ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Applicant:	HTC Corporation No. 88, Sec. 3, Zhongxing Rd. Xindian Dist., New Taipei City 231, Taiwan
Product Name:	Add-On Cover
Brand Name:	VIVE
Model No.:	2Q6L300
Model Difference:	N/A
Report Number:	T190815W02-RP1
FCC ID:	NM82Q6L300
FCC Rule Part:	§15.249
Issue Date:	Oct. 03, 2019
Date of Test:	Aug. 08, 2019 ~ Aug. 23, 2019
Date of EUT Received:	Aug. 08, 2019
Issued by:	Compliance Certification Services Inc.Wugu Lab. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) service@ccsrf.com

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.
The test results of this report relate only to the tested sample (EUT) identified in this re-port.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Tested By: 

Gary Lee / Engineer

Approved By: 

Kevin Tsai / Deputy Manager

Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
T190815W02-RP1	Rev.00	Initial creation of document	All	Oct. 03, 2019	Elle Chang

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	Add-On Cover	
Brand Name:	VIVE	
Model No.:	2Q6L300	
Model Difference:	N/A	
Hardware Version:	XA	
Software Version:	N/A	
Power Supply:	12Vdc from AC/DC Adapter	
	Adapter:	1. Model No.: TC NE30W-EU, Supplier: HTC 2. Model No.: TC NE30W-UK, Supplier: HTC 3. Model No.: TC NE30W-US, Supplier: HTC

Radio Technology:	2.4GHz Short Range Radio
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	FSK
Transmit Power:	94.94 dBμV/m
Antenna Designation:	PIFA Antenna, Peak Gain: 2.26dBi (ANT1) / 0.47dBi (ANT2)

1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.249

ANSI C63.10:2013

Note: All test items have been performed and record as per the above standards.

1.3 Test Facility

Compliance Certification Services Inc. Wugu Lab. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) (TAF code 1309)
FCC Designation number: TW1309

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

2.5 Limitation

(2) Radiated Emission

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following.

Frequency (MHz)	Field strength of Fundamental	Field strength of Harmonics	Distance (m)
902 – 928	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3
2400 – 2483.5	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3
5725 – 5875	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3
24.0 – 24.25 GHz	250 mV/m (107.95dBuV/m)	2500 uV/m (67.95dBuV/m)	3

(3) Radiated Emission

Emission Radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits as below, whichever is the lesser attenuation.

Frequency (MHz)	Field strength μV/m	Distance (m)	Field strength at 3m dBμV/m
1.705-30	30	30	69.54
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

(4) Radiated Emission

For frequencies above 1000MHz, the above field strength limits are based on average limits. The peak filed strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Remark:
1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205.
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.

2.6 Configuration of Tested System

Fig. 2-1 Radiated Emission & Conducted (Antenna Port) Configuration

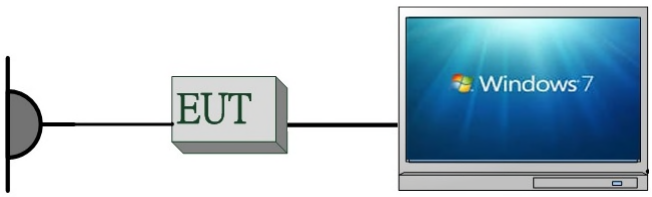


Fig. 2-2 AC Power Line Conducted Emission

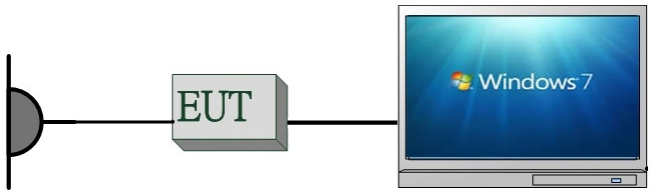


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	2.4G Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L430	R9-WGNK5	Unshielded	Shielded

3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.249(a)(e)	Field Strength of the Fundamental signal	Compliant
§15.249(a), 15.209	Spurious Emission	Compliant
15.249(a), 15.205	Restricted bands around fundamental frequency (Radiated Emission)	Compliant
§15.215(c)	20dB Bandwidth Measurement	Compliant
15.249(b)(2)	Frequency Stability	Compliant

4 DESCRIPTION OF TEST MODES

4.1 Operated in 2402 ~ 2480MHz Band

40 channels are provided.

ITEM	FREQUENCY	ITEM	FREQUENCY	ITEM	FREQUENCY
1	2402 MHz	15	2430 MHz	29	2458 MHz
2	2404 MHz	16	2432 MHz	30	2460 MHz
3	2406 MHz	17	2434 MHz	31	2462 MHz
4	2408 MHz	18	2436 MHz	32	2464 MHz
5	2410 MHz	19	2438 MHz	33	2466 MHz
6	2412 MHz	20	2440 MHz	34	2468 MHz
7	2414 MHz	21	2442 MHz	35	2470 MHz
8	2416MHz	22	2444 MHz	36	2472 MHz
9	2418 MHz	23	2446 MHz	37	2474 MHz
10	2420 MHz	24	2448 MHz	38	2476 MHz
11	2422 MHz	25	2450 MHz	39	2478 MHz
12	2424 MHz	26	2452 MHz	40	2480 MHz
13	2426 MHz	27	2454 MHz		
14	2428 MHz	28	2456 MHz		

4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED FREQUENCY	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
2.4G	0~40	2404, 2440, 2480	FSK	2	MAIN
RADIATED EMISSION TEST (ABOVE 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED FREQUENCY	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
2.4G	0~40	2404, 2440, 2480	FSK	2	MAIN

Note:
The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 2.4GHz Wireless Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED FREQUENCY	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
2.4G	0~40	2404, 2440, 2480	FSK	2	MAIN

5 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

6 CONDUCTED EMISSION TEST

6.1 Standard Applicable:

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

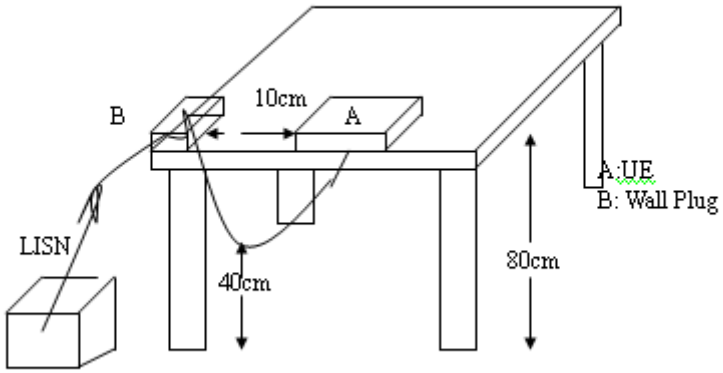
6.2 Measurement Equipment Used:

Conduction (RF)					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCI 3	100335	02/12/2019	02/11/2020
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2018	11/25/2019
LISN	SCHWARZBECK	NSLK 8127	8127-649	04/02/2019	04/01/2020
LISN	FCC	FCC-LISN-50/250-25-2-01	4034	04/09/2019	04/08/2020
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R	N.C.R

6.3 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure:

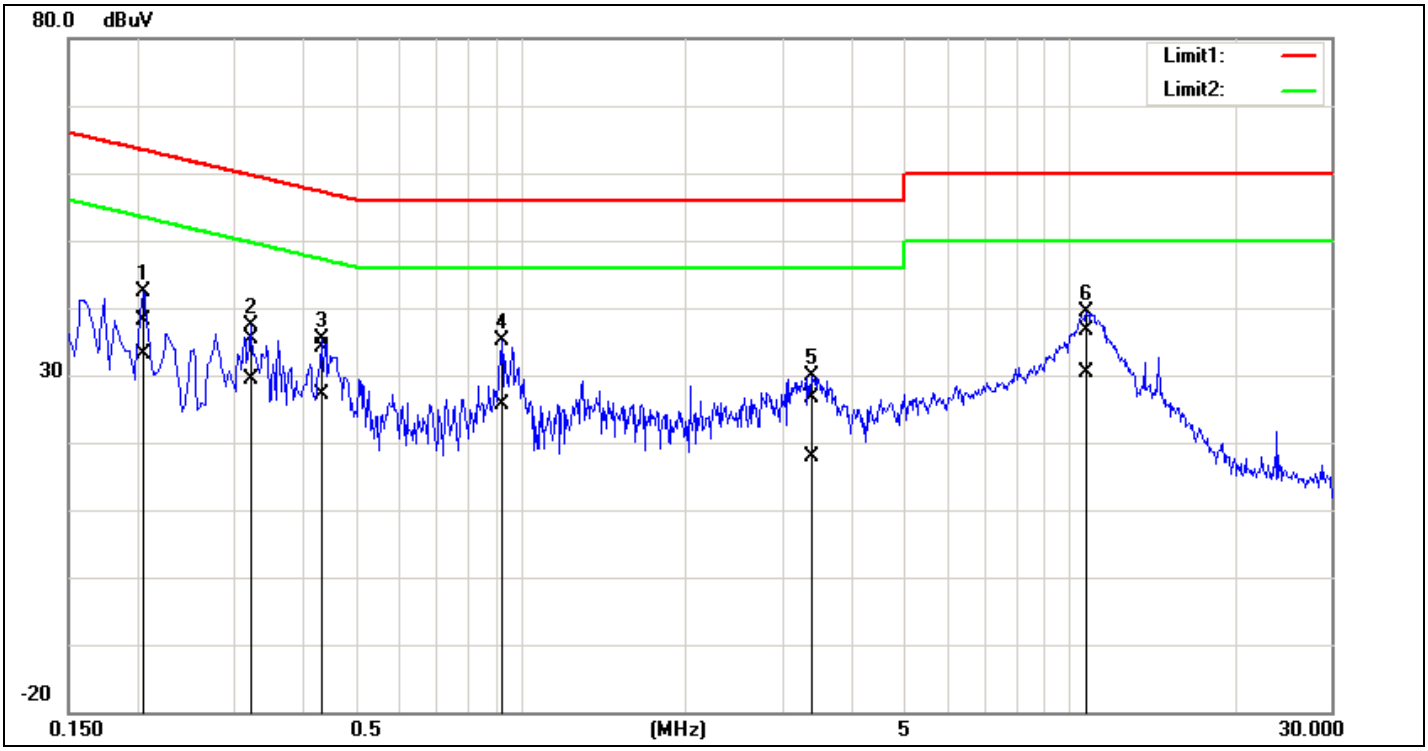
1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

6.6 Measurement Result:

Note: Refer to next page for measurement data and plots.
Note2: The * reveals the worst-case results that closet to the limit.

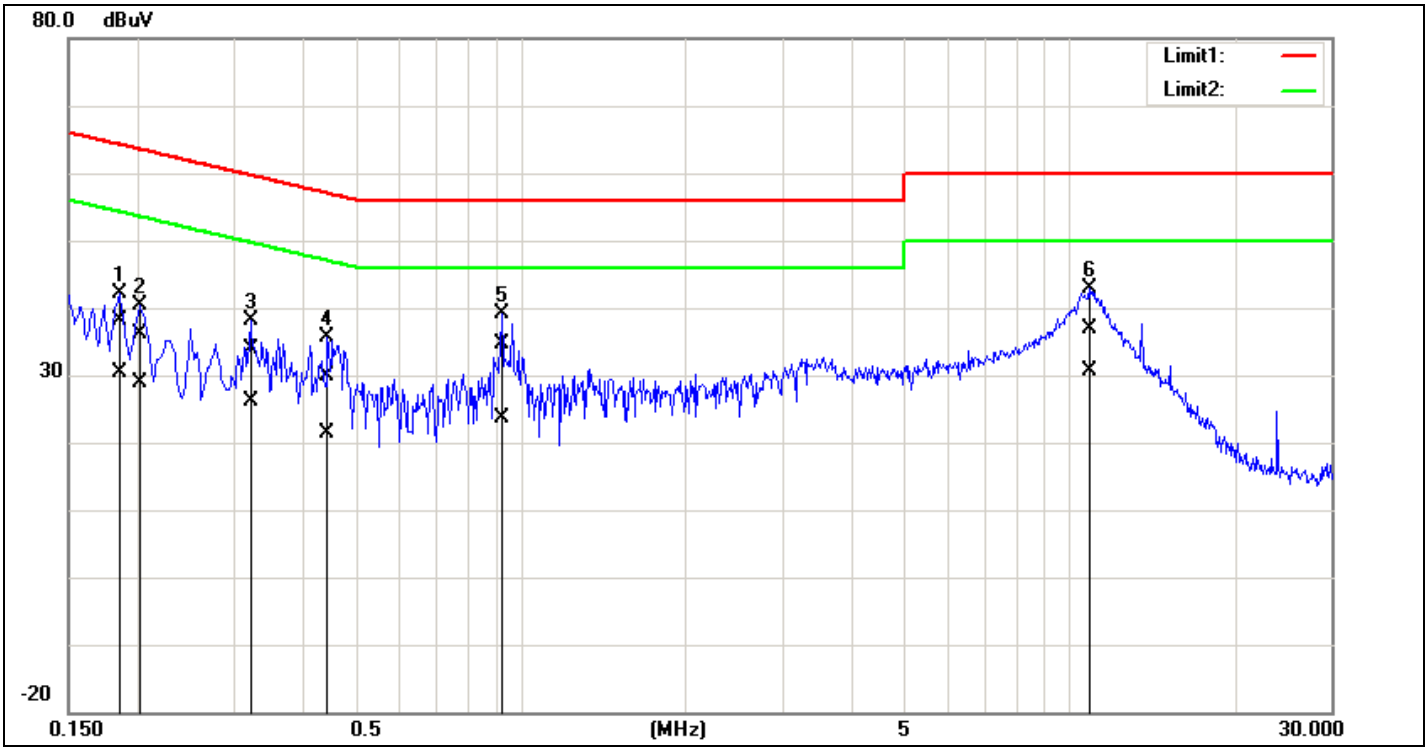
AC POWER LINE CONDUCTED EMISSION TEST DATA

Description:	**operation**	**Date:**	**2019/8/19**
Line:	**L1**	**Temp.(℃)/Hum.(%):**	**24.7(℃)/63%**
Test Voltage:	**AC 120V/60Hz**	**Test By:**	**GARY**



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2060	27.97	22.89	10.13	38.10	33.02	63.36	53.37	-25.26	-20.35	Pass
2	0.3220	25.21	19.15	10.14	35.35	29.29	59.65	49.66	-24.30	-20.37	Pass
3	0.4340	24.01	17.02	10.14	34.15	27.16	57.18	47.18	-23.03	-20.02	Pass
4	0.9260	25.06	15.55	10.17	35.23	25.72	56.00	46.00	-20.77	-20.28	Pass
5	3.3940	16.38	7.54	10.22	26.60	17.76	56.00	46.00	-29.40	-28.24	Pass
6*	10.7340	26.29	20.12	10.35	36.64	30.47	60.00	50.00	-23.36	-19.53	Pass

Description:	**operation**	**Date:**	**2019/8/19**
Line:	**N**	**Temp.(℃)/Hum.(%):**	**24.7(℃)/63%**
Test Voltage:	**AC 120V/60Hz**	**Test By:**	**GARY**



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1860	28.07	20.38	10.02	38.09	30.40	64.21	54.21	-26.12	-23.81	Pass
2	0.2020	26.21	18.76	10.02	36.23	28.78	63.52	53.53	-27.29	-24.75	Pass
3	0.3220	23.78	16.00	10.03	33.81	26.03	59.65	49.66	-25.84	-23.63	Pass
4	0.4460	19.79	11.43	10.03	29.82	21.46	56.95	46.95	-27.13	-25.49	Pass
5	0.9260	24.58	13.65	10.04	34.62	23.69	56.00	46.00	-21.38	-22.31	Pass
6*	10.8580	26.63	20.43	10.22	36.85	30.65	60.00	50.00	-23.15	-19.35	Pass

7 RADIATED EMISSION TEST

7.1. Standard Applicable

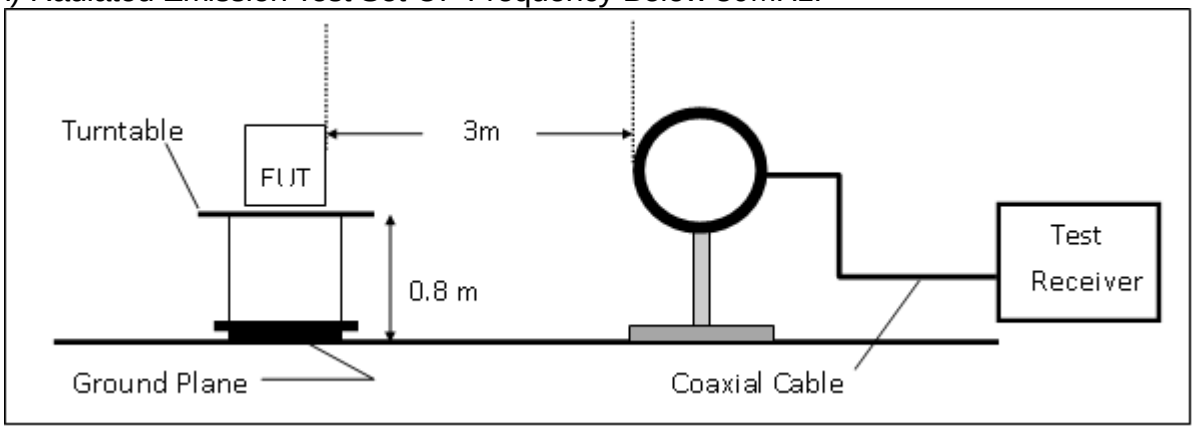
7.2. Measurement Procedure

1. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

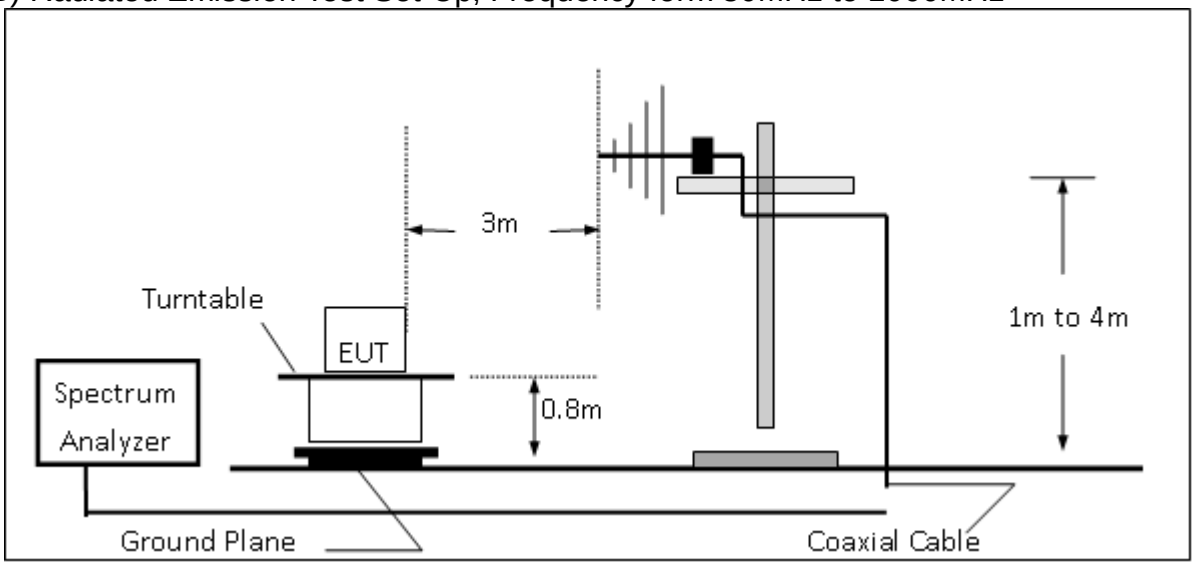
4. Repeat above procedures until all frequency measured were complete.

7.3. Test SET-UP (Block Diagram of Configuration)

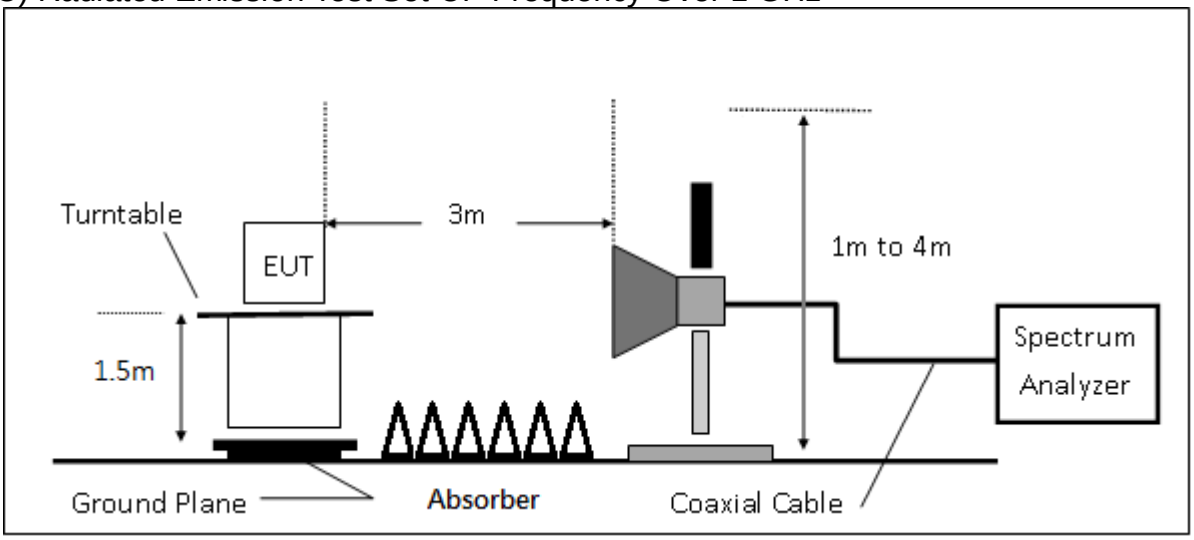
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



7.4. Measurement Equipment Used:

966A Chamber					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Low Pass Filter	EWT	EWT-56-0019	RF46	02/26/2019	02/25/2020
High Pass Filter	R&S	F13 HPF 3GHz	RF64	02/26/2019	02/25/2020
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020
Bilog Antenna	Sunol Sciences	JB3	A030105	07/26/2019	07/25/2020
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	02/26/2019	02/25/2020
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Digital Ther-mo-Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/09/2019	03/08/2020
Loop Antenna	COM-POWER	AL-130	121051	03/22/2019	03/21/2020
Horn Antenna	ETS LINDGREN	3116	00026370	12/26/2018	12/25/2019
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020
Software	e3 V6.11-20180413				

7.5. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

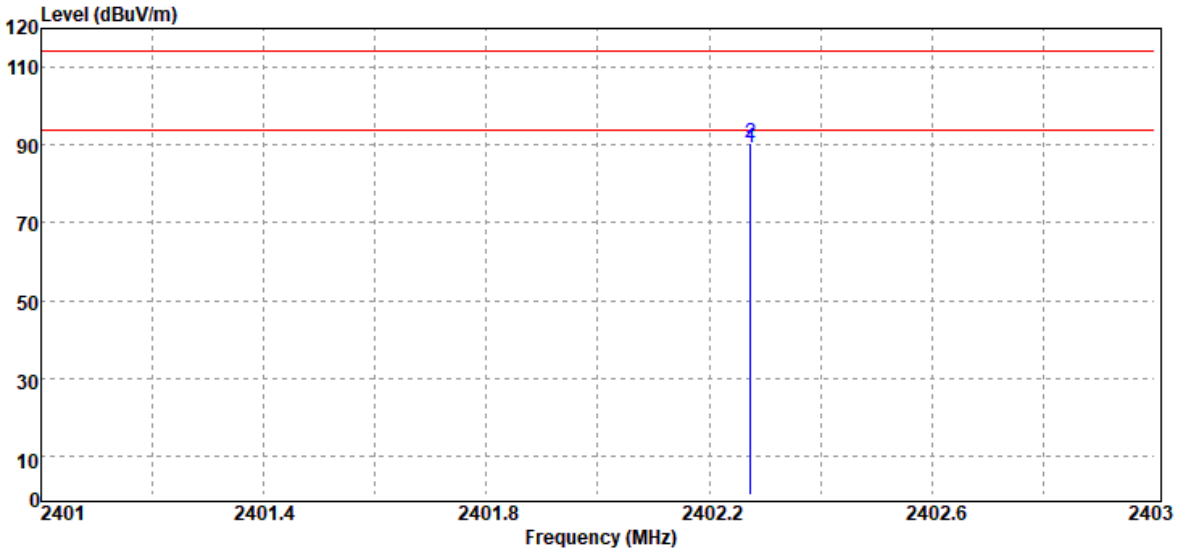
Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)
Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

7.6. Measurement Result

Field Strength of the Fundamental Signal

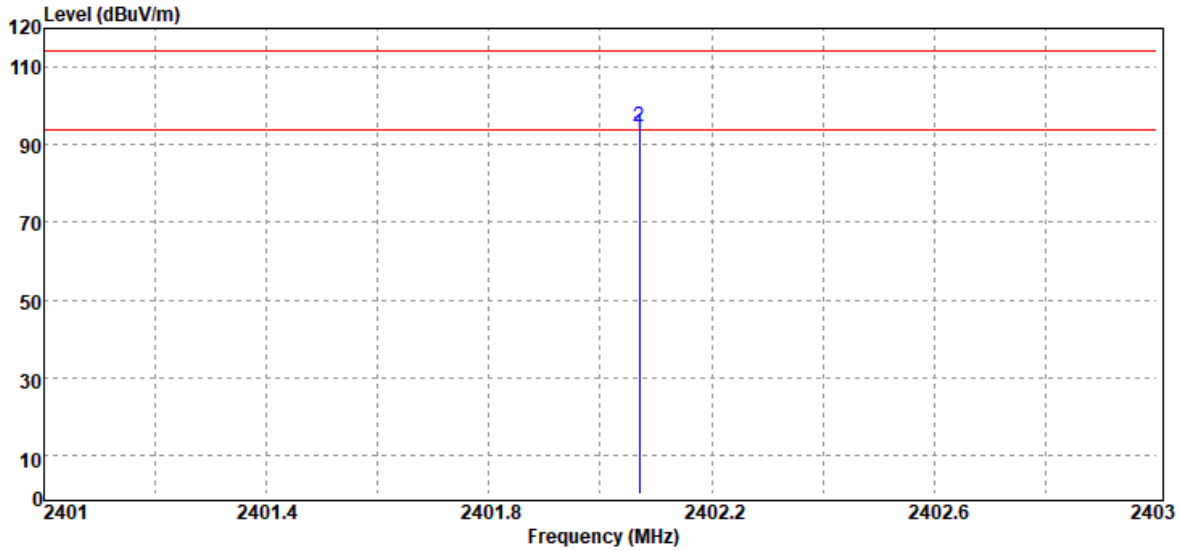
L (BT1)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



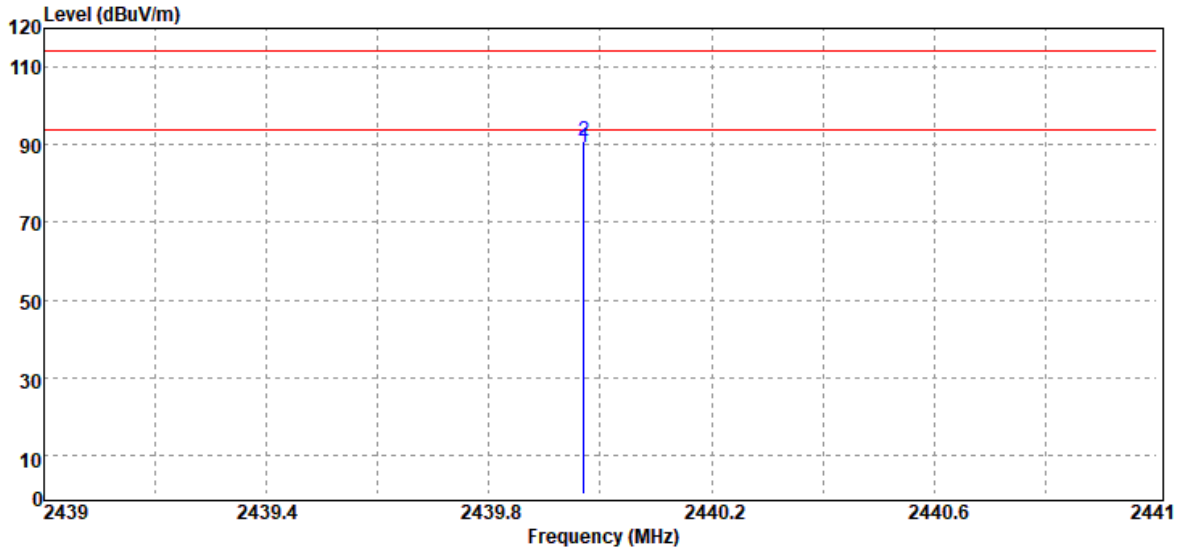
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2402.27	Average	92.59	-3.41	89.18	94.00	-4.82
2402.27	Peak	94.08	-3.41	90.67	114.00	-23.33

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



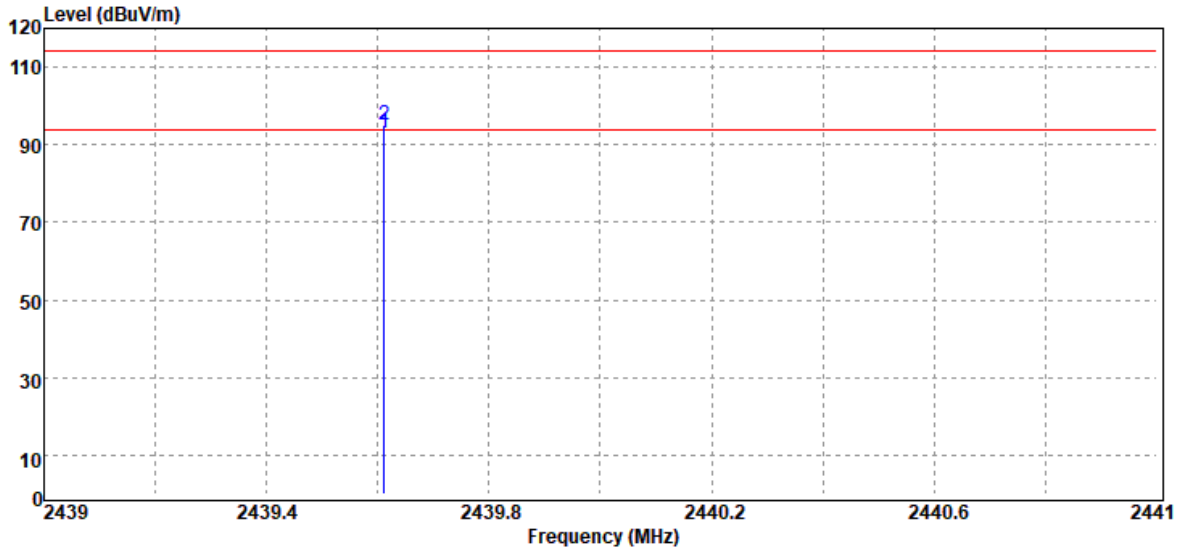
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2402.07	Average	96.33	-3.41	92.92	94.00	-1.08
2402.07	Peak	98.08	-3.41	94.67	114.00	-19.33

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



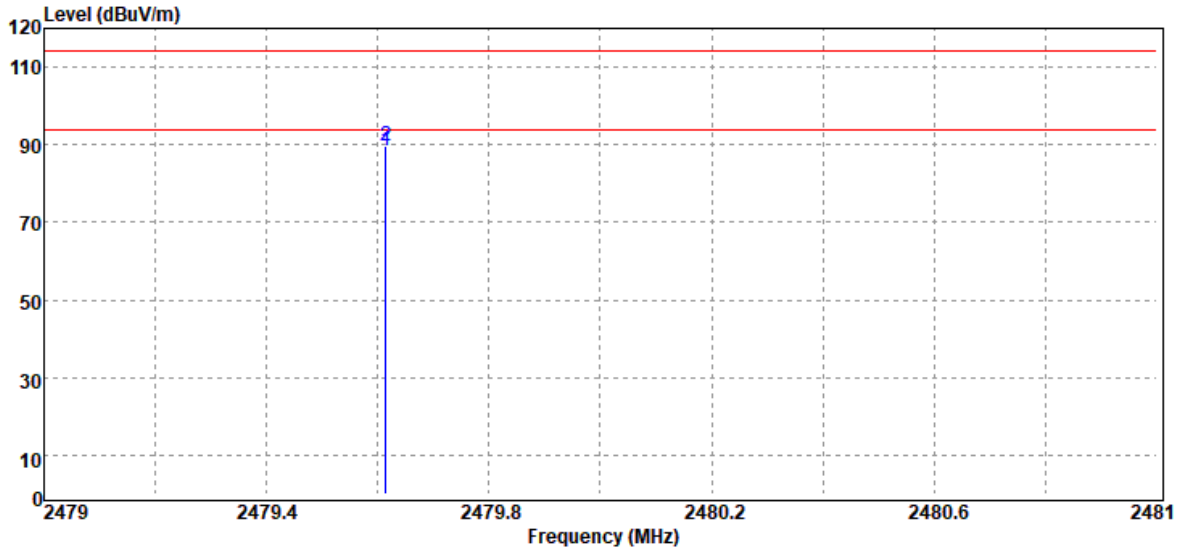
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.97	Average	92.48	-3.23	89.25	94.00	-4.75
2439.97	Peak	94.33	-3.23	91.10	114.00	-22.90

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



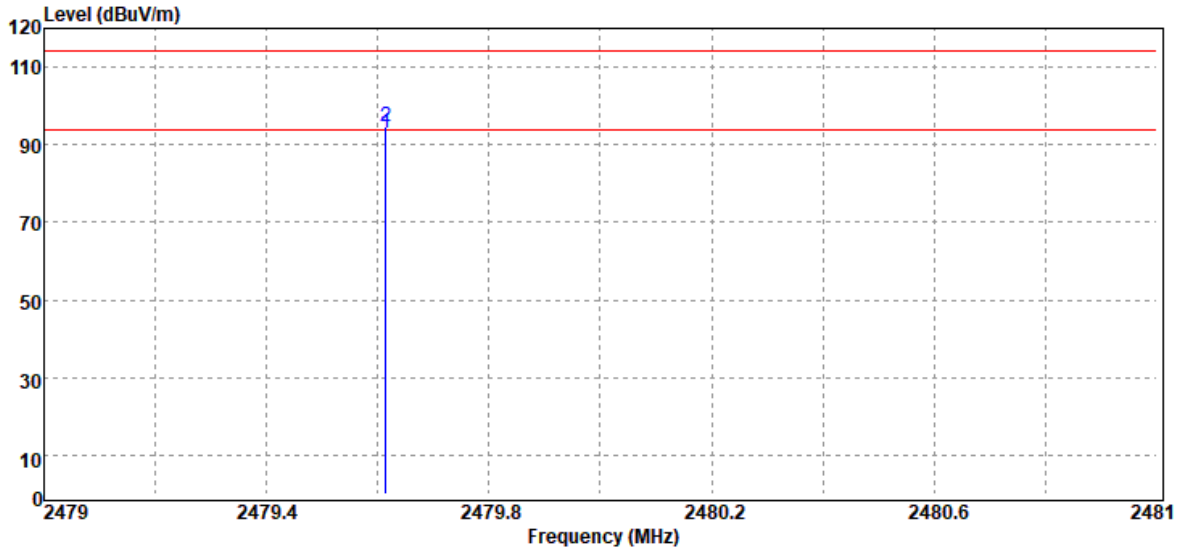
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.61	Average	96.07	-3.23	92.84	94.00	-1.16
2439.61	Peak	98.17	-3.23	94.94	114.00	-19.06

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2479.61	Average	91.16	-2.86	88.30	94.00	-5.70
2479.61	Peak	92.53	-2.86	89.67	114.00	-24.33

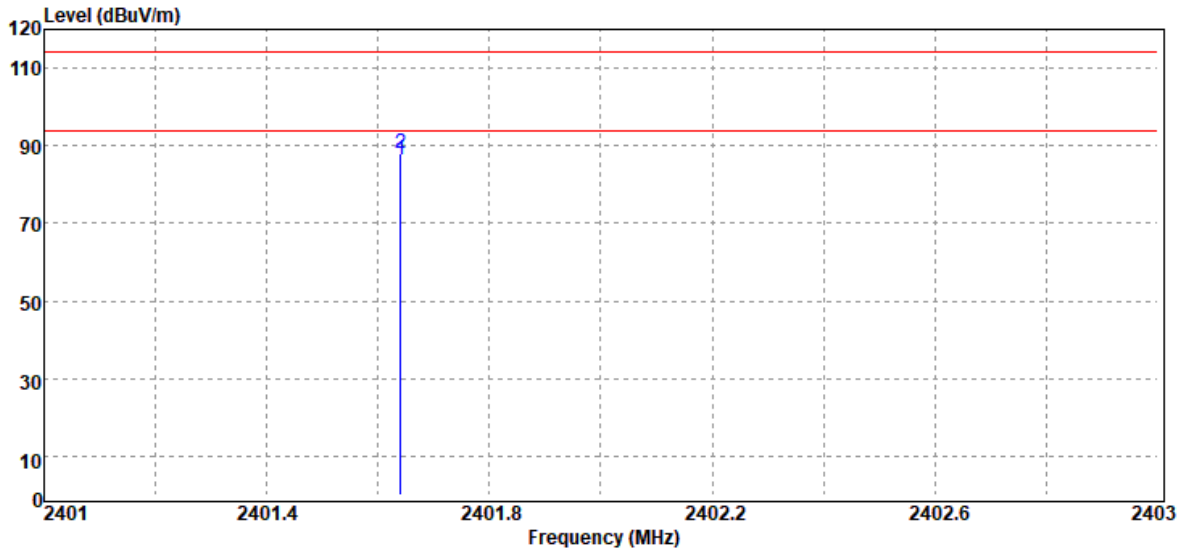
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2479.61	Average	95.73	-2.86	92.87	94.00	-1.13
2479.61	Peak	97.63	-2.86	94.77	114.00	-19.23

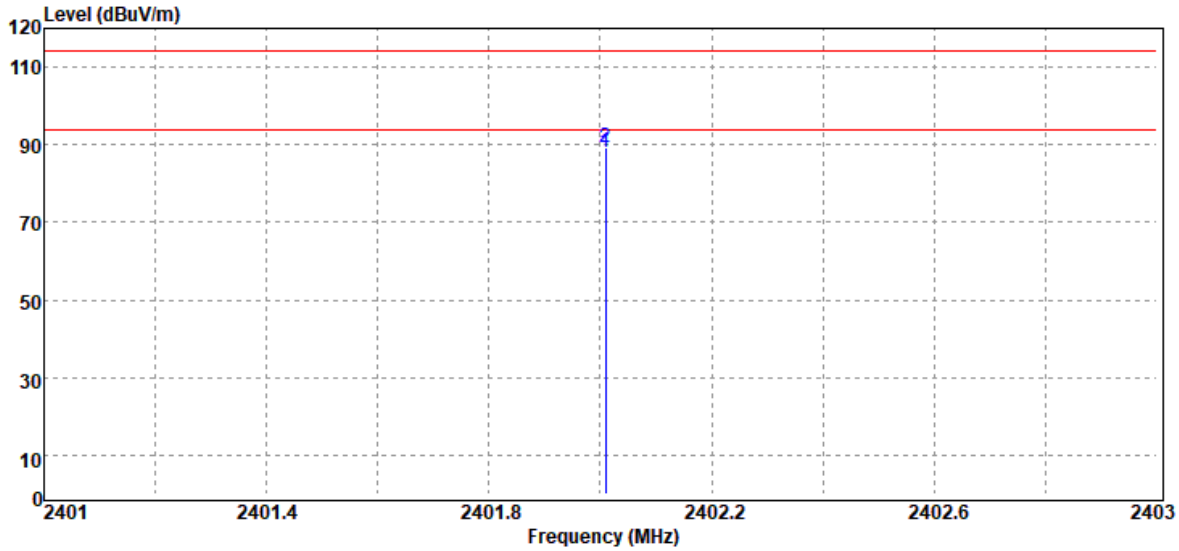
R (BT2)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



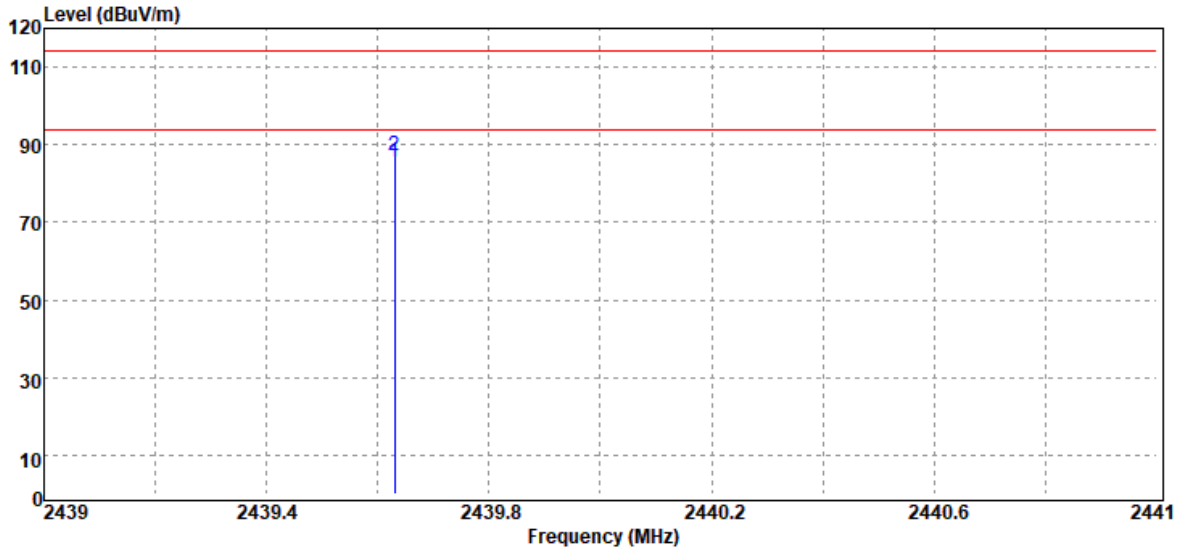
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2401.64	Average	89.80	-3.41	86.39	94.00	-7.61
2401.64	Peak	91.35	-3.41	87.94	114.00	-26.06

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



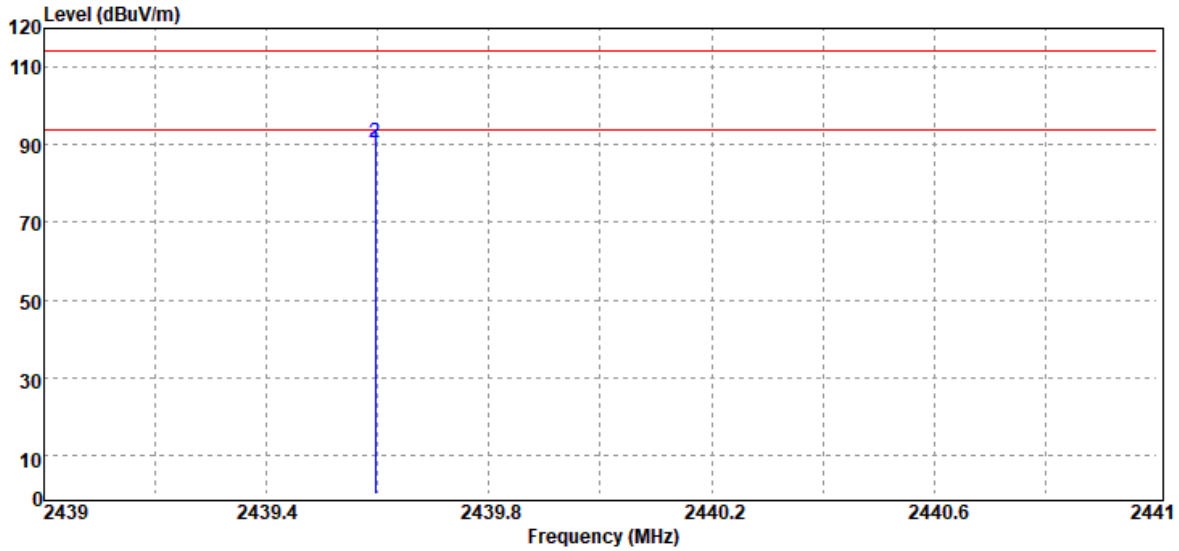
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2402.01	Average	91.24	-3.41	87.83	94.00	-6.17
2402.01	Peak	92.79	-3.41	89.38	114.00	-24.62

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



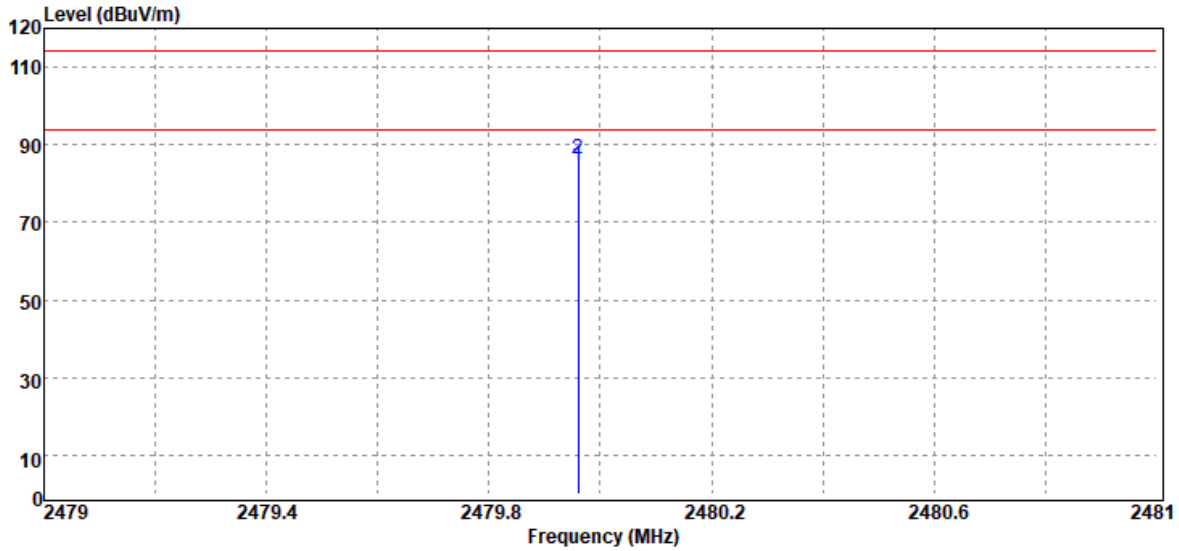
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.63	Average	88.75	-3.23	85.52	94.00	-8.48
2439.63	Peak	90.34	-3.23	87.11	114.00	-26.89

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



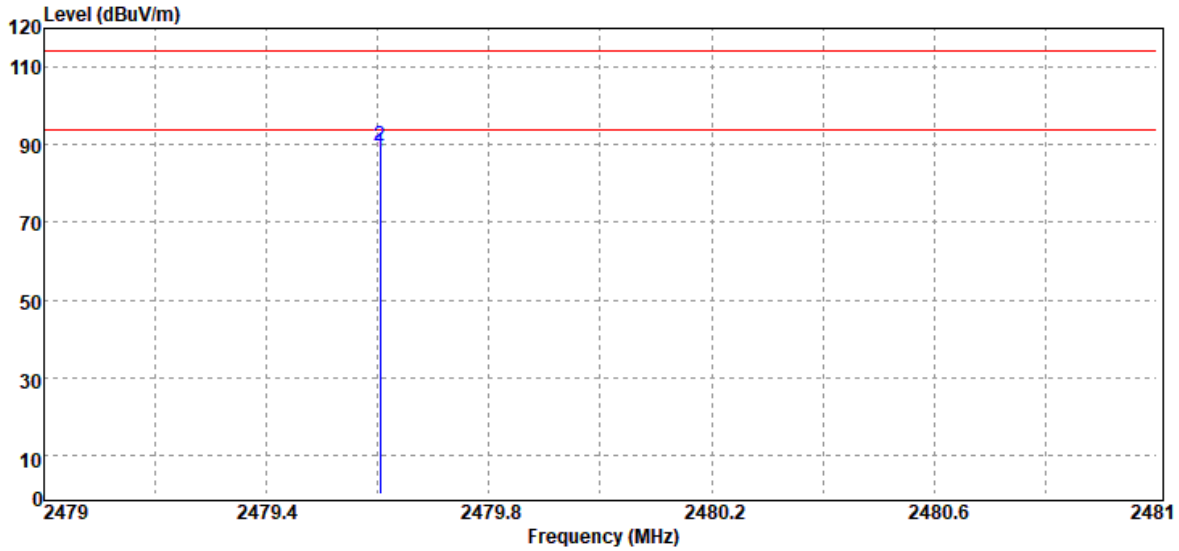
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.60	Average	92.18	-3.23	88.95	94.00	-5.05
2439.60	Peak	93.69	-3.23	90.46	114.00	-23.54

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2479.96	Average	87.46	-2.86	84.60	94.00	-9.40
2479.96	Peak	89.03	-2.86	86.17	114.00	-27.83

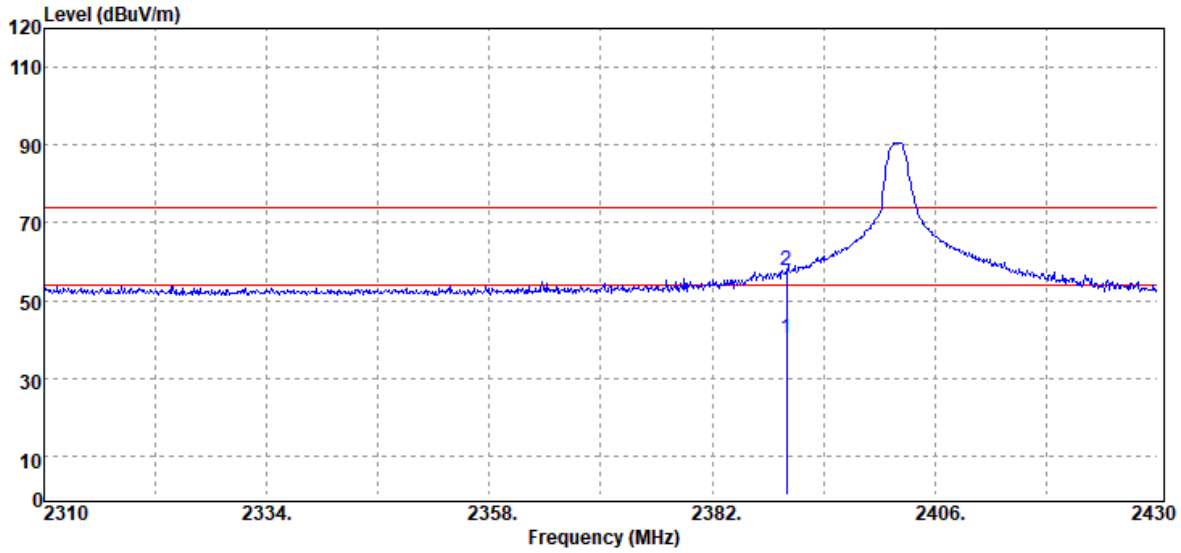
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Main	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2479.60	Average	90.96	-2.86	88.10	94.00	-5.90
2479.60	Peak	92.54	-2.86	89.68	114.00	-24.32

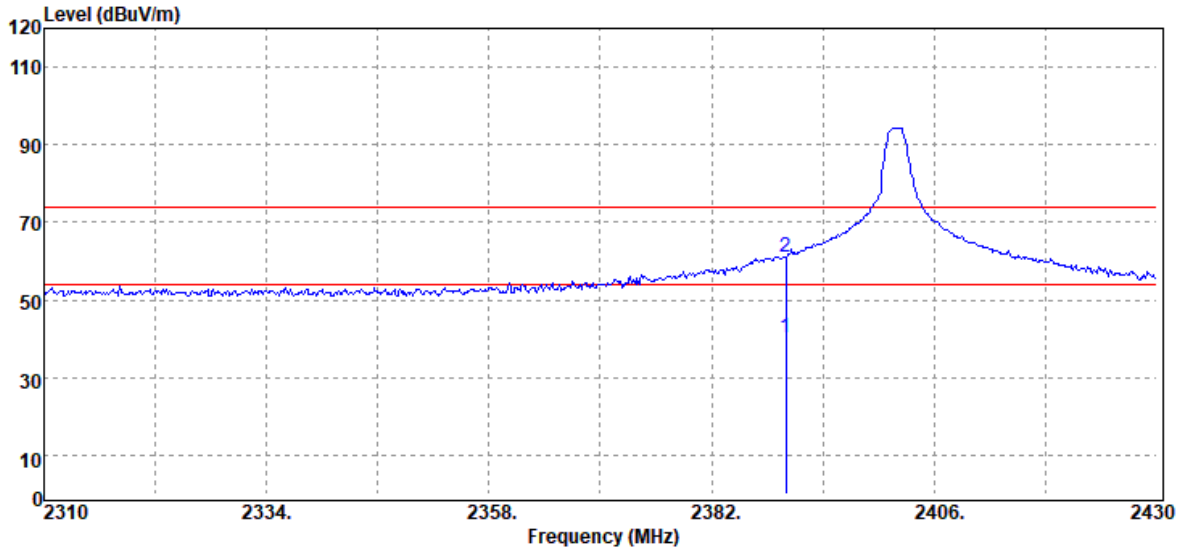
Restricted bands around fundamental frequency
L (BT1)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:BE CH Low	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



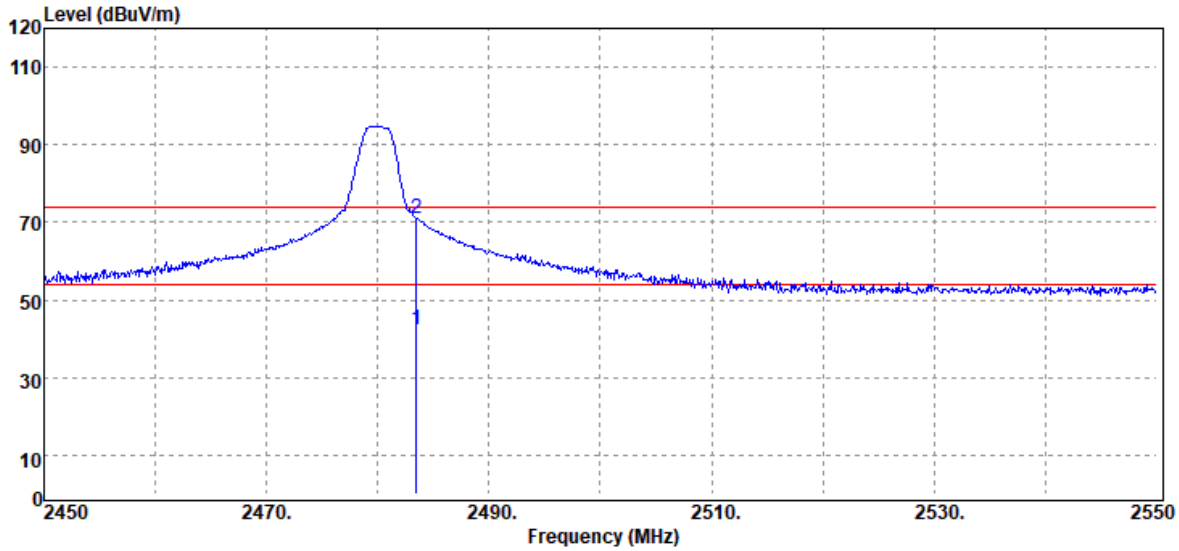
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	43.76	-3.38	40.38	54.00	-13.62
2390.00	Peak	61.28	-3.38	57.90	74.00	-16.10

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:BE CH Low	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



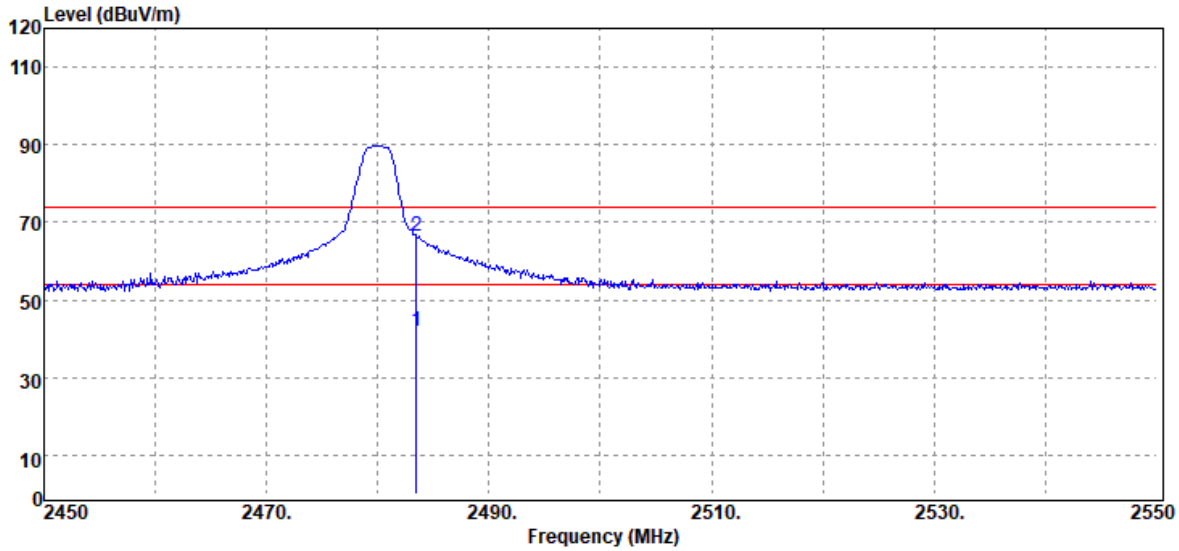
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	43.85	-3.38	40.47	54.00	-13.53
2390.00	Peak	64.24	-3.38	60.86	74.00	-13.14

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:BE CH High	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	45.31	-2.83	42.48	54.00	-11.52
2483.50	Peak	73.98	-2.83	71.15	74.00	-2.85

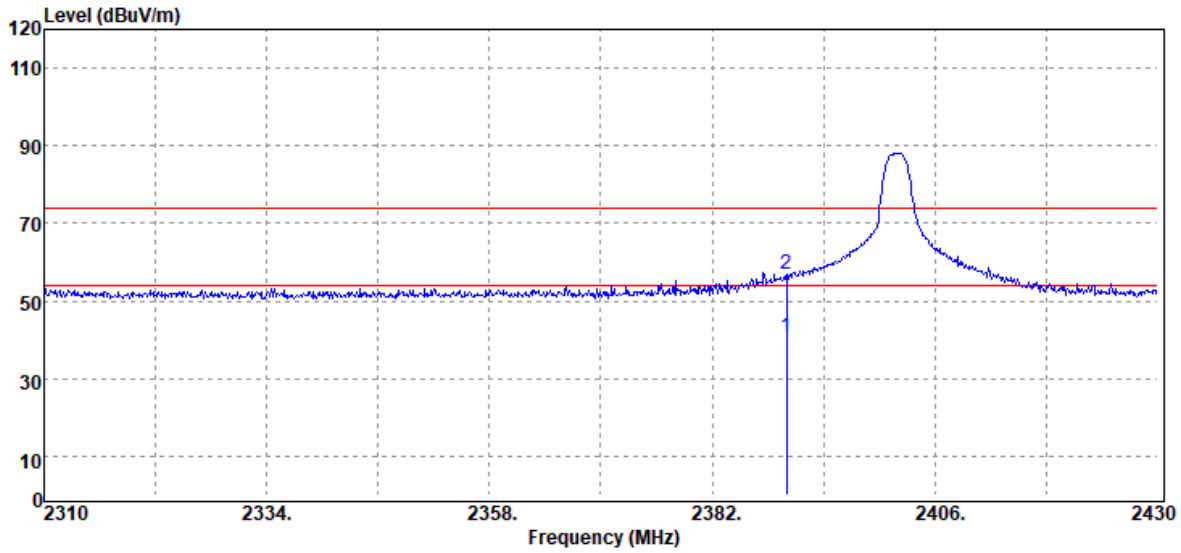
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:BE CH High	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	44.73	-2.83	41.90	54.00	-12.10
2483.50	Peak	69.34	-2.83	66.51	74.00	-7.49

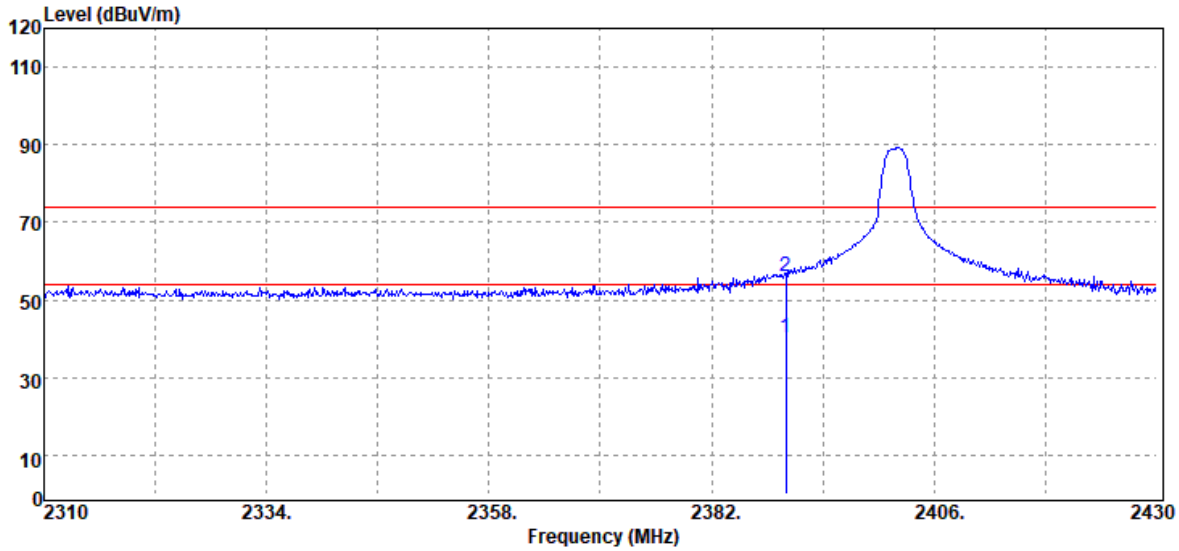
R (BT2)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:BE CH Low	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



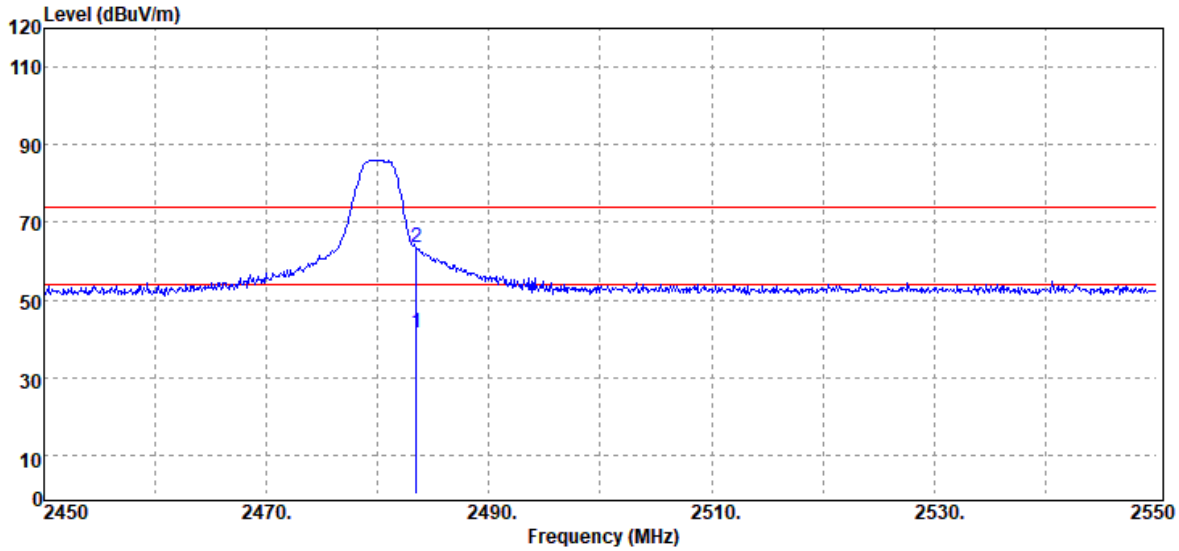
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	44.00	-3.38	40.62	54.00	-13.38
2390.00	Peak	60.11	-3.38	56.73	74.00	-17.27

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402 MHz	Engineer	:Kane
Operation Mode	:BE CH Low	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



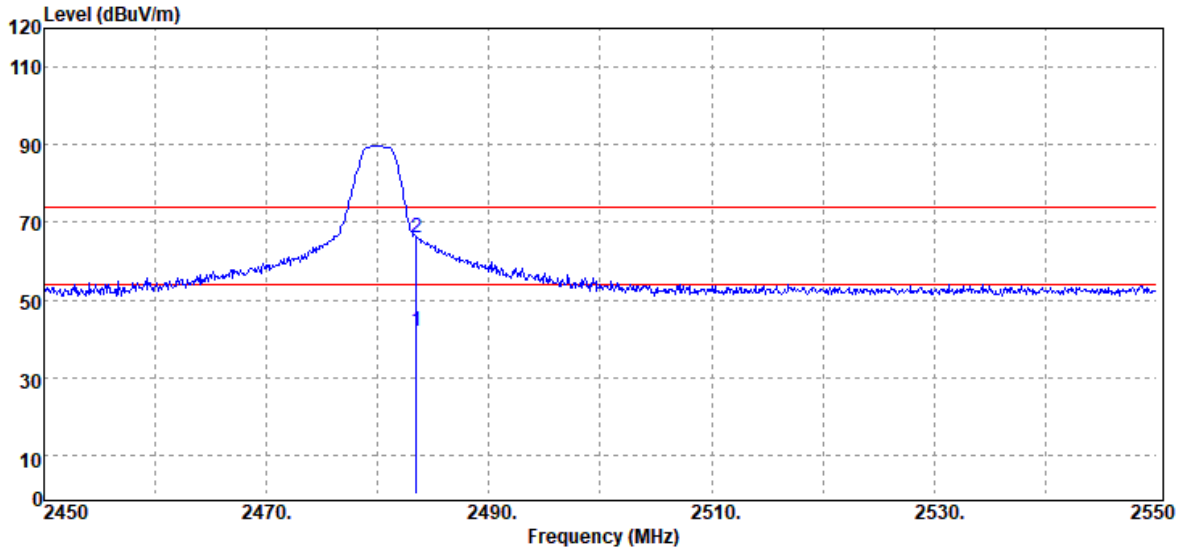
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	43.63	-3.38	40.25	54.00	-13.75
2390.00	Peak	59.58	-3.38	56.20	74.00	-17.80

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:BE CH High	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	44.22	-2.83	41.39	54.00	-12.61
2483.50	Peak	66.21	-2.83	63.38	74.00	-10.62

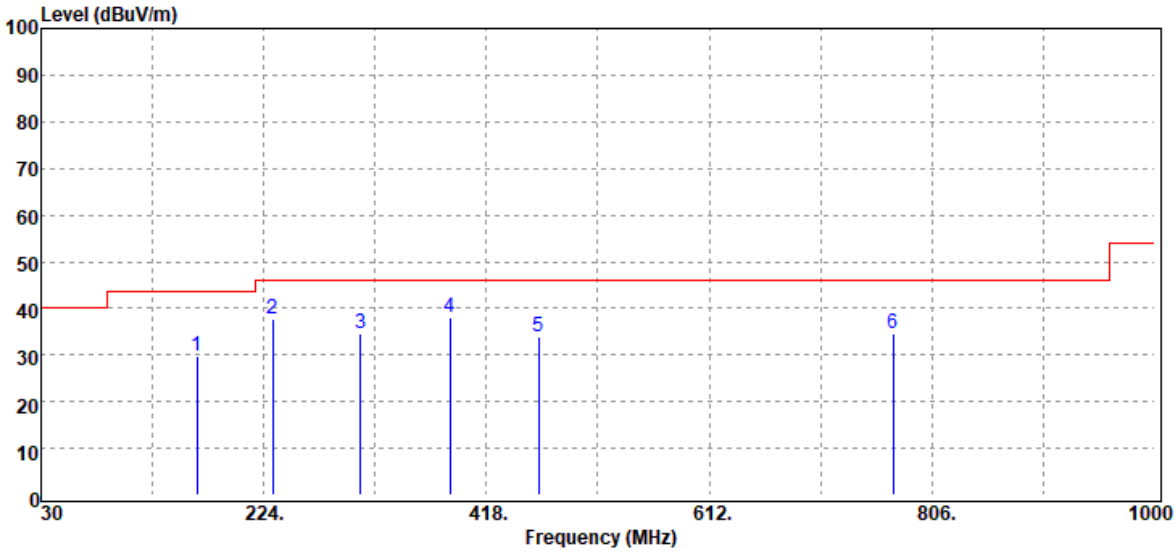
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:BE CH High	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	44.60	-2.83	41.77	54.00	-12.23
2483.50	Peak	68.99	-2.83	66.16	74.00	-7.84

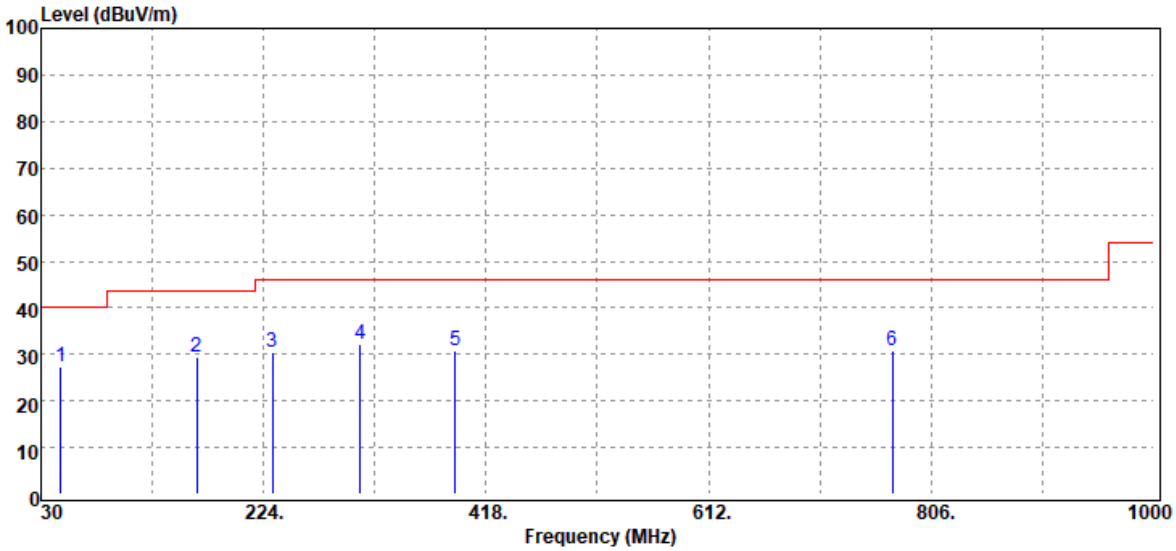
Radiated Spurious Emission Measurement Result (Below 1GHz)
L (BT1)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
165.80	Peak	40.23	-10.34	29.89	43.50	-13.61
231.76	Peak	48.56	-10.75	37.81	46.00	-8.19
308.39	Peak	42.74	-7.97	34.77	46.00	-11.23
385.99	Peak	44.30	-6.20	38.10	46.00	-7.90
463.59	Peak	37.38	-3.53	33.85	46.00	-12.15
772.05	Peak	32.92	1.51	34.43	46.00	-11.57

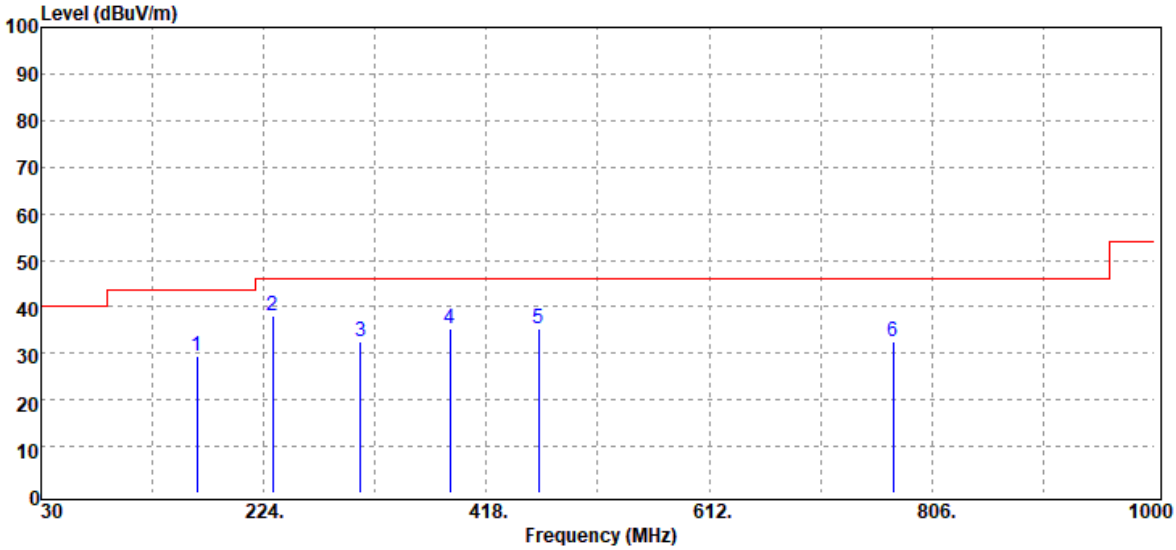
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
47.46	Peak	41.51	-14.26	27.25	40.00	-12.75
165.80	Peak	39.63	-10.34	29.29	43.50	-14.21
231.76	Peak	41.15	-10.75	30.40	46.00	-15.60
308.39	Peak	40.31	-7.97	32.34	46.00	-13.66
390.84	Peak	36.60	-5.96	30.64	46.00	-15.36
772.05	Peak	29.12	1.51	30.63	46.00	-15.37

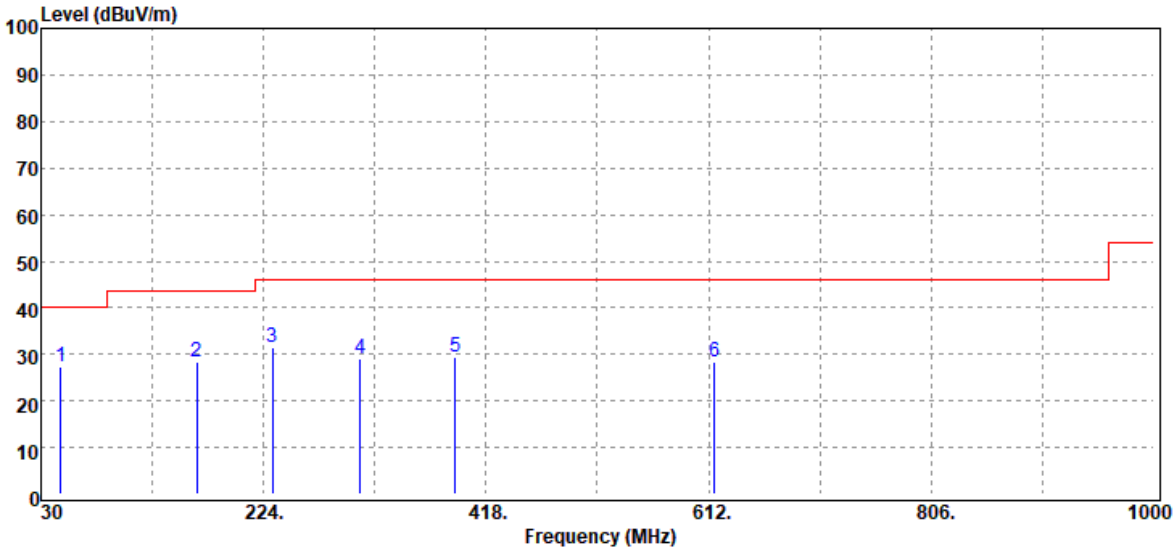
R (BT2)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
165.80	Peak	39.75	-10.34	29.41	43.50	-14.09
231.76	Peak	48.95	-10.75	38.20	46.00	-7.80
308.39	Peak	40.57	-7.97	32.60	46.00	-13.40
385.99	Peak	41.54	-6.20	35.34	46.00	-10.66
463.59	Peak	38.79	-3.53	35.26	46.00	-10.74
772.05	Peak	31.18	1.51	32.69	46.00	-13.31

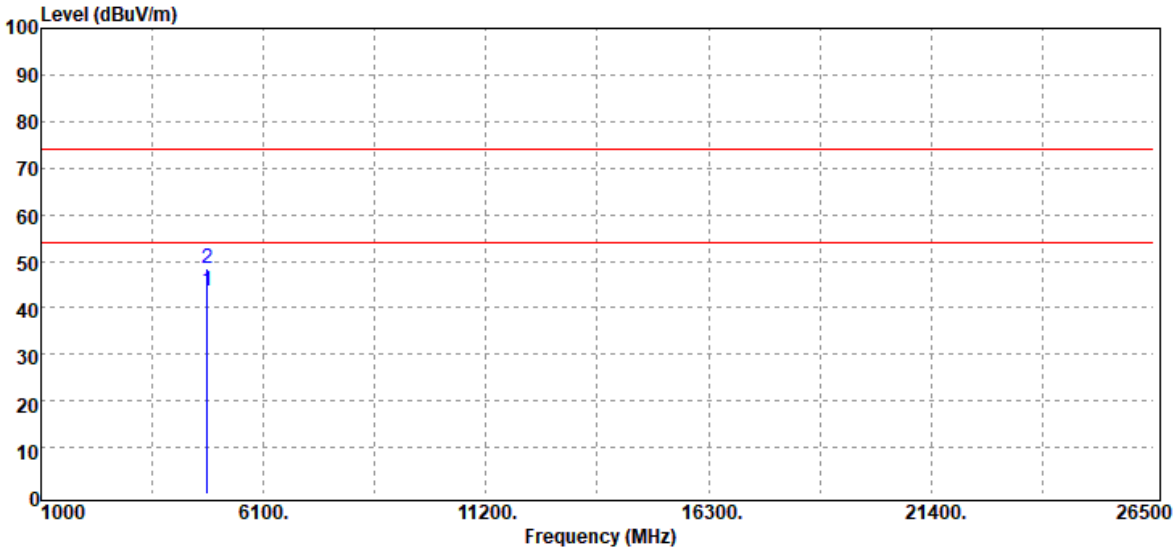
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
47.46	Peak	41.59	-14.26	27.33	40.00	-12.67
165.80	Peak	38.58	-10.34	28.24	43.50	-15.26
231.76	Peak	42.17	-10.75	31.42	46.00	-14.58
308.39	Peak	37.12	-7.97	29.15	46.00	-16.85
390.84	Peak	35.20	-5.96	29.24	46.00	-16.76
616.85	Peak	29.33	-0.98	28.35	46.00	-17.65

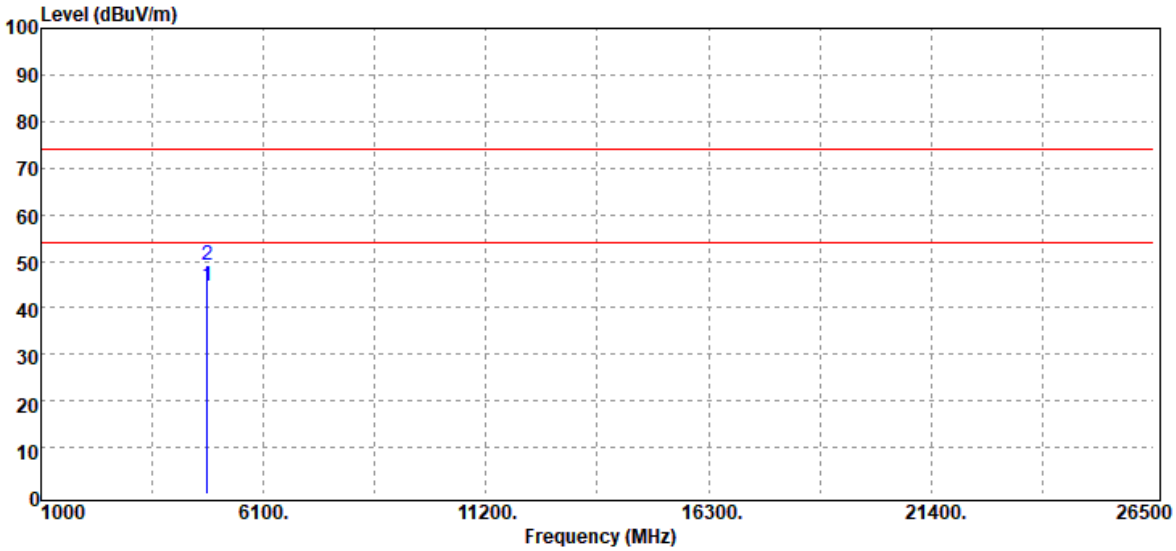
Radiated Spurious Emission Measurement Result (Above 1GHz)
L (BT1)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402MHz	Engineer	:Kane
Operation Mode	:Tx CH Low	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



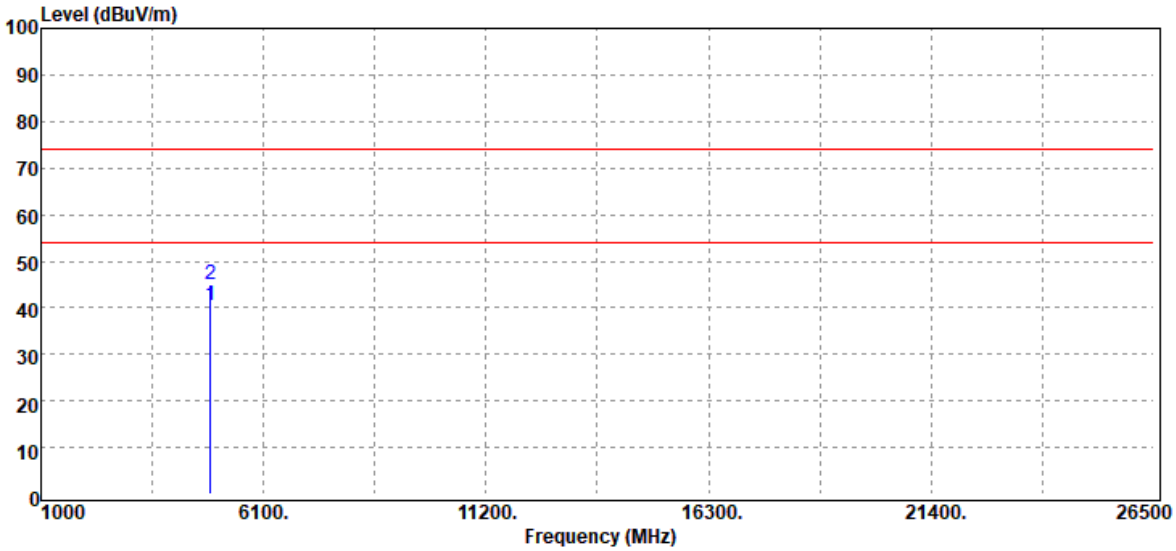
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4804.00	Average	40.67	3.05	43.72	54.00	-10.28
4804.00	Peak	45.45	3.05	48.50	74.00	-25.50

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2402MHz	Engineer	:Kane
Operation Mode	:Tx CH Low	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



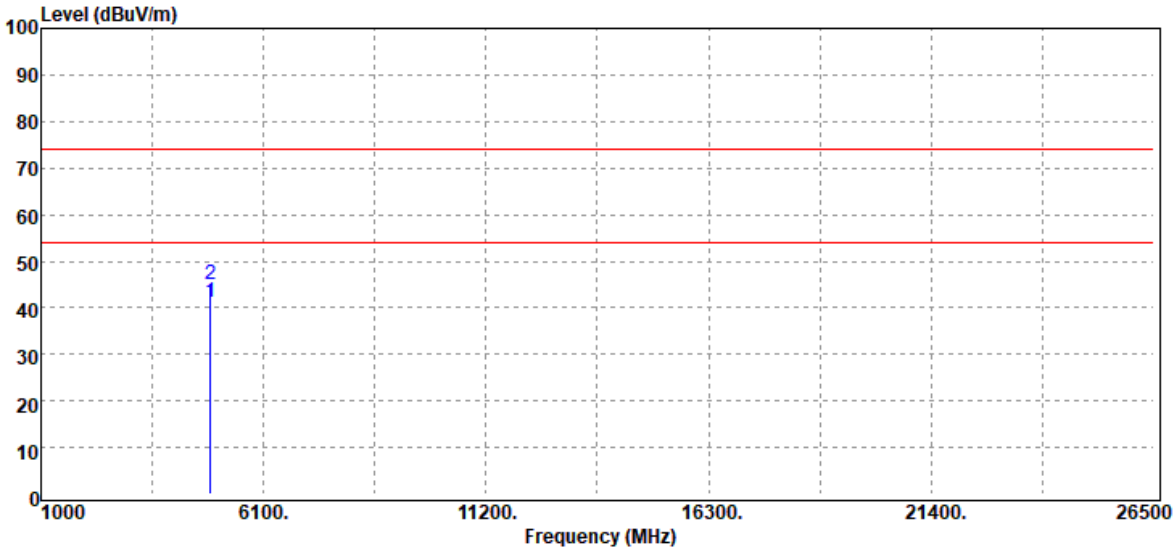
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4804.00	Average	41.69	3.05	44.74	54.00	-9.26
4804.00	Peak	46.04	3.05	49.09	74.00	-24.91

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



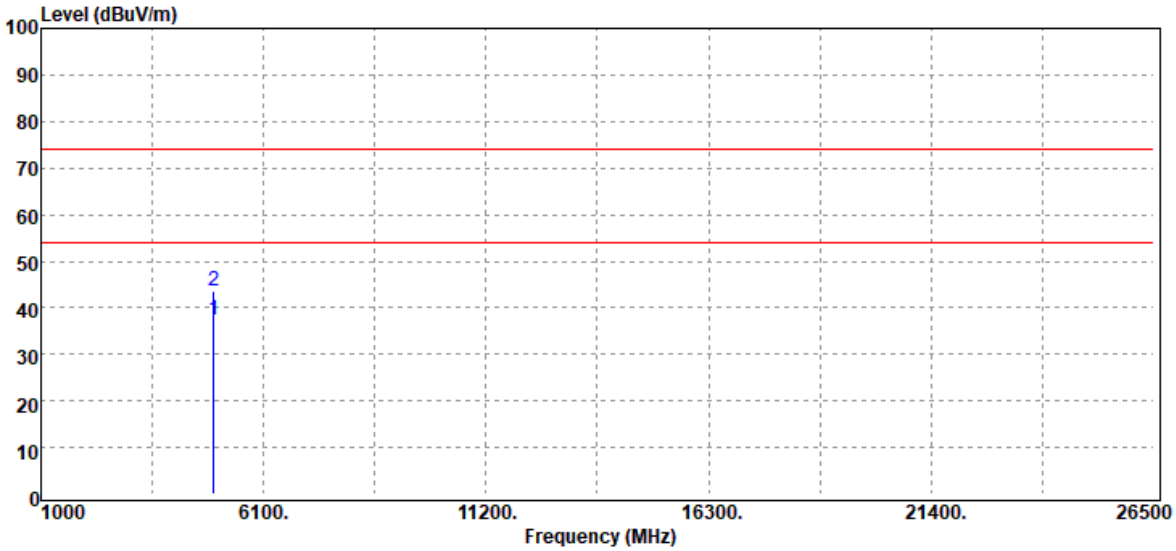
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4880.00	Average	37.18	3.37	40.55	54.00	-13.45
4880.00	Peak	41.69	3.37	45.06	74.00	-28.94

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



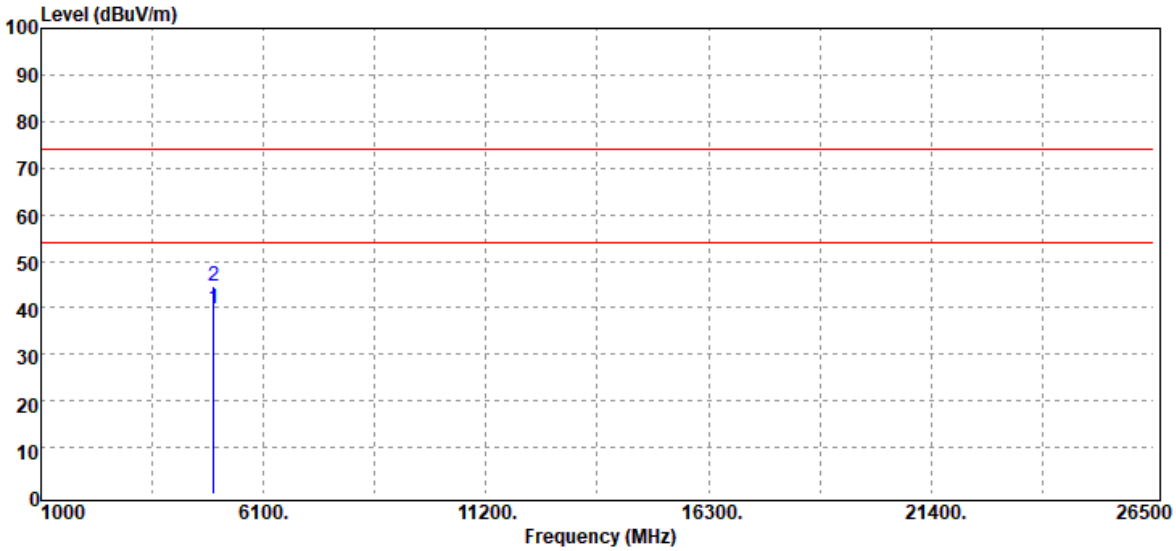
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4880.00	Average	37.74	3.37	41.11	54.00	-12.89
4880.00	Peak	41.75	3.37	45.12	74.00	-28.88

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Tx CH High	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4960.00	Average	33.29	4.06	37.35	54.00	-16.65
4960.00	Peak	39.50	4.06	43.56	74.00	-30.44

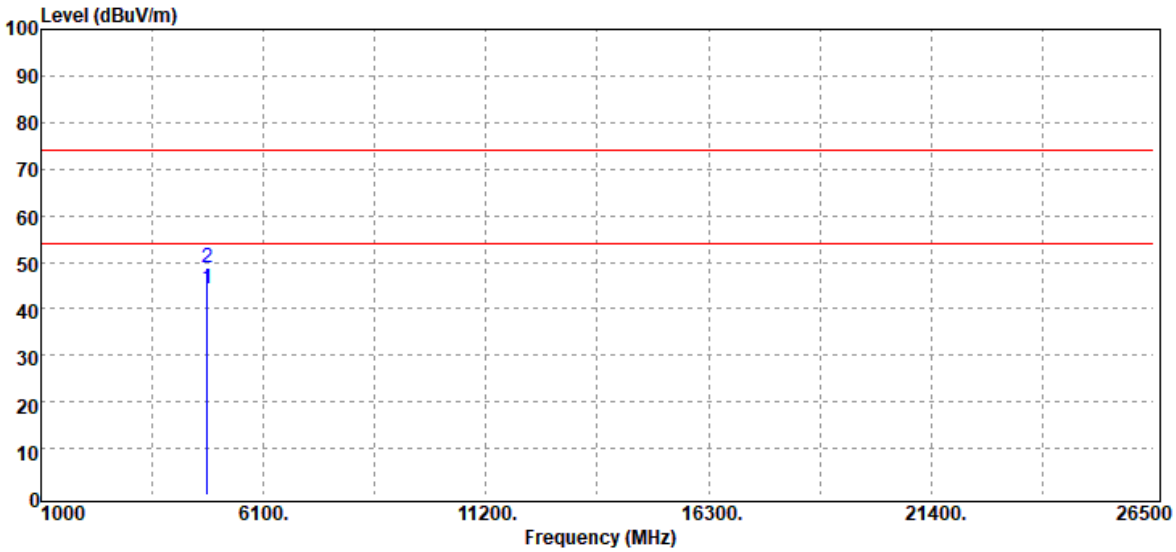
Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:28.8/63
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Tx CH High	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4960.00	Average	35.84	4.06	39.90	54.00	-14.10
4960.00	Peak	40.63	4.06	44.69	74.00	-29.31

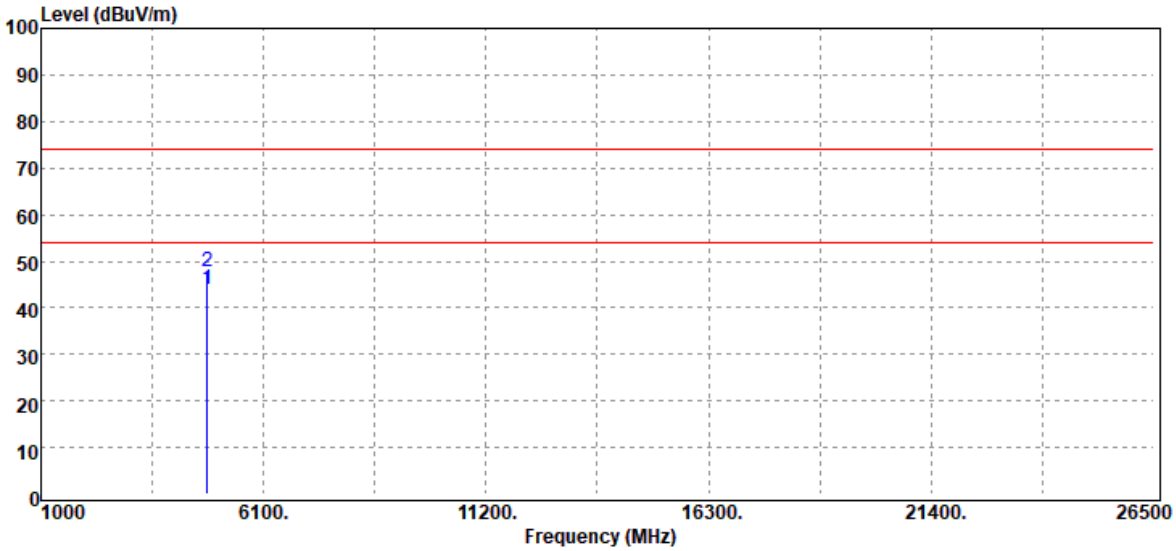
R (BT2)

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402MHz	Engineer	:Kane
Operation Mode	:Tx CH Low	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



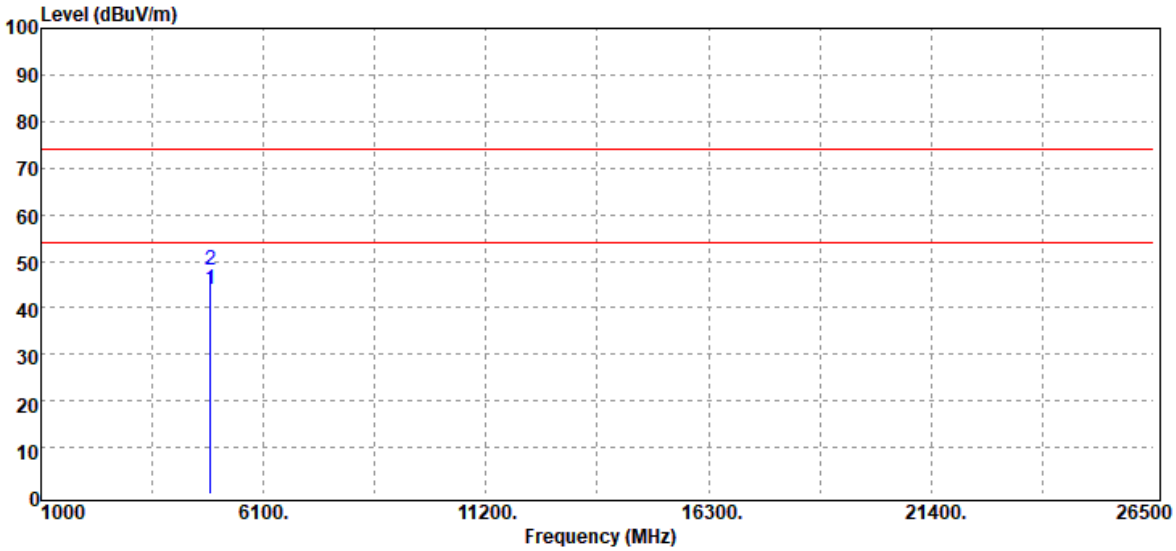
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4804.00	Average	41.19	3.05	44.24	54.00	-9.76
4804.00	Peak	45.85	3.05	48.90	74.00	-25.10

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2402MHz	Engineer	:Kane
Operation Mode	:Tx CH Low	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



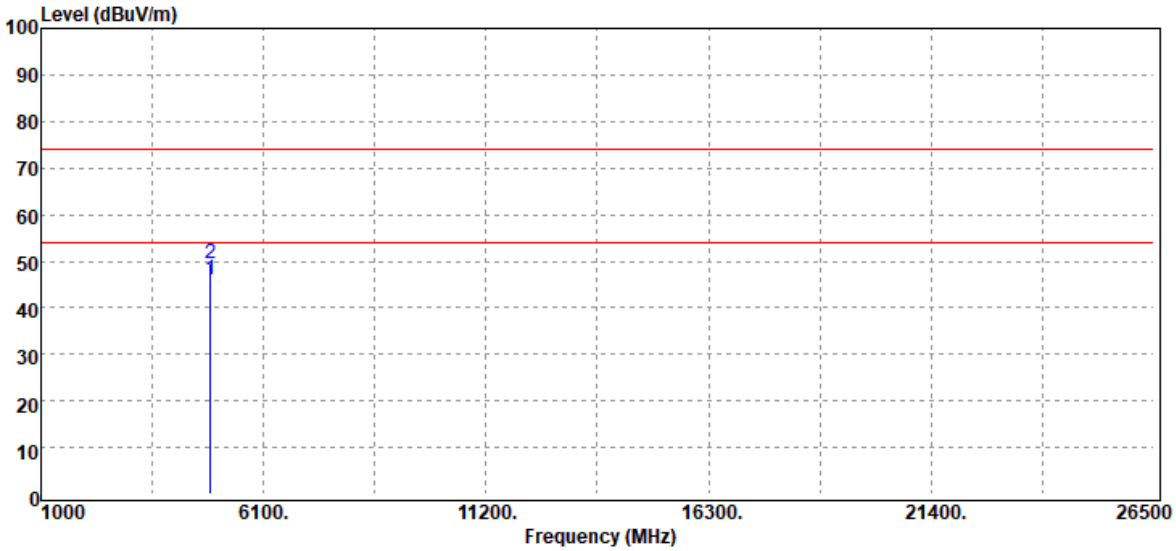
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4804.00	Average	41.05	3.05	44.10	54.00	-9.90
4804.00	Peak	44.87	3.05	47.92	74.00	-26.08

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



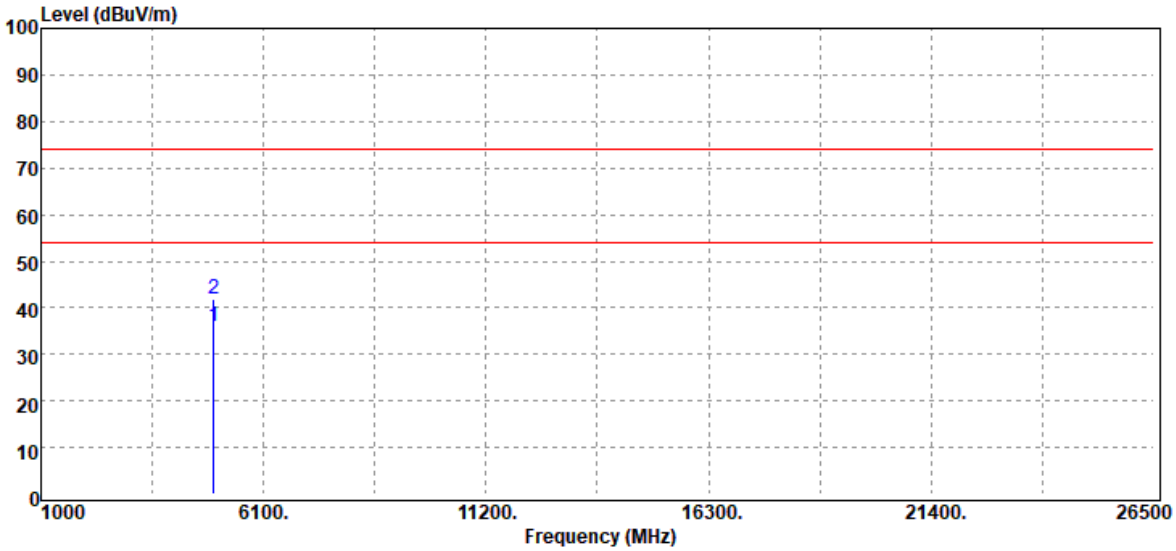
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4880.00	Average	40.71	3.37	44.08	54.00	-9.92
4880.00	Peak	44.75	3.37	48.12	74.00	-25.88

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2440 MHz	Engineer	:Kane
Operation Mode	:Tx CH Mid	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



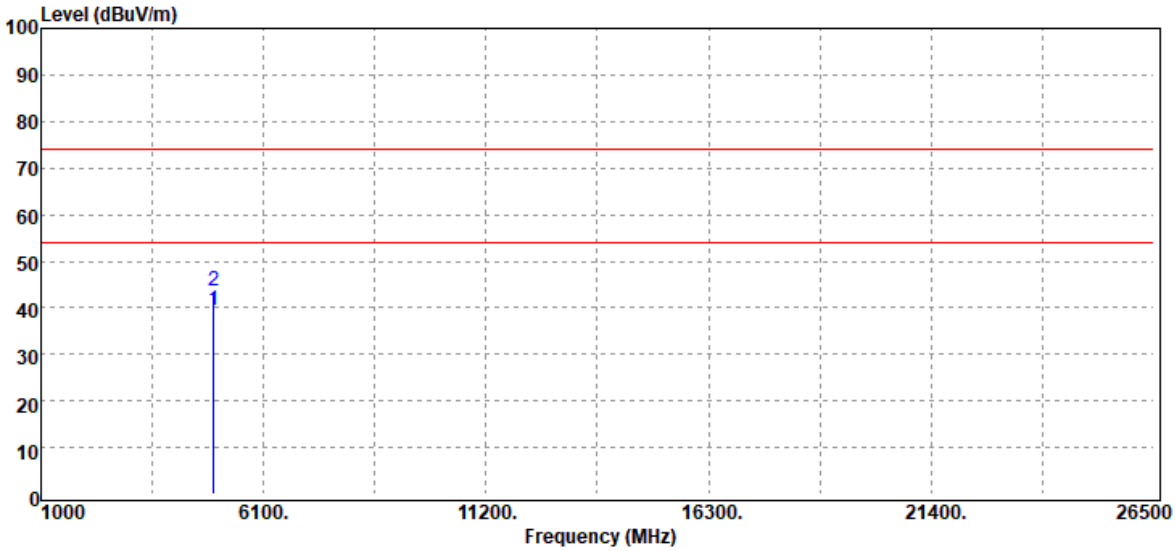
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4880.00	Average	42.80	3.37	46.17	54.00	-7.83
4880.00	Peak	46.14	3.37	49.51	74.00	-24.49

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Tx CH High	Measurement Antenna Pol.	:VERTICAL
EUT Pol.	:E2 Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4960.00	Average	32.07	4.06	36.13	54.00	-17.87
4960.00	Peak	37.71	4.06	41.77	74.00	-32.23

Project Number	:T190815W02	Test Date	:2019-08-19
Operation Band	:2.4G	Temp./Humi.	:29/61
Fundamental Frequency	:2480 MHz	Engineer	:Kane
Operation Mode	:Tx CH High	Measurement Antenna Pol.	:HORIZONTAL
EUT Pol.	:E2 Plan		



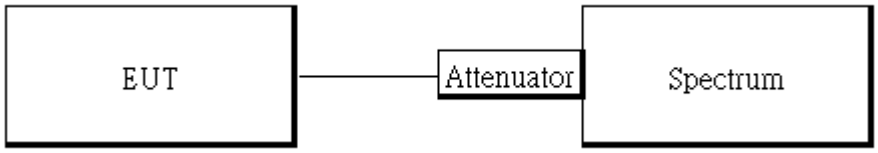
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4960.00	Average	35.32	4.06	39.38	54.00	-14.62
4960.00	Peak	39.67	4.06	43.73	74.00	-30.27

8 20 dB BANDWIDTH MEASUREMENT

8.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set ETU normal operating mode.
3. Set SPA Center Frequency = fundamental frequency, RBW = 100kHz, VBW = 300kHz, Span = 5MHz.
4. Set SPA Max hold. Mark peak, -20dB.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Measurement Equipment Used:

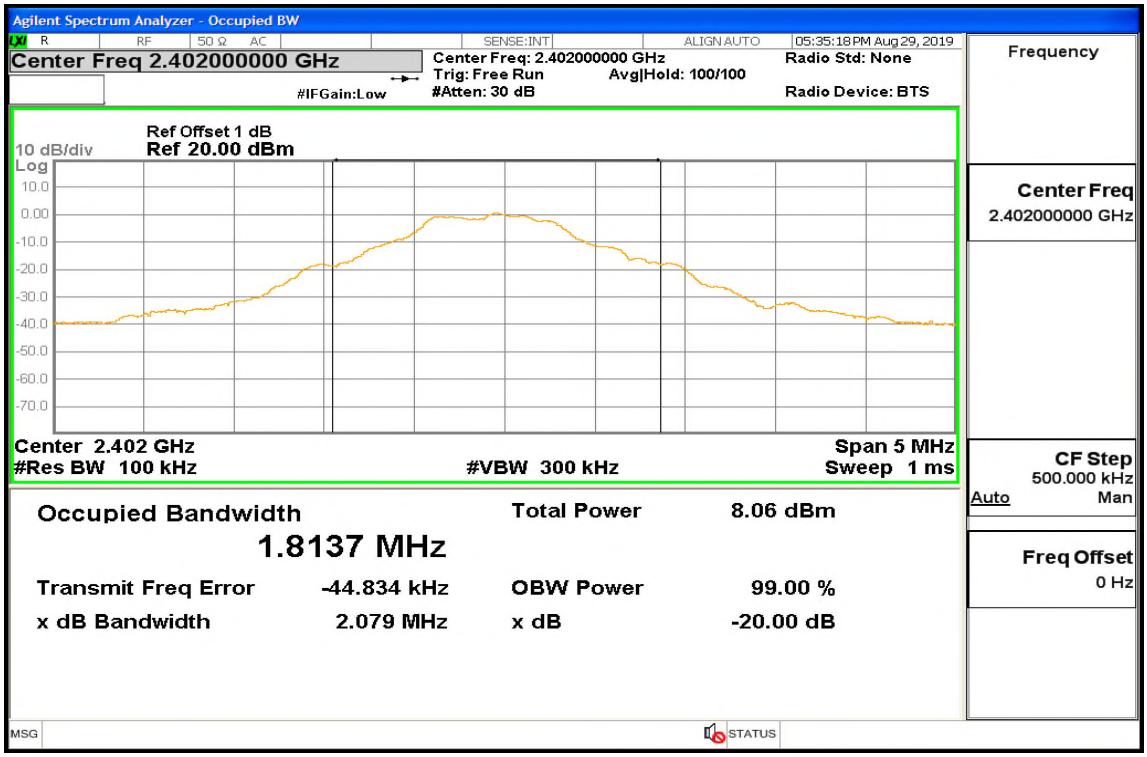
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/02/2019	05/01/2020
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2019	01/01/2020
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2019	01/01/2020

8.4 Measurement Results:

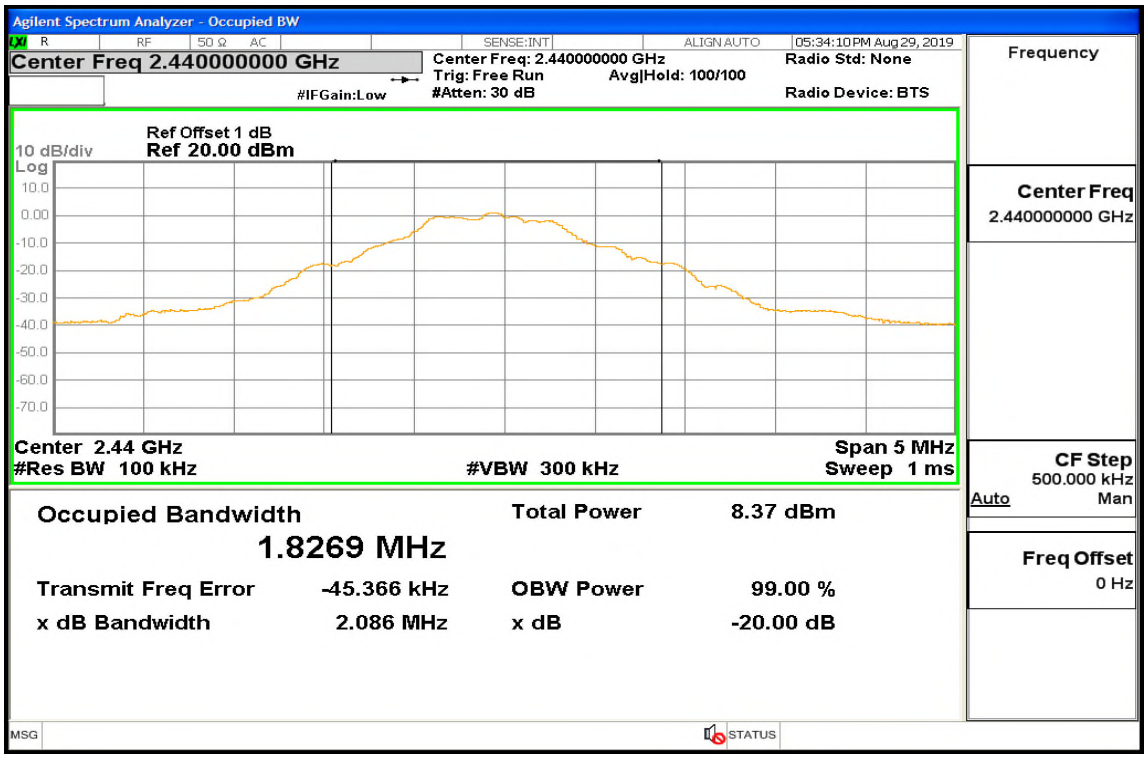
BLE mode

Frequency (MHz)	20dB BW (MHz)	BW (MHz)	Result
2402	2.079	> 0.5	PASS
2440	2.086	> 0.5	PASS
2480	2.085	> 0.5	PASS

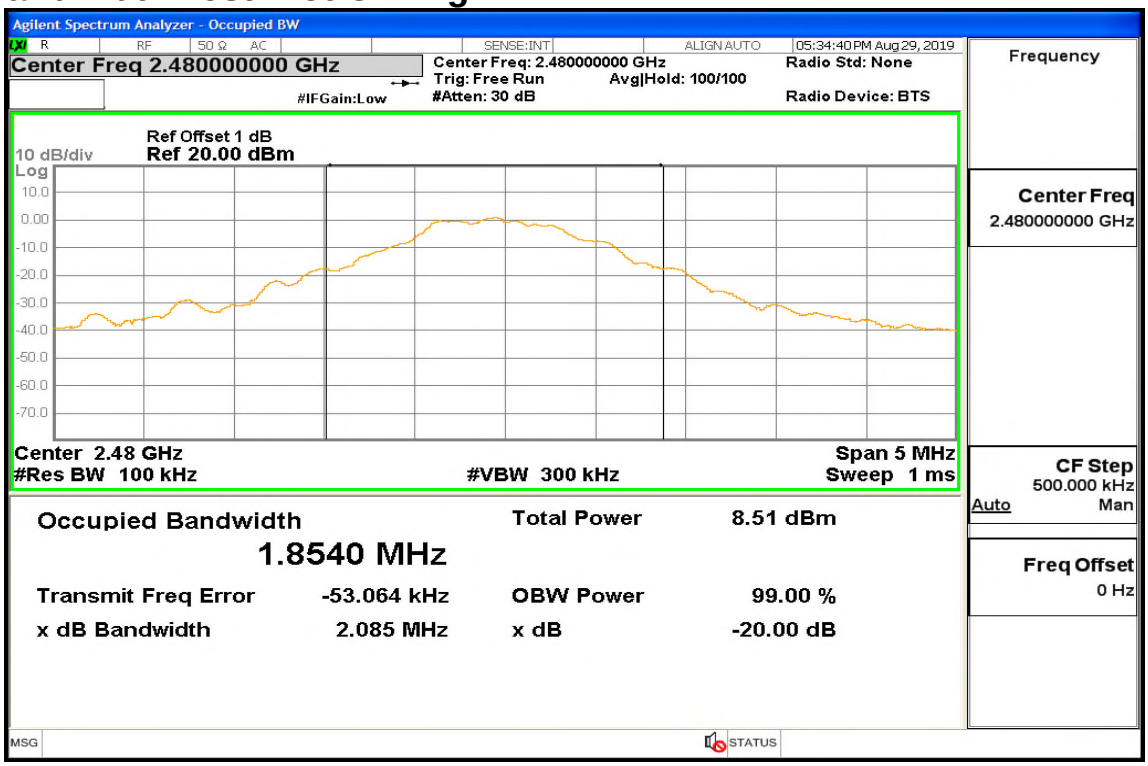
20dB Bandwidth Test Plot CH Low



20dB Bandwidth Test Plot CH Mid



20dB Bandwidth Test Plot CH High



9 FREQUENCY STABILITY

9.1 Standard Applicable

The frequency tolerance of the carrier signal shall be maintained within ±0.001% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

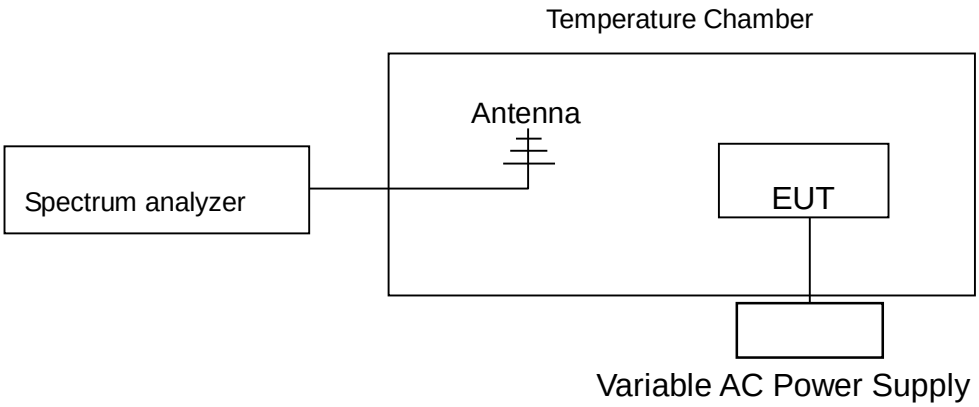
9.2 Measurement Procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

9.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1804001	02/13/2019	02/12/2020
Power Sensor	Anritsu	MA2411B	1726104	02/13/2019	02/12/2020
Power Sensor	Anritsu	MA2411B	1726107	02/13/2019	02/12/2020
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2019	01/01/2020
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/02/2019	05/01/2020
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2019	01/01/2020

9.4 Test SET-UP (Block Diagram of Configuration)



9.5 Measurement Results:

2402 MHz

Power Supply	Environment	Frequency	Delta (KHz)	Limit (KHz)
Vdc	Temperature (℃)	(MHz)		
11	25	2402.112	-174.00000	+/- 240.2
13	25	2402.175	-237.00000	+/- 240.2
12	25	2401.938	0.00000	+/- 240.2
12	-10	2402.077	-139.00000	+/- 240.2
12	55	2402.154	-216.00000	+/- 240.2

2440 MHz

Power Supply	Environment	Frequency	Delta (KHz)	Limit (KHz)
Vdc	Temperature (℃)	(MHz)		
11	25	2440.032	-89.00000	+/- 244.0
13	25	2439.897	46.00000	+/- 244.0
12	25	2439.943	0.00000	+/- 244.0
12	-10	2440.111	-168.00000	+/- 244.0
12	55	2440.112	-169.00000	+/- 244.0

2480 MHz

Power Supply	Environment	Frequency	Delta (KHz)	Limit (KHz)
Vdc	Temperature (℃)	(MHz)		
11	25	2479.932	18.00000	+/- 248.0
13	25	2479.753	197.00000	+/- 248.0
12	25	2479.95	0.00000	+/- 248.0
12	-10	2479.867	83.00000	+/- 248.0
12	55	2480.13	-180.00000	+/- 248.0

10 ANTENNA REQUIREMENT

10.1 Standard Applicable:

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

In case of point-to-point operation, the power shall be reduced by the one dB for every 3 dB that the directional gain of antenna exceeds 6dBi.

10.2 Antenna Connected Construction:

The antenna is designed as permanently attached and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~