FCC Test Report (WLAN)

Report No.:	RF190218E04
FCC ID:	I88VMG9827-B50A
Test Model:	VMG9827-B50A, VMG3927-B50B
Series Model:	EMG8726-B10A
Received Date:	Feb. 18, 2019
Test Date:	Feb. 21 to May 14, 2019
Issued Date:	June 06, 2019
Applicant:	Zyxel Communications Corporation
Address:	No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF190218E04	Original release.	June 06, 2019

1 Certificate of Conformity

Product:	Wireless AC2400 VDSL Gateway with VoIP, Wireless AC Gigabit Ethernet Gateway with VoIP, Dual Band Wireless AC/N VDSL2 Gateway
Brand:	ZYXEL
Test Model:	VMG9827-B50A, VMG3927-B50B
Series Model:	EMG8726-B10A
Sample Status:	ENGINEERING SAMPLE
Applicant:	Zyxel Communications Corporation
Test Date:	Feb. 21 to May 14, 2019
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 : _____ , **Date:** June 06, 2019

Claire Kuan / Specialis

Approved by : _____ , **Date:** June 06, 2019

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.66dB at 0.15000MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.6dB at 2390MHz, 2485MHz, 2483.5MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.8 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.8 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.0 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	Wireless AC2400 VDSL Gateway with VoIP, Wireless AC Gigabit Ethernet Gateway with VoIP, Dual Band Wireless AC/N VDSL2 Gateway
Brand	ZYXEL
Test Model	VMG9827-B50A, VMG3927-B50B
Series Model	EMG8726-B10A
CPU Model No.	VMG9827-B50A：BCM63138V EMG8726-B10A：BCM63136SV VMG3927-B50B：BCM63138U
RF Chip Model No.	VMG9827-B50A：BCM43602 (2.4G) + BCM4366E (5G) EMG8726-B10A：BCM43602 (2.4G) + BCM4366E (5G) VMG3927-B50B：BCM43602 (2.4G) + BCM4366E (5G)
FW Version (FVIN)	VMG9827-B50A：V5.13(ABLY.2)b2_C3_v3 EMG8726-B10A：V5.13(ABNP.2)b1 VMG3927-B50B：V5.13(ABLY.3)b1
Sample Status	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	**2.4GHz:** 2.412GHz ~ 2.462GHz **5GHz:** 5.18GHz ~ 5.24GHz, 5.745GHz ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.4GHz:** **CDD Mode:** 530.899mW **Beamforming Mode:** 442.069mW **5.18 ~ 5.24GHz** **CDD Mode:** 785.887 mW **Beamforming Mode** 785.887mW **5.745 ~ 5.825GHz** **CDD Mode:** 944.104mW **Beamforming Mode:** 828.446mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note

Accessory Device	For VMG9827-B50A & EMG8726-B10A : - AC Adaptor, Brand:UMEC, Model:UP0301A-12PA - Ethernet Cable (yellow), Non-shielded, 1.8m x1 (for VMG9827-B50A) - Ethernet Cable (blue), Non-shielded, 1.0m x1 (for EMG8726-B10A) - Phone Cable, Non-shielded, 1.8m, w/ core x1 (for VMG9827-B50A) - Phone Cable, Non-shielded, 1.8m, w/o core x1 (for EMG8726-B10A) For VMG3927-B50B : - AC Adaptor, Brand:DVE, Model:DSA-24PFS-12 FUS - Ethernet Cable (yellow), Non-shielded, 1.8m x1 - Phone Cable, Non-shielded,1.8m, w/ core x1

Note:

1. The EUT has below model names, which are identical to each other in all aspects except for the following:

Product	Brand	Model No.	CPU	WAN	LAN	FXS_RJ11	USB	DSL	WiFi 802.11n 3x3	WiFi 802.11ac 4x4 up tp 80MHz
Wireless AC2400 VDSL Gateway with VoIP	ZYXEL	VMG9827-B50A	BCM63138V	x1	x4	x2	x1	RJ-14 x1 (Bonded VDSL 17A and single Line VDSL 35B)	V	V
Wireless AC Gigabit Ethernet Gateway with VoIP		EMG8726-B10A	BCM63136SV	x1	x4	x2	x1	N/A	V	V
Dual Band Wireless AC/N VDSL2 Gateway		VMG3927-B50B	BCM63138U	x1	x4	N/A	x1	RJ-11 x1 (single Line VDSL 35B)	V	V

From the above models, model: **VMG9827-B50A, VMG3927-B50B** was selected as representative model for the test and its data are recorded in this report.

2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT must be supplied with a power adapter as following table:

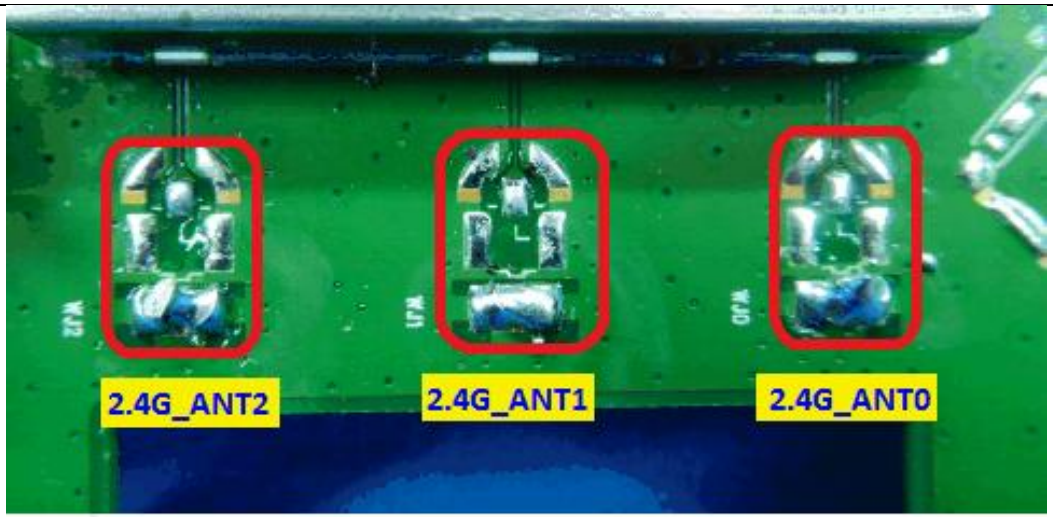
Brand	Model No.	Spec.	Remark
UMEC	UP0301A-12PA	AC Input: 100-240Vac, 0.8A, 50/60Hz DC Output: 12V, 2.5A DC Output Cable: 1.5m unshielded	For VMG9827-B50A & EMG8726-B10A
DVE	DSA-24PFS-12 FUS	AC Input: 100-240Vac, 0.8A, 50/60Hz DC Output: 12V, 2A DC Output Cable: 1.5m unshielded	For VMG3927-B50B

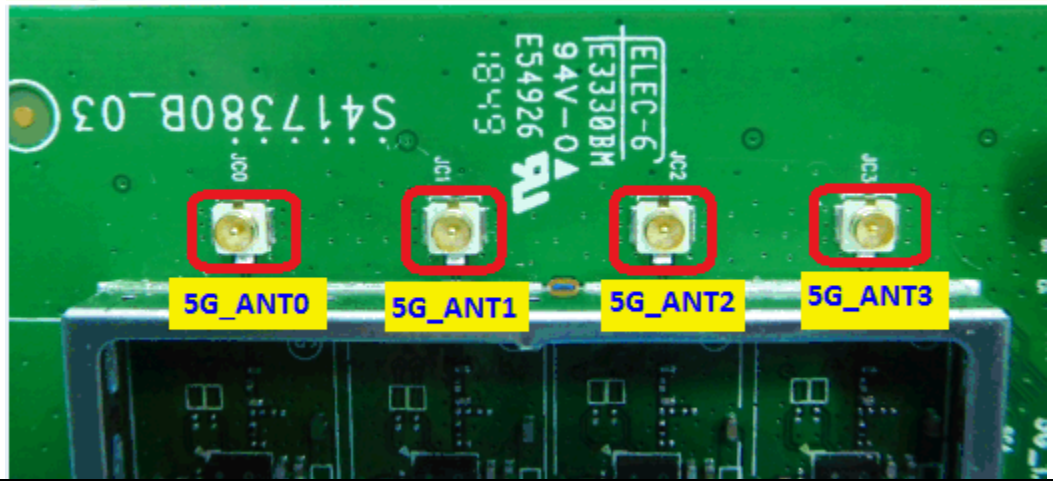
4. The antennas provided to the EUT, please refer to the following table:

2.4GHz Band					
Frequency	3D Peak gain (dBi)			Directional Antenna Gain (dBi)	Connector Type
	ANT0	ANT1	ANT2		
2400MHz	2.47	1.27	1.50	4.28	NA
2450MHz	2.24	1.16	1.83	4.53	
2500MHz	2.44	1.02	2.90	5.25	
2.4G Max gain	2.47	1.27	2.90	5.25	

5GHz Band						
Frequency	3D Peak gain (dBi)				Directional Antenna Gain (dBi)	Connector Type
	ANT0	ANT1	ANT2	ANT3		
5150MHz	3.63	2.45	3.57	2.55	6.48	i-PEX(MHF)
5350MHz	4.00	2.73	4.24	2.01	6.78	
5470MHz	4.27	2.19	3.70	2.08	6.10	
5725MHz	3.45	2.23	3.84	2.33	6.37	
5850MHz	2.65	3.55	2.91	2.93	6.34	

Note: More detailed information, please refer to operating description.





5. The EUT incorporates a MIMO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	3TX	3RX
802.11g	3TX	3RX
802.11n (HT20)	3TX	3RX
802.11n (HT40)	3TX	3RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
802.11ac (VHT20)	4TX	4RX
802.11ac (VHT40)	4TX	4RX
802.11ac (VHT80)	4TX	4RX

Note:
1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
2. All of modulation mode support beamforming function except (802.11b/g/a) modulation mode.
3. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

6. The power setting are list as below:

CDD Mode							
802.11b		**802.11g**		**802.11n (HT20)**		**802.11n (HT40)**	
Frequency (MHz)	**Power Setting**	**Frequency (MHz)**	**Power Setting**	**Frequency (MHz)**	**Power Setting**	**Frequency (MHz)**	**Power Setting**
2412	88	2412	78	2412	74	2422	69
2437	88	2437	88	2417	78	2437	75
2462	88	2457	80	2437	88	2452	67
		2462	74	2457	79		
				2462	74		

Beamforming Mode			
802.11n (HT20)		**802.11n (HT40)**	
Frequency (MHz)	**Power Setting**	**Frequency (MHz)**	**Power Setting**
2412	74	2422	69
2417	78	2437	75
2437	88	2452	67
2457	79		
2462	74		

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 (HT20):

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	For model: VMG9827-B50A
2	-	√	√	-	For model: VMG3927-B50B

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Note: "-" means no effect

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 10, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

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

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

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

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
MODE	**AVAILABLE CHANNEL**	**TESTED CHANNEL**	**MODULATION TECHNOLOGY**	**MODULATION TYPE**	**DATA RATE (Mbps)**
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 10, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming Mode (output power only)					
MODE	**AVAILABLE CHANNEL**	**TESTED CHANNEL**	**MODULATION TECHNOLOGY**	**MODULATION TYPE**	**DATA RATE (Mbps)**
802.11n (HT20)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

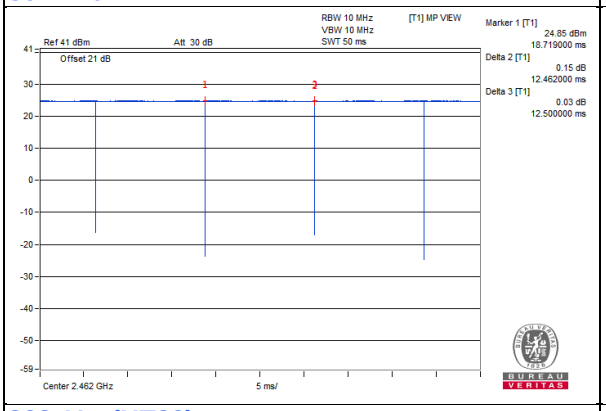
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
PLC	25deg. C, 75%RH	120Vac, 60Hz	Frank Chiu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

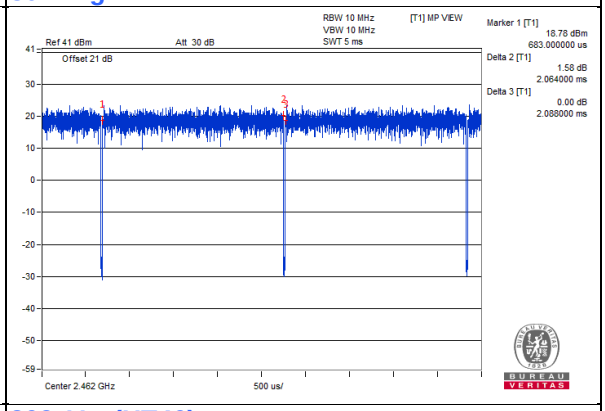
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.462/12.5 = 0.997
802.11g: Duty cycle = 2.064/2.088 = 0.989
802.11n (HT20): Duty cycle = 1.918/1.938 = 0.99
802.11n (HT40): Duty cycle = 0.942/0.964 = 0.977, Duty factor = 10 * log(1/0.977) = 0.1

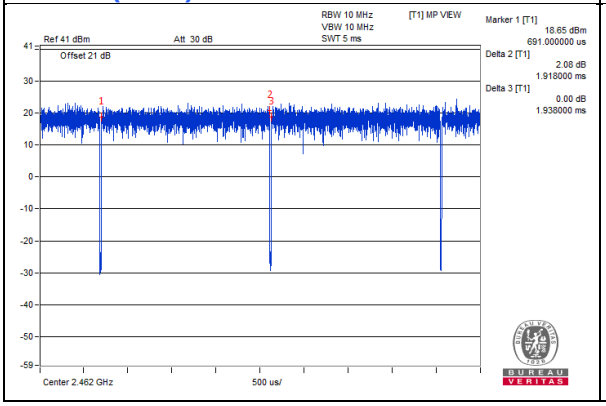
802.11b



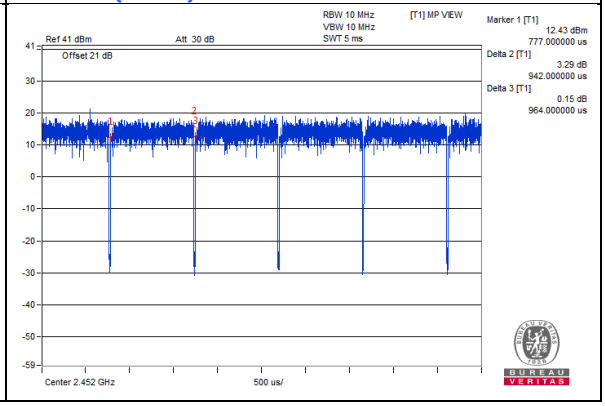
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

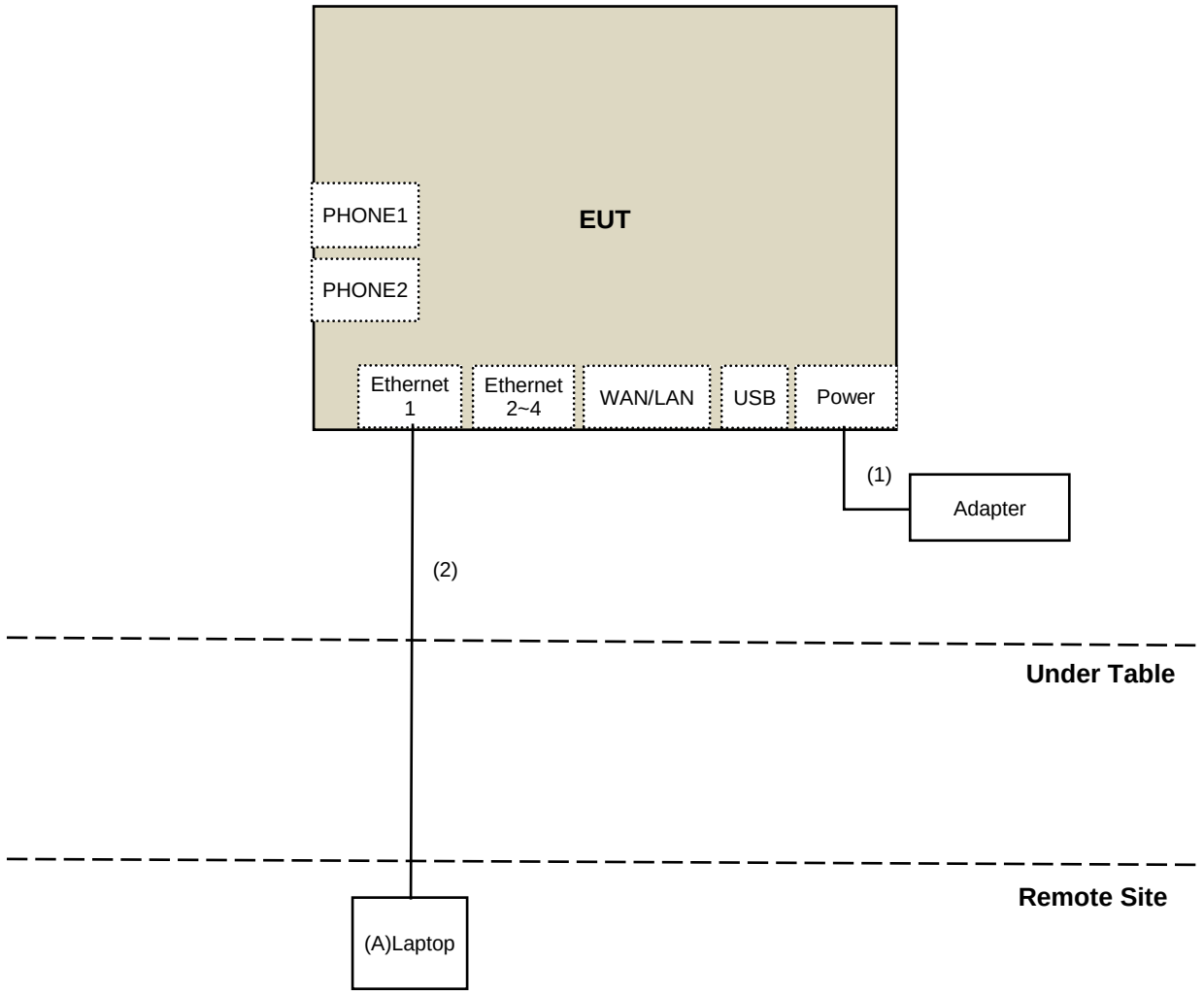
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test



Note: The test Configuration was defined by the applicant requirement.

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 15.247 Meas Guidance v05r02
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

For radiated emission below 1GHz test mode 2:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	June 01, 2018	May 31, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier EMCI	EMC330N	980538	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB9168	9168-0842	Nov. 21, 2018	Nov. 20, 2019
RF Cable	8D	966-5-1	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-2	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-3	May 03, 2019	May 02, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: May 14, 2019

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ESR7 R&S	ESR7	102026	Apr. 18, 2018	Apr. 17, 2019
Spectrum Analyzer Keysight	N9030B	MY57141948	June 01, 2018	May 31, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna(*) Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier EMCI	EMC330N	980538	May 07, 2018	May 06, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB9168	AMP-ZFL-05	May 07, 2018	May 06, 2019
RF Cable	8D	966-5-1	May 07, 2018	May 06, 2019
RF Cable	8D	966-5-2	May 07, 2018	May 06, 2019
RF Cable	8D	966-5-3	May 07, 2018	May 06, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980509	May 07, 2018	May 06, 2019
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 07, 2018	May 06, 2019
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 07, 2018	May 06, 2019
RF Cable EMCI	EMC104-SM-SM-6000	180505	May 07, 2018	May 06, 2019
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Feb. 23, 2019

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

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

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

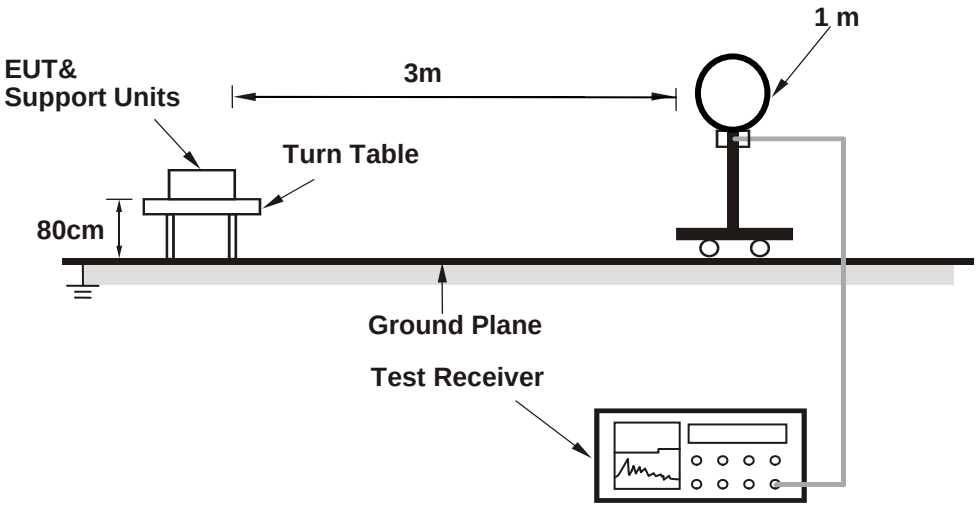
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

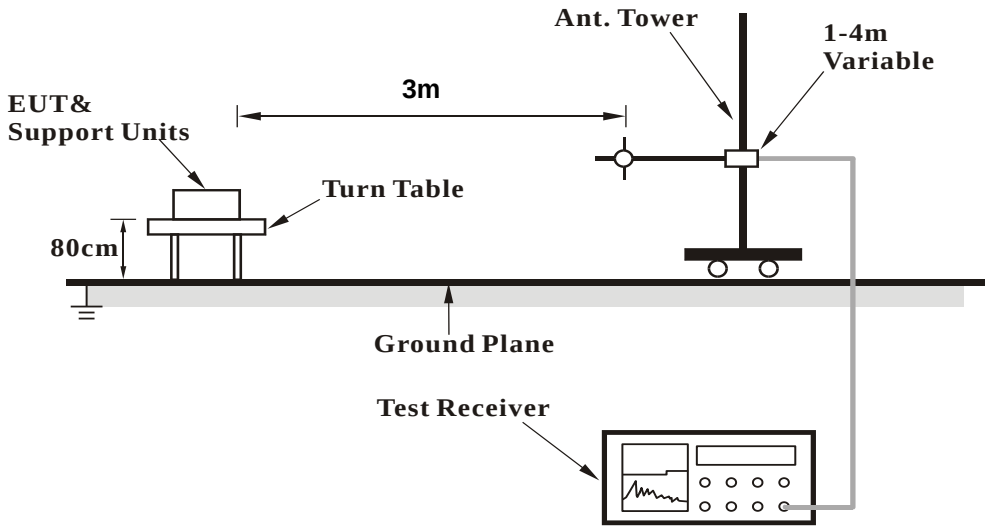
No deviation.

4.1.5 Test Setup

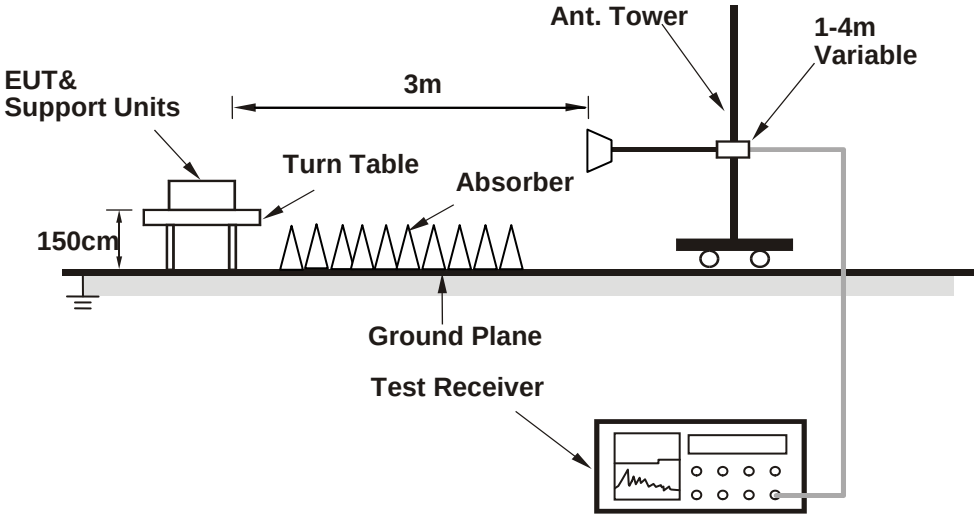
For Radiated emission below 30MHz



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 the Laptop which is placed on remote site.
b. Controlling software (MTool_2.0.0.9) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	56.3 PK	74.0	-17.7	1.40 H	233	59.5	-3.2
2	2390.00	45.3 AV	54.0	-8.7	1.40 H	233	48.5	-3.2
3	*2412.00	113.1 PK			1.40 H	233	116.3	-3.2
4	*2412.00	110.6 AV			1.40 H	233	113.8	-3.2
5	4824.00	49.6 PK	74.0	-24.4	1.32 H	246	48.8	0.8
6	4824.00	47.5 AV	54.0	-6.5	1.32 H	246	46.7	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	55.9 PK	74.0	-18.1	1.71 V	326	59.1	-3.2
2	2390.00	43.7 AV	54.0	-10.3	1.71 V	326	46.9	-3.2
3	*2412.00	113.4 PK			1.71 V	326	116.6	-3.2
4	*2412.00	111.0 AV			1.71 V	326	114.2	-3.2
5	4824.00	49.7 PK	74.0	-24.3	2.65 V	279	48.9	0.8
6	4824.00	48.1 AV	54.0	-5.9	2.65 V	279	47.3	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.0 PK			1.42 H	220	116.0	-3.0
2	*2437.00	110.5 AV			1.42 H	220	113.5	-3.0
3	4874.00	51.6 PK	74.0	-22.4	1.71 H	246	50.9	0.7
4	4874.00	49.7 AV	54.0	-4.3	1.71 H	246	49.0	0.7
5	7311.00	42.9 PK	74.0	-31.1	1.52 H	161	36.2	6.7
6	7311.00	30.8 AV	54.0	-23.2	1.52 H	161	24.1	6.7
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	113.9 PK			1.76 V	326	116.9	-3.0
2	*2437.00	111.5 AV			1.76 V	326	114.5	-3.0
3	4874.00	50.1 PK	74.0	-23.9	2.72 V	262	49.4	0.7
4	4874.00	48.3 AV	54.0	-5.7	2.72 V	262	47.6	0.7
5	7311.00	43.4 PK	74.0	-30.6	2.01 V	184	36.7	6.7
6	7311.00	30.9 AV	54.0	-23.1	2.01 V	184	24.2	6.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.1 PK			1.38 H	230	116.2	-3.1
2	*2462.00	110.6 AV			1.38 H	230	113.7	-3.1
3	2483.50	56.3 PK	74.0	-17.7	1.38 H	230	59.4	-3.1
4	2483.50	45.2 AV	54.0	-8.8	1.38 H	230	48.3	-3.1
5	4924.00	51.5 PK	74.0	-22.5	1.73 H	250	50.7	0.8
6	4924.00	49.5 AV	54.0	-4.5	1.73 H	250	48.7	0.8
7	7386.00	43.3 PK	74.0	-30.7	1.54 H	165	36.3	7.0
8	7386.00	31.0 AV	54.0	-23.0	1.54 H	165	24.0	7.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.4 PK			1.95 V	328	115.5	-3.1
2	*2462.00	110.4 AV			1.95 V	328	113.5	-3.1
3	2483.50	57.0 PK	74.0	-17.0	1.95 V	328	60.1	-3.1
4	2483.50	46.0 AV	54.0	-8.0	1.95 V	328	49.1	-3.1
5	4924.00	50.1 PK	74.0	-23.9	2.71 V	272	49.3	0.8
6	4924.00	48.5 AV	54.0	-5.5	2.71 V	272	47.7	0.8
7	7386.00	43.8 PK	74.0	-30.2	2.00 V	185	36.8	7.0
8	7386.00	31.2 AV	54.0	-22.8	2.00 V	185	24.2	7.0

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.2 PK	74.0	-2.8	1.32 H	227	74.4	-3.2
2	2390.00	49.8 AV	54.0	-4.2	1.32 H	227	53.0	-3.2
3	*2412.00	114.2 PK			1.32 H	227	117.4	-3.2
4	*2412.00	103.8 AV			1.32 H	227	107.0	-3.2
5	4824.00	47.9 PK	74.0	-26.1	1.70 H	237	47.1	0.8
6	4824.00	37.5 AV	54.0	-16.5	1.70 H	237	36.7	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.3 PK	74.0	-0.7	1.64 V	360	76.5	-3.2
2	2390.00	51.3 AV	54.0	-2.7	1.64 V	360	54.5	-3.2
3	*2412.00	115.3 PK			1.64 V	360	118.5	-3.2
4	*2412.00	105.0 AV			1.64 V	360	108.2	-3.2
5	4824.00	49.2 PK	74.0	-24.8	2.65 V	282	48.4	0.8
6	4824.00	38.1 AV	54.0	-15.9	2.65 V	282	37.3	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.38 H	229	60.0	-3.2
2	2390.00	42.1 AV	54.0	-11.9	1.38 H	229	45.3	-3.2
3	*2437.00	115.2 PK			1.38 H	229	118.2	-3.0
4	*2437.00	105.4 AV			1.38 H	229	108.4	-3.0
5	2483.50	56.1 PK	74.0	-17.9	1.38 H	229	59.2	-3.1
6	2483.50	42.3 AV	54.0	-11.7	1.38 H	229	45.4	-3.1
7	4874.00	51.4 PK	74.0	-22.6	1.74 H	252	50.7	0.7
8	4874.00	41.3 AV	54.0	-12.7	1.74 H	252	40.6	0.7
9	7311.00	44.4 PK	74.0	-29.6	1.50 H	168	37.7	6.7
10	7311.00	31.5 AV	54.0	-22.5	1.50 H	168	24.8	6.7
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	60.7 PK	74.0	-13.3	1.64 V	360	63.9	-3.2
2	2390.00	43.3 AV	54.0	-10.7	1.64 V	360	46.5	-3.2
3	*2437.00	116.2 PK			1.64 V	360	119.2	-3.0
4	*2437.00	106.3 AV			1.64 V	360	109.3	-3.0
5	2483.50	57.2 PK	74.0	-16.8	1.64 V	360	60.3	-3.1
6	2483.50	43.8 AV	54.0	-10.2	1.64 V	360	46.9	-3.1
7	4874.00	54.6 PK	74.0	-19.4	2.65 V	261	53.9	0.7
8	4874.00	43.2 AV	54.0	-10.8	2.65 V	261	42.5	0.7
9	7311.00	44.3 PK	74.0	-29.7	2.00 V	195	37.6	6.7
10	7311.00	31.4 AV	54.0	-22.6	2.00 V	195	24.7	6.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	113.9 PK			1.35 H	225	117.0	-3.1
2	*2457.00	103.4 AV			1.35 H	225	106.5	-3.1
3	2483.50	69.8 PK	74.0	-4.2	1.35 H	225	72.9	-3.1
4	2483.50	49.8 AV	54.0	-4.2	1.35 H	225	52.9	-3.1
5	4914.00	47.2 PK	74.0	-26.8	1.75 H	245	46.4	0.8
6	4914.00	37.1 AV	54.0	-16.9	1.75 H	245	36.3	0.8
7	7371.00	44.5 PK	74.0	-29.5	1.58 H	172	37.6	6.9
8	7371.00	31.5 AV	54.0	-22.5	1.58 H	172	24.6	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	114.6 PK			1.60 V	357	117.7	-3.1
2	*2457.00	104.2 AV			1.60 V	357	107.3	-3.1
3	2483.50	72.1 PK	74.0	-1.9	1.60 V	357	75.2	-3.1
4	2483.50	52.1 AV	54.0	-1.9	1.60 V	357	55.2	-3.1
5	4914.00	49.4 PK	74.0	-24.6	2.61 V	272	48.6	0.8
6	4914.00	38.2 AV	54.0	-15.8	2.61 V	272	37.4	0.8
7	7371.00	44.1 PK	74.0	-29.9	2.01 V	198	37.2	6.9
8	7371.00	31.4 AV	54.0	-22.6	2.01 V	198	24.5	6.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.1 PK			1.33 H	241	115.2	-3.1
2	*2462.00	102.0 AV			1.33 H	241	105.1	-3.1
3	2483.50	70.2 PK	74.0	-3.8	1.33 H	241	73.3	-3.1
4	2483.50	50.1 AV	54.0	-3.9	1.33 H	241	53.2	-3.1
5	4924.00	45.1 PK	74.0	-28.9	1.66 H	232	44.3	0.8
6	4924.00	34.8 AV	54.0	-19.2	1.66 H	232	34.0	0.8
7	7386.00	45.1 PK	74.0	-28.9	1.52 H	173	38.1	7.0
8	7386.00	32.0 AV	54.0	-22.0	1.52 H	173	25.0	7.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.9 PK			1.64 V	360	116.0	-3.1
2	*2462.00	102.7 AV			1.64 V	360	105.8	-3.1
3	2483.50	73.3 PK	74.0	-0.7	1.64 V	360	76.4	-3.1
4	2483.50	51.9 AV	54.0	-2.1	1.64 V	360	55.0	-3.1
5	4924.00	47.1 PK	74.0	-26.9	2.57 V	266	46.3	0.8
6	4924.00	36.0 AV	54.0	-18.0	2.57 V	266	35.2	0.8
7	7386.00	44.6 PK	74.0	-29.4	1.98 V	193	37.6	7.0
8	7386.00	31.8 AV	54.0	-22.2	1.98 V	193	24.8	7.0

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.5 PK	74.0	-3.5	1.26 H	222	73.7	-3.2
2	2390.00	49.4 AV	54.0	-4.6	1.26 H	222	52.6	-3.2
3	*2412.00	112.6 PK			1.26 H	222	115.8	-3.2
4	*2412.00	102.3 AV			1.26 H	222	105.5	-3.2
5	4824.00	46.5 PK	74.0	-27.5	1.72 H	260	45.7	0.8
6	4824.00	35.1 AV	54.0	-18.9	1.72 H	260	34.3	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.3 PK	74.0	-0.7	1.83 V	351	76.5	-3.2
2	2390.00	51.6 AV	54.0	-2.4	1.83 V	351	54.8	-3.2
3	*2412.00	114.2 PK			1.83 V	351	117.4	-3.2
4	*2412.00	103.1 AV			1.83 V	351	106.3	-3.2
5	4824.00	47.5 PK	74.0	-26.5	2.53 V	273	46.7	0.8
6	4824.00	36.1 AV	54.0	-17.9	2.53 V	273	35.3	0.8

REMARKS:

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

CHANNEL	TX Channel 2	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	71.0 PK	74.0	-3.0	1.36 H	239	74.2	-3.2
2	2390.00	49.8 AV	54.0	-4.2	1.36 H	239	53.0	-3.2
3	*2417.00	104.4 PK			1.36 H	239	107.6	-3.2
4	*2417.00	103.2 AV			1.36 H	239	106.4	-3.2
5	4834.00	47.5 PK	74.0	-26.5	1.73 H	236	46.7	0.8
6	4834.00	36.2 AV	54.0	-17.8	1.73 H	236	35.4	0.8
7	7251.00	43.5 PK	74.0	-30.5	1.51 H	158	36.9	6.6
8	7251.00	30.9 AV	54.0	-23.1	1.51 H	158	24.3	6.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**2390.00**	**73.4 PK**	**74.0**	**-0.6**	**1.81 V**	**350**	**76.6**	**-3.2**
2	2390.00	51.9 AV	54.0	-2.1	1.81 V	350	55.1	-3.2
3	*2417.00	105.2 PK			1.81 V	350	108.4	-3.2
4	*2417.00	104.0 AV			1.81 V	350	107.2	-3.2
5	4834.00	49.2 PK	74.0	-24.8	2.60 V	262	48.4	0.8
6	4834.00	38.2 AV	54.0	-15.8	2.60 V	262	37.4	0.8
7	7251.00	44.2 PK	74.0	-29.8	1.98 V	212	37.6	6.6
8	7251.00	31.5 AV	54.0	-22.5	1.98 V	212	24.9	6.6

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.40 H	219	59.4	-3.2
2	2390.00	41.6 AV	54.0	-12.4	1.40 H	219	44.8	-3.2
3	*2437.00	116.2 PK			1.40 H	219	119.2	-3.0
4	*2437.00	105.1 AV			1.40 H	219	108.1	-3.0
5	2483.50	56.0 PK	74.0	-18.0	1.40 H	219	59.1	-3.1
6	2483.50	42.1 AV	54.0	-11.9	1.40 H	219	45.2	-3.1
7	4874.00	51.4 PK	74.0	-22.6	1.77 H	258	50.7	0.7
8	4874.00	41.4 AV	54.0	-12.6	1.77 H	258	40.7	0.7
9	7311.00	44.0 PK	74.0	-30.0	1.58 H	166	37.3	6.7
10	7311.00	31.3 AV	54.0	-22.7	1.58 H	166	24.6	6.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.0 PK	74.0	-11.0	1.80 V	358	66.2	-3.2
2	2390.00	43.5 AV	54.0	-10.5	1.80 V	358	46.7	-3.2
3	*2437.00	116.8 PK			1.80 V	358	119.8	-3.0
4	*2437.00	106.0 AV			1.80 V	358	109.0	-3.0
5	2483.50	60.6 PK	74.0	-13.4	1.80 V	358	63.7	-3.1
6	2483.50	44.4 AV	54.0	-9.6	1.80 V	358	47.5	-3.1
7	4874.00	54.5 PK	74.0	-19.5	2.67 V	267	53.8	0.7
8	4874.00	43.3 AV	54.0	-10.7	2.67 V	267	42.6	0.7
9	7311.00	44.7 PK	74.0	-29.3	2.06 V	207	38.0	6.7
10	7311.00	31.5 AV	54.0	-22.5	2.06 V	207	24.8	6.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	113.4 PK			1.43 H	219	116.5	-3.1
2	*2457.00	103.0 AV			1.43 H	219	106.1	-3.1
3	2483.50	70.1 PK	74.0	-3.9	1.43 H	219	73.2	-3.1
4	2483.50	48.9 AV	54.0	-5.1	1.43 H	219	52.0	-3.1
5	4914.00	47.7 PK	74.0	-26.3	1.74 H	231	46.9	0.8
6	4914.00	36.7 AV	54.0	-17.3	1.74 H	231	35.9	0.8
7	7371.00	43.1 PK	74.0	-30.9	1.58 H	175	36.2	6.9
8	7371.00	30.7 AV	54.0	-23.3	1.58 H	175	23.8	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	114.2 PK			1.60 V	337	117.3	-3.1
2	*2457.00	103.7 AV			1.60 V	337	106.8	-3.1
3	2483.50	71.6 PK	74.0	-2.4	1.60 V	337	74.7	-3.1
4	2483.50	50.1 AV	54.0	-3.9	1.60 V	337	53.2	-3.1
5	2485.00	72.9 PK	74.0	-1.1	1.60 V	337	76.0	-3.1
6	2485.00	51.1 AV	54.0	-2.9	1.60 V	337	54.2	-3.1
7	4914.00	48.6 PK	74.0	-25.4	2.61 V	257	47.8	0.8
8	4914.00	37.7 AV	54.0	-16.3	2.61 V	257	36.9	0.8
9	7371.00	43.9 PK	74.0	-30.1	2.04 V	185	37.0	6.9
10	7371.00	31.3 AV	54.0	-22.7	2.04 V	185	24.4	6.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.9 PK			1.37 H	229	116.0	-3.1
2	*2462.00	101.9 AV			1.37 H	229	105.0	-3.1
3	2483.50	73.2 PK	74.0	-0.8	1.37 H	229	76.3	-3.1
4	2483.50	52.1 AV	54.0	-1.9	1.37 H	229	55.2	-3.1
5	4924.00	45.8 PK	74.0	-28.2	1.75 H	258	45.0	0.8
6	4924.00	35.2 AV	54.0	-18.8	1.75 H	258	34.4	0.8
7	7386.00	45.0 PK	74.0	-29.0	1.56 H	156	38.0	7.0
8	7386.00	32.0 AV	54.0	-22.0	1.56 H	156	25.0	7.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.8 PK			1.61 V	340	115.9	-3.1
2	*2462.00	102.4 AV			1.61 V	340	105.5	-3.1
3	2483.50	71.0 PK	74.0	-3.0	1.61 V	340	74.1	-3.1
4	2483.50	49.8 AV	54.0	-4.2	1.61 V	340	52.9	-3.1
5	**2485.00**	**73.4 PK**	**74.0**	**-0.6**	**1.61 V**	**340**	**76.5**	**-3.1**
6	2485.00	50.9 AV	54.0	-3.1	1.61 V	340	54.0	-3.1
7	4924.00	47.5 PK	74.0	-26.5	2.51 V	280	46.7	0.8
8	4924.00	36.4 AV	54.0	-17.6	2.51 V	280	35.6	0.8
9	7386.00	44.5 PK	74.0	-29.5	1.99 V	208	37.5	7.0
10	7386.00	31.4 AV	54.0	-22.6	1.99 V	208	24.4	7.0

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	1.21 H	225	71.8	-3.2
2	2390.00	50.4 AV	54.0	-3.6	1.21 H	225	53.6	-3.2
3	*2422.00	109.0 PK			1.21 H	225	112.2	-3.2
4	*2422.00	97.5 AV			1.21 H	225	100.7	-3.2
5	4844.00	40.2 PK	74.0	-33.8	1.73 H	242	39.4	0.8
6	4844.00	28.7 AV	54.0	-25.3	1.73 H	242	27.9	0.8
7	7266.00	44.7 PK	74.0	-29.3	1.52 H	152	38.0	6.7
8	7266.00	31.6 AV	54.0	-22.4	1.52 H	152	24.9	6.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.2 PK	74.0	-0.8	1.80 V	360	76.4	-3.2
2	2390.00	53.3 AV	54.0	-0.7	1.80 V	360	56.5	-3.2
3	*2422.00	109.3 PK			1.80 V	360	112.5	-3.2
4	*2422.00	98.6 AV			1.80 V	360	101.8	-3.2
5	4844.00	41.2 PK	74.0	-32.8	2.62 V	279	40.4	0.8
6	4844.00	29.4 AV	54.0	-24.6	2.62 V	279	28.6	0.8
7	7266.00	44.9 PK	74.0	-29.1	2.05 V	218	38.2	6.7
8	7266.00	31.7 AV	54.0	-22.3	2.05 V	218	25.0	6.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.39 H	234	68.3	-3.2
2	2390.00	49.8 AV	54.0	-4.2	1.39 H	234	53.0	-3.2
3	*2437.00	110.8 PK			1.39 H	234	113.8	-3.0
4	*2437.00	99.4 AV			1.39 H	234	102.4	-3.0
5	2483.50	69.1 PK	74.0	-4.9	1.39 H	234	72.2	-3.1
6	2483.50	50.2 AV	54.0	-3.8	1.39 H	234	53.3	-3.1
7	4874.00	43.1 PK	74.0	-30.9	1.75 H	246	42.4	0.7
8	4874.00	31.1 AV	54.0	-22.9	1.75 H	246	30.4	0.7
9	7311.00	45.1 PK	74.0	-28.9	1.51 H	166	38.4	6.7
10	7311.00	32.1 AV	54.0	-21.9	1.51 H	166	25.4	6.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	1.55 V	358	70.4	-3.2
2	2390.00	51.0 AV	54.0	-3.0	1.55 V	358	54.2	-3.2
3	*2437.00	112.1 PK			1.55 V	358	115.1	-3.0
4	*2437.00	100.8 AV			1.55 V	358	103.8	-3.0
5	2483.50	70.4 PK	74.0	-3.6	1.55 V	358	73.5	-3.1
6	2483.50	51.1 AV	54.0	-2.9	1.55 V	358	54.2	-3.1
7	2485.10	73.3 PK	74.0	-0.7	1.55 V	358	76.4	-3.1
8	2485.10	51.5 AV	54.0	-2.5	1.55 V	358	54.6	-3.1
9	4874.00	43.5 PK	74.0	-30.5	2.62 V	270	42.8	0.7
10	4874.00	31.3 AV	54.0	-22.7	2.62 V	270	30.6	0.7
11	7311.00	45.4 PK	74.0	-28.6	2.10 V	211	38.7	6.7
12	7311.00	32.1 AV	54.0	-21.9	2.10 V	211	25.4	6.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.8 PK			1.33 H	224	111.9	-3.1
2	*2452.00	97.2 AV			1.33 H	224	100.3	-3.1
3	2483.50	71.0 PK	74.0	-3.0	1.33 H	224	74.1	-3.1
4	**2483.50**	**53.4 AV**	**54.0**	**-0.6**	**1.33 H**	**224**	**56.5**	**-3.1**
5	4904.00	41.0 PK	74.0	-33.0	1.73 H	241	40.3	0.7
6	4904.00	29.4 AV	54.0	-24.6	1.73 H	241	28.7	0.7
7	7356.00	44.9 PK	74.0	-29.1	1.58 H	170	38.0	6.9
8	7356.00	31.1 AV	54.0	-22.9	1.58 H	170	24.2	6.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.7 PK			1.59 V	336	111.8	-3.1
2	*2452.00	97.0 AV			1.59 V	336	100.1	-3.1
3	2483.50	68.3 PK	74.0	-5.7	1.59 V	336	71.4	-3.1
4	2483.50	49.7 AV	54.0	-4.3	1.59 V	336	52.8	-3.1
5	2485.10	72.4 PK	74.0	-1.6	1.59 V	336	75.5	-3.1
6	2485.10	53.2 AV	54.0	-0.8	1.59 V	336	56.3	-3.1
7	4904.00	40.5 PK	74.0	-33.5	2.67 V	255	39.8	0.7
8	4904.00	29.0 AV	54.0	-25.0	2.67 V	255	28.3	0.7
9	7356.00	44.5 PK	74.0	-29.5	2.04 V	210	37.6	6.9
10	7356.00	31.6 AV	54.0	-22.4	2.04 V	210	24.7	6.9

REMARKS:

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

Below 1GHz Data:

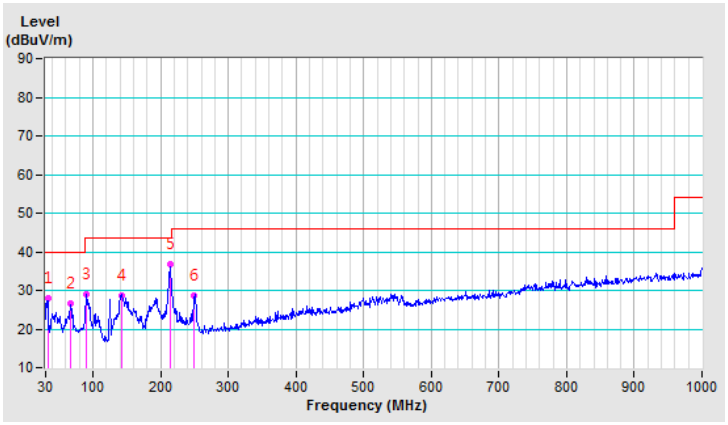
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	33.19	28.0 QP	40.0	-12.0	1.00 H	31	42.5	-14.5
2	67.55	26.7 QP	40.0	-13.3	2.00 H	187	41.5	-14.8
3	90.43	29.0 QP	43.5	-14.5	1.50 H	72	47.5	-18.5
4	141.60	28.8 QP	43.5	-14.7	1.00 H	324	42.1	-13.3
5	213.70	36.7 QP	43.5	-6.8	1.50 H	272	52.4	-15.7
6	250.18	28.8 QP	46.0	-17.2	1.50 H	31	42.8	-14.0

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

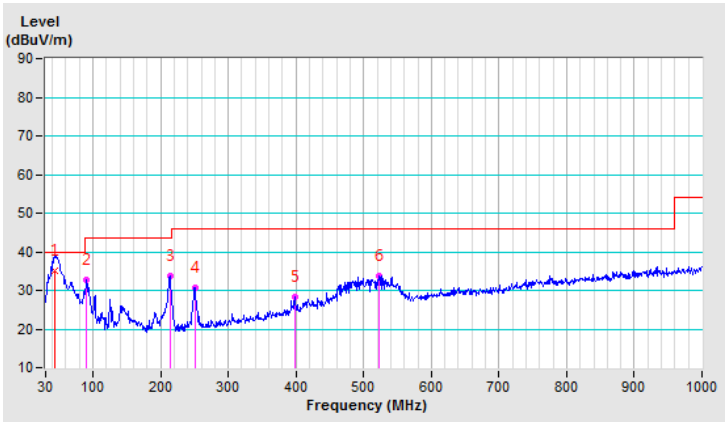


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	44.02	35.2 QP	40.0	-4.8	1.50 V	337	48.4	-13.2
2	90.29	32.7 QP	43.5	-10.8	2.50 V	360	51.3	-18.6
3	213.69	33.7 QP	43.5	-9.8	1.50 V	349	49.4	-15.7
4	250.21	30.8 QP	46.0	-15.2	2.00 V	0	44.8	-14.0
5	397.78	28.4 QP	46.0	-17.6	1.50 V	349	38.4	-10.0
6	522.88	33.7 QP	46.0	-12.3	2.00 V	355	40.8	-7.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.8 Test Results (Mode 2)

Below 1GHz Data:

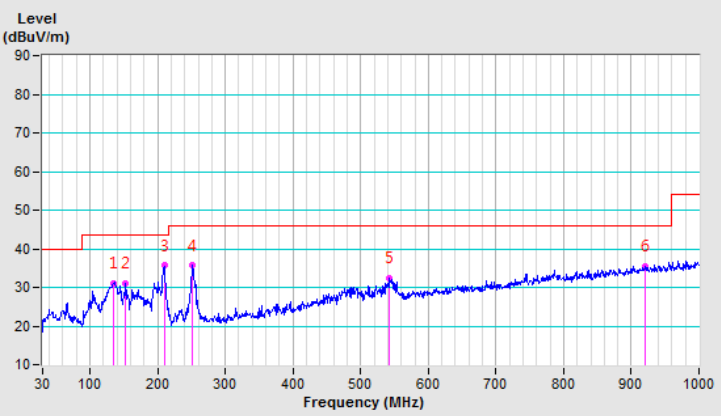
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	134.40	31.1 QP	43.5	-12.4	1.11 H	272	45.0	-13.9
2	152.54	31.0 QP	43.5	-12.5	1.45 H	81	43.9	-12.9
3	210.03	35.6 QP	43.5	-7.9	1.74 H	42	51.3	-15.7
4	251.91	35.6 QP	46.0	-10.4	1.87 H	316	49.6	-14.0
5	542.98	32.3 QP	46.0	-13.7	1.35 H	360	39.3	-7.0
6	920.10	35.4 QP	46.0	-10.6	1.61 H	60	36.3	-0.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

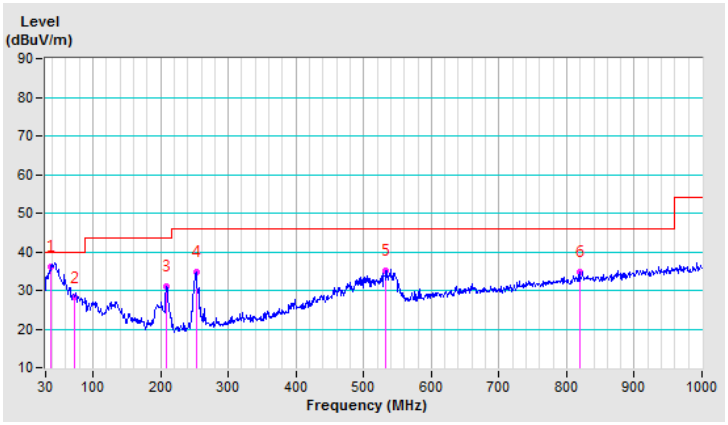


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	38.24	36.1 QP	40.0	-3.9	1.11 V	0	49.9	-13.8
2	73.13	28.2 QP	40.0	-11.8	1.34 V	0	44.5	-16.3
3	207.61	31.1 QP	43.5	-12.4	1.65 V	44	46.8	-15.7
4	252.42	34.7 QP	46.0	-11.3	1.47 V	346	48.7	-14.0
5	532.07	35.2 QP	46.0	-10.8	1.00 V	67	42.4	-7.2
6	819.17	34.8 QP	46.0	-11.2	1.66 V	316	37.0	-2.2

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



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

For test mode 1:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 04, 2018	June 03, 2019
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 16, 2018	Mar. 15, 2019
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:
1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3. Tested Date: Feb. 28, 2019

For test mode 2:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3. Tested Date: May 10, 2019

4.2.3 Test Procedures

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

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

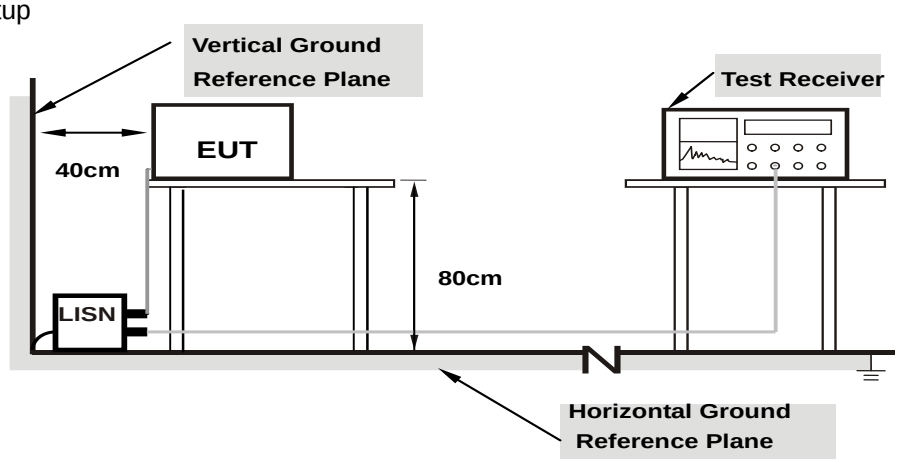
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

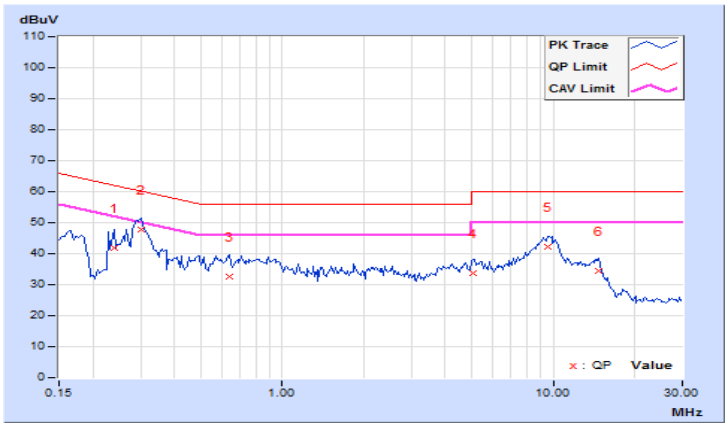
4.2.7 Test Results (Mode 1)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.23984	10.06	31.94	20.73	42.00	30.79	62.10	52.10	-20.10	-21.31
2	0.30234	10.07	37.74	28.94	47.81	39.01	60.18	50.18	-12.37	-11.17
3	0.63828	10.10	22.53	11.10	32.63	21.20	56.00	46.00	-23.37	-24.80
4	5.05469	10.39	23.40	17.65	33.79	28.04	60.00	50.00	-26.21	-21.96
5	9.60547	10.68	31.67	26.97	42.35	37.65	60.00	50.00	-17.65	-12.35
6	14.77734	11.02	23.45	19.26	34.47	30.28	60.00	50.00	-25.53	-19.72

REMARKS:

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

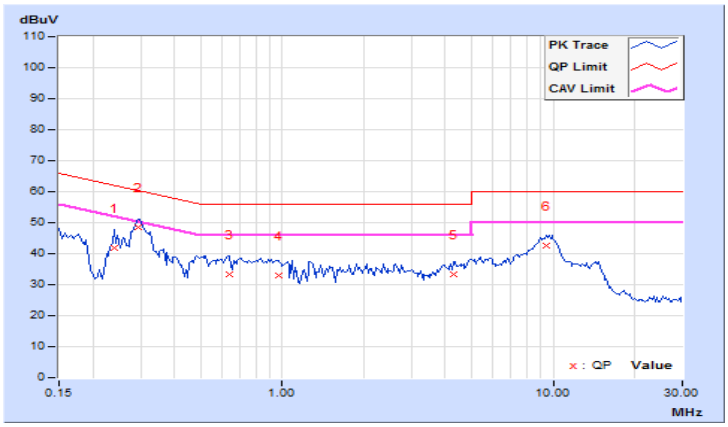


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.23984	9.96	31.90	20.49	41.86	30.45	62.10	52.10	-20.24	-21.65
2	0.29453	9.96	38.39	29.25	48.35	39.21	60.40	50.40	-12.05	-11.19
3	0.63828	9.99	23.18	11.08	33.17	21.07	56.00	46.00	-22.83	-24.93
4	0.96641	10.00	23.10	13.91	33.10	23.91	56.00	46.00	-22.90	-22.09
5	4.29297	10.19	23.30	17.10	33.49	27.29	56.00	46.00	-22.51	-18.71
6	9.41406	10.49	32.10	27.48	42.59	37.97	60.00	50.00	-17.41	-12.03

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.



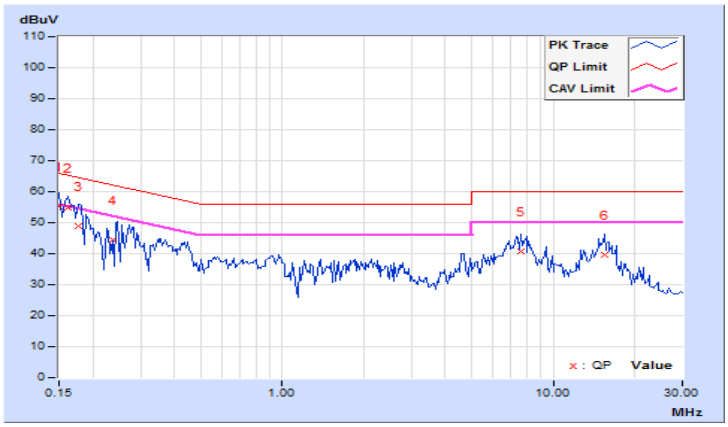
4.2.8 Test Results (Mode 2)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15000**	**10.03**	**45.31**	**24.44**	**55.34**	**34.47**	**66.00**	**56.00**	**-10.66**	**-21.53**
2	0.16172	10.03	44.62	27.41	54.65	37.44	65.38	55.38	-10.73	-17.94
3	0.17734	10.04	38.83	16.91	48.87	26.95	64.61	54.61	-15.74	-27.66
4	0.23675	10.06	34.56	19.25	44.62	29.31	62.21	52.21	-17.59	-22.90
5	7.64453	10.55	30.09	22.03	40.64	32.58	60.00	50.00	-19.36	-17.42
6	15.45313	11.06	28.66	21.53	39.72	32.59	60.00	50.00	-20.28	-17.41

REMARKS:

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

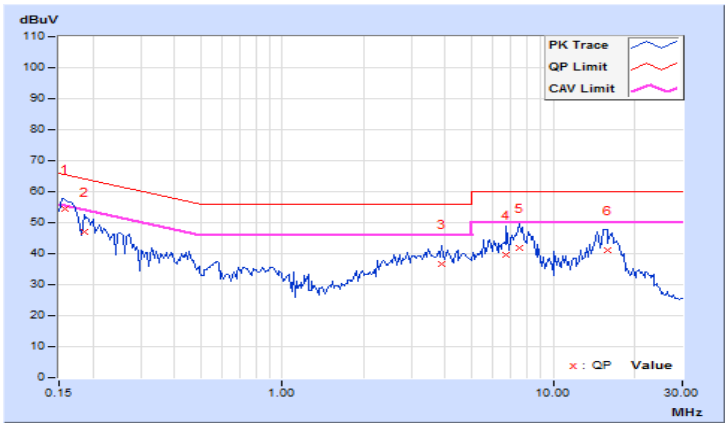


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.94	44.40	24.12	54.34	34.06	65.58	55.58	-11.24	-21.52
2	0.18516	9.95	36.98	16.87	46.93	26.82	64.25	54.25	-17.32	-27.43
3	3.85938	10.16	26.33	17.18	36.49	27.34	56.00	46.00	-19.51	-18.66
4	6.73828	10.33	29.25	20.58	39.58	30.91	60.00	50.00	-20.42	-19.09
5	7.49609	10.38	31.41	22.85	41.79	33.23	60.00	50.00	-18.21	-16.77
6	15.83594	10.89	30.20	22.85	41.09	33.74	60.00	50.00	-18.91	-16.26

REMARKS:

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

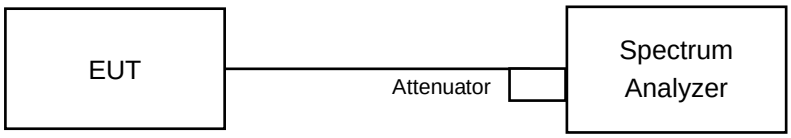


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	8.64	9.10	9.09	0.5	Pass
6	2437	9.11	9.11	9.11	0.5	Pass
11	2462	8.63	9.13	9.14	0.5	Pass

802.11g

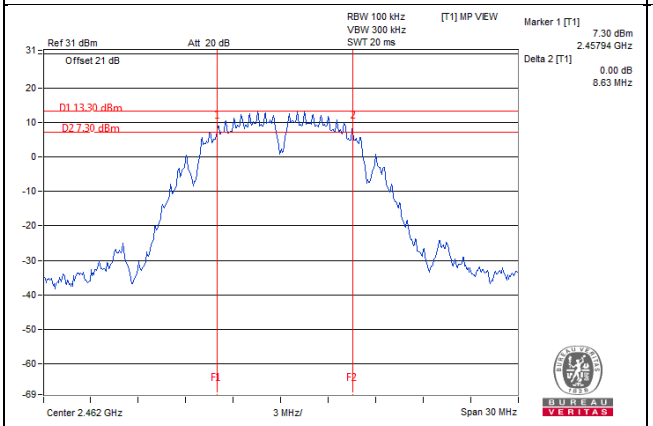
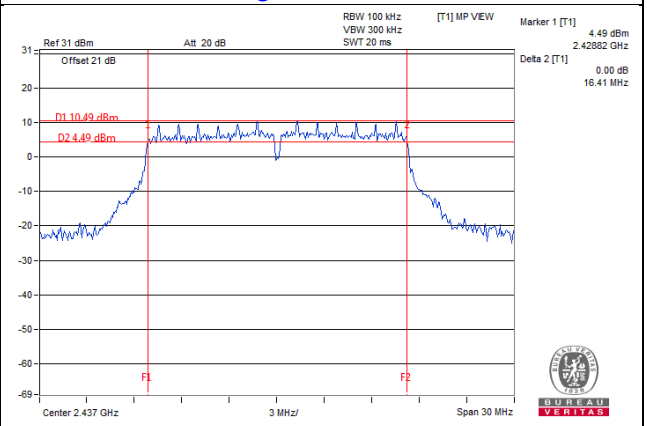
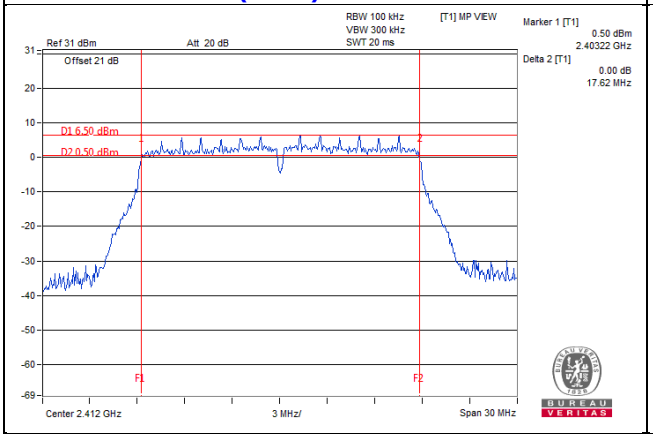
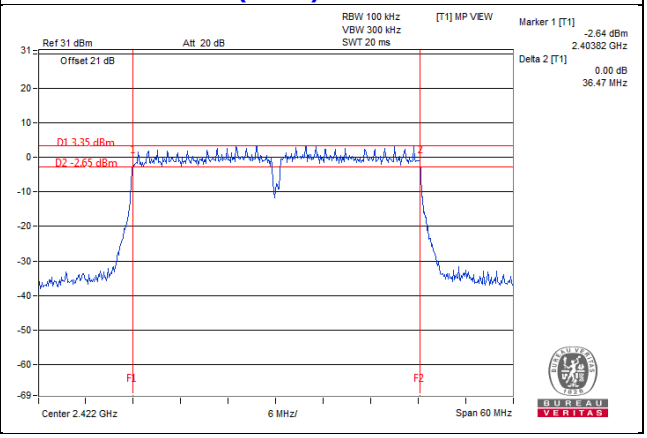
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.42	16.44	16.46	0.5	Pass
6	2437	16.41	16.44	16.44	0.5	Pass
10	2457	16.45	16.46	16.46	0.5	Pass
11	2462	16.43	16.42	16.45	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	17.62	17.67	17.66	0.5	Pass
2	2417	17.64	17.67	17.67	0.5	Pass
6	2437	17.63	17.67	17.66	0.5	Pass
10	2457	17.64	17.68	17.67	0.5	Pass
11	2462	17.66	17.68	17.70	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	35.92	36.47	36.44	0.5	Pass
6	2437	36.25	36.52	36.46	0.5	Pass
9	2452	36.42	36.51	36.53	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH11	**802.11g / Chain 0 : CH6**
	
802.11n (HT20) / Chain 0 : CH1	**802.11n (HT40) / Chain 0: CH3**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

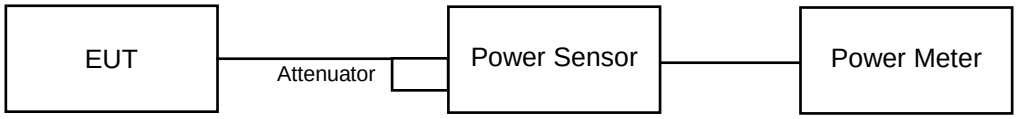
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	22.26	22.55	22.52	526.803	27.22
6	2437	22.35	22.67	22.41	530.899	27.25
11	2462	21.88	22.13	21.95	474.15	26.76

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	19.17	19.43	19.36	256.602	24.09
6	2437	21.56	21.78	21.66	440.435	26.44
10	2457	19.22	19.73	19.55	267.689	24.28
11	2462	17.63	18.24	17.94	186.854	22.72

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	17.93	18.59	18.36	202.913	23.07
2	2417	18.92	19.51	19.29	252.232	24.02
6	2437	21.63	21.76	21.66	442.069	26.45
10	2457	18.77	19.32	19.05	241.196	23.82
11	2462	17.54	18.16	17.84	183.032	22.63

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
3	2422	17.44	17.52	17.37	166.533	22.22
6	2437	18.91	19.19	18.84	237.349	23.75
9	2452	16.71	16.93	16.60	141.907	21.52

Beamforming Mode

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	17.93	18.59	18.36	202.913	23.07
2	2417	18.92	19.51	19.29	252.232	24.02
6	2437	21.63	21.76	21.66	442.069	26.45
10	2457	18.77	19.32	19.05	241.196	23.82
11	2462	17.54	18.16	17.84	183.032	22.63

Note: 1. Directional gain = 5.25dBi < 6dBi , so the power limit shall not be reduced.

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
3	2422	17.44	17.52	17.37	166.533	22.22
6	2437	18.91	19.19	18.84	237.349	23.75
9	2452	16.71	16.93	16.60	141.907	21.52

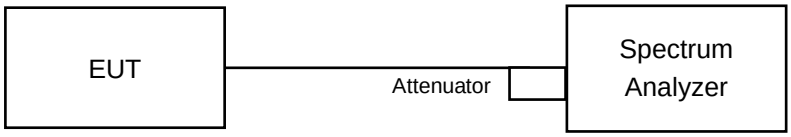
Note: 1. Directional gain = 5.25dBi < 6dBi , so the power limit shall not be reduced.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

802.11b, 802.11g, 802.11n (HT20)

a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

802.11n (HT40)

a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

CDD Mode

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.69	4.77	-3.92	8.00	Pass
	6	2437	-8.95	4.77	-4.18	8.00	Pass
	11	2462	-9.17	4.77	-4.40	8.00	Pass
1	1	2412	-10.20	4.77	-5.43	8.00	Pass
	6	2437	-9.14	4.77	-4.37	8.00	Pass
	11	2462	-10.13	4.77	-5.36	8.00	Pass
2	1	2412	-9.28	4.77	-4.51	8.00	Pass
	6	2437	-9.44	4.77	-4.67	8.00	Pass
	11	2462	-9.34	4.77	-4.57	8.00	Pass

Note: 1. Directional gain = 5.25dBi < 6dBi , so the power density limit shall not be reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.24	4.77	-7.47	8.00	Pass
	6	2437	-10.28	4.77	-5.51	8.00	Pass
	10	2457	-12.42	4.77	-7.65	8.00	Pass
	11	2462	-13.62	4.77	-8.85	8.00	Pass
1	1	2412	-12.32	4.77	-7.55	8.00	Pass
	6	2437	-10.59	4.77	-5.82	8.00	Pass
	10	2457	-12.85	4.77	-8.08	8.00	Pass
	11	2462	-13.20	4.77	-8.43	8.00	Pass
2	1	2412	-11.08	4.77	-6.31	8.00	Pass
	6	2437	-8.86	4.77	-4.09	8.00	Pass
	10	2457	-12.28	4.77	-7.51	8.00	Pass
	11	2462	-12.93	4.77	-8.16	8.00	Pass

Note: 1. Directional gain = 5.25dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-15.07	4.77	-10.30	8.00	Pass
	2	2417	-13.80	4.77	-9.03	8.00	Pass
	6	2437	-11.13	4.77	-6.36	8.00	Pass
	10	2457	-14.37	4.77	-9.60	8.00	Pass
	11	2462	-14.84	4.77	-10.07	8.00	Pass
1	1	2412	-13.86	4.77	-9.09	8.00	Pass
	2	2417	-13.48	4.77	-8.71	8.00	Pass
	6	2437	-10.85	4.77	-6.08	8.00	Pass
	10	2457	-14.17	4.77	-9.40	8.00	Pass
	11	2462	-14.77	4.77	-10.00	8.00	Pass
2	1	2412	-14.92	4.77	-10.15	8.00	Pass
	2	2417	-13.29	4.77	-8.52	8.00	Pass
	6	2437	-10.76	4.77	-5.99	8.00	Pass
	10	2457	-14.64	4.77	-9.87	8.00	Pass
	11	2462	-15.32	4.77	-10.55	8.00	Pass

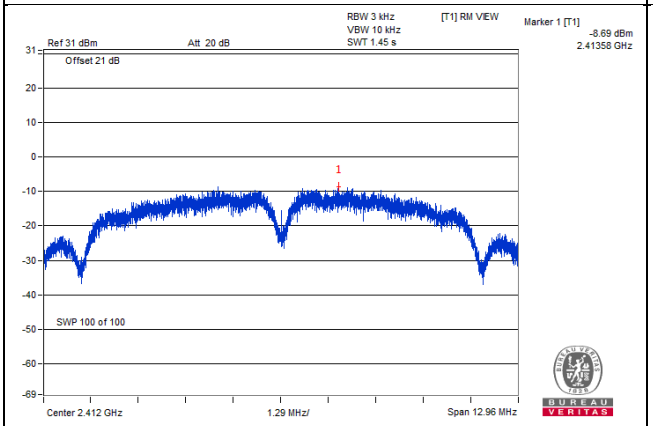
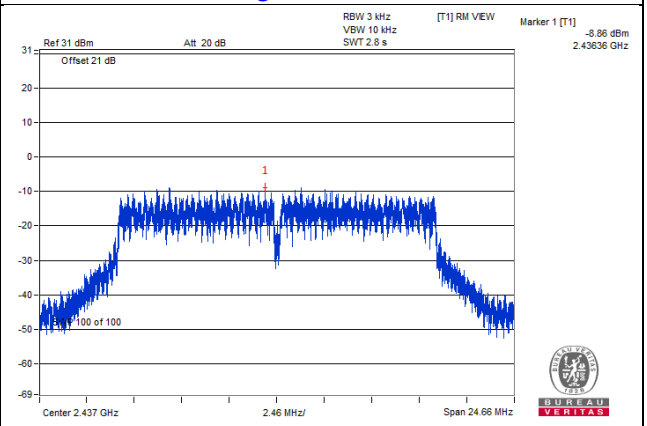
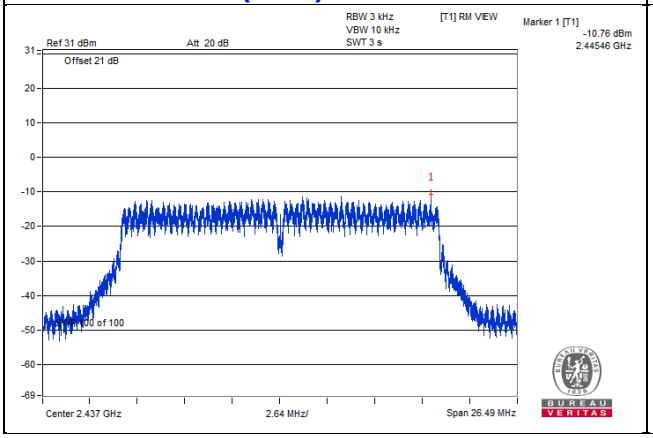
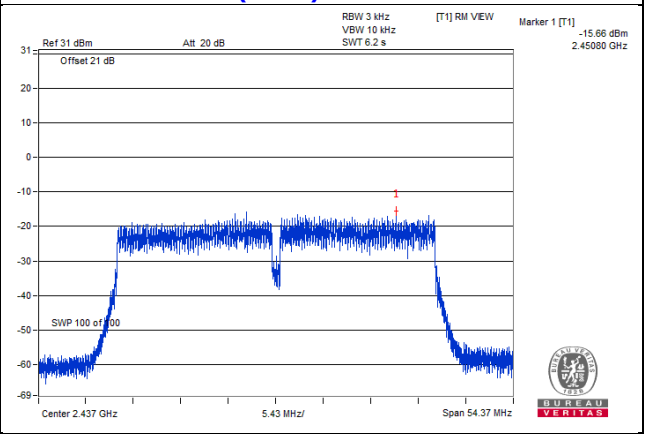
Note: 1. Directional gain = 5.25dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=3) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-18.34	4.77	0.1	-13.47	8	Pass
	6	2437	-15.66	4.77	0.1	-10.79	8	Pass
	9	2452	-18.02	4.77	0.1	-13.15	8	Pass
1	3	2422	-17.88	4.77	0.1	-13.01	8	Pass
	6	2437	-16.20	4.77	0.1	-11.33	8	Pass
	9	2452	-17.90	4.77	0.1	-13.03	8	Pass
2	3	2422	-17.46	4.77	0.1	-12.59	8	Pass
	6	2437	-16.99	4.77	0.1	-12.12	8	Pass
	9	2452	-19.27	4.77	0.1	-14.40	8	Pass

Note: 1. Directional gain = 5.25dBi < 6dBi , so the power density limit shall not be reduced.

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

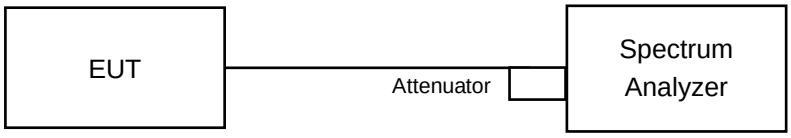
Spectrum Plot of Worst Value	
802.11b / Chain 0: CH1	**802.11g / Chain 2 : CH6**
	
802.11n (HT20) / Chain 2: CH6	**802.11n (HT40) / Chain 0: CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

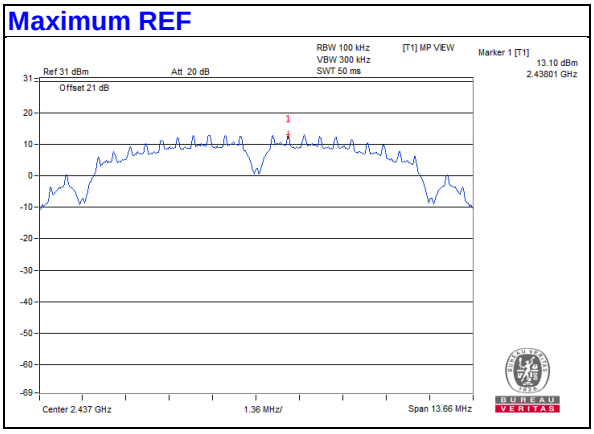
Same as Item 4.3.6

4.6.7 Test Results

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

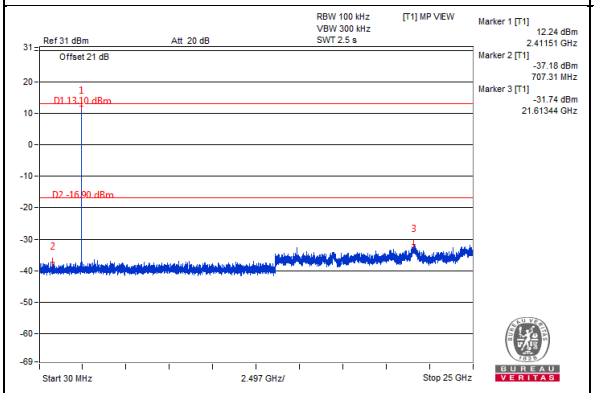
802.11b

Maximum REF

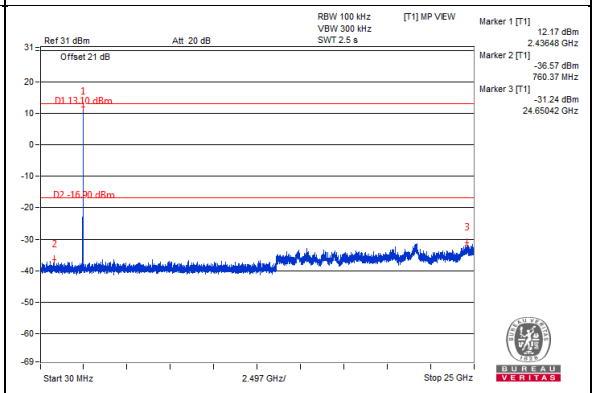


Chain 0

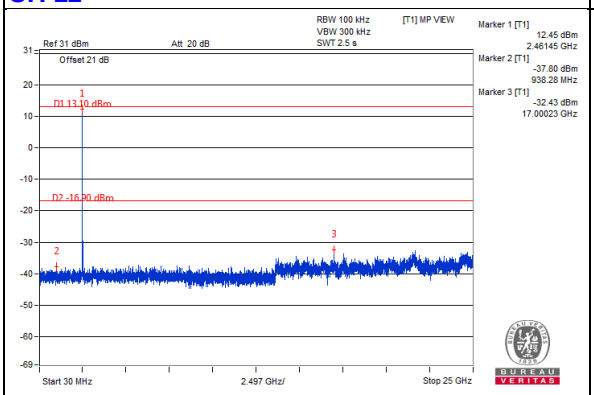
CH 1



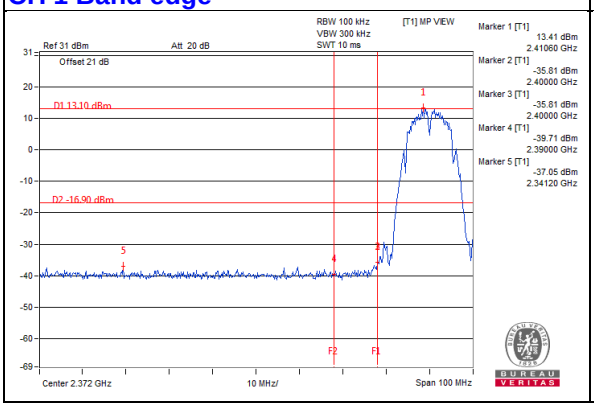
CH 6



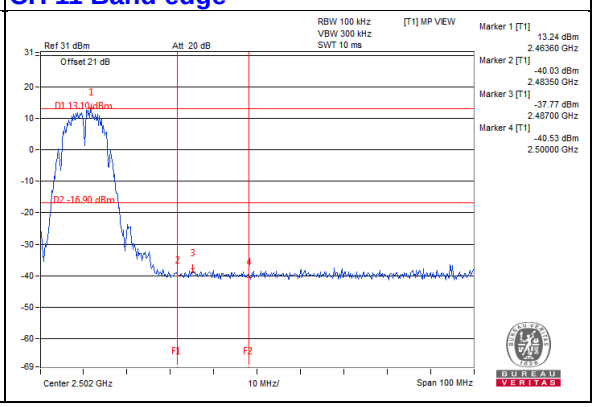
CH 11



CH 1 Band edge

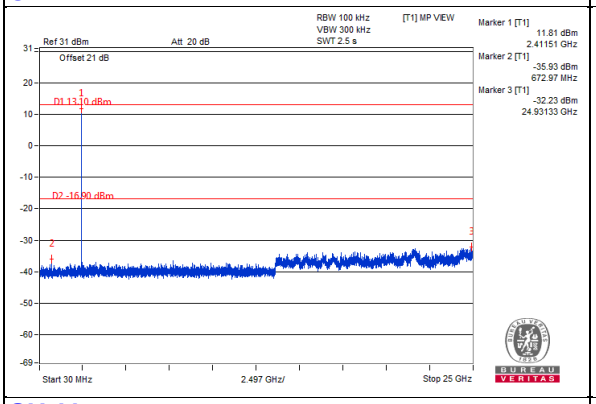


CH 11 Band edge

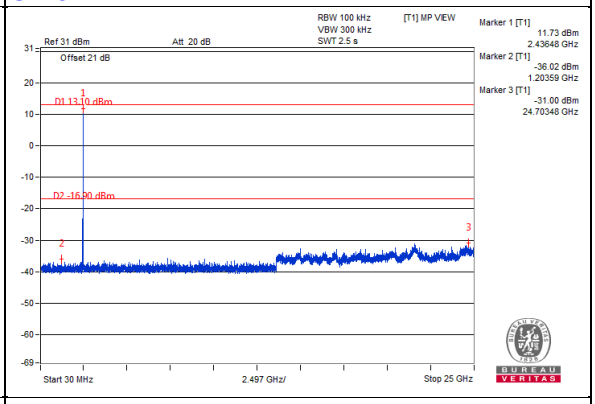


Chain 1

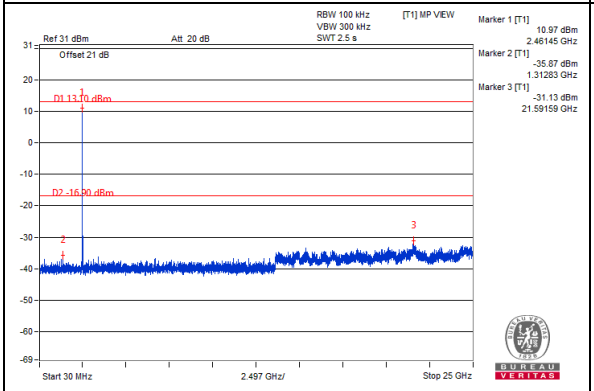
CH 1



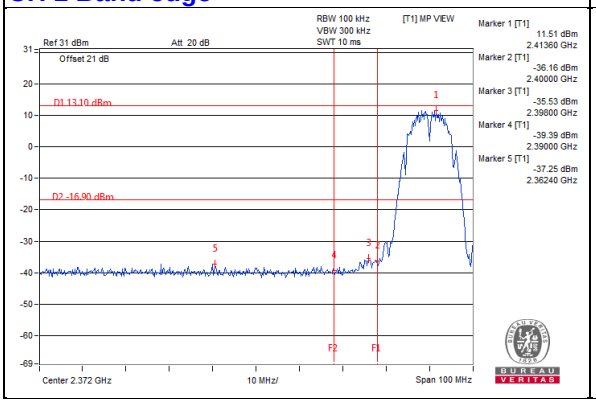
CH 6



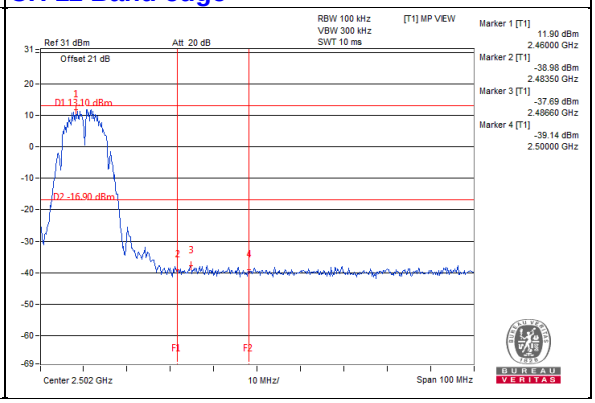
CH 11



CH 1 Band edge

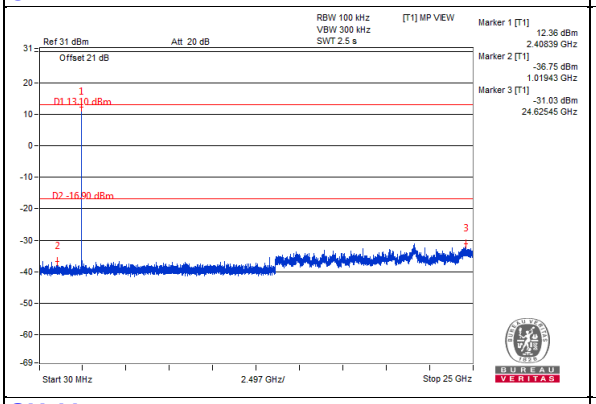


CH 11 Band edge

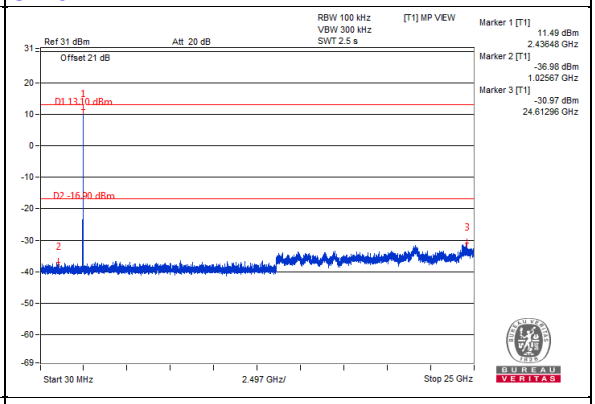


Chain 2

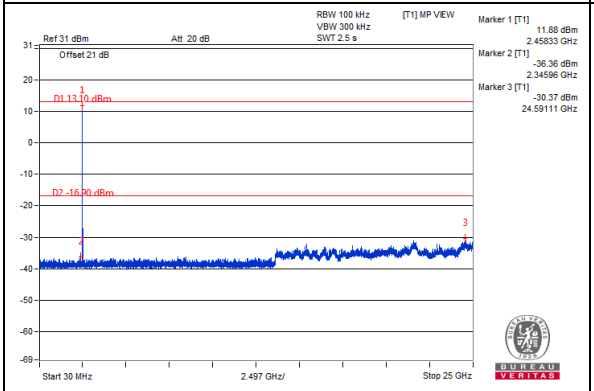
CH 1



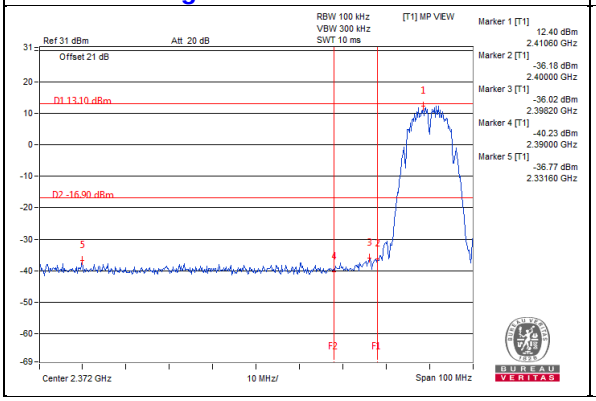
CH 6



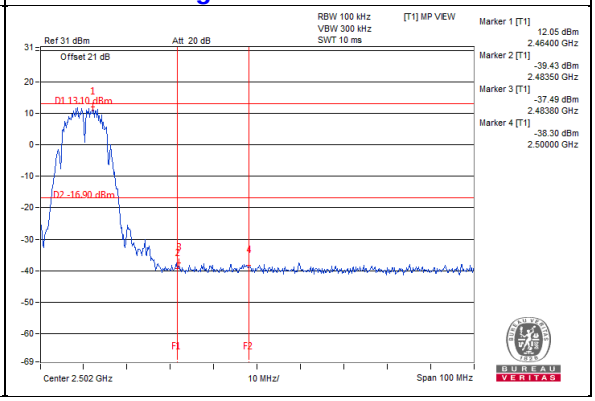
CH 11



CH 1 Band edge

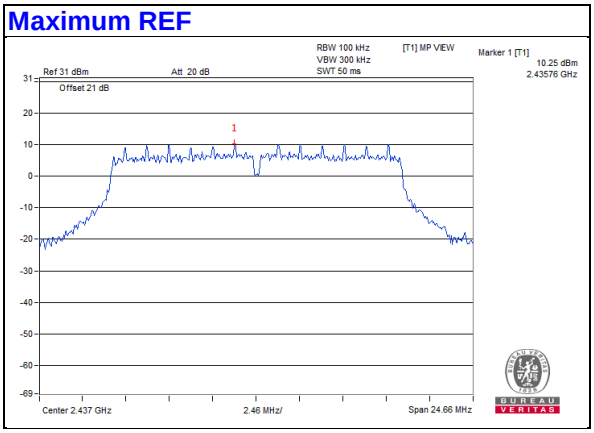


CH 11 Band edge



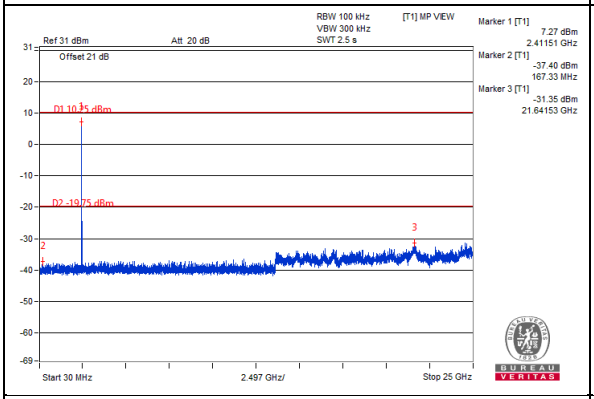
802.11g

Maximum REF

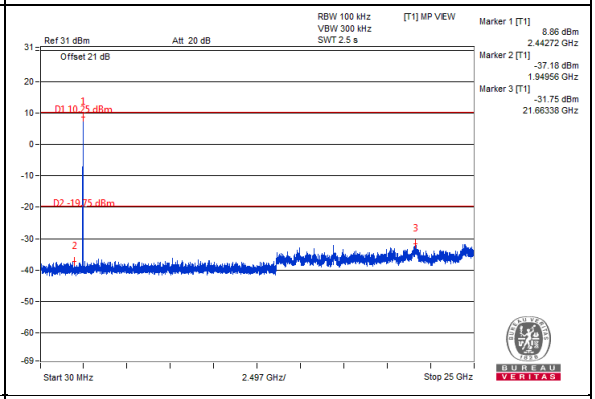


Chain 0

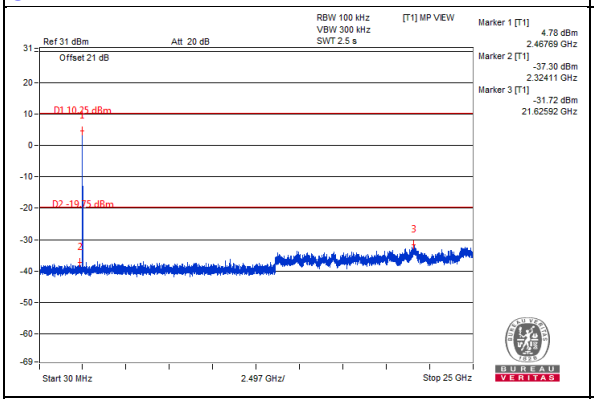
CH 1



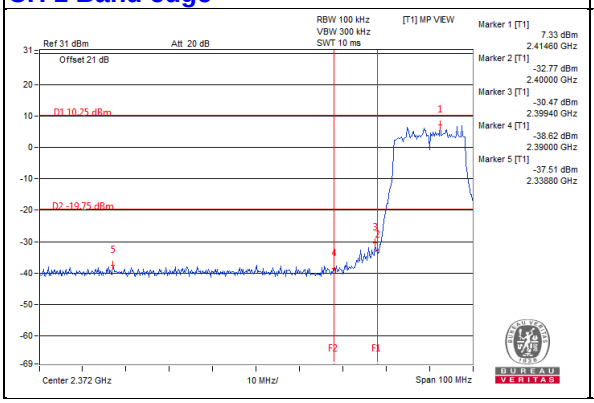
CH 6



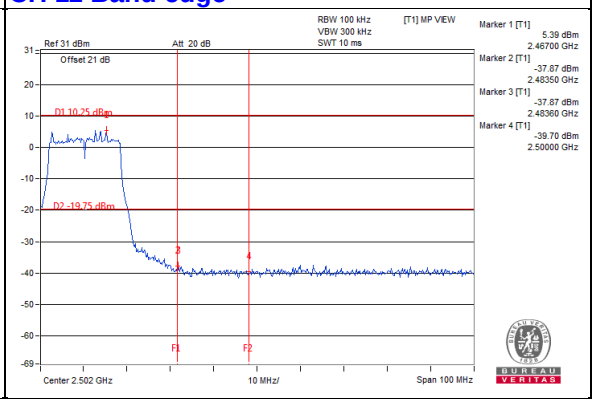
CH 11



CH 1 Band edge

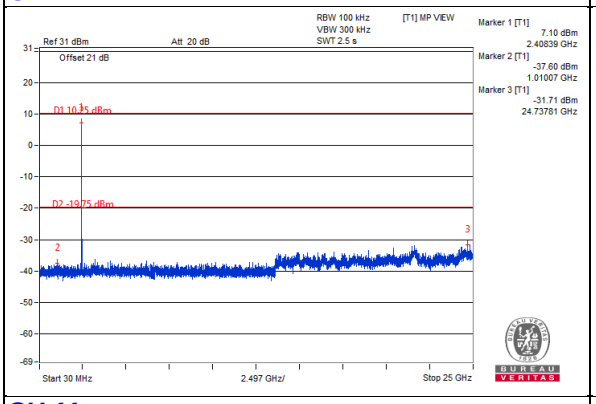


CH 11 Band edge

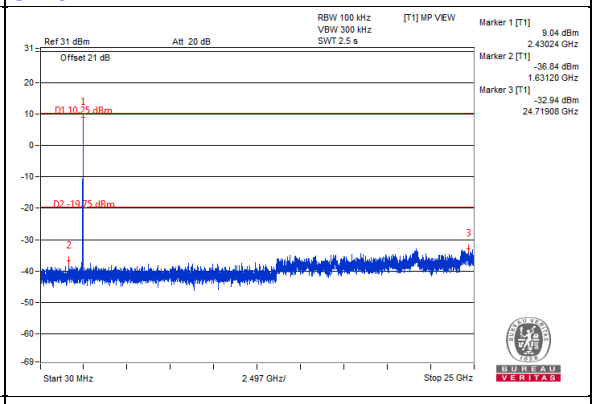


Chain 1

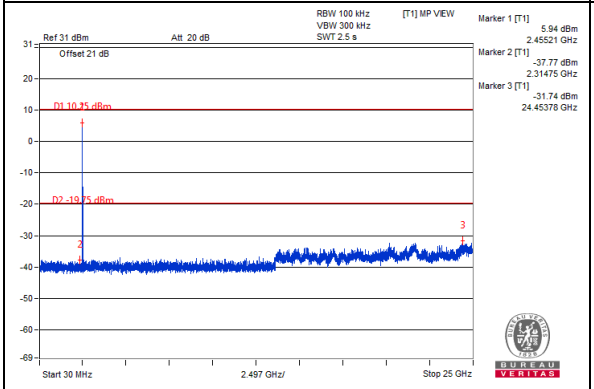
CH 1



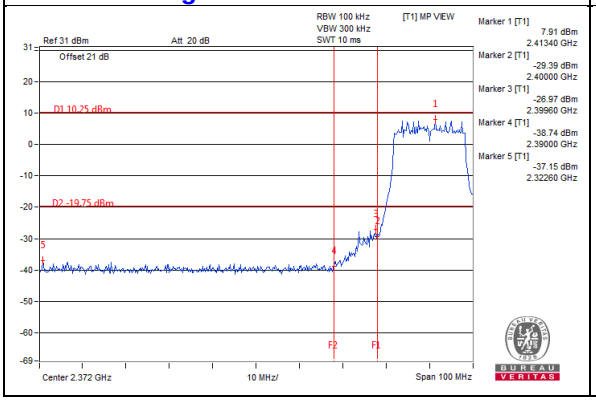
CH 6



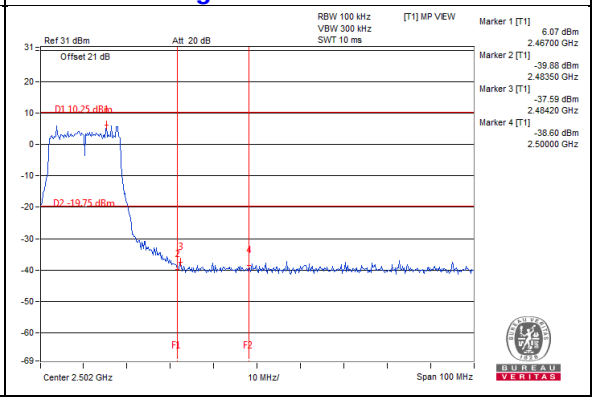
CH 11



CH 1 Band edge

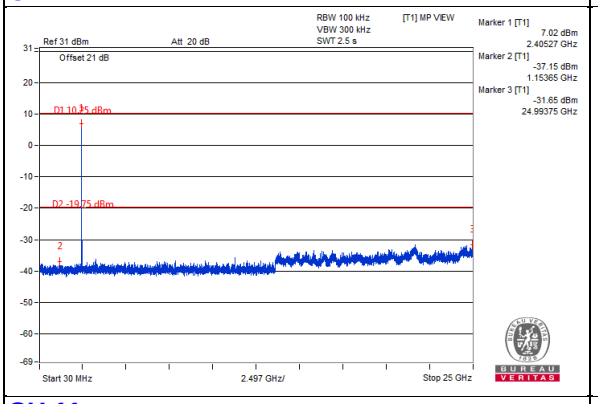


CH 11 Band edge

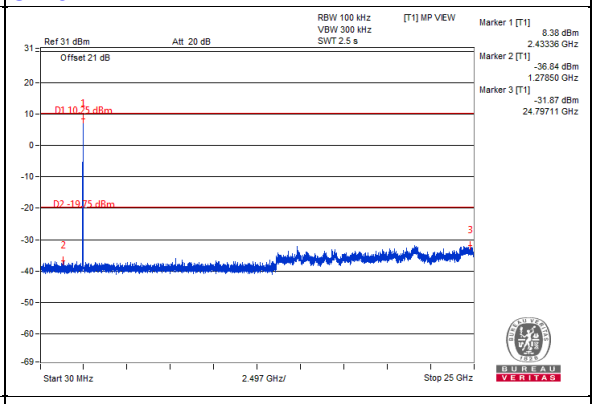


Chain 2

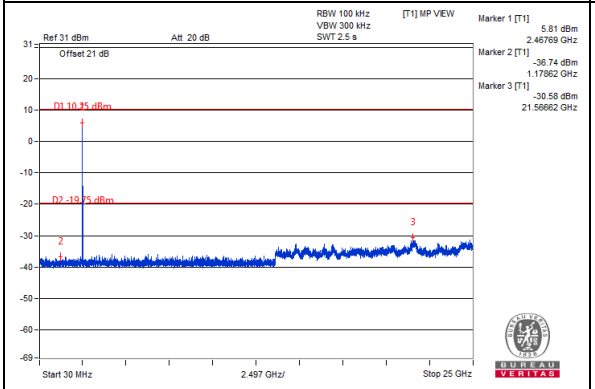
CH 1



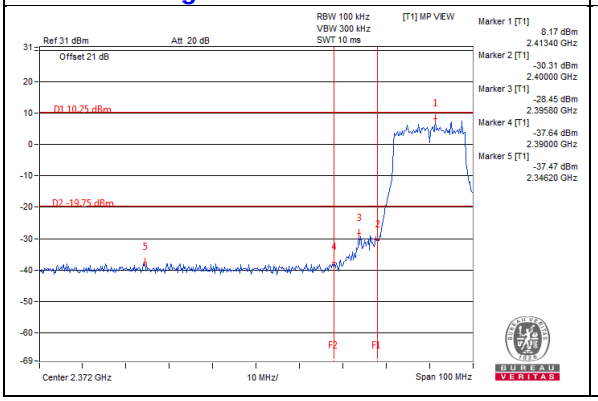
CH 6



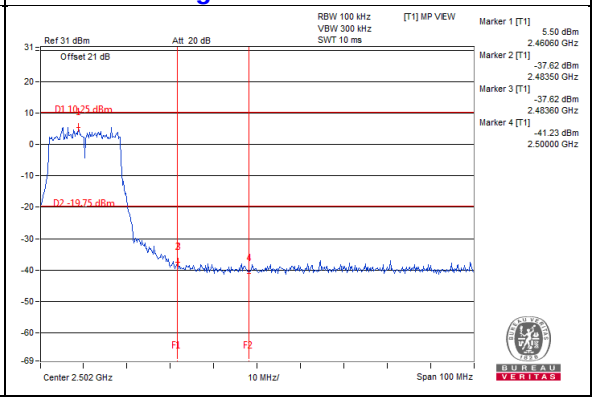
CH 11



CH 1 Band edge

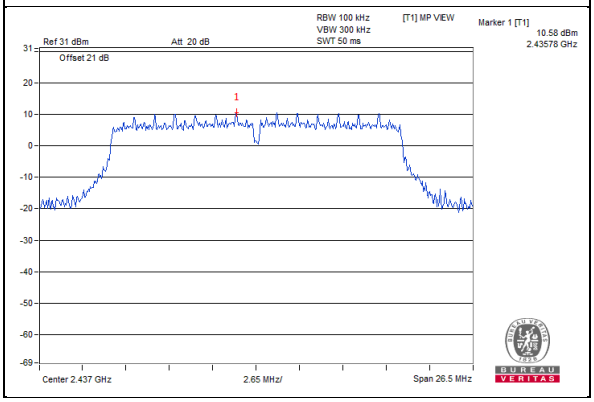


CH 11 Band edge



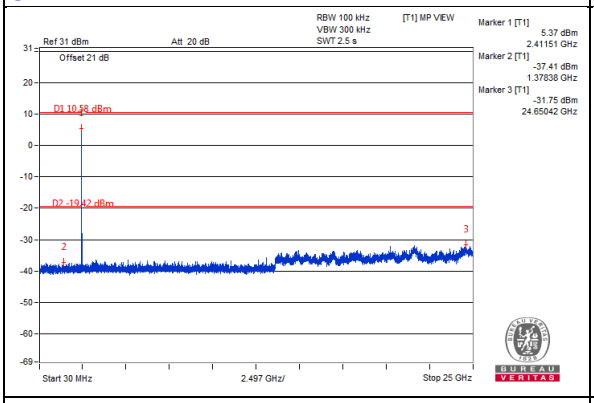
802.11n (HT20)

Maximum REF

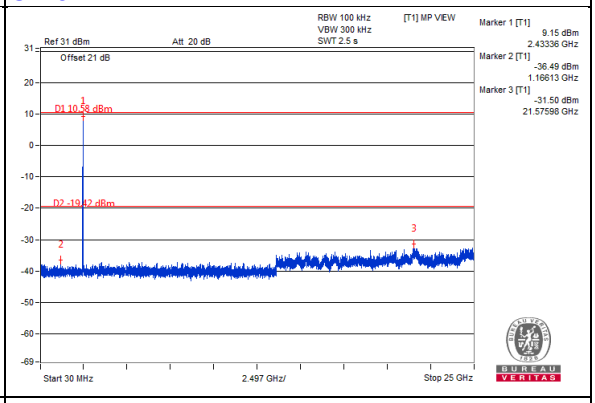


Chain 0

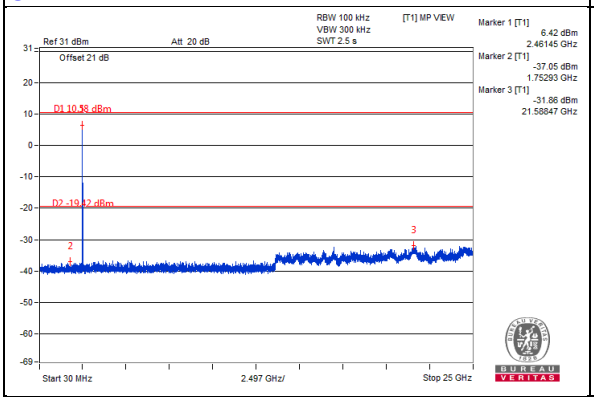
CH 1



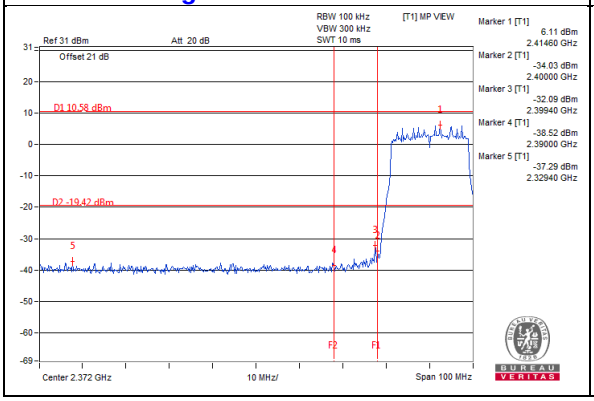
CH 6



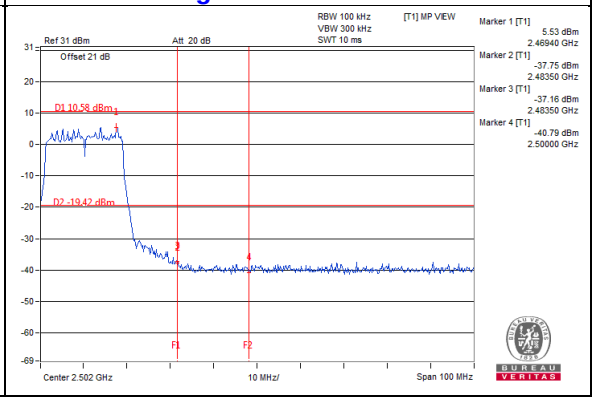
CH 11



CH 1 Band edge

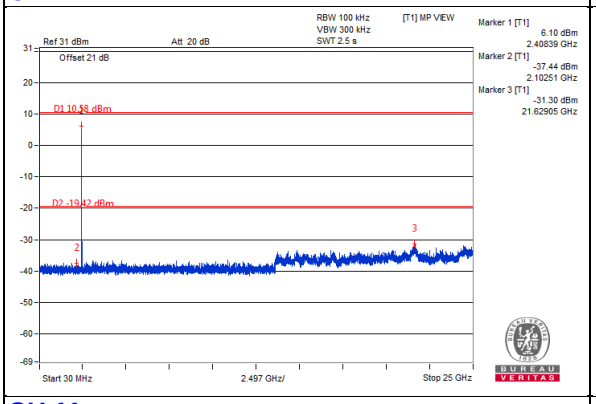


CH 11 Band edge

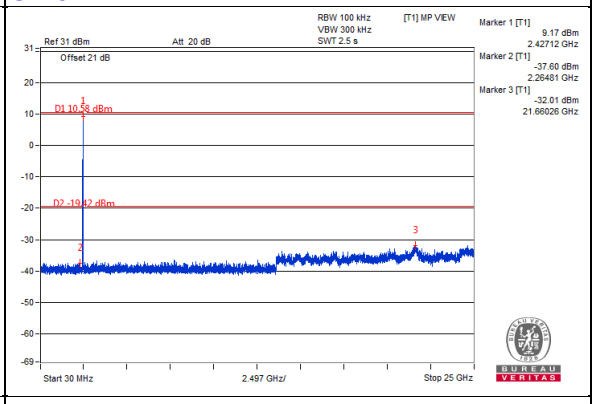


Chain 1

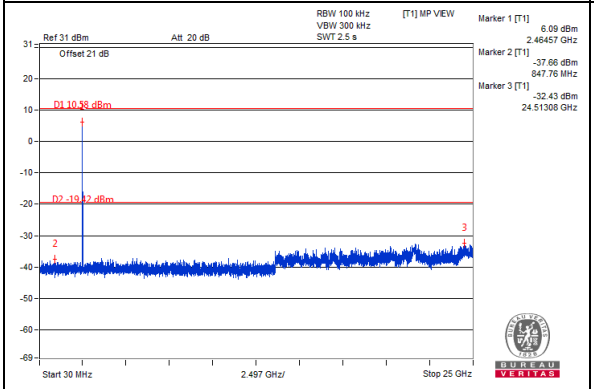
CH 1



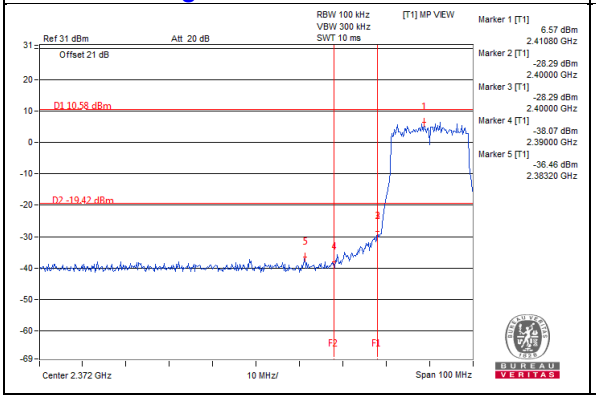
CH 6



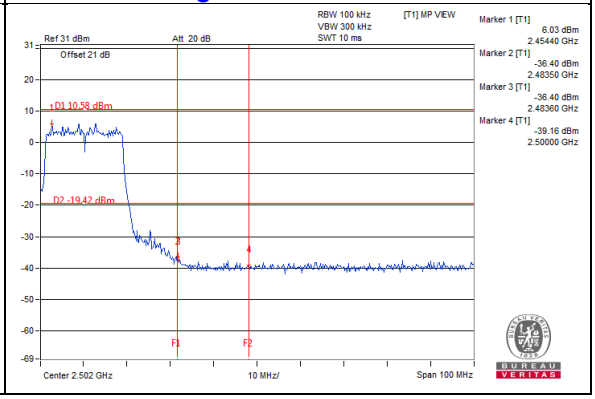
CH 11



CH 1 Band edge

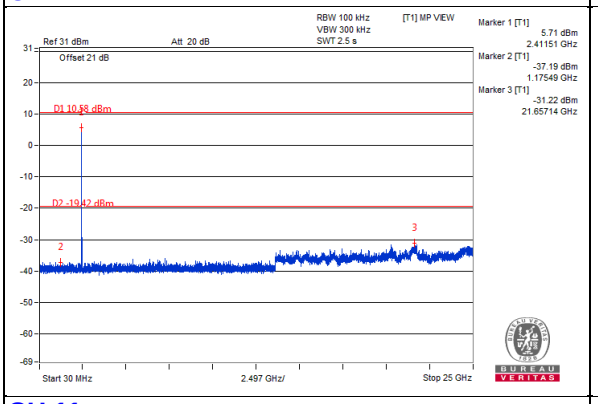


CH 11 Band edge

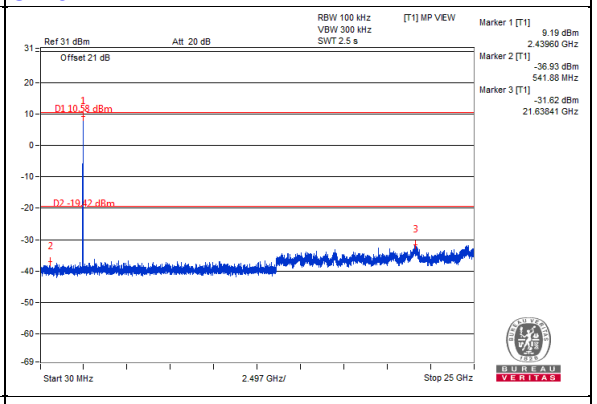


Chain 2

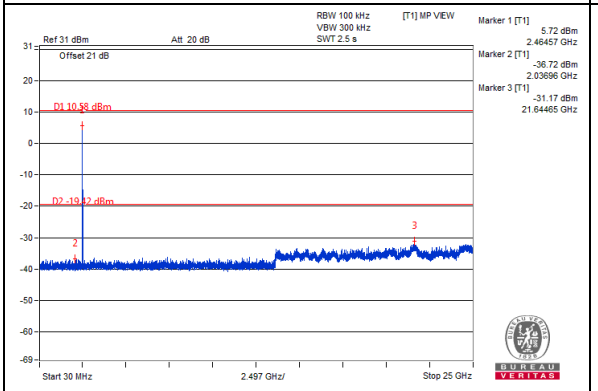
CH 1



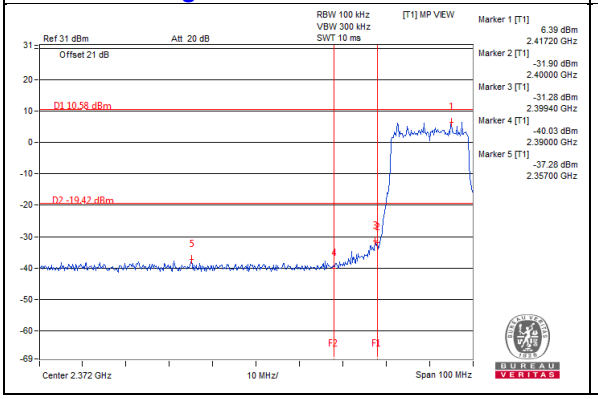
CH 6



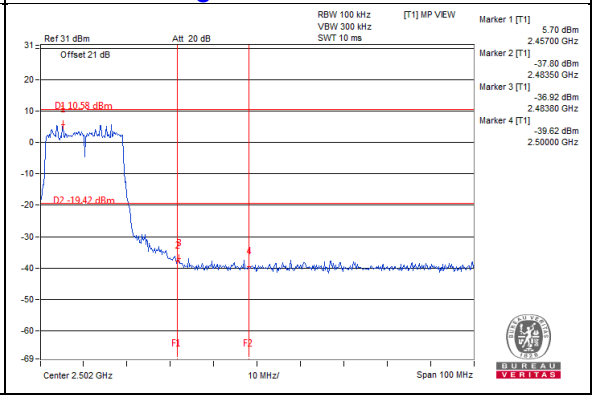
CH 11



CH 1 Band edge

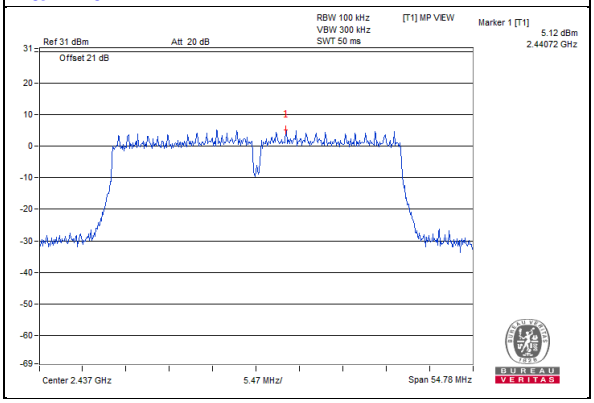


CH 11 Band edge



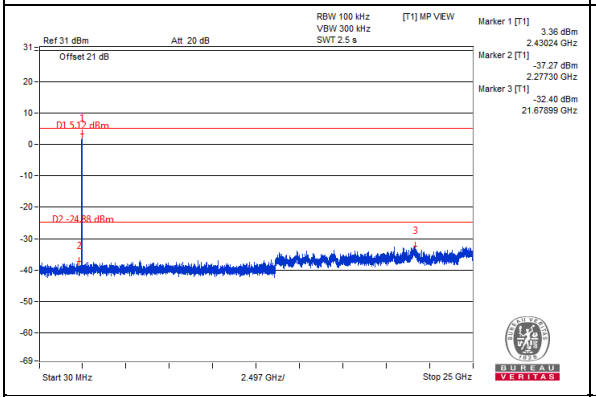
802.11n (HT40)

Maximum REF

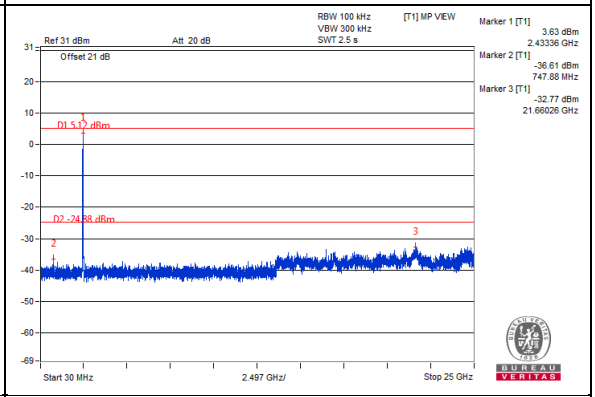


Chain 0

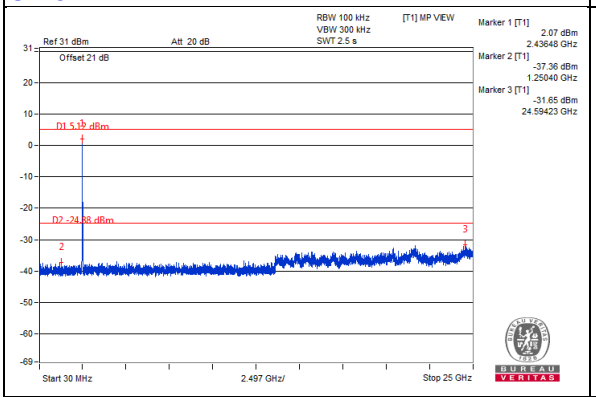
CH 3



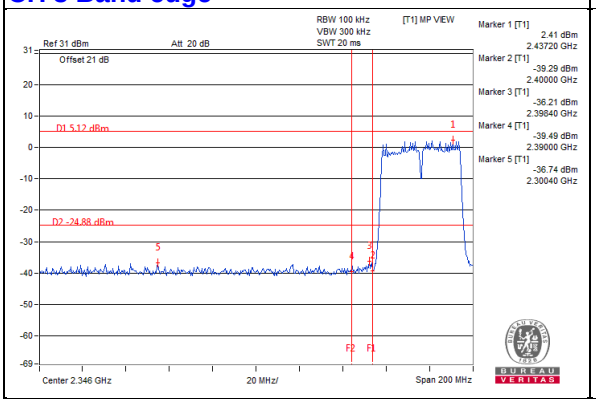
CH 6



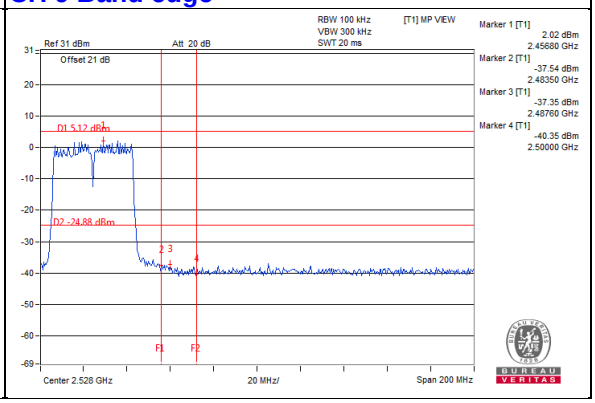
CH 9



CH 3 Band edge

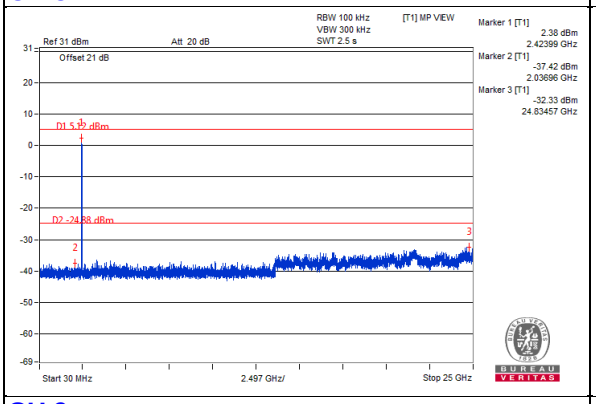


CH 9 Band edge

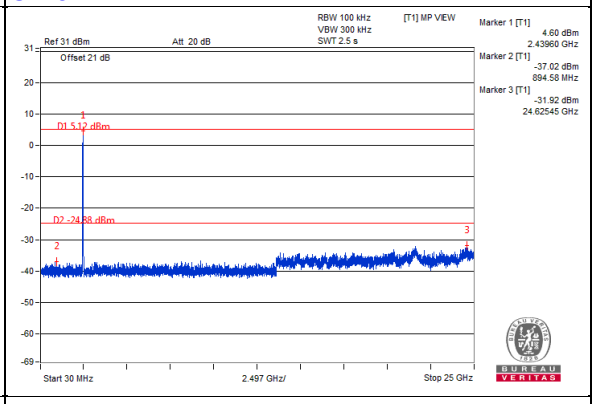


Chain 1

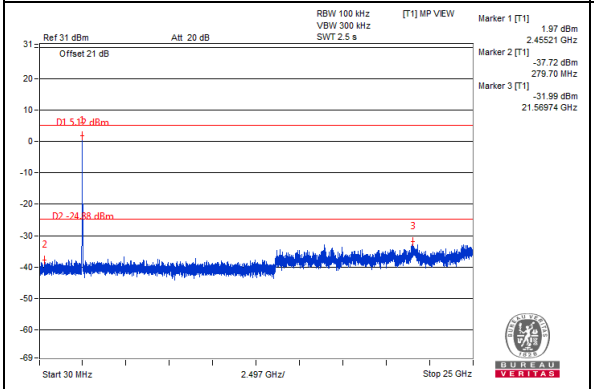
CH 3



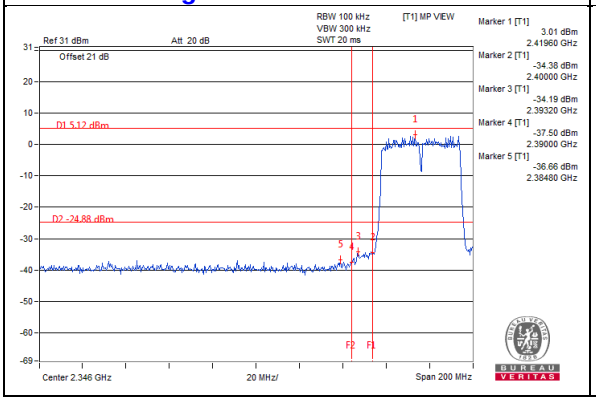
CH 6



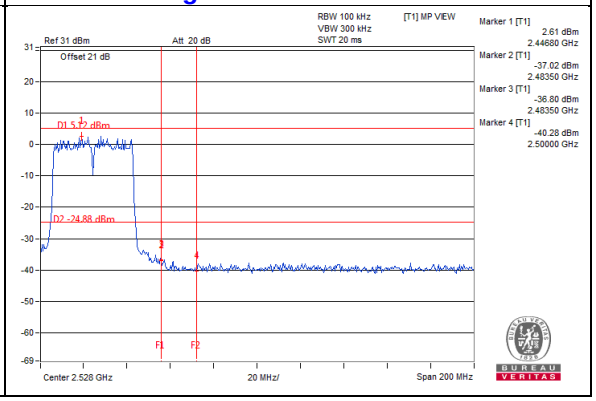
CH 9



CH 3 Band edge

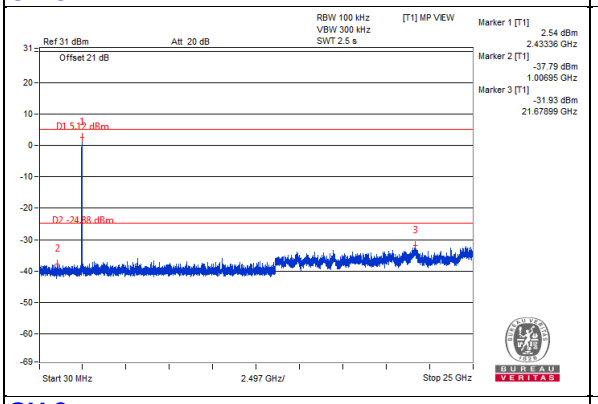


CH 9 Band edge

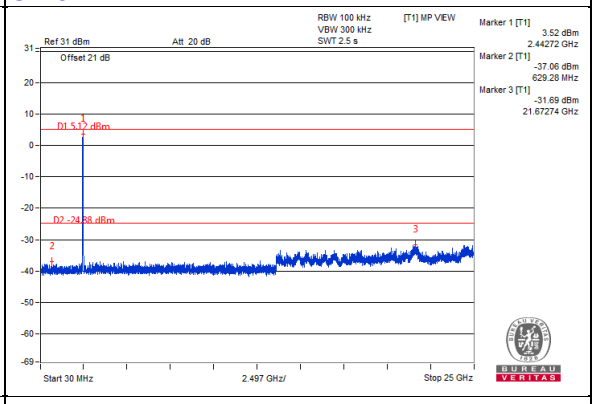


Chain 2

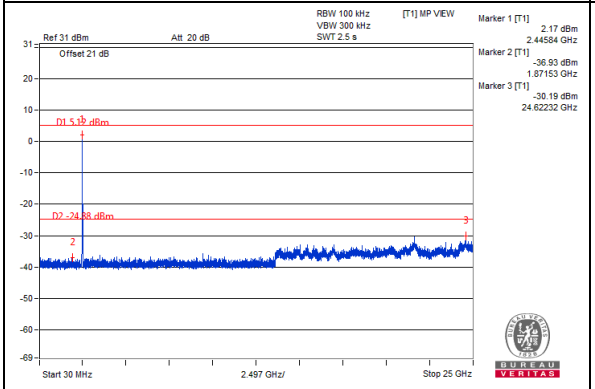
CH 3



CH 6



CH 9



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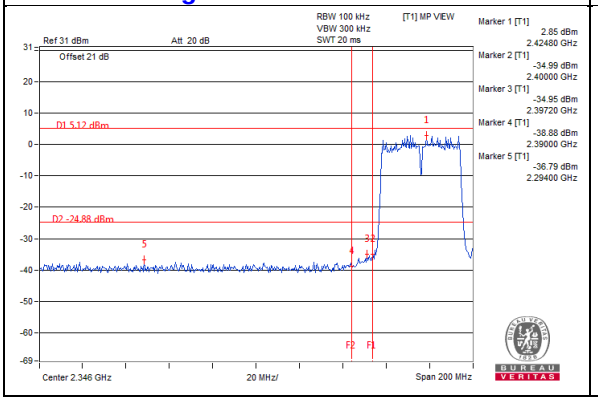

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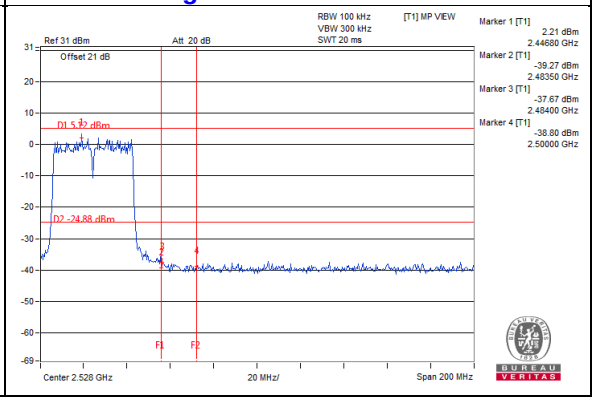

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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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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