

FCC Test Report

Report No.: RF170323D03

FCC ID: 2ALJ3AP23X

Test Model: AP231, AP231e

Received Date: Oct. 28, 2016

Test Date: Mar. 29 ~ Jul. 13, 2017

Issued Date: Aug. 3, 2017

Applicant: HAN Networks Co., Ltd.

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Release Control Record

Issue No.	Description	Date Issued
RF170323D03	Original release.	Aug. 3, 2017

1 Certificate of Conformity

Product: HAN Access Point

Brand: HAN

Test Model: AP231, AP231e

Sample Status: Engineering sample

Applicant: HAN Networks Co., Ltd.

Test Date: Mar. 29 ~ Jul. 13, 2017

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

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

Prepared by : Annie Chang , **Date:** Aug. 3, 2017
Annie Chang / Senior Specialist

Approved by : Rex Lai , **Date:** Aug. 3, 2017
Rex Lai / Assistant Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.84dB at 0.35313MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.00dB at 2483.50 MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA or I-PEX not a standard connector.

2.1 Measurement Uncertainty

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

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

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	HAN Access Point
Brand	HAN
Test Model	AP231, AP231e
Model Difference	Refer to note as below
Status of EUT	Engineering sample
Power Supply Rating	48Vdc from Adapter or 54Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (20MHz), 7 for 802.11n (40MHz)
Output Power	585.695mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

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

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

- All models are listed as below.

Brand	Model	Difference
HAN	AP231	Internal antenna
	AP231e	External antenna

- The EUT was pre-tested with the following modes:

- ✧ Operating Mode (EUT Powered from Adapter)
- ✧ Operating Mode (EUT Powered from PoE)

The worst emission level was found when the EUT tested under **Operating Mode (EUT + Adapter)**, therefore, only its test data was recorded in this report.

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

Antenna	Chain No.	Antenna Type	Antenna Gain (dBi)	Connector Type
Internal	Chain 0	PIFA	3.41	I-PEX
	Chain 1	PIFA	3.61	I-PEX
External	Chain 0	Dipole	4	R-SMA
	Chain 1	Dipole	4	R-SMA

5. The Beamforming gain table:

Antenna	Max. Gain (dBi)
Internal	2.72
External	2.65

6. The directional gain table:

Antenna	Max. Gain (dBi)
Internal	6.52
External	7.01

Note:

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

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

7. 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 (20MHz):

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 (40MHz):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	Model: AP231 (Int. antenna), Powered from Adapter
B	√	√	√	√	Model: AP231e (Ext. antenna), Powered from Adapter
C	-	-	√	-	Model: AP231 (Int. antenna), Powered from PoE
D	-	-	√	-	Model: AP231e (Ext. antenna), Powered from PoE

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:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**. (Mode A)
The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**. (Mode B)

Radiated Emission Test (Above 1GHz):

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

CDD Mode						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
A & B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
A & B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming_NSS1 Mode						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

CDD Mode						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11g	1 to 11	6	OFDM	BPSK	6
B	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

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

CDD Mode						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & C	802.11g	1 to 11	6	OFDM	BPSK	6
B & D	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

CDD Mode						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
A & B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
A & B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming_NSS1 Mode (Output Power Only)						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	22deg. C, 66%RH	120Vac, 60Hz	Ian Chang
RE $<$ 1G	30deg. C, 66%RH	120Vac, 60Hz	Ian Chang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Ian Chang
APCM	25deg. C, 76%RH	120Vac, 60Hz	Saxon Lee

3.3 Duty Cycle of Test Signal

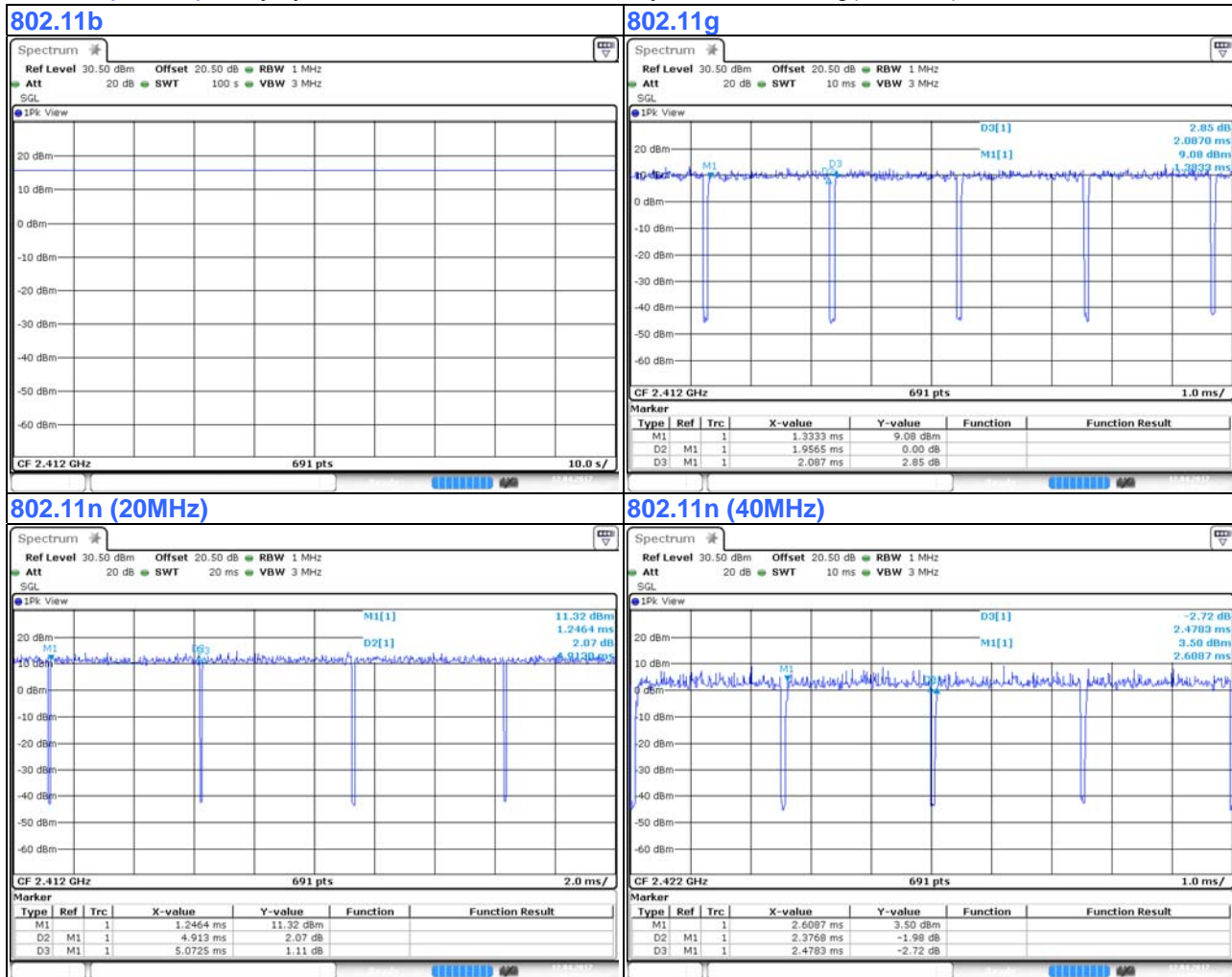
If duty cycle of test signal is 100 %, duty factor is not required.
 If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = Duty cycle of test signal is 100 %.

802.11g: Duty cycle = $1.956/2.087 = 0.937$, Duty factor = $10 * \log(1/0.937) = 0.28$

802.11n (20MHz): Duty cycle = $4.913/5.072 = 0.969$, Duty factor = $10 * \log(1/0.969) = 0.14$

802.11n (40MHz): Duty cycle = $2.376/2.478 = 0.959$, Duty factor = $10 * \log(1/0.959) = 0.20$



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	APD	WB-18D12R	N/A	N/A	Supplied by client
B.	NOTEBOOK PC	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab
C.	USB 3.0 Flash Drive	HP	v250w	N/A	FCC DoC Approved	Provided by Lab
D.	Load	N/A	N/A	N/A	N/A	Provided by Lab
E.	PoE	Microsemi	PD-9001GR/AT/AC	N/A	N/A	Supplied by client

Note:

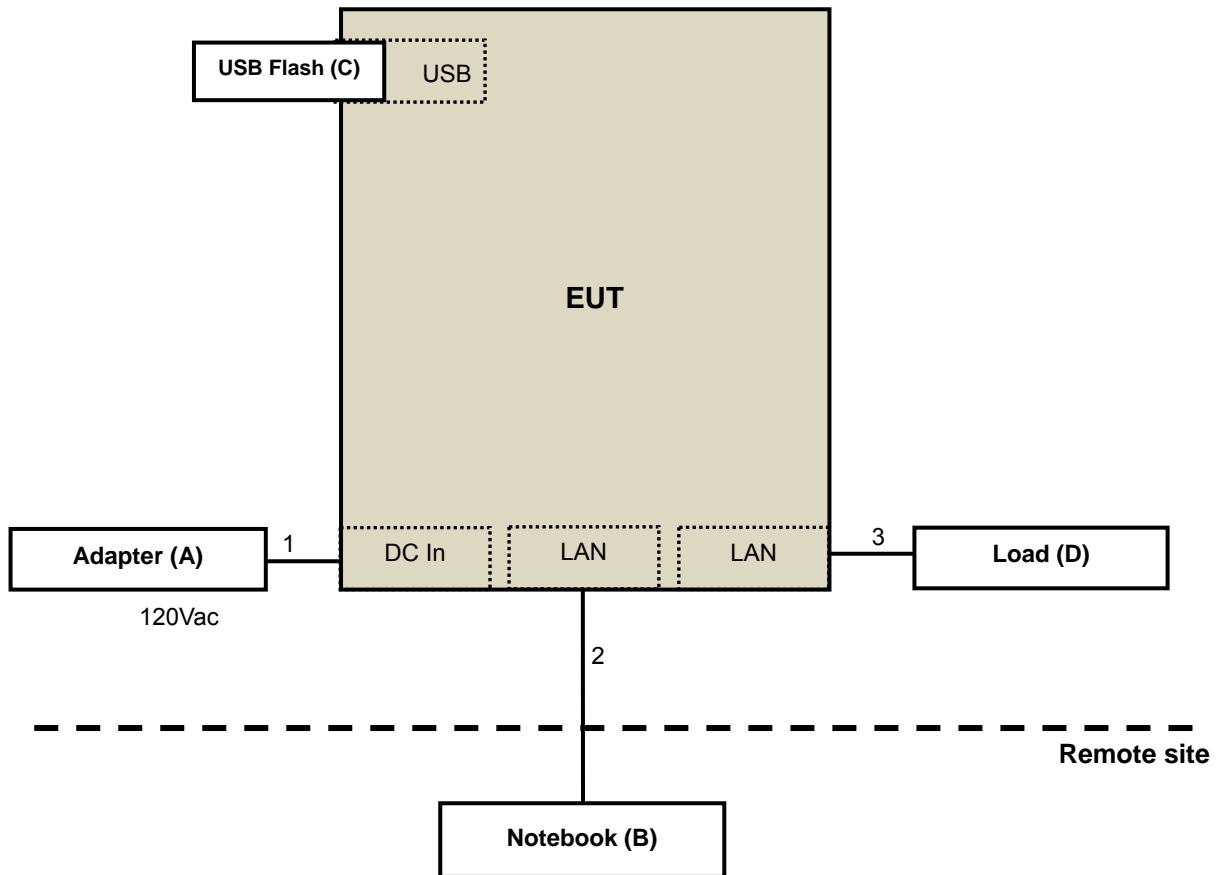
1. All power cords of the above support units are non-shielded (1.8m).
2. Item B acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.5	N	0	Supplied by client
2.	LAN cable	1	10	N	0	Provided by Lab
3.	LAN cable	1	1.8	N	0	Provided by Lab
4.	LAN cable	1	1.8	N	0	Provided by Lab
5.	AC Power Cord	1	1.8	N	0	Supplied by client

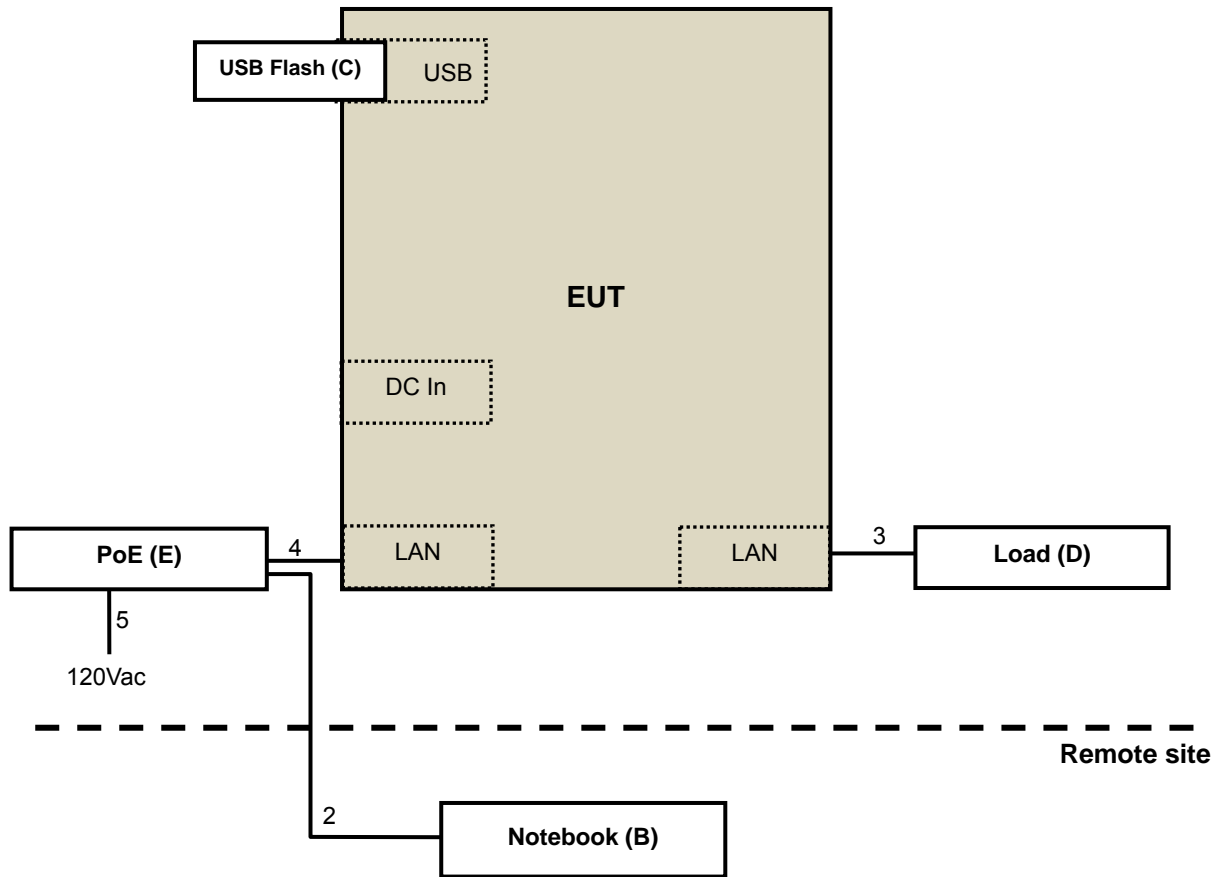
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Mode A & B:



Mode C & D:



3.5 General Description of Applied Standards

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

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 21, 2017	Feb. 20, 2018
HP Preamplifier	8449B	3008A01201	Feb. 22, 2017	Feb. 21, 2018
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2017	Feb. 20, 2018
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 08, 2017	Feb. 07, 2018
Schwarzbeck Antenna	VULB 9168	139	Dec. 13, 2016	Dec. 12, 2017
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 27, 2016	Dec. 26, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2016	Aug. 14, 2017
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2016	Aug. 14, 2017
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 25, 2016	May 24, 2017
			May 31, 2017	May 30, 2018
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2016	Jul. 25, 2017
Loop Antenna EMCI	LPA600	270	Aug. 20, 2015	Aug. 19, 2017
EMCO Horn Antenna	3115	00028257	Dec. 15, 2016	Dec. 14, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 30, 2016	Sep. 29, 2017
Anritsu Power Sensor	MA2411B	0738404	Apr. 28, 2016	Apr. 27, 2017
			Apr. 24, 2017	Apr. 23, 2018
Anritsu Power Meter	ML2495A	0842014	Apr. 28, 2016	Apr. 27, 2017
			Apr. 24, 2017	Apr. 23, 2018

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

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:

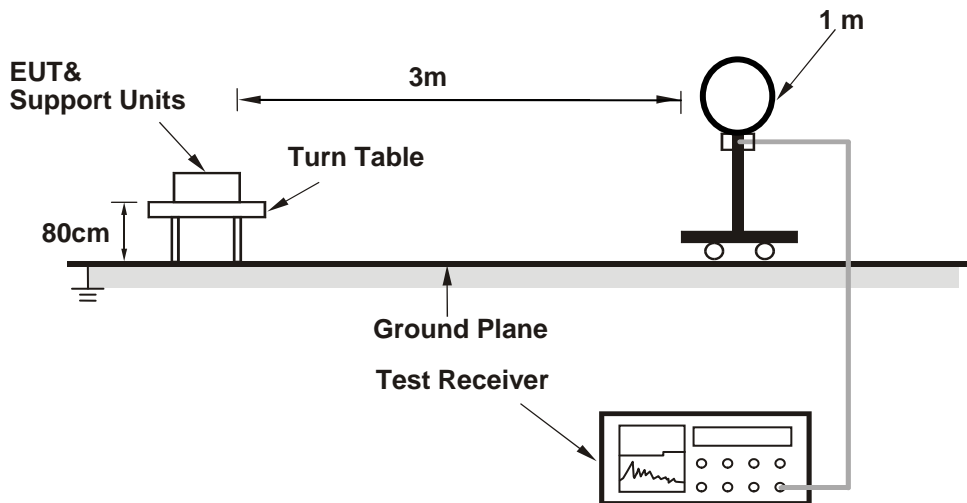
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

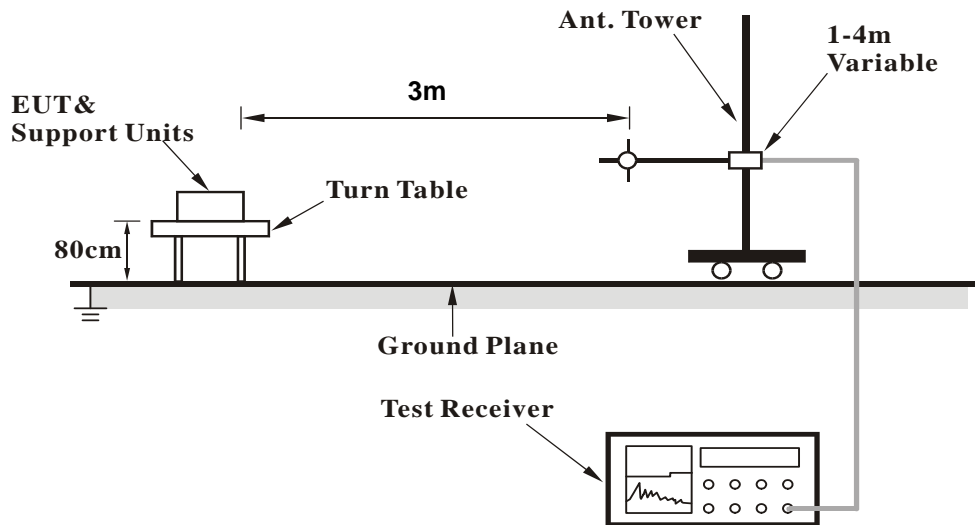
No deviation.

4.1.5 Test Setup

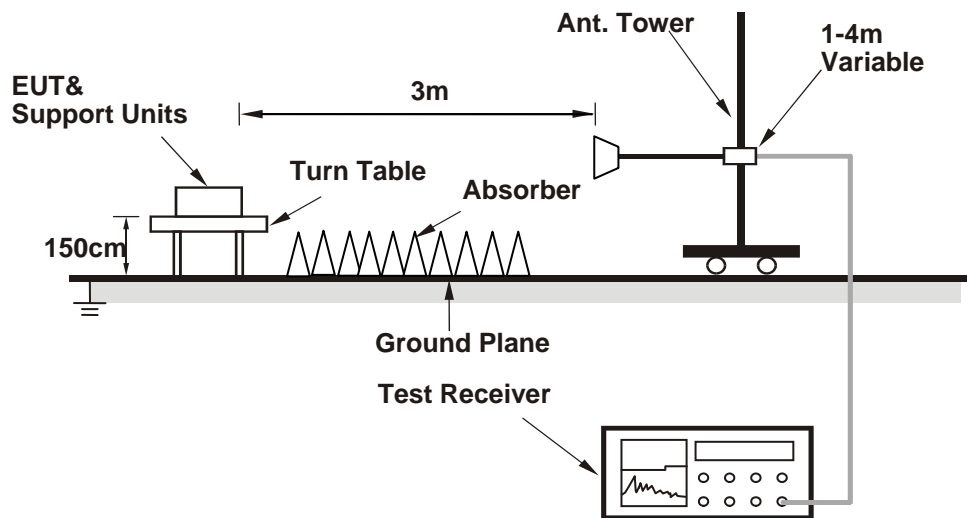
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

ABOVE 1GHz DATA

CDD Mode (Mode A)

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	53.84 PK	74.00	-20.16	1.26 H	269	54.43	-0.59
2	2390.00	40.93 AV	54.00	-13.07	1.26 H	269	41.52	-0.59
3	*2412.00	102.76 PK			1.26 H	269	103.21	-0.45
4	*2412.00	99.99 AV			1.26 H	269	100.44	-0.45
5	4824.00	55.52 PK	74.00	-18.48	1.48 H	285	48.60	6.92
6	4824.00	50.16 AV	54.00	-3.84	1.48 H	285	43.24	6.92

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	56.88 PK	74.00	-17.12	1.88 V	215	57.47	-0.59
2	2390.00	46.52 AV	54.00	-7.48	1.88 V	215	47.11	-0.59
3	*2412.00	111.92 PK			1.88 V	215	112.37	-0.45
4	*2412.00	108.73 AV			1.88 V	215	109.18	-0.45
5	4824.00	56.88 PK	74.00	-17.12	1.83 V	181	49.96	6.92
6	4824.00	52.84 AV	54.00	-1.16	1.83 V	181	45.92	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.17 PK			1.26 H	270	106.46	-0.29
2	*2437.00	103.33 AV			1.26 H	270	103.62	-0.29
3	4874.00	54.37 PK	74.00	-19.63	4.00 H	94	47.36	7.01
4	4874.00	52.73 AV	54.00	-1.27	4.00 H	94	45.72	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.41 PK			2.04 V	211	113.70	-0.29
2	*2437.00	109.87 AV			2.04 V	211	110.16	-0.29
3	4874.00	54.89 PK	74.00	-19.11	1.16 V	135	47.88	7.01
4	4874.00	52.87 AV	54.00	-1.13	1.16 V	135	45.86	7.01

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	105.10 PK			1.88 H	278	105.24	-0.14
2	*2462.00	102.50 AV			1.88 H	278	102.64	-0.14
3	2483.50	56.66 PK	74.00	-17.34	1.88 H	278	56.66	0.00
4	2483.50	45.28 AV	54.00	-8.72	1.88 H	278	45.28	0.00
5	4924.00	53.03 PK	74.00	-20.97	2.75 H	4	45.90	7.13
6	4924.00	49.23 AV	54.00	-4.77	2.75 H	4	42.10	7.13

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	113.30 PK			2.02 V	210	113.44	-0.14
2	*2462.00	110.05 AV			2.02 V	210	110.19	-0.14
3	2483.50	59.39 PK	74.00	-14.61	2.02 V	210	59.39	0.00
4	2483.50	52.62 AV	54.00	-1.38	2.02 V	210	52.62	0.00
5	4924.00	53.46 PK	74.00	-20.54	1.04 V	189	46.33	7.13
6	4924.00	49.66 AV	54.00	-4.34	1.04 V	189	42.53	7.13

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	62.56 PK	74.00	-11.44	1.51 H	265	63.15	-0.59
2	2390.00	43.98 AV	54.00	-10.02	1.51 H	265	44.57	-0.59
3	*2412.00	103.46 PK			1.51 H	265	103.91	-0.45
4	*2412.00	92.21 AV			1.51 H	265	92.66	-0.45
5	4824.00	47.18 PK	74.00	-26.82	1.67 H	114	40.26	6.92
6	4824.00	33.81 AV	54.00	-20.19	1.67 H	114	26.89	6.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.96 PK	74.00	-1.04	2.26 V	38	73.55	-0.59
2	2390.00	51.13 AV	54.00	-2.87	2.26 V	38	51.72	-0.59
3	*2412.00	113.81 PK			2.26 V	38	114.26	-0.45
4	*2412.00	102.93 AV			2.26 V	38	103.38	-0.45
5	4824.00	49.54 PK	74.00	-24.46	2.53 V	357	42.62	6.92
6	4824.00	35.72 AV	54.00	-18.28	2.53 V	357	28.80	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.40 PK			1.58 H	271	107.69	-0.29
2	*2437.00	96.60 AV			1.58 H	271	96.89	-0.29
3	4874.00	47.17 PK	74.00	-26.83	1.34 H	187	40.16	7.01
4	4874.00	33.67 AV	54.00	-20.33	1.34 H	187	26.66	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.47 PK			2.44 V	0	118.76	-0.29
2	*2437.00	107.60 AV			2.44 V	0	107.89	-0.29
3	4874.00	48.88 PK	74.00	-25.12	1.87 V	226	41.87	7.01
4	4874.00	34.97 AV	54.00	-19.03	1.87 V	226	27.96	7.01

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	107.75 PK			1.53 H	271	107.89	-0.14
2	*2462.00	96.75 AV			1.53 H	271	96.89	-0.14
3	2483.50	70.11 PK	74.00	-3.89	1.53 H	271	70.11	0.00
4	2483.50	50.36 AV	54.00	-3.64	1.53 H	271	50.36	0.00
5	4924.00	47.38 PK	74.00	-26.62	1.18 H	225	40.25	7.13
6	4924.00	33.49 AV	54.00	-20.51	1.18 H	225	26.36	7.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.55 PK			2.21 V	352	118.69	-0.14
2	*2462.00	107.08 AV			2.21 V	352	107.22	-0.14
3	2483.50	72.96 PK	74.00	-1.04	2.21 V	352	72.96	0.00
4	2483.50	52.26 AV	54.00	-1.74	2.21 V	352	52.26	0.00
5	4924.00	49.49 PK	74.00	-24.51	2.31 V	187	42.36	7.13
6	4924.00	35.67 AV	54.00	-18.33	2.31 V	187	28.54	7.13

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 (20MHz)

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	62.49 PK	74.00	-11.51	1.50 H	265	63.08	-0.59
2	2390.00	46.72 AV	54.00	-7.28	1.50 H	265	47.31	-0.59
3	*2412.00	104.09 PK			1.50 H	265	104.54	-0.45
4	*2412.00	92.80 AV			1.50 H	265	93.25	-0.45
5	4824.00	47.11 PK	74.00	-26.89	2.22 H	320	40.19	6.92
6	4824.00	33.78 AV	54.00	-20.22	2.22 H	320	26.86	6.92

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	70.29 PK	74.00	-3.71	2.82 V	223	70.88	-0.59
2	2390.00	52.90 AV	54.00	-1.10	2.82 V	223	53.49	-0.59
3	*2412.00	113.23 PK			2.82 V	223	113.68	-0.45
4	*2412.00	102.12 AV			2.82 V	223	102.57	-0.45
5	4824.00	50.18 PK	74.00	-23.82	2.36 V	141	43.26	6.92
6	4824.00	36.23 AV	54.00	-17.77	2.36 V	141	29.31	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.60 PK			1.46 H	277	107.89	-0.29
2	*2437.00	96.60 AV			1.46 H	277	96.89	-0.29
3	4874.00	47.16 PK	74.00	-26.84	2.01 H	197	40.15	7.01
4	4874.00	33.37 AV	54.00	-20.63	2.01 H	197	26.36	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.38 PK			2.48 V	349	118.67	-0.29
2	*2437.00	107.05 AV			2.48 V	349	107.34	-0.29
3	4874.00	49.14 PK	74.00	-24.86	2.36 V	117	42.13	7.01
4	4874.00	35.64 AV	54.00	-18.36	2.36 V	117	28.63	7.01

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	103.50 PK			1.57 H	281	103.64	-0.14
2	*2462.00	92.22 AV			1.57 H	281	92.36	-0.14
3	2483.50	69.36 PK	74.00	-4.64	1.57 H	281	69.36	0.00
4	2483.50	48.79 AV	54.00	-5.21	1.57 H	281	48.79	0.00
5	4924.00	47.31 PK	74.00	-26.69	1.78 H	105	40.18	7.13
6	4924.00	33.47 AV	54.00	-20.53	1.78 H	105	26.34	7.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.31 PK			2.19 V	351	114.45	-0.14
2	*2462.00	102.41 AV			2.19 V	351	102.55	-0.14
3	2483.50	72.85 PK	74.00	-1.15	2.19 V	351	72.85	0.00
4	2483.50	52.12 AV	54.00	-1.88	2.19 V	351	52.12	0.00
5	4924.00	49.16 PK	74.00	-24.84	1.82 V	54	42.03	7.13
6	4924.00	35.74 AV	54.00	-18.26	1.82 V	54	28.61	7.13

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 (40MHz)

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	69.30 PK	74.00	-4.70	1.62 H	252	69.89	-0.59
2	2390.00	48.75 AV	54.00	-5.25	1.62 H	252	49.34	-0.59
3	*2422.00	98.59 PK			1.62 H	252	98.98	-0.39
4	*2422.00	87.50 AV			1.62 H	252	87.89	-0.39
5	4844.00	47.17 PK	74.00	-26.83	1.46 H	241	40.21	6.96
6	4844.00	32.99 AV	54.00	-21.01	1.46 H	241	26.03	6.96

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	71.90 PK	74.00	-2.10	2.97 V	221	72.49	-0.59
2	2390.00	52.98 AV	54.00	-1.02	2.97 V	221	53.57	-0.59
3	*2422.00	108.88 PK			2.97 V	221	109.27	-0.39
4	*2422.00	98.43 AV			2.97 V	221	98.82	-0.39
5	4844.00	48.32 PK	74.00	-25.68	1.53 V	263	41.36	6.96
6	4844.00	34.85 AV	54.00	-19.15	1.53 V	263	27.89	6.96

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	69.30 PK	74.00	-4.70	1.78 H	242	69.89	-0.59
2	2390.00	50.87 AV	54.00	-3.13	1.78 H	242	51.46	-0.59
3	*2437.00	99.60 PK			1.78 H	242	99.89	-0.29
4	*2437.00	88.40 AV			1.78 H	242	88.69	-0.29
5	2483.50	66.56 PK	74.00	-7.44	1.78 H	242	66.56	0.00
6	2483.50	46.89 AV	54.00	-7.11	1.78 H	242	46.89	0.00
7	4874.00	47.17 PK	74.00	-26.83	1.64 H	112	40.16	7.01
8	4874.00	33.65 AV	54.00	-20.35	1.64 H	112	26.64	7.01

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	70.86 PK	74.00	-3.14	2.48 V	184	71.45	-0.59
2	2390.00	52.96 AV	54.00	-1.04	2.48 V	184	53.55	-0.59
3	*2437.00	110.13 PK			2.48 V	148	110.42	-0.29
4	*2437.00	99.60 AV			2.48 V	148	99.89	-0.29
5	2483.50	69.81 PK	74.00	-4.19	2.48 V	184	69.81	0.00
6	2483.50	49.06 AV	54.00	-4.94	2.48 V	184	49.06	0.00
7	4874.00	48.68 PK	74.00	-25.32	1.64 V	84	41.67	7.01
8	4874.00	34.99 AV	54.00	-19.01	1.64 V	84	27.98	7.01

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	97.58 PK			1.52 H	261	97.77	-0.19
2	*2452.00	86.39 AV			1.52 H	261	86.58	-0.19
3	2483.50	70.45 PK	74.00	-3.55	1.52 H	261	70.45	0.00
4	2483.50	48.96 AV	54.00	-5.04	1.52 H	261	48.96	0.00
5	4904.00	47.24 PK	74.00	-26.76	1.95 H	184	40.17	7.07
6	4904.00	33.41 AV	54.00	-20.59	1.95 H	184	26.34	7.07

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	108.62 PK			2.23 V	199	108.81	-0.19
2	*2452.00	98.04 AV			2.23 V	199	98.23	-0.19
3	2483.50	73.00 PK	74.00	-1.00	2.23 V	199	73.00	0.00
4	2483.50	50.08 AV	54.00	-3.92	2.23 V	199	50.08	0.00
5	4904.00	49.08 PK	74.00	-24.92	1.17 V	210	42.01	7.07
6	4904.00	34.52 AV	54.00	-19.48	1.17 V	210	27.45	7.07

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.

CDD Mode (Mode B)

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	53.73 PK	74.00	-20.27	1.28 H	70	54.32	-0.59
2	2390.00	39.44 AV	54.00	-14.56	1.28 H	70	40.03	-0.59
3	*2412.00	97.18 PK			1.28 H	70	97.63	-0.45
4	*2412.00	94.45 AV			1.28 H	70	94.90	-0.45
5	4824.00	54.73 PK	74.00	-19.27	2.87 H	266	47.81	6.92
6	4824.00	52.05 AV	54.00	-1.95	2.87 H	266	45.13	6.92

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	53.90 PK	74.00	-20.10	1.75 V	283	54.49	-0.59
2	2390.00	40.10 AV	54.00	-13.90	1.75 V	283	40.69	-0.59
3	*2412.00	107.04 PK			1.75 V	283	107.49	-0.45
4	*2412.00	103.49 AV			1.75 V	283	103.94	-0.45
5	4824.00	55.15 PK	74.00	-18.85	2.08 V	166	48.23	6.92
6	4824.00	52.91 AV	54.00	-1.09	2.08 V	166	45.99	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.50 PK			1.34 H	56	98.79	-0.29
2	*2437.00	94.97 AV			1.34 H	56	95.26	-0.29
3	4874.00	54.47 PK	74.00	-19.53	2.79 H	255	47.46	7.01
4	4874.00	52.17 AV	54.00	-1.83	2.79 H	255	45.16	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.81 PK			1.75 V	272	109.10	-0.29
2	*2437.00	105.97 AV			1.75 V	272	106.26	-0.29
3	4874.00	55.85 PK	74.00	-18.15	2.10 V	165	48.84	7.01
4	4874.00	52.98 AV	54.00	-1.02	2.10 V	165	45.97	7.01

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	96.24 PK			1.32 H	66	96.38	-0.14
2	*2462.00	93.42 AV			1.32 H	66	93.56	-0.14
3	2483.50	54.18 PK	74.00	-19.82	1.32 H	66	54.18	0.00
4	2483.50	39.89 AV	54.00	-14.11	1.32 H	66	39.89	0.00
5	4924.00	54.62 PK	74.00	-19.38	2.98 H	254	47.49	7.13
6	4924.00	51.71 AV	54.00	-2.29	2.98 H	254	44.58	7.13

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	107.16 PK			1.92 V	275	107.30	-0.14
2	*2462.00	104.30 AV			1.92 V	275	104.44	-0.14
3	2483.50	55.69 PK	74.00	-18.31	1.92 V	275	55.69	0.00
4	2483.50	40.72 AV	54.00	-13.28	1.92 V	275	40.72	0.00
5	4924.00	55.33 PK	74.00	-18.67	2.23 V	169	48.20	7.13
6	4924.00	52.92 AV	54.00	-1.08	2.23 V	169	45.79	7.13

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	62.00 PK	74.00	-12.00	2.69 H	60	62.59	-0.59
2	2390.00	44.49 AV	54.00	-9.51	2.69 H	60	45.08	-0.59
3	*2412.00	103.97 PK			2.69 H	60	104.42	-0.45
4	*2412.00	90.13 AV			2.69 H	60	90.58	-0.45
5	4824.00	54.83 PK	74.00	-19.17	3.59 H	265	47.91	6.92
6	4824.00	40.63 AV	54.00	-13.37	3.59 H	265	33.71	6.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.97 PK	74.00	-1.03	1.47 V	121	73.56	-0.59
2	2390.00	52.94 AV	54.00	-1.06	1.47 V	121	53.53	-0.59
3	*2412.00	114.07 PK			1.47 V	121	114.52	-0.45
4	*2412.00	100.29 AV			1.47 V	121	100.74	-0.45
5	4824.00	54.06 PK	74.00	-19.94	3.27 V	185	47.14	6.92
6	4824.00	39.57 AV	54.00	-14.43	3.27 V	185	32.65	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.17 PK			2.75 H	0	107.46	-0.29
2	*2437.00	93.39 AV			2.75 H	0	93.68	-0.29
3	4874.00	53.34 PK	74.00	-20.66	3.62 H	271	46.33	7.01
4	4874.00	39.68 AV	54.00	-14.32	3.62 H	271	32.67	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.46 PK			1.43 V	95	117.75	-0.29
2	*2437.00	103.41 AV			1.43 V	95	103.70	-0.29
3	4874.00	53.28 PK	74.00	-20.72	1.27 V	285	46.27	7.01
4	4874.00	39.32 AV	54.00	-14.68	1.27 V	285	32.31	7.01

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	103.55 PK			2.78 H	78	103.69	-0.14
2	*2462.00	89.63 AV			2.78 H	78	89.77	-0.14
3	2483.50	70.16 PK	74.00	-3.84	2.78 H	78	70.16	0.00
4	2483.50	50.36 AV	54.00	-3.64	2.78 H	78	50.36	0.00
5	4924.00	54.11 PK	74.00	-19.89	3.85 H	241	46.98	7.13
6	4924.00	39.79 AV	54.00	-14.21	3.85 H	241	32.66	7.13

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	113.01 PK			1.74 V	275	113.15	-0.14
2	*2462.00	99.04 AV			1.74 V	275	99.18	-0.14
3	2483.50	72.89 PK	74.00	-1.11	1.74 V	275	72.89	0.00
4	2483.50	51.46 AV	54.00	-2.54	1.74 V	275	51.46	0.00
5	4924.00	54.02 PK	74.00	-19.98	3.36 V	197	46.89	7.13
6	4924.00	39.27 AV	54.00	-14.73	3.36 V	197	32.14	7.13

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 (20MHz)

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	66.39 PK	74.00	-7.61	1.34 H	128	66.98	-0.59
2	2390.00	48.20 AV	54.00	-5.80	1.34 H	128	48.79	-0.59
3	*2412.00	102.01 PK			1.34 H	228	102.46	-0.45
4	*2412.00	90.44 AV			1.34 H	228	90.89	-0.45
5	4824.00	52.77 PK	74.00	-21.23	1.88 H	297	45.85	6.92
6	4824.00	38.56 AV	54.00	-15.44	1.88 H	297	31.64	6.92

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	71.27 PK	74.00	-2.73	1.58 V	97	71.86	-0.59
2	2390.00	52.98 AV	54.00	-1.02	1.58 V	97	53.57	-0.59
3	*2412.00	112.50 PK			1.58 V	97	112.95	-0.45
4	*2412.00	99.70 AV			1.58 V	97	100.15	-0.45
5	4824.00	54.76 PK	74.00	-19.24	2.65 V	331	47.84	6.92
6	4824.00	40.55 AV	54.00	-13.45	2.65 V	331	33.63	6.92

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.17 PK			1.52 H	139	108.46	-0.29
2	*2437.00	94.53 AV			1.52 H	139	94.82	-0.29
3	4874.00	53.87 PK	74.00	-20.13	2.51 H	20	46.86	7.01
4	4874.00	42.17 AV	54.00	-11.83	2.51 H	20	35.16	7.01

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.71 PK			1.66 V	275	118.00	-0.29
2	*2437.00	104.27 AV			1.66 V	275	104.56	-0.29
3	4874.00	55.80 PK	74.00	-18.20	2.16 V	94	48.79	7.01
4	4874.00	43.37 AV	54.00	-10.63	2.16 V	94	36.36	7.01

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	105.70 PK			1.42 H	284	105.84	-0.14
2	*2462.00	92.22 AV			1.42 H	284	92.36	-0.14
3	2483.50	68.94 PK	74.00	-5.06	1.42 H	284	68.94	0.00
4	2483.50	50.26 AV	54.00	-3.74	1.42 H	284	50.26	0.00
5	4924.00	53.00 PK	74.00	-21.00	1.88 H	210	45.87	7.13
6	4924.00	39.78 AV	54.00	-14.22	1.88 H	210	32.65	7.13

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	115.60 PK			1.59 V	259	115.74	-0.14
2	*2462.00	102.55 AV			1.59 V	259	102.69	-0.14
3	2483.50	72.79 PK	74.00	-1.21	1.59 V	259	72.79	0.00
4	2483.50	52.91 AV	54.00	-1.09	1.59 V	259	52.91	0.00
5	4924.00	53.92 PK	74.00	-20.08	2.04 V	360	46.79	7.13
6	4924.00	40.82 AV	54.00	-13.18	2.04 V	360	33.69	7.13

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 (40MHz)

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	69.86 PK	74.00	-4.14	1.99 H	65	70.45	-0.59
2	2390.00	49.67 AV	54.00	-4.33	1.99 H	65	50.26	-0.59
3	*2422.00	98.37 PK			1.99 H	65	98.76	-0.39
4	*2422.00	85.30 AV			1.99 H	65	85.69	-0.39
5	4844.00	53.85 PK	74.00	-20.15	1.45 H	162	46.89	6.96
6	4844.00	42.22 AV	54.00	-11.78	1.45 H	162	35.26	6.96

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.86 PK	74.00	-1.14	1.62 V	253	73.45	-0.59
2	2390.00	52.22 AV	54.00	-1.78	1.62 V	253	52.81	-0.59
3	*2422.00	108.45 PK			1.62 V	253	108.84	-0.39
4	*2422.00	95.33 AV			1.62 V	253	95.72	-0.39
5	4844.00	55.75 PK	74.00	-18.25	1.78 V	169	48.79	6.96
6	4844.00	45.60 AV	54.00	-8.40	1.78 V	169	38.64	6.96

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	66.37 PK	74.00	-7.63	1.78 H	25	66.96	-0.59
2	2390.00	50.87 AV	54.00	-3.13	1.78 H	25	51.46	-0.59
3	*2437.00	99.97 PK			1.78 H	25	100.26	-0.29
4	*2437.00	87.60 AV			1.78 H	25	87.89	-0.29
5	2483.50	69.89 PK	74.00	-4.11	1.78 H	25	69.89	0.00
6	2483.50	43.37 AV	54.00	-10.63	1.78 H	25	43.37	0.00
7	4874.00	54.49 PK	74.00	-19.51	1.00 H	321	47.48	7.01
8	4874.00	37.27 AV	54.00	-16.73	1.00 H	321	30.26	7.01

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	68.44 PK	74.00	-5.56	1.81 V	102	69.03	-0.59
2	2390.00	52.83 AV	54.00	-1.17	1.81 V	102	53.42	-0.59
3	*2437.00	110.01 PK			1.81 V	102	110.30	-0.29
4	*2437.00	97.03 AV			1.81 V	102	97.32	-0.29
5	2483.50	71.17 PK	74.00	-2.83	1.81 V	102	71.17	0.00
6	2483.50	47.41 AV	54.00	-6.59	1.81 V	102	47.41	0.00
7	4874.00	56.39 PK	74.00	-17.61	3.72 V	179	49.38	7.01
8	4874.00	38.48 AV	54.00	-15.52	3.72 V	179	31.47	7.01

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	99.59 PK			1.87 H	199	99.78	-0.19
2	*2452.00	86.70 AV			1.87 H	199	86.89	-0.19
3	2483.50	70.84 PK	74.00	-3.16	1.87 H	199	70.84	0.00
4	2483.50	47.18 AV	54.00	-6.82	1.87 H	199	47.18	0.00
5	4904.00	52.72 PK	74.00	-21.28	1.17 H	125	45.65	7.07
6	4904.00	37.63 AV	54.00	-16.37	1.17 H	125	30.56	7.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.66 PK			1.64 V	270	109.85	-0.19
2	*2452.00	96.56 AV			1.64 V	270	96.75	-0.19
3	2483.50	72.98 PK	74.00	-1.02	1.64 V	270	72.98	0.00
4	2483.50	49.90 AV	54.00	-4.10	1.64 V	270	49.90	0.00
5	4904.00	54.92 PK	74.00	-19.08	2.13 V	251	47.85	7.07
6	4904.00	39.59 AV	54.00	-14.41	2.13 V	251	32.52	7.07

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.

Beamforming_NSS1 Mode (Mode A)

802.11n (20MHz)

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	63.97 PK	74.00	-10.03	1.68 H	330	65.87	-1.90
2	2390.00	42.40 AV	54.00	-11.60	1.68 H	330	44.30	-1.90
3	*2412.00	105.86 PK			1.68 H	330	107.62	-1.76
4	*2412.00	95.84 AV			1.68 H	330	97.60	-1.76
5	4824.00	58.81 PK	74.00	-15.19	1.74 H	209	53.64	5.17
6	4824.00	45.18 AV	54.00	-8.82	1.74 H	209	40.01	5.17

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.73 PK	74.00	-1.27	2.49 V	204	74.63	-1.90
2	2390.00	47.02 AV	54.00	-6.98	2.49 V	204	48.92	-1.90
3	*2412.00	114.60 PK			2.49 V	204	116.36	-1.76
4	*2412.00	105.81 AV			2.49 V	204	107.57	-1.76
5	4824.00	59.73 PK	74.00	-14.27	2.53 V	164	54.56	5.17
6	4824.00	45.53 AV	54.00	-8.47	2.53 V	164	40.36	5.17

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.02 PK			1.59 H	326	109.63	-1.61
2	*2437.00	97.65 AV			1.59 H	326	99.26	-1.61
3	4874.00	57.47 PK	74.00	-16.53	2.20 H	167	52.26	5.21
4	4874.00	45.23 AV	54.00	-8.77	2.20 H	167	40.02	5.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.73 PK			2.75 V	238	118.34	-1.61
2	*2437.00	107.03 AV			2.75 V	238	108.64	-1.61
3	4874.00	60.47 PK	74.00	-13.53	2.41 V	152	55.26	5.21
4	4874.00	46.47 AV	54.00	-7.53	2.41 V	152	41.26	5.21

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	104.42 PK			1.66 H	318	105.88	-1.46
2	*2462.00	95.12 AV			1.66 H	318	96.58	-1.46
3	2483.50	67.09 PK	74.00	-6.91	1.66 H	318	68.42	-1.33
4	2483.50	45.19 AV	54.00	-8.81	1.66 H	318	46.52	-1.33
5	4924.00	57.32 PK	74.00	-16.68	2.19 H	134	52.02	5.30
6	4924.00	44.26 AV	54.00	-9.74	2.19 H	134	38.96	5.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.87 PK			2.48 V	222	114.33	-1.46
2	*2462.00	103.66 AV			2.48 V	222	105.12	-1.46
3	2483.50	72.98 PK	74.00	-1.02	2.48 V	222	74.31	-1.33
4	2483.50	49.66 AV	54.00	-4.34	2.48 V	222	50.99	-1.33
5	4924.00	59.92 PK	74.00	-14.08	1.82 V	220	54.62	5.30
6	4924.00	45.87 AV	54.00	-8.13	1.82 V	220	40.57	5.30

REMARKS:

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

802.11n (40MHz)

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	68.06 PK	74.00	-5.94	1.52 H	196	69.96	-1.90
2	2390.00	43.12 AV	54.00	-10.88	1.52 H	196	45.02	-1.90
3	*2422.00	101.94 PK			1.52 H	196	103.65	-1.71
4	*2422.00	92.45 AV			1.52 H	196	94.16	-1.71
5	4844.00	55.20 PK	74.00	-18.80	2.32 H	181	50.01	5.19
6	4844.00	47.35 AV	54.00	-6.65	2.32 H	181	42.16	5.19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.67 PK	74.00	-1.33	2.79 V	208	74.57	-1.90
2	2390.00	46.14 AV	54.00	-7.86	2.79 V	208	48.04	-1.90
3	*2422.00	111.92 PK			2.79 V	208	113.63	-1.71
4	*2422.00	103.13 AV			2.79 V	208	104.84	-1.71
5	4844.00	58.88 PK	74.00	-15.12	1.96 V	254	53.69	5.19
6	4844.00	44.82 AV	54.00	-9.18	1.96 V	254	39.63	5.19

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.23 PK			1.58 H	178	102.84	-1.61
2	*2437.00	90.95 AV			1.58 H	178	92.56	-1.61
3	4874.00	55.08 PK	74.00	-18.92	2.03 H	184	49.87	5.21
4	4874.00	43.87 AV	54.00	-10.13	2.03 H	184	38.66	5.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.83 PK			2.78 V	210	112.44	-1.61
2	*2437.00	101.21 AV			2.78 V	210	102.82	-1.61
3	4874.00	59.05 PK	74.00	-14.95	2.26 V	146	53.84	5.21
4	4874.00	45.34 AV	54.00	-8.66	2.26 V	146	40.13	5.21

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	102.01 PK			1.66 H	182	103.52	-1.51
2	*2452.00	92.37 AV			1.66 H	182	93.88	-1.51
3	2483.50	68.41 PK	74.00	-5.59	1.66 H	182	69.74	-1.33
4	2483.50	38.83 AV	54.00	-15.17	1.66 H	182	40.16	-1.33
5	4904.00	55.65 PK	74.00	-18.35	1.78 H	215	50.41	5.24
6	4904.00	43.76 AV	54.00	-10.24	1.78 H	215	38.52	5.24

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	112.14 PK			2.78 V	207	113.65	-1.51
2	*2452.00	104.12 AV			2.78 V	207	105.63	-1.51
3	2483.50	72.56 PK	74.00	-1.44	2.78 V	207	73.89	-1.33
4	2483.50	44.60 AV	54.00	-9.40	2.78 V	207	45.93	-1.33
5	4904.00	58.71 PK	74.00	-15.29	1.85 V	201	53.47	5.24
6	4904.00	45.56 AV	54.00	-8.44	1.85 V	201	40.32	5.24

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.

Beamforming_NSS1 Mode (Mode B)

802.11n (20MHz)

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	64.21 PK	74.00	-9.79	1.49 H	54	66.11	-1.90
2	2390.00	42.16 AV	54.00	-11.84	1.49 H	54	44.06	-1.90
3	*2412.00	104.66 PK			1.49 H	54	106.42	-1.76
4	*2412.00	93.54 AV			1.49 H	54	95.30	-1.76
5	4824.00	58.30 PK	74.00	-15.70	1.86 H	315	53.13	5.17
6	4824.00	45.31 AV	54.00	-8.69	1.86 H	315	40.14	5.17

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.58 PK	74.00	-1.42	2.17 V	270	74.48	-1.90
2	2390.00	50.56 AV	54.00	-3.44	2.17 V	270	52.46	-1.90
3	*2412.00	114.40 PK			2.17 V	270	116.16	-1.76
4	*2412.00	104.28 AV			2.17 V	270	106.04	-1.76
5	4824.00	60.24 PK	74.00	-13.76	2.61 V	184	55.07	5.17
6	4824.00	46.09 AV	54.00	-7.91	2.61 V	184	40.92	5.17

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.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.29 PK			1.52 H	62	109.90	-1.61
2	*2437.00	97.62 AV			1.52 H	62	99.23	-1.61
3	4874.00	56.47 PK	74.00	-17.53	1.92 H	336	51.26	5.21
4	4874.00	43.10 AV	54.00	-10.90	1.92 H	336	37.89	5.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.86 PK			1.96 V	259	119.47	-1.61
2	*2437.00	107.87 AV			1.96 V	259	109.48	-1.61
3	4874.00	58.37 PK	74.00	-15.63	2.59 V	197	53.16	5.21
4	4874.00	44.13 AV	54.00	-9.87	2.59 V	197	38.92	5.21

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	104.32 PK			1.56 H	63	105.78	-1.46
2	*2462.00	94.16 AV			1.56 H	63	95.62	-1.46
3	2483.50	68.30 PK	74.00	-5.70	1.56 H	63	69.63	-1.33
4	2483.50	43.93 AV	54.00	-10.07	1.56 H	63	45.26	-1.33
5	4924.00	56.36 PK	74.00	-17.64	1.77 H	320	51.06	5.30
6	4924.00	43.15 AV	54.00	-10.85	1.77 H	320	37.85	5.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.10 PK			2.12 V	255	115.56	-1.46
2	*2462.00	103.96 AV			2.12 V	255	105.42	-1.46
3	2483.50	72.70 PK	74.00	-1.30	2.12 V	255	74.03	-1.33
4	2483.50	48.42 AV	54.00	-5.58	2.12 V	255	49.75	-1.33
5	4924.00	58.93 PK	74.00	-15.07	2.44 V	177	53.63	5.30
6	4924.00	44.53 AV	54.00	-9.47	2.44 V	177	39.23	5.30

REMARKS:

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

802.11n (40MHz)

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	64.45 PK	74.00	-9.55	1.75 H	233	66.35	-1.90
2	2390.00	40.26 AV	54.00	-13.74	1.75 H	233	42.16	-1.90
3	*2422.00	104.13 PK			1.75 H	233	105.84	-1.71
4	*2422.00	94.15 AV			1.75 H	233	95.86	-1.71
5	4844.00	53.45 PK	74.00	-20.55	1.06 H	195	48.26	5.19
6	4844.00	41.82 AV	54.00	-12.18	1.06 H	195	36.63	5.19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.81 PK	74.00	-1.19	1.49 V	266	74.71	-1.90
2	2390.00	46.16 AV	54.00	-7.84	1.49 V	266	48.06	-1.90
3	*2422.00	113.53 PK			1.49 V	266	115.24	-1.71
4	*2422.00	104.16 AV			1.49 V	266	105.87	-1.71
5	4844.00	57.35 PK	74.00	-16.65	1.88 V	264	52.16	5.19
6	4844.00	45.45 AV	54.00	-8.55	1.88 V	264	40.26	5.19

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.42 PK			1.81 H	208	101.03	-1.61
2	*2437.00	90.63 AV			1.81 H	208	92.24	-1.61
3	4874.00	52.05 PK	74.00	-21.95	1.41 H	136	46.84	5.21
4	4874.00	39.99 AV	54.00	-14.01	1.41 H	136	34.78	5.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.96 PK			1.61 V	248	111.57	-1.61
2	*2437.00	99.02 AV			1.61 V	248	100.63	-1.61
3	4874.00	56.85 PK	74.00	-17.15	1.92 V	251	51.64	5.21
4	4874.00	44.73 AV	54.00	-9.27	1.92 V	251	39.52	5.21

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	98.70 PK			1.82 H	206	100.21	-1.51
2	*2452.00	89.85 AV			1.82 H	206	91.36	-1.51
3	2483.50	67.31 PK	74.00	-6.69	1.82 H	206	68.64	-1.33
4	2483.50	41.30 AV	54.00	-12.70	1.82 H	206	42.63	-1.33
5	4904.00	53.88 PK	74.00	-20.12	1.69 H	285	48.64	5.24
6	4904.00	41.60 AV	54.00	-12.40	1.69 H	285	36.36	5.24

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	108.32 PK			1.78 V	272	109.83	-1.51
2	*2452.00	96.26 AV			1.78 V	272	97.77	-1.51
3	2483.50	72.60 PK	74.00	-1.40	1.78 V	272	73.93	-1.33
4	2483.50	45.86 AV	54.00	-8.14	1.78 V	272	47.19	-1.33
5	4904.00	56.66 PK	74.00	-17.34	1.84 V	208	51.42	5.24
6	4904.00	43.50 AV	54.00	-10.50	1.84 V	208	38.26	5.24

REMARKS:

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

BELOW 1GHz WORST-CASE DATA:
CDD Mode (Mode A)
802.11g

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	50.90	21.23 QP	40.00	-18.77	2.25 H	360	30.22	-8.99
2	163.28	19.06 QP	43.50	-24.44	2.41 H	126	28.08	-9.02
3	231.61	27.53 QP	46.00	-18.47	2.03 H	188	38.71	-11.18
4	283.80	23.90 QP	46.00	-22.10	1.85 H	266	31.60	-7.70
5	397.00	31.41 QP	46.00	-14.59	1.74 H	197	36.78	-5.37
6	503.89	28.37 QP	46.00	-17.63	1.25 H	180	31.25	-2.88

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	52.31	31.65 QP	40.00	-8.35	1.64 V	179	40.63	-8.98
2	102.27	21.03 QP	43.50	-22.47	2.28 V	328	34.67	-13.64
3	199.99	21.47 QP	43.50	-22.03	1.99 V	176	33.03	-11.56
4	238.70	28.05 QP	46.00	-17.95	1.62 V	131	38.13	-10.08
5	392.68	30.66 QP	46.00	-15.34	1.84 V	198	36.15	-5.49
6	513.54	28.27 QP	46.00	-17.73	2.13 V	52	30.97	-2.70

REMARKS:

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

CDD Mode (Mode B)
802.11n (20MHz)

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	52.26	18.62 QP	40.00	-21.38	1.64 H	121	27.60	-8.98
2	114.58	17.40 QP	43.50	-26.10	2.28 H	39	29.65	-12.25
3	161.14	18.84 QP	43.50	-24.66	1.74 H	168	27.75	-8.91
4	278.17	29.13 QP	46.00	-16.87	2.25 H	277	36.98	-7.85
5	408.59	33.76 QP	46.00	-12.24	2.34 H	44	38.97	-5.21
6	515.87	26.72 QP	46.00	-19.28	2.50 H	277	29.39	-2.67

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	42.95	30.47 QP	40.00	-9.53	1.18 V	360	40.18	-9.71
2	102.12	22.46 QP	43.50	-21.04	1.17 V	244	36.13	-13.67
3	134.91	19.75 QP	43.50	-23.75	1.61 V	72	30.02	-10.27
4	150.13	19.98 QP	43.50	-23.52	2.15 V	53	29.10	-9.12
5	276.28	27.42 QP	46.00	-18.58	1.42 V	157	35.36	-7.94
6	409.37	34.69 QP	46.00	-11.31	1.84 V	176	39.89	-5.20

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 10, 2017	Apr. 09, 2018
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	May 22, 2017	May 21, 2018
LISN With Adapter (for EUT)	AD10	C10Ada-002	May 22, 2017	May 21, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 23, 2016	Nov. 22, 2017
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 09, 2017	May 08, 2018
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 14, 2017	Feb. 13, 2018
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 18, 2017	May 17, 2018
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 08, 2016	Nov. 07, 2017
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 08, 2016	Nov. 07, 2017

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in Shielded Room No. 10.

3. The VCCI Site Registration No. C-1852.

4.2.3 Test Procedures

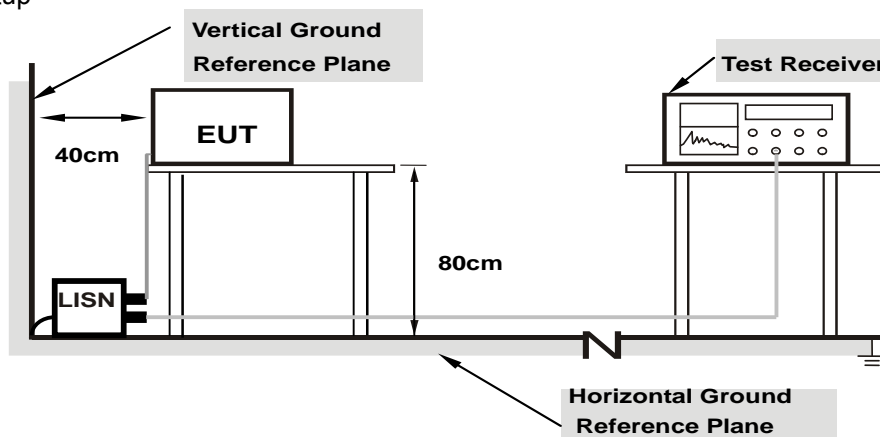
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.7 Test Results

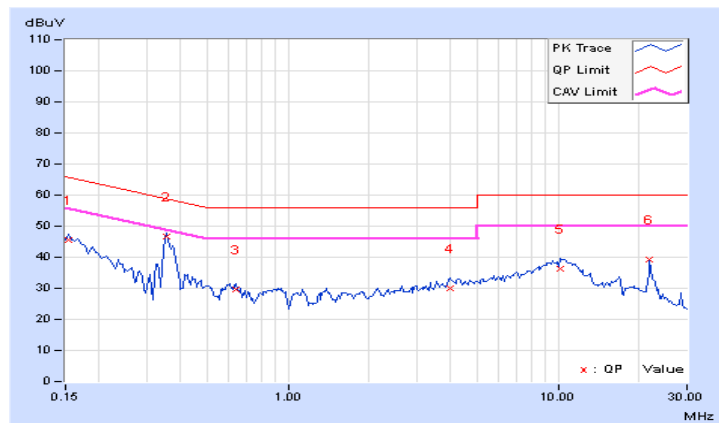
CDD Mode (Mode A)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.15391	9.65	35.83	23.72	45.48	33.37	65.79	55.79	-20.31	-22.42
2	0.35313	9.66	37.01	36.39	46.67	46.05	58.89	48.89	-12.22	-2.84
3	0.63828	9.68	19.88	17.53	29.56	27.21	56.00	46.00	-26.44	-18.79
4	3.96484	9.84	19.99	12.34	29.83	22.18	56.00	46.00	-26.17	-23.82
5	10.21094	9.93	26.52	21.82	36.45	31.75	60.00	50.00	-23.55	-18.25
6	21.87500	10.02	29.20	28.95	39.22	38.97	60.00	50.00	-20.78	-11.03

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.

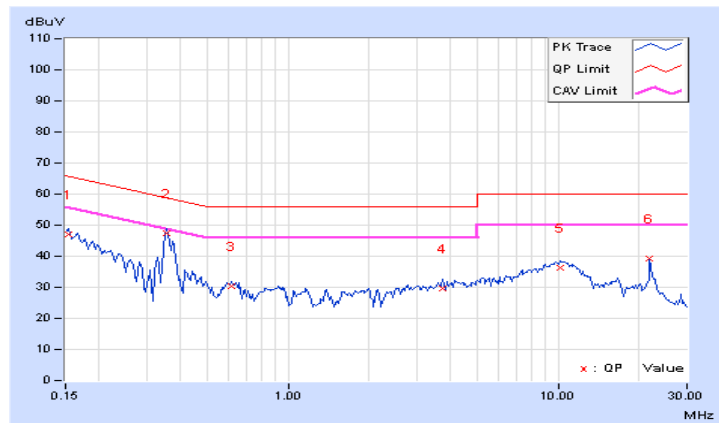


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.67	37.26	24.49	46.93	34.16	65.79	55.79	-18.86	-21.63
2	0.35703	9.68	37.89	35.50	47.57	45.18	58.80	48.80	-11.23	-3.62
3	0.61484	9.69	20.62	18.82	30.31	28.51	56.00	46.00	-25.69	-17.49
4	3.73438	9.85	19.60	12.96	29.45	22.81	56.00	46.00	-26.55	-23.19
5	10.21484	9.95	26.30	21.64	36.25	31.59	60.00	50.00	-23.75	-18.41
6	21.87500	10.08	29.18	28.73	39.26	38.81	60.00	50.00	-20.74	-11.19

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.



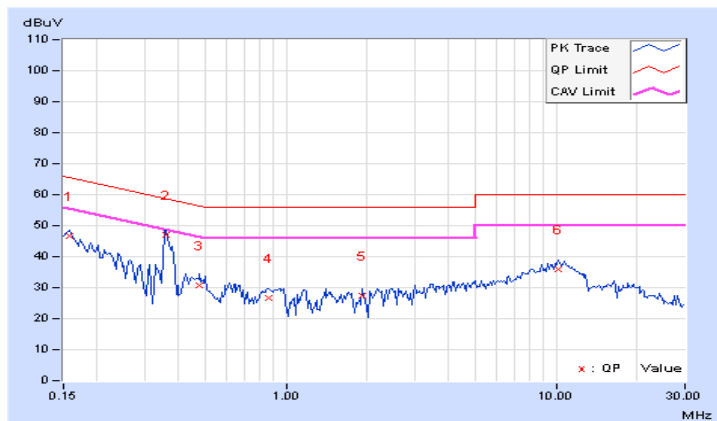
CDD Mode (Mode B)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.65	37.02	25.52	46.67	35.17	65.58	55.58	-18.91	-20.41
2	0.36094	9.66	37.25	33.45	46.91	43.11	58.71	48.71	-11.80	-5.60
3	0.47813	9.67	21.06	14.41	30.73	24.08	56.37	46.37	-25.64	-22.29
4	0.86094	9.69	16.96	12.84	26.65	22.53	56.00	46.00	-29.35	-23.47
5	1.91797	9.74	17.55	11.58	27.29	21.32	56.00	46.00	-28.71	-24.68
6	10.18359	9.93	25.96	21.37	35.89	31.30	60.00	50.00	-24.11	-18.70

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.

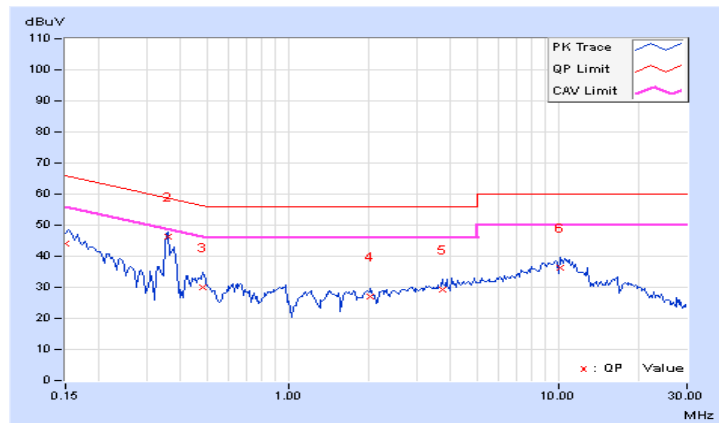


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.68	34.47	24.76	44.15	34.44	66.00	56.00	-21.85	-21.56
2	0.36094	9.68	36.62	33.55	46.30	43.23	58.71	48.71	-12.41	-5.48
3	0.48203	9.68	20.14	13.26	29.82	22.94	56.30	46.30	-26.48	-23.36
4	2.01563	9.75	17.16	10.07	26.91	19.82	56.00	46.00	-29.09	-26.18
5	3.74609	9.85	19.46	12.64	29.31	22.49	56.00	46.00	-26.69	-23.51
6	10.23438	9.95	26.40	21.94	36.35	31.89	60.00	50.00	-23.65	-18.11

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.



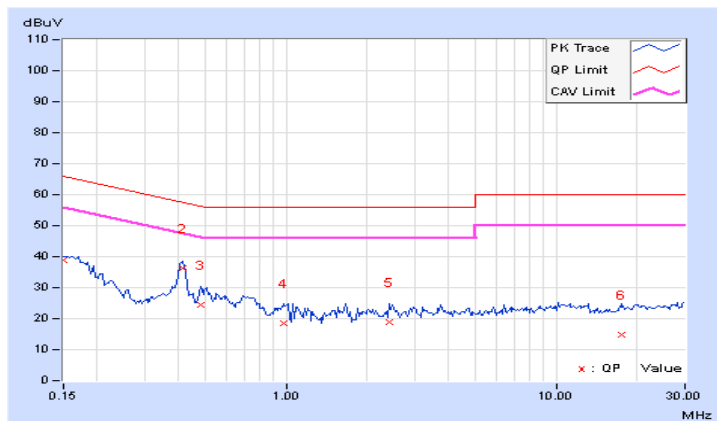
CDD Mode (Mode C)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.65	29.07	15.97	38.72	25.62	66.00	56.00	-27.28	-30.38
2	0.41172	9.66	26.70	18.89	36.36	28.55	57.61	47.61	-21.25	-19.06
3	0.48203	9.67	14.73	6.59	24.40	16.26	56.30	46.30	-31.90	-30.04
4	0.98203	9.70	8.90	0.42	18.60	10.12	56.00	46.00	-37.40	-35.88
5	2.40625	9.76	9.20	0.90	18.96	10.66	56.00	46.00	-37.04	-35.34
6	17.51172	9.98	4.95	2.54	14.93	12.52	60.00	50.00	-45.07	-37.48

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.

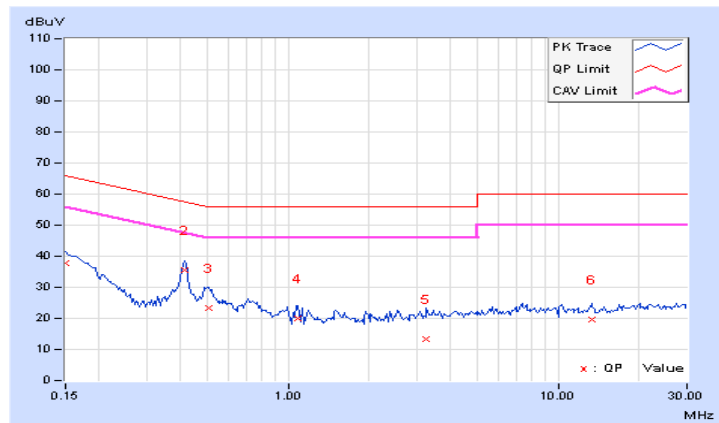


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.68	28.16	14.56	37.84	24.24	66.00	56.00	-28.16	-31.76
2	0.41172	9.68	25.80	17.96	35.48	27.64	57.61	47.61	-22.13	-19.97
3	0.50938	9.69	13.72	4.74	23.41	14.43	56.00	46.00	-32.59	-31.57
4	1.08594	9.71	10.22	2.52	19.93	12.23	56.00	46.00	-36.07	-33.77
5	3.24609	9.82	3.56	1.62	13.38	11.44	56.00	46.00	-42.62	-34.56
6	13.29297	9.99	9.70	1.66	19.69	11.65	60.00	50.00	-40.31	-38.35

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.



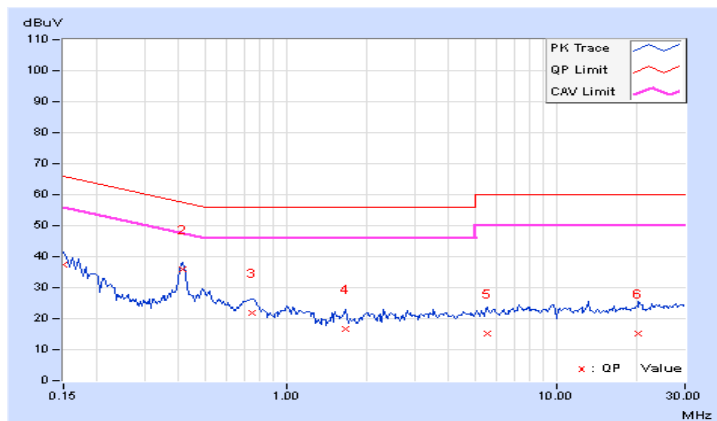
CDD Mode (Mode D)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.65	27.89	14.80	37.54	24.45	66.00	56.00	-28.46	-31.55
2	0.41172	9.66	26.10	18.27	35.76	27.93	57.61	47.61	-21.85	-19.68
3	0.74766	9.68	12.19	4.31	21.87	13.99	56.00	46.00	-34.13	-32.01
4	1.66016	9.73	6.80	1.59	16.53	11.32	56.00	46.00	-39.47	-34.68
5	5.57422	9.86	5.40	3.34	15.26	13.20	60.00	50.00	-44.74	-36.80
6	20.26172	9.99	5.14	3.58	15.13	13.57	60.00	50.00	-44.87	-36.43

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.

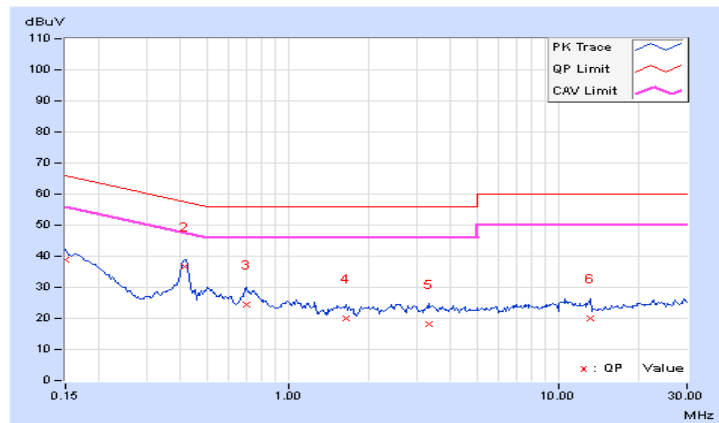


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.68	29.05	16.23	38.73	25.91	66.00	56.00	-27.27	-30.09
2	0.41172	9.68	26.97	19.14	36.65	28.82	57.61	47.61	-20.96	-18.79
3	0.70469	9.70	14.62	8.78	24.32	18.48	56.00	46.00	-31.68	-27.52
4	1.64063	9.74	10.34	2.15	20.08	11.89	56.00	46.00	-35.92	-34.11
5	3.31250	9.82	8.44	0.40	18.26	10.22	56.00	46.00	-37.74	-35.78
6	13.21094	9.99	10.11	2.10	20.10	12.09	60.00	50.00	-39.90	-37.91

REMARKS:

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

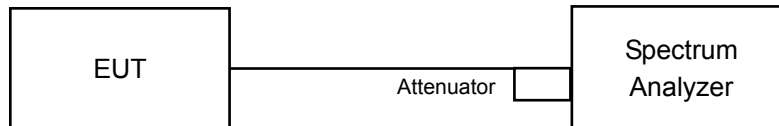


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation 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

CDD Mode (Mode A)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.57	8.09	0.5	PASS
6	2437	9.09	9.09	0.5	PASS
11	2462	9.07	9.06	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.35	16.34	0.5	PASS
6	2437	16.37	16.37	0.5	PASS
11	2462	16.39	16.38	0.5	PASS

802.11n (20MHz)

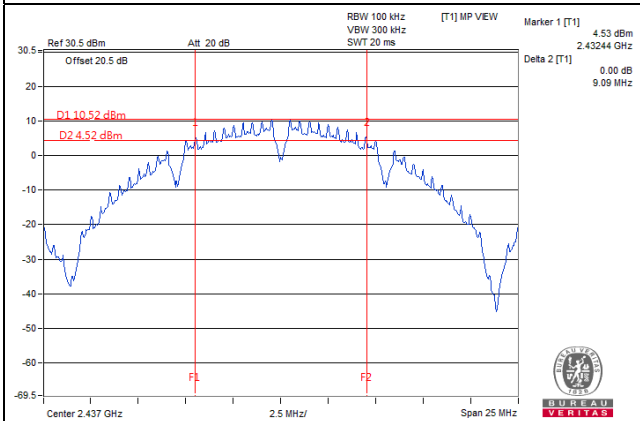
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.60	17.61	0.5	PASS
6	2437	17.61	17.60	0.5	PASS
11	2462	17.60	17.62	0.5	PASS

802.11n (40MHz)

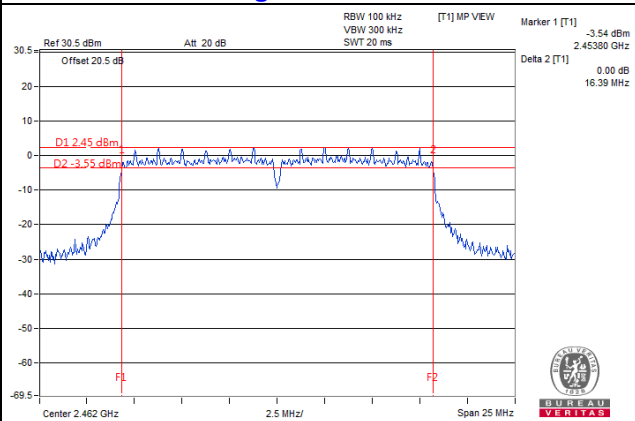
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.25	35.21	0.5	PASS
6	2437	35.18	35.23	0.5	PASS
9	2452	35.18	35.27	0.5	PASS

Spectrum Plot of Worst Value

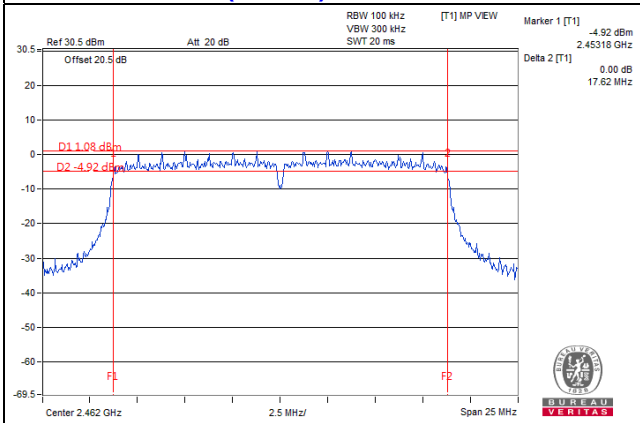
802.11b / Chain 0: CH6



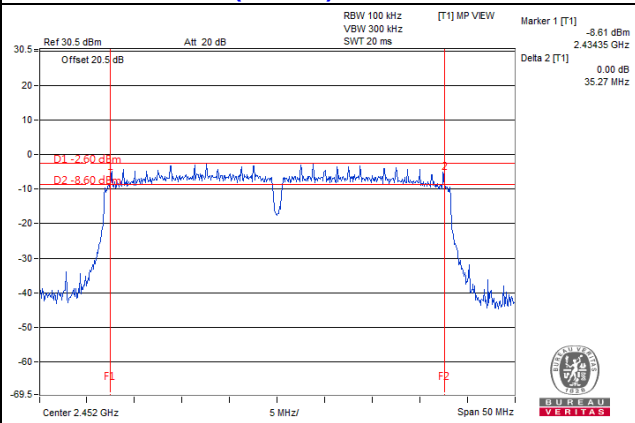
802.11g / Chain 0: CH11



802.11n (20MHz) / Chain 1: CH11



802.11n (40MHz) / Chain 1: CH9



CDD Mode (Mode B)
802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.07	8.09	0.5	PASS
6	2437	8.08	8.05	0.5	PASS
11	2462	8.10	8.09	0.5	PASS

802.11g

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

802.11n (20MHz)

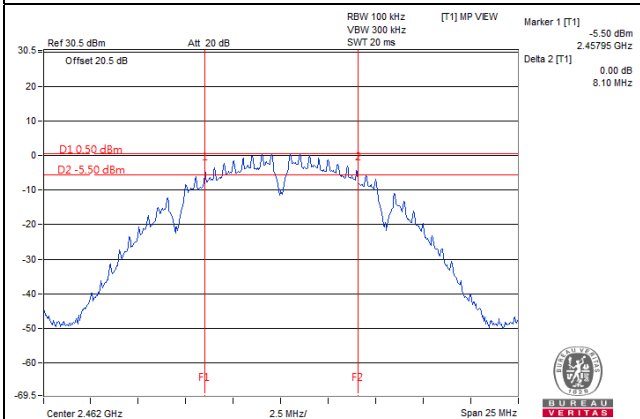
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.35	17.34	0.5	PASS
6	2437	17.61	17.60	0.5	PASS
11	2462	17.61	17.62	0.5	PASS

802.11n (40MHz)

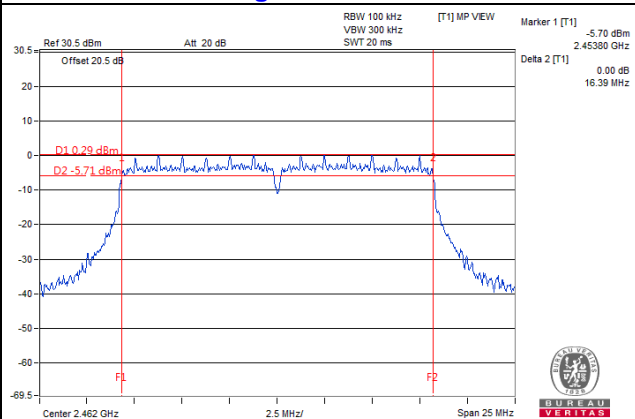
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.37	35.51	0.5	PASS
6	2437	35.24	35.21	0.5	PASS
9	2452	35.24	35.24	0.5	PASS

Spectrum Plot of Worst Value

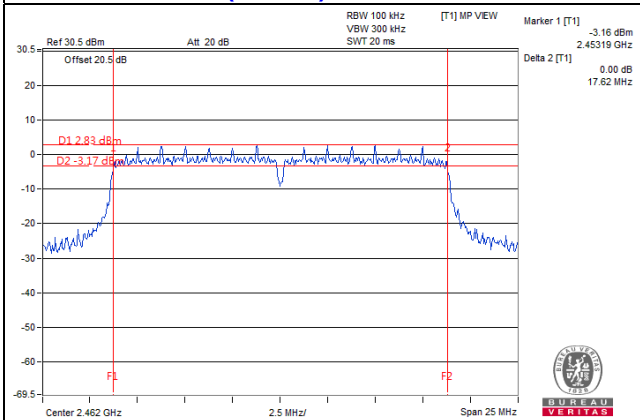
802.11b / Chain 0: CH11



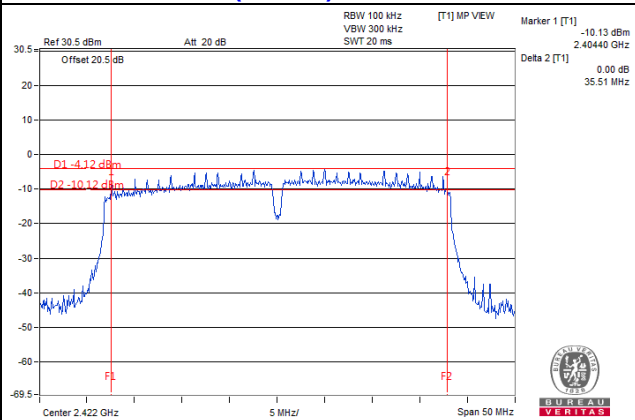
802.11g / Chain 0: CH11



802.11n (20MHz) / Chain 1: CH11



802.11n (40MHz) / Chain 1: CH3



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

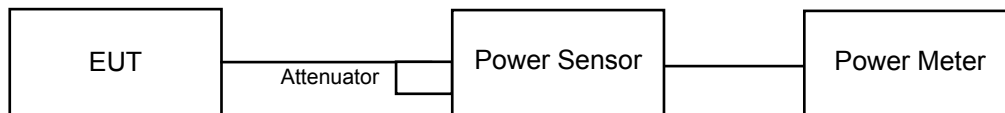
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD Mode (Mode A)

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.81	20.95	244.955	23.89	30	Pass
6	2437	24.97	24.34	585.695	27.68	30	Pass
11	2462	21.51	21.41	279.936	24.47	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				
1	2412	18.56	18.53	143.064	21.56	30	Pass
6	2437	23.20	23.04	410.302	26.13	30	Pass
11	2462	18.56	18.48	142.248	21.53	30	Pass

802.11n (20MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.52	19.48	178.252	22.51	30	Pass
6	2437	23.07	22.99	401.835	26.04	30	Pass
11	2462	17.88	17.78	121.355	20.84	30	Pass

802.11n (40MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.93	17.84	122.901	20.90	30	Pass
6	2437	18.95	18.91	156.328	21.94	30	Pass
9	2452	16.57	16.42	89.247	19.51	30	Pass

CDD Mode (Mode B)

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.43	13.32	43.507	16.39	30	Pass
6	2437	15.52	15.34	69.843	18.44	30	Pass
11	2462	13.62	13.59	45.870	16.62	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				
1	2412	17.49	17.44	111.568	20.48	30	Pass
6	2437	23.20	23.04	410.302	26.13	30	Pass
11	2462	16.81	16.79	95.726	19.81	30	Pass

802.11n (20MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.44	16.31	86.811	19.39	30	Pass
6	2437	23.07	22.99	401.835	26.04	30	Pass
11	2462	19.20	19.18	165.970	22.20	30	Pass

802.11n (40MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.82	14.76	60.262	17.80	30	Pass
6	2437	16.94	16.82	97.515	19.89	30	Pass
9	2452	16.10	15.94	80.002	19.03	30	Pass

Beamforming_NSS1 Mode (Mode A)

802.11n (20MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.02	18.94	158.142	21.99	29.48	Pass
6	2437	23.07	22.99	401.835	26.04	29.48	Pass
11	2462	17.38	17.26	107.913	20.33	29.48	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 6.52dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(6.52-6) = 29.48\text{dBm}$

802.11n (40MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.93	17.84	122.901	20.90	29.48	Pass
6	2437	18.95	18.91	156.328	21.94	29.48	Pass
9	2452	16.57	16.42	89.247	19.51	29.48	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 6.52dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(6.52-6) = 29.48\text{dBm}$

Beamforming_NSS1 Mode (Mode B)

802.11n (20MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.89	15.76	76.485	18.84	28.99	Pass
6	2437	23.07	22.99	401.835	26.04	28.99	Pass
11	2462	18.64	18.63	146.060	21.65	28.99	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 7.01dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(7.01-6) = 28.99\text{dBm}$

802.11n (40MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.82	14.76	60.262	17.80	28.99	Pass
6	2437	16.94	16.82	97.515	19.89	28.99	Pass
9	2452	16.10	15.94	80.002	19.03	28.99	Pass

NOTE:

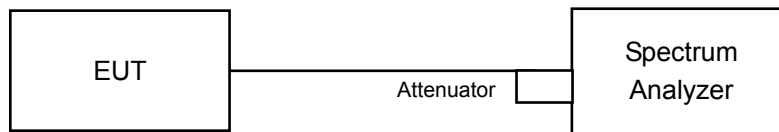
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 7.01dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(7.01-6) = 28.99\text{dBm}$

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

CDD Mode (Mode A) 802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-4.87	3.01	-1.86	7.48	Pass
	6	2437	-4.18	3.01	-1.17	7.48	Pass
	11	2462	-4.90	3.01	-1.89	7.48	Pass
1	1	2412	-5.50	3.01	-2.49	7.48	Pass
	6	2437	-3.05	3.01	-0.04	7.48	Pass
	11	2462	-4.42	3.01	-1.41	7.48	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 6.52dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(6.52-6) = 7.48dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-11.59	3.01	-8.58	7.48	Pass
	6	2437	-8.65	3.01	-5.64	7.48	Pass
	11	2462	-9.94	3.01	-6.93	7.48	Pass
1	1	2412	-11.73	3.01	-8.72	7.48	Pass
	6	2437	-8.88	3.01	-5.87	7.48	Pass
	11	2462	-10.92	3.01	-7.91	7.48	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 6.52dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(6.52-6) = 7.48dBm.

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-10.75	3.01	-7.74	7.48	Pass
	6	2437	-9.34	3.01	-6.33	7.48	Pass
	11	2462	-12.53	3.01	-9.52	7.48	Pass
1	1	2412	-10.74	3.01	-7.73	7.48	Pass
	6	2437	-9.39	3.01	-6.38	7.48	Pass
	11	2462	-12.29	3.01	-9.28	7.48	Pass

NOTE:

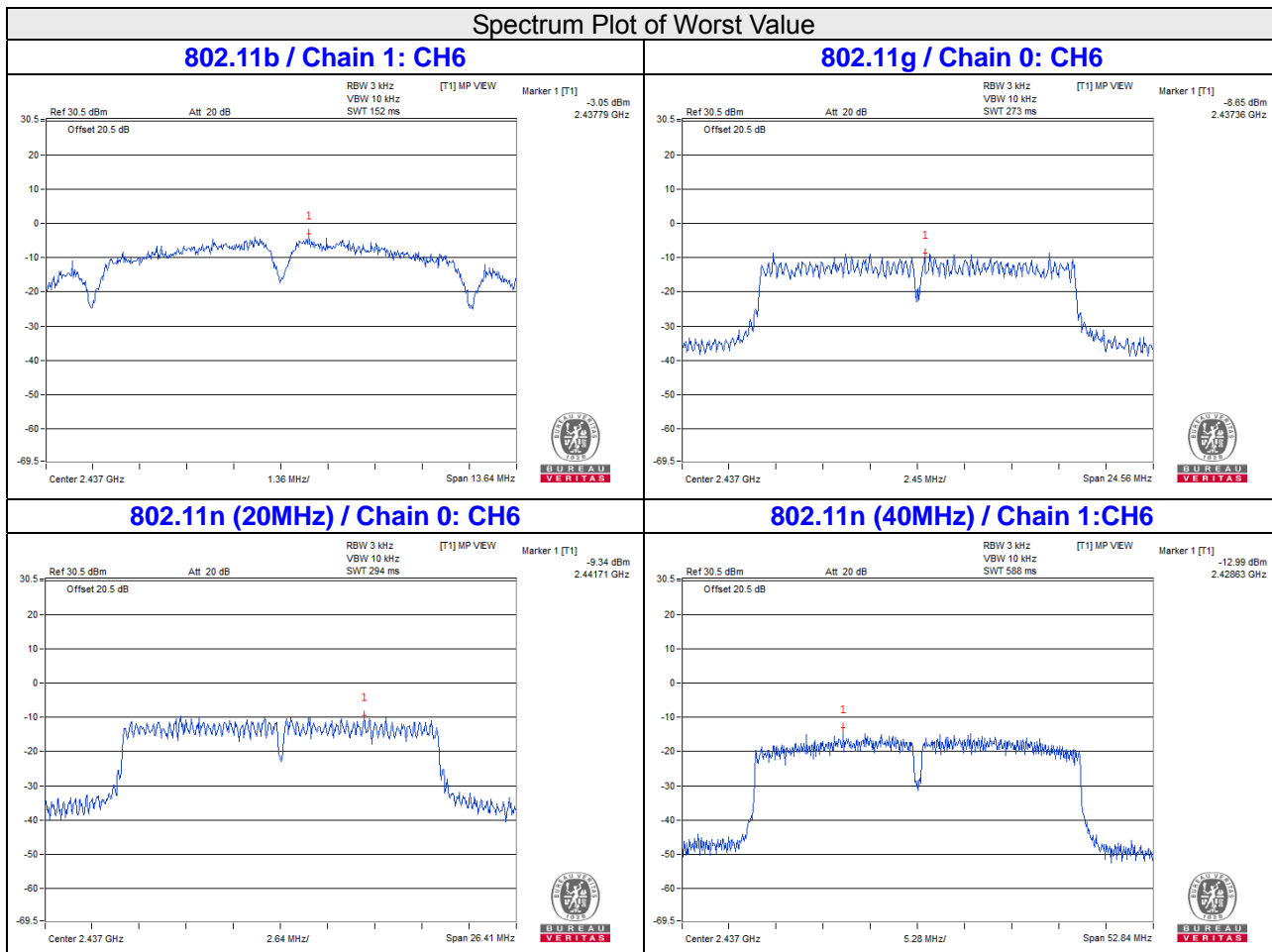
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$ = 6.52dBi >6dBi, so the Power Spectral Density limit shall be reduced to 8-(6.52-6) = 7.48dBm.

802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-15.31	3.01	-12.30	7.48	Pass
	6	2437	-14.59	3.01	-11.58	7.48	Pass
	9	2452	-16.33	3.01	-13.32	7.48	Pass
1	3	2422	-14.94	3.01	-11.93	7.48	Pass
	6	2437	-12.99	3.01	-9.98	7.48	Pass
	9	2452	-16.37	3.01	-13.36	7.48	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.52\text{dBi} > 6\text{dBi}$, so the Power Spectral Density limit shall be reduced to $8 - (6.52 - 6) = 7.48\text{dBm}$.



CDD Mode (Mode B)

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-13.90	3.01	-10.89	6.99	Pass
	6	2437	-11.35	3.01	-8.34	6.99	Pass
	11	2462	-12.72	3.01	-9.71	6.99	Pass
1	1	2412	-12.89	3.01	-9.88	6.99	Pass
	6	2437	-10.95	3.01	-7.94	6.99	Pass
	11	2462	-12.47	3.01	-9.46	6.99	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 7.01 \text{ dBi} > 6 \text{ dBi}$, so the Power Spectral Density limit shall be reduced to $8 - (7.01 - 6) = 6.99 \text{ dBm}$.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-12.21	3.01	-9.20	6.99	Pass
	6	2437	-8.65	3.01	-5.64	6.99	Pass
	11	2462	-13.14	3.01	-10.13	6.99	Pass
1	1	2412	-13.10	3.01	-10.09	6.99	Pass
	6	2437	-8.88	3.01	-5.87	6.99	Pass
	11	2462	-12.54	3.01	-9.53	6.99	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 7.01 \text{ dBi} > 6 \text{ dBi}$, so the Power Spectral Density limit shall be reduced to $8 - (7.01 - 6) = 6.99 \text{ dBm}$.

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-14.12	3.01	-11.11	6.99	Pass
	6	2437	-9.34	3.01	-6.33	6.99	Pass
	11	2462	-10.60	3.01	-7.59	6.99	Pass
1	1	2412	-13.65	3.01	-10.64	6.99	Pass
	6	2437	-9.39	3.01	-6.38	6.99	Pass
	11	2462	-10.79	3.01	-7.78	6.99	Pass

NOTE:

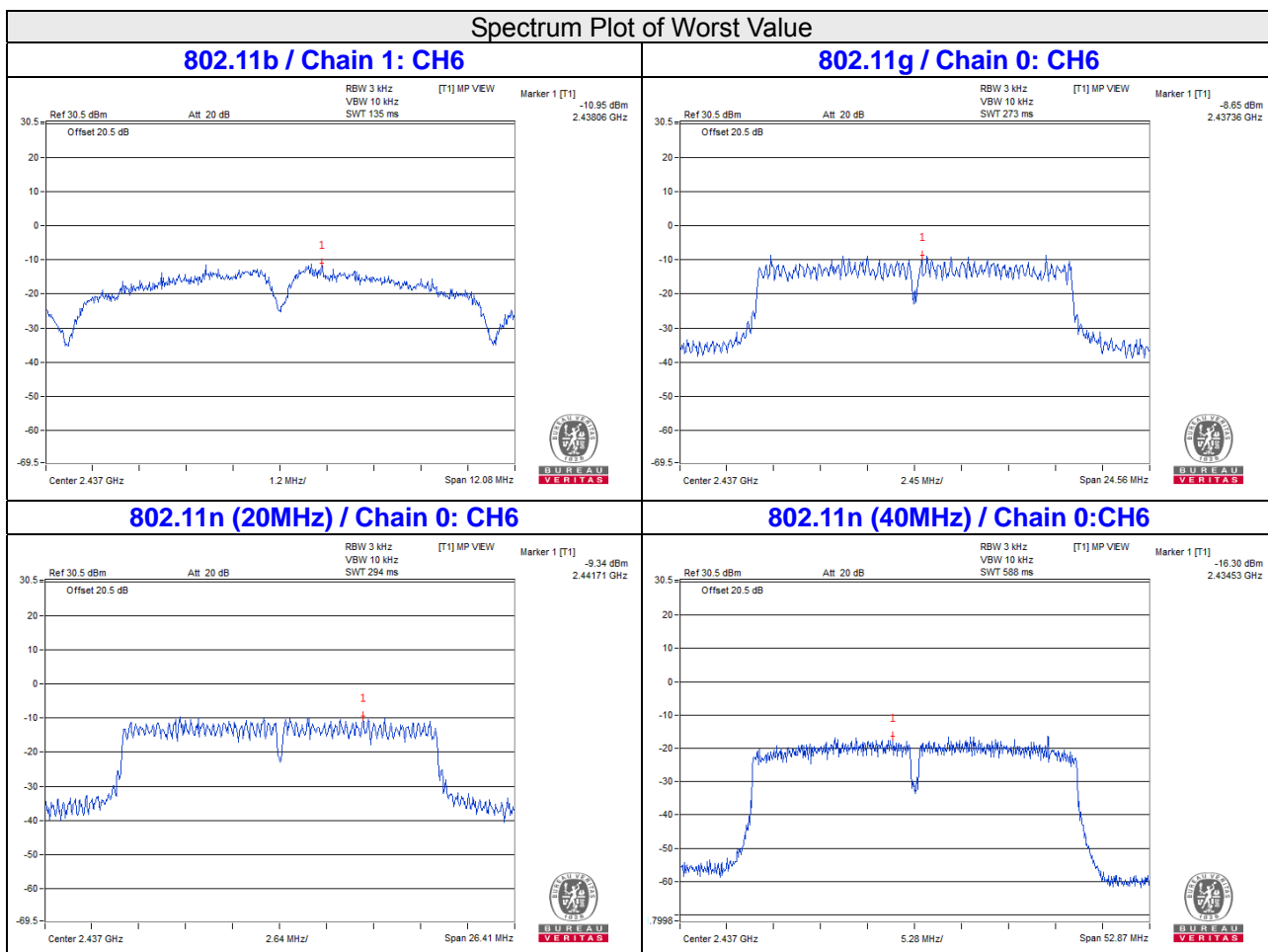
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 7.01 \text{ dBi} > 6 \text{ dBi}$, so the Power Spectral Density limit shall be reduced to $8 - (7.01 - 6) = 6.99 \text{ dBm}$.

802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-17.69	3.01	-14.68	6.99	Pass
	6	2437	-16.30	3.01	-13.29	6.99	Pass
	9	2452	-17.77	3.01	-14.76	6.99	Pass
1	3	2422	-18.45	3.01	-15.44	6.99	Pass
	6	2437	-16.61	3.01	-13.60	6.99	Pass
	9	2452	-16.65	3.01	-13.64	6.99	Pass

NOTE:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 7.01 \text{ dBi} > 6 \text{ dBi}$, so the Power Spectral Density limit shall be reduced to $8 - (7.01 - 6) = 6.99 \text{ dBm}$.

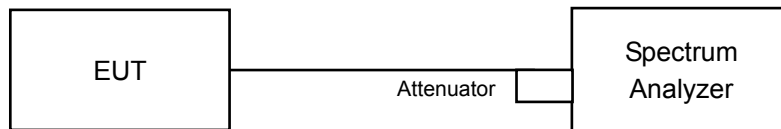


4.6 Conducted Out of Band Emission Measurement

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.

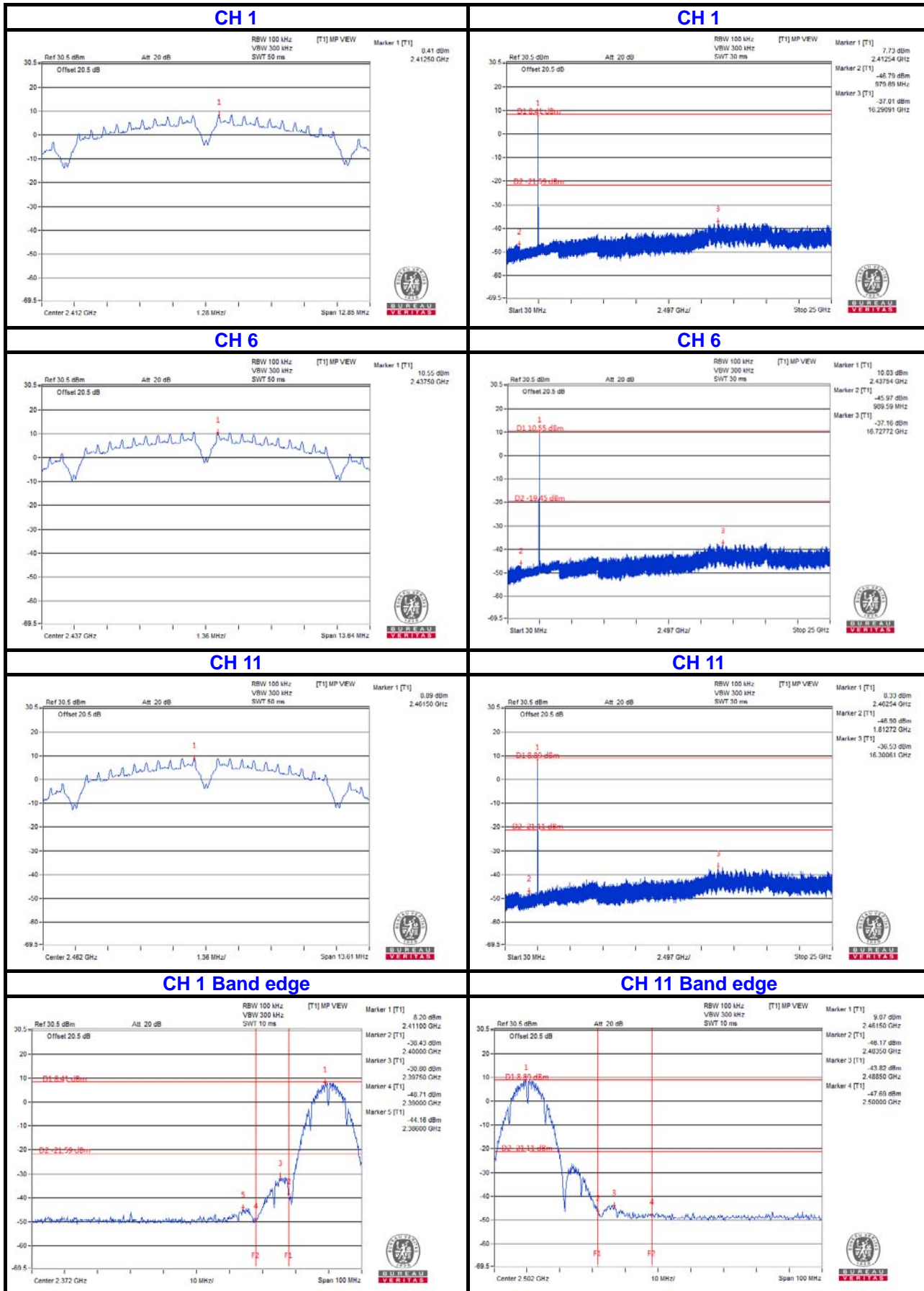
4.6.6 EUT Operating Condition

Same as Item 4.3.6

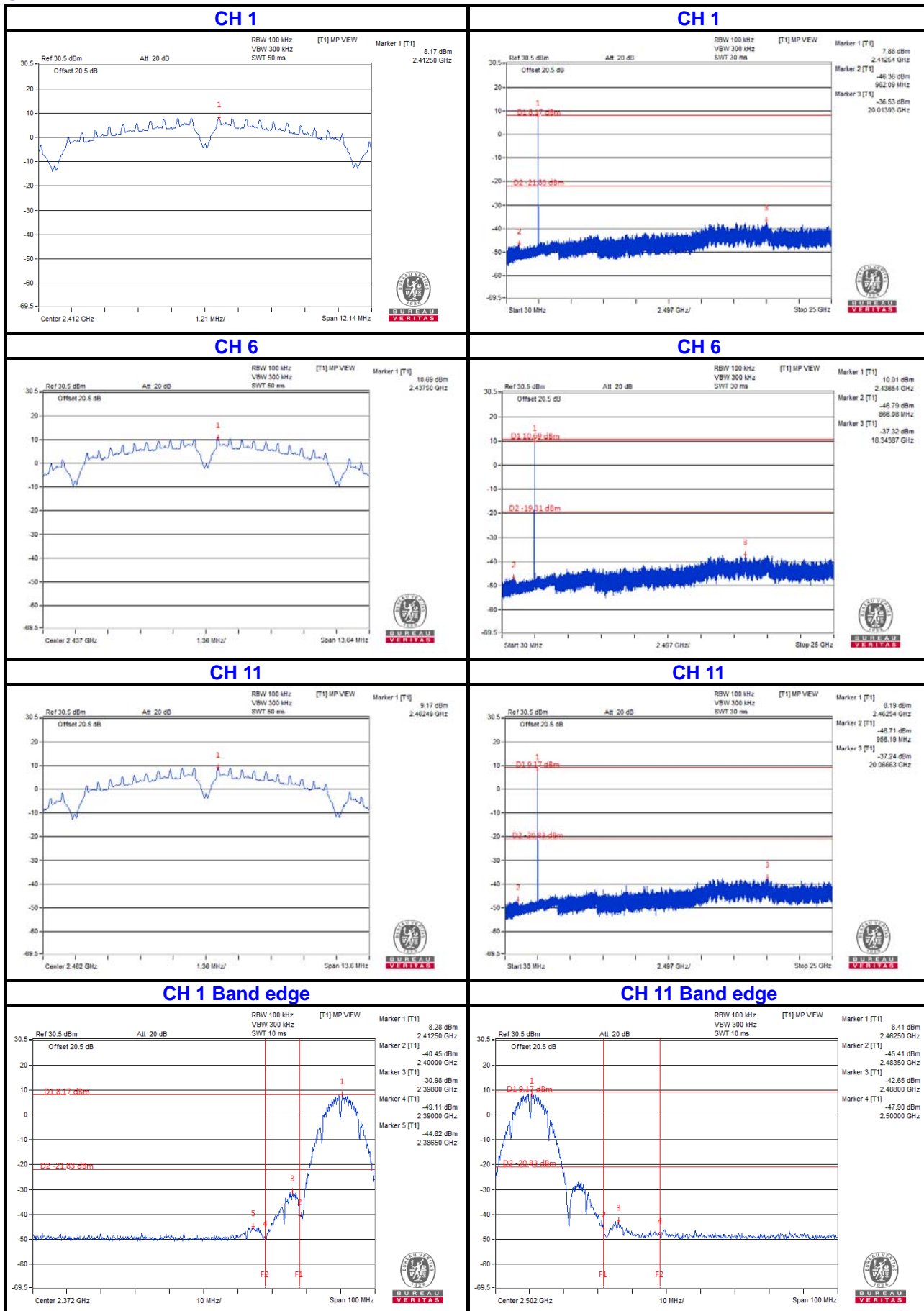
4.6.7 Test Results

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.

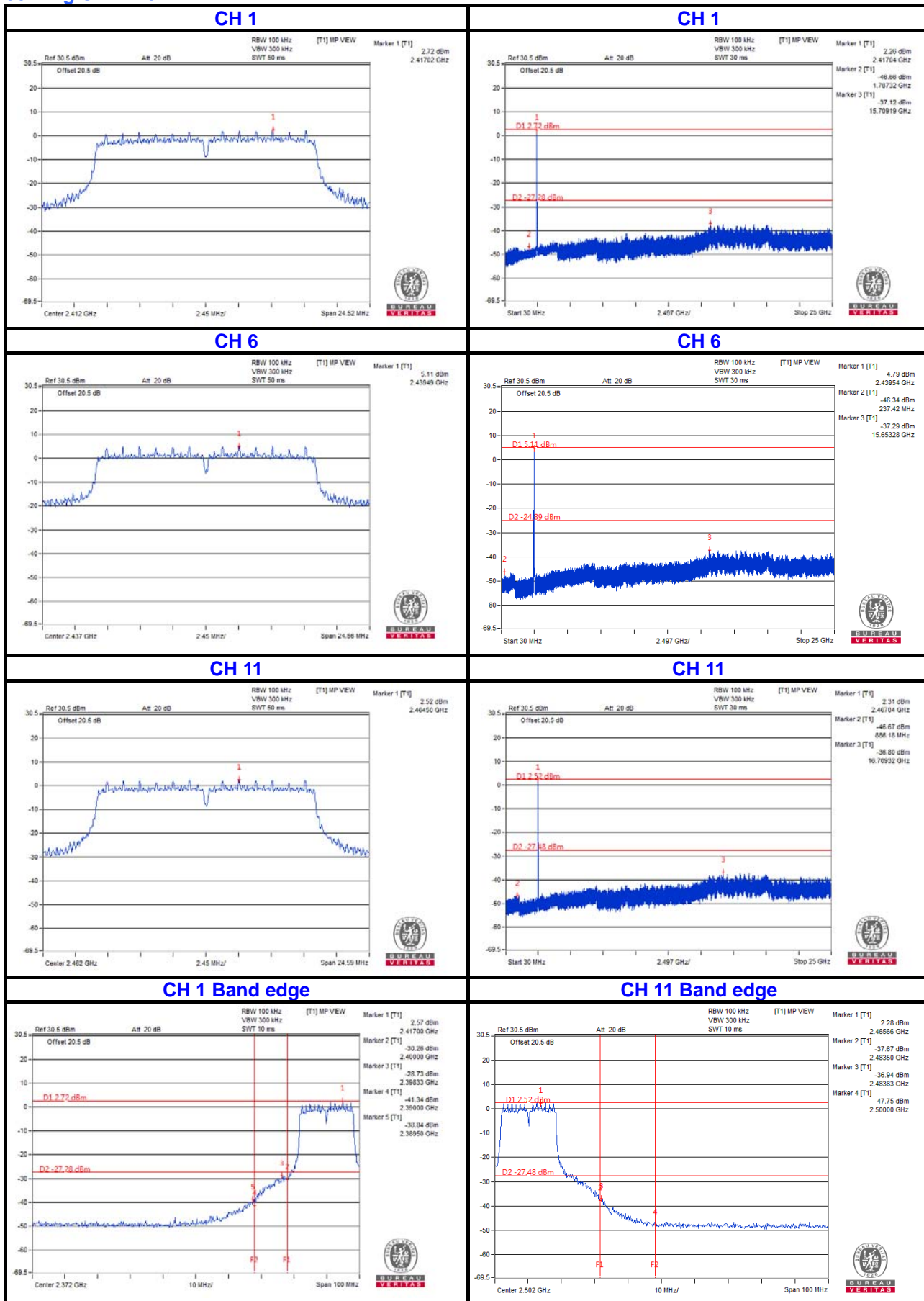
CDD Mode (Mode A)
802.11b: CHAIN 0



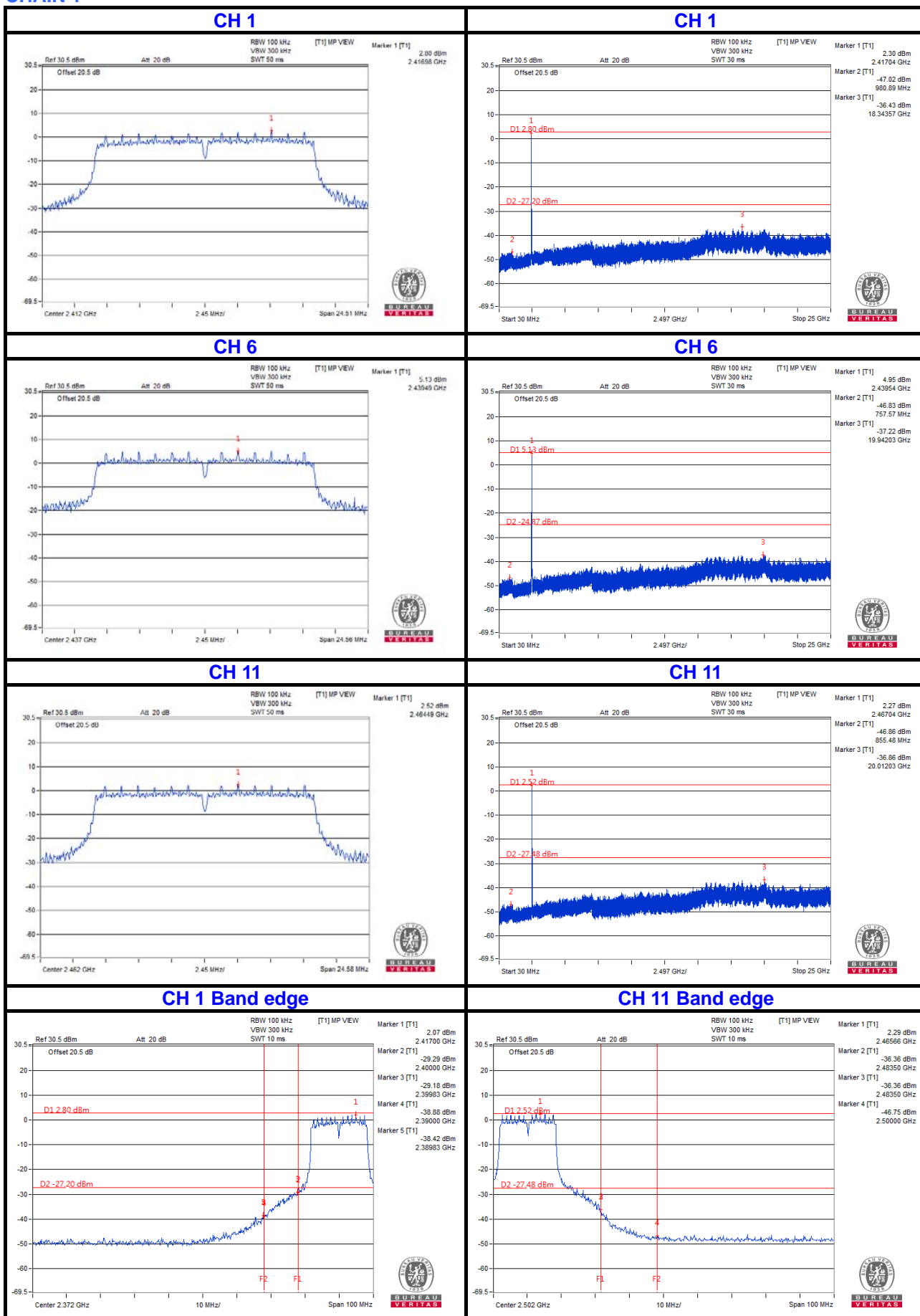
CHAIN 1



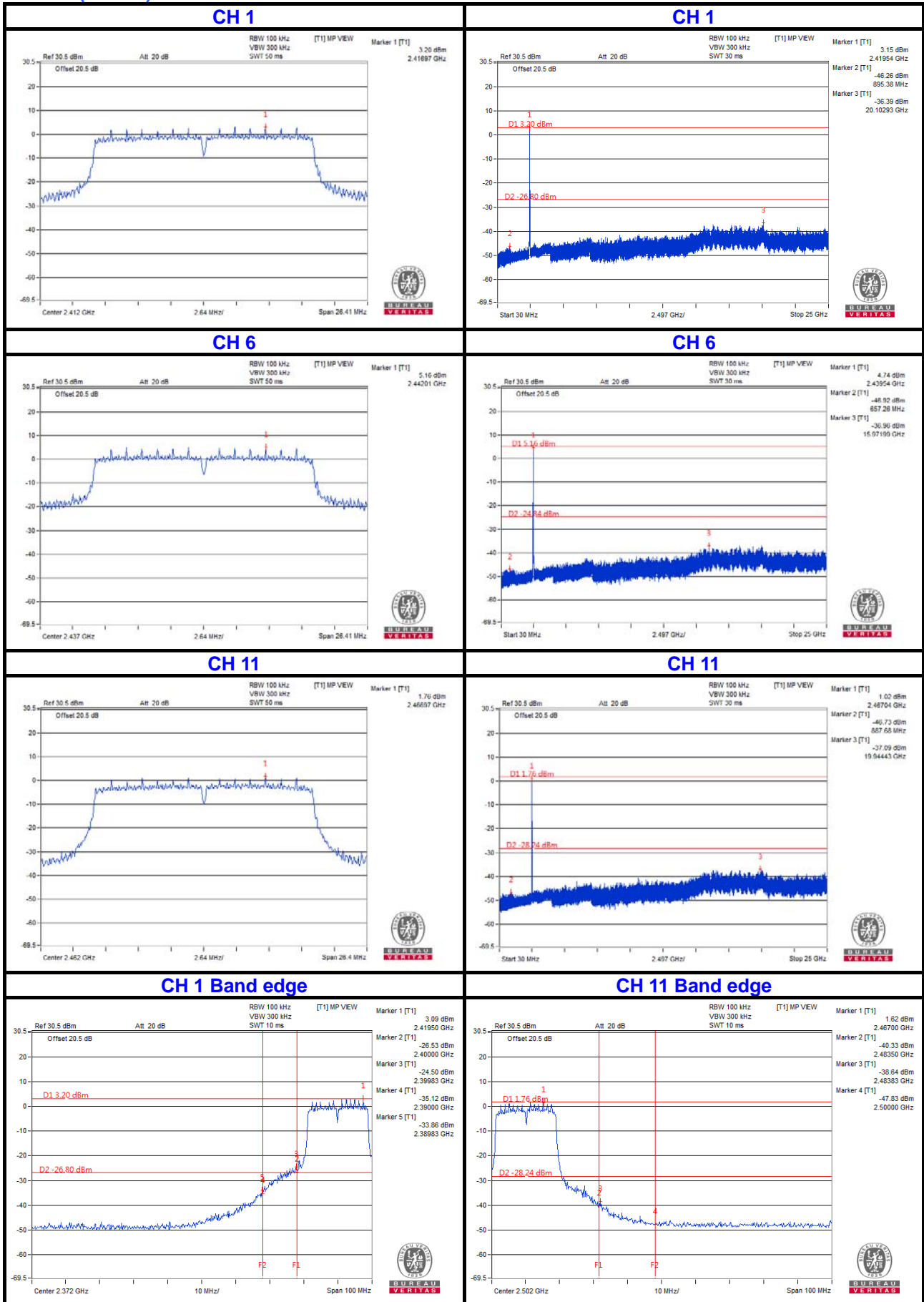
802.11g CHAIN 0



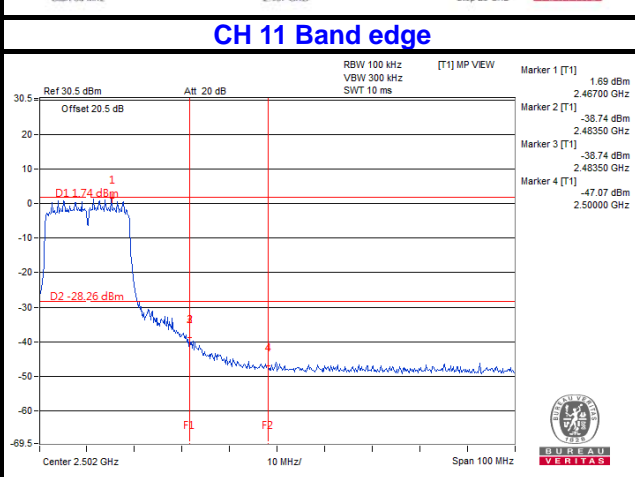
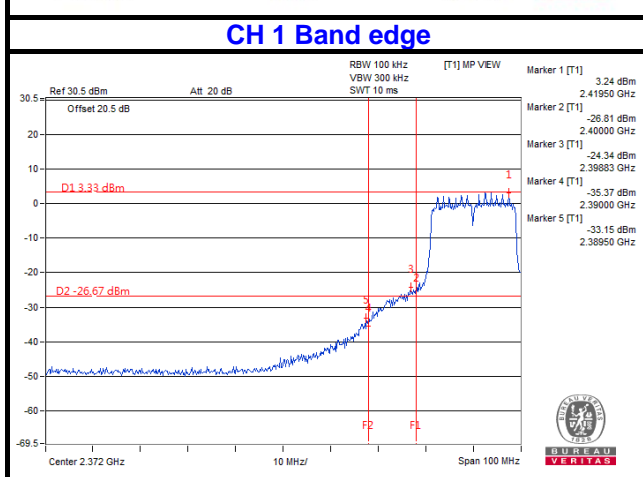
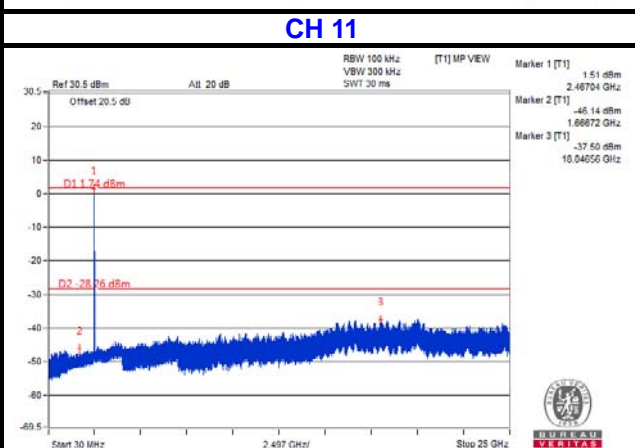
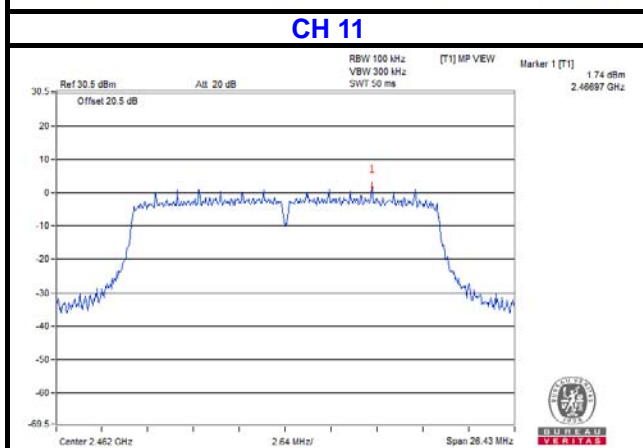
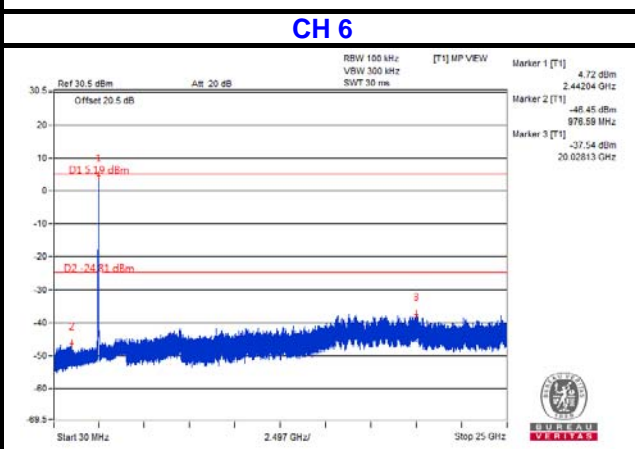
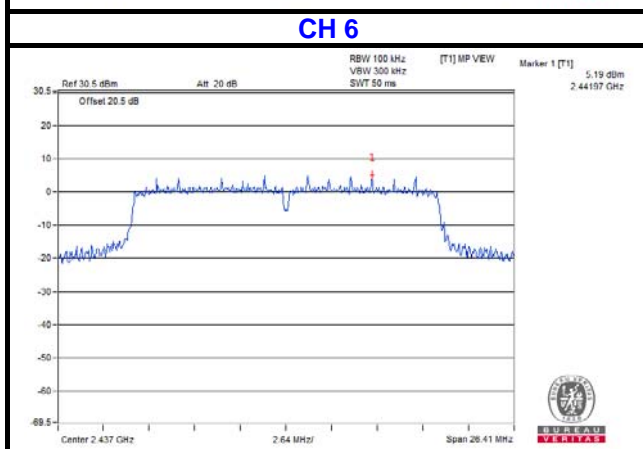
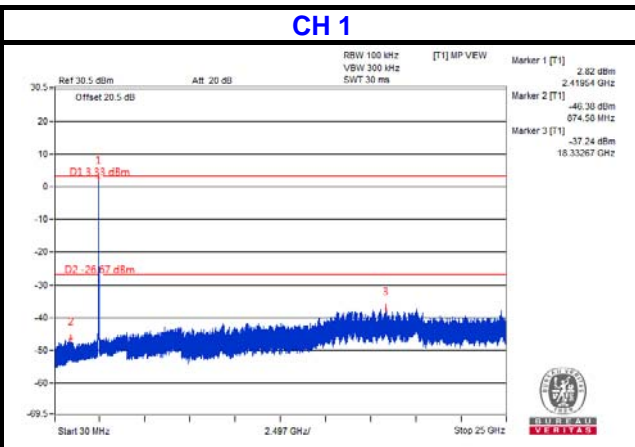
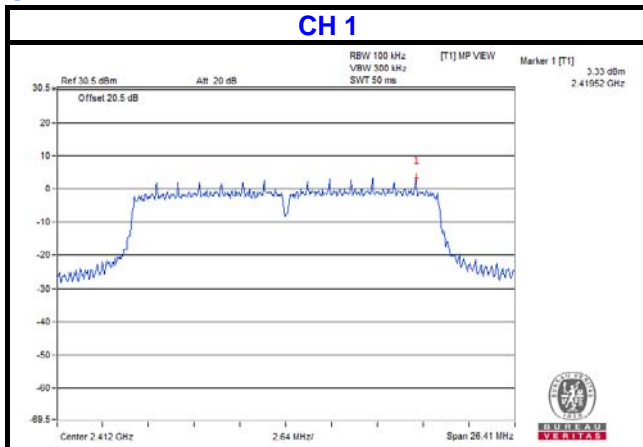
CHAIN 1



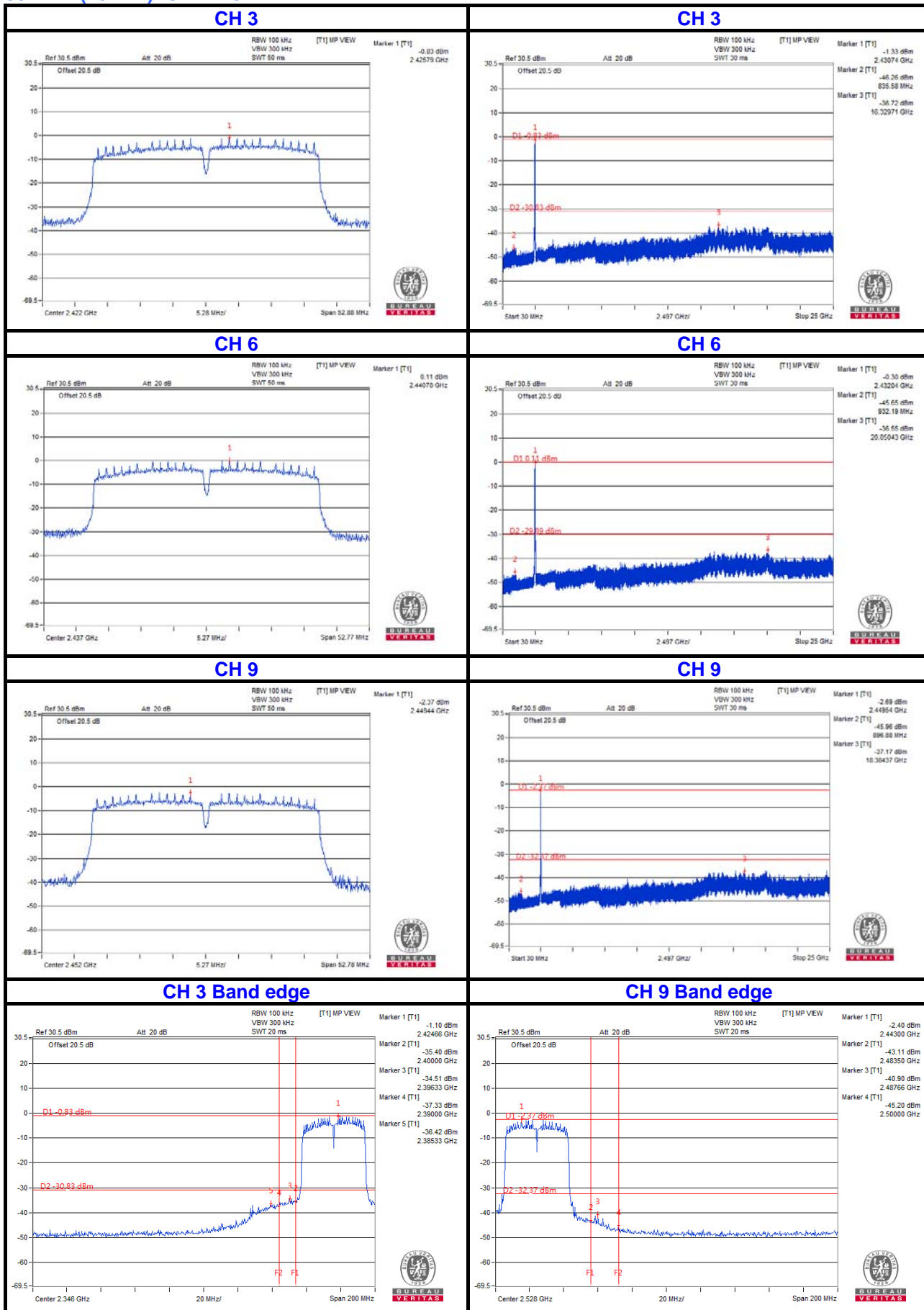
802.11n (20MHz): CHAIN 0



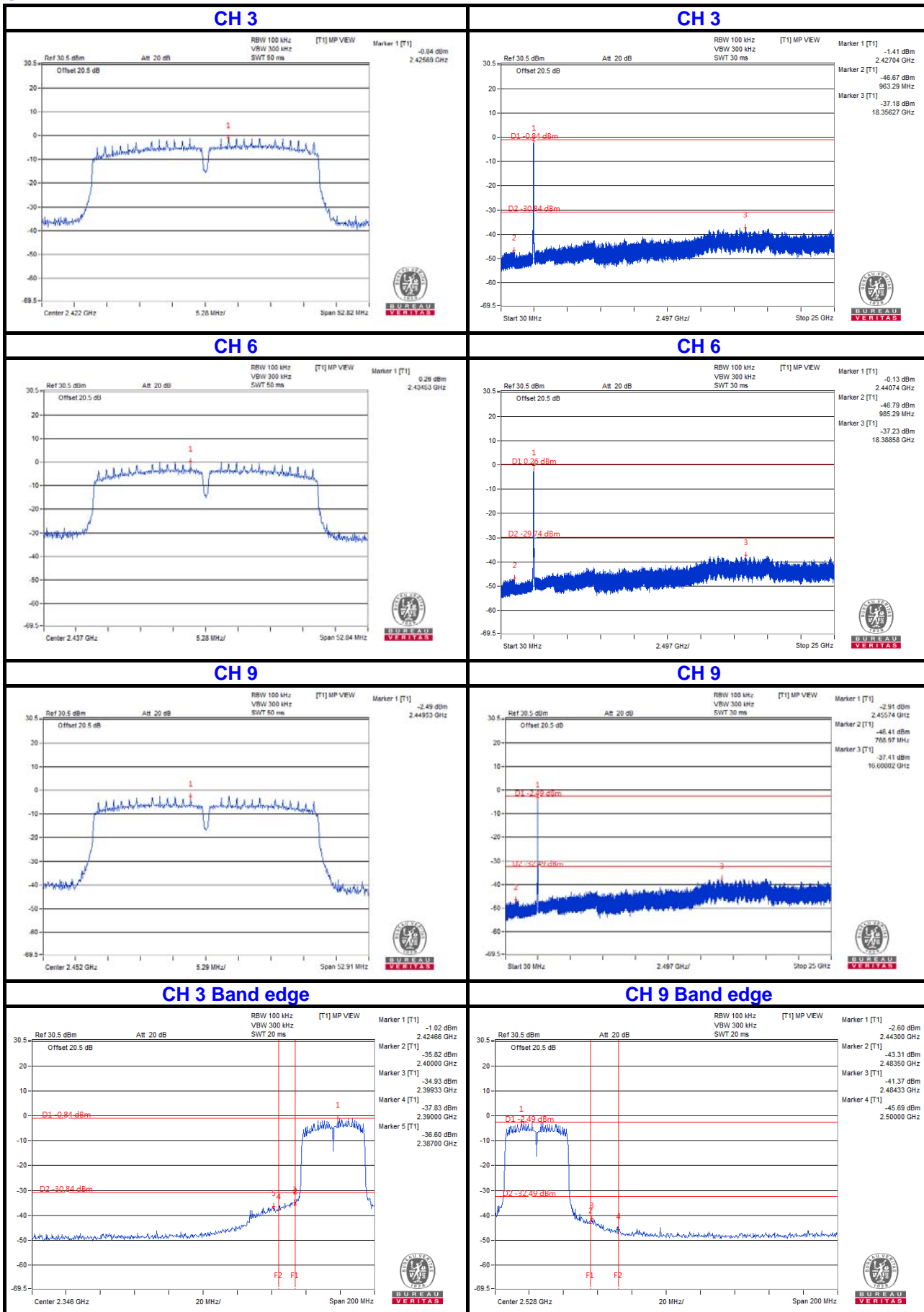
CHAIN 1



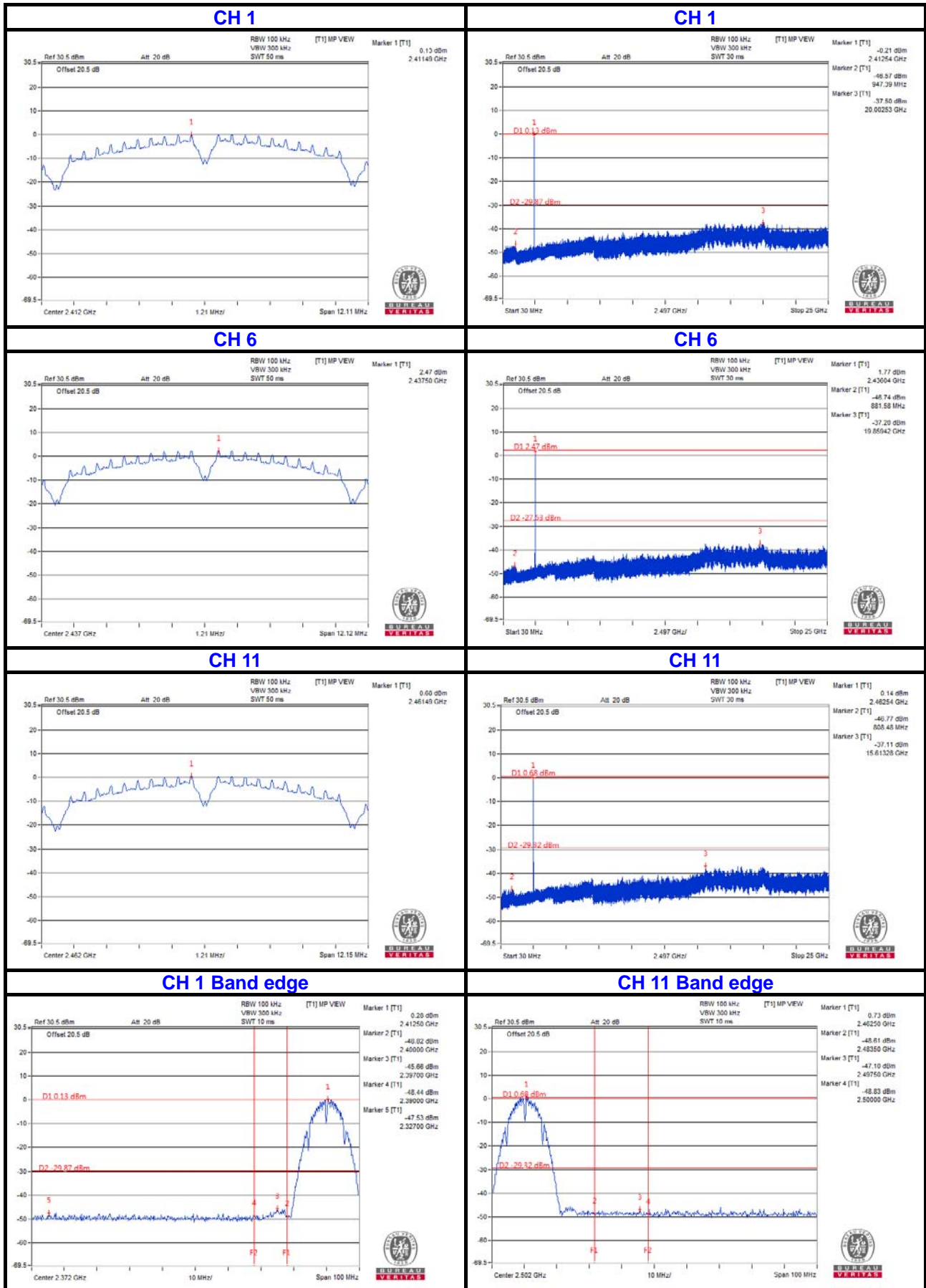
802.11n (40MHz): CHAIN 0



CHAIN 1

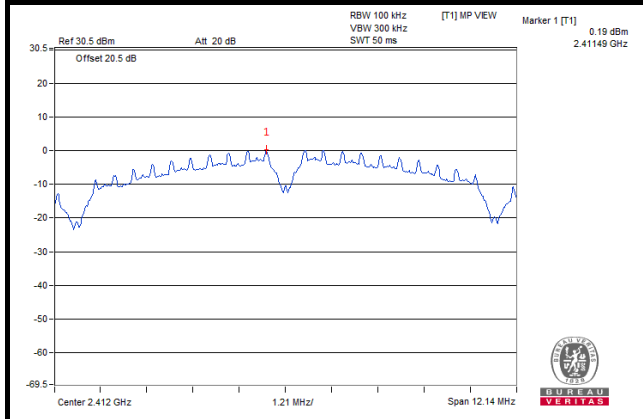


CDD Mode (Mode B)
802.11b: CHAIN 0

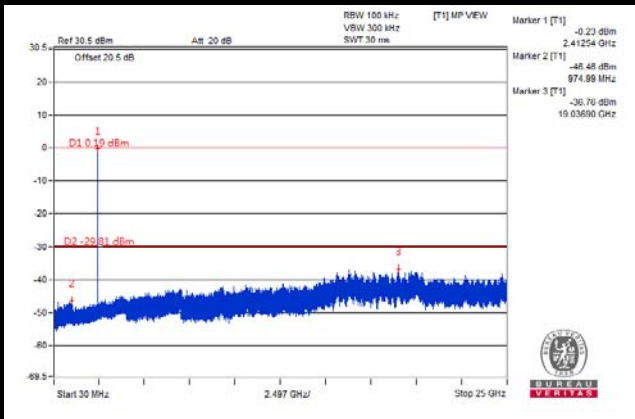


CHAIN 1

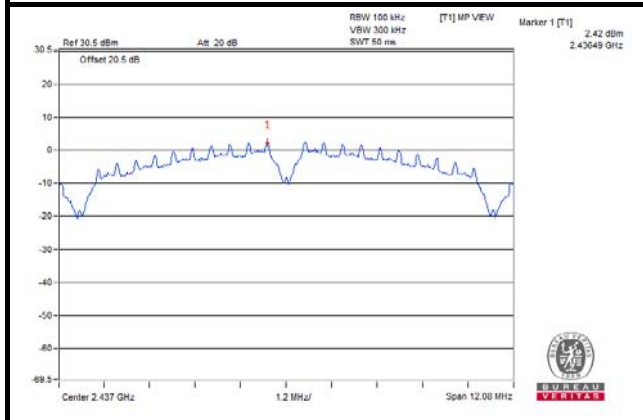
CH 1



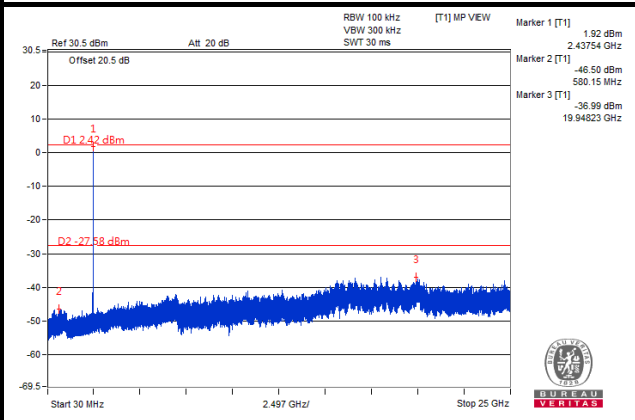
CH 1



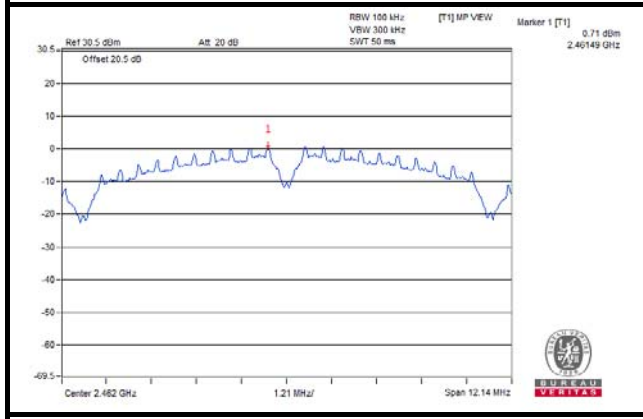
CH 6



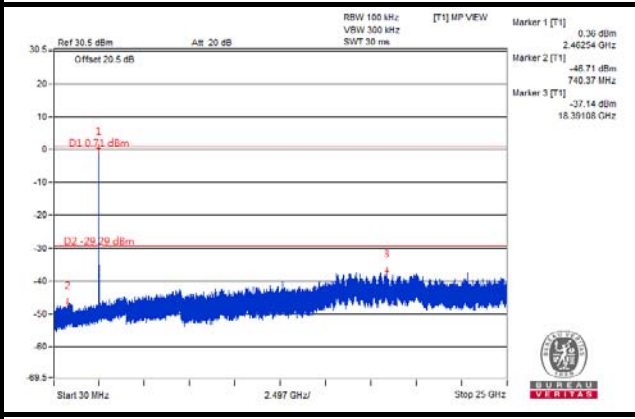
CH 6



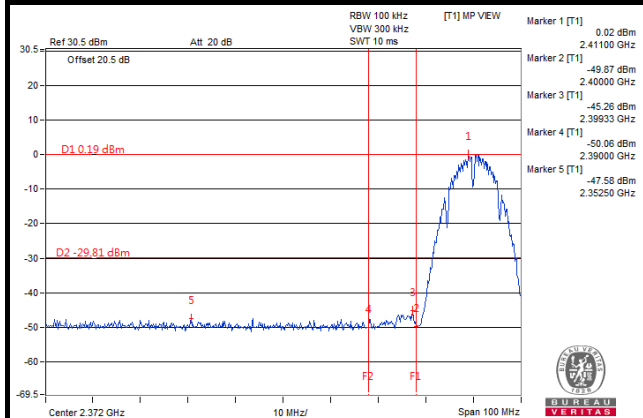
CH 11



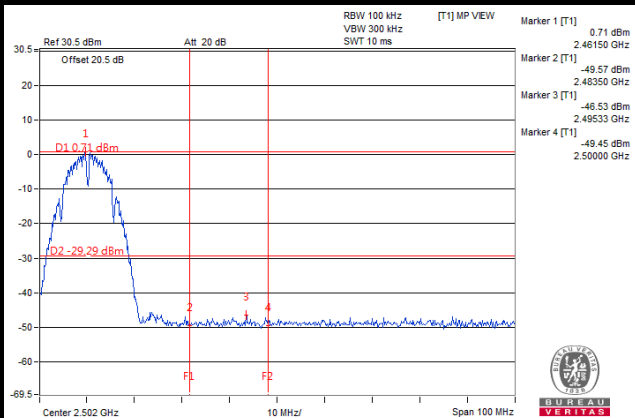
CH 11



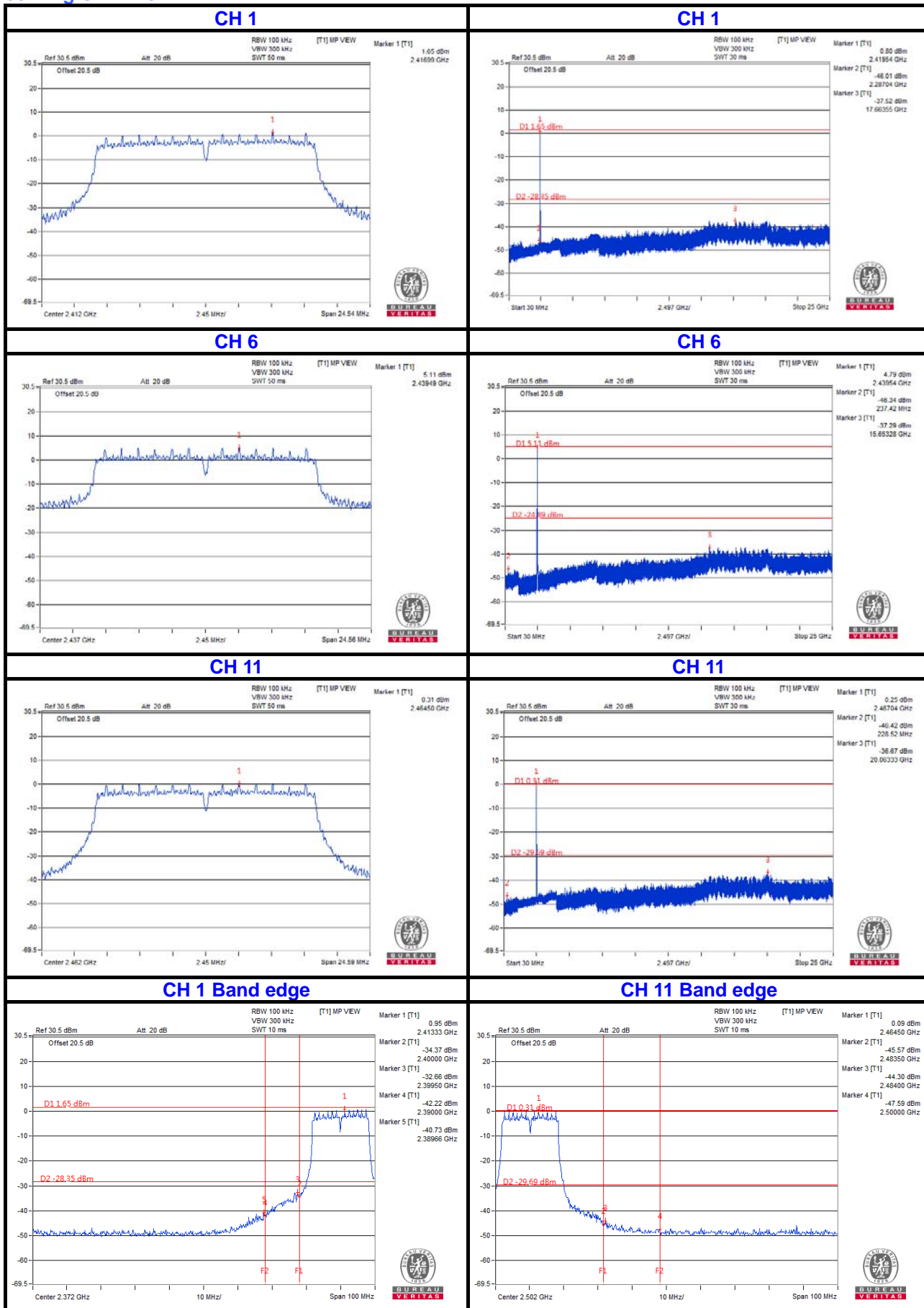
CH 1 Band edge



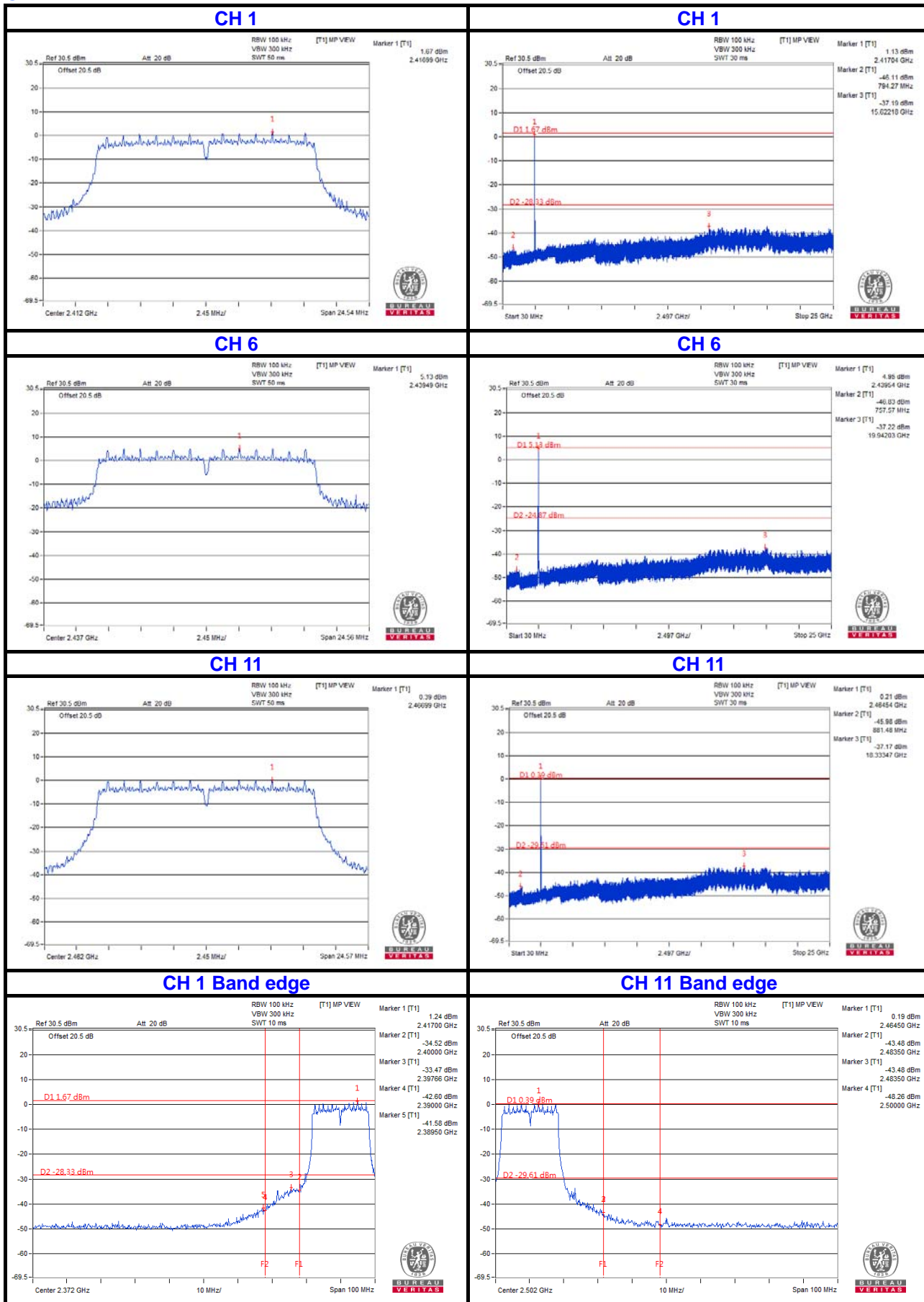
CH 11 Band edge



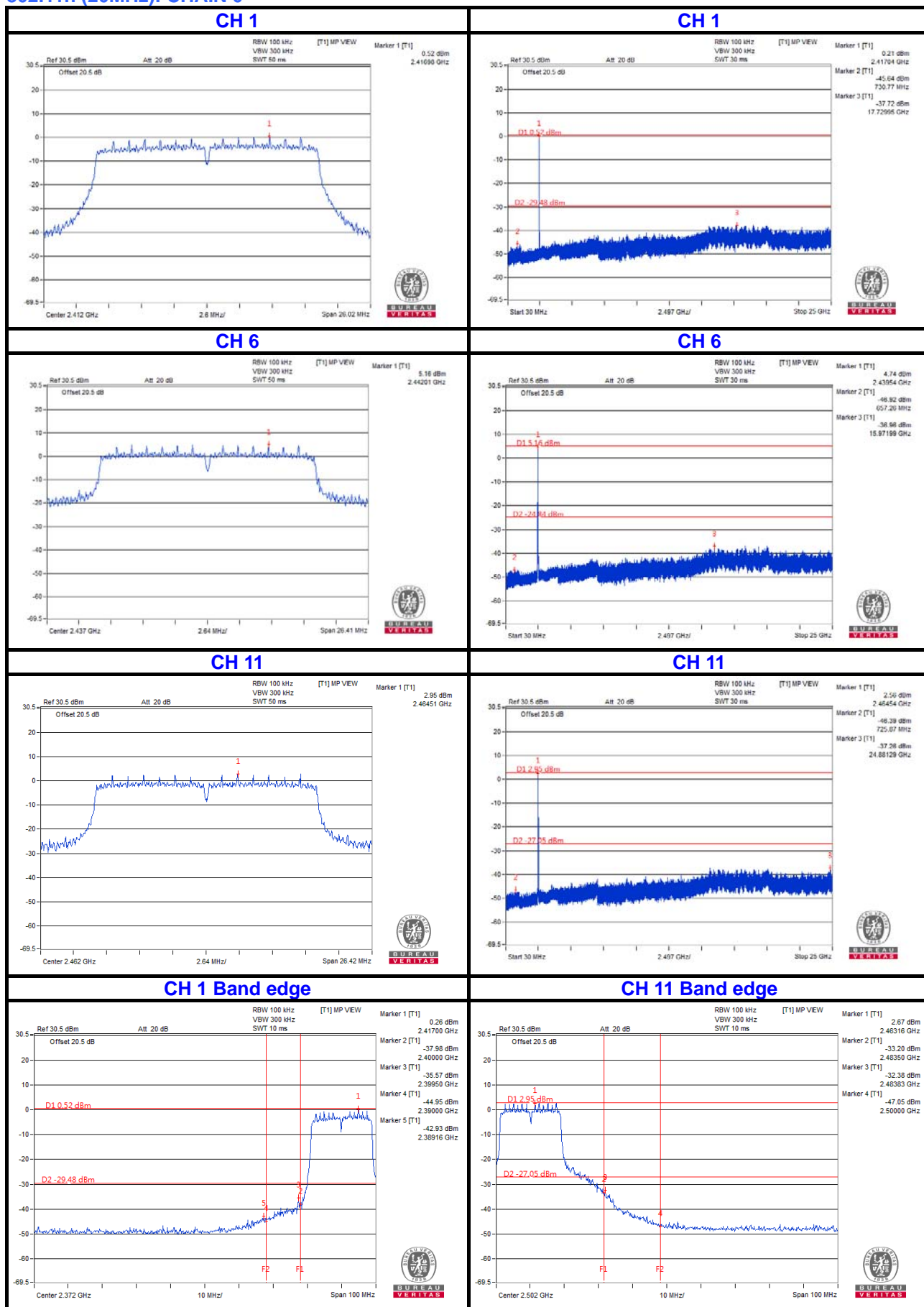
802.11g CHAIN 0



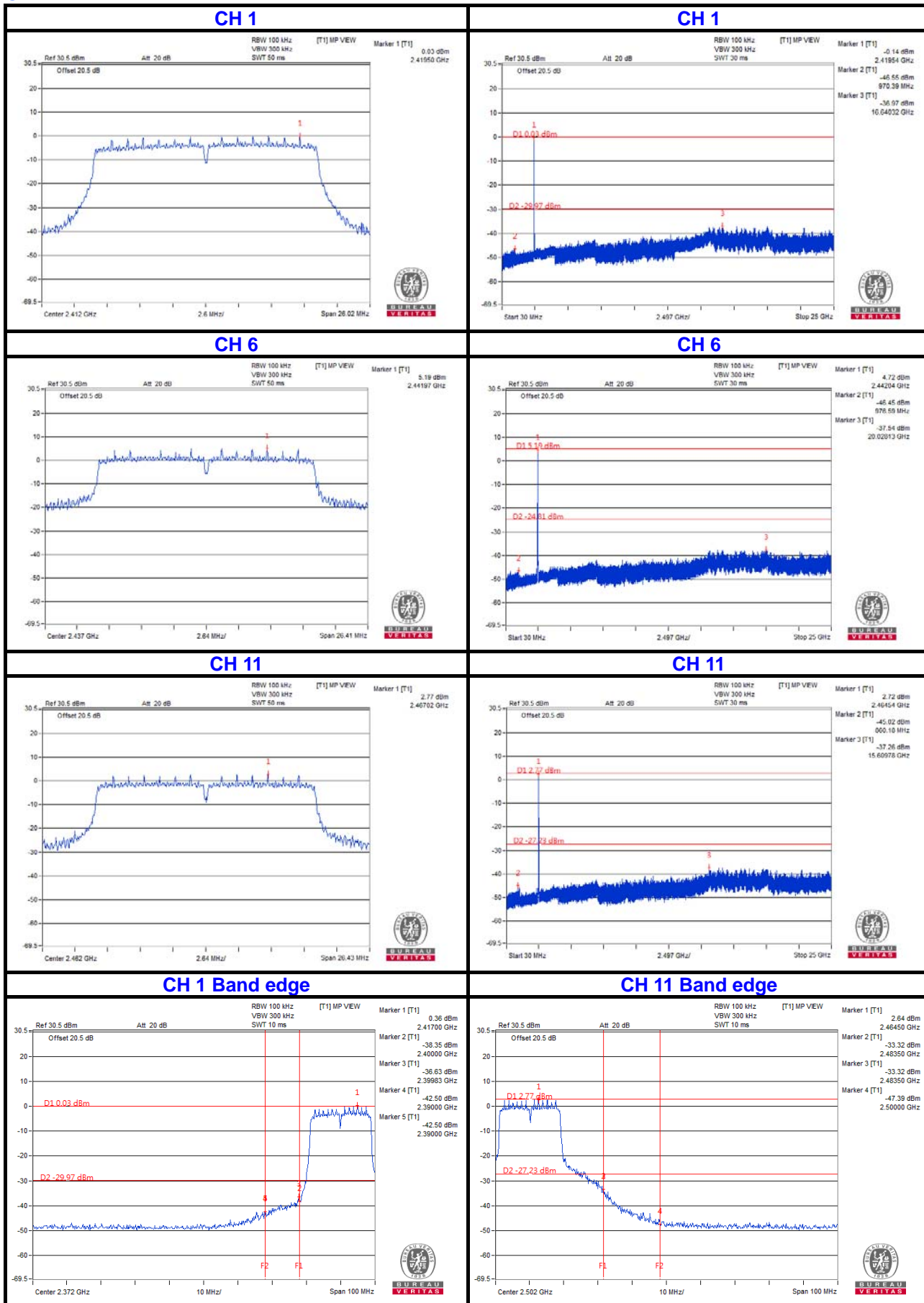
CHAIN 1



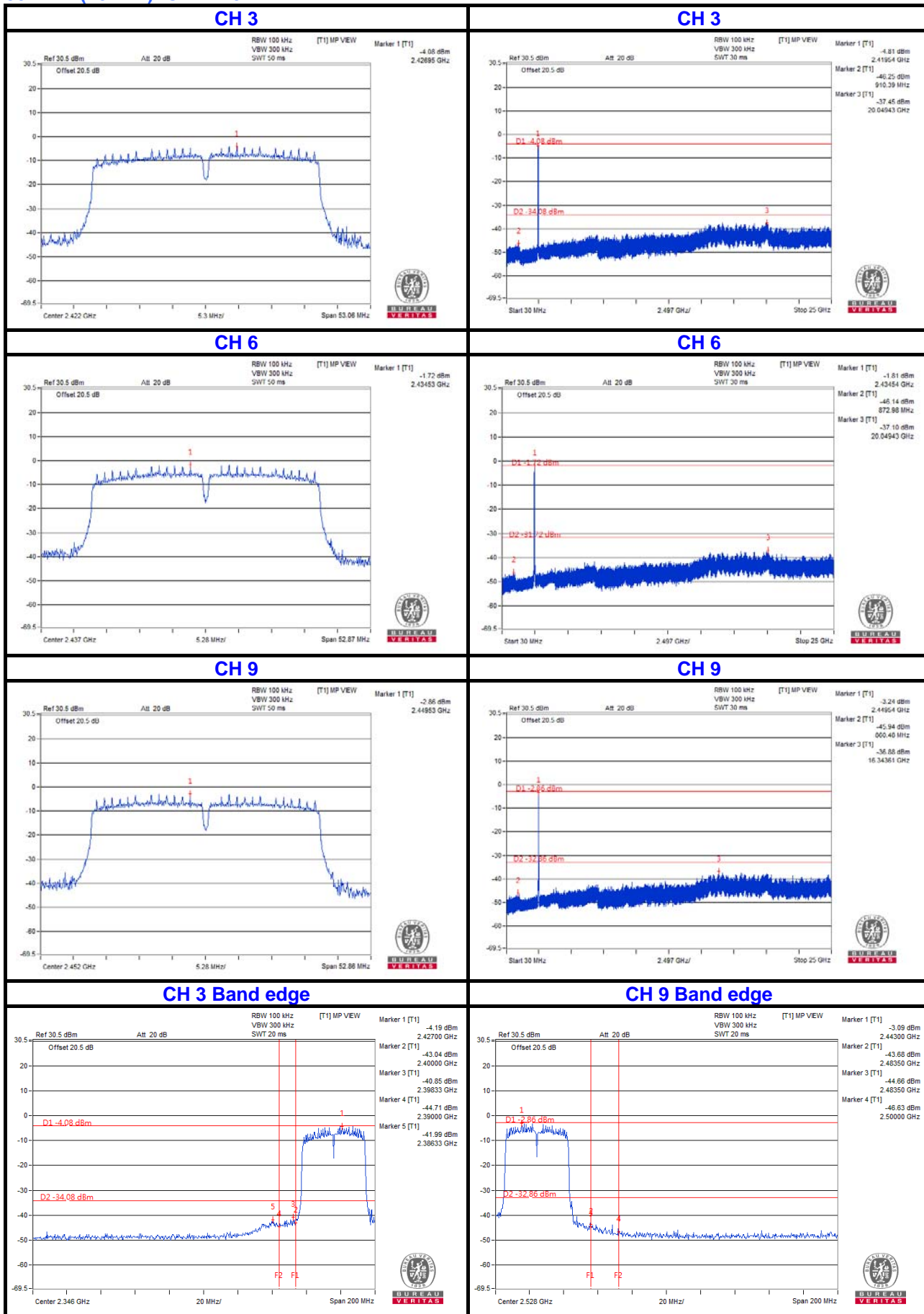
802.11n (20MHz): CHAIN 0



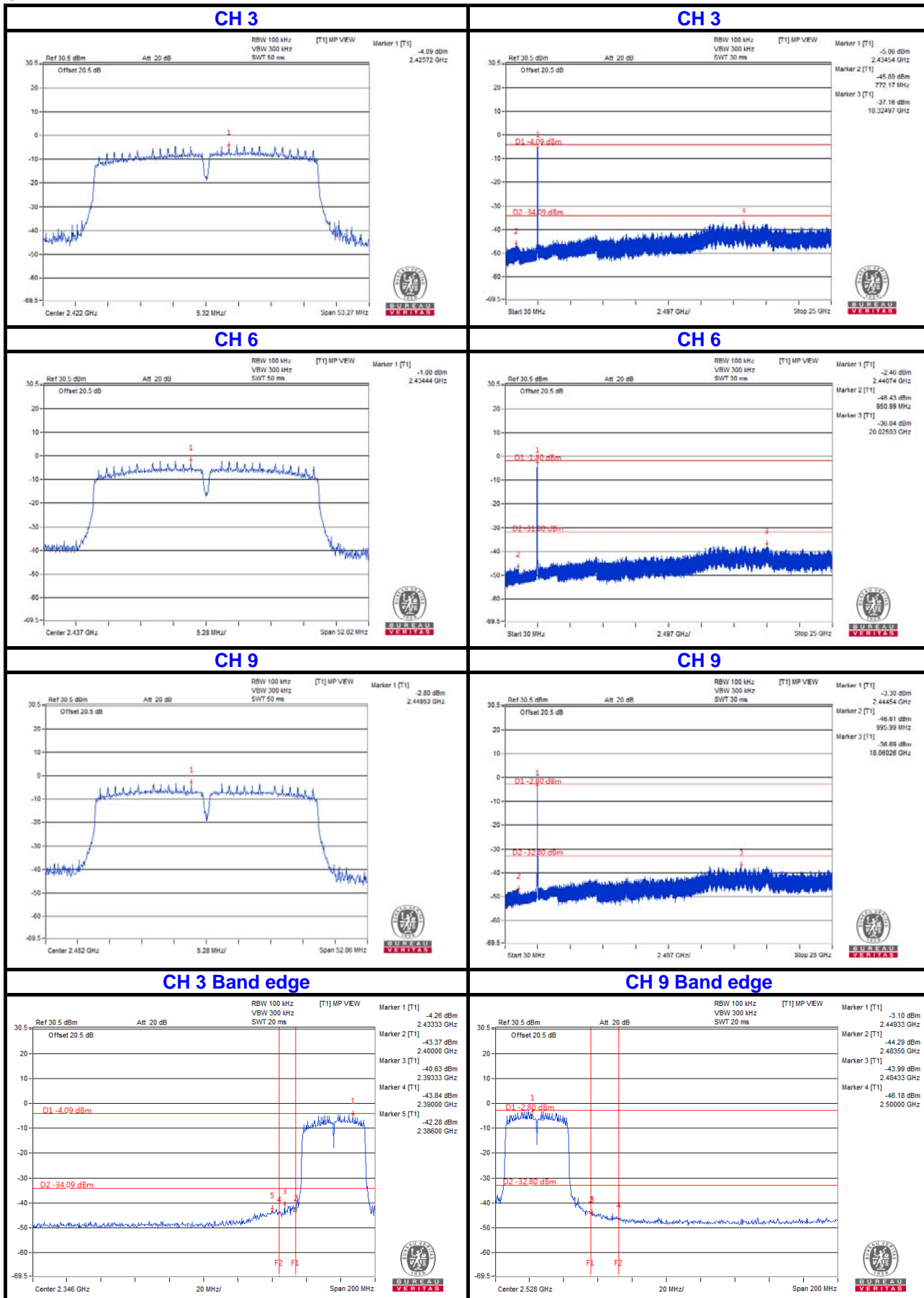
CHAIN 1



802.11n (40MHz): CHAIN 0



CHAIN 1



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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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.

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