

**Test Report No. 7191166853-EEC17/01**  
dated 23 Oct 2017



PSB Singapore

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH  
47 CFR FCC Parts 15B & C  
( Bluetooth Low Energy )  
OF AN  
**E-Log & Fleet Management Device [ Model : DC700 ]**  
**[ FCC ID : A4C01006A ]**

**TEST FACILITY** TÜV SÜD PSB Pte Ltd  
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No. 1 Science Park Drive, Singapore 118221

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**FCC REG. NO.** 994109 (Test Firm Registration Number)  
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2932N-1 (10m Semi-Anechoic Chamber, International Business Park)

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**QUOTATION NUMBER** 2191066483

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LA-2007-0380-A LA-2007-0384-G  
LA-2007-0381-F LA-2007-0385-E  
LA-2007-0382-B LA-2007-0386-C  
LA-2007-0383-G LA-2010-0464-D

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**TEST SUMMARY**

The product was tested in accordance with the customer's specifications.

**Test Results Summary**

Test Standard	Description	Pass / Fail
47 CFR FCC Part 15		
15.107(a), 15.207	Conducted Emissions	Not Applicable *See Note 5
15.109(a), 15.205, 15.209	Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)	Pass
15.247(a)(2)	Spectrum Bandwidth (6dB Bandwidth Measurement)	Pass
15.247(b)(3)	Maximum Peak Power	Pass
15.247(d)	RF Conducted Spurious Emissions (Non-Restricted Bands)	Pass
15.247(d)	RF Conducted Spurious Emissions (Restricted Bands)	Pass
15.247(d)	Band Edge Compliance (Conducted)	Pass
15.247(d)	Band Edge Compliance (Radiated)	Pass
15.247(e)	Peak Power Spectral Density	Pass
1.1310	Maximum Permissible Exposure	Pass



**TEST SUMMARY**

**Notes**

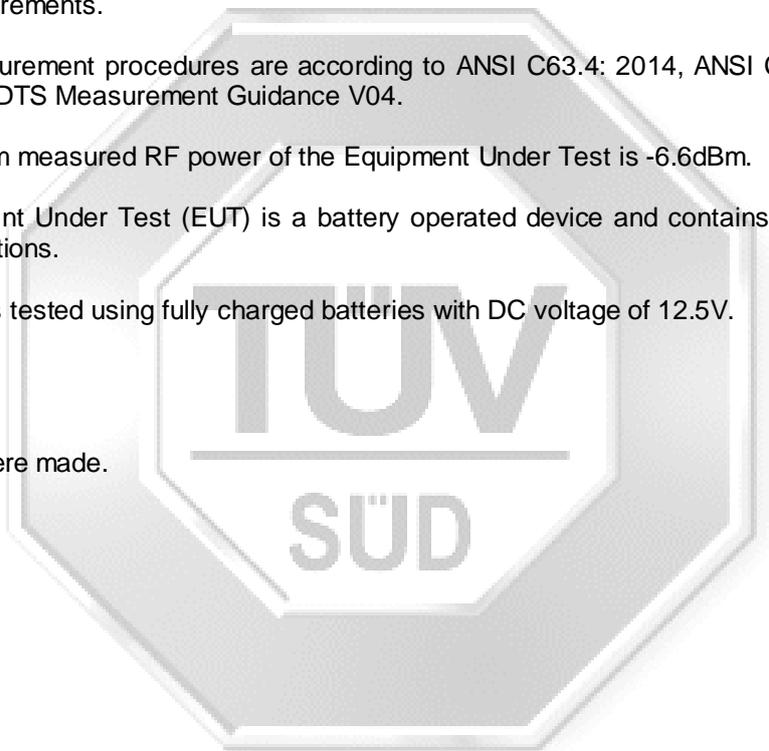
1. Three channels as listed below, which respectively represent the lower, middle and upper channels of the Equipment Under Test (EUT) were chosen and tested. For each channel, the EUT was configured to operate in the test mode.

<u>Transmit Channel</u>	<u>Frequency (GHz)</u>
Channel 0 (Lower Channel)	2.402
Channel 19 (Middle Channel)	2.440
Channel 39 (Upper Channel)	2.480

2. The EUT is a Class B device when in non-transmitting state and meets the 47 CFR FCC Part15B Class B requirements.
3. All test measurement procedures are according to ANSI C63.4: 2014, ANSI C63.10: 2013 and KDB 558074 D01 DTS Measurement Guidance V04.
4. The maximum measured RF power of the Equipment Under Test is -6.6dBm.
5. The Equipment Under Test (EUT) is a battery operated device and contains no provision for public utility connections.
6. The EUT was tested using fully charged batteries with DC voltage of 12.5V.

**Modifications**

No modifications were made.





**PRODUCT DESCRIPTION**

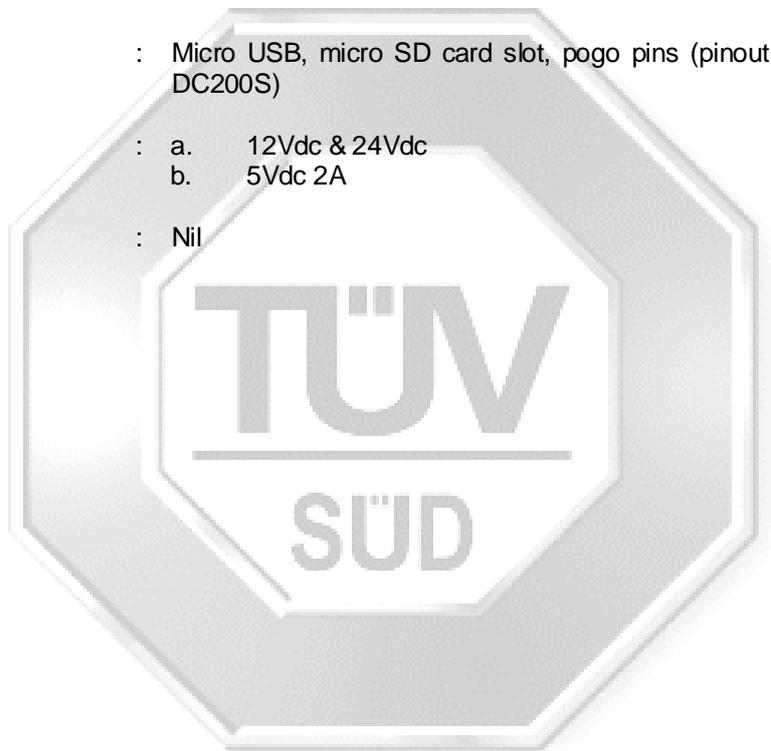
Description	: The Equipment Under Test (EUT) is an <b>E-Log And Fleet Management Device</b> . It consists of a. DC200S. b. Tablet.
Applicant	: A4C-RM Acquisition LLC 855 Woods Drive Skokies IL 60077, USA
Manufacturer	: PCI Limited 35 Pioneer Road North Singapore 628475
Factory (ies)	: Pt PCI Elektronik Internasional Panbil Industrial Estate Factory C Lot 2-3 Jalan Ahmad Yani, Muka Kuning, Batam 29433 Indonesia
Model Number	: DC700
FCC ID	: A4C01006A
Serial Number	: Nil
Microprocessor	: a. STMicroelectronics STM32F767ZIT6 & IC ARM CORTEX M7 STM32 32-Bit LQFP144 b. MTK8163
Operating / Transmitting Frequency	: a. PCS850 - 824MHz – 849MHz (uplink) - 869MHz – 894MHz (downlink) PCS1900 - 1850MHz – 1910MHz (uplink) - 1930MHz – 1990MHz (downlink) b. 2402MHz-2480MHz (Bluetooth) c. 2412MHz-2467MHz (WiFi)
Clock / Oscillator Frequency	: 16MHz & 1.3GHz
Modulation / Emissions Designator	: a. PCS 850 - 300KGXW (PCS 850) b. PCS1900 - 300KGXW c. Bluetooth - Gaussian Frequency Shift Keying (GFSK) - $\pi/4$ -Differential Quadrature Phase-Shift Keying (DQPSK) - 8 Differential Phase Shift Keying (DPSK)



**PRODUCT DESCRIPTION**

**Continued**

- Antenna Gain : a. DC200S  
- 0.11dBi (PCS 850)  
- 2.38dBi (PCS 1900)  
- 3 dBi (WLAN, Bluetooth)  
b. Tablet  
- 2.75dBi (WLAN, Bluetooth)
- Port / Connectors : Micro USB, micro SD card slot, pogo pins (pinout is the same as mating DC200S)
- Rated Input Power : a. 12Vdc & 24Vdc  
b. 5Vdc 2A
- Accessories : Nil





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**SUPPORTING EQUIPMENT DESCRIPTION**

The EUT was tested as a stand-alone unit without any supporting equipment.



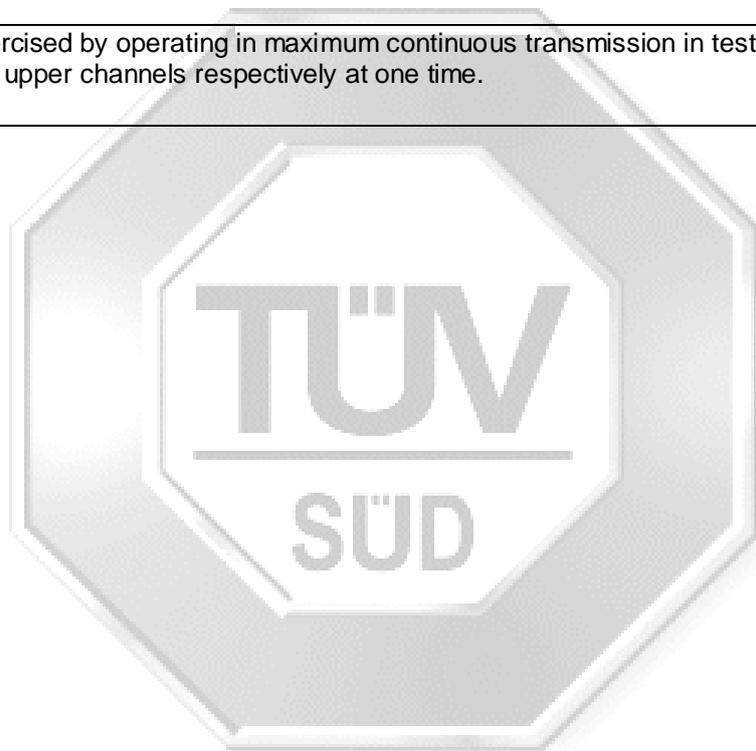


**EUT OPERATING CONDITIONS**

**47 CFR FCC Part 15**

- 1. Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)**
- 2. Spectrum Bandwidth (6dB Bandwidth Measurement)**
- 3. Maximum Peak Power**
- 4. RF Conducted Spurious Emissions (Non-Restricted Bands)**
- 5. RF Conducted Spurious Emissions (Restricted Bands)**
- 6. Band Edge Compliance (Conducted)**
- 7. Band Edge Compliance (Radiated)**
- 8. Peak Power Spectral Density**
- 9. Maximum Permissible Exposure**

The EUT was exercised by operating in maximum continuous transmission in test mode, i.e transmitting at lower, middle and upper channels respectively at one time.





**RADIATED EMISSION TEST**

**47 CFR FCC Part 15.205 Restricted Bands**

MHz		MHz		MHz		GHz	
0.090	- 0.110	16.42	- 16.423	399.9	- 410	4.5	- 5.15
0.495	- 0.505	16.69475	- 16.69525	608	- 614	5.35	- 5.46
2.1735	- 2.1905	16.80425	- 16.80475	960	- 1240	7.25	- 7.75
4.125	- 4.128	25.5	- 25.67	1300	- 1427	8.025	- 8.5
4.17725	- 4.17775	37.5	- 38.25	1435	- 1626.5	9.0	- 9.2
4.20725	- 4.20775	73	- 74.6	1645.5	- 1646.5	9.3	- 9.5
6.215	- 6.218	74.8	- 75.2	1660	- 1710	10.6	- 12.7
6.26775	- 6.26825	108	- 121.94	1718.8	- 1722.2	13.25	- 13.4
6.31175	- 6.31225	123	- 138	2200	- 2300	14.47	- 14.5
8.291	- 8.294	149.9	- 150.05	2310	- 2390	15.35	- 16.2
8.362	- 8.366	156.52475	- 156.52525	2483.5	- 2500	17.7	- 21.4
8.37625	- 8.38675	156.7	- 156.9	2690	- 2900	22.01	- 23.12
8.41425	- 8.41475	162.0125	- 167.17	3260	- 3267	23.6	- 24.0
12.29	- 12.293	167.72	- 173.2	3332	- 3339	31.2	- 31.8
12.51975	- 12.52025	240	- 285	3345.8	- 3358	36.43	- 36.5
12.57675	- 12.57725	322	- 335.4	3600	- 4400	Above 38.6	
13.36	- 13.41						

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Limits**

Frequency Range (MHz)	Quasi-Peak Limit Values (dBµV/m)
0.009 - 0.490	20 log [2400 / F (kHz)] @ 300m
0.490 - 1.705	20 log [24000 / F (kHz)] @ 30m
1.705 - 30.0	30.0 @ 30m
30 - 88	40.0 @ 3m
88 - 216	43.5 @ 3m
216 - 960	46.0 @ 3m
Above 960	54.0* @ 3m

\* For frequency bands 9kHz – 90kHz, 110kHz – 490kHz and above 1GHz, average detector was used. A peak limit of 20dB above the average limit does apply.

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
R&S EMI Test Receiver	ESU40	100355	14 Sep 2018
EMCO Loop Ant	6502	134413	28 Oct 2017
TDK RF Solutions Hybrid Log Periodic Antenna (30MHz-3GHz)	HLP-3003C	130237	21 Oct 2018
Eletro-Metrics Double Ridged Antenna (Horn) Antenna (1-18GHz)	EM-6961	6525	08 Apr 2018
ETS Horn Antenna (18GHz-40GHz) (Ref)	3116	0004-2474	18 Oct 2018
Sonoma Preamplifier (9kHz – 1GHz)	310N	270640	27 Dec 2017
R&S Preamplifier (1GHz -18GHz)	SCU18	102191	10 Mar 2018
Agilent Preamplifier(1GHz-26.5GHz) (PA18)	8449D	3008A02305	12 Oct 2018
Toyo Preamplifier (26.5GHz-40GHz)	HAP26-40W	00000005	18 Oct 2018
Micro-tronics Bandstop Filter (2.4GHz)	BRM50701-02	007	13 Aug 2018



**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Setup**

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table for measurement up to 1GHz. For measurement above 1GHz, 1.5m height table was used.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the worst emission frequencies from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
  - a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
  - b. The EUT was then rotated to the direction that gave the maximum emission.
  - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point in the range of 9kHz – 90kHz, 110kHz – 490kHz and above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.
6. The frequency range covered was from the lowest radio frequency signal generated from the EUT, without going below 9kHz to 10<sup>th</sup> harmonics of the EUT fundamental frequency, using the loop antenna for frequency below 30MHz, Bi-log antenna for frequencies from 30MHz up to 1GHz, and the Horn antenna above 1GHz.

**Sample Calculation Example**

At 300 MHz	Q-P limit = 46.0 dB $\mu$ V/m
Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB	
Q-P reading obtained directly from EMI Receiver = 40.0 dB $\mu$ V/m (Calibrated level including antenna factors & cable losses)	
Therefore, Q-P margin = 46.0 - 40.0 = 6.0	i.e. 6.0 dB below Q-P limit



**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a), 15.205 and 15.209 Radiated Emission Results**

Test Input Power	12.5Vdc	Temperature	24°C
Test Distance	3m (<30MHz) 3m (≥30MHz – 25GHz)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kelvin Cheng

Spurious Emissions ranging from 9kHz – 30MHz (for 9kHz – 90kHz, 110kHz – 490kHz) \*See Note 4

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
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Spurious Emissions ranging from 9kHz – 30MHz \*See Note 4

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Channel
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Spurious Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Channel (Worst)
48.6260	15.0	40.0	25.0	333	81	V	19
92.3960	23.1	43.5	20.4	105	259	V	19
98.0170	29.8	43.5	13.7	100	360	V	19
175.2560	18.8	43.5	24.7	127	336	V	19
196.2560	23.4	43.5	20.1	100	84	V	19
791.4000	34.0	46.0	12.0	100	188	H	19



**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a), 15.205 and 15.209 Radiated Emission Results**

Spurious Emissions above 1GHz – 25GHz

Freq (GHz)	Peak Value (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	AV Value (dBµV/m) <small>*See Note 2</small>	AV Limit (dBµV/m)	AV Margin (dB) <small>*See Note 3</small>	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.9797	42.4	74.0	31.6	--	54.0	11.6	300	162	V	0
2.0050	38.7	74.0	35.3	--	54.0	15.3	100	252	H	0
2.1767	40.3	74.0	33.7	--	54.0	13.7	100	224	H	0
3.5606	39.5	74.0	34.5	--	54.0	14.5	100	225	H	0
5.8785	41.2	74.0	32.8	--	54.0	12.8	400	192	V	0
7.9544	46.2	74.0	27.8	--	54.0	7.8	100	198	V	0

Spurious Emissions above 1GHz – 25GHz

Freq (GHz)	Peak Value (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	AV Value (dBµV/m) <small>*See Note 2</small>	AV Limit (dBµV/m)	AV Margin (dB) <small>*See Note 3</small>	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.9797	44.8	74.0	29.2	--	54.0	9.2	300	251	H	19
2.0858	38.6	74.0	35.4	--	54.0	15.4	100	223	H	19
2.1262	37.4	74.0	36.6	--	54.0	16.6	100	235	H	19
2.1767	39.7	74.0	34.3	--	54.0	14.3	100	122	H	19
3.1667	38.4	74.0	35.6	--	54.0	15.6	200	185	V	19
3.5606	40.1	74.0	33.9	--	54.0	13.9	200	256	V	19

Spurious Emissions above 1GHz – 25GHz

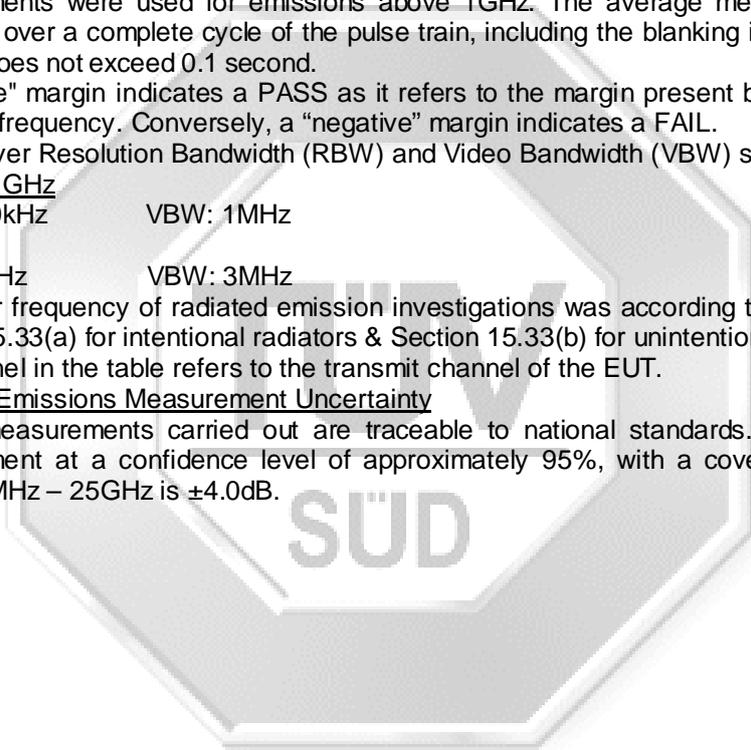
Freq (GHz)	Peak Value (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	AV Value (dBµV/m) <small>*See Note 2</small>	AV Limit (dBµV/m)	AV Margin (dB) <small>*See Note 3</small>	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.9797	46.6	74.0	27.4	--	54.0	7.4	100	184	H	39
2.0858	39.5	74.0	34.5	--	54.0	14.5	100	229	H	39
2.1767	42.9	74.0	31.1	--	54.0	11.1	100	195	H	39
3.5606	38.8	74.0	35.2	--	54.0	15.2	200	217	V	39
3.9545	39.9	74.0	34.1	--	54.0	14.1	300	81	H	39
7.3332	45.7	74.0	28.3	--	54.0	8.3	200	105	V	39



**RADIATED EMISSION TEST**

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. As the measured peak shows compliance to the average limit, as such no average measurement was required.
3. The average margin indicates the margin of the measured peak value below the average limit.
4. The measurement was done at 3m. The measured results were extrapolated to the specified test limits as specified in § 15.209 (a) based on 40dB/decade.
5. "--" indicates no emissions were found and shows compliance to the limits.
6. Quasi-peak measurement was used for frequency measurement up to 1GHz. Average and peak measurements were used for emissions above 1GHz. The average measurement was done by averaging over a complete cycle of the pulse train, including the blanking interval as the pulse train duration does not exceed 0.1 second.
7. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
8. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:  
30MHz - 1GHz  
RBW: 120kHz            VBW: 1MHz  
>1GHz  
RBW: 1MHz            VBW: 3MHz
9. The upper frequency of radiated emission investigations was according to requirements stated in Section 15.33(a) for intentional radiators & Section 15.33(b) for unintentional radiators.
10. The channel in the table refers to the transmit channel of the EUT.
11. Radiated Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 25GHz is  $\pm 4.0$ dB.





**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Limits**

The EUT shows compliance to the requirements of this section, which states that the minimum bandwidth of the EUT employing digital modulation techniques shall be at least 500kHz.

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent Spectrum Analyzer	E4440A	MY45304764	04 Jan 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to the following:  
RBW = 100kHz  
VBW = 3 times RBW
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel.
2. The center frequency of the spectrum analyser was set to the transmitting frequency with the frequency span wide enough to capture the 6dB bandwidth of the transmitting frequency.
3. The spectrum analyser was set to max hold to capture the transmitting frequency. The signal capturing was continuous until no further changes were observed.
4. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser. The frequencies below the 6dB peak frequency at lower ( $f_L$ ) and upper ( $f_H$ ) sides of the transmitting frequency were marked and measured by using the marker-delta function of the spectrum analyser.
5. The 6dB bandwidth of the transmitting frequency is the frequency difference between the marked lower and upper frequencies,  $|f_H - f_L|$ .
6. The steps 2 to 5 were repeated with the transmitting frequency was set to middle and upper channel respectively.

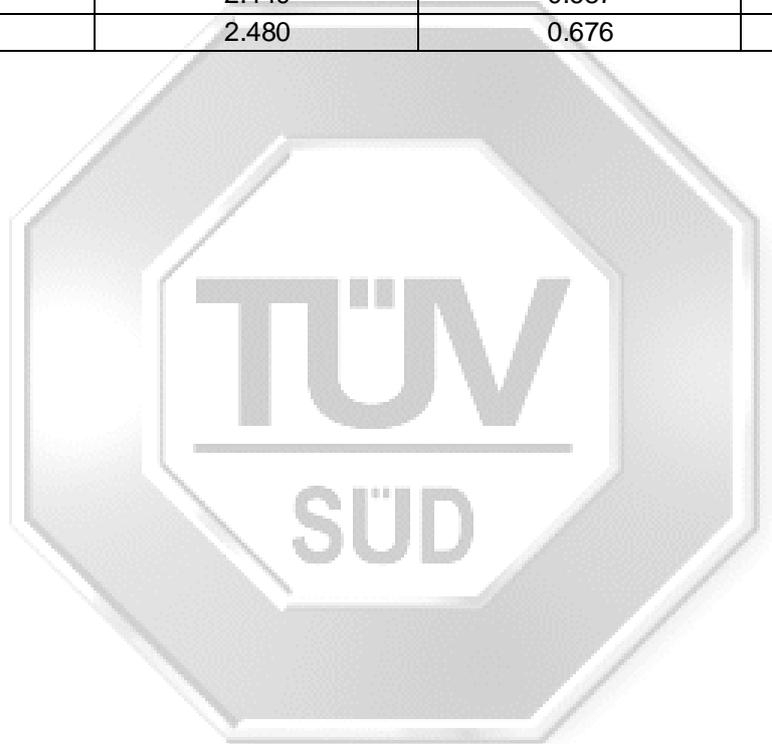


**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	1 – 3	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

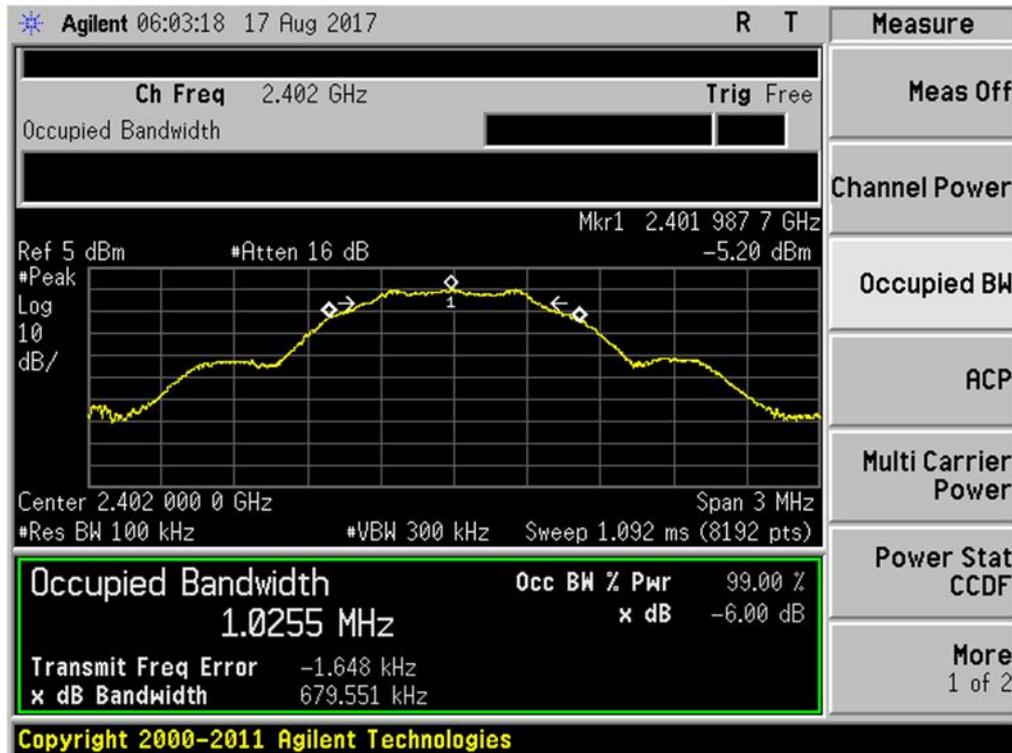
Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	Limit (MHz)
0	2.402	0.680	≥ 500
19	2.440	0.687	≥ 500
39	2.480	0.676	≥ 500



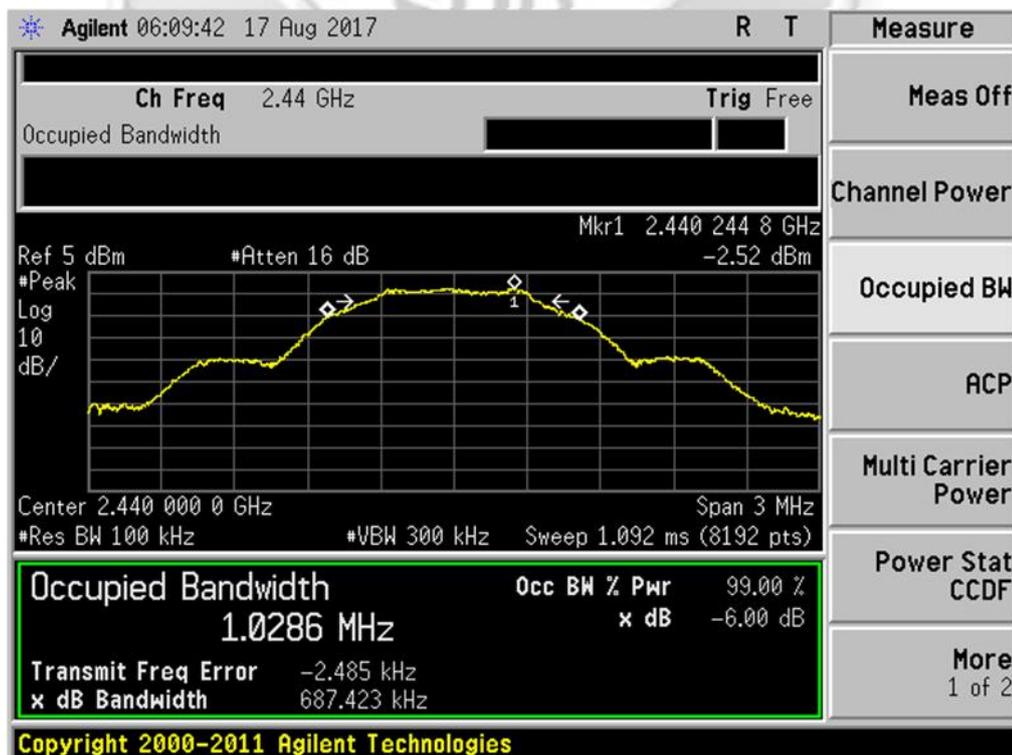


SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots



Plot 1 - Channel 0 (lower ch)

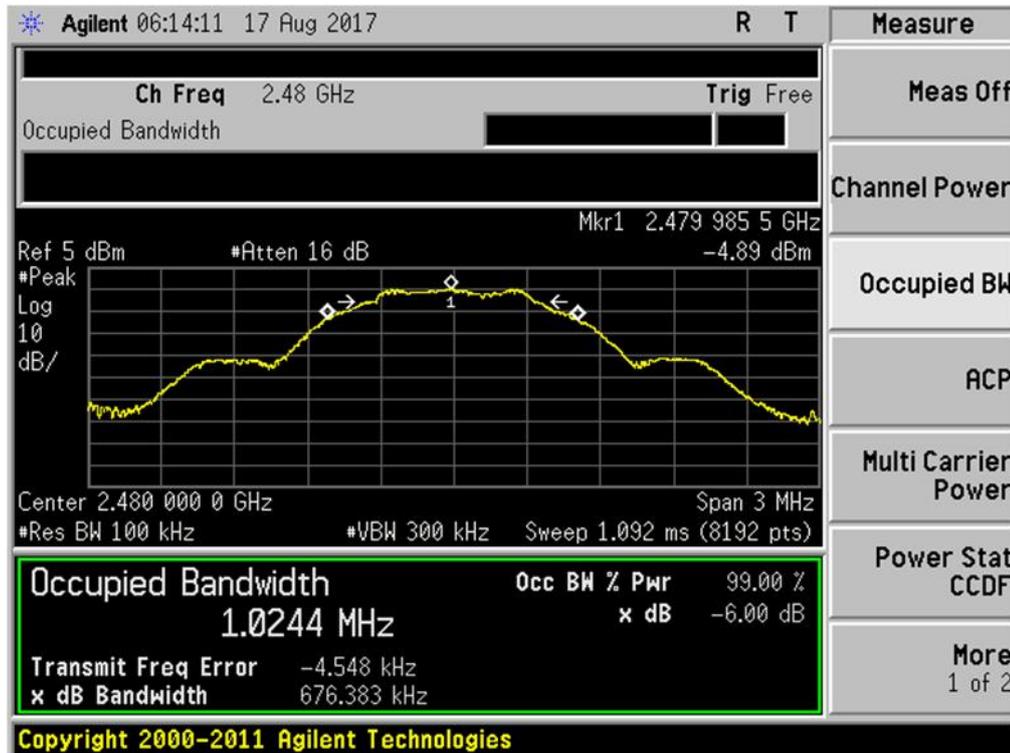


Plot 2 - Channel 19 (middle ch)



**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots**



Plot 3 - Channel 39 (upper ch)



**MAXIMUM PEAK POWER TEST**

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Limits**

The EUT shows compliance to the requirements of this section, which states the maximum peak power of the EUT employing digital modulation shall not exceed 1W (30dBm).

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Boonton Electronics RF Power Meter	4532	72901	26 Aug 2018
Boonton Electronics Peak Power Sensor	56218-S/1	1417	26 Aug 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the power meter.
4. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel.
2. The maximum peak power of the transmitting frequency was detected and recorded.
3. The step 2 was repeated with the transmitting frequency was set to middle and upper channel respectively.



**MAXIMUM PEAK POWER TEST**

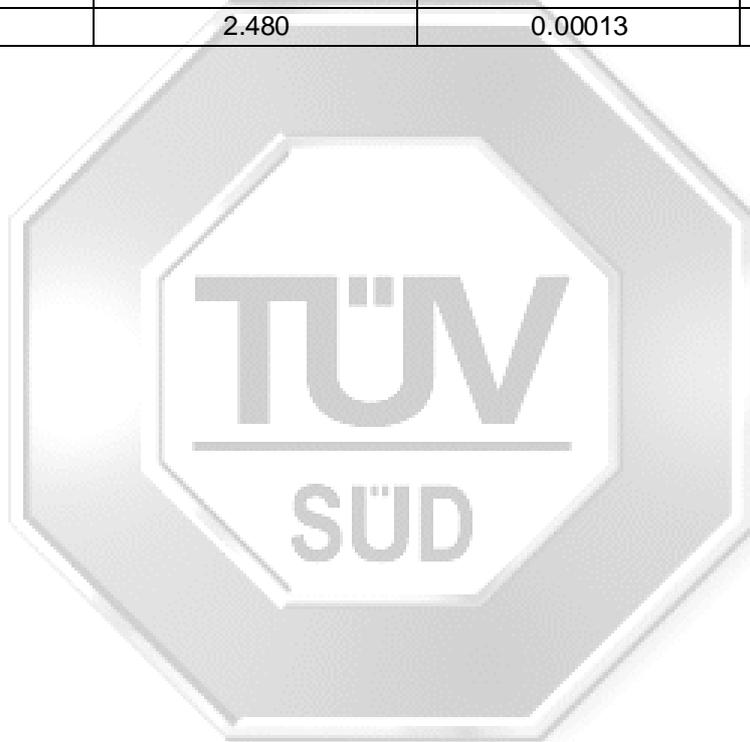
**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Results**

Test Input Power	12.5Vdc	Temperature	24°C
Antenna Gain	2.75 dBi	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)
0	2.402	0.00013	1.0
19	2.440	0.00022	1.0
39	2.480	0.00013	1.0

Notes

1. Nil.





**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Limits**

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent Spectrum Analyzer	E4440A	MY45304764	04 Jan 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 3 times of RBW.
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel.
2. The start and stop frequencies of the spectrum analyser were set to 30MHz and 10GHz.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. The steps 2 to 3 were repeated with frequency span was set from 10GHz to 25GHz.
5. The steps 2 to 4 were repeated with the transmitting frequency was set to middle and upper channel respectively.



**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	4 – 9	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

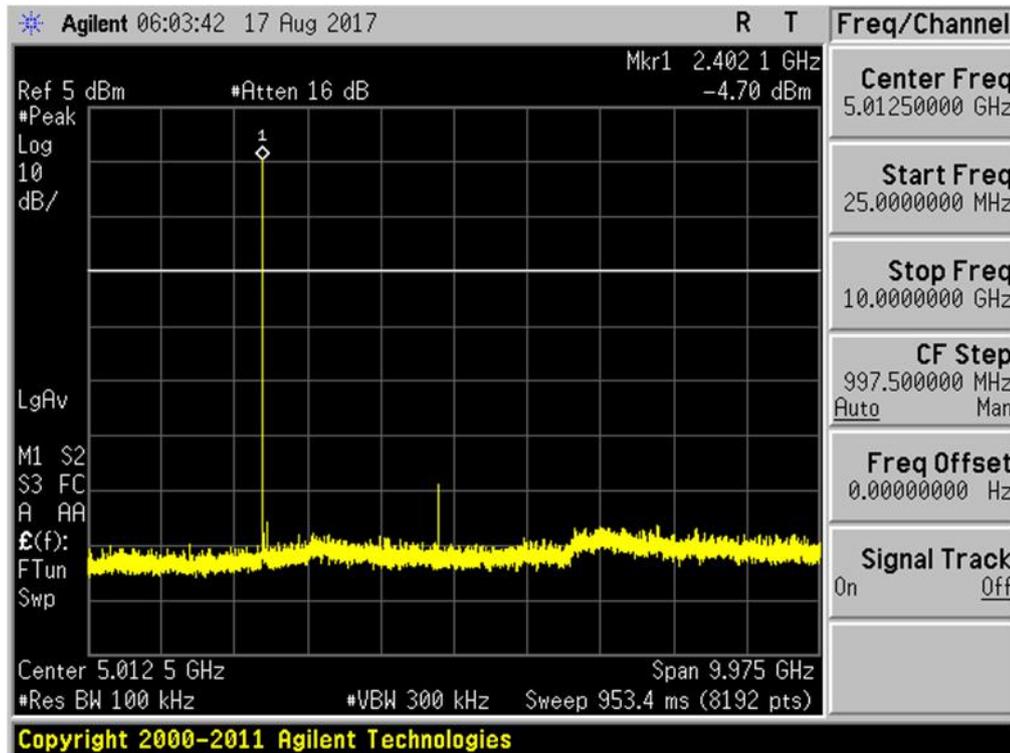
All spurious signals found were below the specified limit. Please refer to the attached plots.



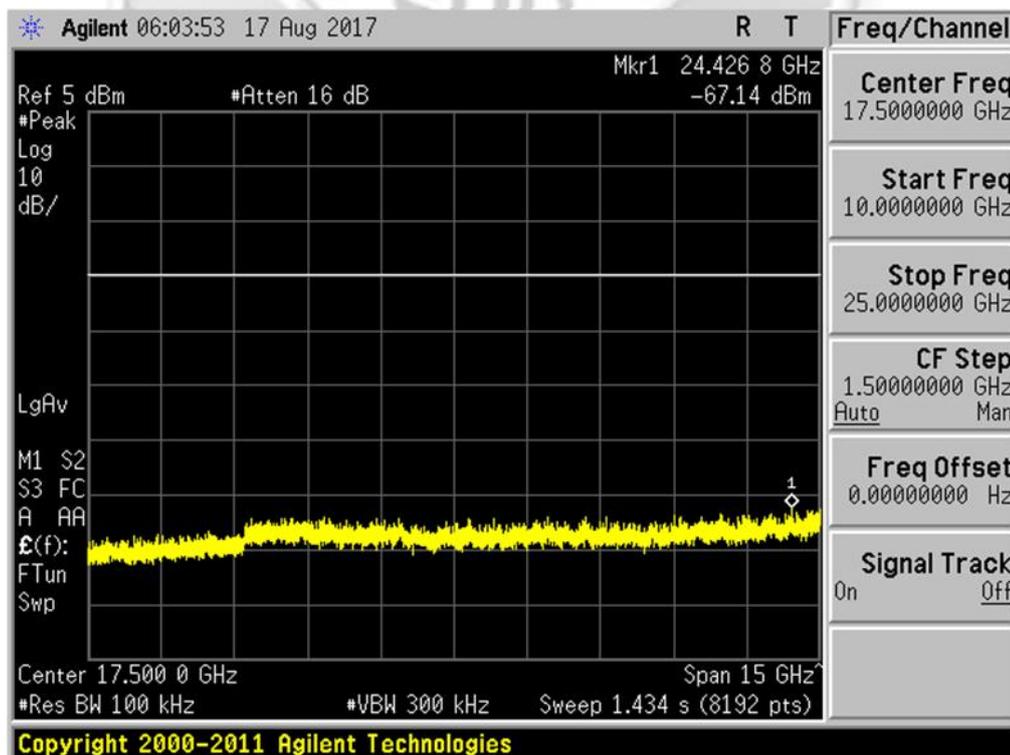


**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots**



Plot 4 – Channel 0 (lower ch)

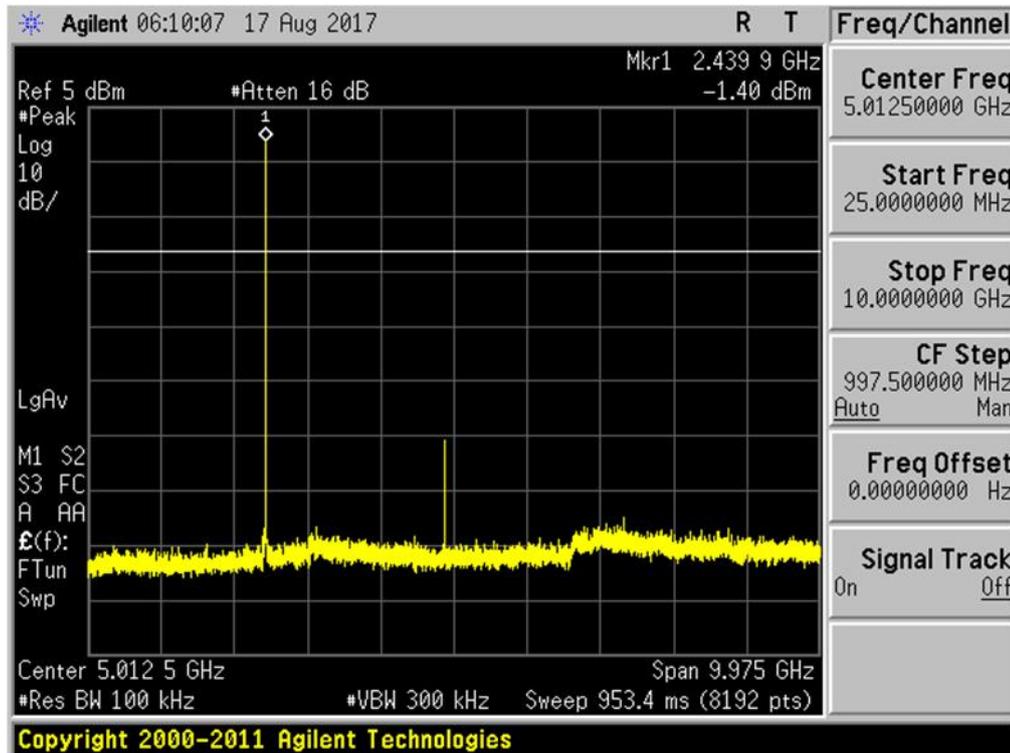


Plot 5 – Channel 0 (lower ch)

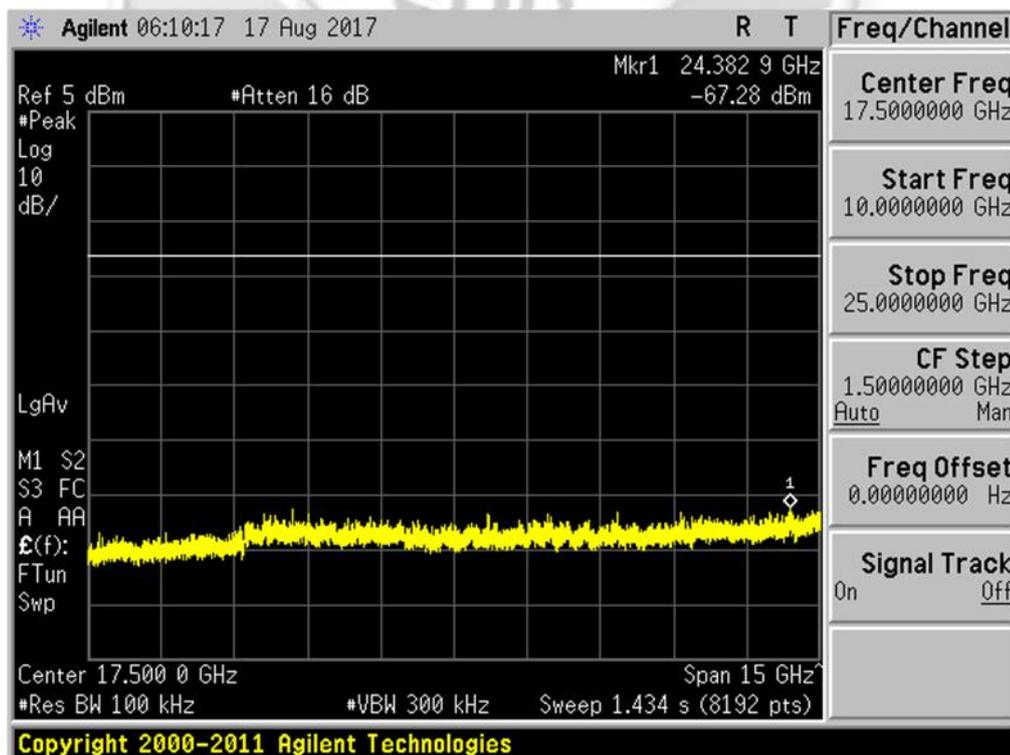


**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots**



Plot 6 – Channel 19 (middle ch)

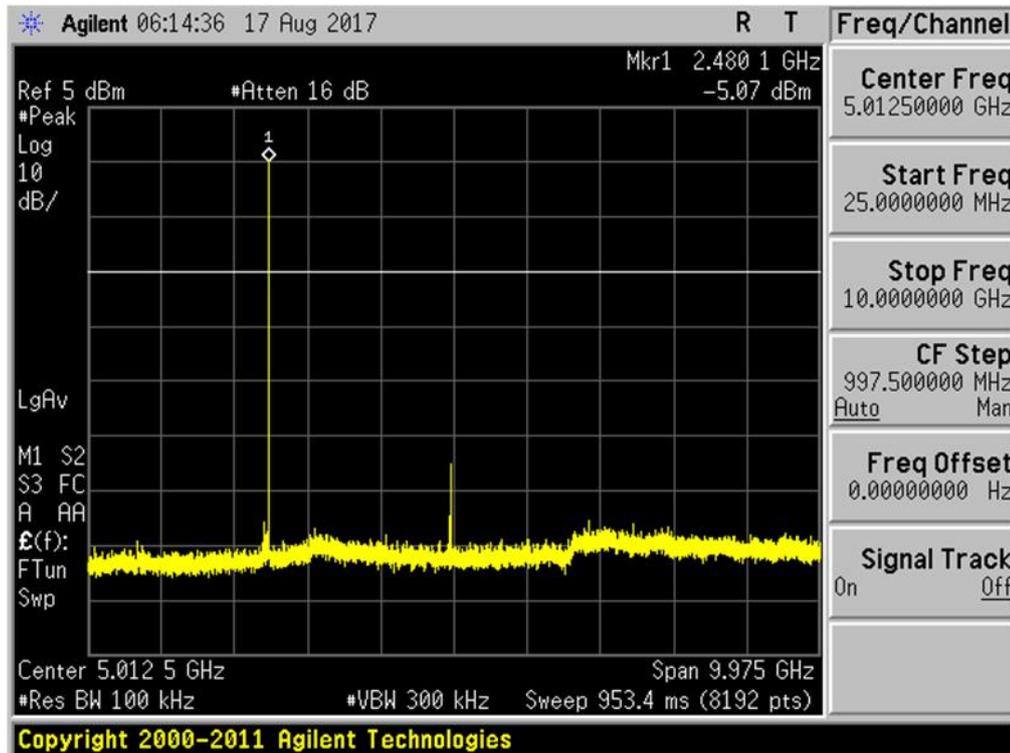


Plot 7 – Channel 19 (middle ch)

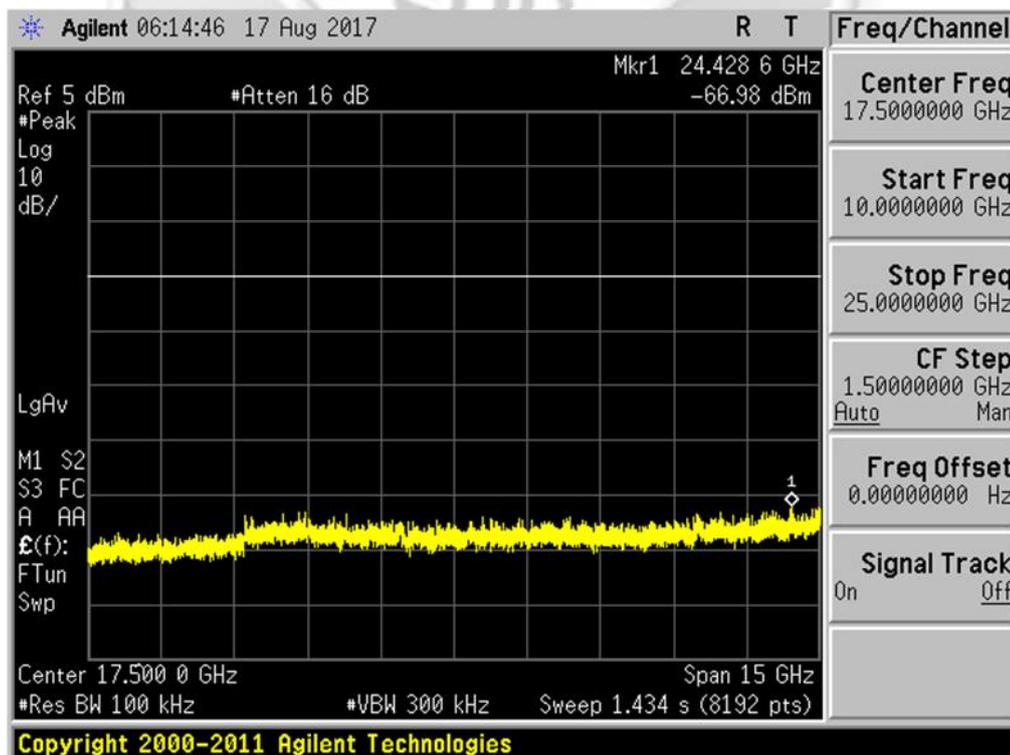


**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots**



Plot 8 – Channel 39 (upper ch)



Plot 9 – Channel 39 (upper ch)



**RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.205 Restricted Bands**

MHz		MHz		MHz		GHz	
0.090	- 0.110	16.42	- 16.423	399.9	- 410	4.5	- 5.15
0.495	- 0.505	16.69475	- 16.69525	608	- 614	5.35	- 5.46
2.1735	- 2.1905	16.80425	- 16.80475	960	- 1240	7.25	- 7.75
4.125	- 4.128	25.5	- 25.67	1300	- 1427	8.025	- 8.5
4.17725	- 4.17775	37.5	- 38.25	1435	- 1626.5	9.0	- 9.2
4.20725	- 4.20775	73	- 74.6	1645.5	- 1646.5	9.3	- 9.5
6.215	- 6.218	74.8	- 75.2	1660	- 1710	10.6	- 12.7
6.26775	- 6.26825	108	- 121.94	1718.8	- 1722.2	13.25	- 13.4
6.31175	- 6.31225	123	- 138	2200	- 2300	14.47	- 14.5
8.291	- 8.294	149.9	- 150.05	2310	- 2390	15.35	- 16.2
8.362	- 8.366	156.52475	- 156.52525	2483.5	- 2500	17.7	- 21.4
8.37625	- 8.38675	156.7	- 156.9	2690	- 2900	22.01	- 23.12
8.41425	- 8.41475	162.0125	- 167.17	3260	- 3267	23.6	- 24.0
12.29	- 12.293	167.72	- 173.2	3332	- 3339	31.2	- 31.8
12.51975	- 12.52025	240	- 285	3345.8	- 3358	36.43	- 36.5
12.57675	- 12.57725	322	- 335.4	3600	- 4400	Above 38.6	
13.36	- 13.41						

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Limits**

The EUT shows compliance to the requirements of this section, which states that emissions which fall in the restricted bands must comply with the radiated emission limits specified in the table below:

Frequency Range (MHz)	EIRP (dBm)	Radiated Emissions (dBµV/m)
0.009 – 0.490	-6.7 – (-41.4) **	67.6 – 20logF* @ 300m **
0.490 – 1.705	-41.4 – (-52.3) **	87.6 – 20logF* @ 30m **
1.705 – 30	-45.7	29.5 @ 30m
30 - 88	-55.2	40.0 @ 3m
88 - 216	-51.7	43.5 @ 3m
216 - 960	-49.2	46.0 @ 3m
>960	-41.2 ***	54.0 @ 3m ***
* F is frequency in kHz.		
** Decreasing linearly with the logarithm of the frequency.		
*** Above 1GHz, a peak limit of 20dB above the average limit does apply.		

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent Spectrum Analyzer	E4440A	MY45304764	04 Jan 2018
Micro-tronics Bandstop Filter (2.4GHz)	BRM50701-02	007	13 Aug 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017



## RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

### 47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) of the spectrum analyser was set to the following settings. The video bandwidth (VBW) was set to at least three times of the RBW.

Frequency (MHz)	RBW (kHz)
0.009 – 0.150	0.2
0.150 – 30.0	9.0
30.0 - 1000	100.0
> 1000	1000.0

5. The detector of the spectrum analyser was set to peak detection mode.
6. All other supporting equipment were powered separately from another filtered mains.

### 47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Method

1. Measurement in the range 9kHz – 1000MHz
  - 1.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel.
  - 1.2 The start and stop frequencies of the spectrum analyser were set according to the supported RBW.
  - 1.3 The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected. The antenna gain of the EUT was added to the captured spurious emissions.
  - 1.4 No further measurement was required if all the captured emissions complied to the limits. Else, the spectrum analyser was set to zoom to the captured emission with the detector of the spectrum analyser was set to quasi-peak. The emission level of the captured frequency was measured.
  - 1.5 The step 1.4 was repeated until all the captured emissions which exceeding the limits were measured.
  - 1.6 The steps 1.2 to 1.5 were repeated with the transmitting frequency was set to middle and upper channel respectively.
2. Measurement above 1000MHz
  - 2.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel.
  - 2.2 The start and stop frequencies of the spectrum analyser were set according to the supported frequency band of the set RBW with the number of points in a sweep was set to equal or greater than 2 times of the ratio of span over RBW.
  - 2.3 The detector of the spectrum analyser was set to power average (RMS) mode with the sweep time was set to equal or greater than 10 times of the product of number of measurement points in a sweep and transmission symbol time.
  - 2.4 The spectrum analyser was then allowed to capture any spurious emissions within a single sweep. The peak marker function of the spectrum analyser was used to locate the highest power level. The antenna gain of the EUT was added to the captured spurious emissions.
  - 2.5 The steps 2.2 to 2.4 were repeated until all the required frequency bands were measured.
  - 2.6 The steps 2.2 to 2.5 were repeated with the transmitting frequency was set to middle and upper channel respectively.
  - 2.7 The measurements were repeated with the detector of the spectrum analyser was set to peak detecting mode. The sweep time was set to auto coupler.



**RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	10 – 27 (Peak)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

All spurious signals found were below the specified limit. Please refer to the attached plots.



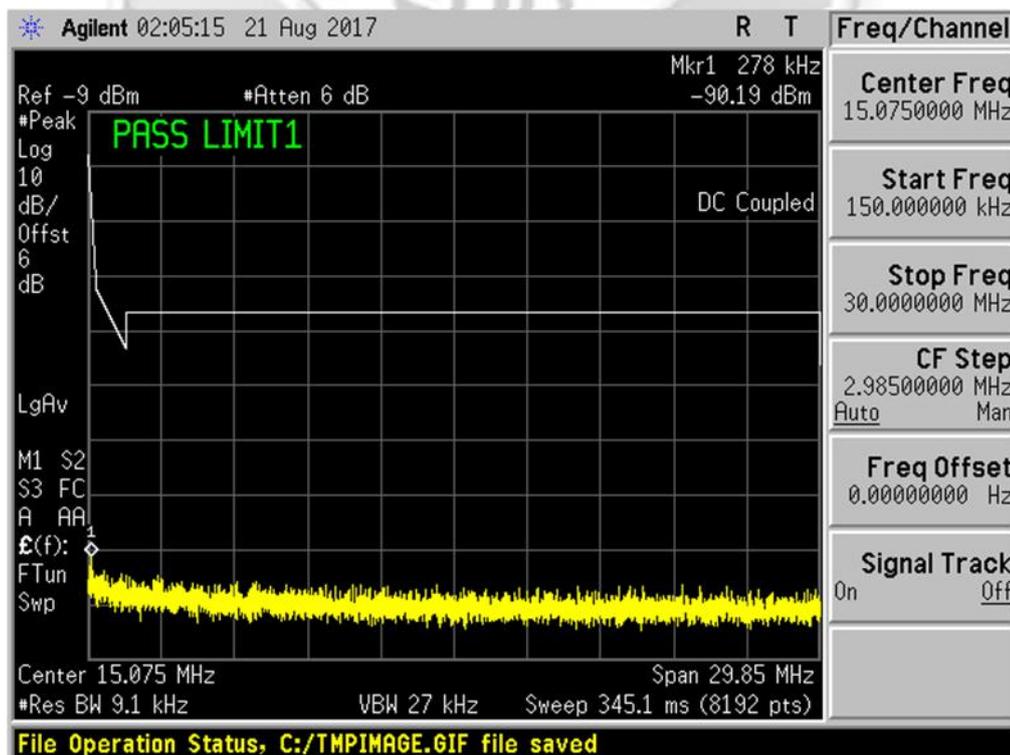


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 10 – Channel 0 (lower ch)

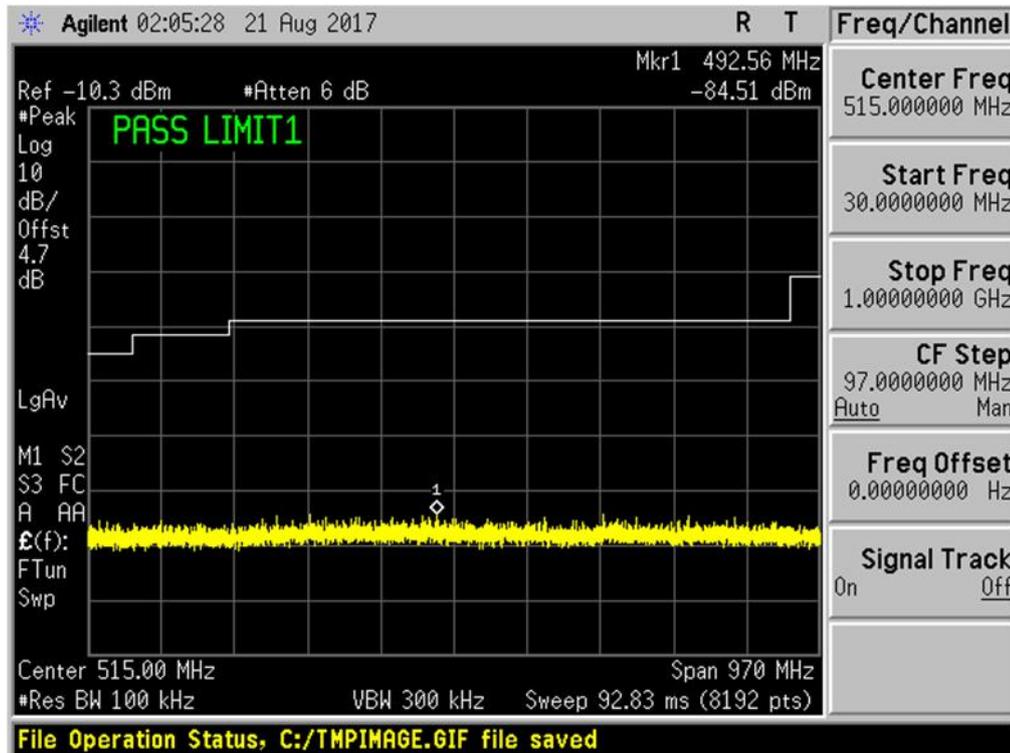


Plot 11 – Channel 0 (lower ch)

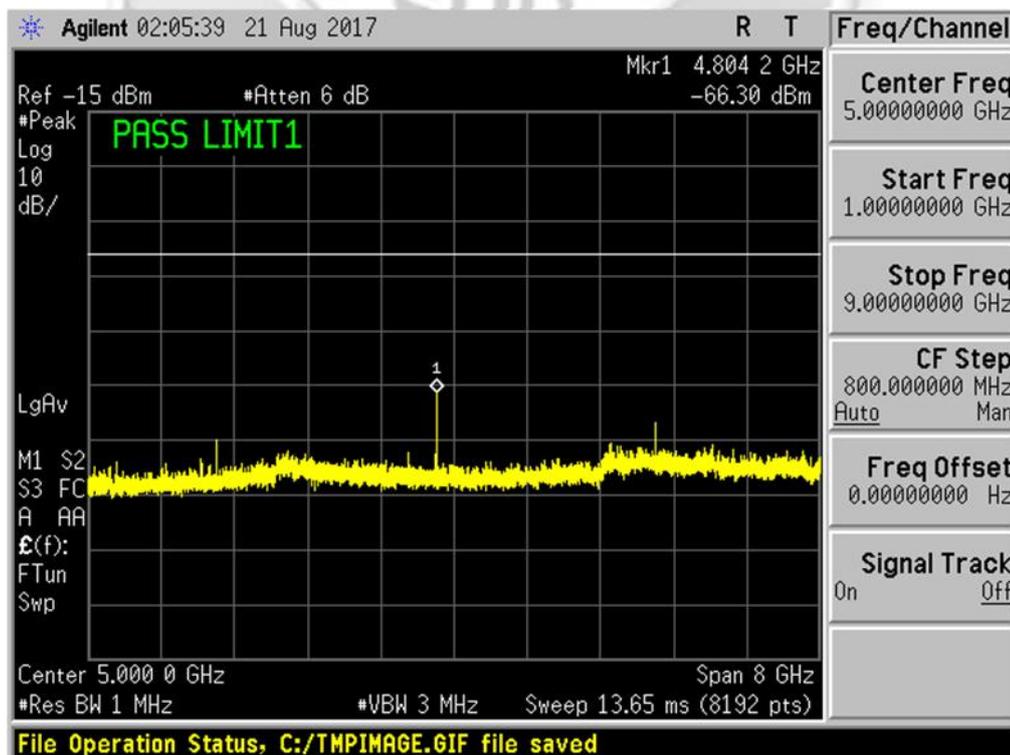


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 12 – Channel 0 (lower ch)

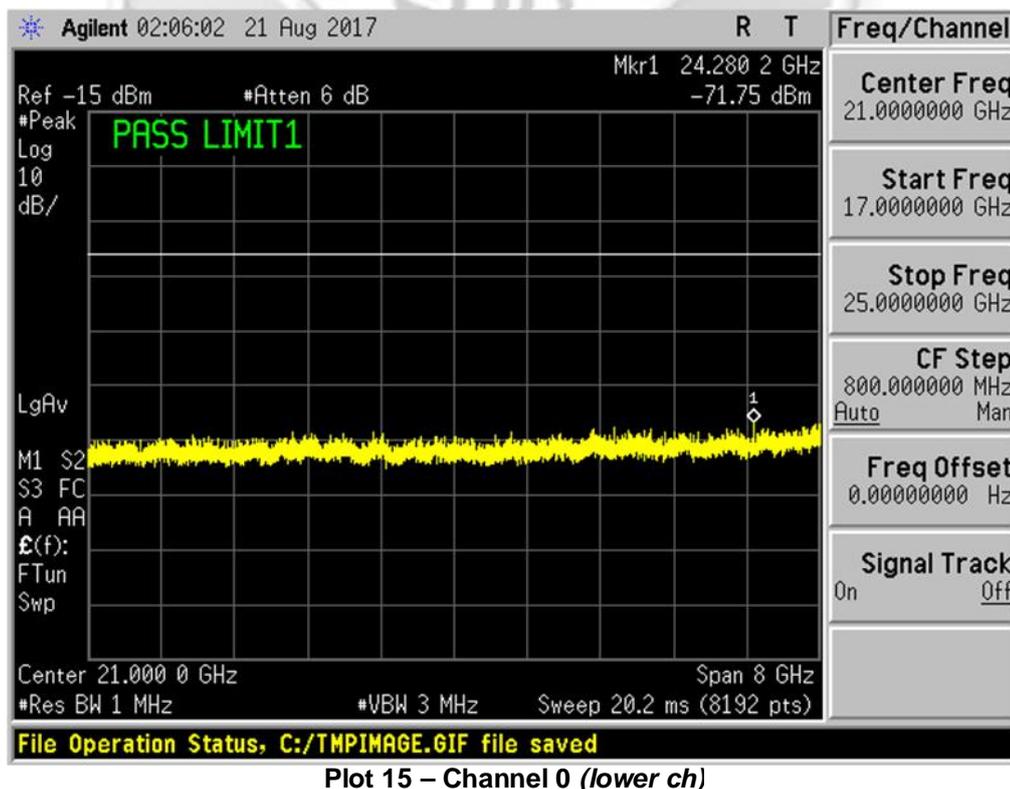
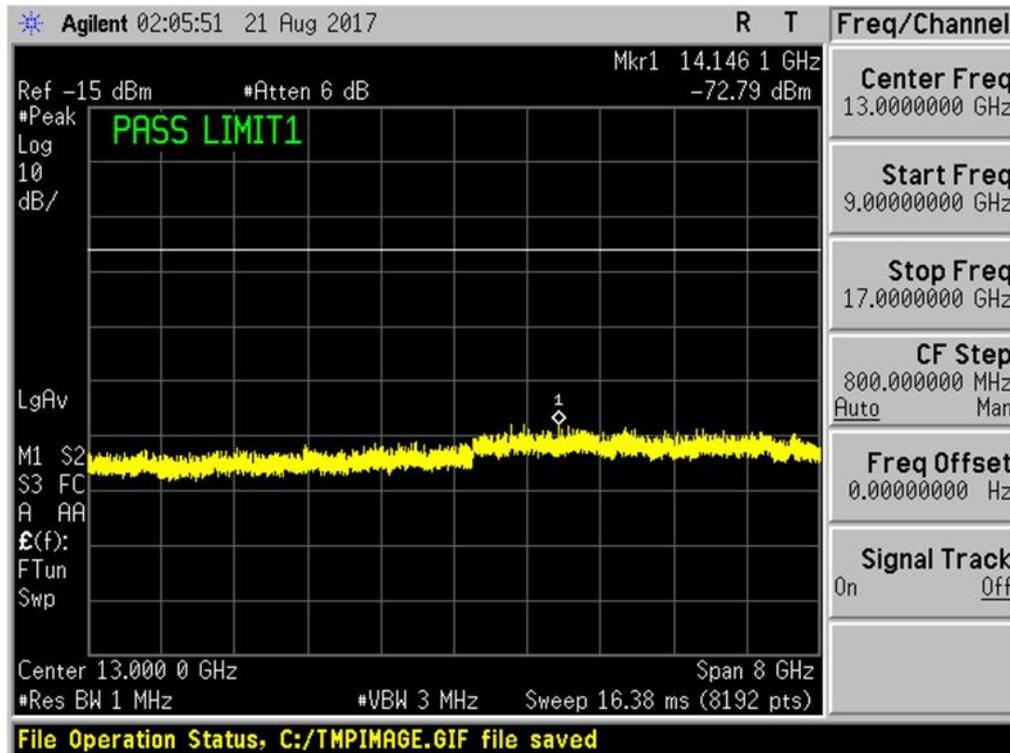


Plot 13 – Channel 0 (lower ch)



RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



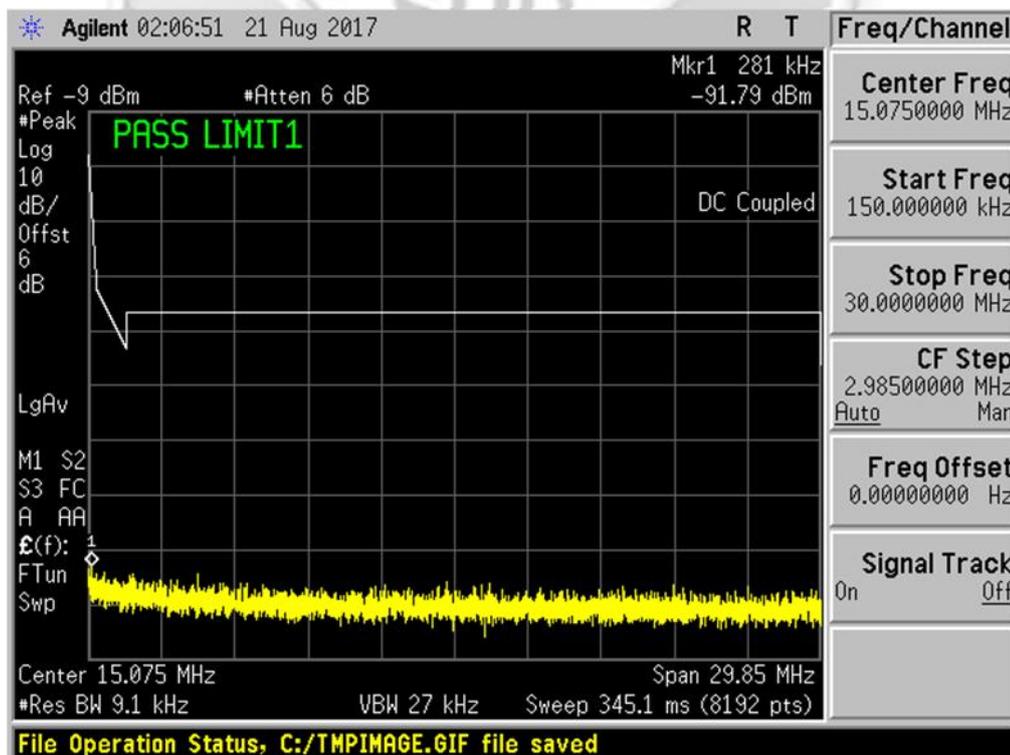


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 16 – Channel 19 (middle ch)

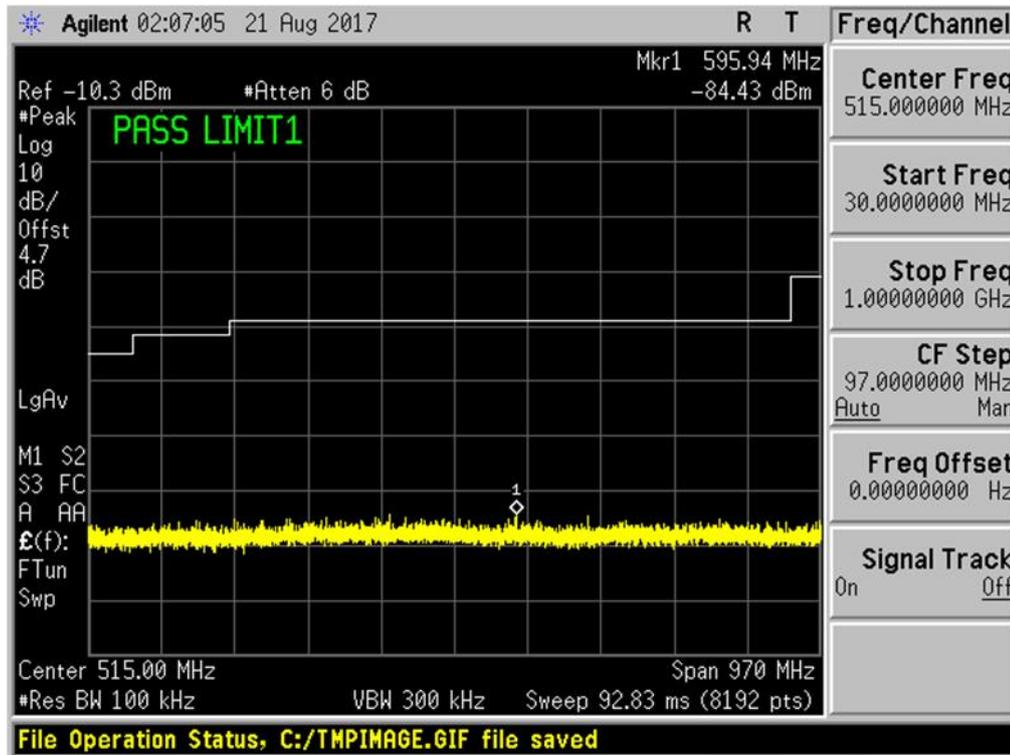


Plot 17 – Channel 19 (middle ch)

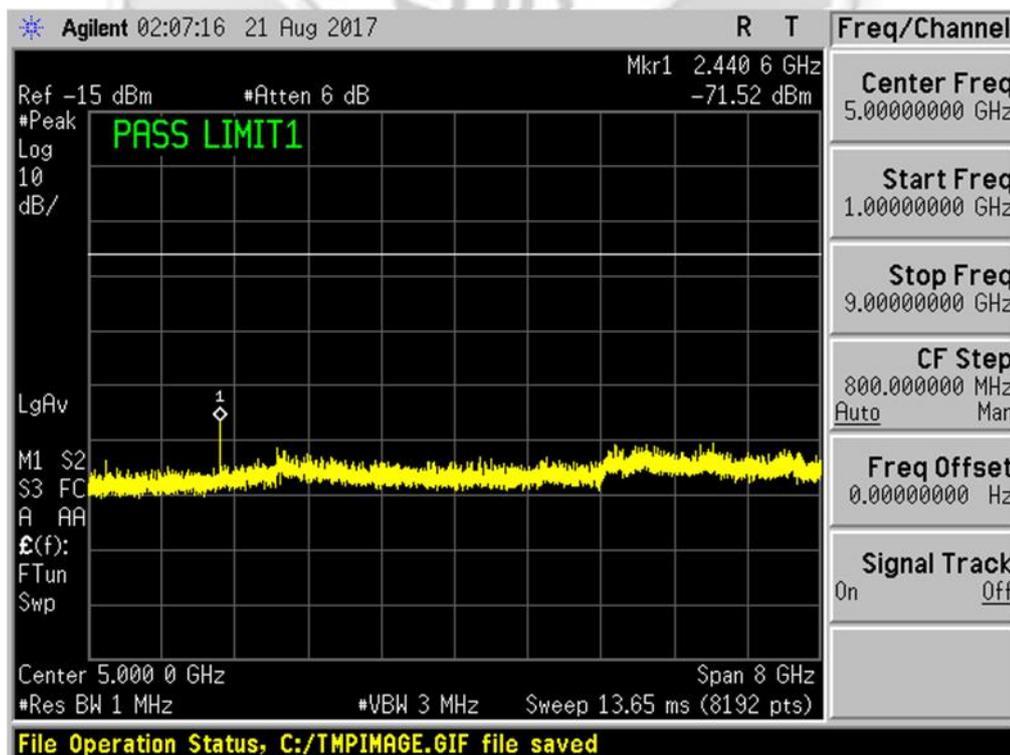


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 18 – Channel 19 (middle ch)

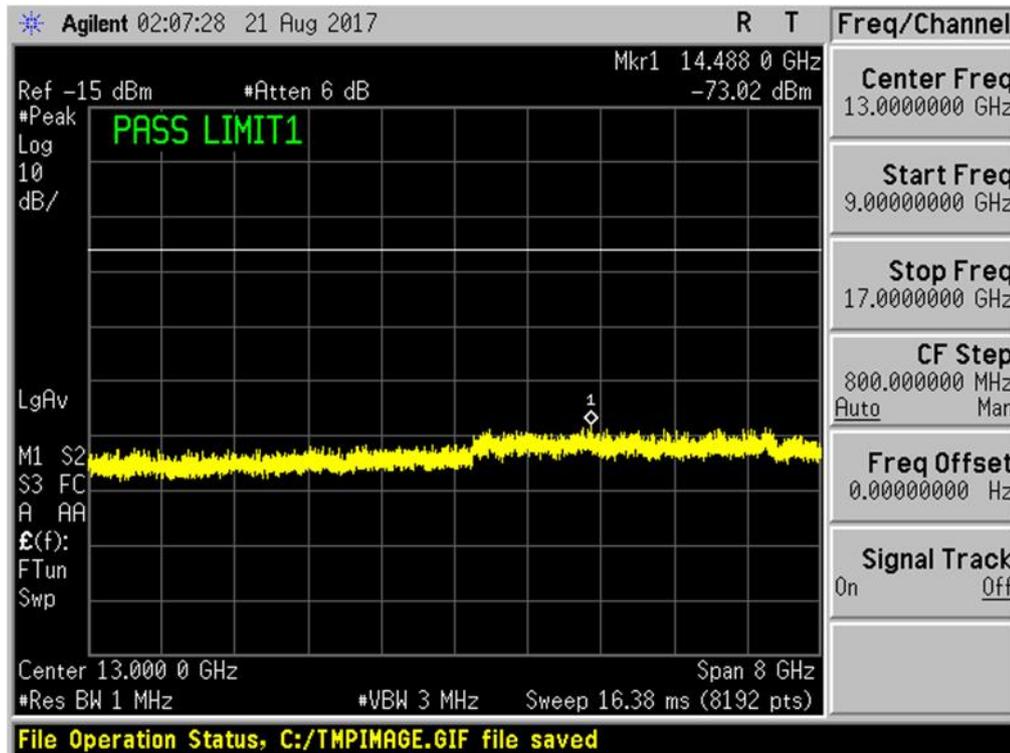


Plot 19 – Channel 19 (middle ch)

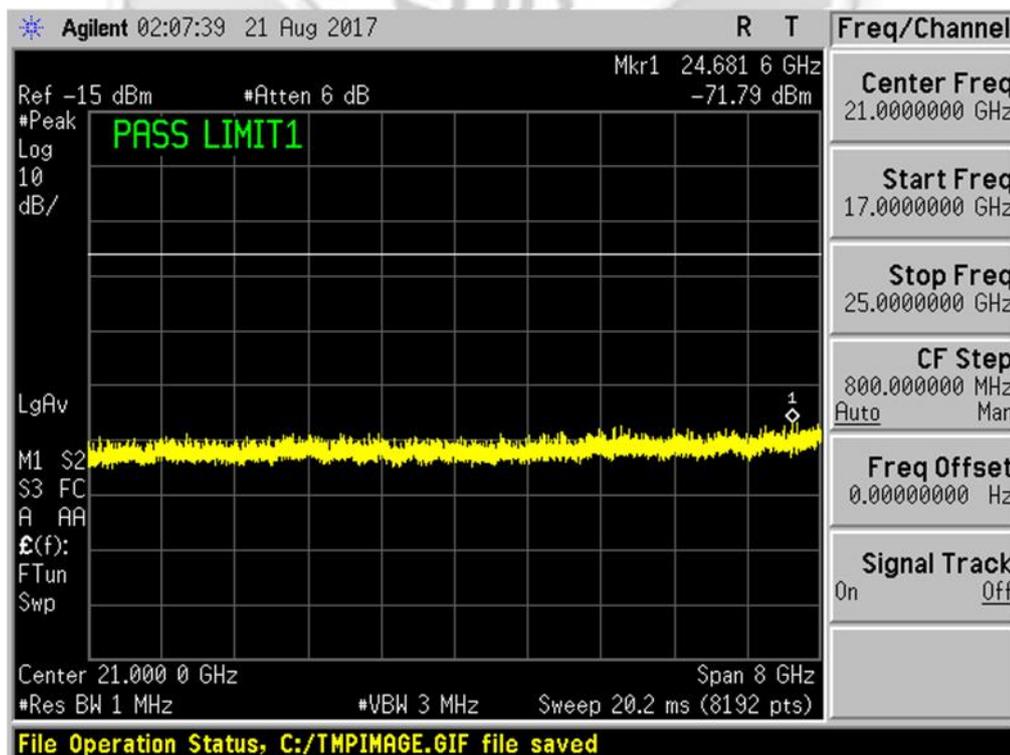


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 20 – Channel 19 (middle ch)



Plot 21 – Channel 19 (middle ch)

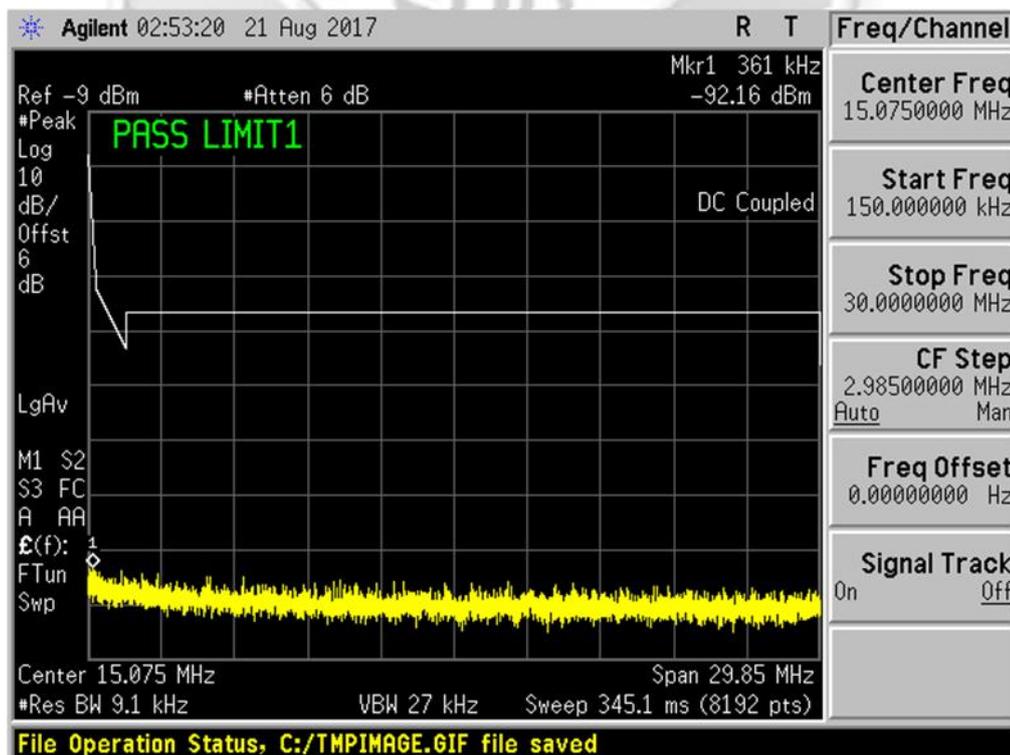


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 22 – Channel 39 (upper ch)

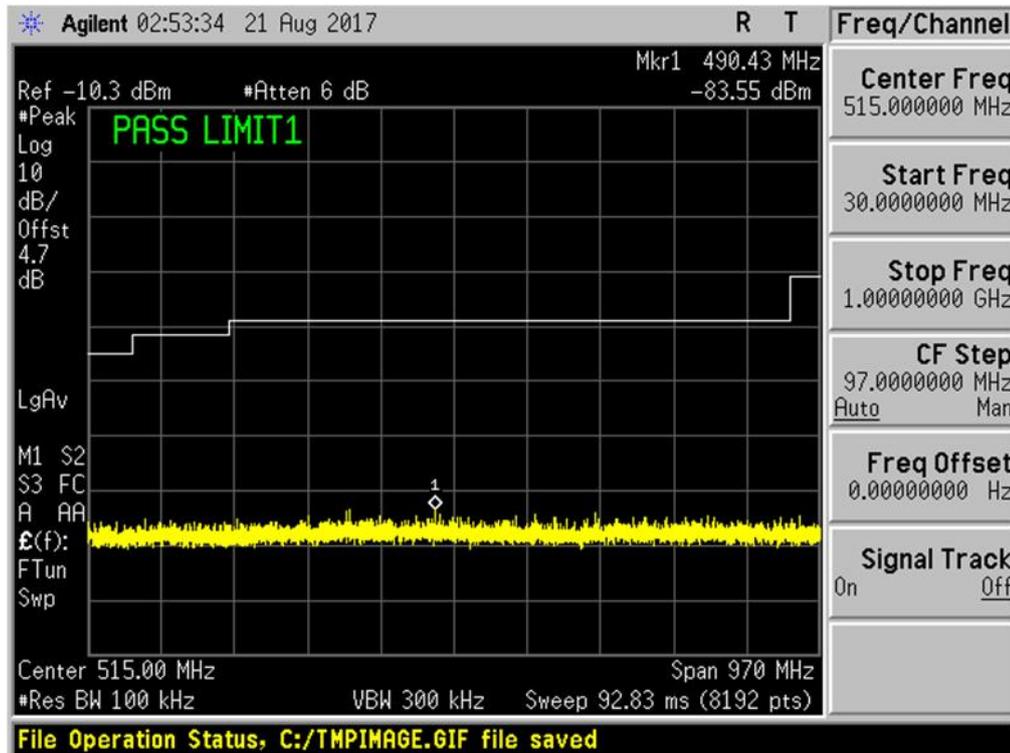


Plot 23 – Channel 39 (upper ch)

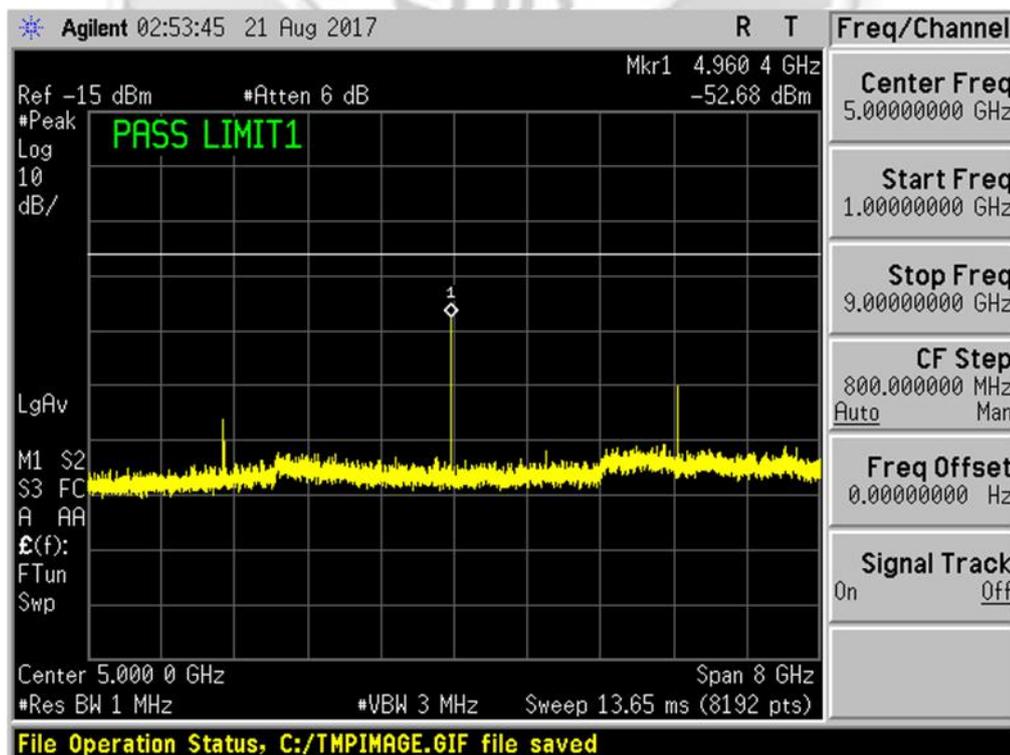


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 24 – Channel 39 (upper ch)

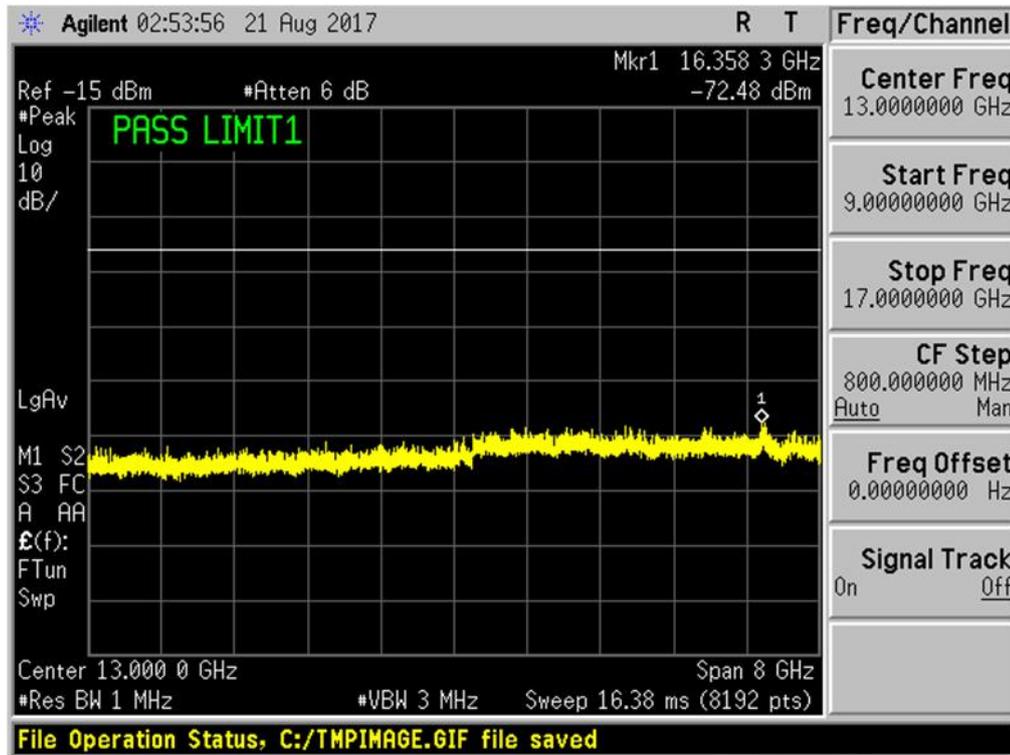


Plot 25 – Channel 39 (upper ch)

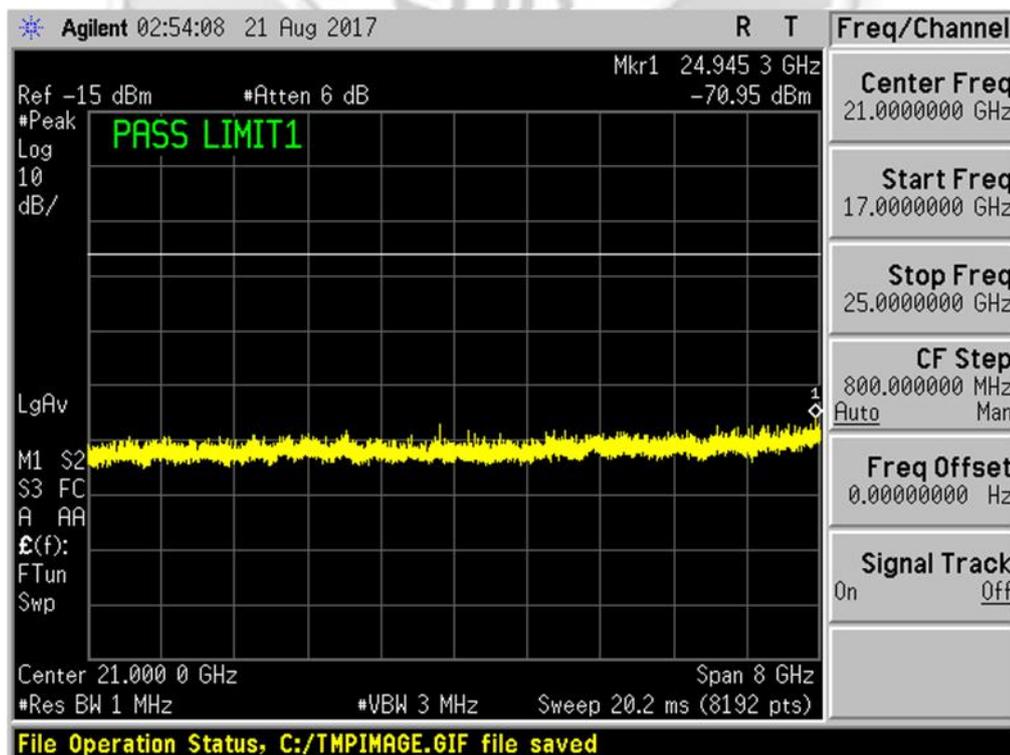


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted Bands) Plots – Peak



Plot 26 – Channel 39 (upper ch)



Plot 27 – Channel 39 (upper ch)



**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Limits**

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent Spectrum Analyzer	E4440A	MY45304764	04 Jan 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz.
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge (within 2MHz of the band edge).
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. The steps 2 to 3 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band-edge.



**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	28 – 29	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

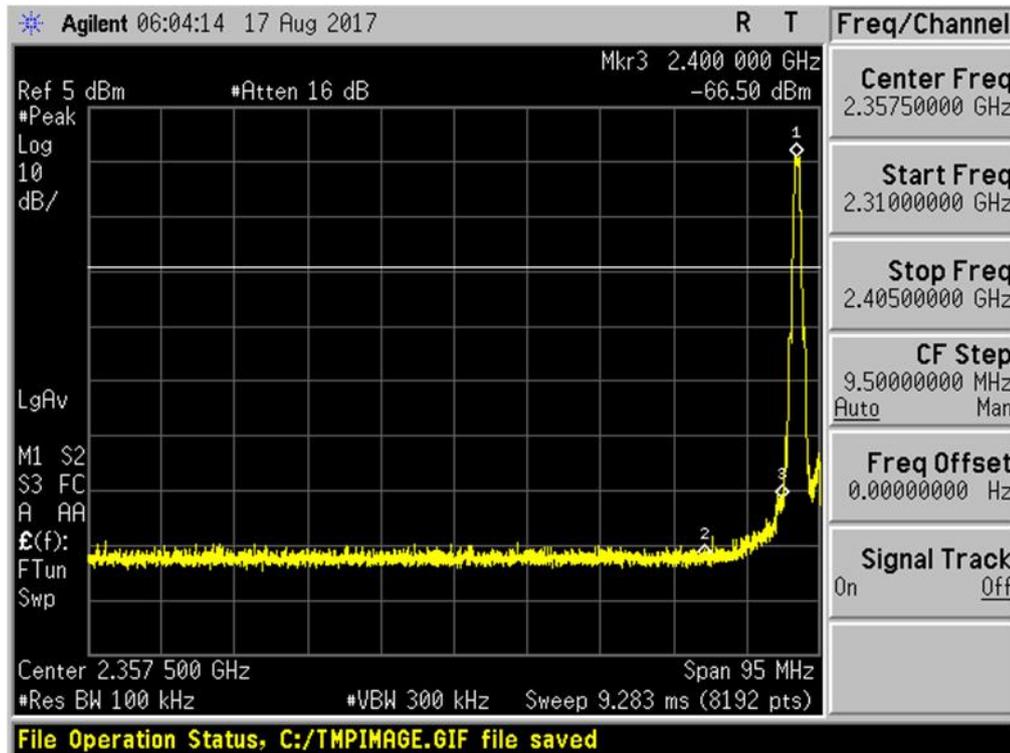
No significant signal was found and they were below the specified limit.



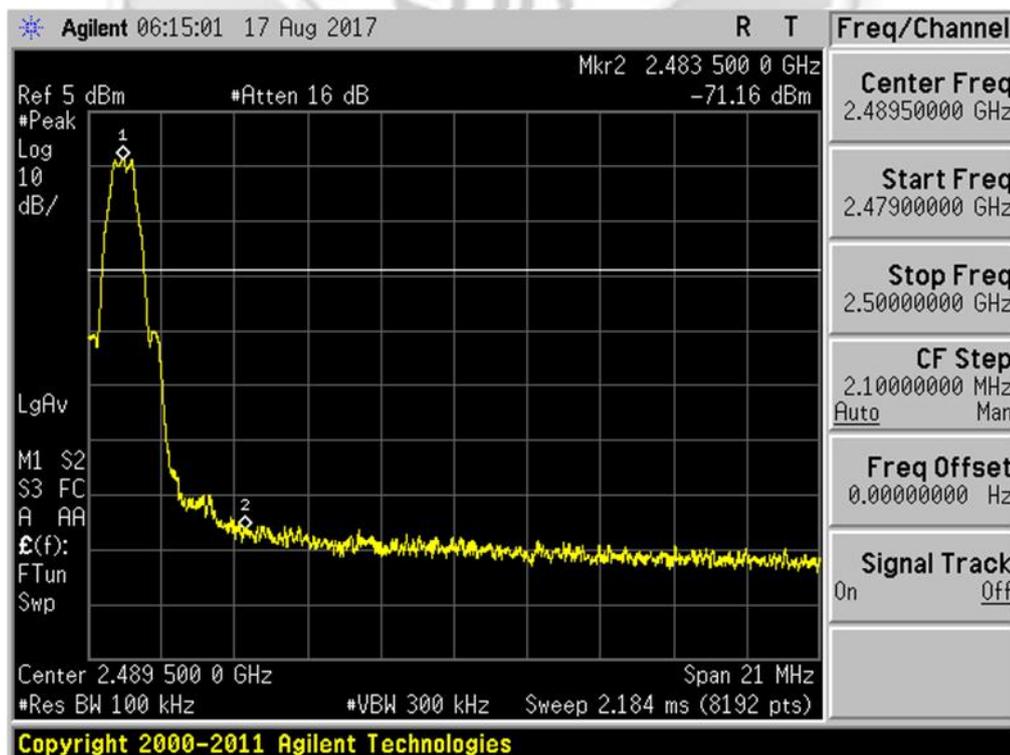


**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots**



Plot 28 – Lower Band Edge at 2.4000GHz



Plot 29 – Upper Band Edge at 2.4835GHz



## BAND EDGE COMPLIANCE (RADIATED) TEST

### 47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Limits

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands shall comply to the radiated emission limits specified in 15.209.

### 47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Instrumentation

Instrument	Model	S/No	Cal Due Date
R&S EMI Test Receiver	ESU40	100355	14 Sep 2018
Eletro-Metrics Double Ridged Antenna (Horn) Antenna (1-18GHz)	EM-6961	6525	08 Apr 2018
R&S Preamplifier (1GHz -18GHz)	SCU18	102191	10 Mar 2018

### 47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz to show compliance of spurious at band edges are at least 20dB below the carriers. For restricted band spurious at band edges, peak and average measurement plots were taken using the following setting:
  - a. Peak Plot:  
RBW = 1MHz, VBW = 3RBW
  - b. Average Plot  
RBW = 1MHz, VBW = 10Hz
4. All other supporting equipment were powered separately from another filtered mains.

### 47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. The steps 2 to 3 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band-edge.



**BAND EDGE COMPLIANCE (RADIATED) TEST**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	30 – 35	Relative Humidity	1030%
		Atmospheric Pressure	1030mbar
		Tested By	Kelvin Cheng

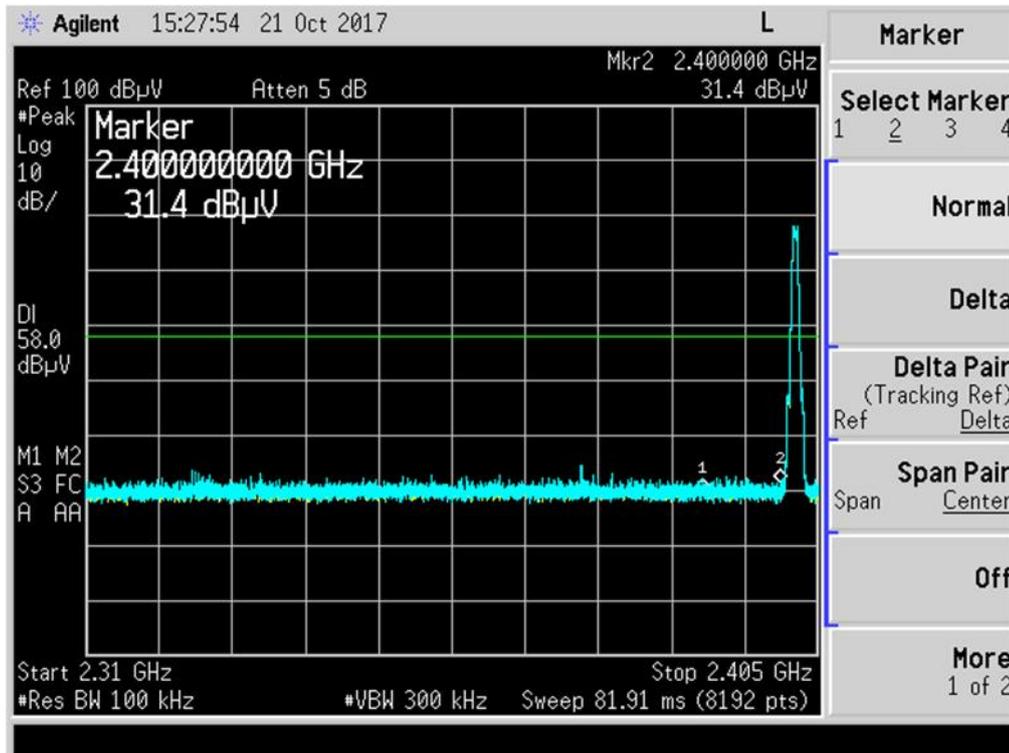
No significant signal was found and they were below the specified limit.



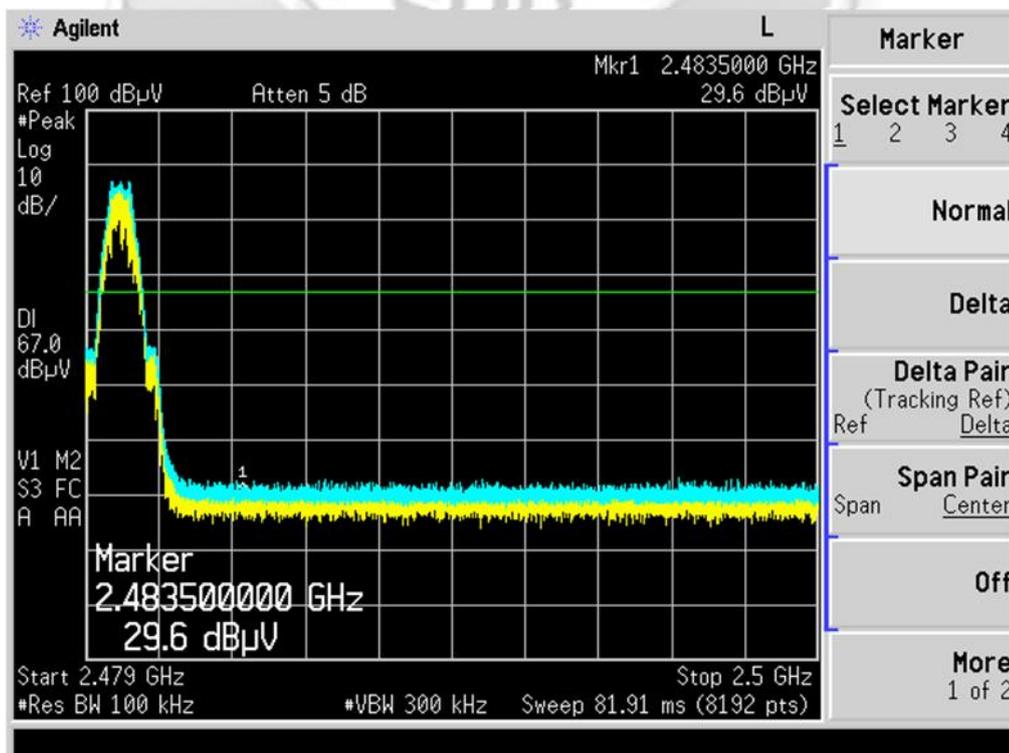


**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge)**



**Plot 30 – Lower Band Edge at 2.4000GHz**

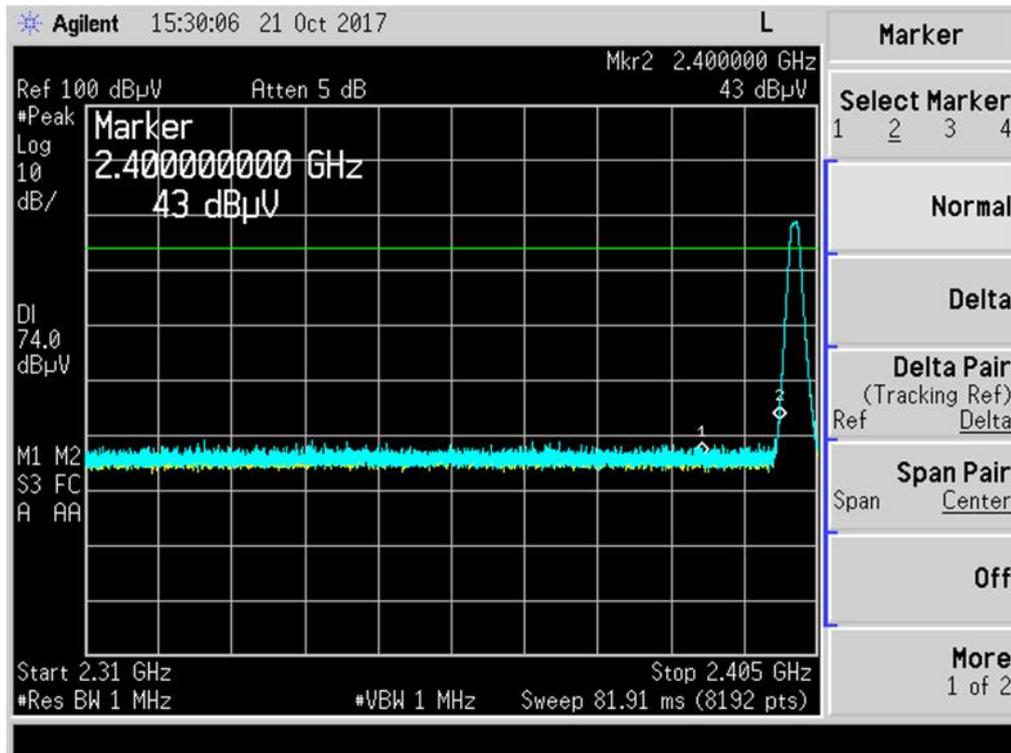


**Plot 31 – Upper Band Edge at 2.4835GHz**

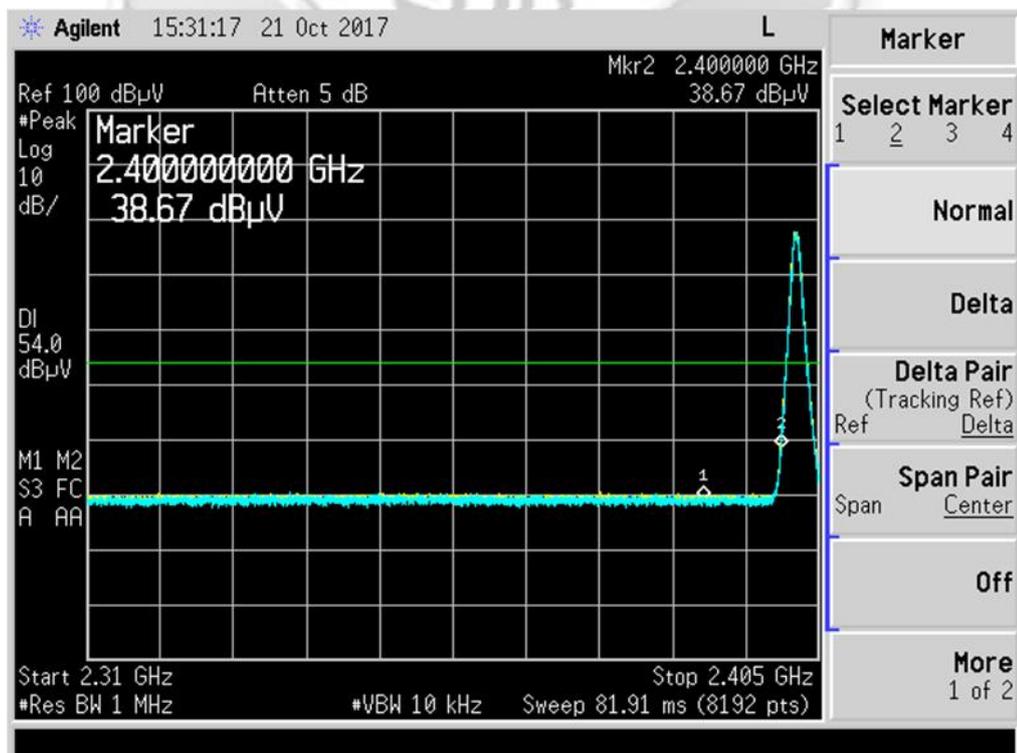


**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (Restricted Band)**



**Plot 32 – Peak Plot at Lower Band Edge at 2.4000GHz**

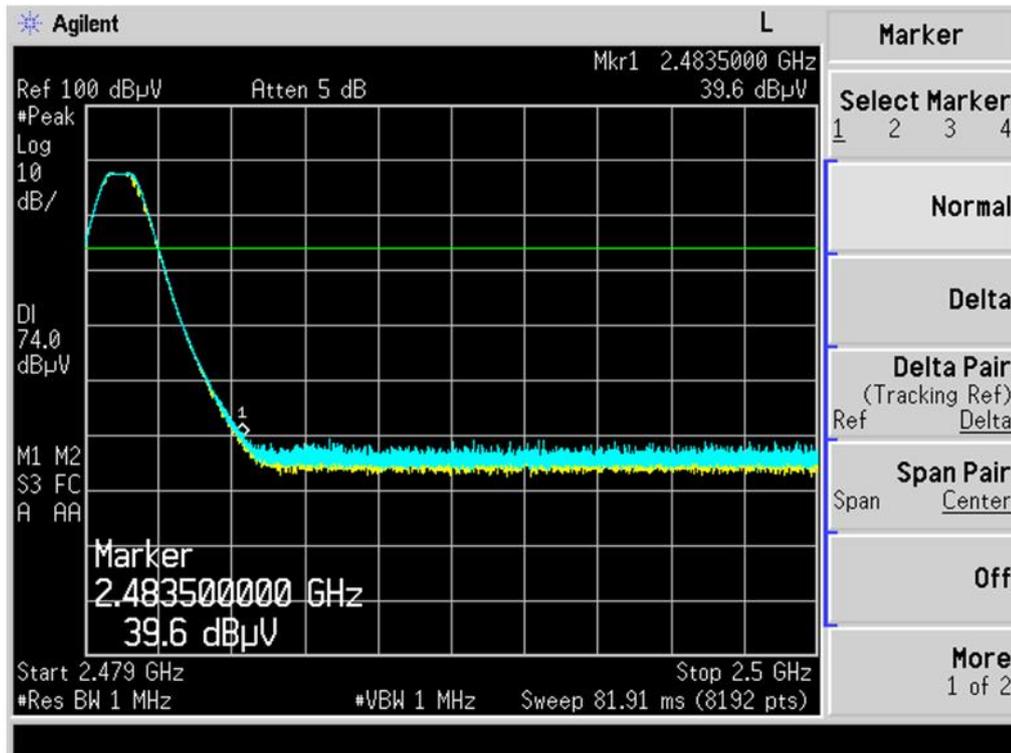


**Plot 33 – Average Plot at Lower Band Edge at 2.4000GHz**

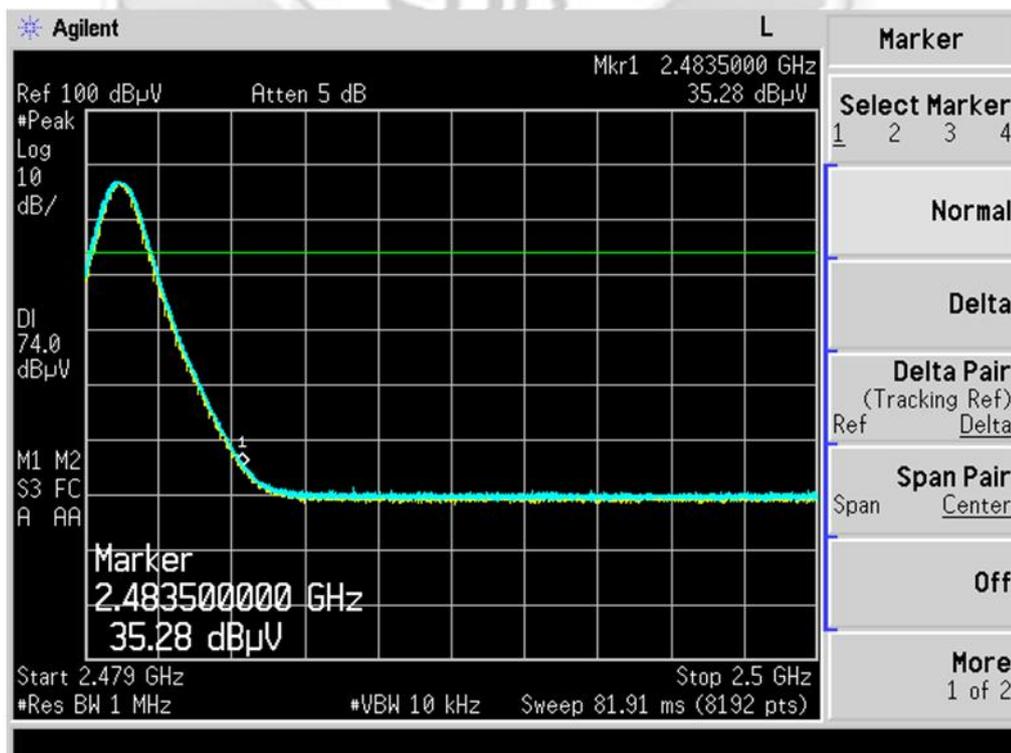


**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (Restricted Band)**



**Plot 34 – Peak Plot at Upper Band Edge at 2.4835GHz**



**Plot 35 – Average Plot at Upper Band Edge at 2.4835GHz**



**PEAK POWER SPECTRAL DENSITY TEST**

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Limits**

The EUT shows compliance to the requirements of this section, which states the peak power spectral density conducted from the intentional radiator (EUT) to the antenna shall not be greater than 8dBm (6.3mW) in any 3kHz band during any time interval of continuous transmission.

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent Spectrum Analyzer	E4440A	MY45304764	04 Jan 2018
BK Precision Multi Range DC Power Supply	9111	459G14131	23 Nov 2017

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum via a low-loss coaxial cable.
4. The resolution bandwidth (RBW), video bandwidth (VBW) and span of the spectrum analyser were set to the following:  
RBW = 3kHz  
VBW = 3RBW  
Span = 1.5 times the channel bandwidth (6dB Bandwidth)  
Sweep time = auto couple
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel.
2. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser.
3. The peak power density of the transmitting frequency was plotted and recorded.
4. The steps 2 to 3 were repeated with the transmitting frequency was set to middle and upper channel respectively.

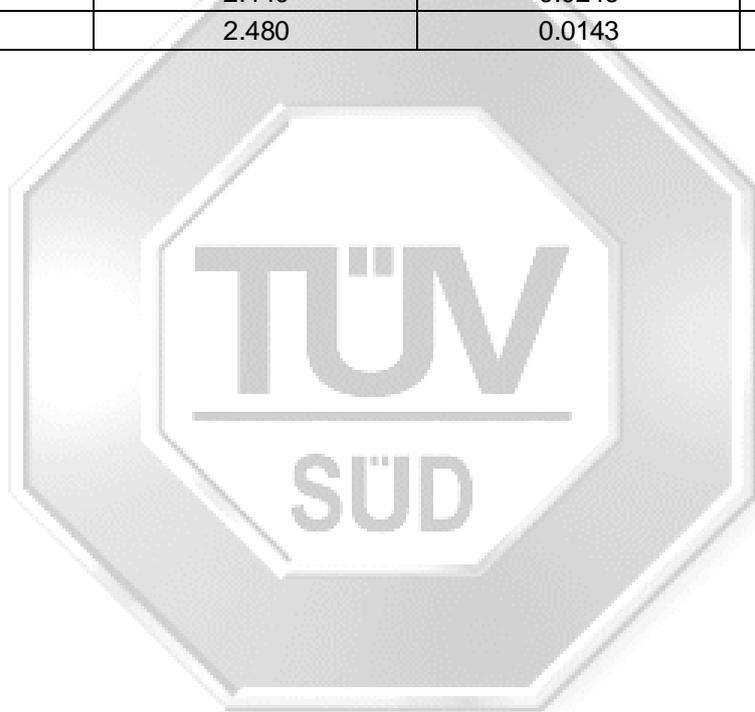


**PEAK POWER SPECTRAL DENSITY TEST**

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Results**

Test Input Power	12.5Vdc	Temperature	24°C
Attached Plots	36 – 38	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

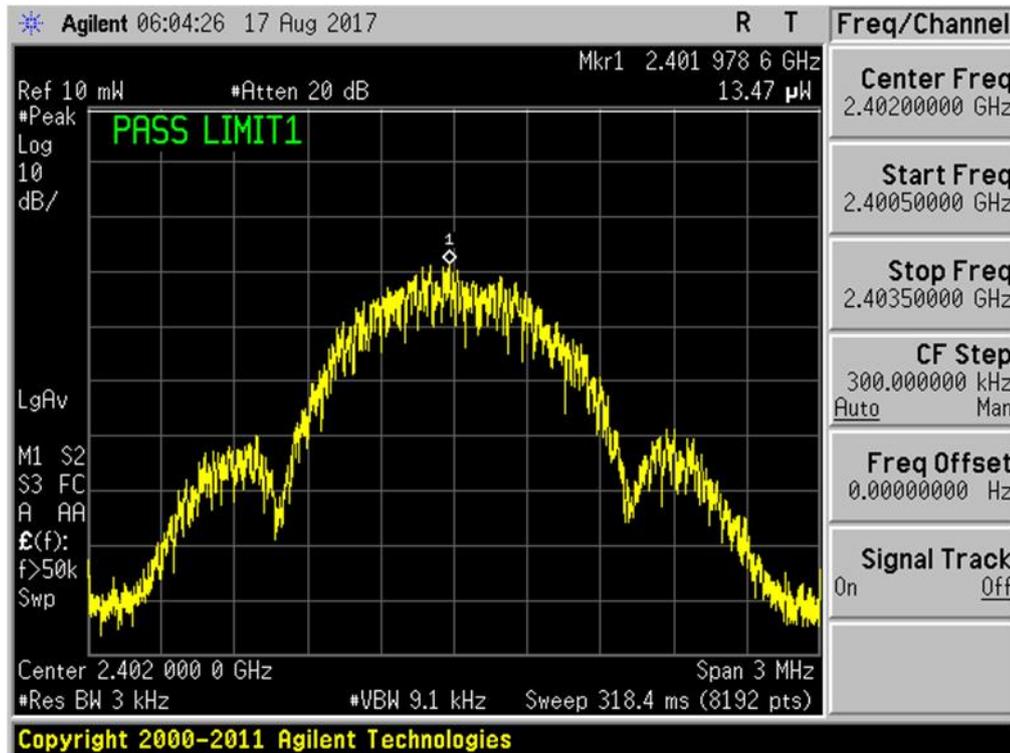
Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)
0	2.402	0.0135	6.3
19	2.440	0.0246	6.3
39	2.480	0.0143	6.3



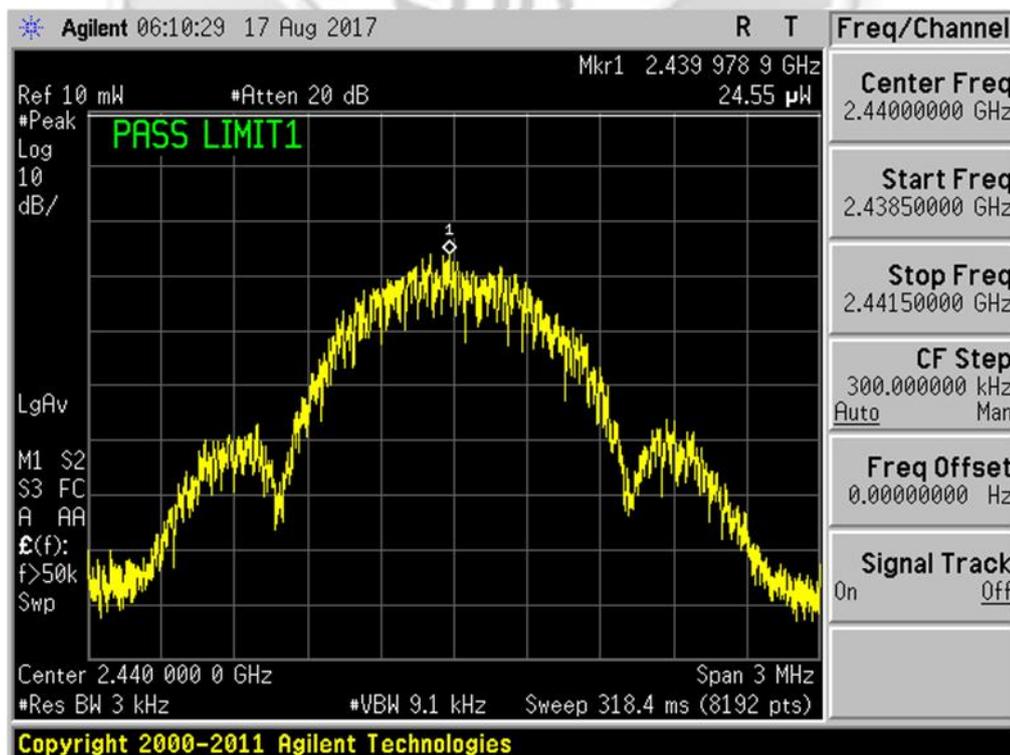


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots



Plot 36 – Channel 0 (lower ch)

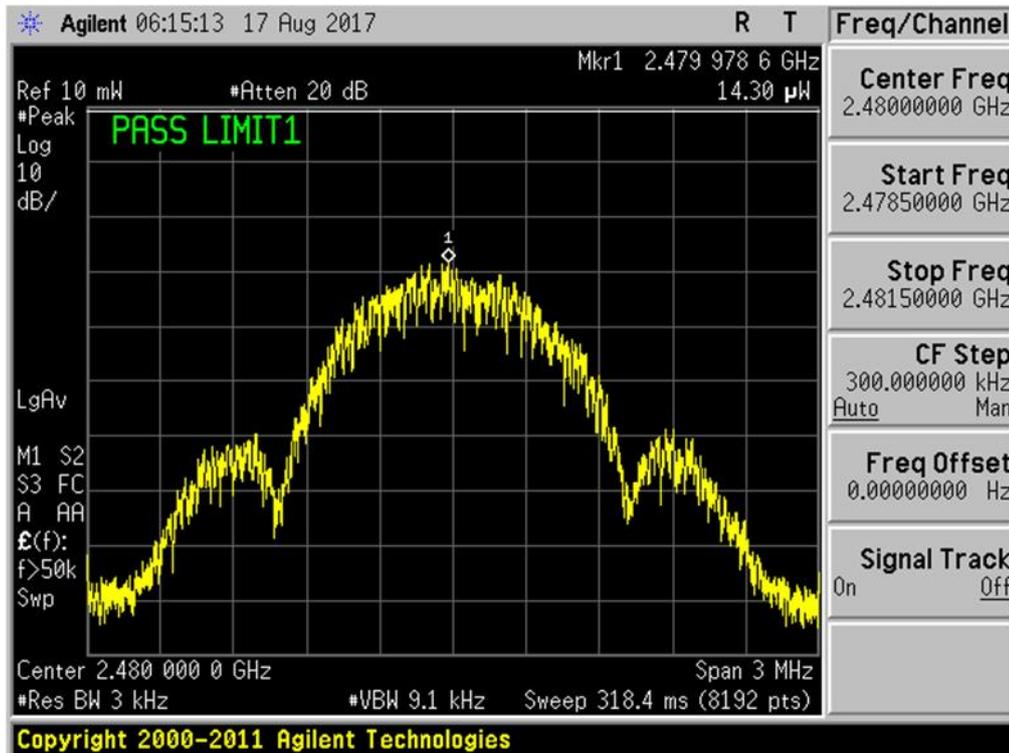


Plot 37 – Channel 19 (middle ch)



PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots



Plot 38 – Channel 39 (upper ch)



**MAXIMUM PERMISSIBLE EXPOSURE (MPE) TEST**

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Limits**

The EUT shows compliance to the requirements of this section, which states the MPE limits for general population / uncontrolled exposure are as shown below:

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (min)
0.3 - 1.34	614	1.63	100 <sup>Note 2</sup>	30
1.34 - 30	824 / f	2.19 / f	180 / f <sup>2</sup> <sup>Note 2</sup>	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f / 1500	30
1500 - 100000	-	-	1.0	30
Notes				
1. f = frequency in MHz				
2. Plane wave equivalent power density				

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
PMM 8053 Portable Field Meter	8053	0220J10308	20 Jan 2019
PMM EP330 Electric Field Probe	EP330	1010J10301	20 Jan 2019
R&S Universal Radio Communication Tester	CMU 200	837587/068	24 Dec 2017

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Test Setup**

1. The EUT and supporting equipment were set up as shown on the setup photo.
2. The relevant field probe was positioned at least 20cm away from the EUT and supporting equipment boundary.

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was first carried out at one of the positions / sides of the EUT.
3. Power density measurement (mW/cm<sup>2</sup>) was made using the field meter set to the required averaging time.
4. Steps 2 and 3 were repeated for the next position and its associate EUT operating mode, until all possible positions and modes were measured.

**Sample Calculation Example**

<p>At 2400 MHz, limit = 1.0 mW/cm<sup>2</sup></p> <p>Power density reading obtained directly from field meter = 0.3 mW/cm<sup>2</sup> averaged over the required 30 minutes.</p> <p>Therefore, margin = 0.3 – 1.0 = -0.7 mW/cm<sup>2</sup>                      i.e. 0.7 mW/cm<sup>2</sup> below limit</p>
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**MAXIMUM PERMISSIBLE EXPOSURE (MPE) TEST**

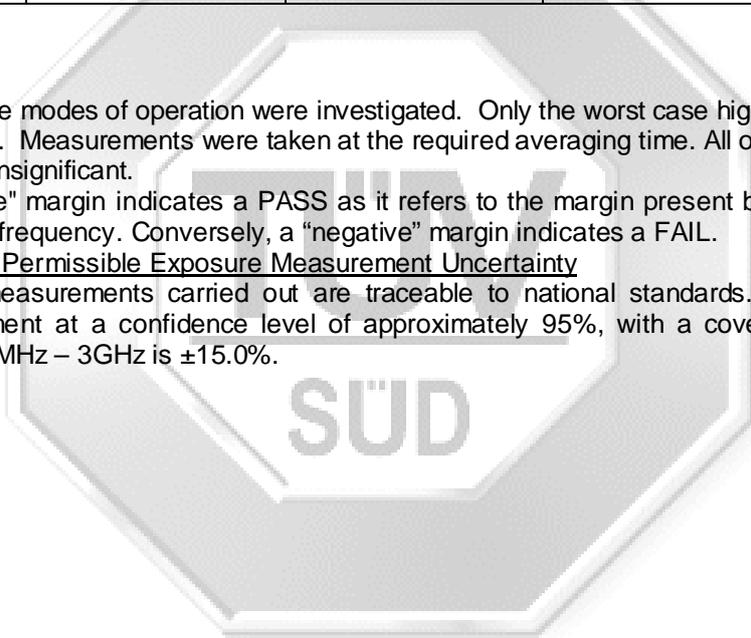
**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Results**

Test Input Power	12.5Vdc	Temperature	24°C
Test Distance	20cm	Relative Humidity	60%
	GSM 850 + Bluetooth @ 2440MHz (Worst)	Atmospheric Pressure	1030mbar
		Tested By	Chelmin Li

Channel	Channel Frequency (GHz)	Power Density Value (mW/cm <sup>2</sup> )	Averaging Time (min)	Limit (mW/cm <sup>2</sup> )
0 (lower ch)	2.402	0.0037	30	1.0
19 (mid ch)	2.440	0.0004	30	1.0
39 (upper ch)	2.480	0.0006	30	1.0

Notes

1. All possible modes of operation were investigated. Only the worst case highest radiation levels were measured. Measurements were taken at the required averaging time. All other radiation levels were relatively insignificant.
2. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
3. Maximum Permissible Exposure Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 0.1MHz – 3GHz is ±15.0%.





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July 2011

