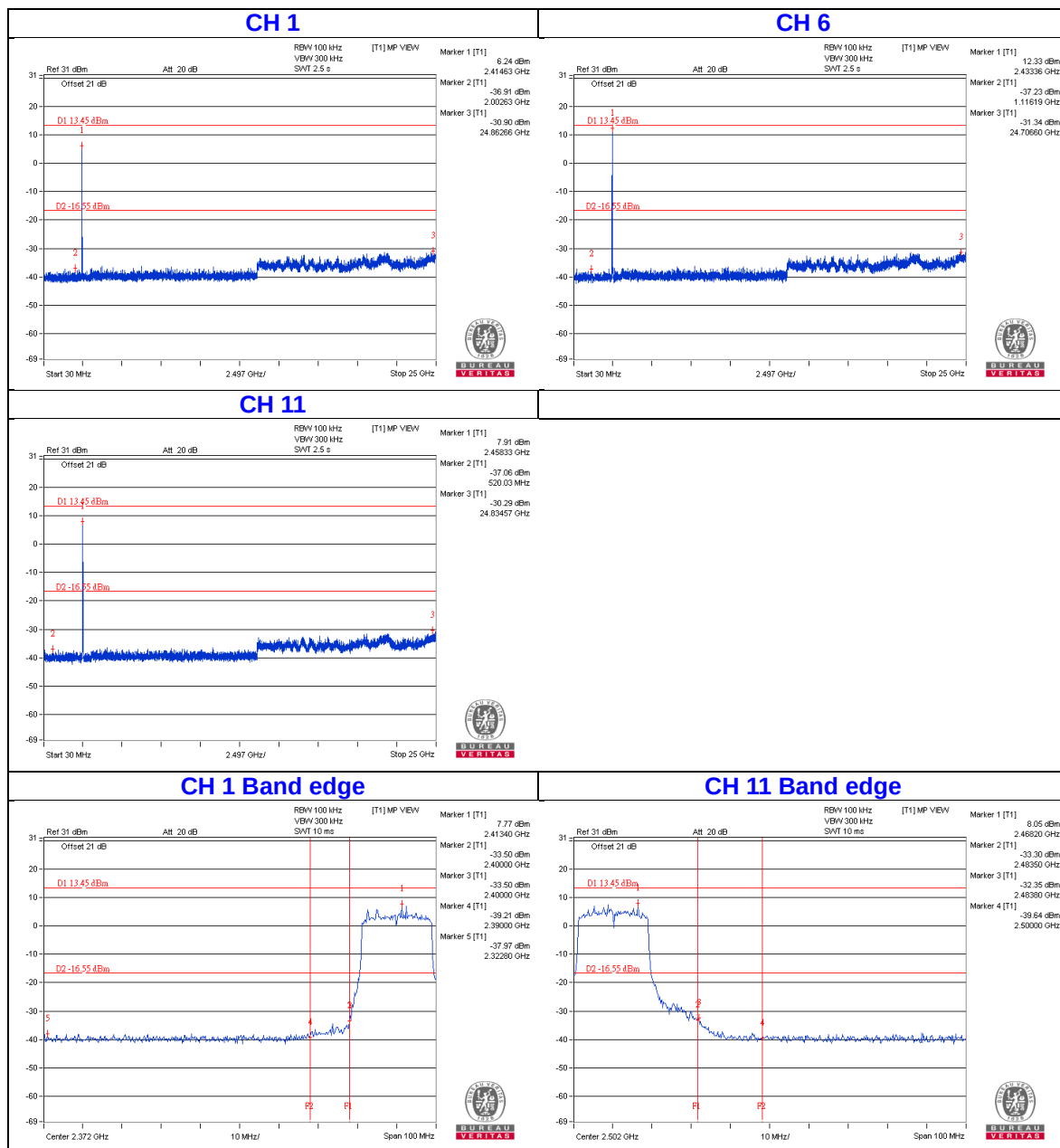
802.11n (HT20)



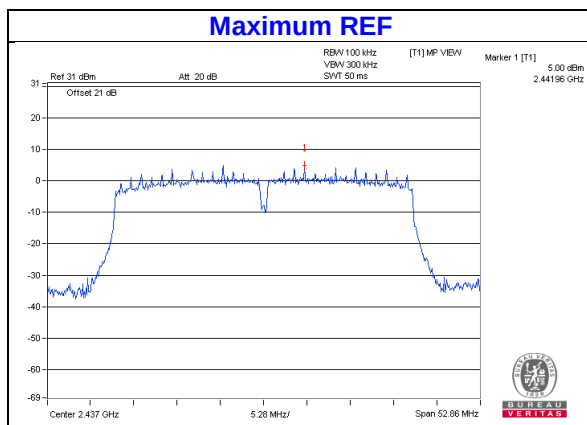
Chain 0



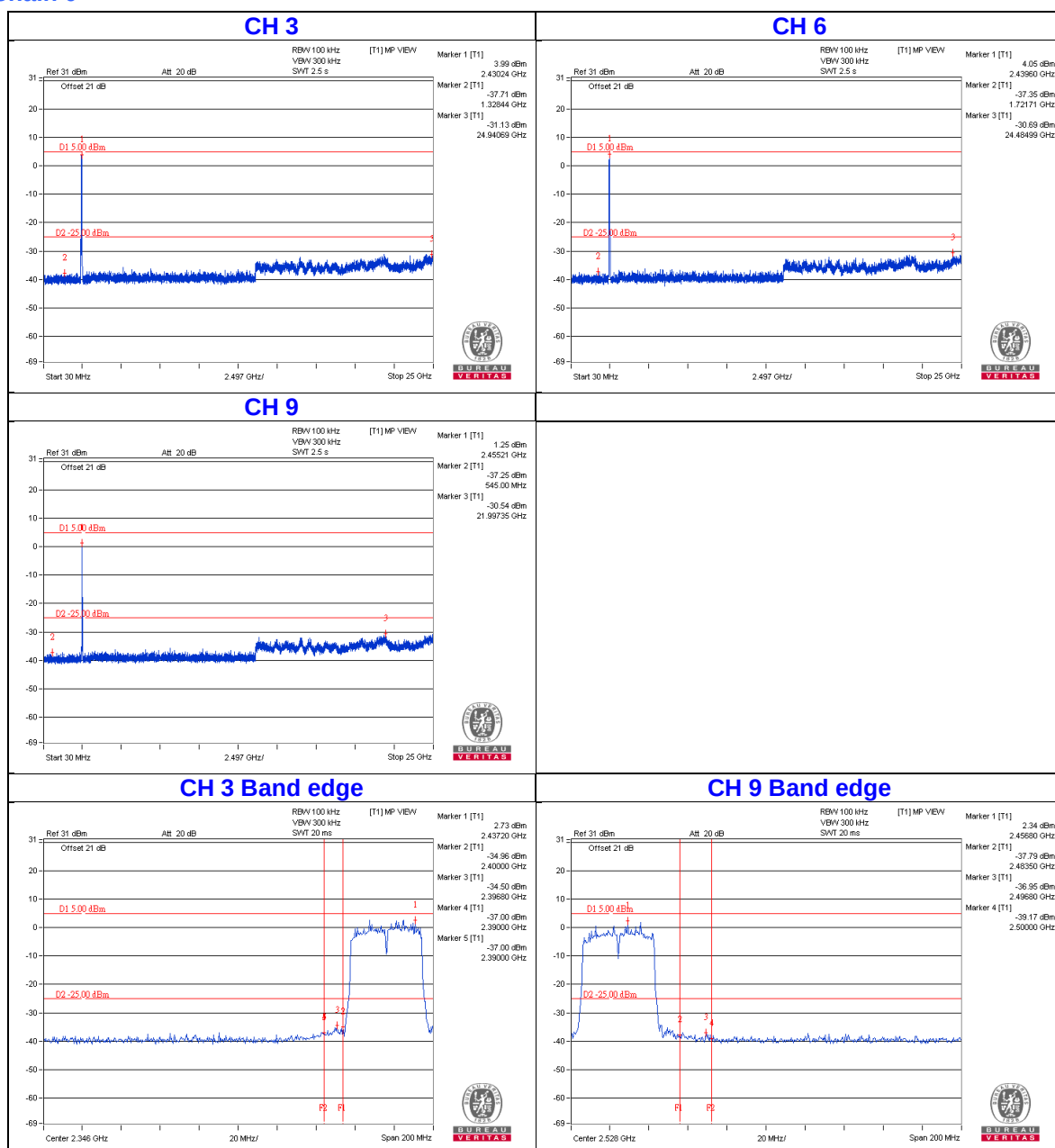
Chain 2



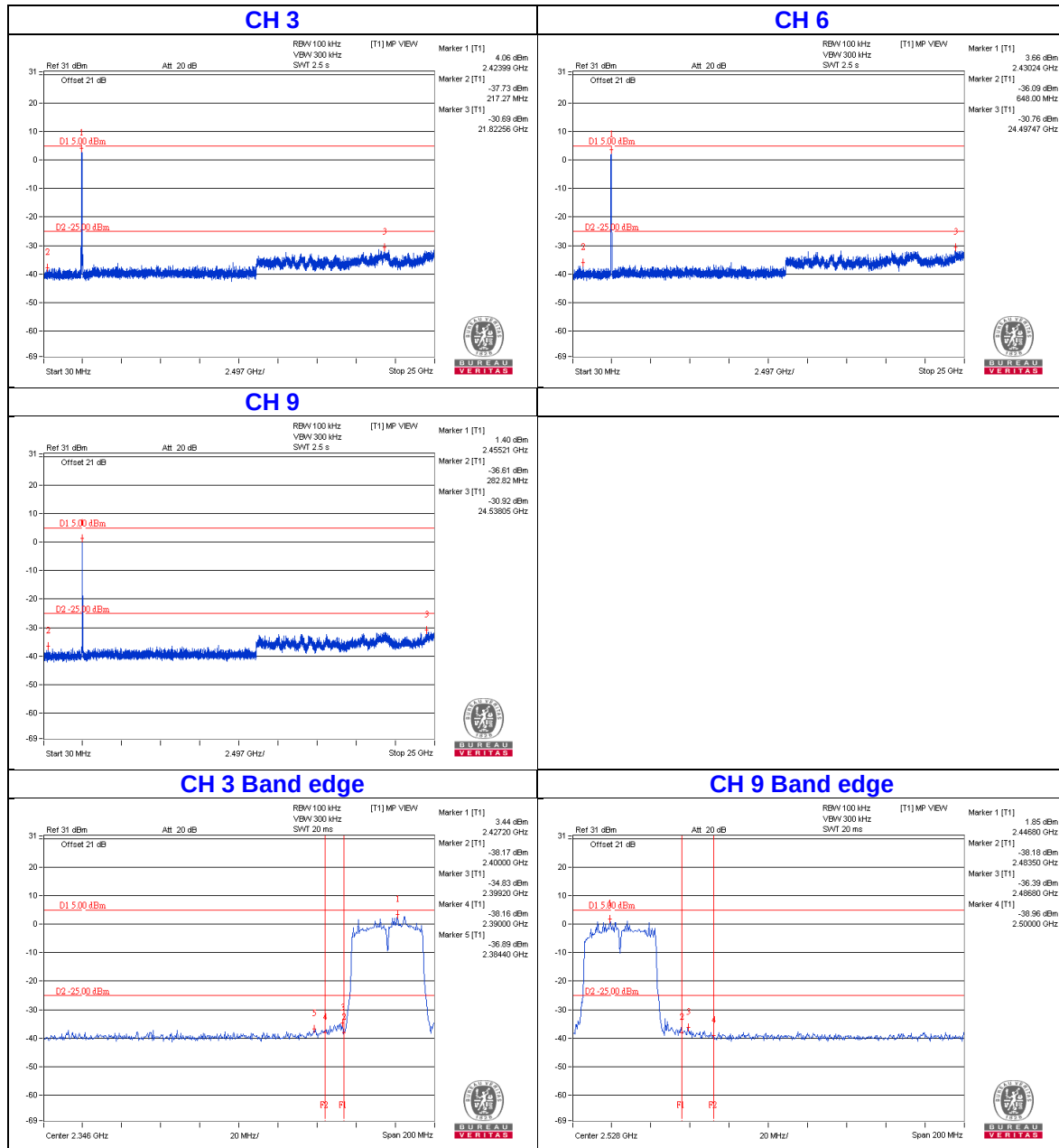
802.11n (HT40)



Chain 0

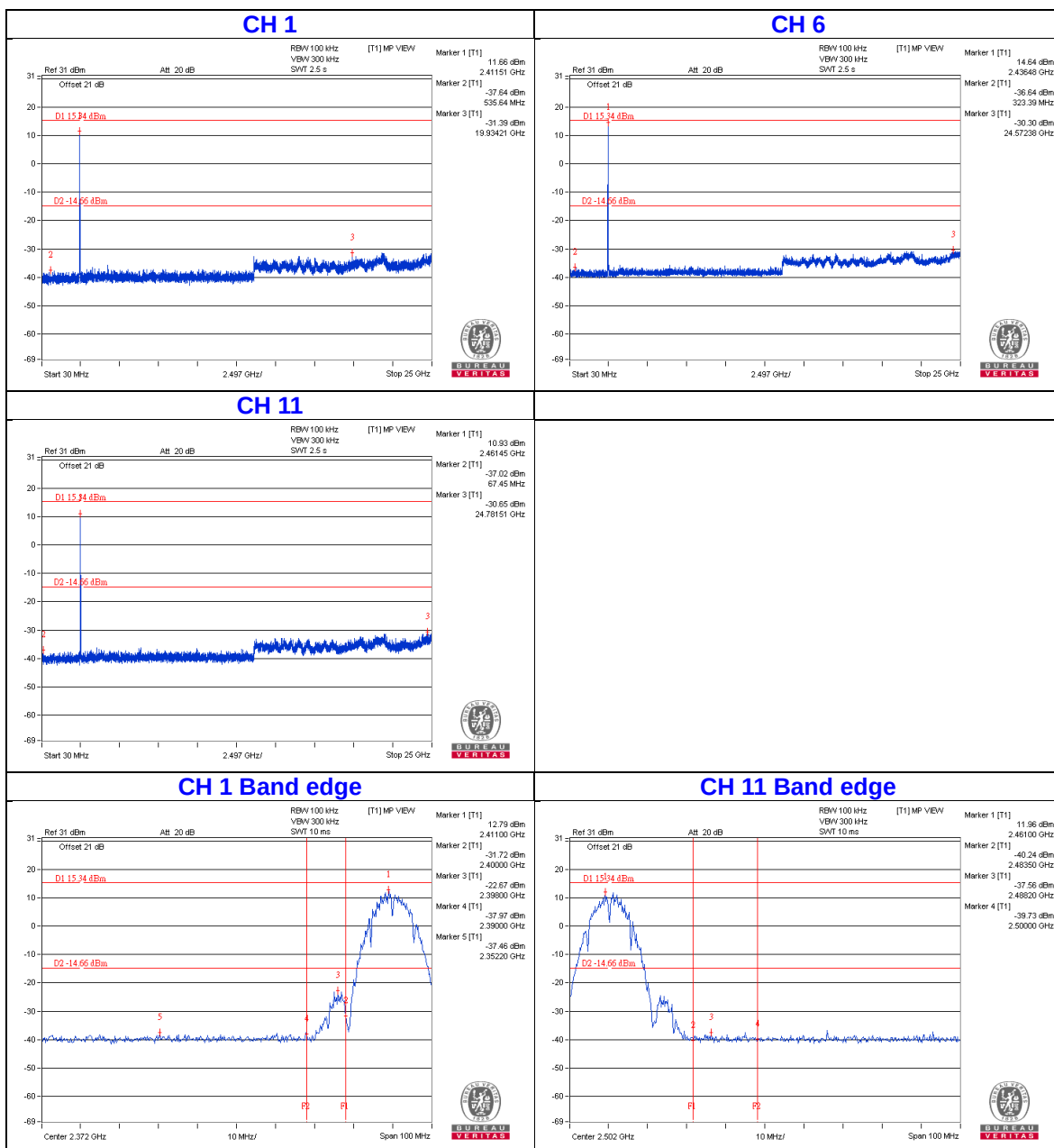
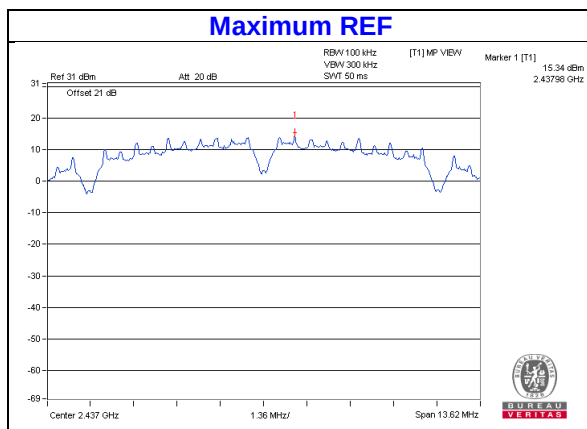


Chain 2

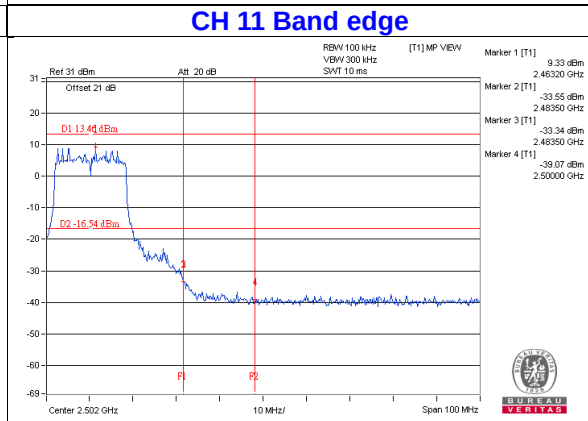
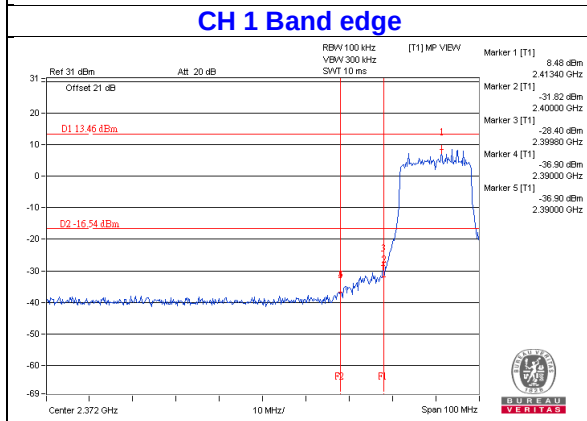
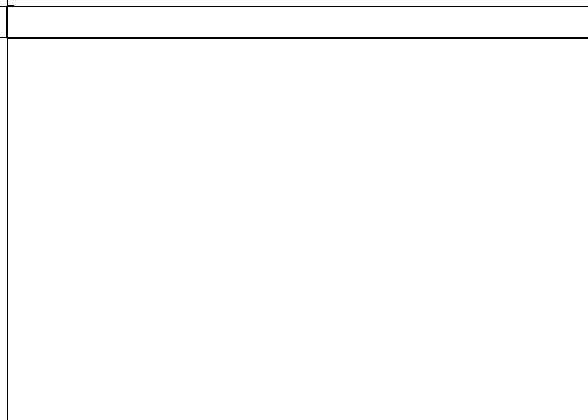
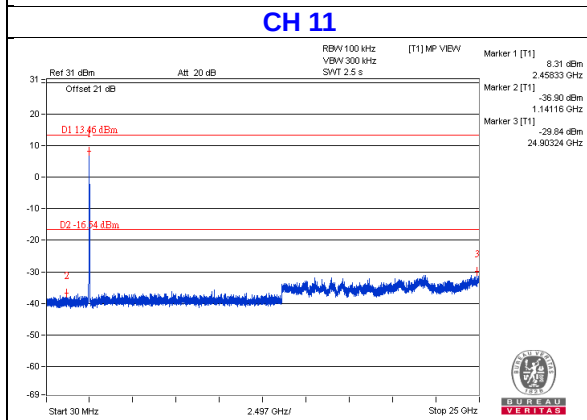
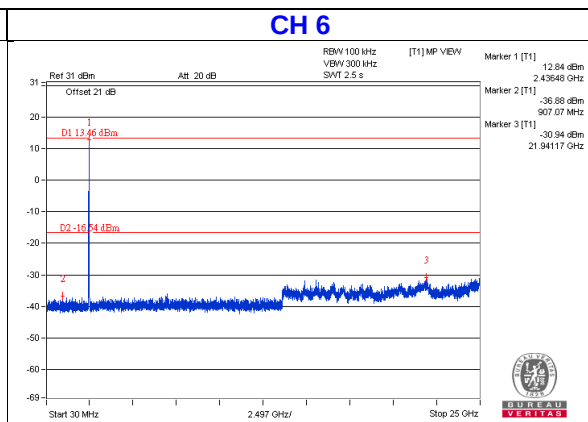
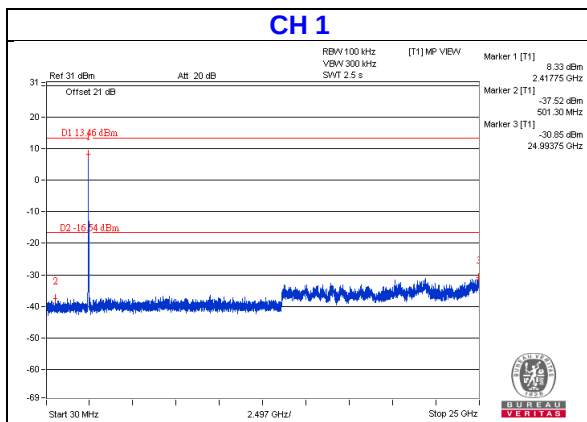
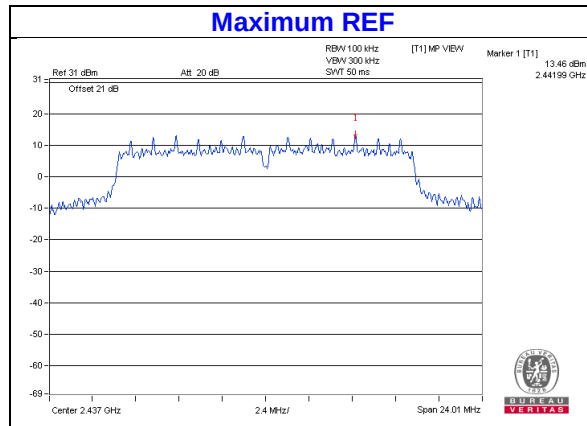


1TX Mode

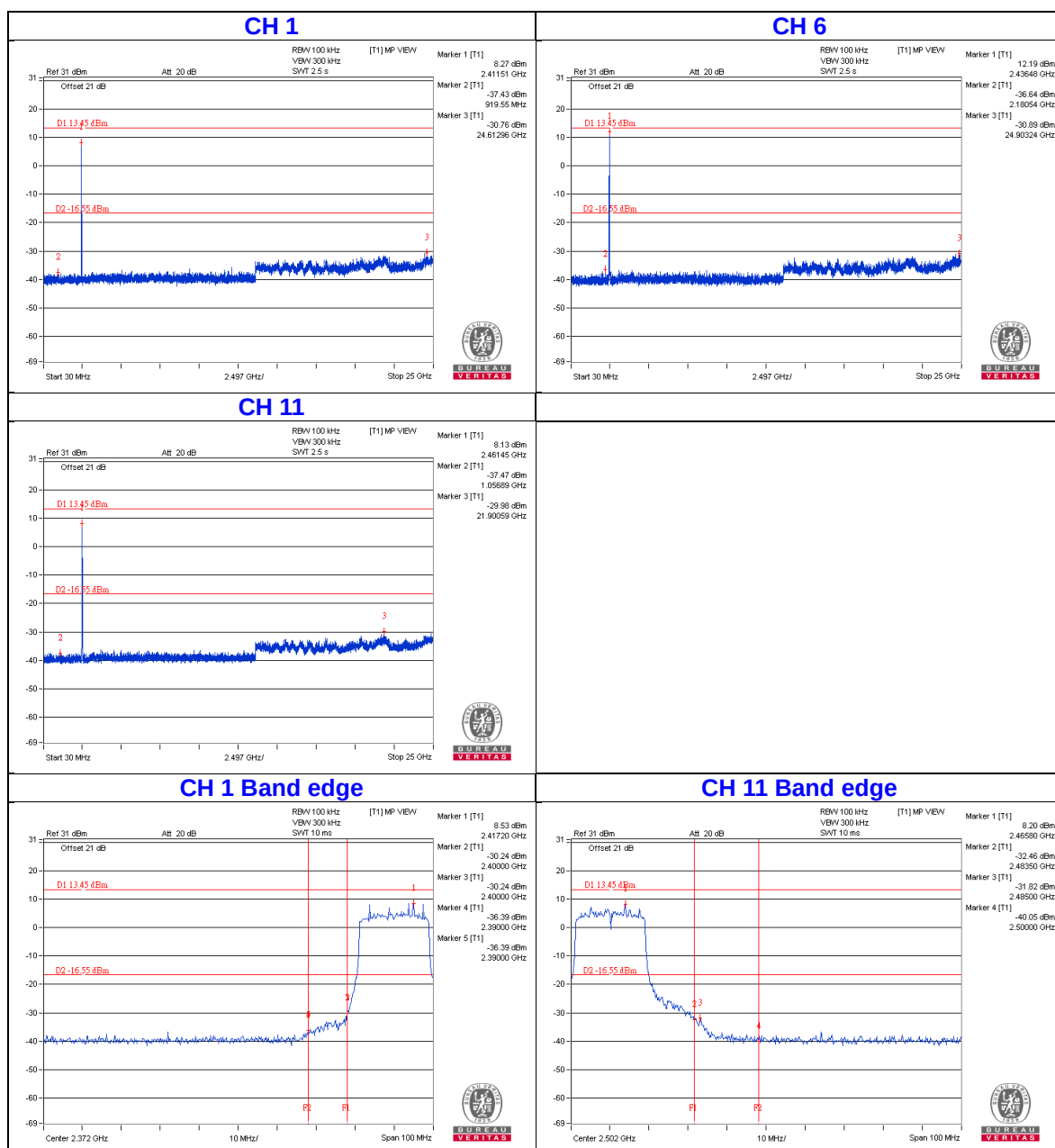
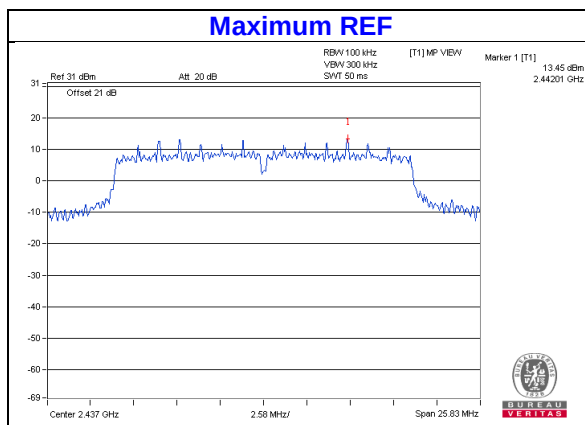
802.11b



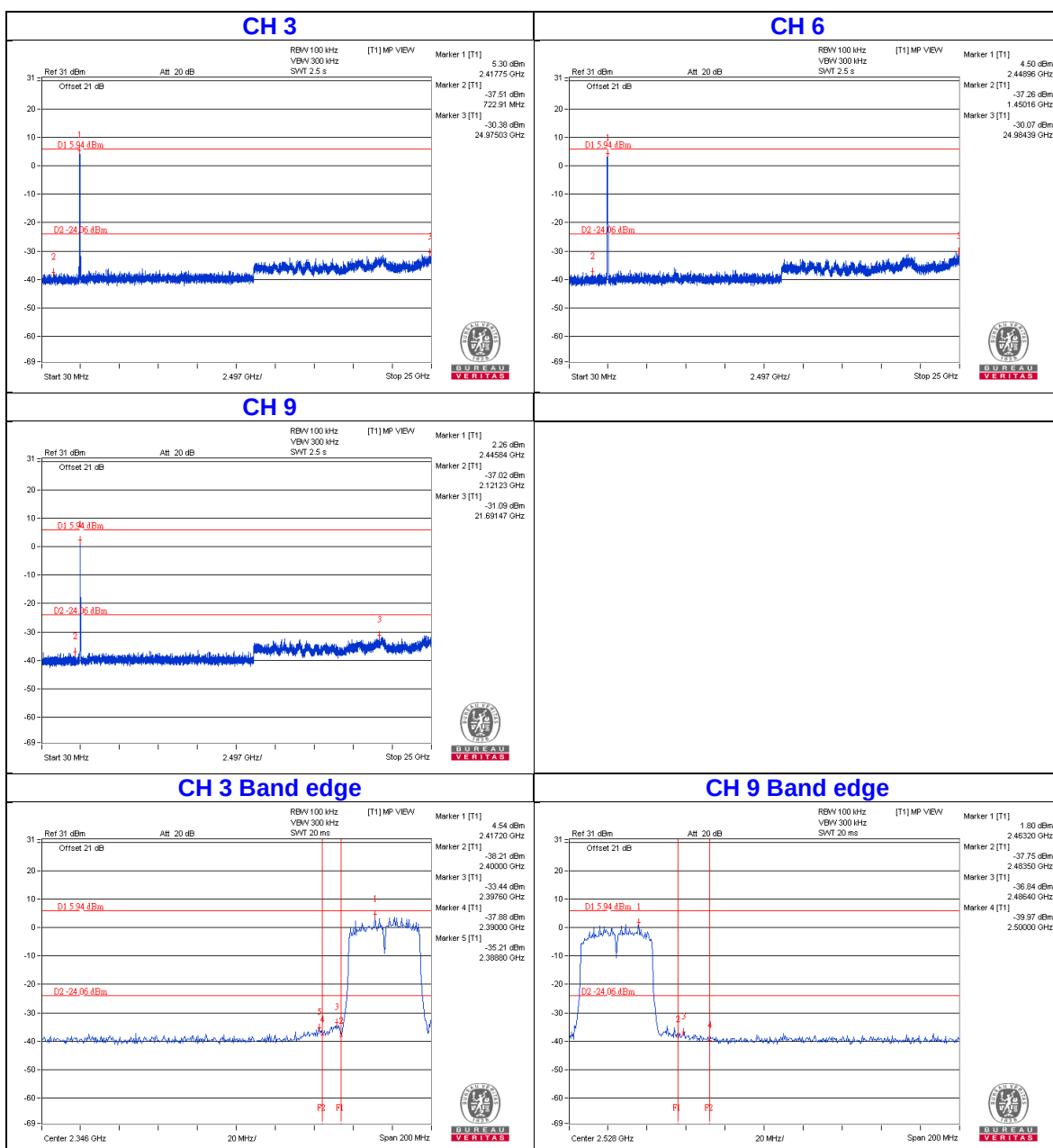
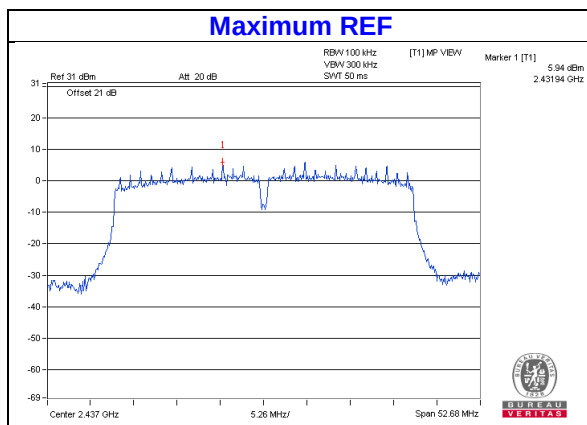
802.11g



802.11n (HT20)



802.11n (HT40)



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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 ---