

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Report No.: RFBENL-WTW-P24060724B-5

FCC ID: RYK-WNFQ291BEBT

Product: WiFi 7/BT module

Brand: Sparklan

Model No.: WNFQ-292BE(BT)

Series Model: WNFQ-291BE(BT), WNFQ-291BEI(BT)

Received Date: 2025/3/5

Test Date: 2025/5/2 ~ 2025/8/16

Issued Date: 2025/9/18

Applicant: SparkLAN Communications, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 723255 / TW2022

Designation Number:

Approved by: _____, Date: 2025/9/18
May Chen / Manager

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Prepared by : Claire Kuan / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBENL-WTW-P24060724B-5	Original release.	2025/9/18

1 Certificate

Product: WiFi 7/BT module

Brand: Sparklan

Test Model: WNFQ-292BE(BT)

Series Model: WNFQ-291BE(BT), WNFQ-291BEI(BT)

Sample Status: Engineering sample

Applicant: SparkLAN Communications, Inc.

Test Date: 2025/5/2 ~ 2025/8/16

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Measurement procedure: ANSI C63.10-2020
KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247 (a)(1)	RF Output Power	Pass	Meet the requirement of limit.
15.247(a)(1) (iii)	Number of Hopping Frequency Used	N/A	Refer to Note 1 below
15.247(a)(1) (iii)	Dwell Time on Each Channel	N/A	Refer to Note 1 below
15.247(a)(1)	Hopping Channel Separation	N/A	Refer to Note 1 below
15.247(a)(1)	20 dB Bandwidth	N/A	Refer to Note 1 below
15.247(d)	Conducted Out of Band Emissions	N/A	Refer to Note 1 below
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -13.26 dB at 25.11719 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.2 dB at 32.40 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -7.29 dB at 23692.1 MHz
15.203	Antenna Requirement	Pass	Antenna connector is MHF 4L, I-PEX MHF4, RP-SMA (M), MHF4L to SMA-F not a standard connector.

Notes:

- Only RF Output Power, AC Power Conducted Emissions and Unwanted Emissions test items were performed for this addendum. The others testing data refer to original test report (Report No.: RFBENL-WTW-P24060724-5).
- 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	Specification	Expanded Uncertainty (k=2) (±)
RF Output Power	-	1.1 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.1 dB
	18 GHz ~ 40 GHz	5.3 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	WiFi 7/BT module
Brand	Sparklan
Test Model	WNFQ-292BE(BT)
Series Model	WNFQ-291BE(BT), WNFQ-291BEI(BT)
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8DPSK
Modulation Technology	FHSS
Transfer Rate	Up to 3 Mbps
Operating Frequency	2.402 GHz ~ 2.48 GHz
Number of Channel	79
Output Power	24.099 mW (13.82 dBm)

Note:

- This report is prepared for FCC Class II permissive change. The difference compared with the Report No.: RFBENL-WTW-P24060724-5 design is as the following information:
 - ◆ Add model: WNFQ-292BE(BT)
 - ◆ Add 2nd source pin to pin chip: QCC2076 for model WNFQ-292BE(BT).
 - ◆ Disable WiFi-7 bandwidth 320 MHz for model WNFQ-292BE(BT).
 - ◆ Upgraded standard version.
 - ◆ Remove NPTH for WNFQ-292BE(BT)
- According to above conditions, there are RF Output Power, AC Power Conducted Emissions and Unwanted Emissions test items need to be performed. All data for meeting the requirement is verified.
- All models are listed as below.

Brand	Model	Difference
Sparklan	WNFQ-291BE(BT)	All models are electrically identical, different model names are for marketing purpose.
	WNFQ-291BEI(BT)	
	WNFQ-292BE(BT)	1. Chip QCC2076 2. Disable WiFi-7 bandwidth 320 MHz

From the above models, model: WNFQ-292BE(BT) was selected as representative model for the test and its data was recorded in this report.

- There are Bluetooth (EDR, BLE, QHS) and WLAN (2.4 GHz & 5 GHz & 5.9 GHz & 6 GHz) technology used for the EUT.
- Simultaneously transmission combination.

DBS			
Combination	Technology		
1	WLAN(2.4GHz)_Ant 0+1		WLAN(5GHz) _Ant 0+1
2	WLAN(2.4GHz) _Ant 0+1		WLAN(6GHz) _Ant 0+1
HBS+BT			
Combination	Technology		
3	Bluetooth _Ant 0+1		WLAN(5GHz) _Ant 0+1
4	Bluetooth _Ant 0+1		WLAN(6GHz) _Ant 0+1
5	WLAN(5GHz_U-NII-1, U-NII-2A)_Ant 0+1	WLAN(5GHz_U-NII-2C, U-NII-3, U-NII-4) _Ant 0+1	Bluetooth
6	WLAN(5GHz_U-NII-1, U-NII-2A)_Ant 0+1	WLAN(6GHz) _Ant 0+1	Bluetooth

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

- 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 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain0/1	Hong-Bo	260-25094	3.53	2.4~2.4835	0.74	PIFA	MHF 4L	300
				3.06	5.15~5.25	1.16			
				3.07	5.25~5.35	1.18			
				4.81	5.47~5.725	1.26			
				4.2	5.725~5.850	1.28			
2	Chain0/1	Hong-Bo	260-25083	5.09	5.850~5.895	1.29	PIFA	MHF 4L	300
				5.14	5.925~6.425	1.35			
				5.09	6.425~6.525	1.38			
				5.16	6.525~6.875	1.45			
				5.12	6.875~7.125	1.50			
3	Chain0/1	Hong-Bo	260-25084	3.22	2.4~2.4835	0.49	Monopole	MHF 4L	200
				3.35	5.150~5.250	0.76			
				3.42	5.250~5.350	0.77			
				4.77	5.470~5.725	0.80			
				4.72	5.725~5.850	0.84			
				4.71	5.850~5.895	0.84			
				4.75	5.925~6.425	0.86			
				4.29	6.425~6.525	0.91			
				4.81	6.525~6.875	0.96			
				4.74	6.875~7.125	0.98			
Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)	
4	Chain0/1	SparkLAN	AD-513AX	3.11	2.4~2.4835	Dipole	I-PEX MHF4	150	
				4.46	5.150~5.850				
				4.07	5.850~5.895				
				4.53	5.925~6.425				
				4.06	6.425~6.525				
				4.04	6.525~6.875				
				3.97	6.875~7.125				
5	Chain0/1	SparkLAN	AD-510AX	2.27	2.4~2.4835	Dipole	RP-SMA (M)	150	
				2.88	5.150~5.850				
				2.6	5.850~5.895				
				3.23	5.925~6.425				
				3.34	6.425~6.525				
				3.52	6.525~6.875				
				3.52	6.875~7.125				
6	Chain0/1	SparkLAN	AD-512AX	2.35	2.4~2.4835	Dipole	RP-SMA (M)	150	
				3.00	5.150~5.850				
				2.80	5.850~5.895				
				2.87	5.925~6.425				
				3.02	6.425~6.525				
				3.02	6.525~6.875				
				2.61	6.875~7.125				
7	Chain0/1	SparkLAN	AD-516AX	1.65	2.4~2.4835	Dipole	I-PEX MHF4	250	
				4.3	5.150~5.850				
				4.38	5.850~5.895				
				4.43	5.925~6.425				
				4.45	6.425~6.525				
				4.46	6.525~6.875				
				4.48	6.875~7.125				
8	Chain0/1	Johanson	2450AD18A6050	2	2.4~2.4835	Chip	MHF4L to SMA-F	-	
				1.5	5.150~5.850				
				2.7	5.850~5.895				
				2.7	5.925~6.425				
				2.7	6.425~6.525				
				2.7	6.525~6.875				
				2.7	6.875~7.125				

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.3 Channel List

79 channels are provided for BT-EDR:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

3.4 Test Mode Applicability and Tested Channel Detail

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

Test Item	EUT Configure Mode	Tested Channel	Tx Antenna	Modulation	Data Rate Parameter
RF Output Power	-	0, 39, 78	1Tx / 2Tx	GFSK	DH5
				8DPSK	3DH5
AC Power Conducted Emissions	C	39	1Tx	GFSK	DH5
Unwanted Emissions below 1 GHz	A, B	39	1Tx	GFSK	DH5
Unwanted Emissions above 1 GHz	A, B	39, 78	1Tx / 2Tx	GFSK	DH5
				8DPSK	3DH5
EUT Configure Mode:	A	EUT only (w/o antenna)			
	B	EUT with 50 ohm terminator			
	C	EUT with Antenna			

Note:

1. For 1Tx diversity configuration the worst chain is: Chain 0
2. For unwanted emission test items, the tested channel was chosen the worst case as mode represent to report

3.5 Duty Cycle of Test Signal

GFSK 1TX: Duty cycle = 2.855 ms / 3.75 ms x 100% = 76.1%

8DPSK 1TX: Duty cycle = 2.869 ms / 3.755 ms x 100% = 76.4%

GFSK 2TX: Duty cycle = 2.85 ms / 3.765 ms x 100% = 75.7%

8DPSK 2TX: Duty cycle = 2.86 ms / 3.77 ms x 100% = 75.9%



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Dell	E6430	N/A	N/A	Supplied by applicant
B	Test Tool	Qualcomm	N/A	N/A	N/A	Supplied by applicant
C	Adapter	Dell	LLA65NS2-01	N/A	N/A	Supplied by applicant
D	Test Tool	Qualcomm	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.8	NO	1	Supplied by applicant
2	AC Cable	1	1.5	NO	0	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-20	00800A1K01A-20-02	2025/5/23	2026/5/22
Pulse Power Sensor Anritsu	MA2411B	1726434	2025/6/3	2026/6/2
RF Power Meter Anritsu	ML2495A	1529002	2025/6/3	2026/6/2

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2025/8/12

4.2 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance Telegartner	50 ohm	3	2024/11/1	2025/10/31
EMI Test Receiver R&S	ESCS 30	100375	2024/5/20	2025/5/19
Fixed Attenuator STI	STI02-2200-10	005	2025/2/17	2026/2/16
LISN R&S	ESH3-Z5	835239/001	2025/3/27	2026/3/26
		848773/004	2024/10/7	2025/10/6
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2025/2/17	2026/2/16
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2025/5/6

4.3 Unwanted Emissions below 1 GHz

Mode A

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030A	MY55330160	2025/1/16	2026/1/15
Software	ADT_RF Test Software V8	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2025/8/16

Mode B

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-361	2024/10/8	2025/10/7
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2025/2/8	2026/2/7
Loop Antenna TESEQ	HLA 6121	63620	2024/10/17	2025/10/16
MXE EMI Receiver Agilent	N9038A	MY50010156	2024/6/5	2025/6/4
Preamplifier EMCI	EMC330N	980852	2025/2/8	2026/2/7
	EMC001340	980142	2025/2/17	2026/2/16
RF Coaxial Cable PEWC	8D	001	2025/2/8	2026/2/7
		966-3-2	2025/2/8	2026/2/7
		966-3-3	2025/2/8	2026/2/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2025/5/6

4.4 Unwanted Emissions above 1 GHz

Refer to section 4.3 Mode A to get the tested date and information of the instruments.

Mode B

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-406	2024/11/10	2025/11/9
	BBHA 9170	9170-739	2024/11/10	2025/11/9
MXE EMI Receiver Agilent	N9038A	MY50010156	2024/6/5	2025/6/4
Preamplifier EMCI	EMC12630SE	980384	2025/1/14	2026/1/13
	EMC184045SE	980387	2024/8/8	2025/8/7
PXA Signal Analyzer Keysight	N9030B	MY57141948	2024/5/20	2025/5/19
RF Coaxial Cable EMCI	EMC102-KM-KM-1200	160924	2025/1/24	2026/1/23
	EMC102-KM-KM-4000	200214	2025/1/24	2026/1/23
	EMC104-SM-SM-1500	180504	2025/1/18	2026/1/17
	EMC104-SM-SM-2000	180601	2025/1/18	2026/1/17
	EMC104-SM-SM-6000	210201	2025/1/18	2026/1/17
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2025/5/2

5 Limits of Test Items

5.1 RF Output Power

The Maximum Output Power Measurement is 125 mW (21 dBm).

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.

5.2 AC Power Conducted Emissions

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

Notes:

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 0.50 MHz.

5.3 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB 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

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = $20 \log$ Emission level (uV/m).

5.4 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

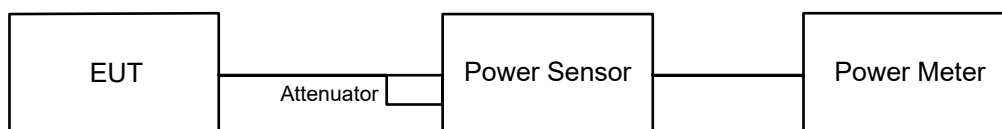
Notes:

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 1000 MHz, 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 20 dB under any condition of modulation.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



6.1.2 Test Procedure

Peak Power:

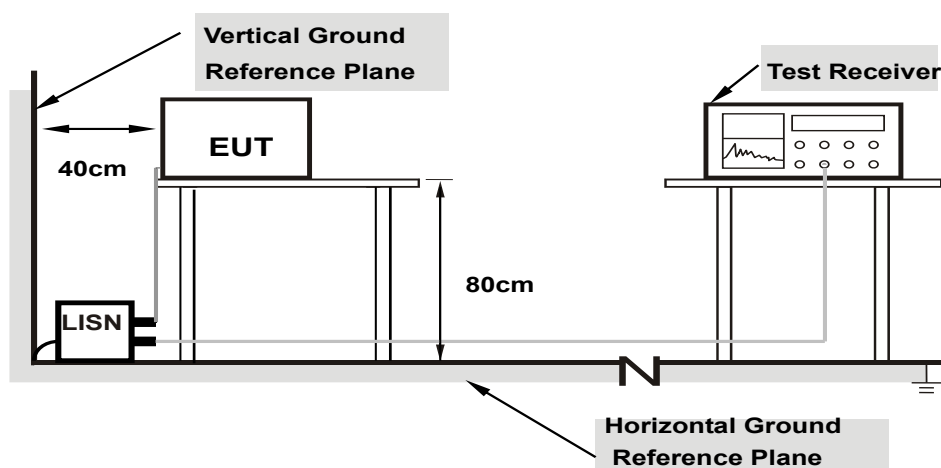
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average Power:

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.

6.2 AC Power Conducted Emissions

6.2.1 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).

6.2.2 Test Procedure

- The EUT was placed on a 0.8 meter to the top of table and 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/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

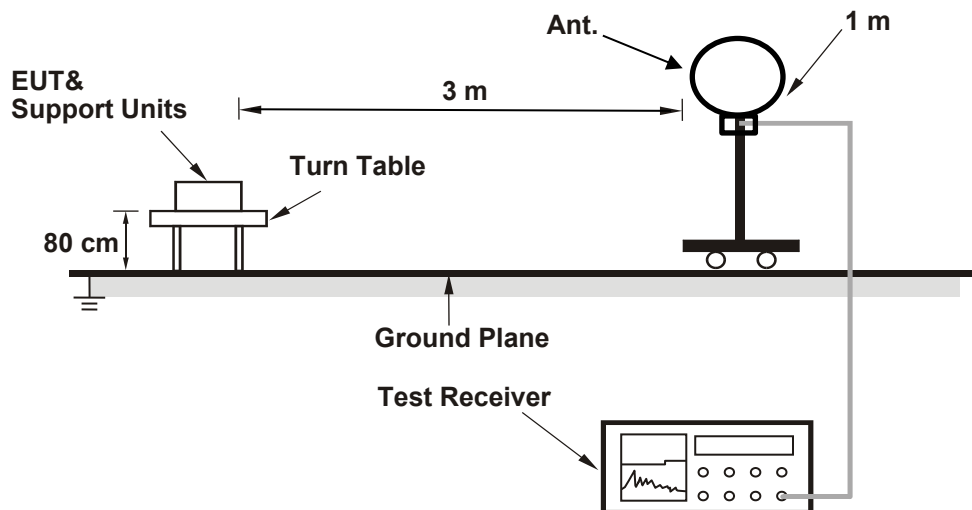
Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

6.3 Unwanted Emissions below 1 GHz

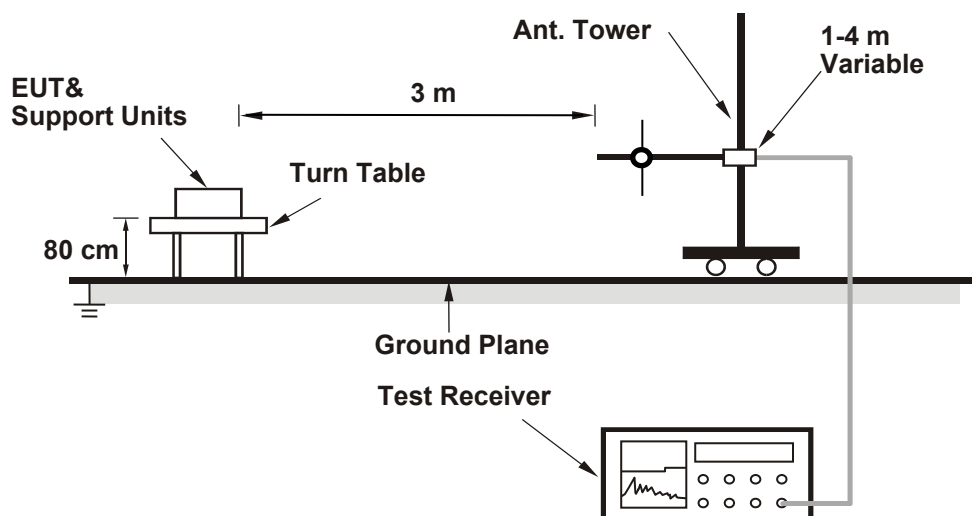
6.3.1 Test Setup

For Radiated Configuration:

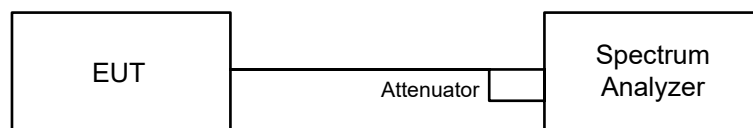
For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For Conducted Configuration:



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

6.3.2 Test Procedure

Radiated versus Conducted Measurement.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test

For Radiated emission below 30 MHz

- e-1.1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- e-1.2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- e-1.3. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- e-1.4. 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-1.5. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

- e-2.1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- e-2.2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- e-2.3. 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.
- e-2.4. 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-2.5. 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.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

Radiated versus Conducted Measurement

For Radiated measurement:

The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation).

For Conducted measurement:

The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).

Conducted Unwanted Emission Convert Formula

- a. Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.
- b. EIRP Level (dBm) = Raw Value(dBm) + Correction Factor(dB)
- c. Correction Factor is directional gain, and the composite gain will be used when signal support the correlated signal.
For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
For the band edge the gain for the specific band may have been used.

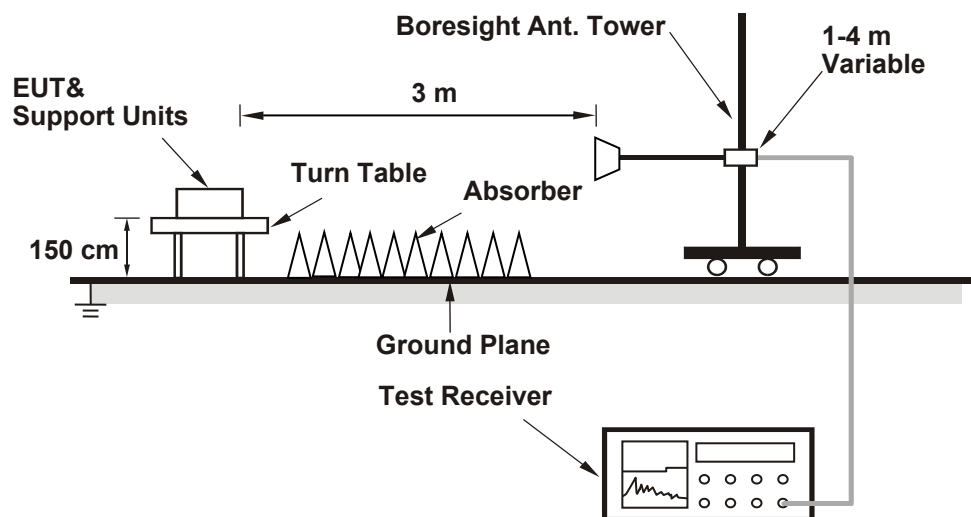
Notes:

1. In restricted bands below 1000 MHz, add upper bound on ground plane reflection:
For frequencies between 30 MHz and 1000 MHz, add 4.7 dB.
2. The conducted emission test was considered some factor to compute test result.

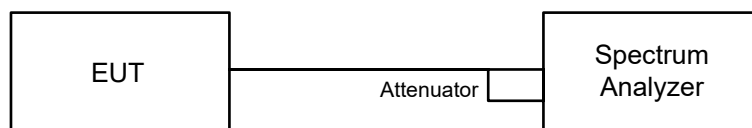
6.4 Unwanted Emissions above 1 GHz

6.4.1 Test Setup

For Radiated Configuration:



For Conducted Configuration:



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

6.4.2 Test Procedure

Radiated versus Conducted Measurement.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test
 - e-1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
 - e-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - e-3. 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.

- e-4. 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-5. 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.

Notes:

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

Radiated versus Conducted Measurement

For Radiated measurement:

The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation).

For Conducted measurement:

The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).

For Verified radiated measurement:

The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation).

Conducted Unwanted Emission Convert Formula

a. Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

b. EIRP Level (dBm) = Raw Value(dBm) + Correction Factor(dB).

c. Correction Factor is directional gain, and the composite gain will be used when signal support the correlated signal.

For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.

For the band edge the gain for the specific band may have been used.

Note: The conducted emission test was considered some factor to compute test result.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Ko
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For Peak Power

GFSK 1TX

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	24.099	13.82	21	Pass
39	2441	22.594	13.54	21	Pass
78	2480	23.335	13.68	21	Pass

Note: The antenna gain is 3.53 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

8DPSK 1TX

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	20.893	13.20	21	Pass
39	2441	19.409	12.88	21	Pass
78	2480	19.099	12.81	21	Pass

Note: The antenna gain is 3.53 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

GFSK 2TX

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
0	2402	9.70	10.68	21.028	13.23	20.46	Pass
39	2441	9.92	10.80	21.84	13.39	20.46	Pass
78	2480	9.52	10.77	20.894	13.20	20.46	Pass

Notes:

1. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
2. The directional gain is 6.54 dBi $>$ 6 dBi, so the output power limit shall be reduced to $21 - (6.54 - 6) = 20.46$ dBm.

8DPSK 2TX

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
0	2402	9.00	9.95	17.829	12.51	20.46	Pass
39	2441	9.23	9.90	18.148	12.59	20.46	Pass
78	2480	8.55	9.60	16.282	12.12	20.46	Pass

Notes:

1. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
2. The directional gain is 6.54 dBi $>$ 6 dBi, so the output power limit shall be reduced to $21 - (6.54 - 6) = 20.46$ dBm.

For Average Power

GFSK 1TX

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	23.496	13.71
39	2441	21.38	13.30
78	2480	22.387	13.50

8DPSK 1TX

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	11.015	10.42
39	2441	10	10.00
78	2480	10.691	10.29

GFSK 2TX

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
0	2402	9.11	9.71	17.501	12.43
39	2441	9.35	9.60	17.73	12.49
78	2480	8.88	9.70	17.059	12.32

8DPSK 2TX

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
0	2402	5.60	6.25	7.848	8.95
39	2441	5.90	6.13	7.992	9.03
78	2480	5.20	6.09	7.376	8.68

7.2 AC Power Conducted Emissions

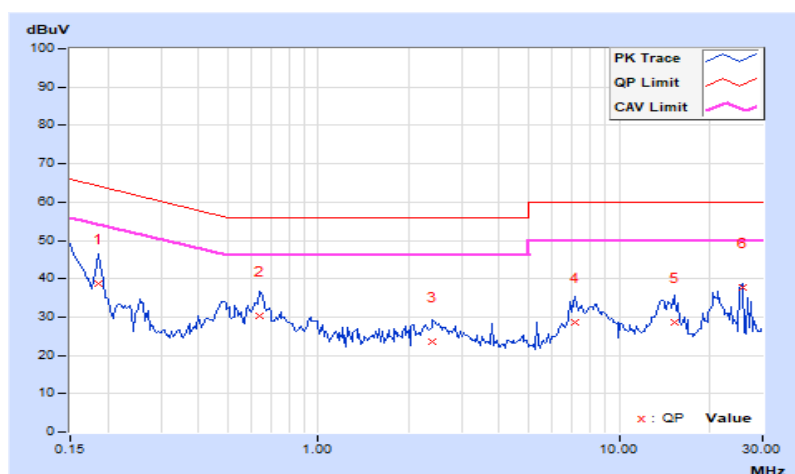
Mode C
1TX

RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 63% RH
Tested By	Louis Yang		

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	0.18516	9.98	28.82	16.96	38.80	26.94	64.25	54.25	-25.45	-27.31
2	0.64219	10.01	20.18	8.84	30.19	18.85	56.00	46.00	-25.81	-27.15
3	2.39063	10.10	13.55	8.17	23.65	18.27	56.00	46.00	-32.35	-27.73
4	7.14453	10.33	18.34	12.63	28.67	22.96	60.00	50.00	-31.33	-27.04
5	15.21094	10.70	17.94	9.54	28.64	20.24	60.00	50.00	-31.36	-29.76
6	25.87500	11.04	26.78	23.58	37.82	34.62	60.00	50.00	-22.18	-15.38

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

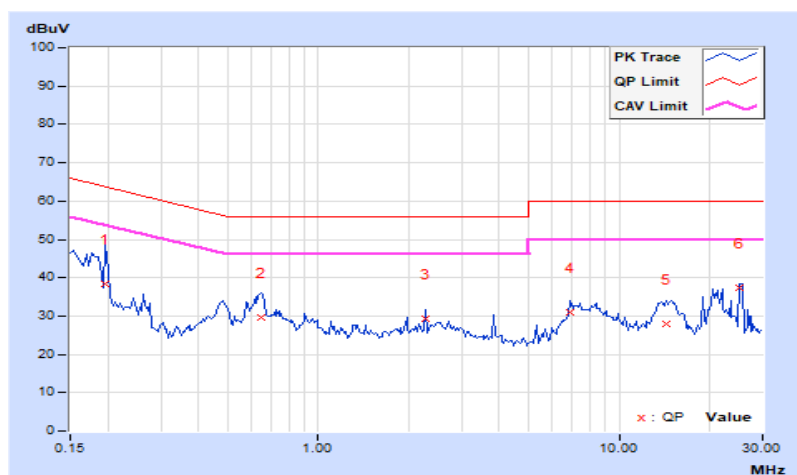


RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 63% RH
Tested By	Louis Yang		

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	0.19687	10.02	28.28	8.84	38.30	18.86	63.74	53.74	-25.44	-34.88
2	0.65000	10.02	19.61	9.39	29.63	19.41	56.00	46.00	-26.37	-26.59
3	2.28516	10.11	19.02	16.86	29.13	26.97	56.00	46.00	-26.87	-19.03
4	6.84766	10.28	20.65	16.87	30.93	27.15	60.00	50.00	-29.07	-22.85
5	14.42188	10.58	17.30	11.37	27.88	21.95	60.00	50.00	-32.12	-28.05
6	25.11719	10.84	26.48	25.90	37.32	36.74	60.00	50.00	-22.68	-13.26

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



7.3 Unwanted Emissions below 1 GHz

Mode A

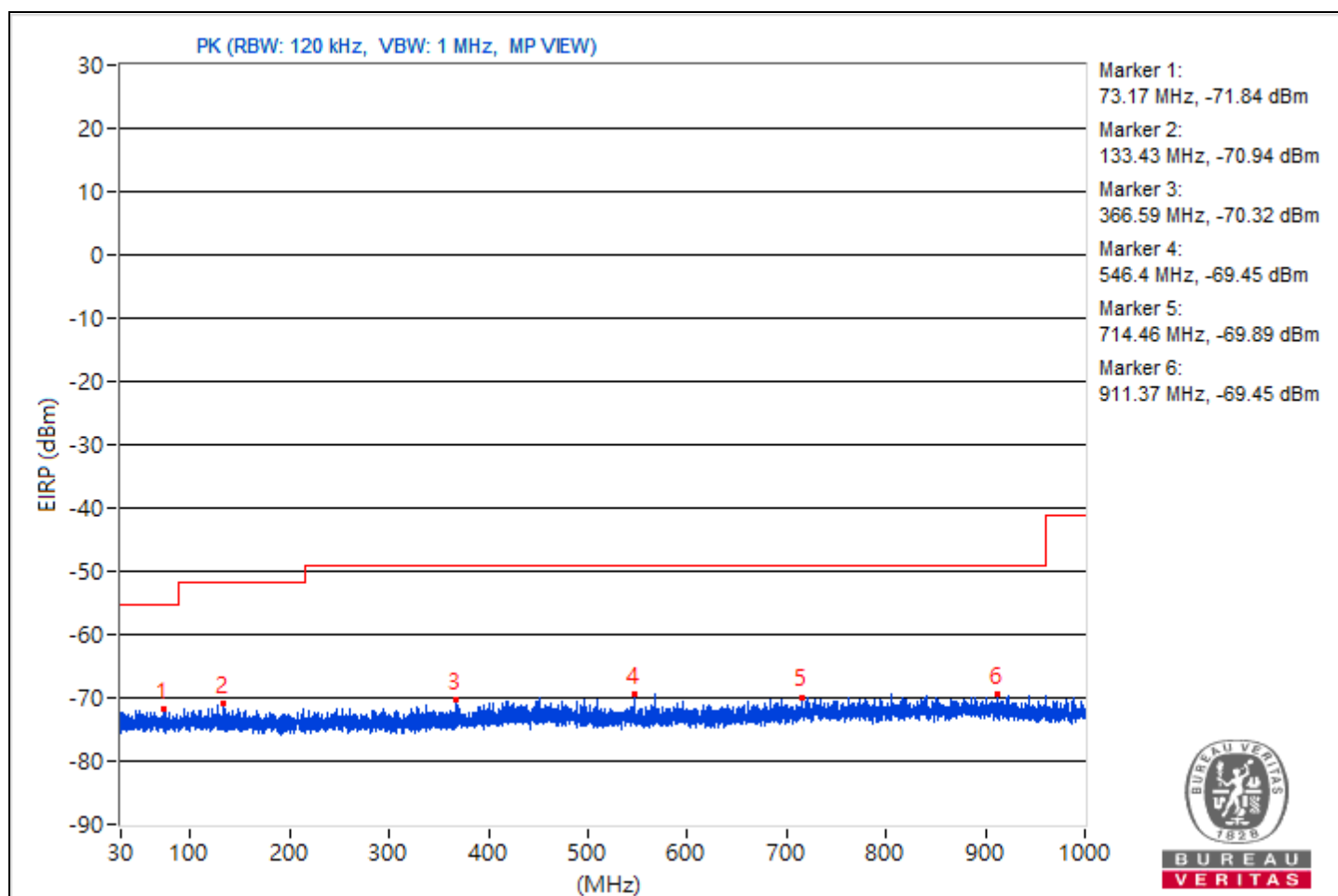
1Tx

RF Mode	GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	30 MHz ~ 1 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	73.17	23.42 PK	40	-16.58	-81.7	9.86	-71.84
2	133.43	24.32 PK	43.5	-19.18	-80.8	9.86	-70.94
3	366.59	24.94 PK	46	-21.06	-80.18	9.86	-70.32
4	546.4	25.81 PK	46	-20.19	-79.31	9.86	-69.45
5	714.46	25.37 PK	46	-20.63	-79.75	9.86	-69.89
6	911.37	25.81 PK	46	-20.19	-79.31	9.86	-69.45

Notes:

1. Margin value = Emission Level - Limit value
2. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



Mode B

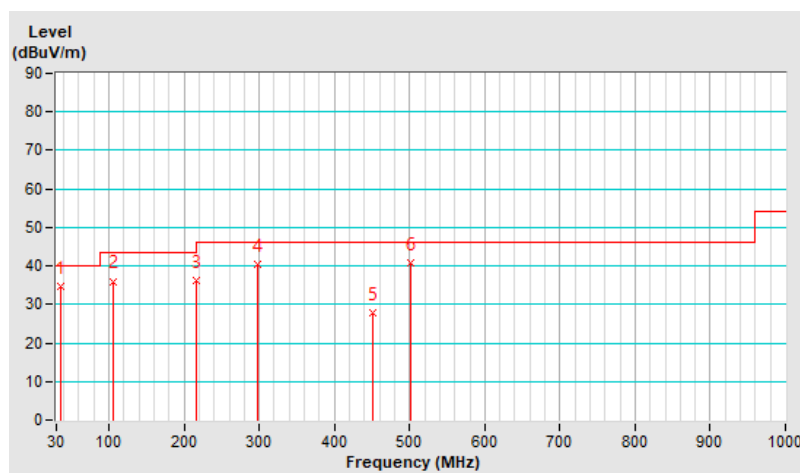
1TX

RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	24 °C, 72% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.10	34.6 QP	40.0	-5.4	1.98 H	285	47.9	-13.3
2	105.10	36.0 QP	43.5	-7.5	2.08 H	321	51.9	-15.9
3	217.00	36.3 QP	46.0	-9.7	1.68 H	157	52.4	-16.1
4	297.40	40.5 QP	46.0	-5.5	1.39 H	162	52.5	-12.0
5	451.90	27.8 QP	46.0	-18.2	3.10 H	359	35.7	-7.9
6	500.80	40.8 QP	46.0	-5.2	1.62 H	167	47.8	-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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

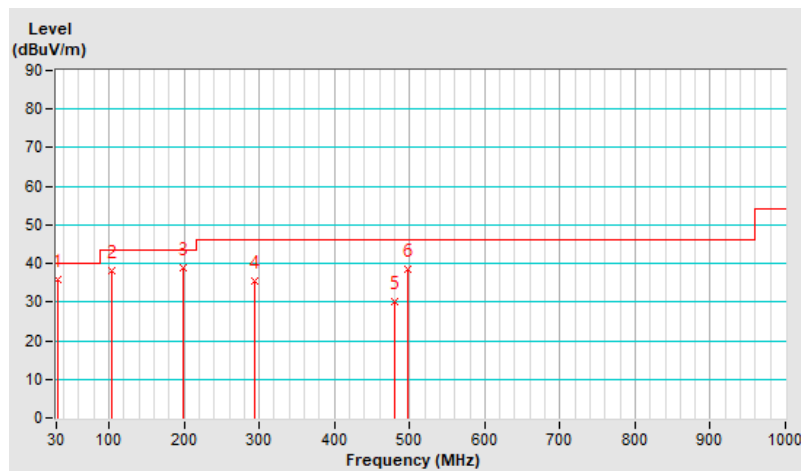


RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	24 °C, 72% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	32.40	35.8 QP	40.0	-4.2	2.95 V	271	49.0	-13.2
2	104.20	38.0 QP	43.5	-5.5	2.12 V	360	54.0	-16.0
3	199.40	38.9 QP	43.5	-4.6	1.58 V	162	54.7	-15.8
4	292.90	35.6 QP	46.0	-10.4	1.00 V	182	47.8	-12.2
5	480.30	30.1 QP	46.0	-15.9	2.06 V	175	37.4	-7.3
6	497.30	38.4 QP	46.0	-7.6	1.62 V	281	45.4	-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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.4 Unwanted Emissions above 1 GHz

Mode A

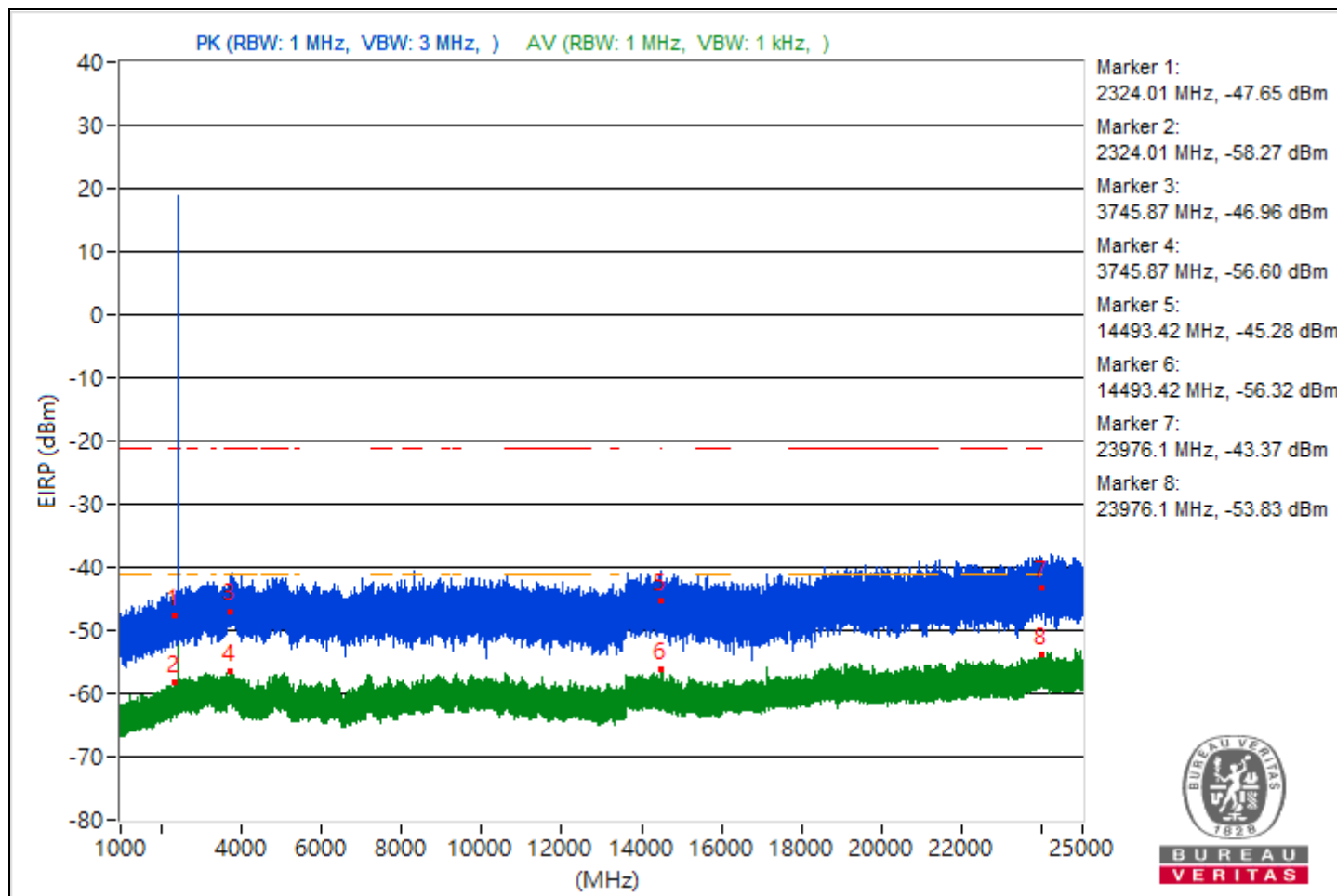
1Tx

Conducted Unwanted Emissions

RF Mode	GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2324.01	47.61 PK	74	-26.39	-52.81	5.16	-47.65
2	2324.01	36.99 AV	54	-17.01	-63.43	5.16	-58.27
3	3745.87	48.3 PK	74	-25.7	-52.12	5.16	-46.96
4	3745.87	38.66 AV	54	-15.34	-61.76	5.16	-56.6
5	14493.42	49.98 PK	74	-24.02	-50.44	5.16	-45.28
6	14493.42	38.94 AV	54	-15.06	-61.48	5.16	-56.32
7	23976.1	51.89 PK	74	-22.11	-48.53	5.16	-43.37
8	23976.1	41.43 AV	54	-12.57	-58.99	5.16	-53.83

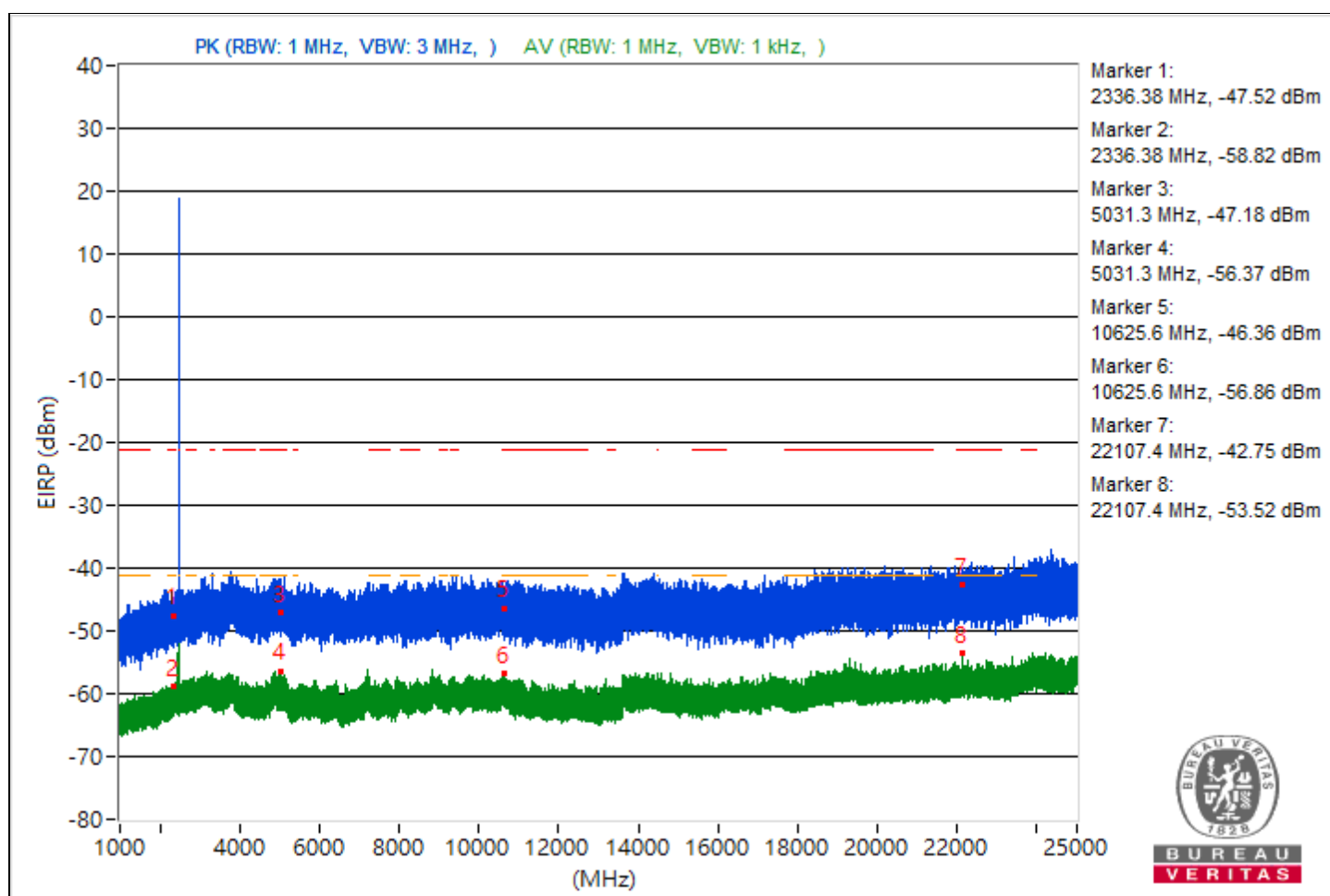
Note: Margin value = Emission Level - Limit value



RF Mode	GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2336.38	47.74 PK	74	-26.26	-52.68	5.16	-47.52
2	2336.38	36.44 AV	54	-17.56	-63.98	5.16	-58.82
3	5031.3	48.08 PK	74	-25.92	-52.34	5.16	-47.18
4	5031.3	38.89 AV	54	-15.11	-61.53	5.16	-56.37
5	10625.6	48.9 PK	74	-25.1	-51.52	5.16	-46.36
6	10625.6	38.4 AV	54	-15.6	-62.02	5.16	-56.86
7	22107.4	52.51 PK	74	-21.49	-47.91	5.16	-42.75
8	22107.4	41.74 AV	54	-12.26	-58.68	5.16	-53.52

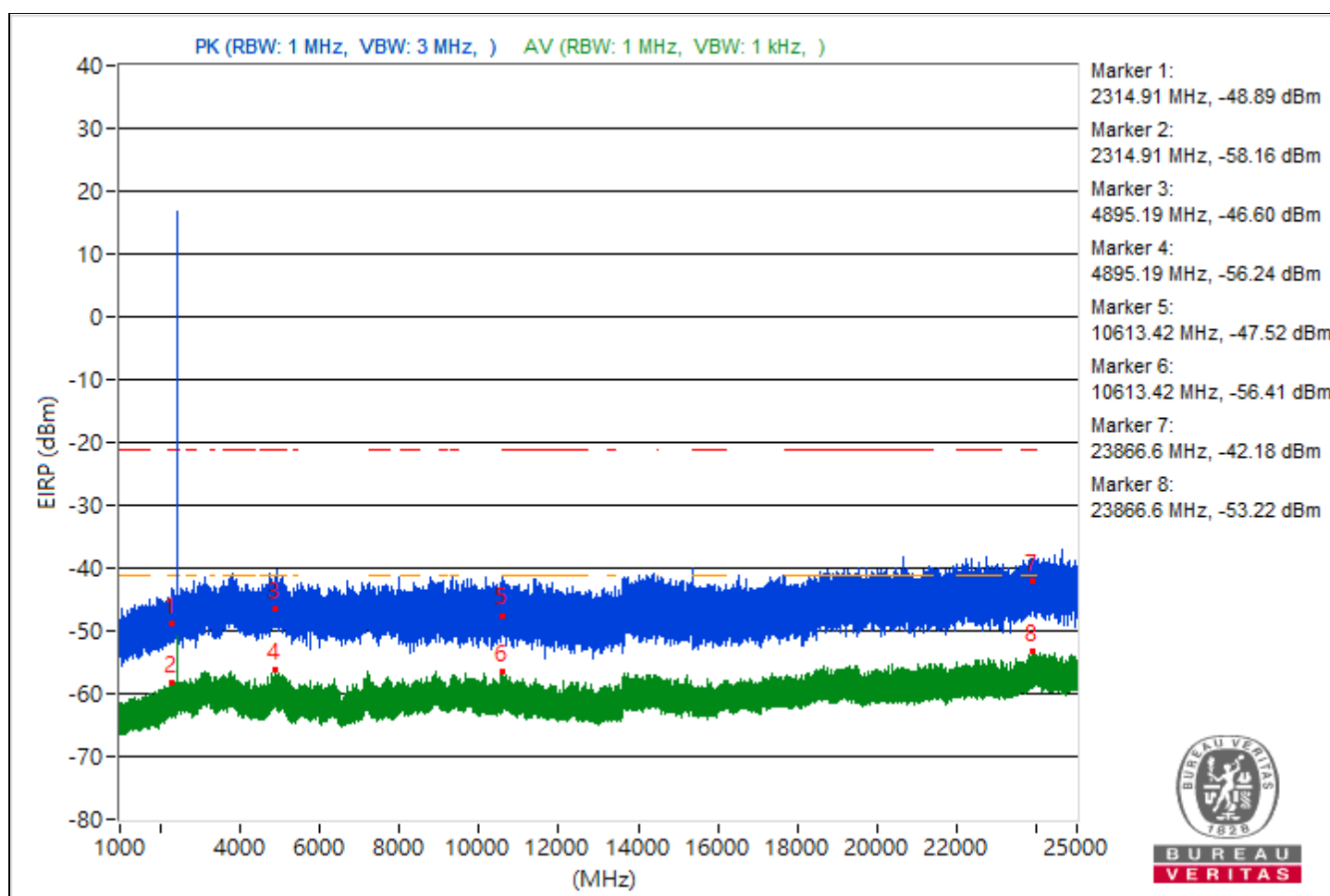
Note: Margin value = Emission Level - Limit value



RF Mode	8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2314.91	46.37 PK	74	-27.63	-54.05	5.16	-48.89
2	2314.91	37.1 AV	54	-16.9	-63.32	5.16	-58.16
3	4895.19	48.66 PK	74	-25.34	-51.76	5.16	-46.6
4	4895.19	39.02 AV	54	-14.98	-61.4	5.16	-56.24
5	10613.42	47.74 PK	74	-26.26	-52.68	5.16	-47.52
6	10613.42	38.85 AV	54	-15.15	-61.57	5.16	-56.41
7	23866.6	53.08 PK	74	-20.92	-47.34	5.16	-42.18
8	23866.6	42.04 AV	54	-11.96	-58.38	5.16	-53.22

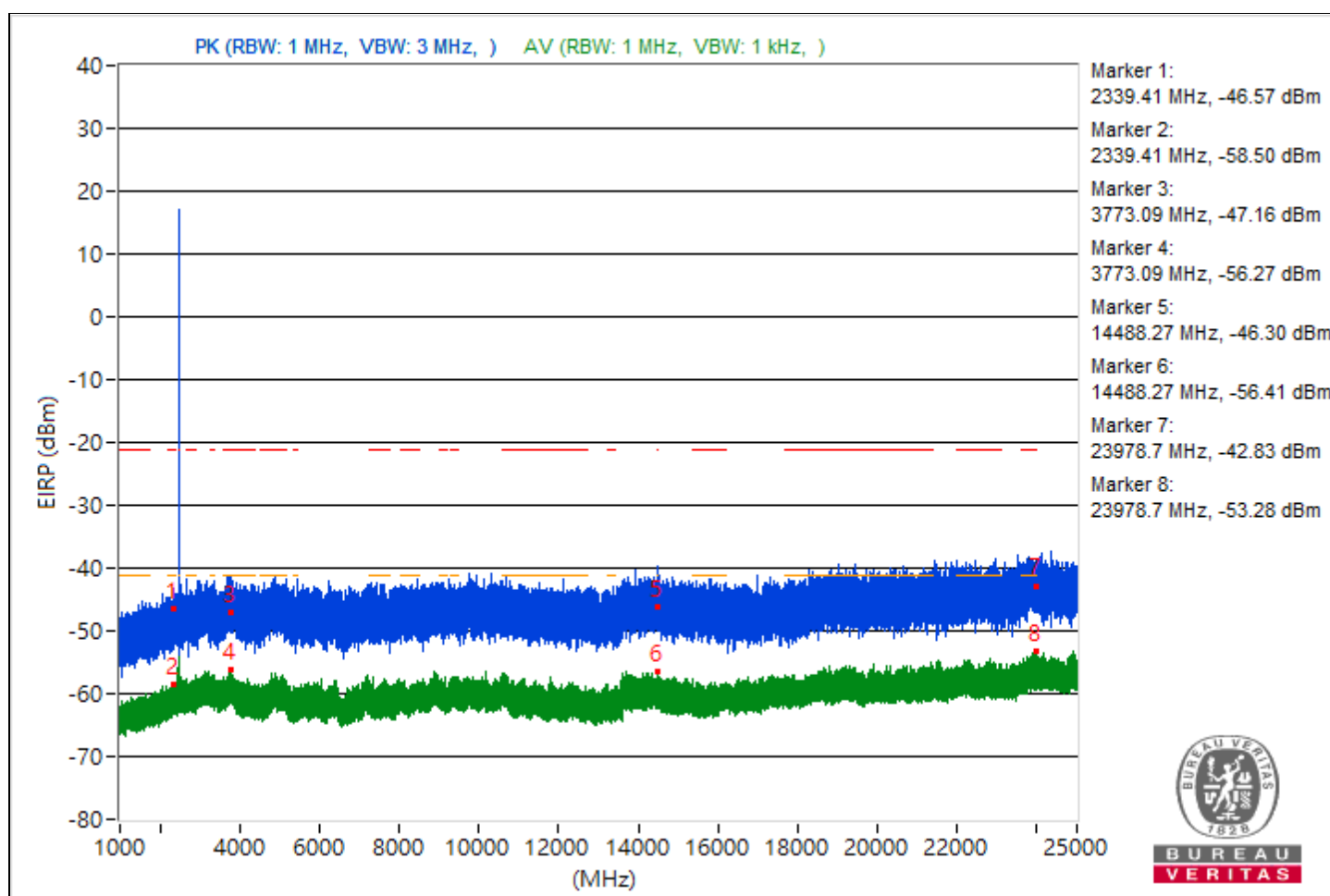
Note: Margin value = Emission Level - Limit value



RF Mode	8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2339.41	48.69 PK	74	-25.31	-51.73	5.16	-46.57
2	2339.41	36.76 AV	54	-17.24	-63.66	5.16	-58.5
3	3773.09	48.1 PK	74	-25.9	-52.32	5.16	-47.16
4	3773.09	38.99 AV	54	-15.01	-61.43	5.16	-56.27
5	14488.27	48.96 PK	74	-25.04	-51.46	5.16	-46.3
6	14488.27	38.85 AV	54	-15.15	-61.57	5.16	-56.41
7	23978.7	52.43 PK	74	-21.57	-47.99	5.16	-42.83
8	23978.7	41.98 AV	54	-12.02	-58.44	5.16	-53.28

Note: Margin value = Emission Level - Limit value



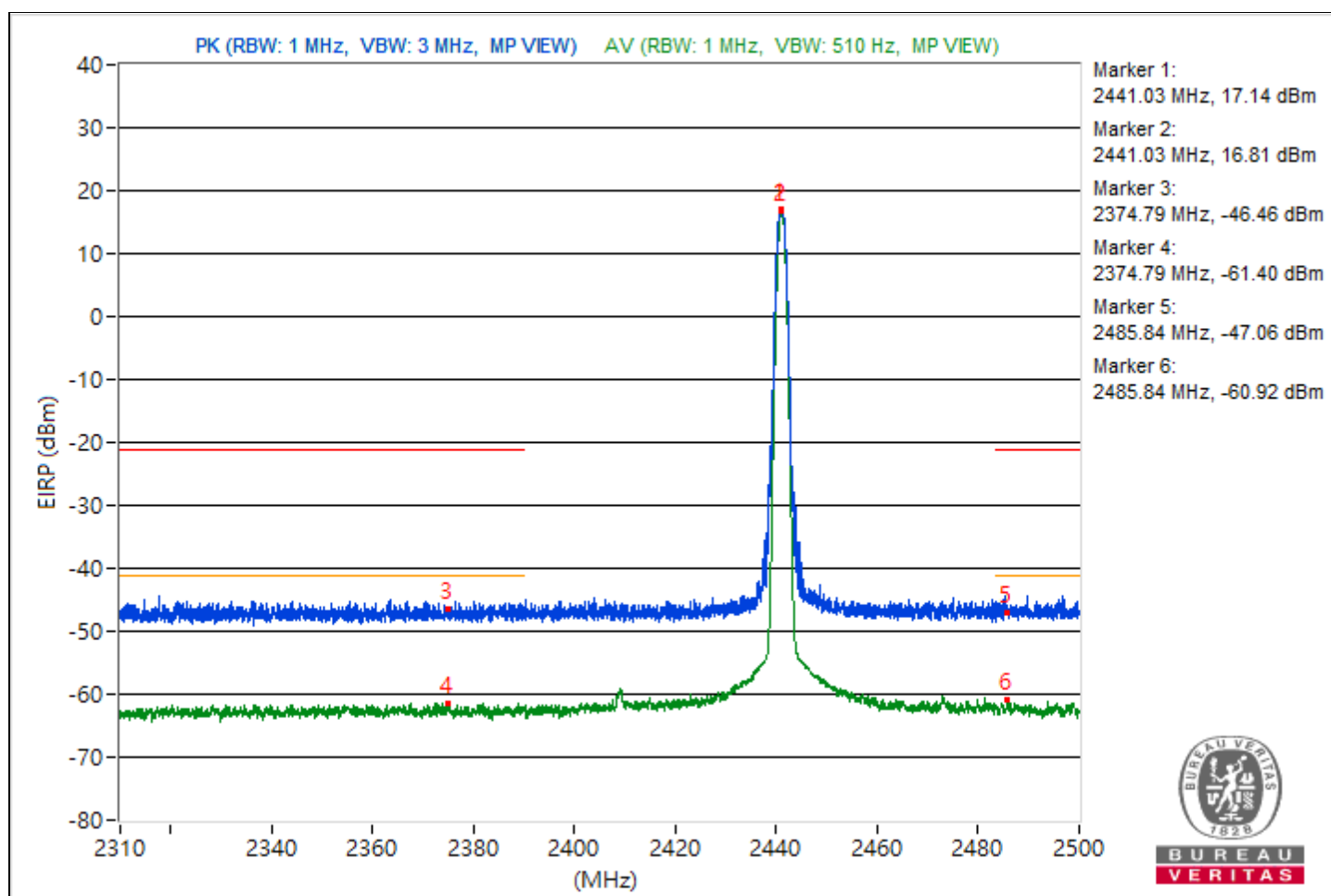
Conducted Band Edges

RF Mode	GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2441.03	112.4 PK			13.61	3.53	17.14
2	*2441.03	112.07 AV			13.28	3.53	16.81
3	2374.79	48.8 PK	74	-25.2	-49.99	3.53	-46.46
4	2374.79	33.86 AV	54	-20.14	-64.93	3.53	-61.4
5	2485.84	48.2 PK	74	-25.8	-50.59	3.53	-47.06
6	2485.84	34.34 AV	54	-19.66	-64.45	3.53	-60.92

Notes:

1. Margin value = Emission Level - Limit value
2. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

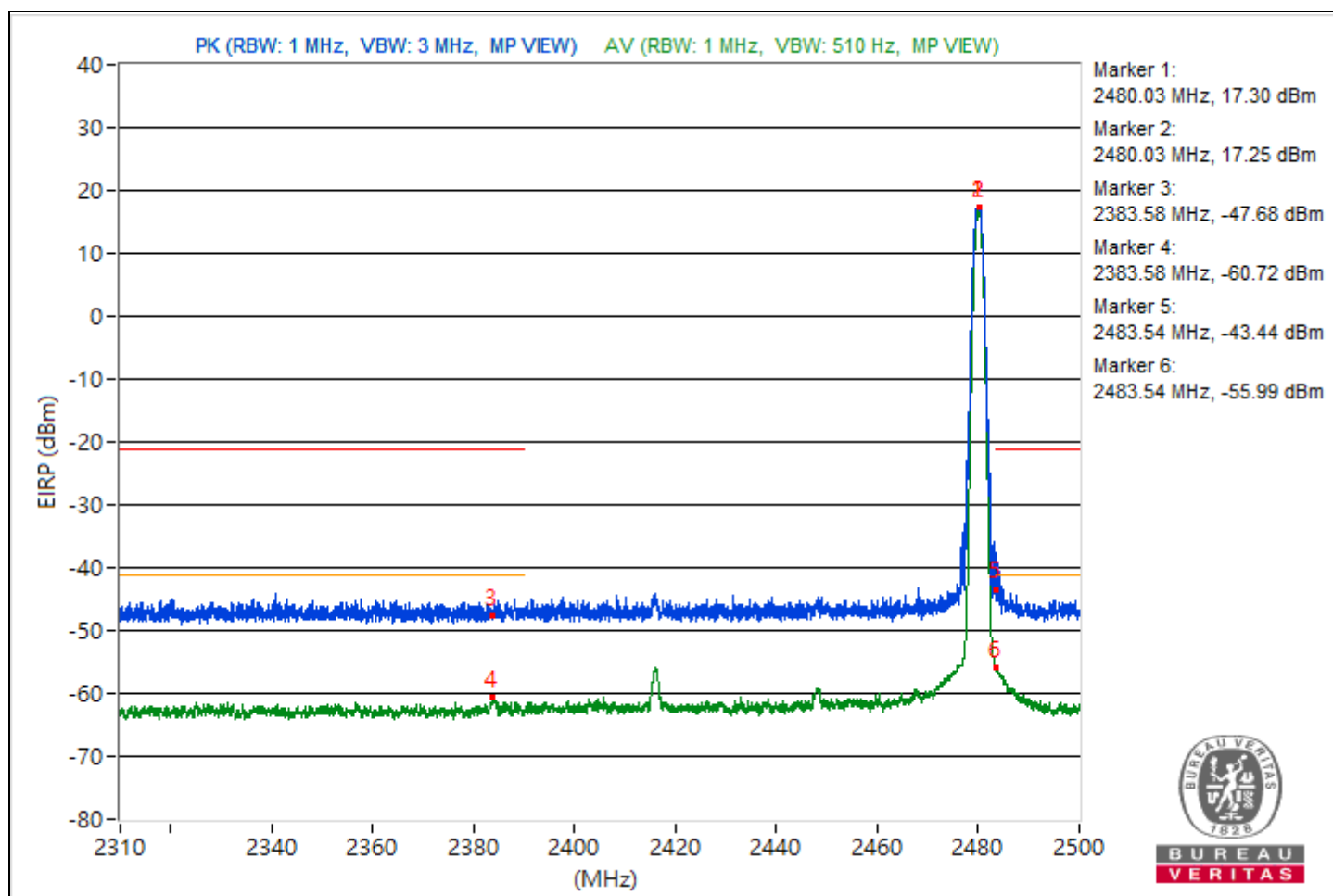


RF Mode	GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2480.03	112.56 PK			13.77	3.53	17.3
2	*2480.03	112.51 AV			13.72	3.53	17.25
3	2383.58	47.58 PK	74	-26.42	-51.21	3.53	-47.68
4	2383.58	34.54 AV	54	-19.46	-64.25	3.53	-60.72
5	2483.54	51.82 PK	74	-22.18	-46.97	3.53	-43.44
6	2483.54	39.27 AV	54	-14.73	-59.52	3.53	-55.99

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

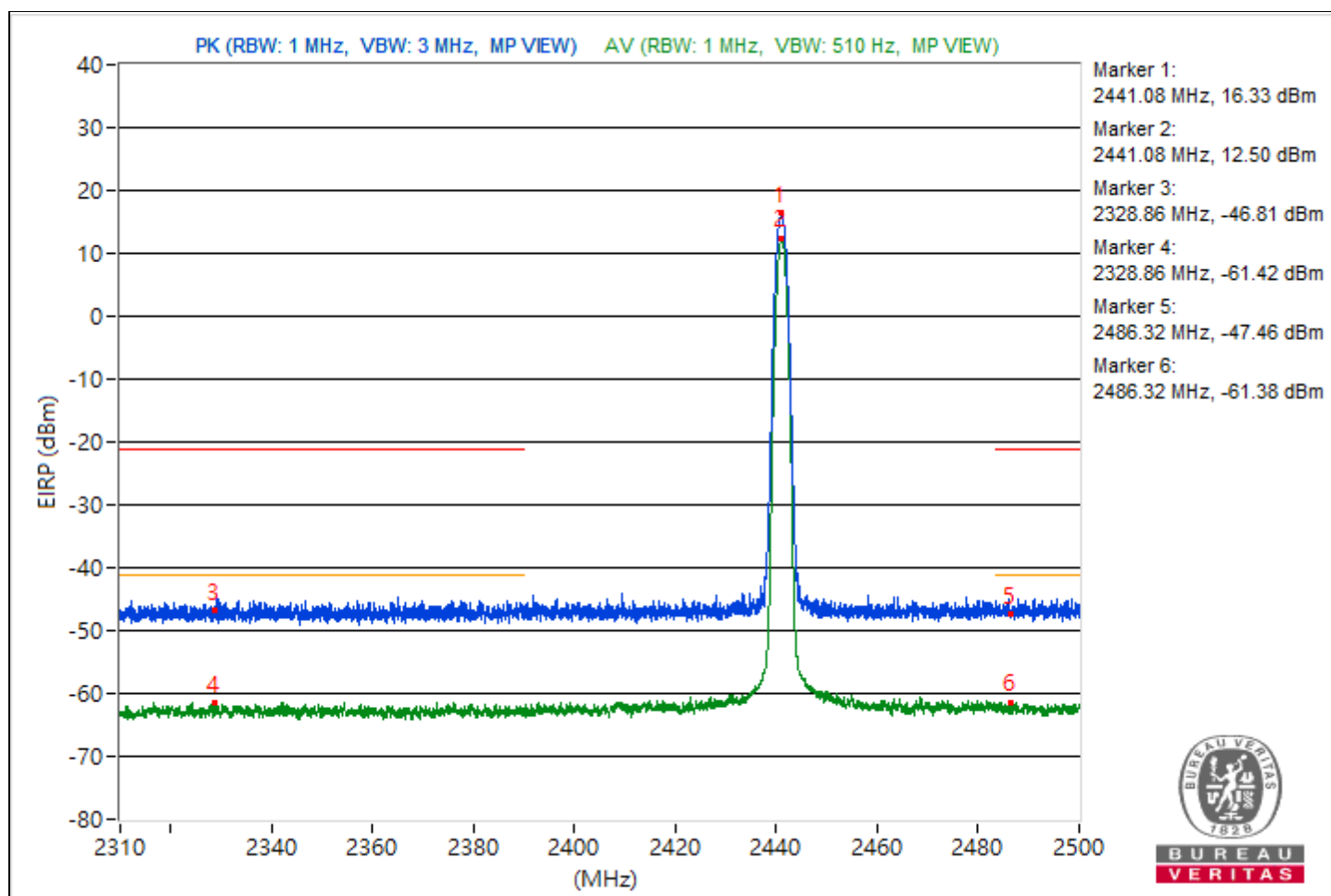


RF Mode	8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2441.08	111.59 PK			12.8	3.53	16.33
2	*2441.08	107.76 AV			8.97	3.53	12.5
3	2328.86	48.45 PK	74	-25.55	-50.34	3.53	-46.81
4	2328.86	33.84 AV	54	-20.16	-64.95	3.53	-61.42
5	2486.32	47.8 PK	74	-26.2	-50.99	3.53	-47.46
6	2486.32	33.88 AV	54	-20.12	-64.91	3.53	-61.38

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

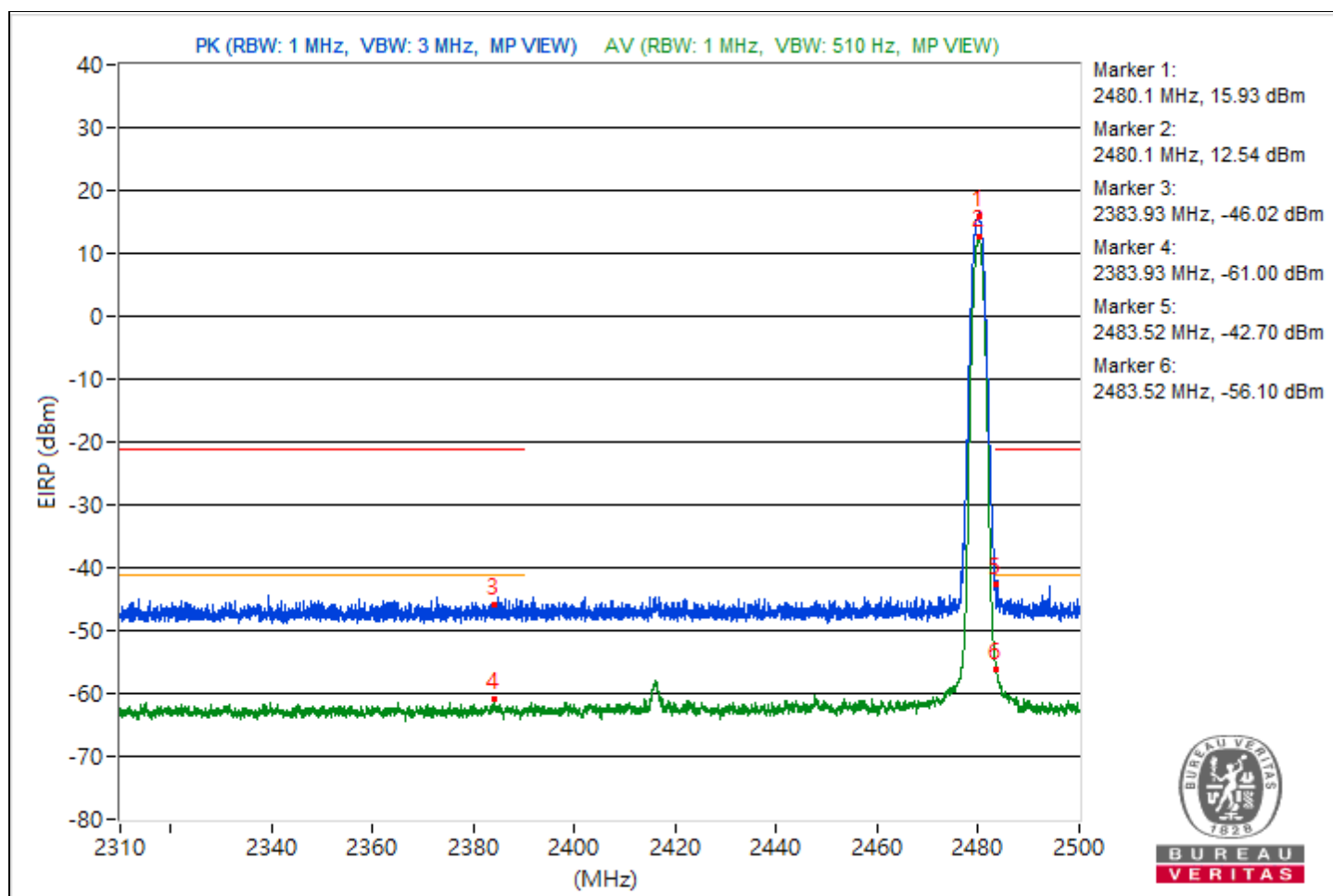


RF Mode	8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2480.1	111.19 PK			12.4	3.53	15.93
2	*2480.1	107.8 AV			9.01	3.53	12.54
3	2383.93	49.24 PK	74	-24.76	-49.55	3.53	-46.02
4	2383.93	34.26 AV	54	-19.74	-64.53	3.53	-61
5	2483.52	52.56 PK	74	-21.44	-46.23	3.53	-42.7
6	2483.52	39.16 AV	54	-14.84	-59.63	3.53	-56.1

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.



Mode A

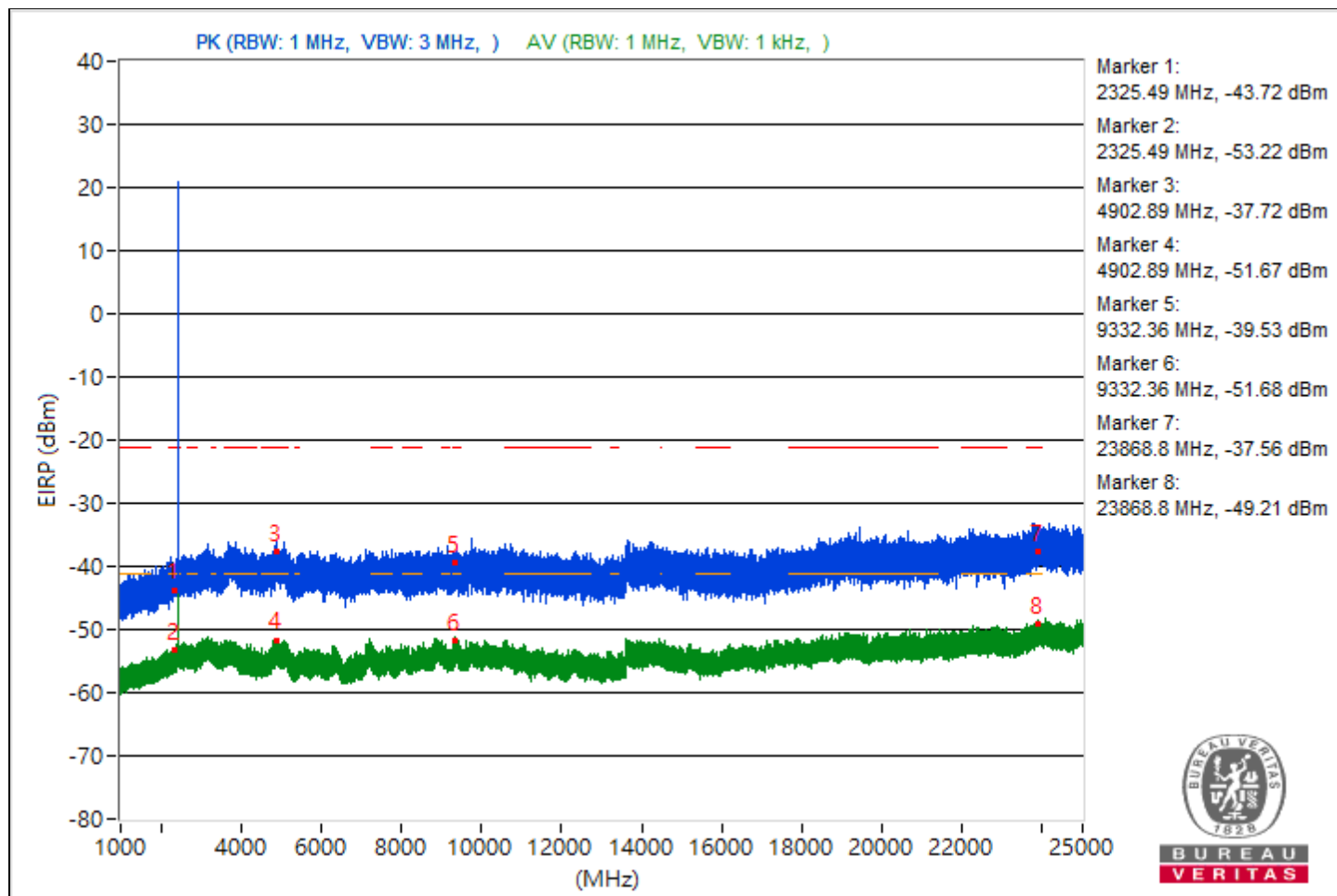
2Tx

Conducted Unwanted Emissions

RF Mode	GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2325.49	51.54 PK	74	-22.46	-54.66	-55.16	8.17	-43.72
2	2325.49	42.04 AV	54	-11.96	-65.44	-63.56	8.17	-53.22
3	4902.89	57.54 PK	74	-16.46	-48	-50.05	8.17	-37.72
4	4902.89	43.59 AV	54	-10.41	-61.36	-65.16	8.17	-51.67
5	9332.36	55.73 PK	74	-18.27	-51.95	-49.75	8.17	-39.53
6	9332.36	43.58 AV	54	-10.42	-62.12	-63.75	8.17	-51.68
7	23868.8	57.7 PK	74	-16.3	-52.03	-46.9	8.17	-37.56
8	23868.8	46.05 AV	54	-7.95	-62.29	-59.07	8.17	-49.21

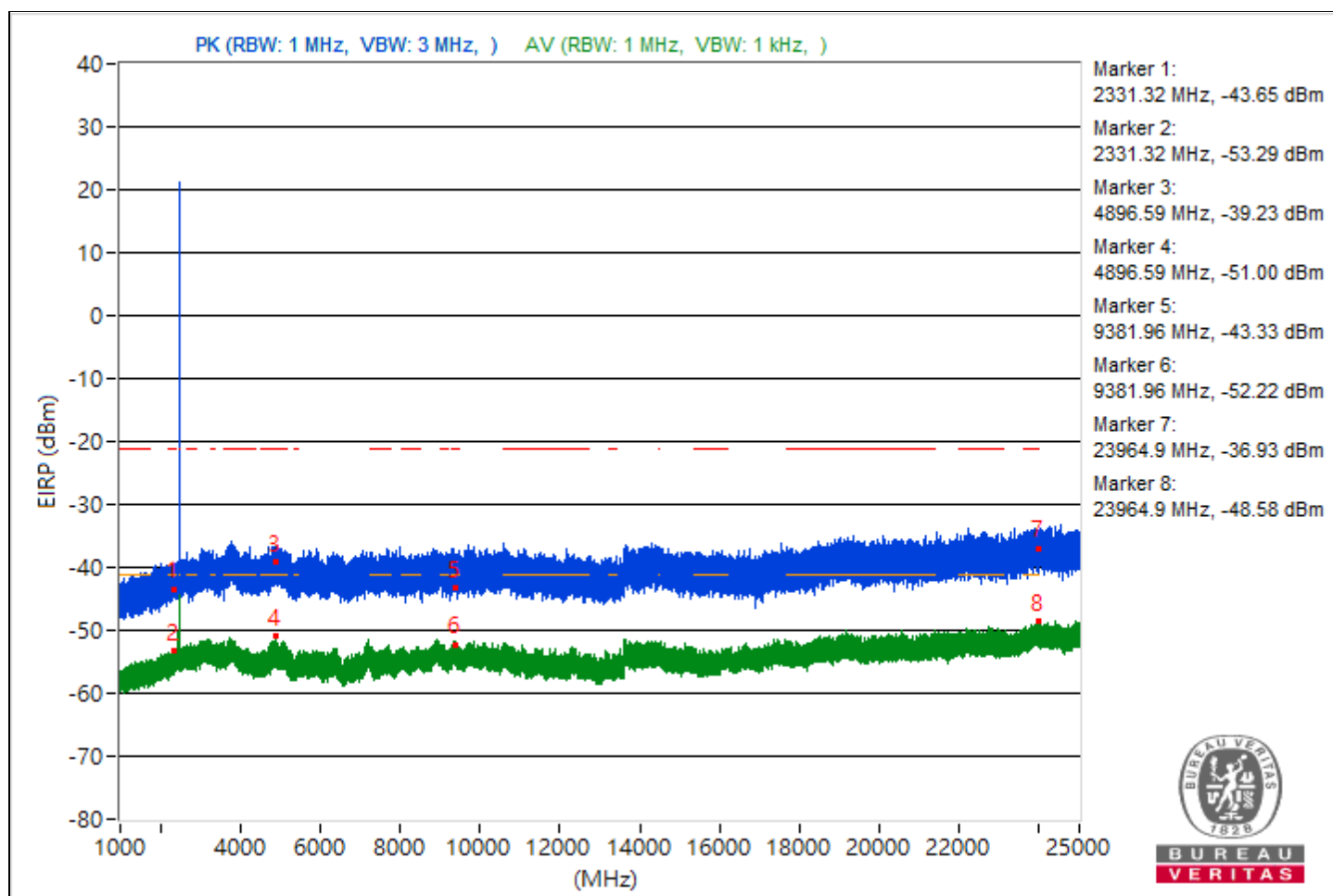
Note: Margin value = Emission Level - Limit value



RF Mode	GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2331.32	51.61 PK	74	-22.39	-54.92	-54.74	8.17	-43.65
2	2331.32	41.97 AV	54	-12.03	-63.49	-65.74	8.17	-53.29
3	4896.59	56.03 PK	74	-17.97	-52.34	-49.08	8.17	-39.23
4	4896.59	44.26 AV	54	-9.74	-63.63	-61.09	8.17	-51.00
5	9381.96	51.93 PK	74	-22.07	-54.52	-54.49	8.17	-43.33
6	9381.96	43.04 AV	54	-10.96	-61.86	-65.81	8.17	-52.22
7	23964.9	58.33 PK	74	-15.67	-47.72	-48.53	8.17	-36.93
8	23964.9	46.68 AV	54	-7.32	-58.44	-61.66	8.17	-48.58

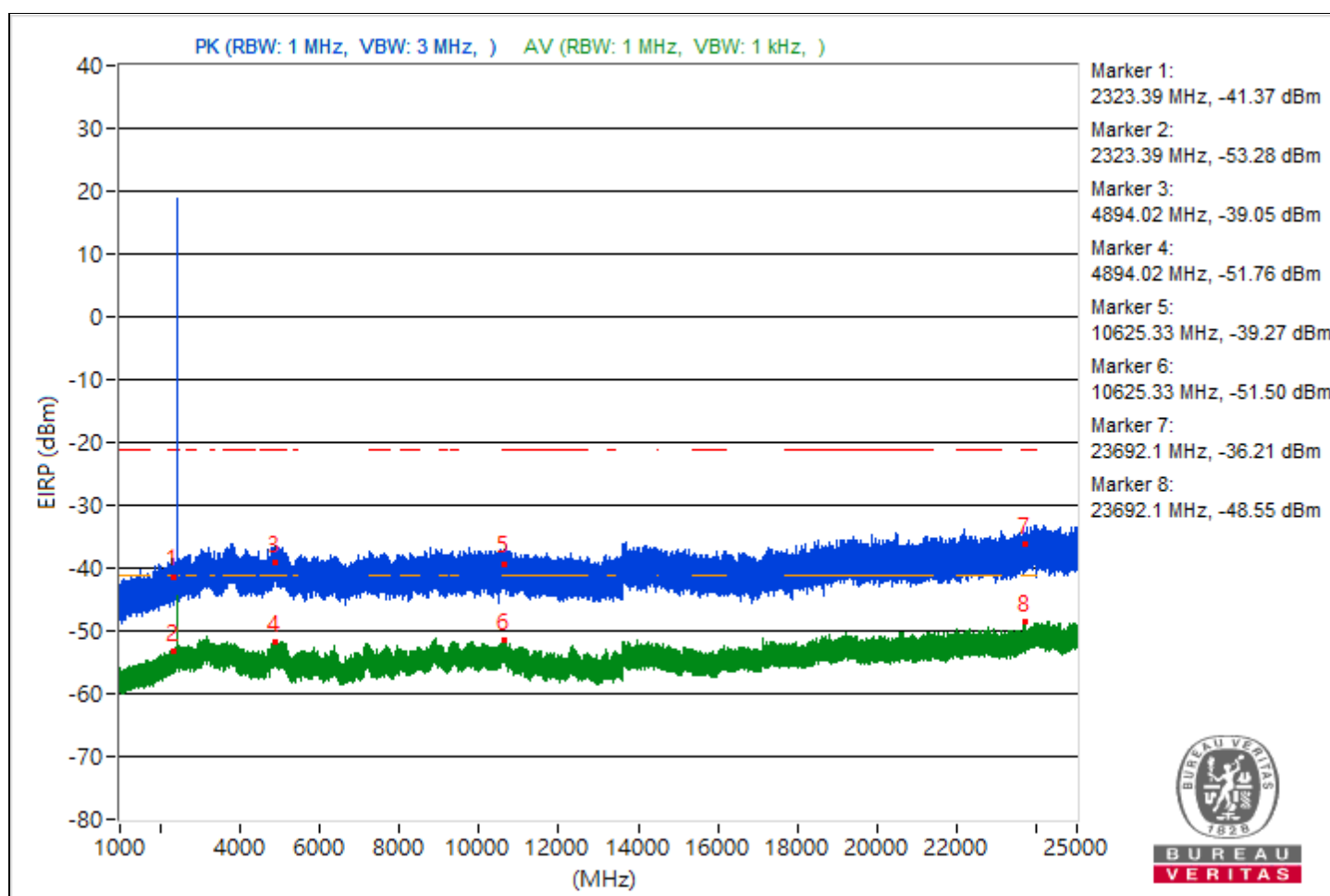
Note: Margin value = Emission Level - Limit value



RF Mode	8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2323.39	53.89 PK	74	-20.11	-52.7	-52.41	8.17	-41.37
2	2323.39	41.98 AV	54	-12.02	-65.51	-63.61	8.17	-53.28
3	4894.02	56.21 PK	74	-17.79	-50.31	-50.15	8.17	-39.05
4	4894.02	43.5 AV	54	-10.5	-61.47	-65.18	8.17	-51.76
5	10625.33	55.99 PK	74	-18.01	-50.2	-50.72	8.17	-39.27
6	10625.33	43.76 AV	54	-10.24	-61.58	-64.16	8.17	-51.5
7	23692.1	59.05 PK	74	-14.95	-46.85	-48	8.17	-36.21
8	23692.1	46.71 AV	54	-7.29	-61.73	-58.37	8.17	-48.55

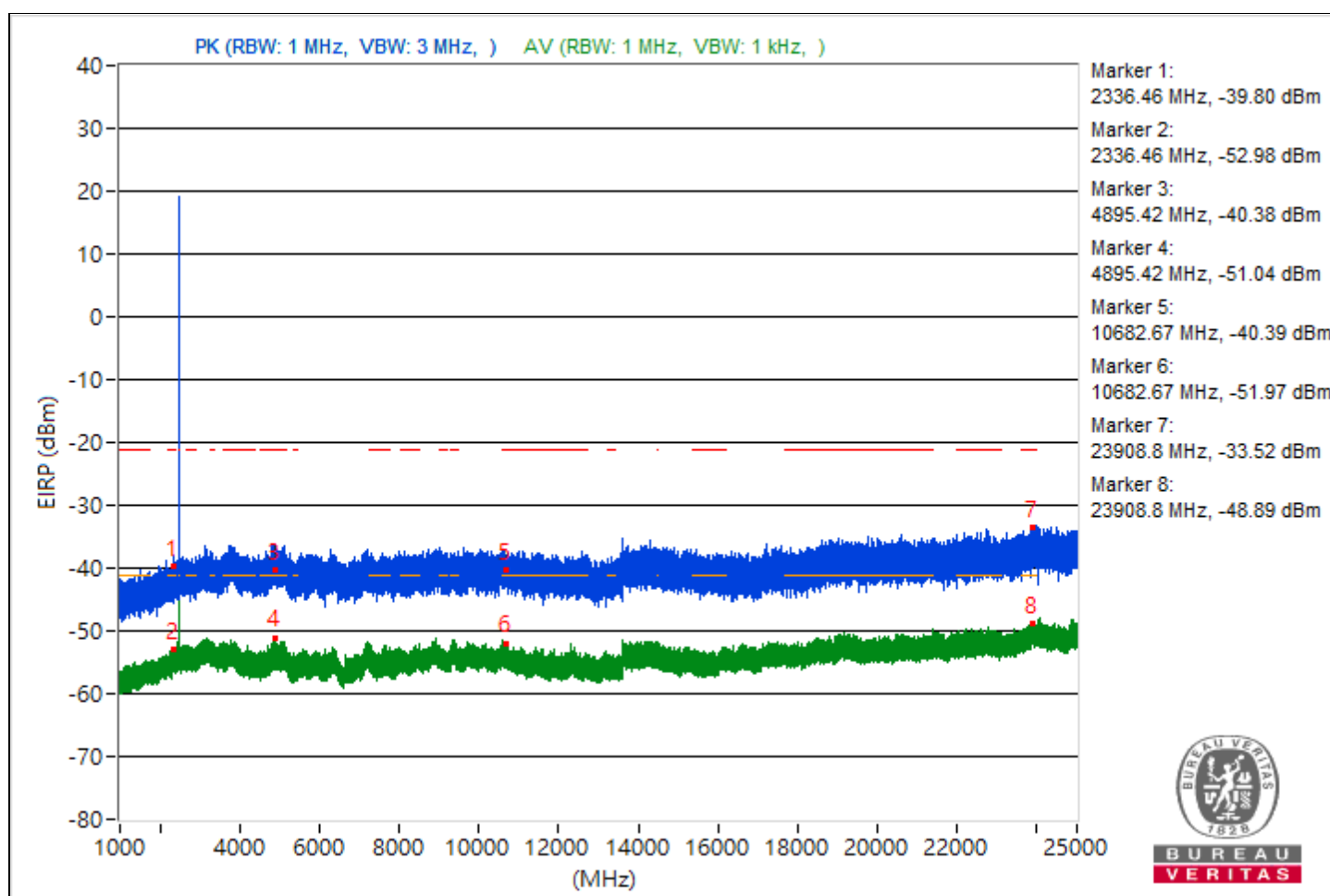
Note: Margin value = Emission Level - Limit value



RF Mode	8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2336.46	55.46 PK	74	-18.54	-51.28	-50.7	8.17	-39.8
2	2336.46	42.28 AV	54	-11.72	-65.01	-63.46	8.17	-52.98
3	4895.42	54.88 PK	74	-19.12	-51.95	-51.2	8.17	-40.38
4	4895.42	44.22 AV	54	-9.78	-63.5	-61.24	8.17	-51.04
5	10682.67	54.87 PK	74	-19.13	-51.99	-51.19	8.17	-40.39
6	10682.67	43.29 AV	54	-10.71	-62.03	-64.67	8.17	-51.97
7	23908.8	61.74 PK	74	-12.26	-47.81	-42.9	8.17	-33.52
8	23908.8	46.37 AV	54	-7.63	-58.81	-61.84	8.17	-48.89

Note: Margin value = Emission Level - Limit value



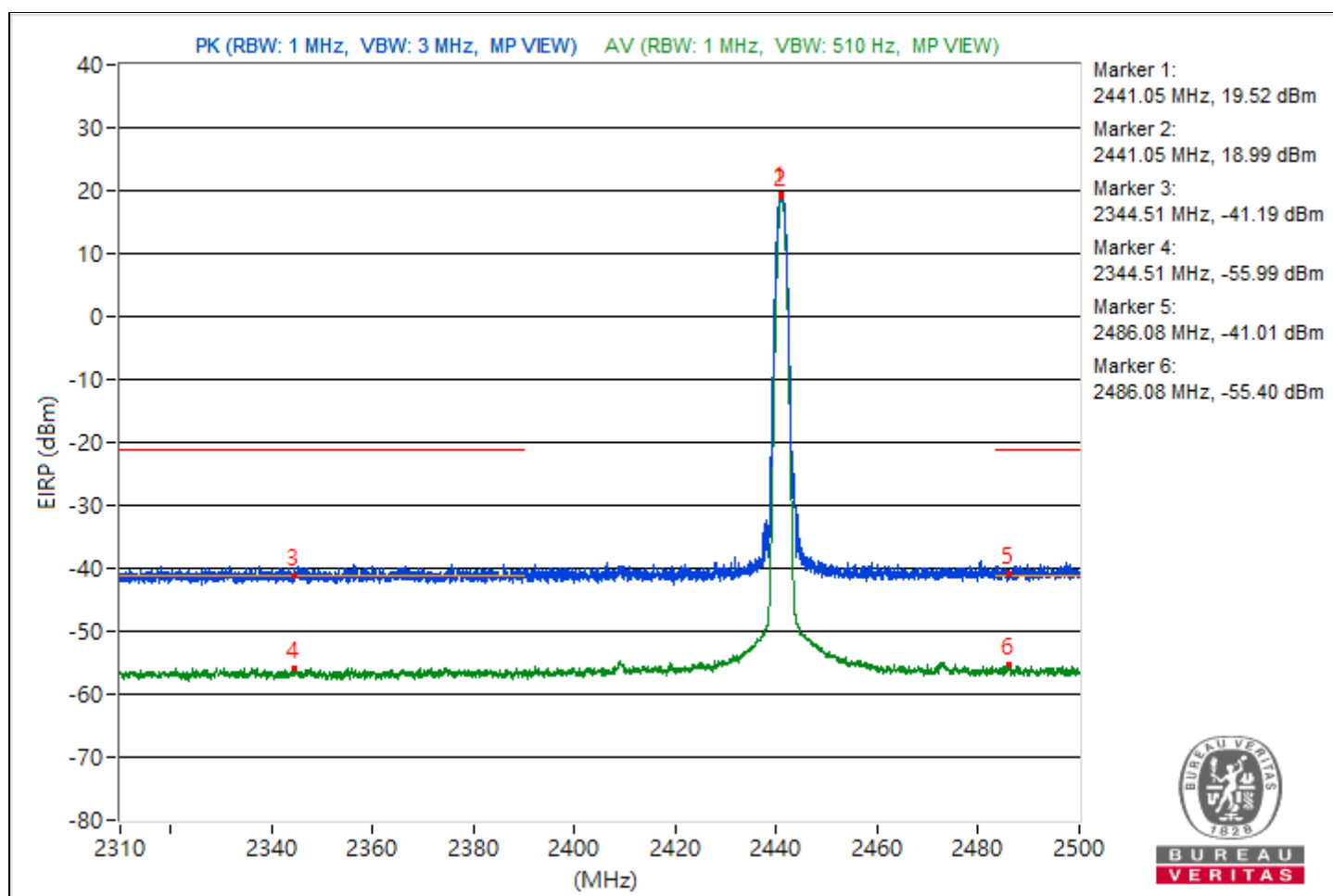
Conducted Band Edges

RF Mode	GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2441.05	114.78 PK			10.03	9.91	6.54	19.52
2	*2441.05	114.25 AV			9.43	9.44	6.54	18.99
3	2344.51	54.07 PK	74	-19.93	-51.68	-49.96	6.54	-41.19
4	2344.51	39.27 AV	54	-14.73	-64.35	-67.2	6.54	-55.99
5	2486.08	54.25 PK	74	-19.75	-50	-51.21	6.54	-41.01
6	2486.08	39.86 AV	54	-14.14	-65.77	-64.27	6.54	-55.4

Notes:

1. Margin value = Emission Level - Limit value
2. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

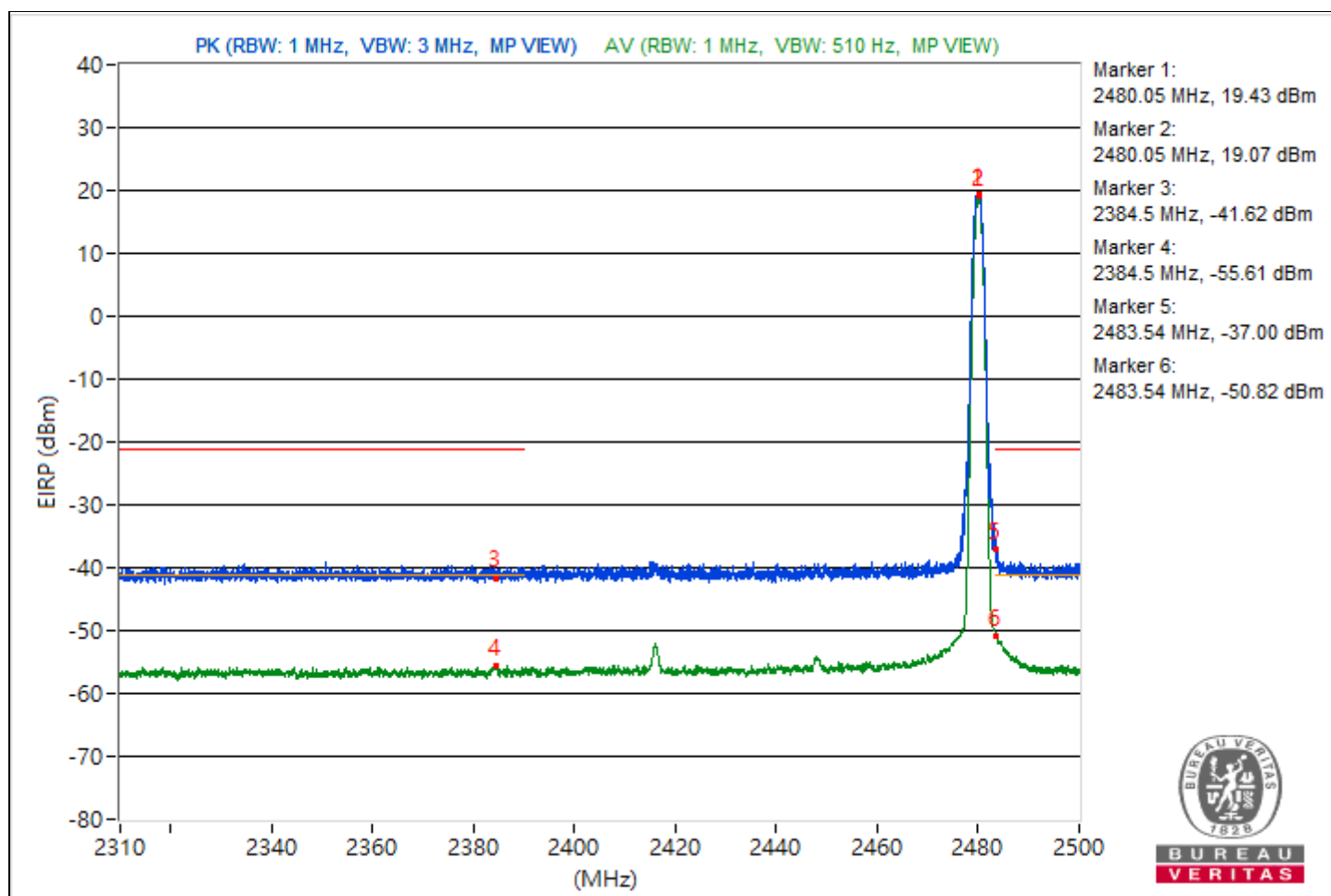


RF Mode	GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2480.05	114.69 PK			9.88	9.88	6.54	19.43
2	*2480.05	114.33 AV			9.52	9.53	6.54	19.07
3	2384.5	53.64 PK	74	-20.36	-51.26	-51.09	6.54	-41.62
4	2384.5	39.65 AV	54	-14.35	-64.58	-65.82	6.54	-55.61
5	2483.54	58.26 PK	74	-15.74	-47.28	-45.93	6.54	-37
6	2483.54	44.44 AV	54	-9.56	-60.54	-60.21	6.54	-50.82

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

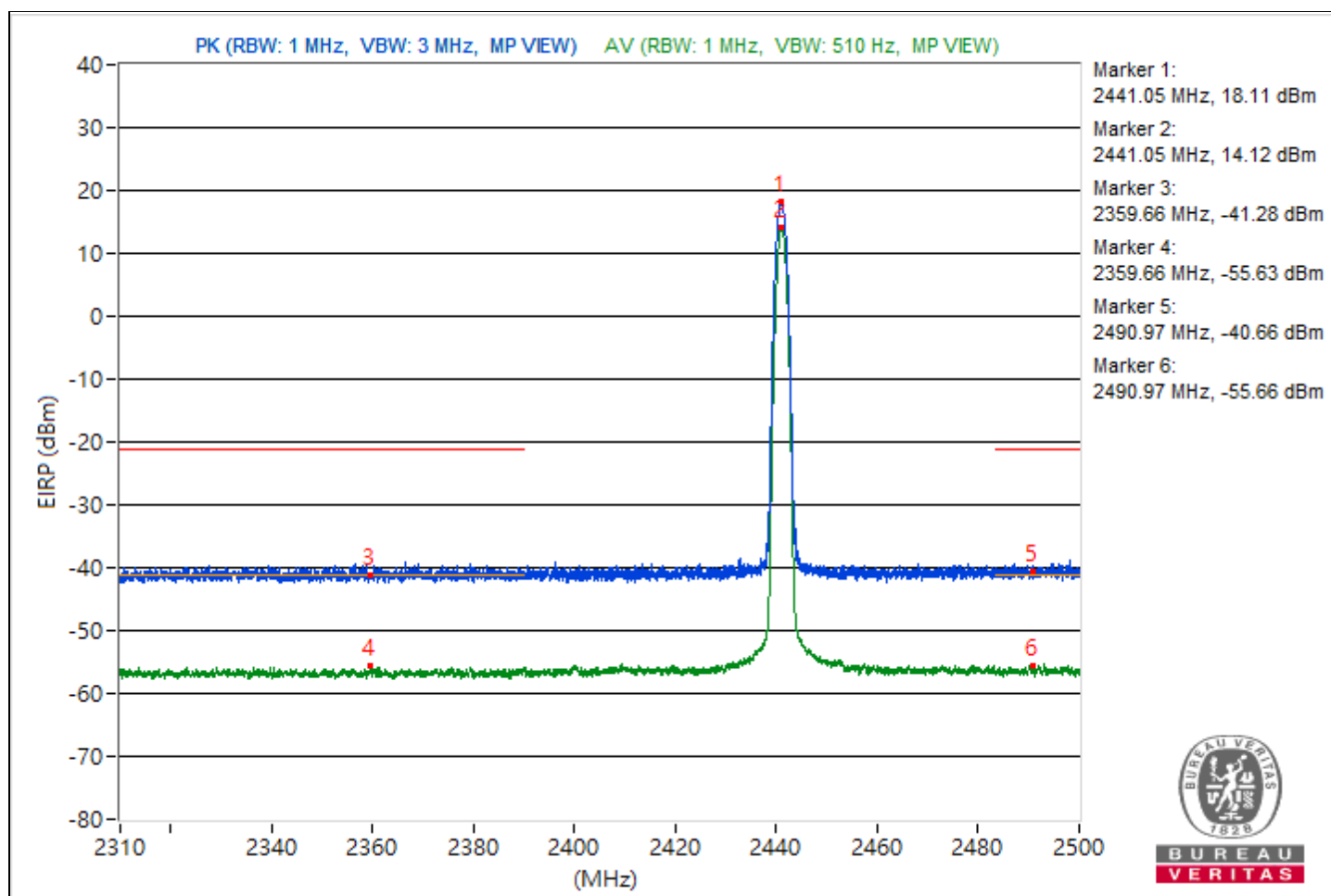


RF Mode	8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2441.05	113.37 PK			8.44	8.68	6.54	18.11
2	*2441.05	109.38 AV			4.56	4.58	6.54	14.12
3	2359.66	53.98 PK	74	-20.02	-51.12	-50.56	6.54	-41.28
4	2359.66	39.63 AV	54	-14.37	-64.43	-66.08	6.54	-55.63
5	2490.97	54.6 PK	74	-19.4	-50.03	-50.4	6.54	-40.66
6	2490.97	39.6 AV	54	-14.4	-65.6	-64.86	6.54	-55.66

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

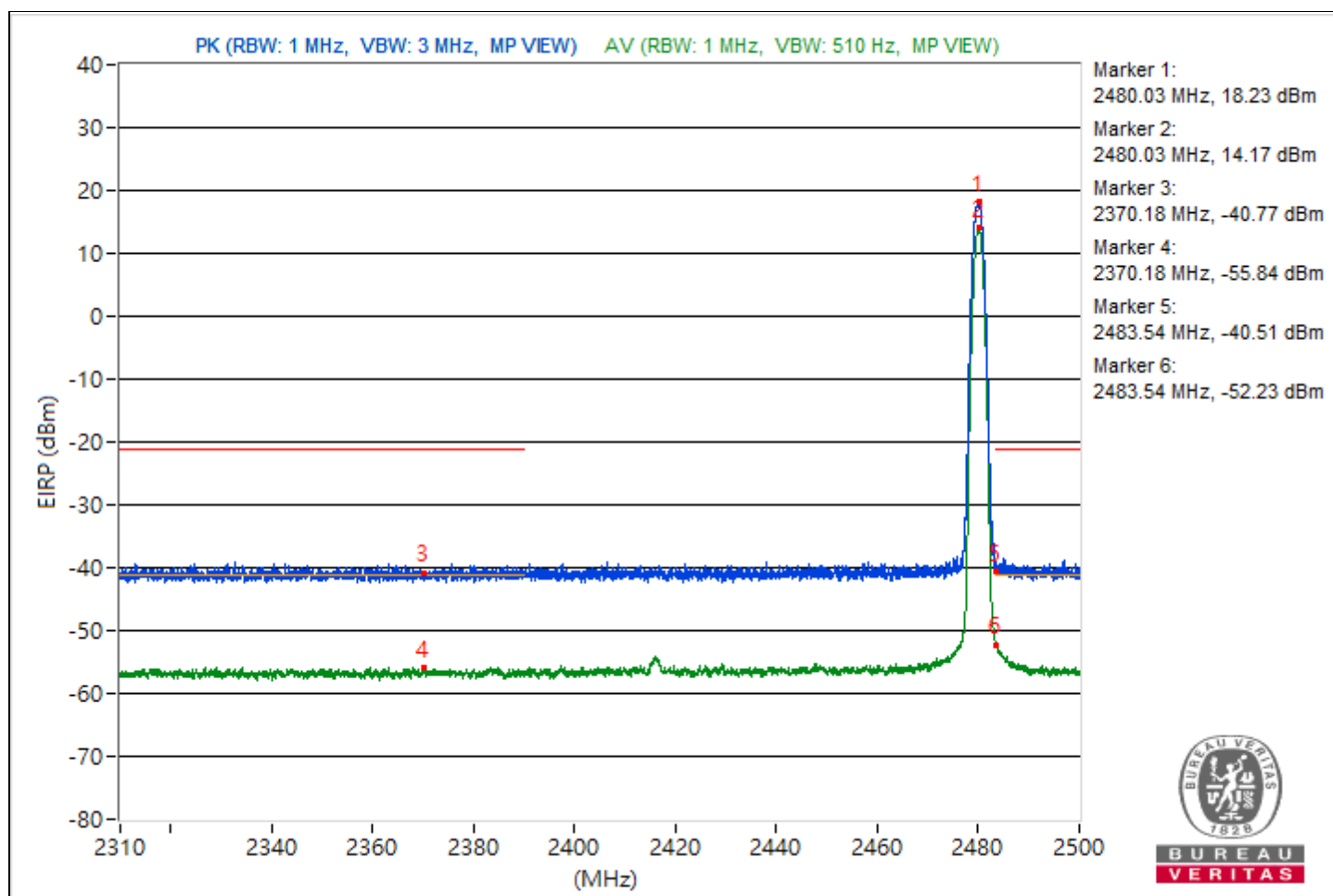


RF Mode	8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	2.31 GHz ~ 2.5 GHz	Environmental Conditions	26°C, 66% RH
Tested By	Dolly Chung		

Conducted Band Edge								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	*2480.03	113.49 PK			8.68	8.67	6.54	18.23
2	*2480.03	109.43 AV			4.63	4.6	6.54	14.17
3	2370.18	54.49 PK	74	-19.51	-50	-50.67	6.54	-40.77
4	2370.18	39.42 AV	54	-14.58	-66.04	-64.83	6.54	-55.84
5	2483.54	54.75 PK	74	-19.25	-50.26	-49.87	6.54	-40.51
6	2483.54	43.03 AV	54	-10.97	-61.57	-61.99	6.54	-52.23

Notes:

1. Margin value = Emission Level - Limit value
2. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.



Mode B

1Tx

RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.3 PK	74.0	-30.7	1.65 H	144	41.6	1.7
2	4882.00	31.8 AV	54.0	-22.2	1.65 H	144	30.1	1.7
3	7323.00	46.2 PK	74.0	-27.8	1.96 H	273	39.4	6.8
4	7323.00	37.4 AV	54.0	-16.6	1.96 H	273	30.6	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.5 PK	74.0	-30.5	1.62 V	149	41.8	1.7
2	4882.00	32.2 AV	54.0	-21.8	1.62 V	149	30.5	1.7
3	7323.00	46.7 PK	74.0	-27.3	1.93 V	284	39.9	6.8
4	7323.00	37.8 AV	54.0	-16.2	1.93 V	284	31.0	6.8

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.

RF Mode	BT GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.4 PK	74.0	-30.6	1.59 H	164	41.5	1.9
2	4960.00	32.2 AV	54.0	-21.8	1.59 H	164	30.3	1.9
3	7440.00	46.1 PK	74.0	-27.9	1.90 H	275	38.7	7.4
4	7440.00	37.3 AV	54.0	-16.7	1.90 H	275	29.9	7.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.1 PK	74.0	-30.9	1.64 V	136	41.2	1.9
2	4960.00	31.7 AV	54.0	-22.3	1.64 V	136	29.8	1.9
3	7440.00	46.5 PK	74.0	-27.5	1.98 V	282	39.1	7.4
4	7440.00	37.8 AV	54.0	-16.2	1.98 V	282	30.4	7.4

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.

RF Mode	BT 8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.6 PK	74.0	-30.4	1.64 H	159	41.9	1.7
2	4882.00	32.1 AV	54.0	-21.9	1.64 H	159	30.4	1.7
3	7323.00	46.3 PK	74.0	-27.7	1.92 H	296	39.5	6.8
4	7323.00	37.4 AV	54.0	-16.6	1.92 H	296	30.6	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.7 PK	74.0	-30.3	1.64 V	157	42.0	1.7
2	4882.00	32.4 AV	54.0	-21.6	1.64 V	157	30.7	1.7
3	7323.00	46.6 PK	74.0	-27.4	1.95 V	293	39.8	6.8
4	7323.00	37.6 AV	54.0	-16.4	1.95 V	293	30.8	6.8

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.

RF Mode	BT 8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.9 PK	74.0	-30.1	1.61 H	139	42.0	1.9
2	4960.00	32.3 AV	54.0	-21.7	1.61 H	139	30.4	1.9
3	7440.00	46.9 PK	74.0	-27.1	1.97 H	269	39.5	7.4
4	7440.00	38.0 AV	54.0	-16.0	1.97 H	269	30.6	7.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.8 PK	74.0	-30.2	1.68 V	165	41.9	1.9
2	4960.00	32.5 AV	54.0	-21.5	1.68 V	165	30.6	1.9
3	7440.00	46.6 PK	74.0	-27.4	1.94 V	293	39.2	7.4
4	7440.00	37.4 AV	54.0	-16.6	1.94 V	293	30.0	7.4

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.

2Tx

RF Mode	BT GFSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.0 PK	74.0	-31.0	1.61 H	177	41.3	1.7
2	4882.00	32.7 AV	54.0	-21.3	1.61 H	177	31.0	1.7
3	7323.00	44.2 PK	74.0	-29.8	1.79 H	278	37.4	6.8
4	7323.00	35.1 AV	54.0	-18.9	1.79 H	278	28.3	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	43.4 PK	74.0	-30.6	1.76 V	163	41.7	1.7
2	4882.00	33.3 AV	54.0	-20.7	1.76 V	163	31.6	1.7
3	7323.00	46.1 PK	74.0	-27.9	2.03 V	301	39.3	6.8
4	7323.00	36.3 AV	54.0	-17.7	2.03 V	301	29.5	6.8

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.

RF Mode	BT GFSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	42.6 PK	74.0	-31.4	1.61 H	132	40.7	1.9
2	4960.00	31.9 AV	54.0	-22.1	1.61 H	132	30.0	1.9
3	7440.00	44.1 PK	74.0	-29.9	1.95 H	269	36.7	7.4
4	7440.00	35.0 AV	54.0	-19.0	1.95 H	269	27.6	7.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.0 PK	74.0	-31.0	1.69 V	164	41.1	1.9
2	4960.00	32.4 AV	54.0	-21.6	1.69 V	164	30.5	1.9
3	7440.00	46.1 PK	74.0	-27.9	2.02 V	292	38.7	7.4
4	7440.00	35.7 AV	54.0	-18.3	2.02 V	292	28.3	7.4

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.

RF Mode	BT 8DPSK	Channel	CH 39 : 2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	42.9 PK	74.0	-31.1	1.55 H	147	41.2	1.7
2	4882.00	31.9 AV	54.0	-22.1	1.55 H	147	30.2	1.7
3	7323.00	43.6 PK	74.0	-30.4	2.00 H	279	36.8	6.8
4	7323.00	34.6 AV	54.0	-19.4	2.00 H	279	27.8	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4882.00	42.9 PK	74.0	-31.1	1.68 V	150	41.2	1.7
2	4882.00	32.1 AV	54.0	-21.9	1.68 V	150	30.4	1.7
3	7323.00	46.6 PK	74.0	-27.4	2.03 V	307	39.8	6.8
4	7323.00	36.0 AV	54.0	-18.0	2.03 V	307	29.2	6.8

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.

RF Mode	BT 8DPSK	Channel	CH 78 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 71% RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	43.0 PK	74.0	-31.0	1.62 H	130	41.1	1.9
2	4960.00	32.3 AV	54.0	-21.7	1.62 H	130	30.4	1.9
3	7440.00	44.1 PK	74.0	-29.9	1.89 H	272	36.7	7.4
4	7440.00	35.2 AV	54.0	-18.8	1.89 H	272	27.8	7.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4960.00	42.8 PK	74.0	-31.2	1.71 V	156	40.9	1.9
2	4960.00	32.2 AV	54.0	-21.8	1.71 V	156	30.3	1.9
3	7440.00	46.5 PK	74.0	-27.5	2.00 V	295	39.1	7.4
4	7440.00	36.0 AV	54.0	-18.0	2.00 V	295	28.6	7.4

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.

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

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

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