FCC Test Report

Report No.:	RF190821E02
FCC ID:	G95FGA2230
Test Model:	FGA2230TCH2
Received Date:	Aug. 21, 2019
Test Date:	Aug. 29, 2019 to Feb. 12, 2020
Issued Date:	Mar. 3, 2020
Applicant:	Technicolor Connected Home USA LLC
Address:	5030 Sugarloaf Parkway, Building 6 Lawrenceville, GA 30044, USA
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
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF190821E02	Original release.	Mar. 3, 2020

1 Certificate of Conformity

Product:	Technicolor Gateway
Brand:	Technicolor
Test Model:	FGA2230TCH2
Sample Status:	ENGINEERING SAMPLE
Applicant:	Technicolor Connected Home USA LLC
Test Date:	Aug. 29, 2019 to Feb. 12, 2020
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 : Joyce Kuo , **Date:** Mar. 3, 2020

Joyce Kuo / Specialist

Approved by : , **Date:** Mar. 3, 2020

Clark Lin / Technical 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 -27.45dB at 0.35313MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	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
Conducted Emissions	-	3.1 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	5.1 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	5.0dB
	18GHz ~ 40GHz	5.2 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Technicolor Gateway
Brand	Technicolor
Test Model	FGA2230TCH2
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20/40 in 2.4GHz
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:** 2.412 ~ 2.462GHz **5GHz:** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**CDD Mode:** **2.412 ~ 2.462 GHz:** 833.324 mW **5.18 ~ 5.24GHz:** 877.58mW **5.745 ~ 5.825GHz:** 898.529mW **Beamforming Mode:** **2.412 ~ 2.462 GHz:** 833.324 mW **5.18 ~ 5.24GHz:** 692.288mW **5.745 ~ 5.825GHz:** 800.814mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable x 1 (Unshielded, 1.5m)

Note:

1. 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.		

2. The EUT must be supplied power adapter as following table:

Brand	Model No.	Spec.
MASS POWER	E030-1M120250VU (SK00995)	Input: 100-240Vac, 0.7A, 50/60Hz Output: 12V, 2.5A DC Output cable: Unshielded, 1.2m

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

Antenna NO.	**RF Chain NO.**	**Frequency range**	**Antenna Type**	**Connector Type**
2.4G1	Chain 2	2.4~2.4835GHz	Dipole	i-pex(MHF)
2.4G2	Chain 1	2.4~2.4835GHz	Dipole	NA
2.4G3	Chain 0	2.4~2.4835GHz	PIFA	NA
5G1	Chain 3	5.15~5.25GHz	Dipole	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G2	Chain 2	5.15~5.25GHz	PIFA	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G3	Chain 1	5.15~5.25GHz	PIFA	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G4	Chain 0	5.15~5.25GHz	Dipole	i-pex(MHF)
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		

4. The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Maximum Peak Gain (dBi)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4 ~ 2.4835	3.48	4.82	Refer to Note 3	Refer to Note 3
5.15 ~ 5.25	4.92	7.58		
5.25 ~ 5.35	5.03	7.70		
5.47 ~ 5.725	3.78	7.15		
5.725 ~ 5.85	3.78	6.81		

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
VHT20	3TX	3RX
VHT40	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. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and non-beamforming mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and VHT mode for 20MHz (40MHz), the manufacturer will control the power for 802.11n mode is the same as the VHT or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)

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

3.2 Description of Test Modes

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

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

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

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

Radiated Emission Test (Above 1GHz):

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

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

CDD Mode					
Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	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)
VHT20	1 to 11	6	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

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

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

CDD Mode					
Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
VHT20	1 to 11	6	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

CDD Mode					
Mode	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate (Mbps)**
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	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)**
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

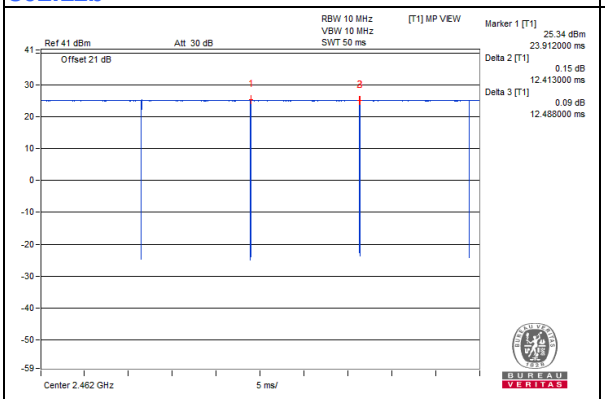
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 67%RH	120Vac, 60Hz	Kevin Ko
RE<1G	25deg. C, 69%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Kevin Ko
APCM	25deg. C, 65%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

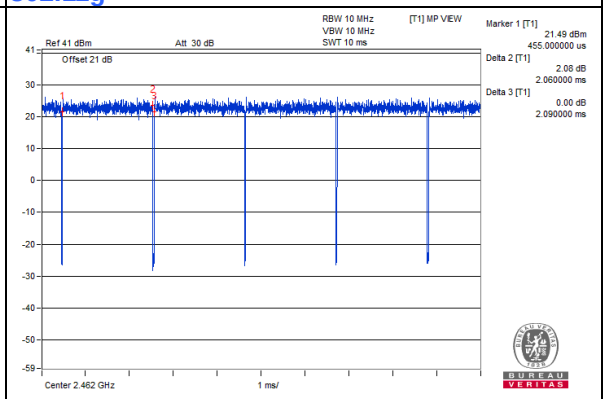
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.413/12.488 = 0.994
802.11g: Duty cycle = 2.06/2.09 = 0.986
VHT20: Duty cycle = 1.917/1.95 = 0.983
VHT40: Duty cycle = 0.941/0.972 = 0.968, Duty factor = 10 * log(1/Duty cycle) = 0.14

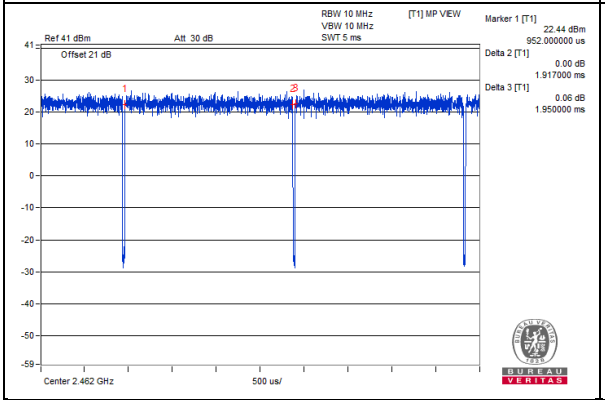
802.11b



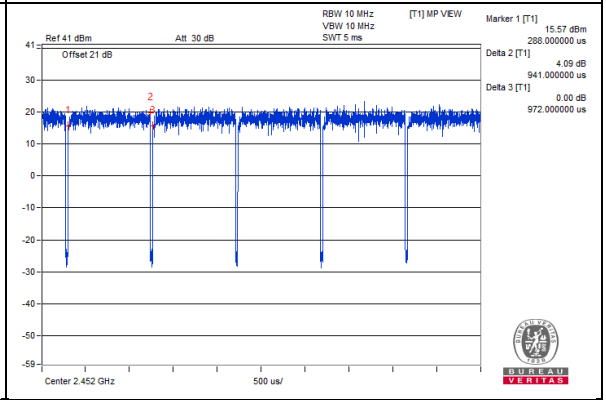
802.11g



VHT20



VHT40



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.

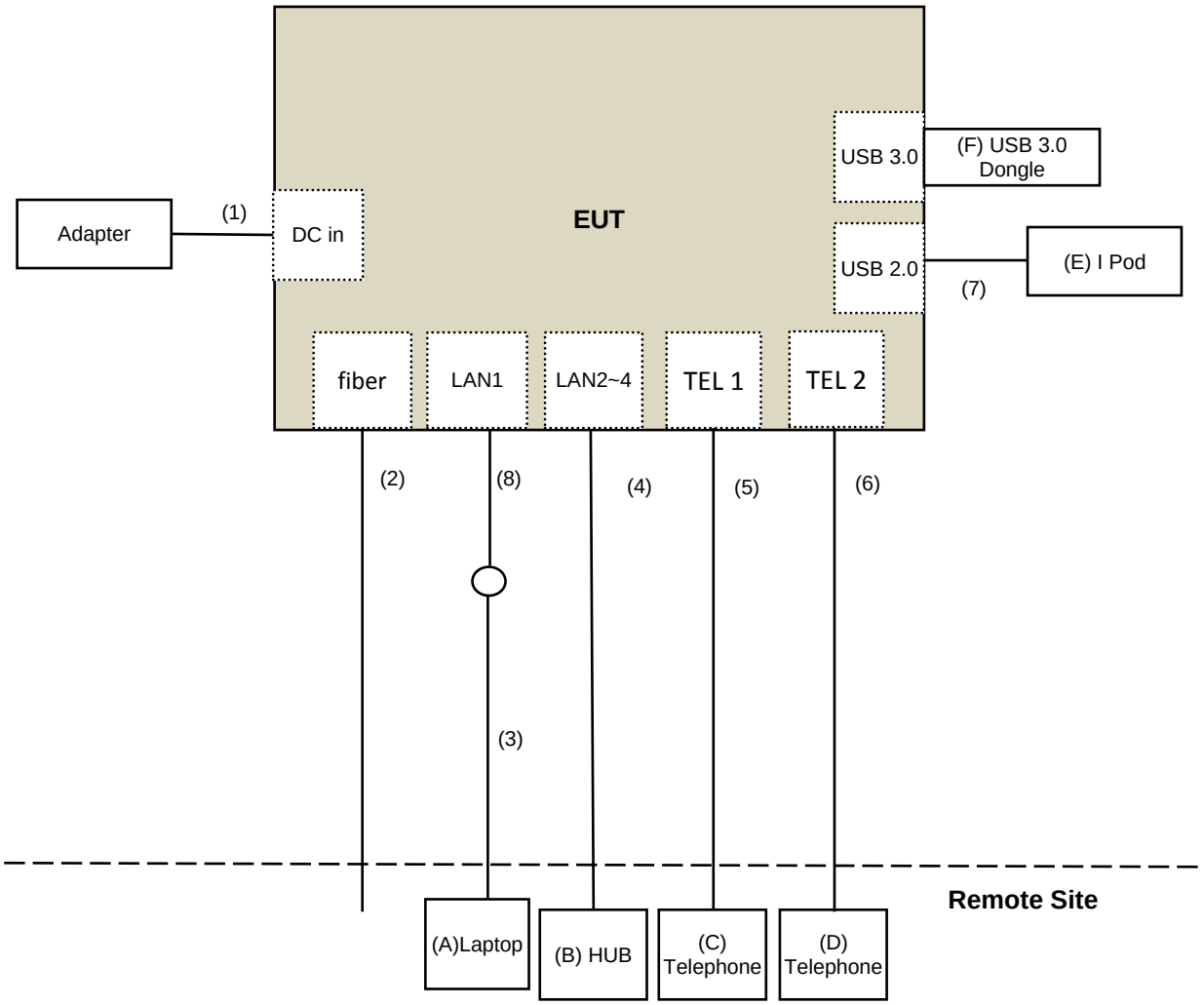
ID	Product	Brand	Model No.	Serial No	FCC ID	Remarks
A	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B	HUB	ZyXEL	GS1100-16	S150H44000046	FCC DoC	Provided by Lab
C	Telephone	WONDER	WD-303	7C17KA 04011	N/A	Provided by Lab
D	Telephone	DAISHO	DS-03	N/A	N/A	Provided by Lab
E	I Pod	Apple	MC749TA/A	CC4DM9M8DFDM	N/A	Provided by Lab
F	USB 3.0 Dongle	Sandisk	128G	N/A	N/A	Provided by Lab

Note:

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

ID	Descriptions (Cables)	Qty	Length (m)	Shielding (Yes/No)	Cores (Number)	Remarks
1	DC Cable	1	1.2	No	0	Supplied by client
2	G-pon Fiber Cable	1	10	No	0	Provided by Lab
3	RJ-45 Cable	1	10	No	0	Provided by Lab
4	RJ-45 Cable	3	10	No	0	Provided by Lab
5	RJ-11 Cable	1	10	No	0	Provided by Lab
6	RJ-11 Cable	1	10	No	0	Provided by Lab
7	USB Cable	1	0.1	Yes	0	Provided by Lab
8	RJ-45 Cable	1	1.5	No	0	Supplied by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and references

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

Test standard:

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013

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

References Test Guidance :

KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

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.

For Radiated Emission below 1GHz

Description & Manufacturer	Model no.	Serial No.	Calibrated DATE	Calibrated Until
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 26, 2019	Sep. 25, 2020

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Feb.11, 2020

For Radiated Emission above 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-1200	160922	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-2000	180601	June 10, 2019	June 09, 2020
RF Cable	EMC104-SM-SM-6000	180602	June 10, 2019	June 09, 2020
Spectrum Analyzer Keysight	N9030A	MY54490679	July 17, 2019	July 16, 2020
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-4500	181205	Aug. 26, 2019	Aug. 25, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Aug. 29, 2019

For other test:

Description & Manufacturer	Model no.	Serial No.	Calibrated DATE	Calibrated Until
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Aug. 30, 2019

4.1.2 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:

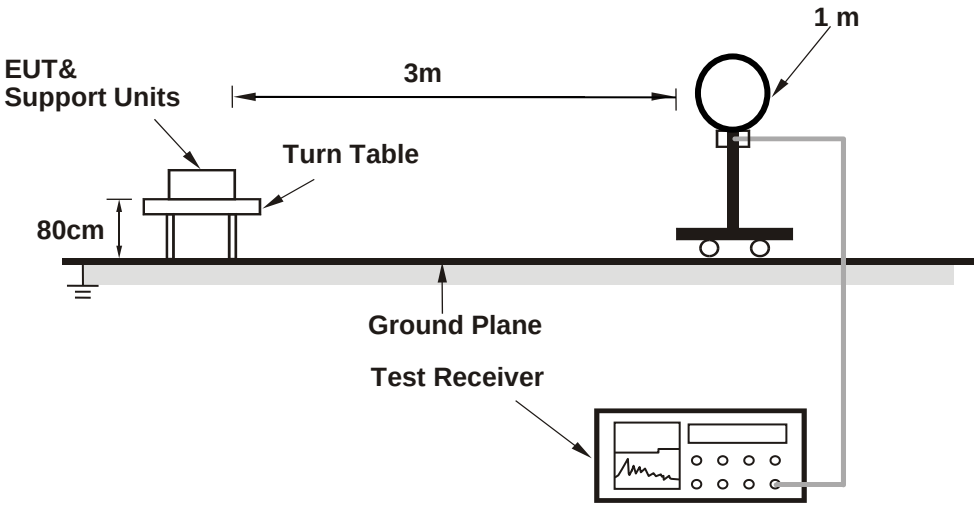
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.

4.1.3 Deviation from Test Standard

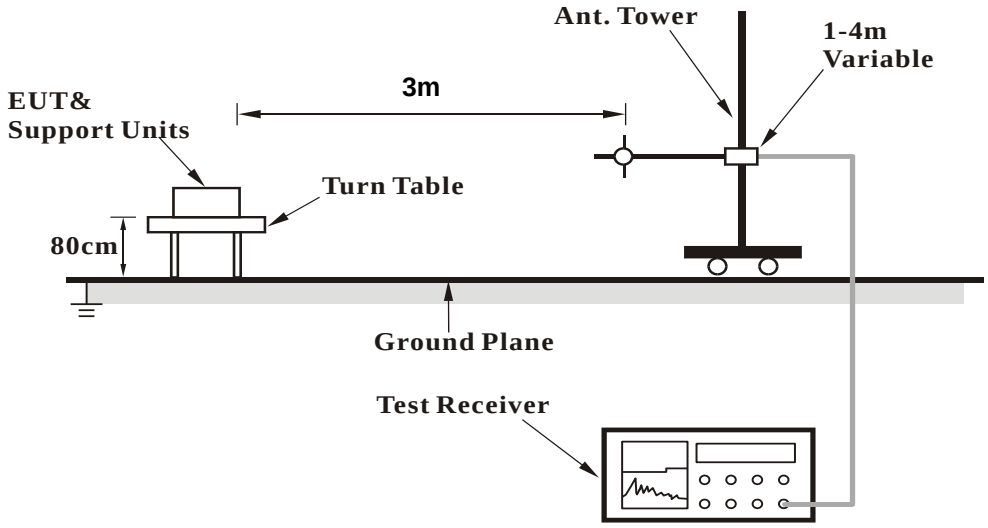
No deviation.

4.1.4 Test Setup

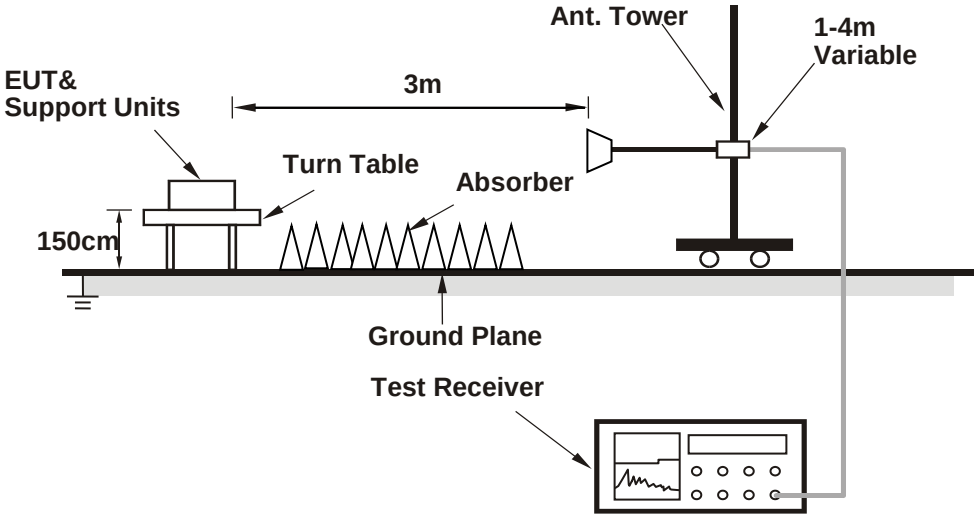
For Radiated emission below 30MHz



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).

4.1.5 EUT Operating Conditions

a. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (Mtool.exe v3.0.0.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.6 Test Results

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	61.9 PK	74.0	-12.1	1.89 H	276	63.9	-2.0
2	2390.00	45.8 AV	54.0	-8.2	1.89 H	276	47.8	-2.0
3	*2412.00	113.6 PK			1.89 H	276	115.6	-2.0
4	*2412.00	111.3 AV			1.89 H	276	113.3	-2.0
5	4824.00	45.4 PK	74.0	-28.6	2.26 H	146	43.1	2.3
6	4824.00	42.3 AV	54.0	-11.7	2.26 H	146	40.0	2.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	64.6 PK	74.0	-9.4	1.37 V	6	66.6	-2.0
2	2390.00	48.1 AV	54.0	-5.9	1.37 V	6	50.1	-2.0
3	*2412.00	117.7 PK			1.37 V	6	119.7	-2.0
4	*2412.00	115.5 AV			1.37 V	6	117.5	-2.0
5	4824.00	48.1 PK	74.0	-25.9	1.39 V	18	45.8	2.3
6	4824.00	45.1 AV	54.0	-8.9	1.39 V	18	42.8	2.3

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	114.0 PK			1.86 H	282	116.1	-2.1
2	*2437.00	111.6 AV			1.86 H	282	113.7	-2.1
3	4874.00	45.1 PK	74.0	-28.9	2.23 H	157	42.8	2.3
4	4874.00	42.1 AV	54.0	-11.9	2.23 H	157	39.8	2.3
5	7311.00	52.2 PK	74.0	-21.8	2.29 H	158	43.9	8.3
6	7311.00	40.4 AV	54.0	-13.6	2.29 H	158	32.1	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.8 PK			1.18 V	176	119.9	-2.1
2	*2437.00	115.7 AV			1.18 V	176	117.8	-2.1
3	4874.00	53.5 PK	74.0	-20.5	1.38 V	352	51.2	2.3
4	4874.00	46.9 AV	54.0	-7.1	1.38 V	352	44.6	2.3
5	7311.00	54.3 PK	74.0	-19.7	1.30 V	341	46.0	8.3
6	7311.00	42.6 AV	54.0	-11.4	1.30 V	341	34.3	8.3

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	114.2 PK			1.83 H	269	116.4	-2.2
2	*2462.00	111.8 AV			1.83 H	269	114.0	-2.2
3	2483.50	61.7 PK	74.0	-12.3	1.83 H	269	63.9	-2.2
4	2483.50	45.5 AV	54.0	-8.5	1.83 H	269	47.7	-2.2
5	4924.00	45.3 PK	74.0	-28.7	2.17 H	168	42.8	2.5
6	4924.00	42.3 AV	54.0	-11.7	2.17 H	168	39.8	2.5
7	7386.00	52.6 PK	74.0	-21.4	2.24 H	157	44.3	8.3
8	7386.00	40.6 AV	54.0	-13.4	2.24 H	157	32.3	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.6 PK			1.42 V	10	119.8	-2.2
2	*2462.00	115.6 AV			1.42 V	10	117.8	-2.2
3	2483.50	64.2 PK	74.0	-9.8	1.42 V	10	66.4	-2.2
4	2483.50	47.6 AV	54.0	-6.4	1.42 V	10	49.8	-2.2
5	4924.00	49.6 PK	74.0	-24.4	1.39 V	342	47.1	2.5
6	4924.00	45.3 AV	54.0	-8.7	1.39 V	342	42.8	2.5
7	7386.00	52.8 PK	74.0	-21.2	1.35 V	336	44.5	8.3
8	7386.00	42.6 AV	54.0	-11.4	1.35 V	336	34.3	8.3

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	61.8 PK	74.0	-12.2	1.92 H	265	63.8	-2.0
2	2390.00	51.3 AV	54.0	-2.7	1.92 H	265	53.3	-2.0
3	*2412.00	111.2 PK			1.92 H	265	113.2	-2.0
4	*2412.00	103.6 AV			1.92 H	265	105.6	-2.0
5	4824.00	39.5 PK	74.0	-34.5	2.12 H	154	37.2	2.3
6	4824.00	29.8 AV	54.0	-24.2	2.12 H	154	27.5	2.3
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	63.9 PK	74.0	-10.1	1.56 V	65	65.9	-2.0
2	2390.00	53.6 AV	54.0	-0.4	1.56 V	65	55.6	-2.0
3	*2412.00	115.5 PK			1.56 V	65	117.5	-2.0
4	*2412.00	107.9 AV			1.56 V	65	109.9	-2.0
5	4824.00	39.9 PK	74.0	-34.1	1.65 V	353	37.6	2.3
6	4824.00	30.1 AV	54.0	-23.9	1.65 V	353	27.8	2.3

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	114.4 PK			1.95 H	280	116.5	-2.1
2	*2437.00	106.5 AV			1.95 H	280	108.6	-2.1
3	4874.00	39.4 PK	74.0	-34.6	2.14 H	160	37.1	2.3
4	4874.00	29.9 AV	54.0	-24.1	2.14 H	160	27.6	2.3
5	7311.00	39.3 PK	74.0	-34.7	2.18 H	152	31.0	8.3
6	7311.00	29.7 AV	54.0	-24.3	2.18 H	152	21.4	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	119.8 PK			2.44 V	188	121.9	-2.1
2	*2437.00	110.5 AV			2.44 V	188	112.6	-2.1
3	4874.00	40.2 PK	74.0	-33.8	2.14 V	175	37.9	2.3
4	4874.00	30.5 AV	54.0	-23.5	2.14 V	175	28.2	2.3
5	7311.00	39.9 PK	74.0	-34.1	2.04 V	162	31.6	8.3
6	7311.00	29.7 AV	54.0	-24.3	2.04 V	162	21.4	8.3

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	110.7 PK			1.91 H	269	112.9	-2.2
2	*2462.00	103.0 AV			1.91 H	269	105.2	-2.2
3	2483.50	68.9 PK	74.0	-5.1	1.91 H	269	71.1	-2.2
4	2483.50	51.0 AV	54.0	-3.0	1.91 H	269	53.2	-2.2
5	4924.00	39.2 PK	74.0	-34.8	2.19 H	144	36.7	2.5
6	4924.00	30.0 AV	54.0	-24.0	2.19 H	144	27.5	2.5
7	7386.00	39.2 PK	74.0	-34.8	2.15 H	166	30.9	8.3
8	7386.00	29.7 AV	54.0	-24.3	2.15 H	166	21.4	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.3 PK			1.89 V	180	119.5	-2.2
2	*2462.00	106.9 AV			1.89 V	180	109.1	-2.2
3	2483.50	73.2 PK	74.0	-0.8	1.89 V	180	75.4	-2.2
4	2483.50	53.5 AV	54.0	-0.5	1.89 V	180	55.7	-2.2
5	4924.00	40.3 PK	74.0	-33.7	1.75 V	221	37.8	2.5
6	4924.00	30.8 AV	54.0	-23.2	1.75 V	221	28.3	2.5
7	7386.00	39.6 PK	74.0	-34.4	1.65 V	236	31.3	8.3
8	7386.00	29.7 AV	54.0	-24.3	1.65 V	236	21.4	8.3

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.

VHT20

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	66.3 PK	74.0	-7.7	1.95 H	274	68.3	-2.0
2	2390.00	50.7 AV	54.0	-3.3	1.95 H	274	52.7	-2.0
3	*2412.00	109.7 PK			1.95 H	274	111.7	-2.0
4	*2412.00	102.9 AV			1.95 H	274	104.9	-2.0
5	4824.00	39.4 PK	74.0	-34.6	2.15 H	141	37.1	2.3
6	4824.00	30.4 AV	54.0	-23.6	2.15 H	141	28.1	2.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.5 PK	74.0	-5.5	1.93 V	356	70.5	-2.0
2	2390.00	53.5 AV	54.0	-0.5	1.93 V	356	55.5	-2.0
3	*2412.00	115.5 PK			1.93 V	356	117.5	-2.0
4	*2412.00	106.3 AV			1.93 V	356	108.3	-2.0
5	4824.00	40.5 PK	74.0	-33.5	1.55 V	205	38.2	2.3
6	4824.00	30.7 AV	54.0	-23.3	1.55 V	205	28.4	2.3

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	116.1 PK			1.98 H	287	118.2	-2.1
2	*2437.00	107.2 AV			1.98 H	287	109.3	-2.1
3	4874.00	39.7 PK	74.0	-34.3	2.22 H	140	37.4	2.3
4	4874.00	30.2 AV	54.0	-23.8	2.22 H	140	27.9	2.3
5	7311.00	38.8 PK	74.0	-35.2	2.18 H	182	30.5	8.3
6	7311.00	29.5 AV	54.0	-24.5	2.18 H	182	21.2	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	119.4 PK			2.40 V	192	121.5	-2.1
2	*2437.00	110.6 AV			2.40 V	192	112.7	-2.1
3	4874.00	40.3 PK	74.0	-33.7	1.05 V	136	38.0	2.3
4	4874.00	30.5 AV	54.0	-23.5	1.05 V	136	28.2	2.3
5	7311.00	39.5 PK	74.0	-34.5	1.10 V	125	31.2	8.3
6	7311.00	29.7 AV	54.0	-24.3	1.10 V	125	21.4	8.3

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	114.9 PK			2.03 H	297	117.1	-2.2
2	*2462.00	104.9 AV			2.03 H	297	107.1	-2.2
3	2483.50	65.7 PK	74.0	-8.3	2.03 H	297	67.9	-2.2
4	2483.50	50.5 AV	54.0	-3.5	2.03 H	297	52.7	-2.2
5	4924.00	40.2 PK	74.0	-33.8	2.27 H	156	37.7	2.5
6	4924.00	30.4 AV	54.0	-23.6	2.27 H	156	27.9	2.5
7	7386.00	38.0 PK	74.0	-36.0	2.23 H	179	29.7	8.3
8	7386.00	29.0 AV	54.0	-25.0	2.23 H	179	20.7	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.2 PK			1.41 V	189	120.4	-2.2
2	*2462.00	108.3 AV			1.41 V	189	110.5	-2.2
3	2483.50	68.3 PK	74.0	-5.7	1.41 V	189	70.5	-2.2
4	2483.50	53.6 AV	54.0	-0.4	1.41 V	189	55.8	-2.2
5	4924.00	40.1 PK	74.0	-33.9	1.22 V	305	37.6	2.5
6	4924.00	30.6 AV	54.0	-23.4	1.22 V	305	28.1	2.5
7	7386.00	40.7 PK	74.0	-33.3	1.24 V	311	32.4	8.3
8	7386.00	29.7 AV	54.0	-24.3	1.24 V	311	21.4	8.3

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.

VHT40

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	62.2 PK	74.0	-11.8	2.07 H	284	64.2	-2.0
2	2390.00	51.1 AV	54.0	-2.9	2.07 H	284	53.1	-2.0
3	*2422.00	106.1 PK			2.07 H	284	108.1	-2.0
4	*2422.00	94.8 AV			2.07 H	284	96.8	-2.0
5	4844.00	40.5 PK	74.0	-33.5	2.27 H	150	38.2	2.3
6	4844.00	30.7 AV	54.0	-23.3	2.27 H	150	28.4	2.3
7	7266.00	38.1 PK	74.0	-35.9	2.28 H	177	29.7	8.4
8	7266.00	29.3 AV	54.0	-24.7	2.28 H	177	20.9	8.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.6 PK	74.0	-9.4	1.61 V	188	66.6	-2.0
2	2390.00	53.7 AV	54.0	-0.3	1.61 V	188	55.7	-2.0
3	*2422.00	110.4 PK			1.61 V	188	112.4	-2.0
4	*2422.00	99.3 AV			1.61 V	188	101.3	-2.0
5	4844.00	40.4 PK	74.0	-33.6	1.07 V	301	38.1	2.3
6	4844.00	30.6 AV	54.0	-23.4	1.07 V	301	28.3	2.3
7	7266.00	39.6 PK	74.0	-34.4	1.56 V	224	31.2	8.4
8	7266.00	29.7 AV	54.0	-24.3	1.56 V	224	21.3	8.4

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	63.0 PK	74.0	-11.0	2.07 H	273	65.0	-2.0
2	2390.00	50.1 AV	54.0	-3.9	2.07 H	273	52.1	-2.0
3	*2437.00	114.2 PK			2.07 H	273	116.3	-2.1
4	*2437.00	101.8 AV			2.07 H	273	103.9	-2.1
5	4874.00	40.9 PK	74.0	-33.1	2.29 H	156	38.6	2.3
6	4874.00	31.0 AV	54.0	-23.0	2.29 H	156	28.7	2.3
7	7311.00	38.5 PK	74.0	-35.5	2.31 H	168	30.2	8.3
8	7311.00	29.7 AV	54.0	-24.3	2.31 H	168	21.4	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.6 PK	74.0	-7.4	1.84 V	353	68.6	-2.0
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.84 V**	**353**	**55.9**	**-2.0**
3	*2437.00	116.1 PK			1.84 V	353	118.2	-2.1
4	*2437.00	105.9 AV			1.84 V	353	108.0	-2.1
5	4874.00	40.4 PK	74.0	-33.6	1.22 V	163	38.1	2.3
6	4874.00	30.8 AV	54.0	-23.2	1.22 V	163	28.5	2.3
7	7311.00	39.7 PK	74.0	-34.3	1.25 V	155	31.4	8.3
8	7311.00	29.8 AV	54.0	-24.2	1.25 V	155	21.5	8.3

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	109.9 PK			2.08 H	276	112.1	-2.2
2	*2452.00	97.6 AV			2.08 H	276	99.8	-2.2
3	2483.50	65.8 PK	74.0	-8.2	2.08 H	276	68.0	-2.2
4	2483.50	51.2 AV	54.0	-2.8	2.08 H	276	53.4	-2.2
5	4904.00	41.5 PK	74.0	-32.5	2.27 H	169	39.1	2.4
6	4904.00	31.5 AV	54.0	-22.5	2.27 H	169	29.1	2.4
7	7356.00	38.8 PK	74.0	-35.2	2.30 H	176	30.6	8.2
8	7356.00	30.0 AV	54.0	-24.0	2.30 H	176	21.8	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	112.6 PK			1.44 V	183	114.8	-2.2
2	*2452.00	102.2 AV			1.44 V	183	104.4	-2.2
3	2483.50	68.1 PK	74.0	-5.9	1.44 V	183	70.3	-2.2
4	2483.50	53.6 AV	54.0	-0.4	1.44 V	183	55.8	-2.2
5	4904.00	40.4 PK	74.0	-33.6	1.04 V	125	38.0	2.4
6	4904.00	30.4 AV	54.0	-23.6	1.04 V	125	28.0	2.4
7	7356.00	39.8 PK	74.0	-34.2	1.16 V	221	31.6	8.2
8	7356.00	29.7 AV	54.0	-24.3	1.16 V	221	21.5	8.2

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.
5. " * ": Fundamental frequency.

Below 1GHz Data:

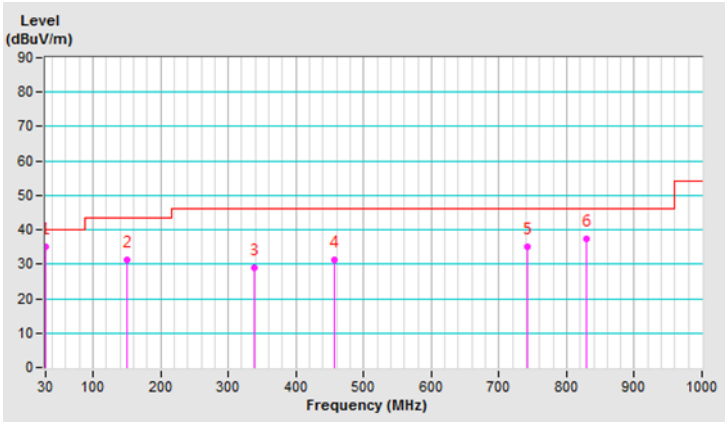
VHT20

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	30.75	35.1 QP	40.0	-4.9	1.00 H	67	44.1	-9.0
2	149.79	31.3 QP	43.5	-12.2	1.50 H	195	38.4	-7.1
3	338.44	29.1 QP	46.0	-16.9	1.00 H	360	34.3	-5.2
4	456.39	31.3 QP	46.0	-14.7	1.00 H	95	33.5	-2.2
5	742.47	35.2 QP	46.0	-10.8	2.00 H	339	31.5	3.7
6	830.13	37.4 QP	46.0	-8.6	2.00 H	61	32.5	4.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.

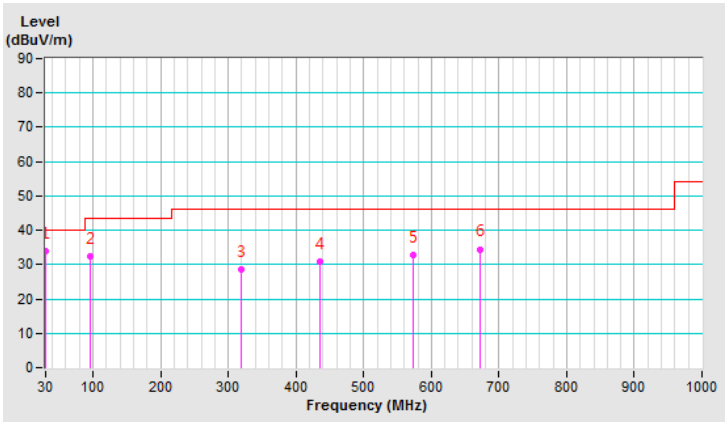


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	30.78	34.0 QP	40.0	-6.0	2.00 V	3	43.0	-9.0
2	96.35	32.5 QP	43.5	-11.0	1.50 V	52	44.9	-12.4
3	319.55	28.7 QP	46.0	-17.3	1.50 V	102	34.2	-5.5
4	435.12	30.7 QP	46.0	-15.3	1.00 V	92	33.5	-2.8
5	572.98	32.8 QP	46.0	-13.2	1.00 V	57	32.6	0.2
6	672.96	34.5 QP	46.0	-11.5	1.50 V	360	32.5	2.0

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 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	50	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
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: Feb. 11, 2020

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.

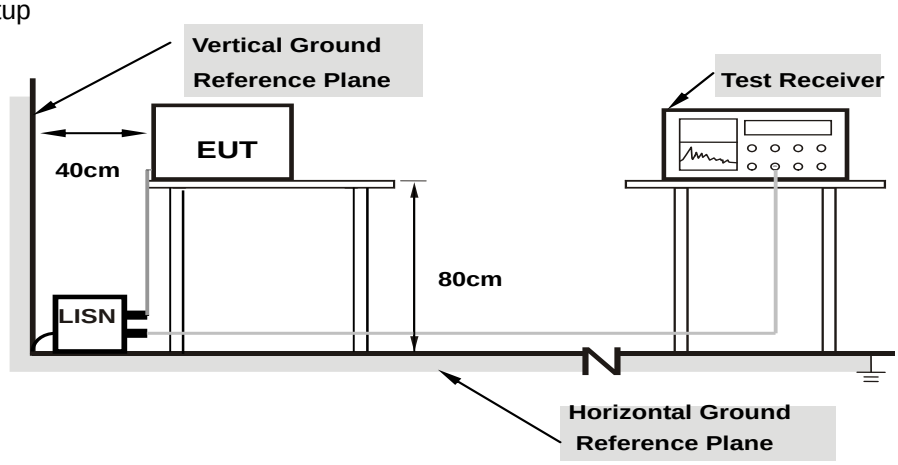
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

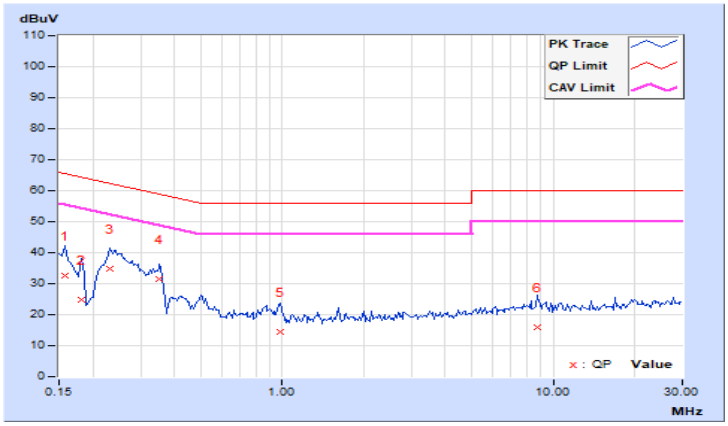
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.99	22.66	1.36	32.65	11.35	65.58	55.58	-32.93	-44.23
2	0.18125	9.99	14.68	-7.68	24.67	2.31	64.43	54.43	-39.76	-52.12
3	0.23203	9.99	24.71	-0.43	34.70	9.56	62.38	52.38	-27.68	-42.82
4	**0.35313**	**10.00**	**21.44**	**-2.72**	**31.44**	**7.28**	**58.89**	**48.89**	**-27.45**	**-41.61**
5	0.98203	10.05	4.21	-10.63	14.26	-0.58	56.00	46.00	-41.74	-46.58
6	8.70313	10.57	5.19	-10.68	15.76	-0.11	60.00	50.00	-44.24	-50.11

Remarks:

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

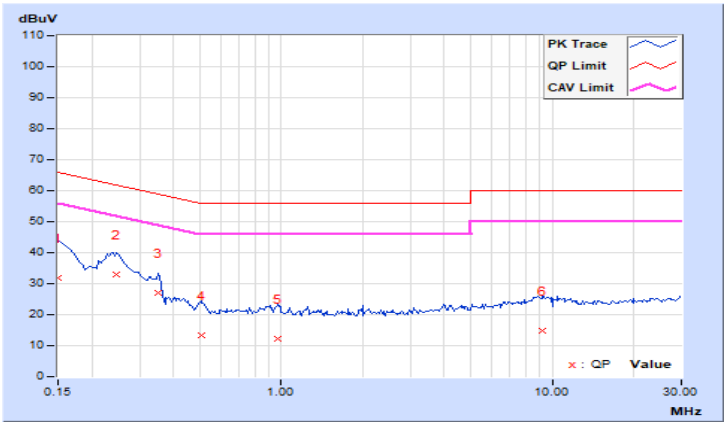


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.99	21.74	0.15	31.73	10.14	66.00	56.00	-34.27	-45.86
2	0.24766	9.99	22.80	-1.57	32.79	8.42	61.84	51.84	-29.05	-43.42
3	0.35313	10.01	17.13	-6.06	27.14	3.95	58.89	48.89	-31.75	-44.94
4	0.50547	10.02	3.28	-12.31	13.30	-2.29	56.00	46.00	-42.70	-48.29
5	0.97422	10.05	2.19	-11.61	12.24	-1.56	56.00	46.00	-43.76	-47.56
6	9.25391	10.54	4.46	-11.06	15.00	-0.52	60.00	50.00	-45.00	-50.52

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

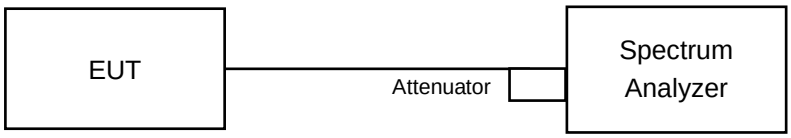


4.3 6dB Bandwidth Measurement

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 from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	8.59	8.58	8.60	0.5	Pass
6	2437	8.62	8.62	8.58	0.5	Pass
11	2462	8.56	8.57	8.59	0.5	Pass

802.11g

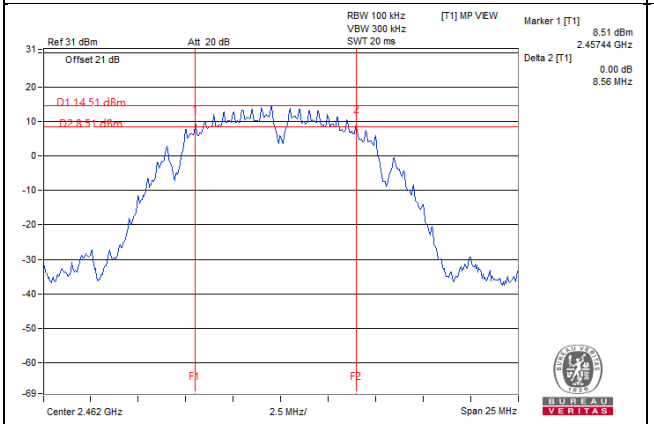
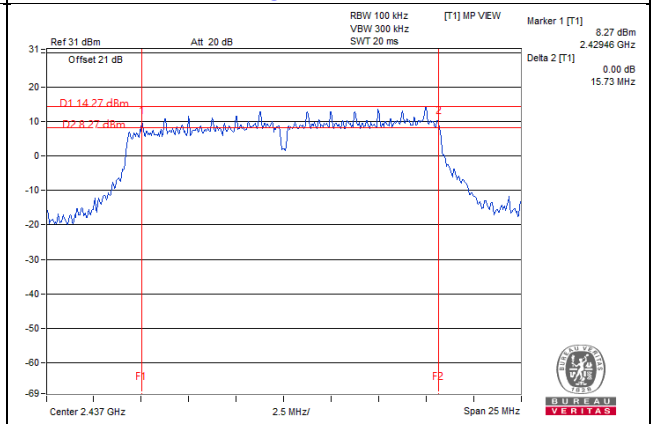
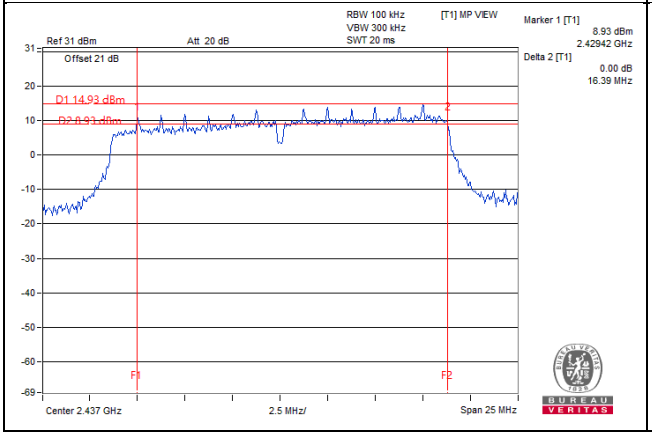
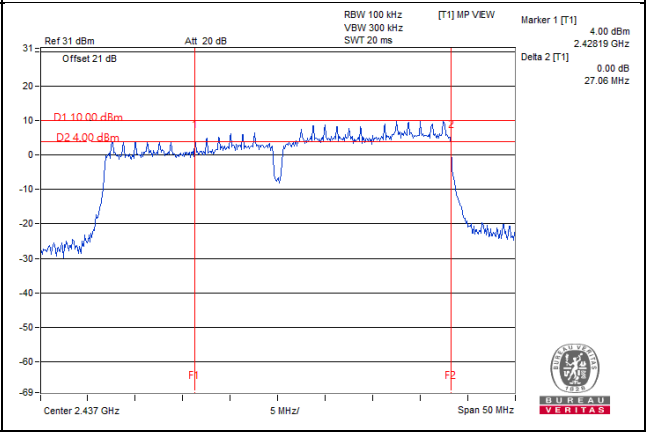
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.39	16.39	16.42	0.5	Pass
6	2437	15.78	15.76	15.73	0.5	Pass
11	2462	16.16	16.32	16.40	0.5	Pass

VHT20

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	17.39	17.66	17.65	0.5	Pass
6	2437	16.39	16.99	16.39	0.5	Pass
11	2462	17.24	17.59	17.61	0.5	Pass

VHT40

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	36.48	36.52	36.47	0.5	Pass
6	2437	27.06	35.80	35.76	0.5	Pass
9	2452	35.26	35.52	35.27	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH11	**802.11g_Chain 2 / CH6**
	
VHT20_Chain 0 / CH6	**VHT40_Chain 0 / CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

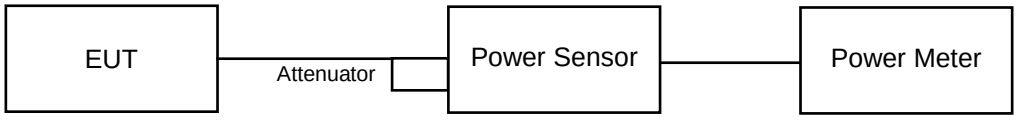
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	23.84	23.83	24.05	737.746	28.68	30.00	Pass
6	2437	24.49	24.33	24.46	831.463	29.20	30.00	Pass
11	2462	22.94	23.14	23.47	625.183	27.96	30.00	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.26	19.58	19.63	266.948	24.26	30.00	Pass
6	2437	24.38	24.18	24.29	804.509	29.06	30.00	Pass
11	2462	20.13	20.12	20.89	328.585	25.17	30.00	Pass

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.47	19.56	19.62	270.499	24.32	30.00	Pass
6	2437	24.46	24.37	24.48	833.324	29.21	30.00	Pass
11	2462	21.18	21.35	21.61	412.555	26.15	30.00	Pass

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	17.46	17.96	17.83	178.91	22.53	30.00	Pass
6	2437	22.03	22.08	22.15	485.083	26.86	30.00	Pass
9	2452	18.55	18.54	18.93	221.227	23.45	30.00	Pass

Beamforming Mode

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.47	19.56	19.62	270.499	24.32	30.00	Pass
6	2437	24.46	24.37	24.48	833.324	29.21	30.00	Pass
11	2462	21.18	21.35	21.61	412.555	26.15	30.00	Pass

Note: 1. The directional gain= 4.82dBi < 6dBi, so the power limit shall not be reduced.

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	17.46	17.96	17.83	178.91	22.53	30.00	Pass
6	2437	22.03	22.08	22.15	485.083	26.86	30.00	Pass
9	2452	18.55	18.54	18.93	221.227	23.45	30.00	Pass

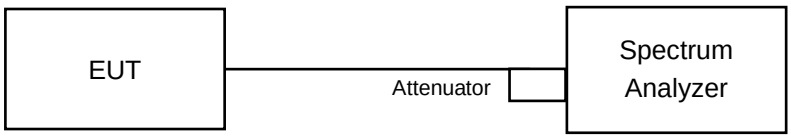
Note: 1. The directional gain = 4.82dBi < 6dBi, so the power limit shall not be reduced.

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

For 802.11b, 802.11g, VHT20:

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.

For VHT40:

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

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	-4.01	4.77	0.76	8.00	Pass
	6	2437	-3.56	4.77	1.21	8.00	Pass
	11	2462	-4.83	4.77	-0.06	8.00	Pass
1	1	2412	-3.74	4.77	1.03	8.00	Pass
	6	2437	-3.74	4.77	1.03	8.00	Pass
	11	2462	-4.81	4.77	-0.04	8.00	Pass
2	1	2412	-3.96	4.77	0.81	8.00	Pass
	6	2437	-3.74	4.77	1.03	8.00	Pass
	11	2462	-4.10	4.77	0.67	8.00	Pass

Note: 1. The directional gain = 4.82dBi < 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	-9.83	4.77	-5.06	8.00	Pass
	6	2437	-4.13	4.77	0.64	8.00	Pass
	11	2462	-8.82	4.77	-4.05	8.00	Pass
1	1	2412	-7.74	4.77	-2.97	8.00	Pass
	6	2437	-4.37	4.77	0.40	8.00	Pass
	11	2462	-7.65	4.77	-2.88	8.00	Pass
2	1	2412	-9.60	4.77	-4.83	8.00	Pass
	6	2437	-4.17	4.77	0.60	8.00	Pass
	11	2462	-7.98	4.77	-3.21	8.00	Pass

Note: 1. The directional gain = 4.82dBi < 6dBi , so the power density limit shall not be reduced.

VHT20

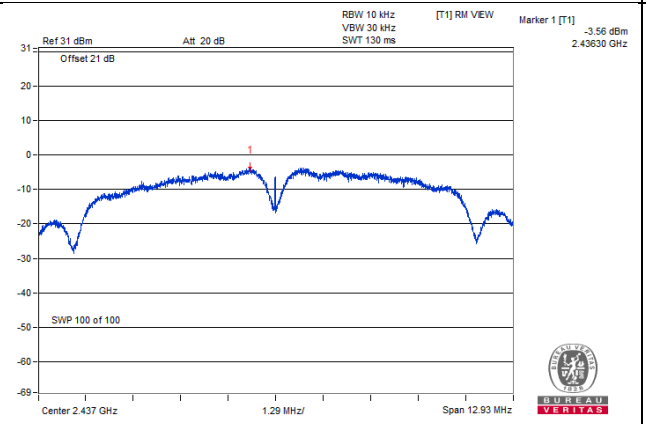
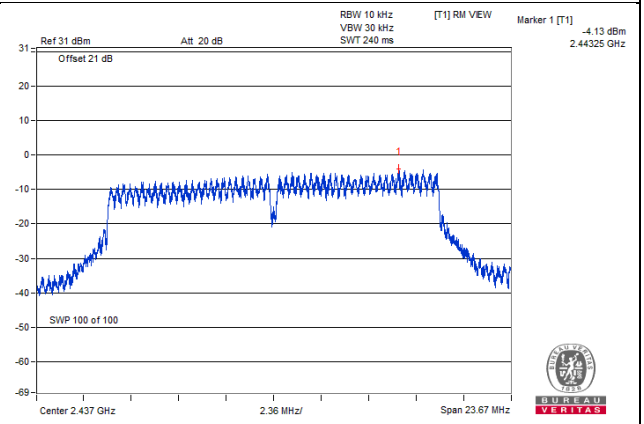
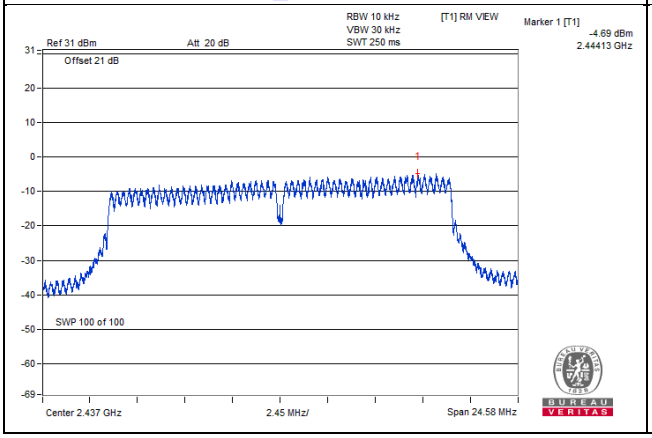
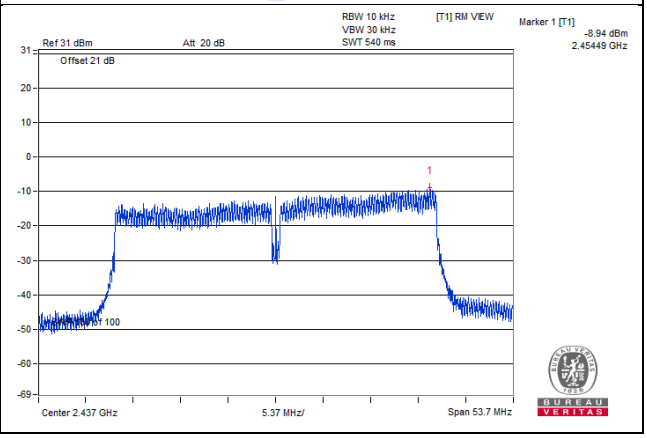
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.93	4.77	-6.16	8.00	Pass
	6	2437	-4.69	4.77	0.08	8.00	Pass
	11	2462	-9.11	4.77	-4.34	8.00	Pass
1	1	2412	-6.90	4.77	-2.13	8.00	Pass
	6	2437	-5.76	4.77	-0.99	8.00	Pass
	11	2462	-8.58	4.77	-3.81	8.00	Pass
2	1	2412	-10.88	4.77	-6.11	8.00	Pass
	6	2437	-5.53	4.77	-0.76	8.00	Pass
	11	2462	-8.85	4.77	-4.08	8.00	Pass

Note: 1. The directional gain = 4.82dBi < 6dBi , so the power density limit shall not be reduced.

VHT40

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	-14.09	4.77	0.14	-9.18	8.00	Pass
	6	2437	-9.19	4.77	0.14	-4.28	8.00	Pass
	9	2452	-12.60	4.77	0.14	-7.69	8.00	Pass
1	3	2422	-14.02	4.77	0.14	-9.11	8.00	Pass
	6	2437	-8.94	4.77	0.14	-4.03	8.00	Pass
	9	2452	-13.21	4.77	0.14	-8.30	8.00	Pass
2	3	2422	-14.40	4.77	0.14	-9.49	8.00	Pass
	6	2437	-9.19	4.77	0.14	-4.28	8.00	Pass
	9	2452	-12.70	4.77	0.14	-7.79	8.00	Pass

Note: 1. The directional gain= 4.82dBi < 6dBi , so the power density limit shal notl be reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

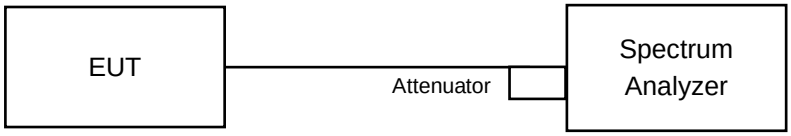
Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH6	**802.11g_Chain 0 / CH6**
	
VHT20_Chain 0 / CH6	**VHT40_Chain 1 / CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

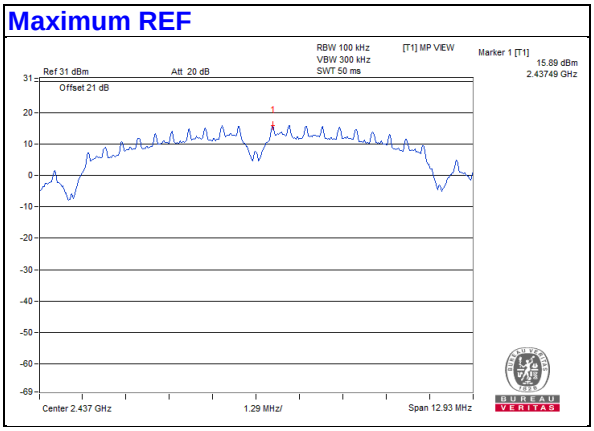
Same as Item 4.3.6

4.6.7 Test Results

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

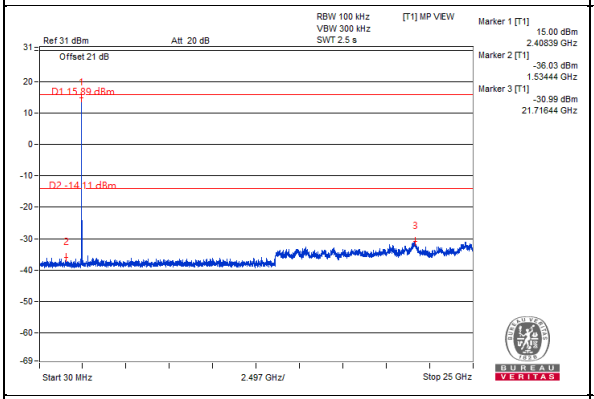
802.11b

Maximum REF

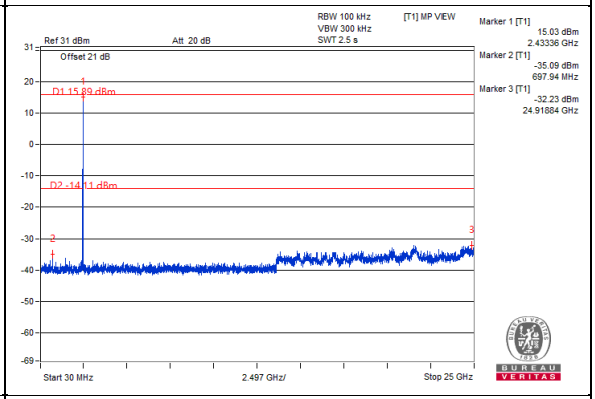


Chain 0

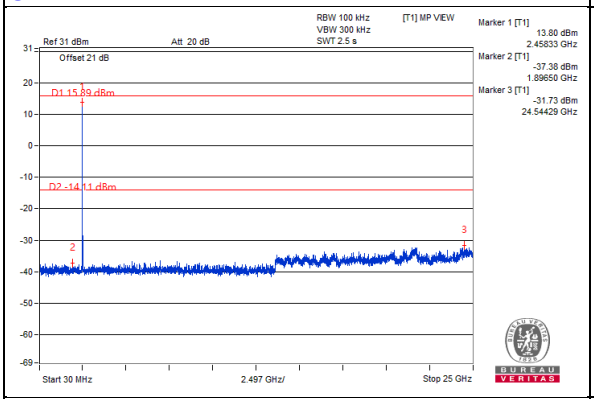
CH 1



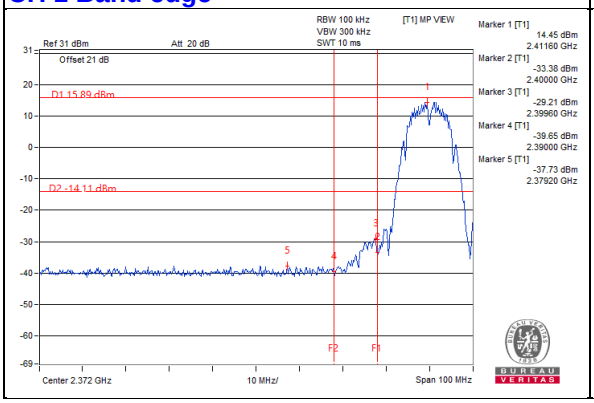
CH 6



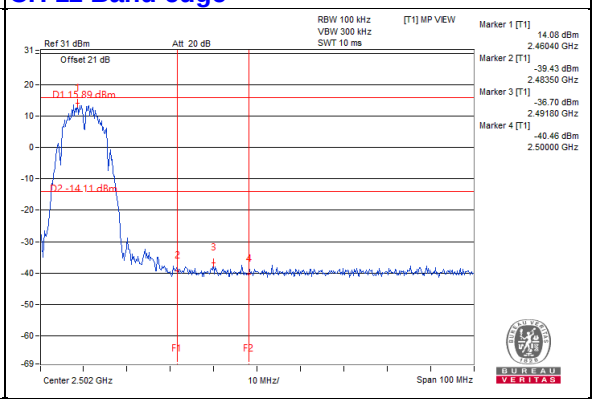
CH 11



CH 1 Band edge

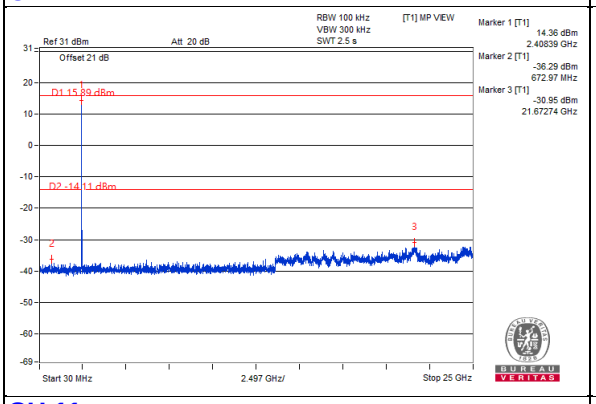


CH 11 Band edge

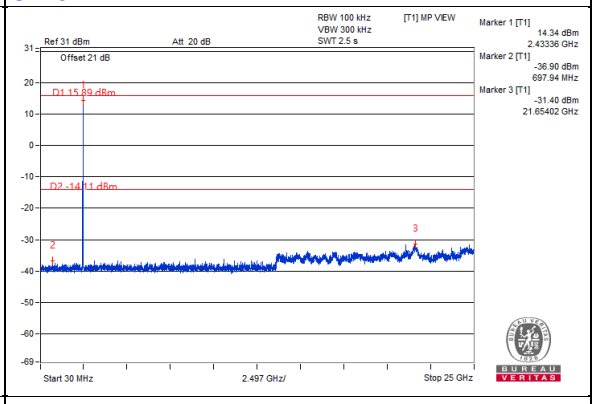


Chain 1

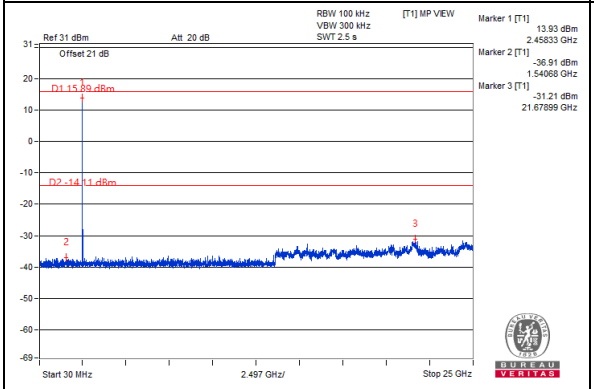
CH 1



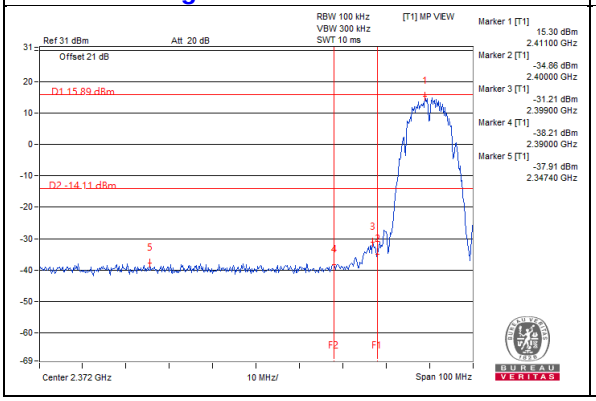
CH 6



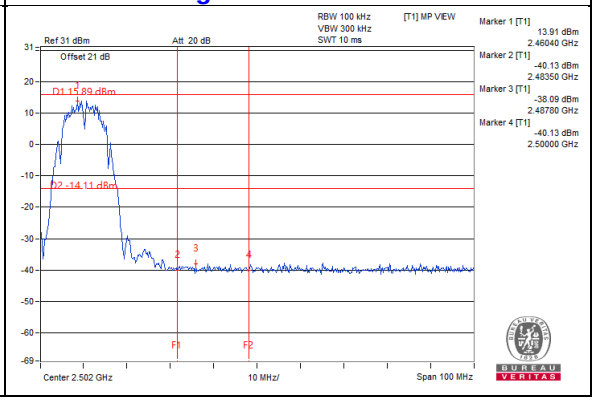
CH 11



CH 1 Band edge

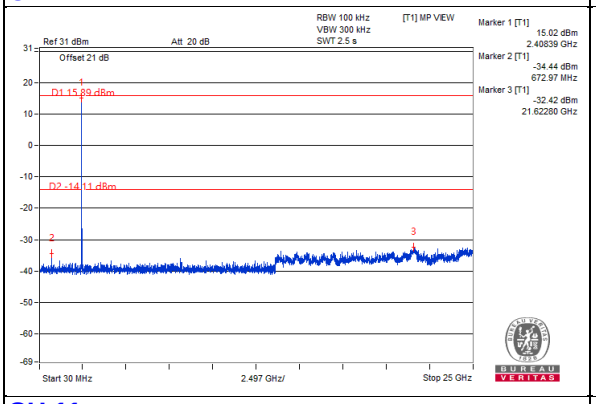


CH 11 Band edge

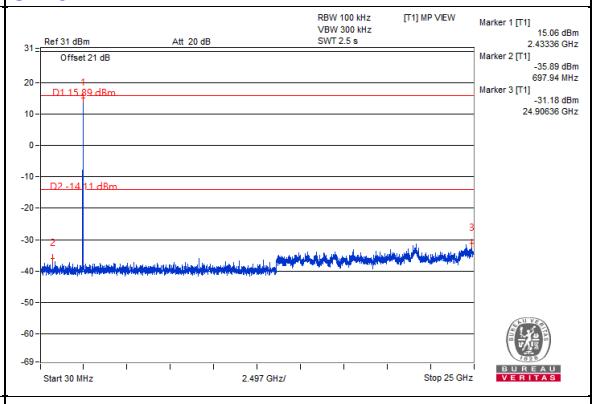


Chain 2

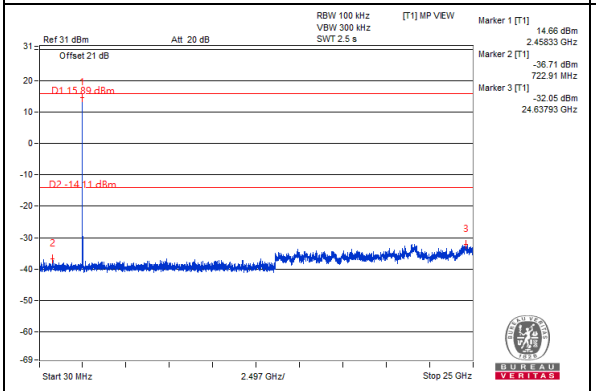
CH 1



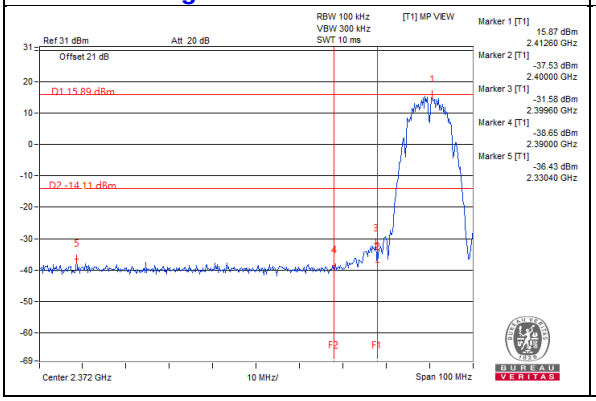
CH 6



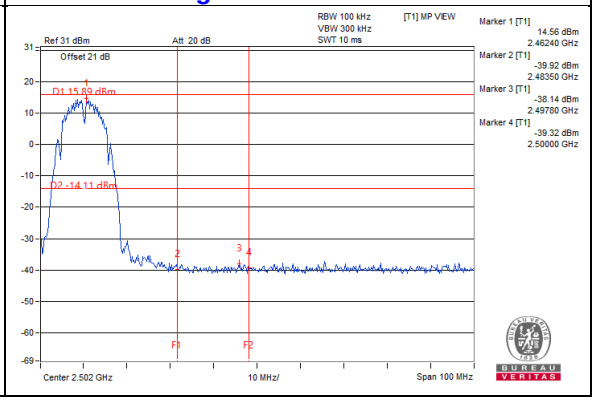
CH 11



CH 1 Band edge

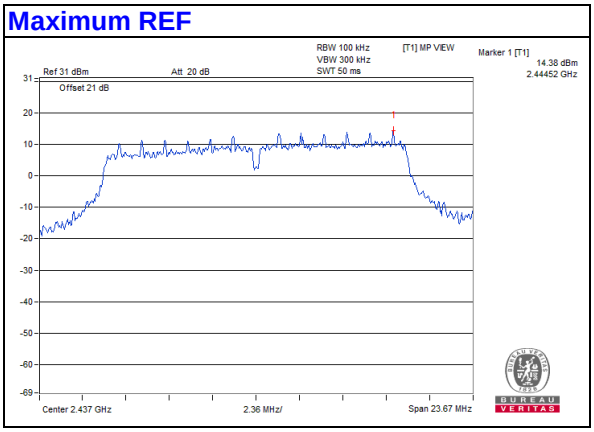


CH 11 Band edge



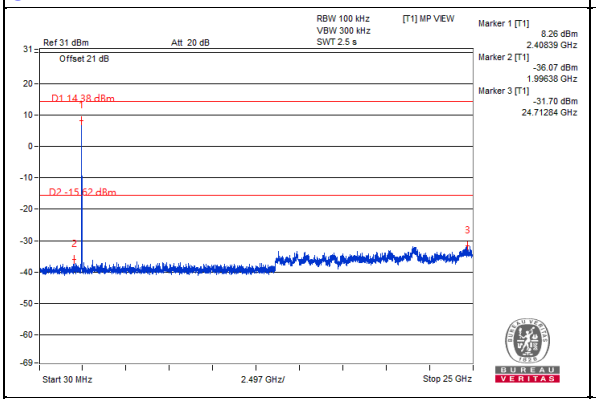
802.11g

Maximum REF

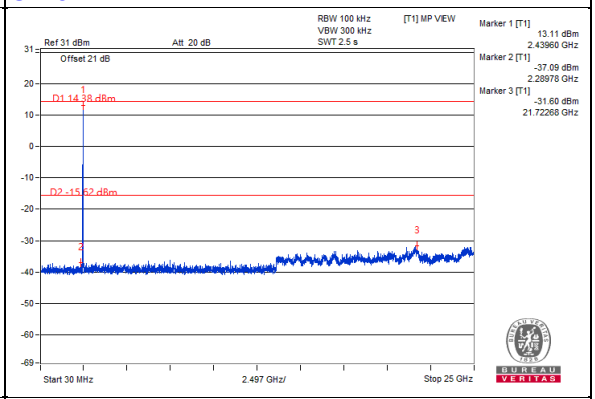


Chain 0

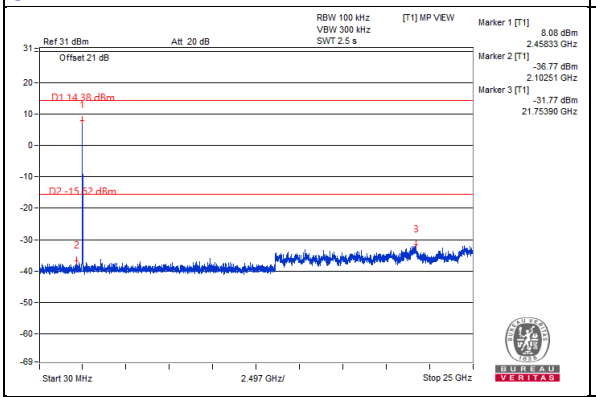
CH 1



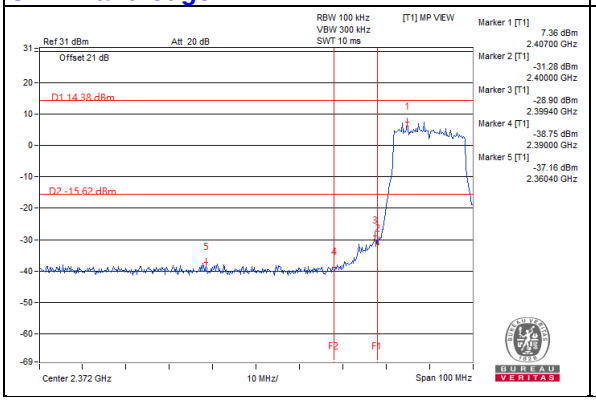
CH 6



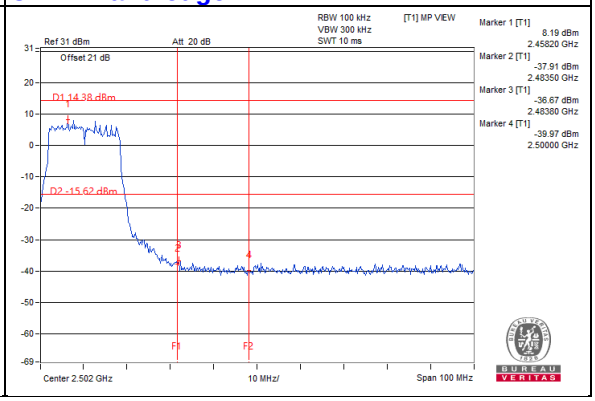
CH 11



CH 1 Band edge

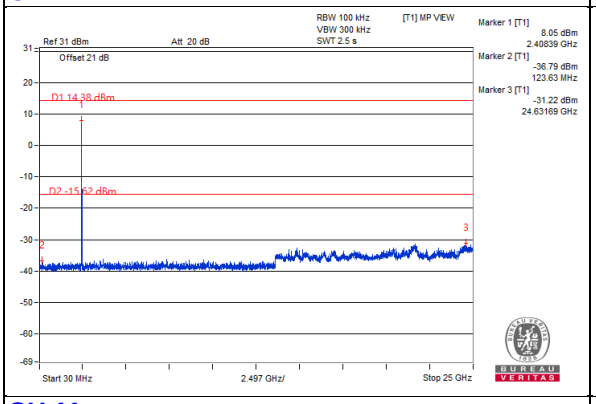


CH 11 Band edge

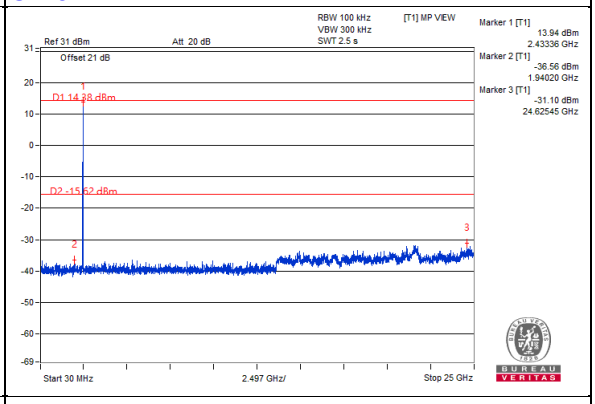


Chain 1

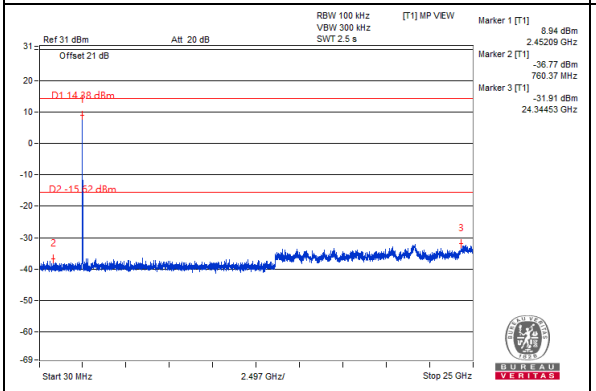
CH 1



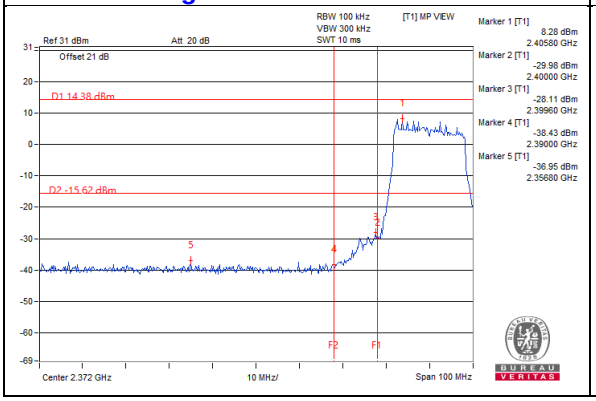
CH 6



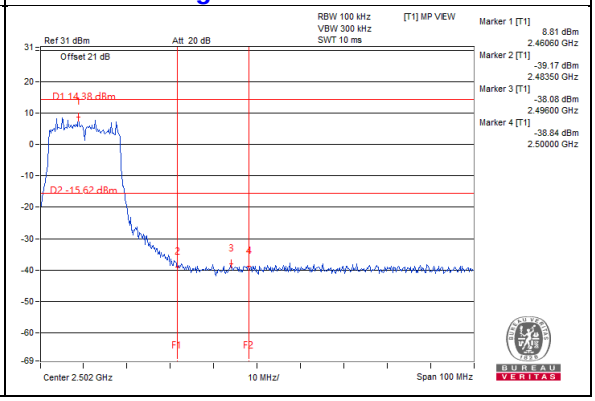
CH 11



CH 1 Band edge

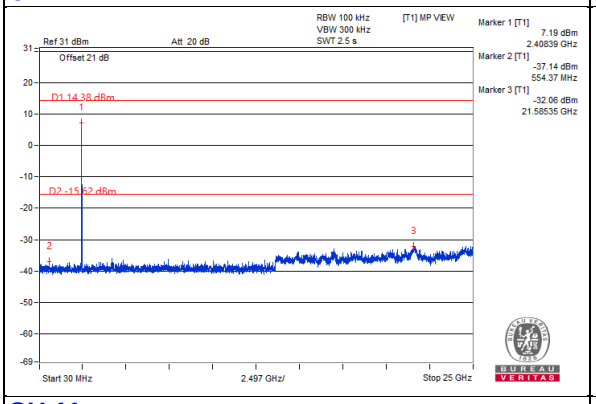


CH 11 Band edge

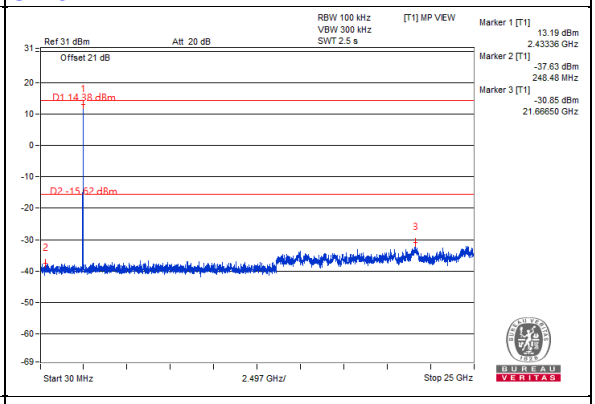


Chain 2

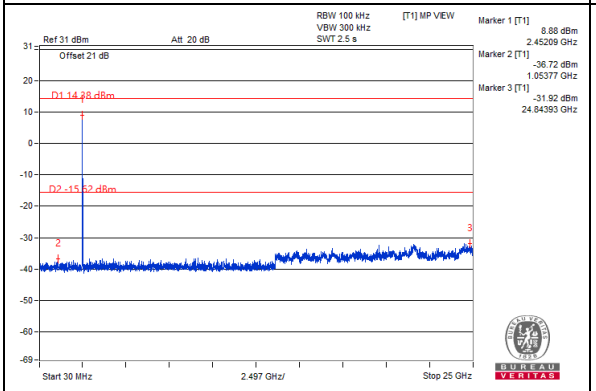
CH 1



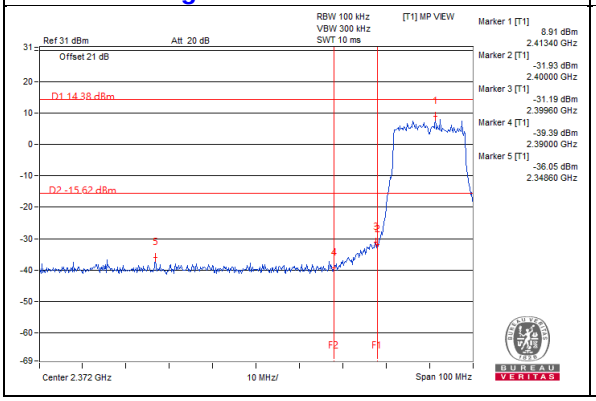
CH 6



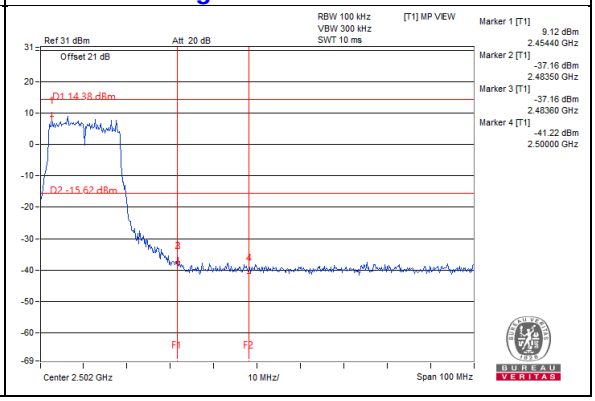
CH 11



CH 1 Band edge

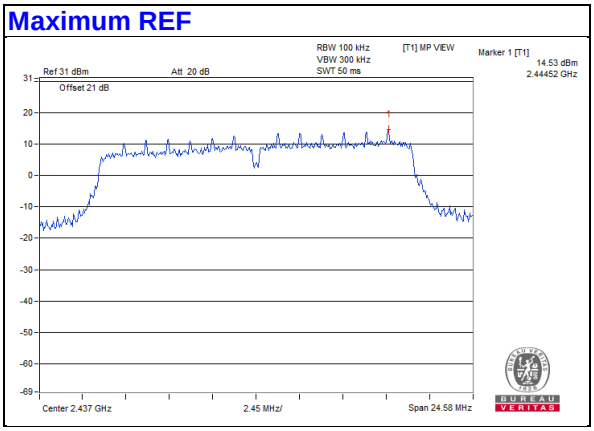


CH 11 Band edge



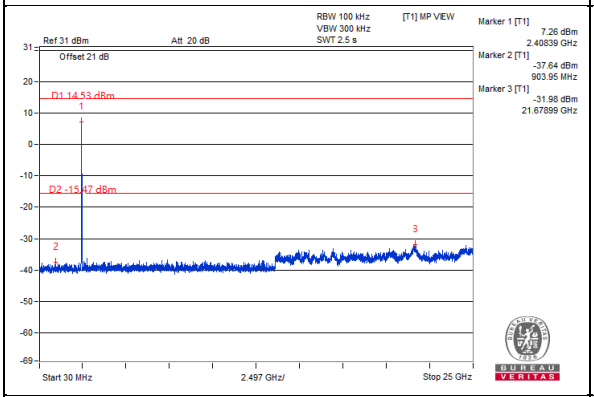
VHT20

Maximum REF

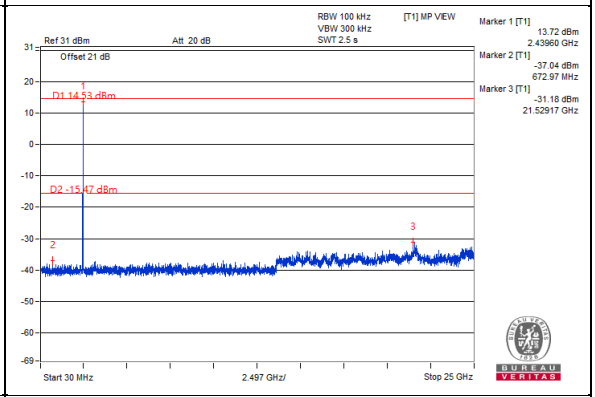


Chain 0

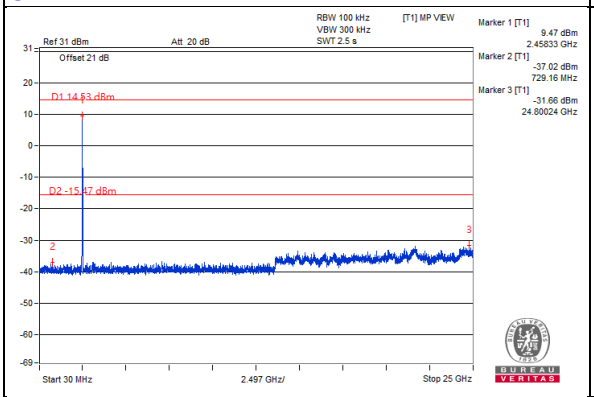
CH 1



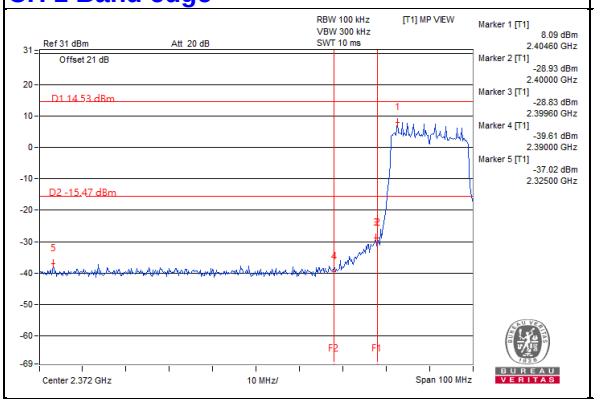
CH 6



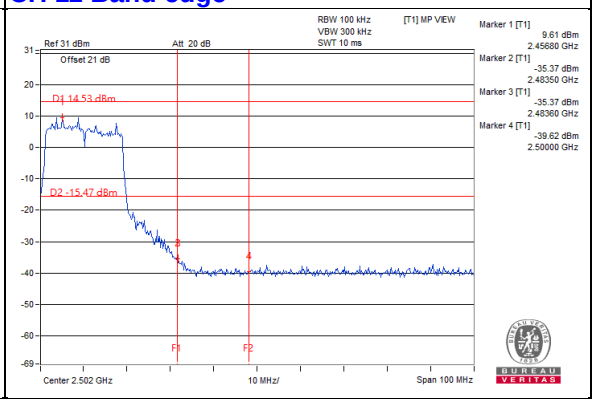
CH 11



CH 1 Band edge

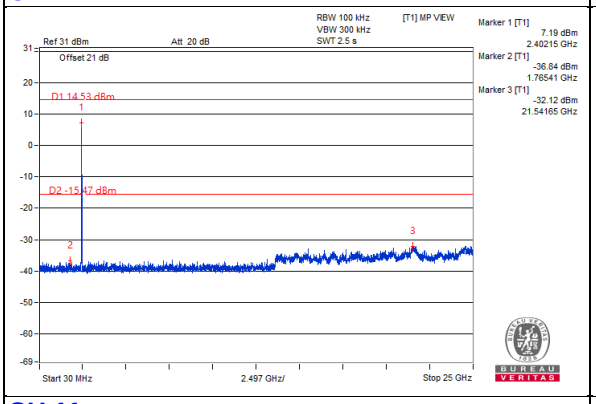


CH 11 Band edge

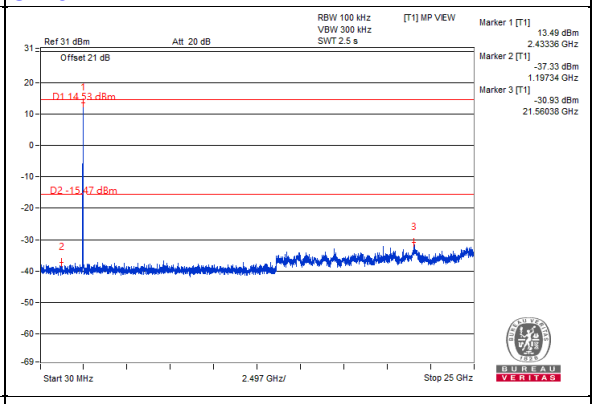


Chain 1

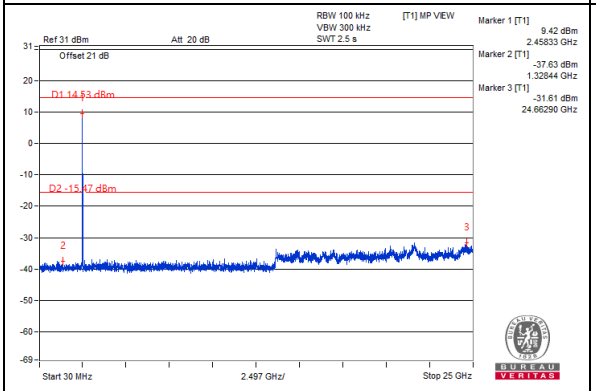
CH 1



CH 6



CH 11



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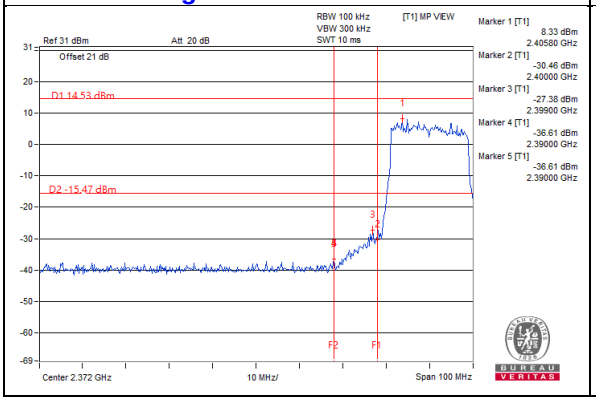

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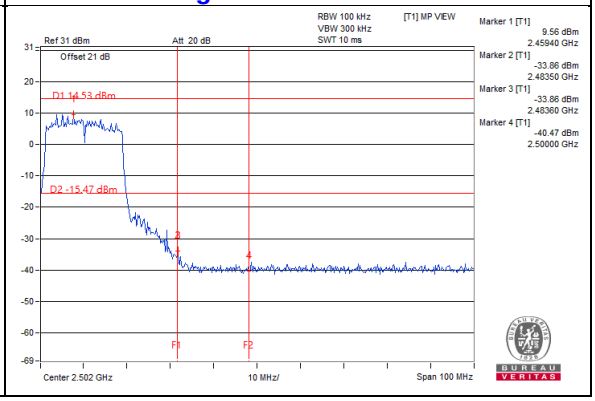
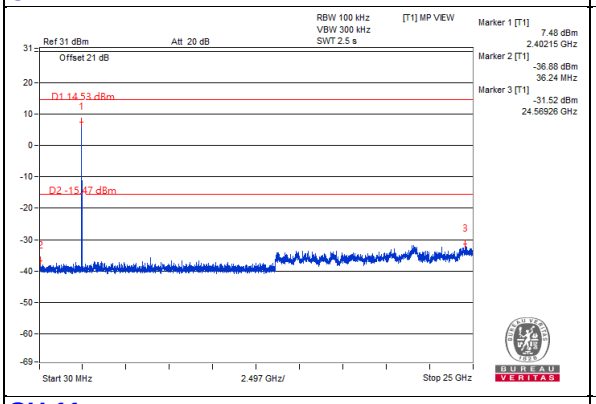


Chain 2

CH 1



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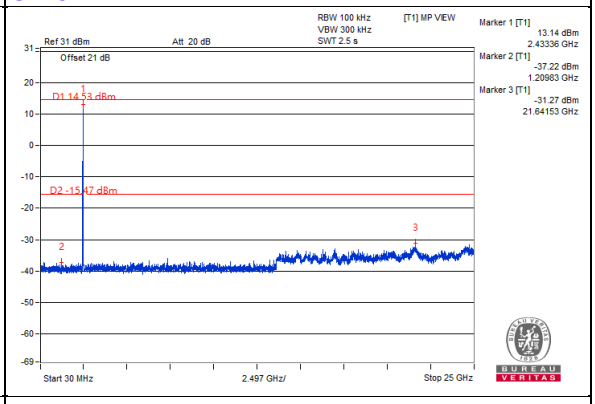

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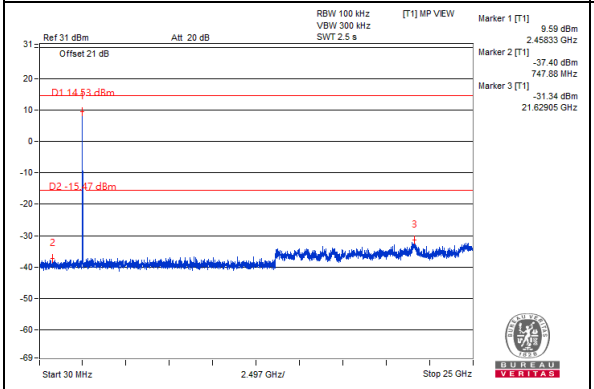

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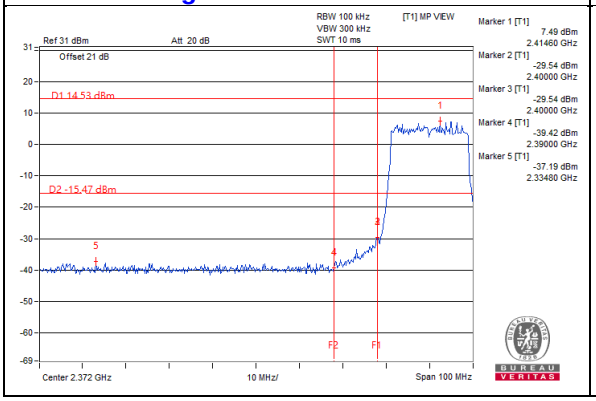
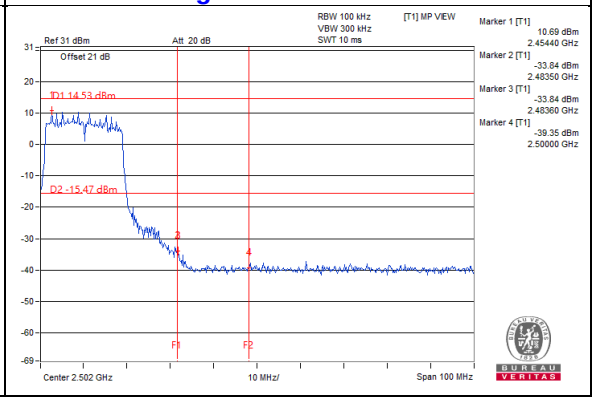
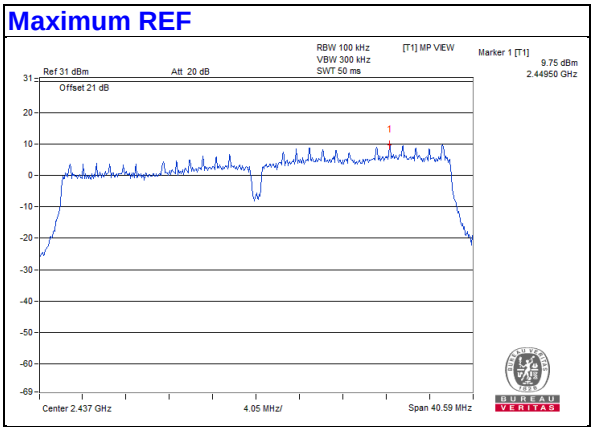


CH 11 Band edge



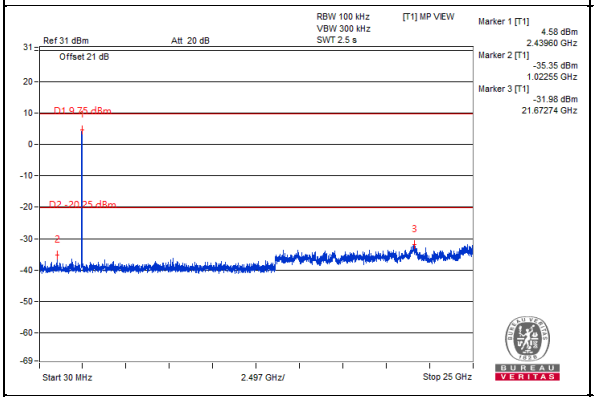
VHT40

Maximum REF

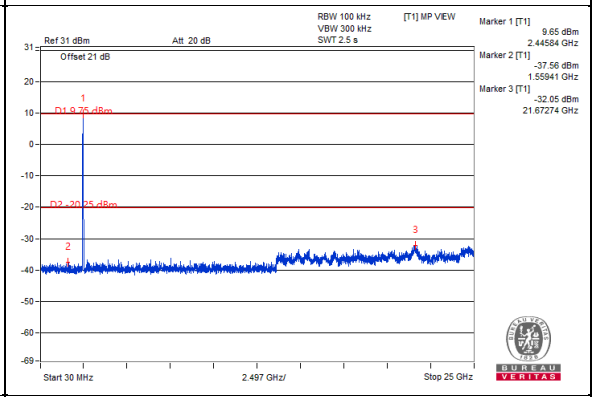


Chain 0

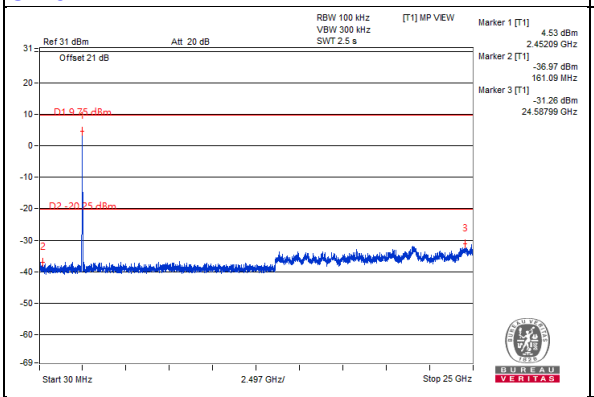
CH 3



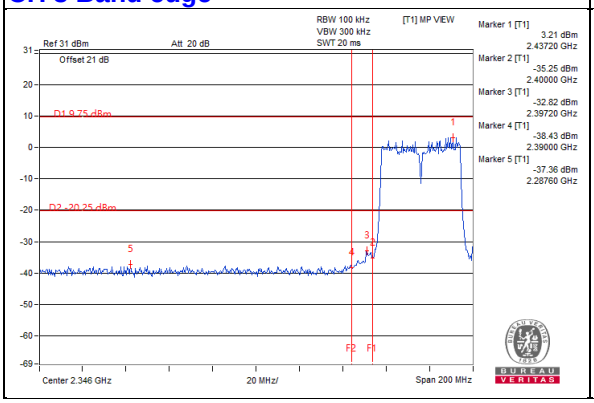
CH 6



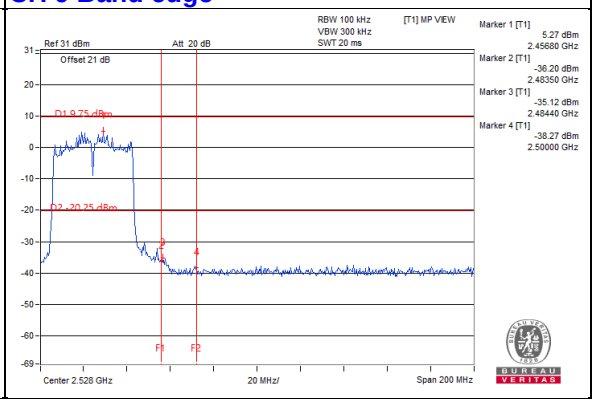
CH 9



CH 3 Band edge

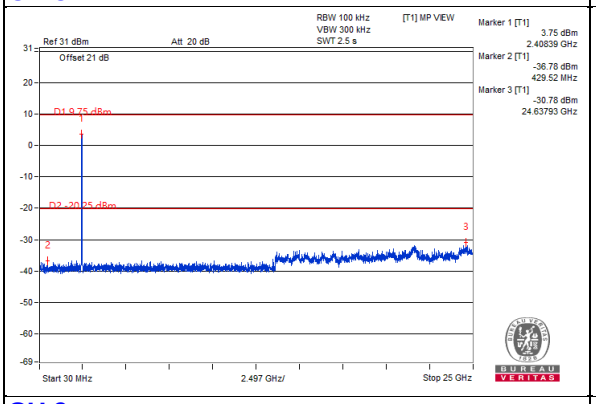


CH 9 Band edge

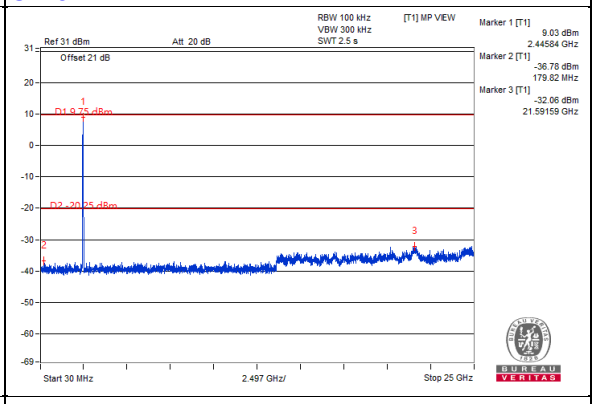


Chain 1

CH 3



CH 6



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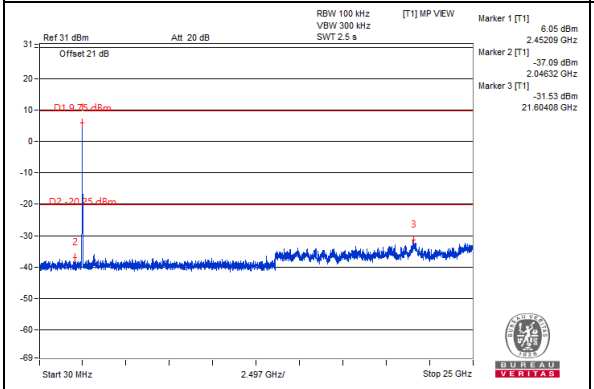
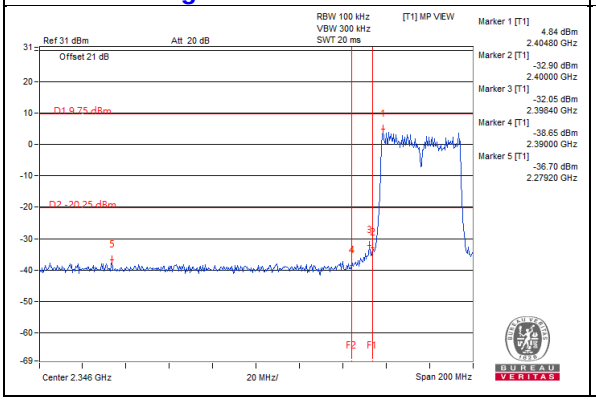
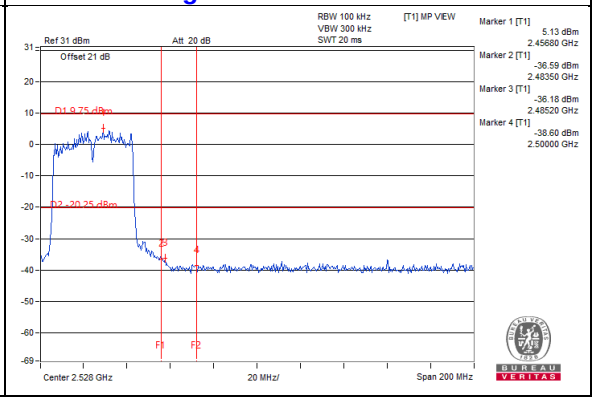


CH 3 Band edge

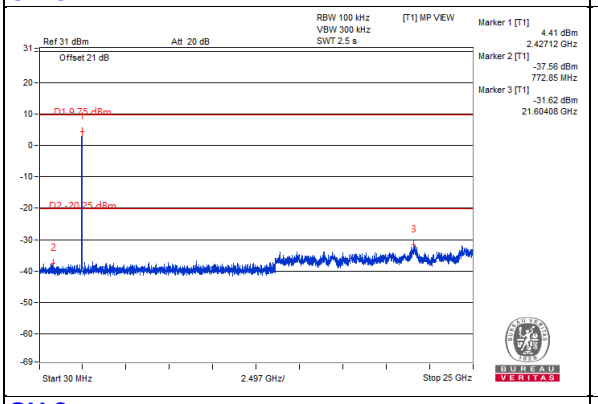


CH 9 Band edge

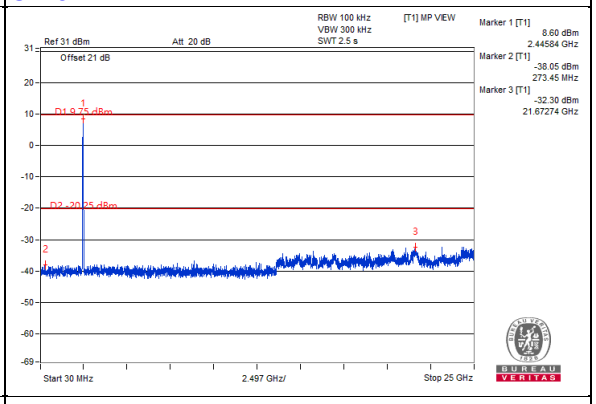


Chain 2

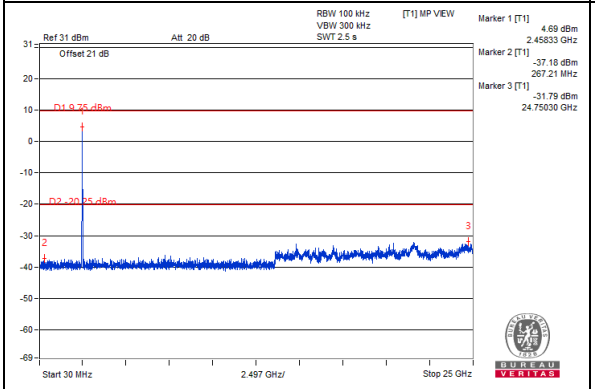
CH 3



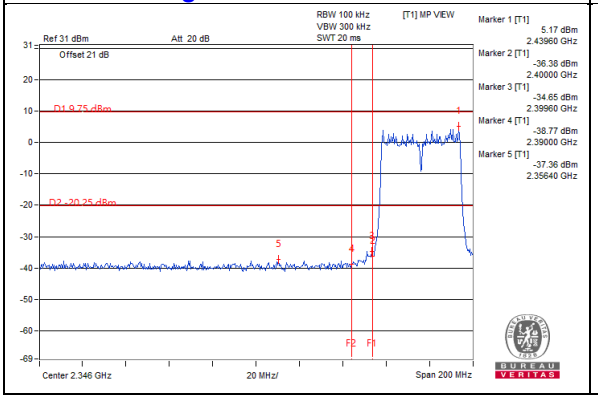
CH 6



CH 9



CH 3 Band edge



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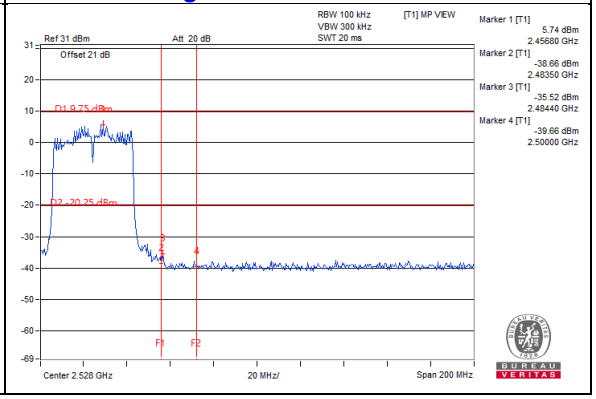

5 Pictures of Test Arrangements

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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