FCC Radio Test Report

FCC ID: 2ALYRHG-B02J

This report concerns: Original Grant

Project No.	:	1904C096
Equipment	:	FYLO
Brand Name	:	HIGH GREAT,
Test Model	:	HG-B02A
Series Model	:	N/A
Applicant	:	Shenzhen HighGreat Innovation Technology Development Co., Ltd.
Address	:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen
Manufacturer	:	Shenzhen HighGreat Innovation Technology Development Co., Ltd.
Address	:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen
Date of Receipt	:	Jul, 17. 2019
Date of Test	:	Jul, 17. 2019~ Sep, 11. 2019
Issued Date	:	Sep, 16. 2019
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG19071858
Standard(s)	:	FCC Part15, Subpart E(15.407) ANSI C63.10-2013 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by : Tim Lee

Approved by : Andy Chiu

Testing Laboratory
0659

Add: No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan
TEL: +886-2-2657-3299 FAX: +886-2-2657-3331
Web: www.newbtl.com

Declaration

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BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Sep, 16. 2019

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart E(15.407)				
Standard(s) Section	**Test Item**	**Test Result**	**Judgement**	**Remark**
15.207 15.407(b)	AC Power Line Conducted Emissions	APPENDIX A	N/A	Note(1)
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	------
15.407(a) 15.407(e)	Spectrum Bandwidth	APPENDIX E	PASS	------
15.407(a)	Maximum Output Power	APPENDIX F	PASS	------
15.407(a)	Power Spectral Density	APPENDIX G	PASS	------
15.407(g)	Frequency Stability	APPENDIX H	PASS	------
15.203	Antenna Requirements	------	PASS	Note(4)
15.407(c)	Automatically Discontinue Transmission	------	PASS	Note(2)

Note:

(1) “N/A” denotes test is not applicable in this test report.

(2) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

(3) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

CB15: (FCC RN:674415; FCC DN:TW0659)
No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

SR06 (FCC RN:674415; FCC DN:TW0659)
No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The BTL measurement uncertainty as below table:

A. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U (dB)
CB15 (3m)	CISPR	30 MHz ~ 200 MHz	V	4.20
		30 MHz ~ 200 MHz	H	3.64
		200 MHz ~ 1,000 MHz	V	4.56
		200 MHz ~ 1,000 MHz	H	3.90

Test Site	Method	Measurement Frequency Range	Ant. H / V	U (dB)
CB15 (3m)	CISPR	1 GHz ~ 6 GHz	V	4.46
		1 GHz ~ 6 GHz	H	4.40
		6 GHz ~18 GHz	V	3.88
		6 GHz ~18 GHz	H	4.00

Test Site	Method	Measurement Frequency Range	U (dB)
CB15 (1m)	CISPR	18 GHz ~ 26.5 GHz	4.62
		26.5 GHz ~ 40 GHz	5.12

B. Conducted tests

Item	Method	U
Bandwidth	ANSI	3.8 %
Output Power	ANSI	0.95 dB
Power Spectral Density	ANSI	0.86 dB
Conducted Spurious Emissions	ANSI	2.71 dB

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.
Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.
Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB
Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage
Radiated Emissions-9K-30MHz	24°C	52%	DV 7.6V
Radiated Emissions-30 MHz to 1GHz	24°C	52%	DV 7.6V
Radiated Emissions-Above 1000 MHz	24°C	52%	DV 7.6V
Spectrum Bandwidth	25.3°C	63.3%	DV 7.6V
Maximum Output Power	25.3°C	63.3%	DV 7.6V
Power Spectral Density	25.3°C	63.3%	DV 7.6V
Frequency Stability	25.3°C	63.3%	DV 7.6V

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	FYLO
Brand Name	HIGH GREAT,
Test Model	HG-B02A
Series Model	N/A
Model Difference(s)	N/A
Power Source	Supplied from lithium polymer battery. Brand/Model: HIGH GREAT / HG-BPB02-1500
Power Rating	1500mAh/11.4Wh/7.6V
Operation Frequency	5725 MHz~5850 MHz
Modulation Type	OFDM
Bit Rate of Transmitter	Up to 54 Mbps
Maximum Output Power	IEEE 802.11a: 17.95 dBm (0.0624 W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Channel List:

IEEE 802.11a	
Channel	Frequency (MHz)
149	5745
153	5765
157	5785
161	5805
165	5825

3. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		Wireless Antenna	PCB	N/A	1.87
2		Wireless Antenna	PCB	N/A	1.87

Note:

Antenna Gain=1.87 dBi. This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain = G_{ANT}+10log(N)dBi, that is Directional gain=1.87+ 10log(2)dBi=4.88.

4. Table for Antenna Configuration:

Operating Mode / TX Mode	2TX
IEEE 802.11a	V (Ant. 1 + Ant. 2)

2.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A Mode / CH149,CH157,CH165
Mode 2	TX A Mode / CH165

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

Radiated emissions test - Below 1G	
Final Test Mode	Description
Mode 2	TX A Mode / CH165

Radiated emissions test - Above 1G	
Final Test Mode	Description
Mode 1	TX A Mode / CH149,CH157,CH165

Output Power test	
Final Test Mode	Description
Mode 1	TX A Mode / CH149,CH157,CH165

Others Conducted test	
Final Test Mode	Description
Mode 1	TX A Mode / CH149,CH157,CH165

Note：

(1) For radiated emission below 1 GHz test, the IEEE 802.11a channel 157 is found to be the worst case and recorded.

(2) For radiated emission above 1 GHz test, 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

(3) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.

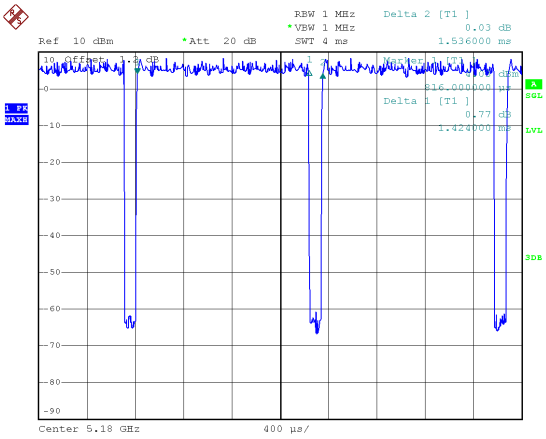
2.3 PARAMETERS OF TEST SOFTWARE

Test Software	artgui		
Test Frequency (MHz)	5745	5785	5825
IEEE 802.11a	15.5	15	15

2.4 DUTY CYCLE

If duty cycle is ≥ 98 %, duty factor is not required.
If duty cycle is < 98 %, duty factor shall be considered.
The output power = measured power + duty factor.

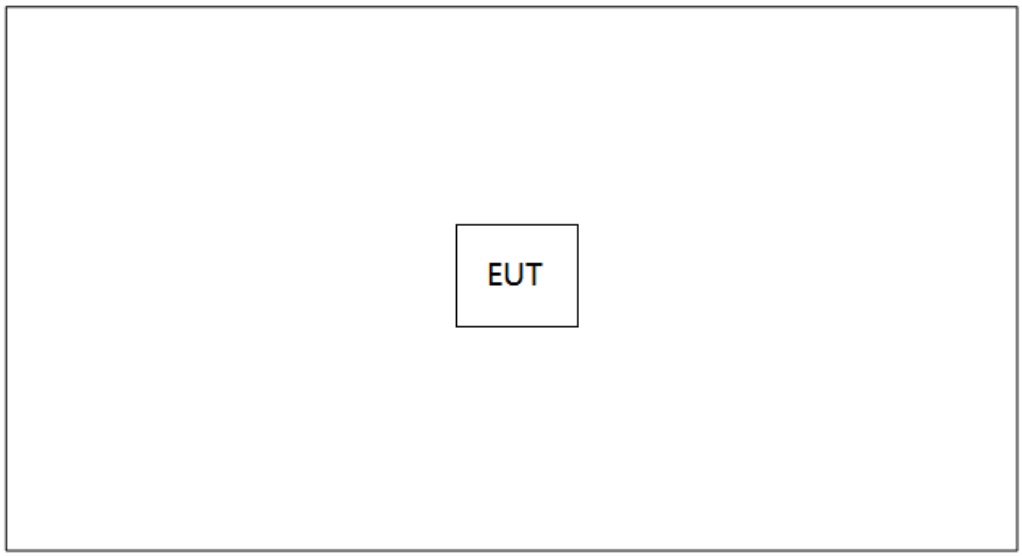
IEEE 802.11a



Duty cycle = 1.37 ms / 1.415 ms = 96.82%
Duty Factor = 10log(1 / Duty cycle) = 0.14

NOTE:
For IEEE 802.11a:
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
-	-	-	-	-

3. RADIATED EMISSIONS TEST

3.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5725-5850	-27 NOTE 0	68.3
	10 NOTE 0	105.3
	15.6 NOTE 0	110.9
	27 NOTE 0	122.3

NOTE:

(1)The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: $E = \frac{1000000\sqrt{30P}}{3}$ μV/m, where P is the eirp (Watts)

(2)According to FCC 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

3.2 TEST PROCEDURE

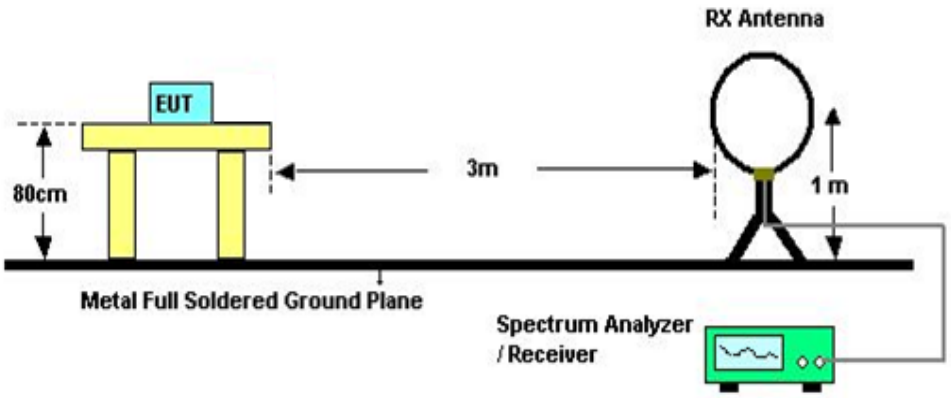
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1 GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1 GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 DEVIATION FROM TEST STANDARD

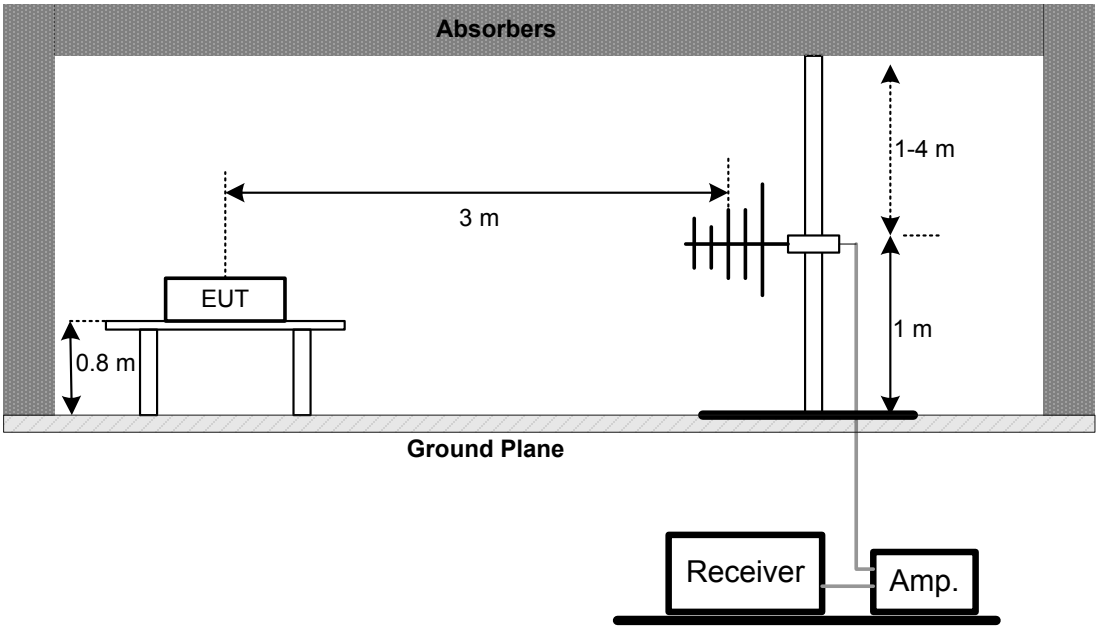
No deviation

3.4 TEST SETUP

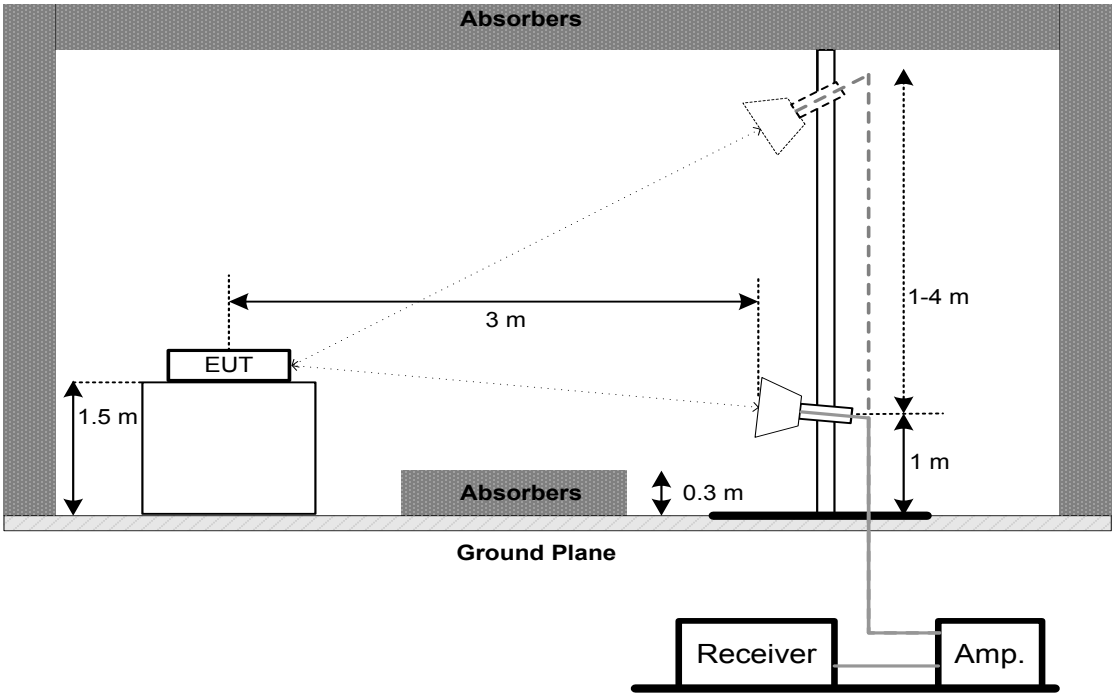
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz



3.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

3.6 TEST RESULTS - 9 KHZ to 30 MHZ

Please refer to the APPENDIX A

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

3.7 TEST RESULTS - 30 MHz TO 1000 MHz

Please refer to the APPENDIX B.

3.8 TEST RESULTS - ABOVE 1000 MHz

Please refer to the APPENDIX C.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

4. BANDWIDTH TEST

4.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a) 15.407(e)	6 dB Bandwidth	Minimum 500 kHz	5725-5850

4.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below

b. pectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	6 dB Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26 dB below carrier

4.3 TEST PROCEDURE

No deviation.

4.4 TEST SETUP

4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS

Please refer to the APPENDIX D.

5. MAXIMUM OUTPUT POWER TEST

5.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Maximum Output Power	1 Watt (30dBm)	5725-5850

Note:

a. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

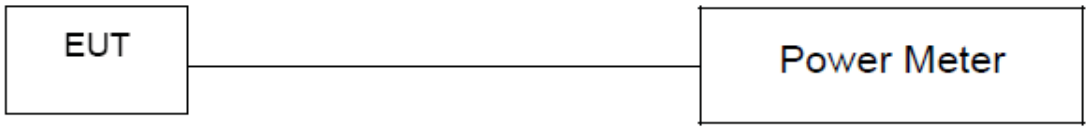
5.2 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
b. Test test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. POWER SPECTRAL DENSITY TEST

6.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	30 dBm/500 kHz	5725-5850

6.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	= 1 MHz.
VBW	≥ 3 MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

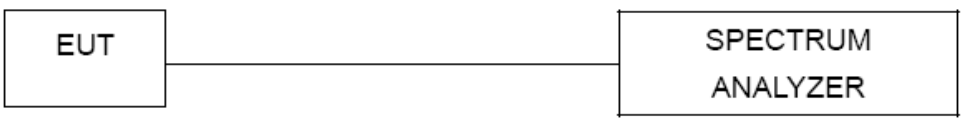
Note:

1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 1 MHz and VBW at 3 MHz if the spectrum analyzer does not have 500 kHz RBW.
2. The value measured with RBW=1 MHz is to be added with 10log(500 kHz/1 MHz) which is -3 dB. For example, if the measured value is +10dBm using RBW=1 MHz (that is +10 dBm/MHz), then the converted value will be +7dBm/500kHz.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX F.

7. FREQUENCY STABILITY MEASUREMENT

7.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(g)	Frequency Stability	Specified in the user's manual	5725-5850

7.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

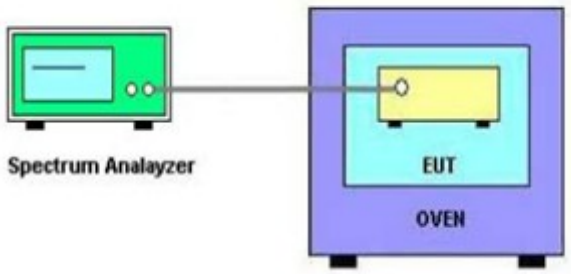
c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

d. User manual temperature is 0°C~40°C.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX G.

8. MEASUREMENT INSTRUMENTS LIST

Radiated Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Preamplifier	EMCI	012645B	980267	Apr. 10, 2020
2	Preamplifier	EMCI	EMC02325	980217	Apr. 13, 2020
3	Preamplifier	EMCI	EMC2654045	980030	Feb. 01, 2020
4	Test Cable	EMCI	EMC104-SM-SM-8000	8m	Apr. 10, 2020
5	Test Cable	EMCI	EMC104-SM-SM-800	150207	Apr. 10, 2020
6	Test Cable	EMCI	EEMC104-SM-SM-3000	151205	Apr. 10, 2020
7	MXE EMI Receiver	Agilent	N9038A	MY55420127	Mar. 24, 2020
8	Signal Analyzer	Agilent	N9010A	MY52220990	Apr. 16, 2020
9	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	May 02, 2020
10	Horn Ant	Schwarzbeck	BBHA 9170	187	Jun. 11, 2020
11	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-548	Mar. 20, 2020
12	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0623	Mar. 20, 2020

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 23, 2020

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Dec. 06, 2019
2	Power Sensor	Anritsu	MA2411B	1126001	Aug. 08, 2019

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 23, 2020

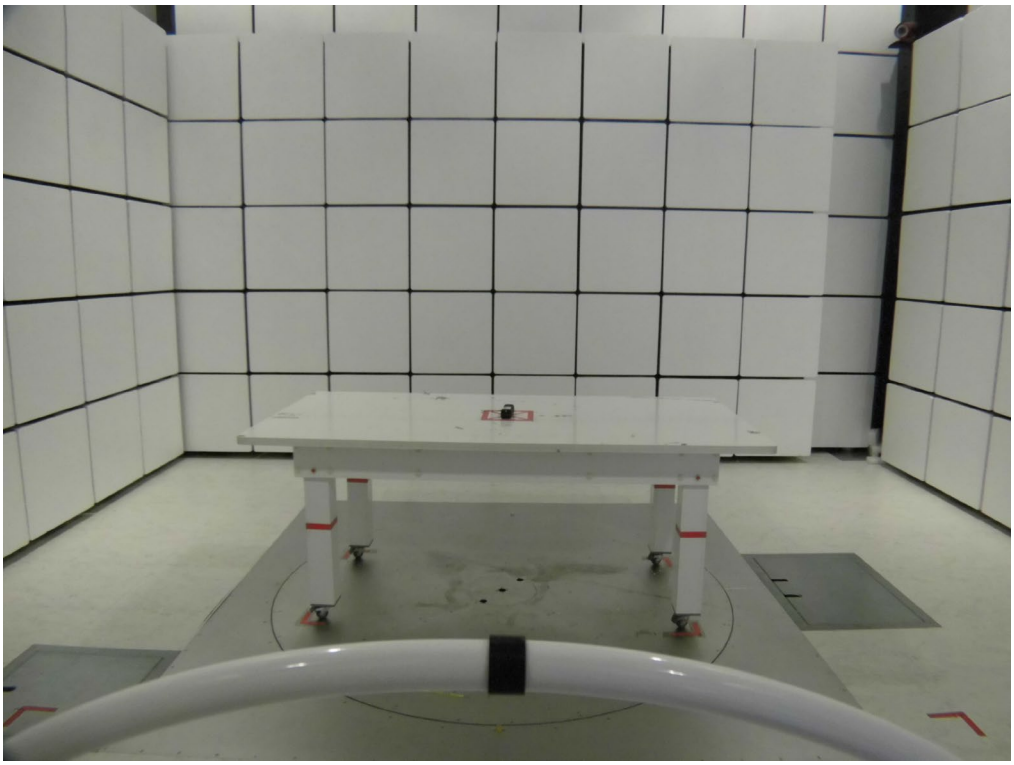
Frequency Stability					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019
2	Precision Oven Tester	Bell	BTH-50C	20170306001	Mar. 10, 2020

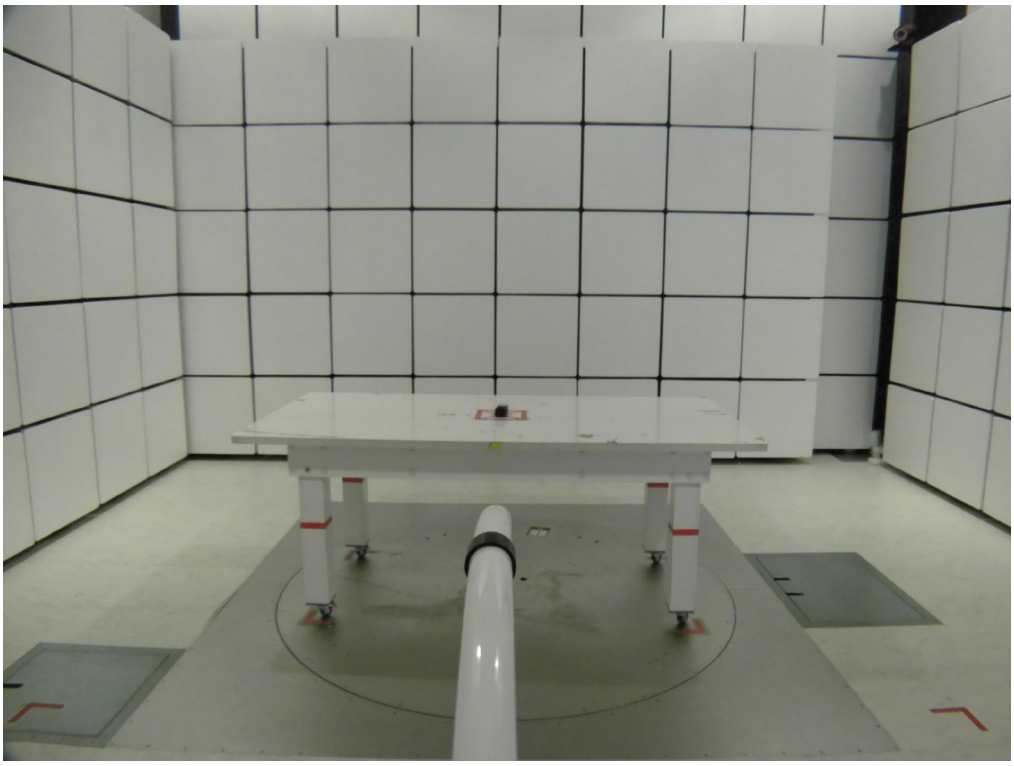
Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

9. EUT TEST PHOTOS

Radiated Emissions Test Photos

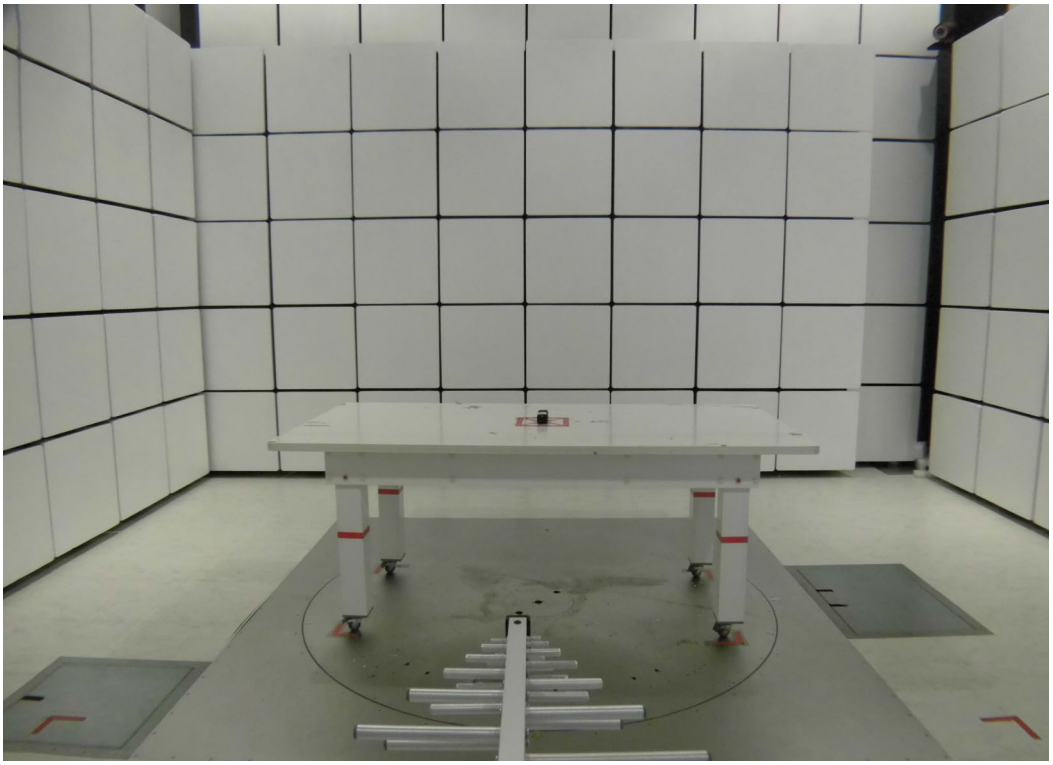
9 kHz to 30 MHz

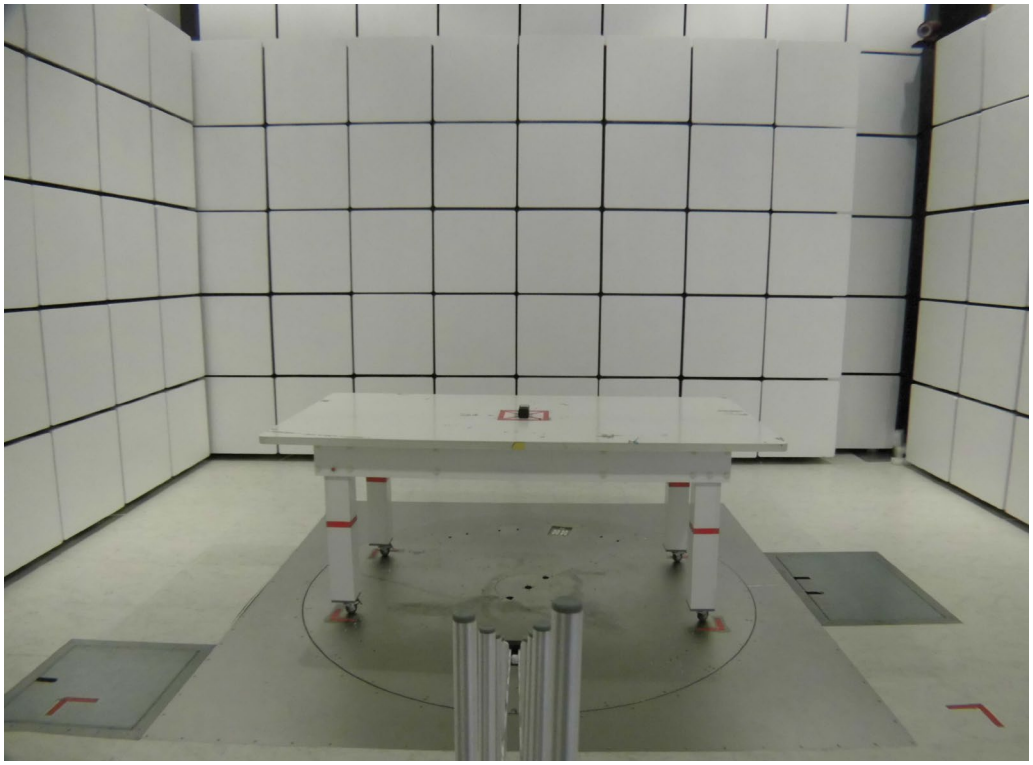




Radiated Emissions Test Photos

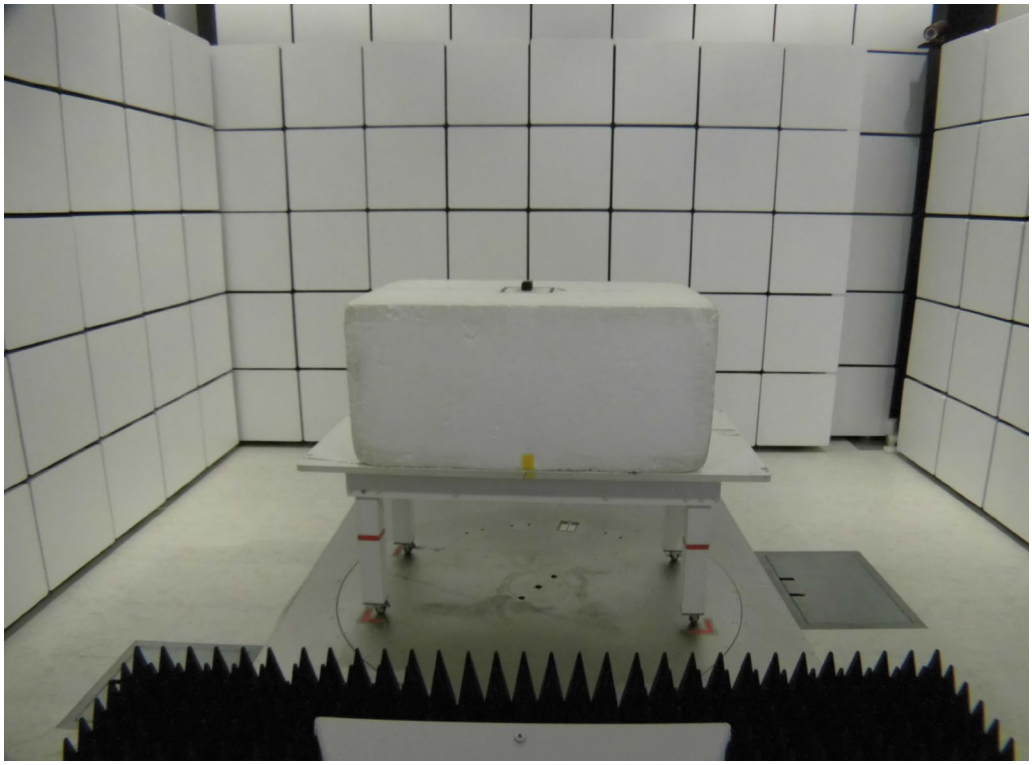
30 MHz to 1 GHz





Radiated Emissions Test Photos

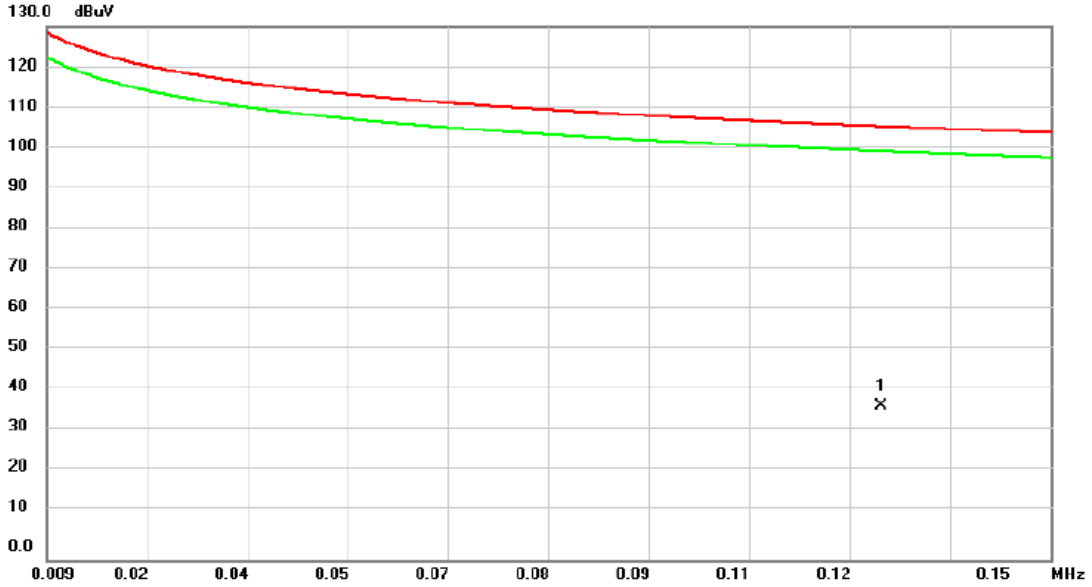
Above 1 GHz



APPENDIX A - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode:	TX A Mode Channel 165

Ant 0°

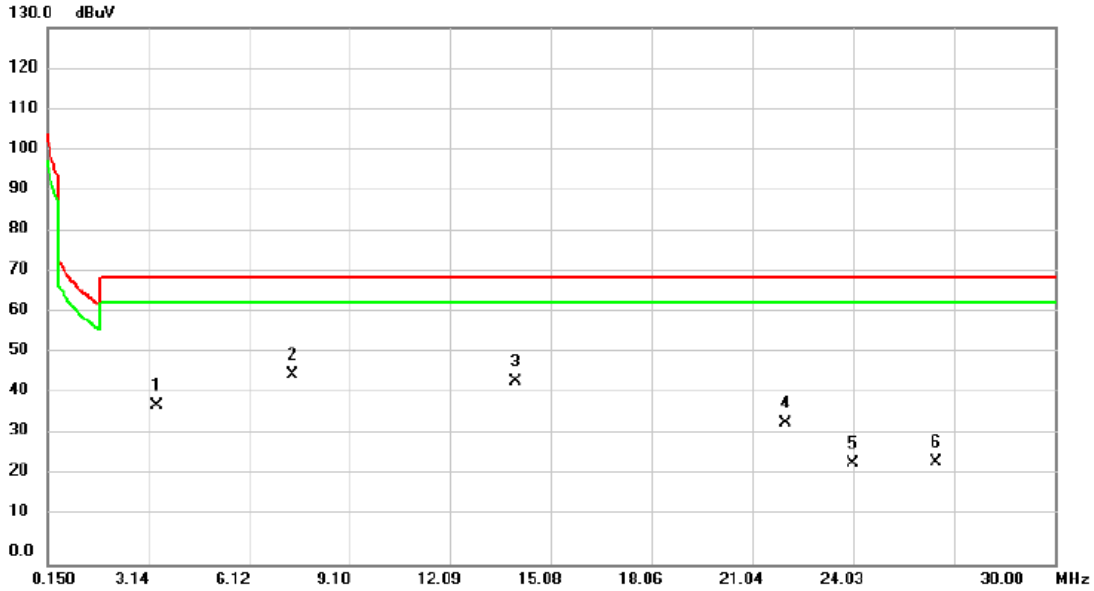


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1262	23.04	14.54	37.58	105.58	-68.00	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX A Mode Channel 165

Ant 0°

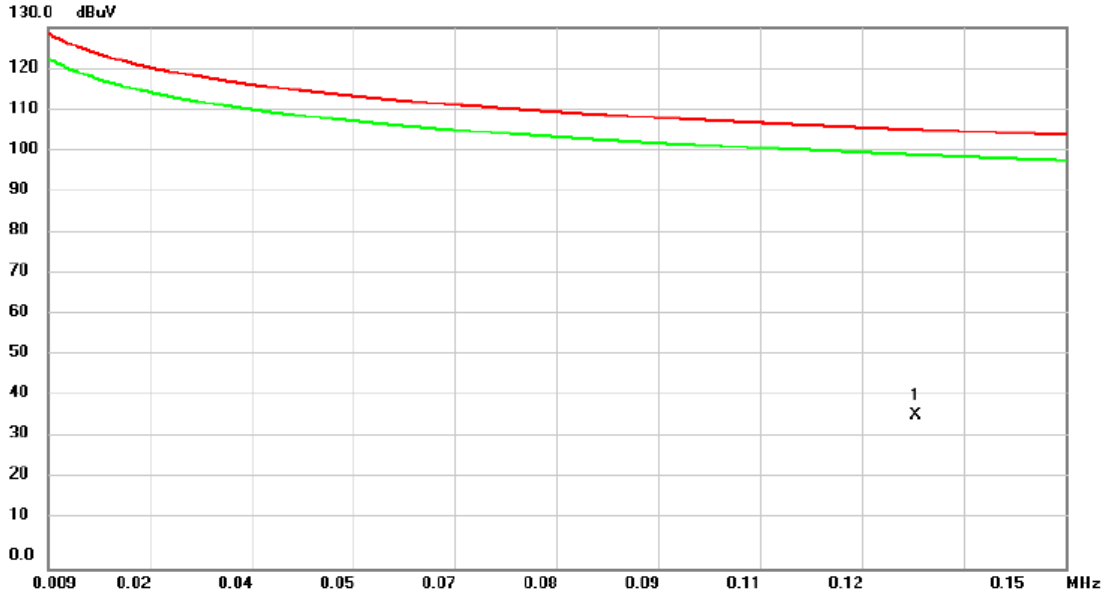


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		3.4035	42.16	-3.71	38.45	69.54	-31.09	QP	
2	*	7.4333	50.12	-4.20	45.92	69.54	-23.62	QP	
3		14.0004	49.34	-4.82	44.52	69.54	-25.02	QP	
4		22.0300	40.86	-6.66	34.20	69.54	-35.34	QP	
5		24.0000	32.71	-8.04	24.67	69.54	-44.87	QP	
6		26.4774	33.33	-8.56	24.77	69.54	-44.77	QP	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX A Mode Channel 165

Ant 90°

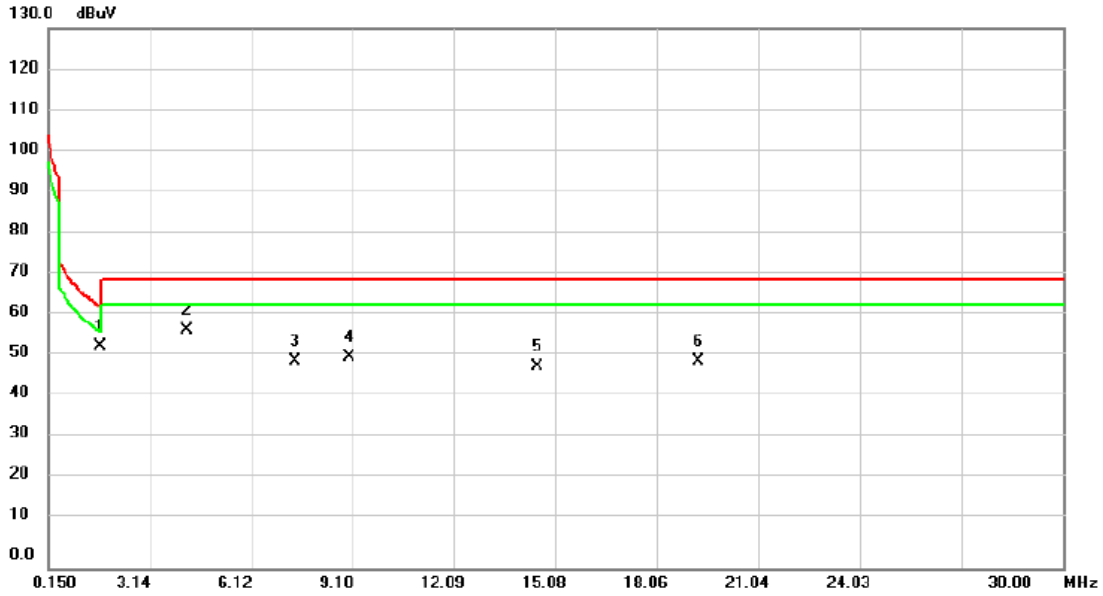


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1292	22.62	14.37	36.99	105.38	-68.39	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX A Mode Channel 165

Ant 90°



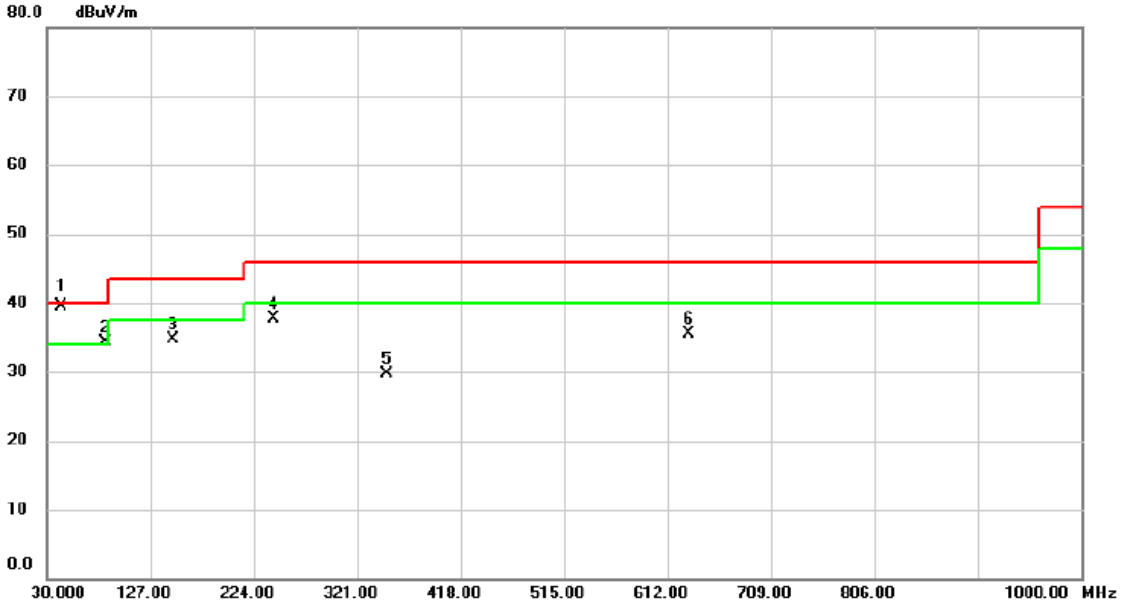
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	1.7020	55.68	-2.16	53.52	62.98	-9.46	QP	
2		4.2096	61.12	-3.82	57.30	69.54	-12.24	QP	
3		7.4333	54.22	-4.20	50.02	69.54	-19.52	QP	
4		9.0152	55.46	-4.72	50.74	69.54	-18.80	QP	
5		14.5373	53.49	-4.93	48.56	69.54	-20.98	QP	
6		19.2540	56.28	-6.47	49.81	69.54	-19.73	QP	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX B - RADIATED EMISSION - 30 MHZ TO 1 GHZ

Test Mode:	TX A Mode Channel 165

Vertical

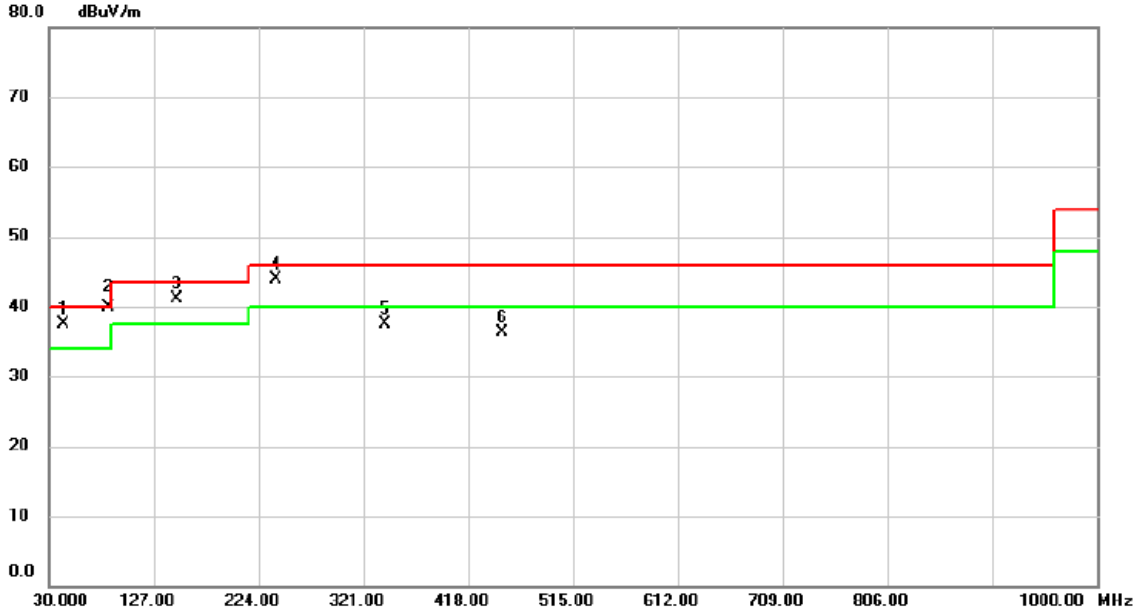


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	44.0650	47.95	-8.44	39.51	40.00	-0.49	QP	
2	!	85.2900	46.74	-12.41	34.33	40.00	-5.67	peak	
3		148.3400	43.43	-8.77	34.66	43.50	-8.84	peak	
4		242.4300	46.86	-9.06	37.80	46.00	-8.20	peak	
5		348.6450	35.65	-5.92	29.73	46.00	-16.27	peak	
6		631.8850	35.21	0.24	35.45	46.00	-10.55	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX A Mode Channel 165

Horizontal



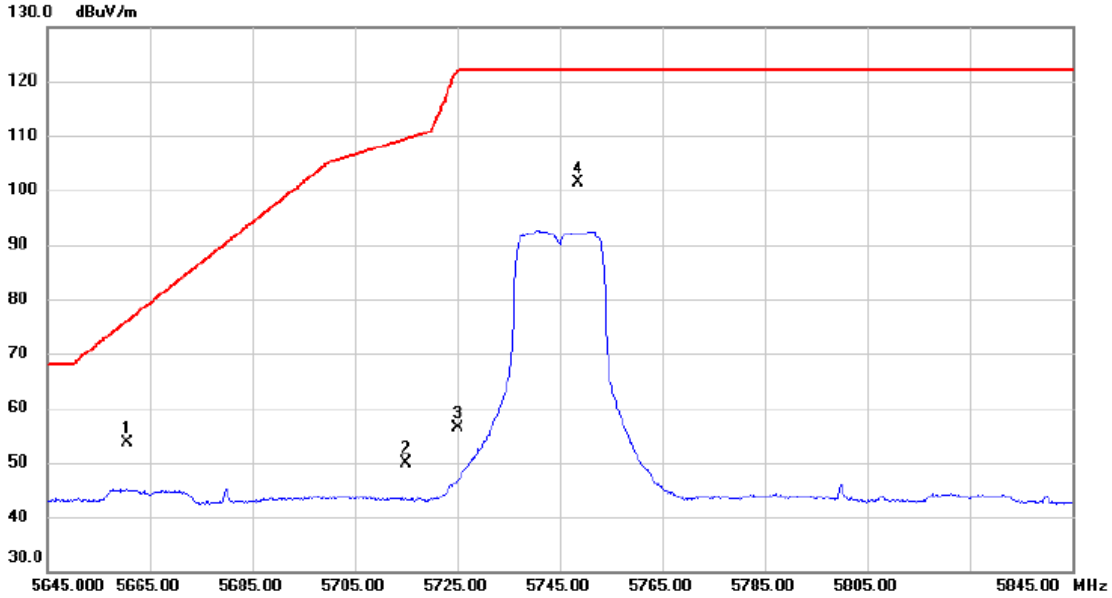
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	!	43.5800	45.83	-8.42	37.41	40.00	-2.59	peak	
2	*	84.8050	52.20	-12.34	39.86	40.00	-0.14	QP	
3	!	148.3400	49.96	-8.77	41.19	43.50	-2.31	peak	
4	!	240.0050	52.98	-9.13	43.85	46.00	-2.15	peak	
5		340.4000	43.68	-6.14	37.54	46.00	-8.46	peak	
6		450.0100	39.50	-3.21	36.29	46.00	-9.71	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - ABOVE 1000 MHZ

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Vertical

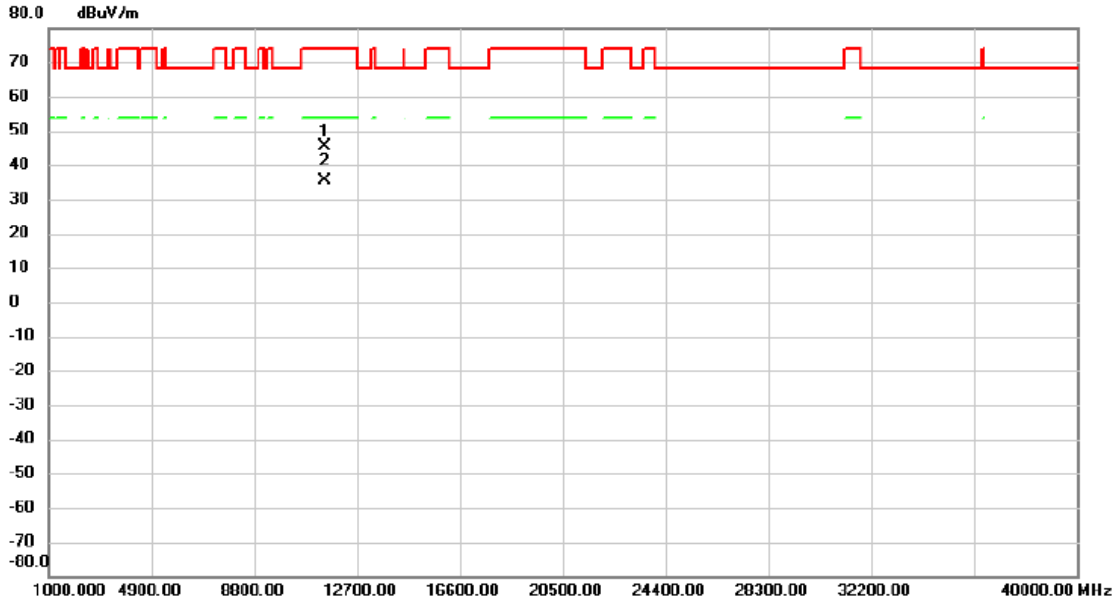


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5660.600	13.66	39.91	53.57	76.04	-22.47	peak	
2		5715.000	9.81	40.08	49.89	109.40	-59.51	peak	
3		5725.000	16.27	40.12	56.39	122.20	-65.81	peak	
4	*	5748.600	61.20	40.20	101.40	122.20	-20.80	peak	主波訊號不予判定

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Vertical

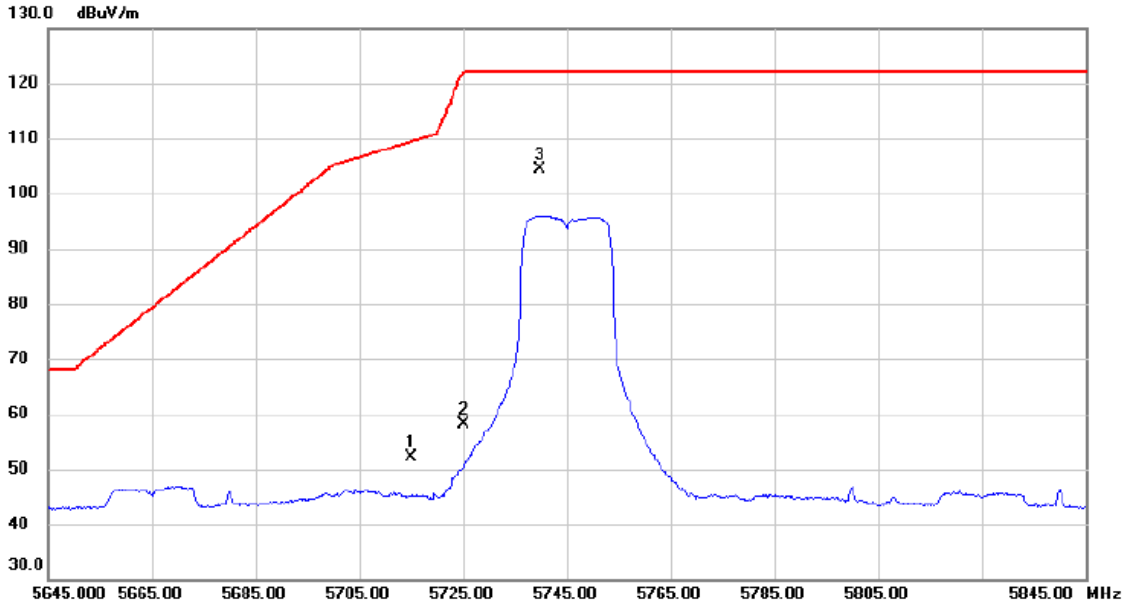


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11479.90	40.45	5.02	45.47	74.00	-28.53	peak	
2	*	11487.72	30.52	5.02	35.54	54.00	-18.46	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Horizontal

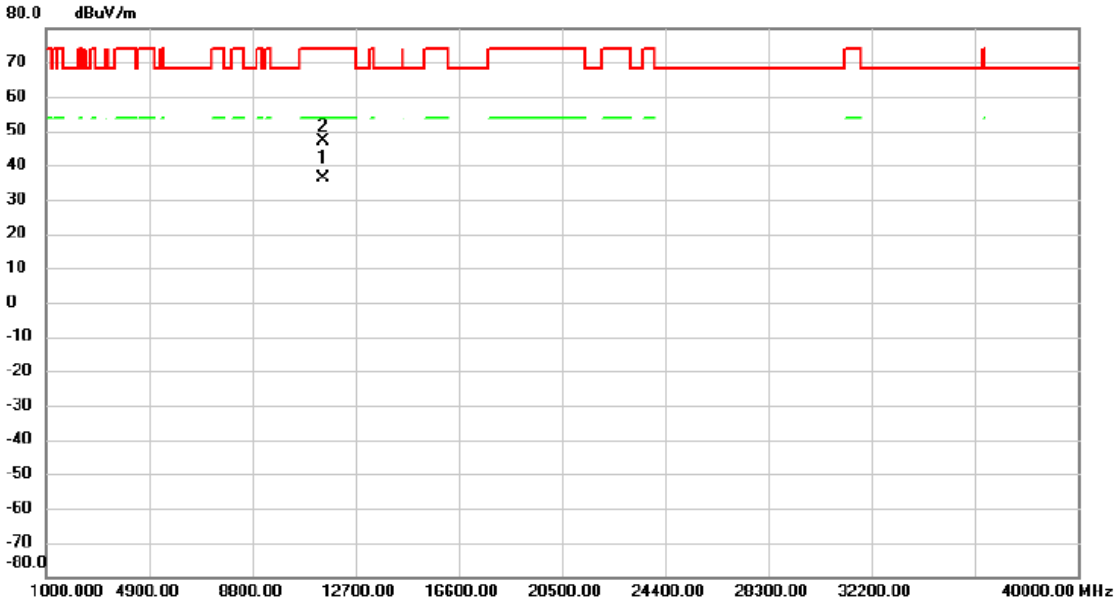


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5715.000	12.11	40.08	52.19	109.40	-57.21	peak	
2		5725.000	18.01	40.12	58.13	122.20	-64.07	peak	
3	*	5739.900	64.17	40.17	104.34	122.20	-17.86	peak	主波訊號不予判定

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Horizontal

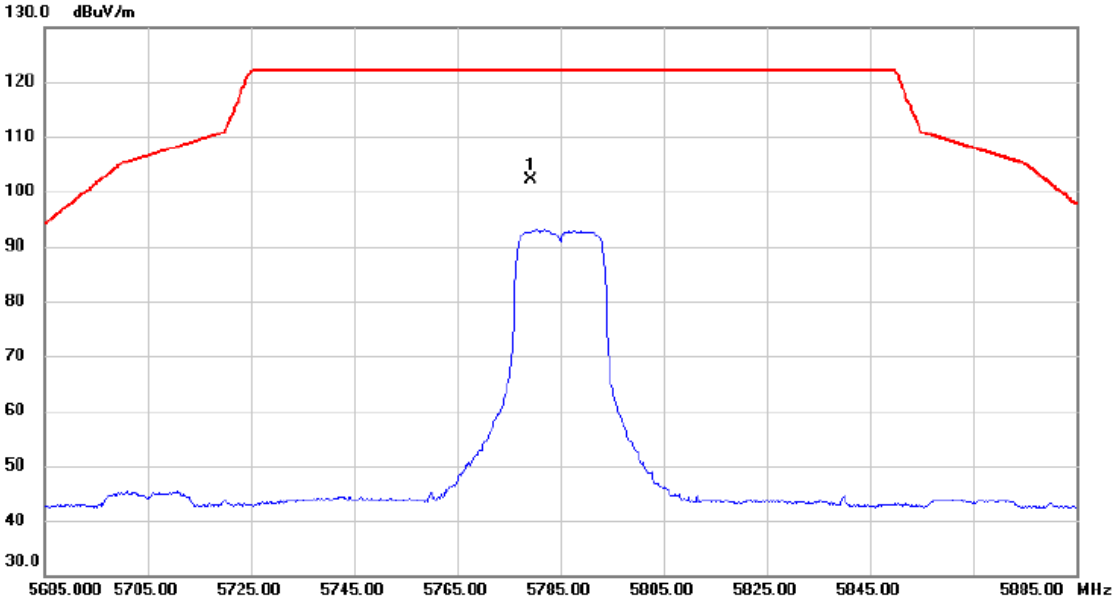


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	11487.75	31.23	5.02	36.25	54.00	-17.75	AVG	
2		11488.15	41.80	5.02	46.82	74.00	-27.18	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Vertical

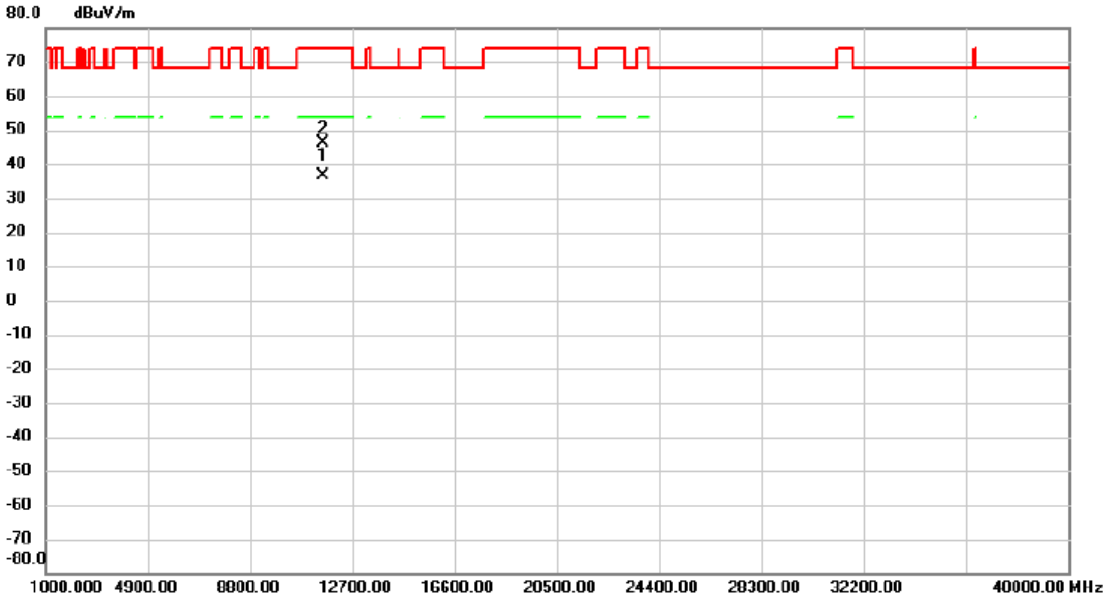


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5779.300	61.78	40.31	102.09	122.20	-20.11	peak	主波訊號不予判定

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Vertical

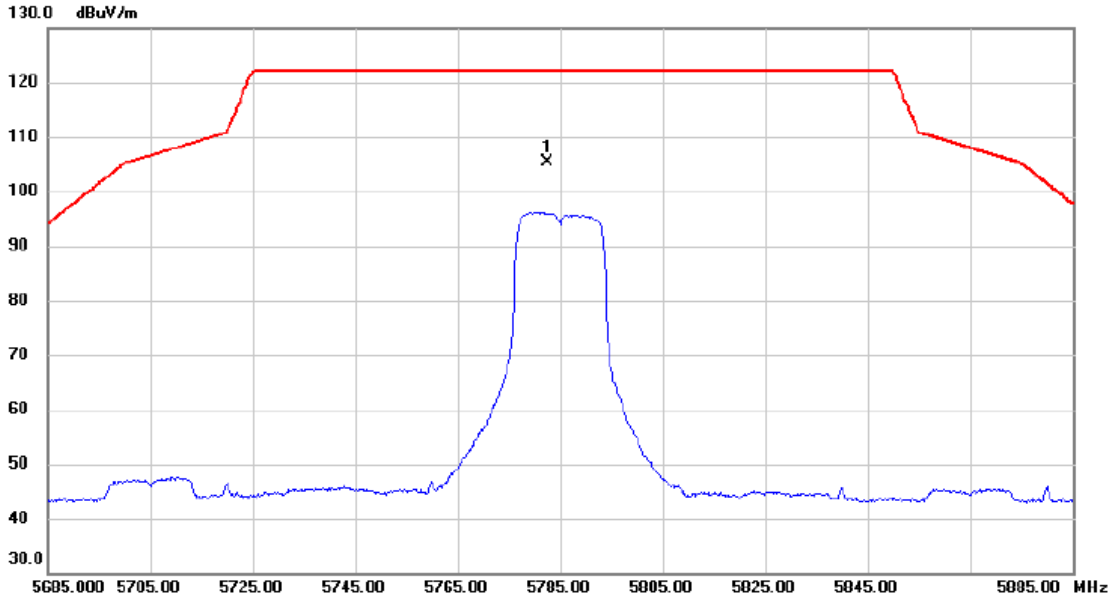


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	11568.05	31.51	4.94	36.45	54.00	-17.55	AVG	
2		11568.35	41.26	4.94	46.20	74.00	-27.80	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Horizontal

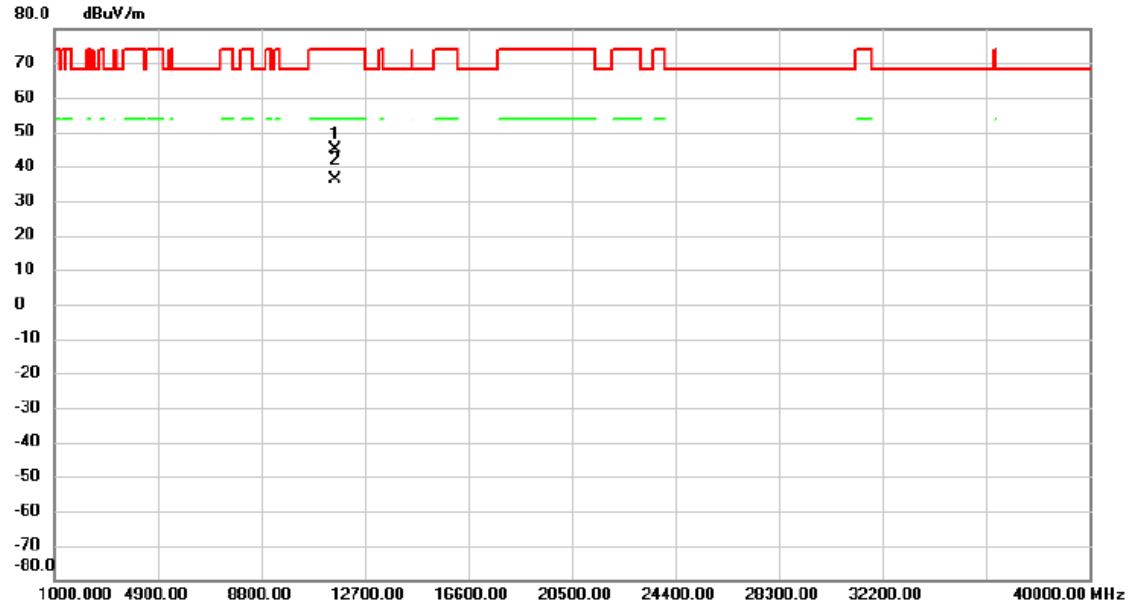


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5782.500	65.06	40.31	105.37	122.20	-16.83	peak	主波訊號不予判定

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Horizontal

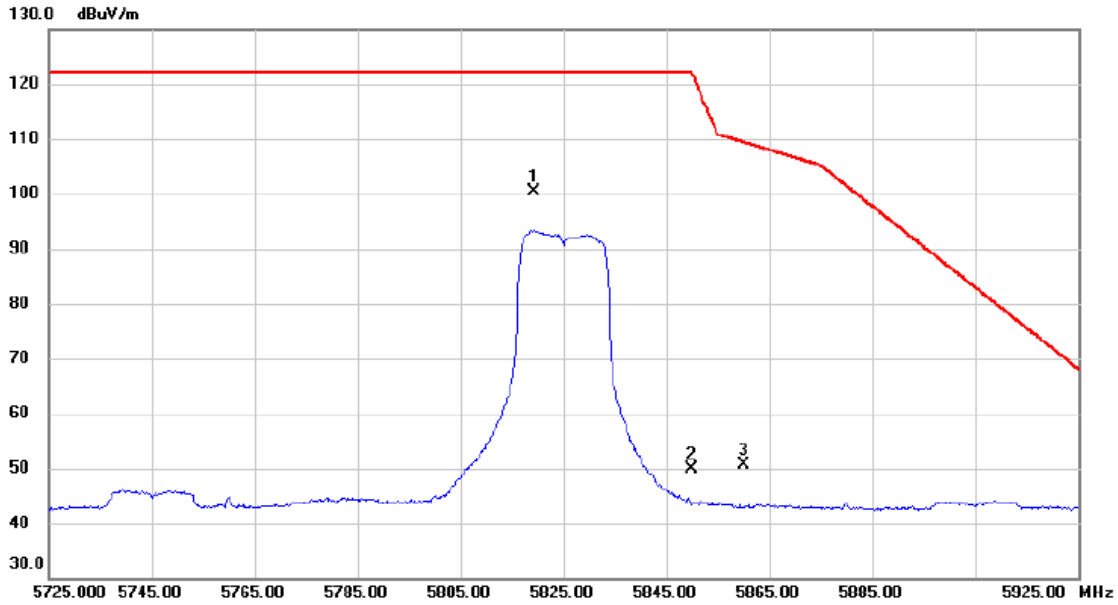


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11568.10	40.15	4.94	45.09	74.00	-28.91	peak	
2	*	11571.65	31.17	4.92	36.09	54.00	-17.91	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Vertical

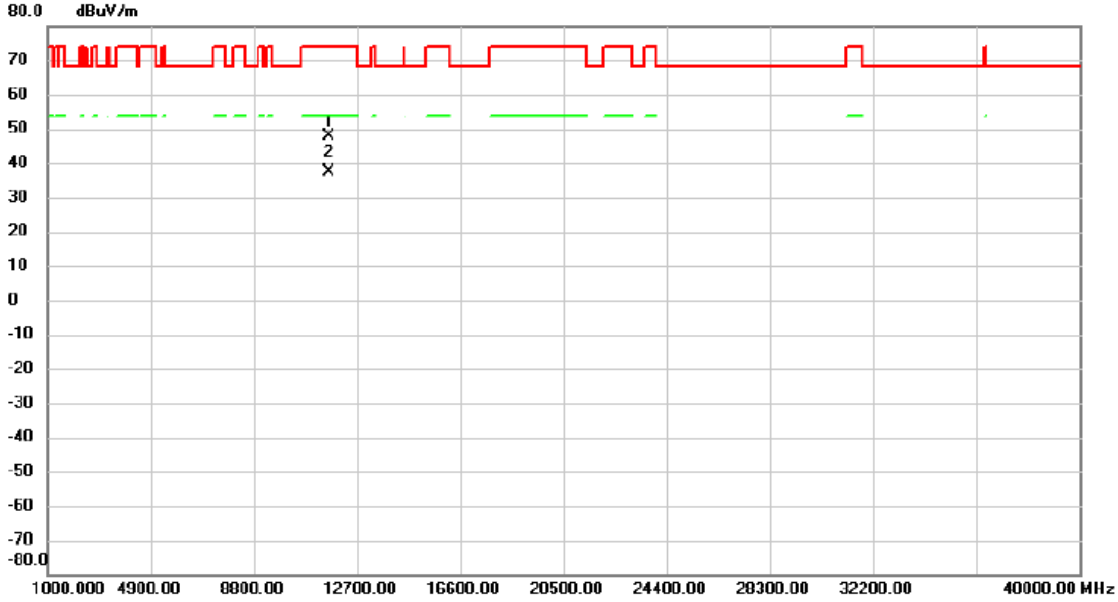


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5819.200	59.83	40.44	100.27	122.20	-21.93	peak	主波訊號不予判定
2		5850.000	9.30	40.54	49.84	122.20	-72.36	peak	
3		5860.000	9.98	40.58	50.56	109.40	-58.84	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Vertical

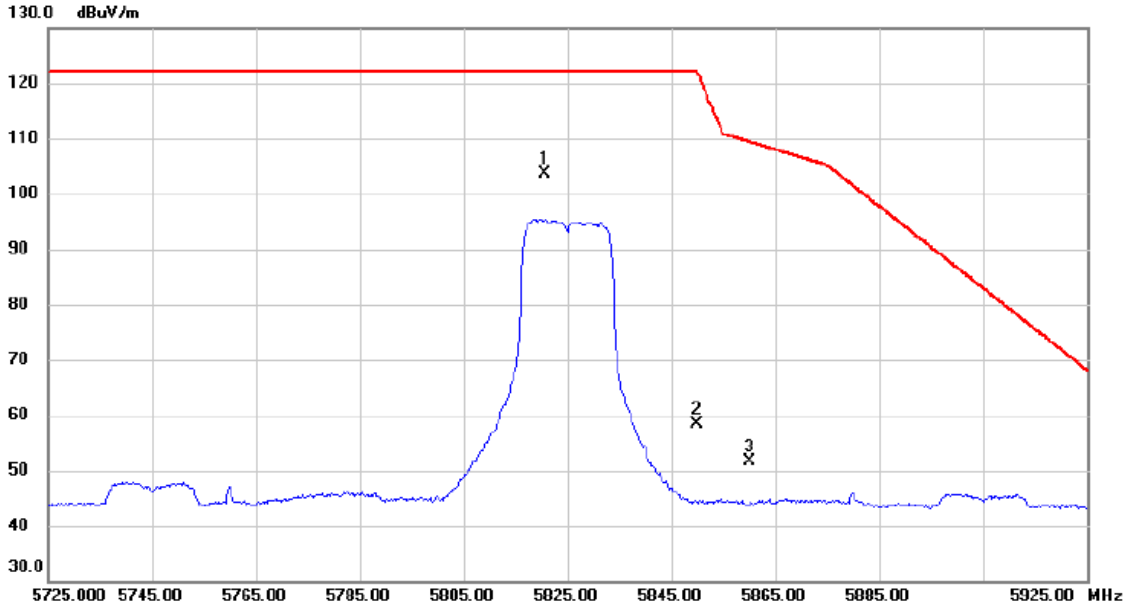


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11649.35	42.84	4.79	47.63	74.00	-26.37	peak	
2	*	11649.75	32.43	4.79	37.22	54.00	-16.78	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Horizontal

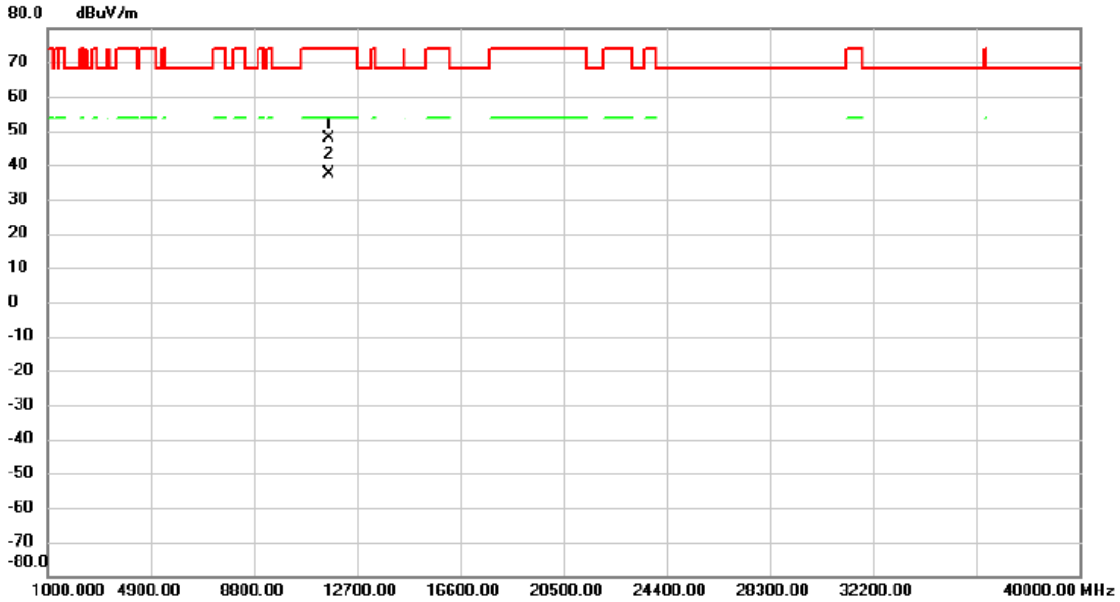


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5820.600	63.27	40.44	103.71	122.20	-18.49	peak	主波訊號不予判定
2		5850.000	17.84	40.54	58.38	122.20	-63.82	peak	
3		5860.000	11.03	40.58	51.61	109.40	-57.79	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11647.80	42.89	4.79	47.68	74.00	-26.32	peak	
2	*	11647.95	32.60	4.79	37.39	54.00	-16.61	AVG	

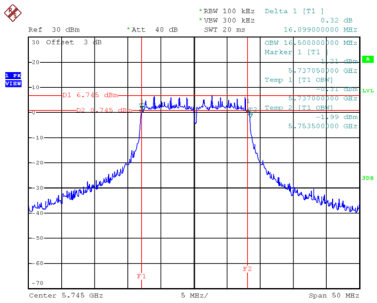
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

Test Mode	UNII-3_TX A Mode

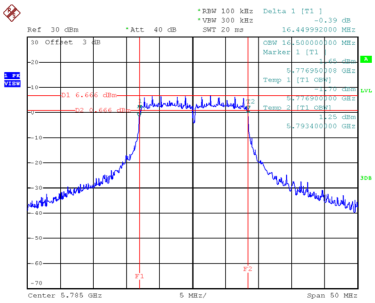
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
149	5745	16.10	16.50	500	Complies
157	5785	16.45	16.50	500	Complies
165	5825	16.35	16.50	500	Complies

CH149



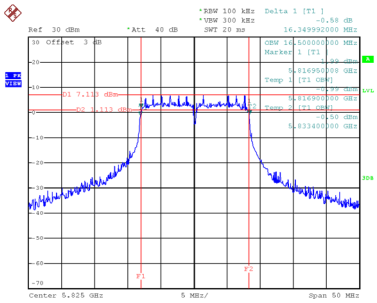
Date: 24.JUL.2019 20:09:28

CH157



Date: 24.JUL.2019 20:01:39

CH165



Date: 24.JUL.2019 20:03:50

APPENDIX F - MAXIMUM OUTPUT POWER

Test Mode	UNII-3_TX A Mode_Ant. 1

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	13.74	0.14	13.88	30.00	1.00	Complies
157	5785	14.13	0.14	14.27	30.00	1.00	Complies
165	5825	14.81	0.14	14.95	30.00	1.00	Complies

Test Mode	UNII-3_TX A Mode_Ant. 2

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	14.92	0.14	15.06	30.00	1.00	Complies
157	5785	14.97	0.14	15.11	30.00	1.00	Complies
165	5825	14.79	0.14	14.93	30.00	1.00	Complies

Test Mode	UNII-3_TX A Mode_Total

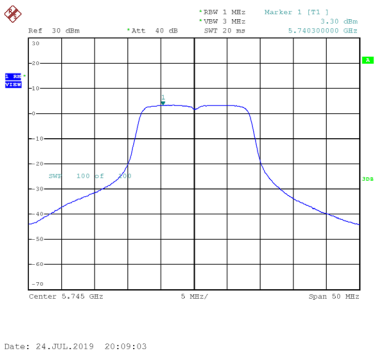
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.52	0.0565	30.00	1.00	Complies
157	5785	17.72	0.0592	30.00	1.00	Complies
165	5825	17.95	0.0624	30.00	1.00	Complies

APPENDIX G - POWER SPECTRAL DENSITY

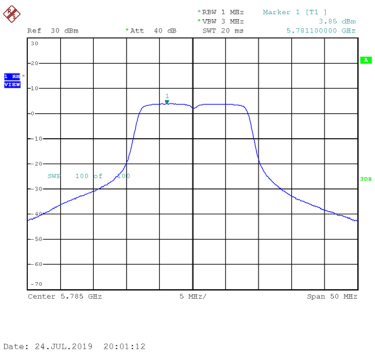
Test Mode	UNII-3_TX A Mode_Ant. 1

Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	3.30	0.14	3.44	30.00	Complies
157	5785	3.85	0.14	3.99	30.00	Complies
165	5825	4.04	0.14	4.18	30.00	Complies

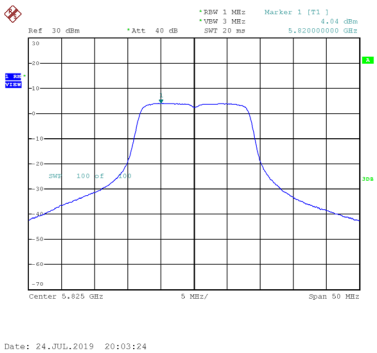
CH149



CH157



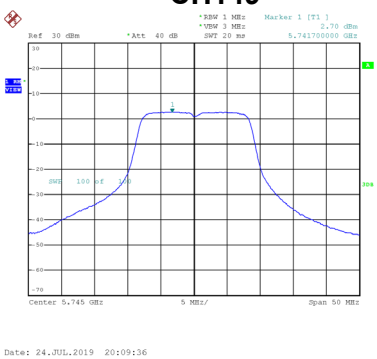
CH165



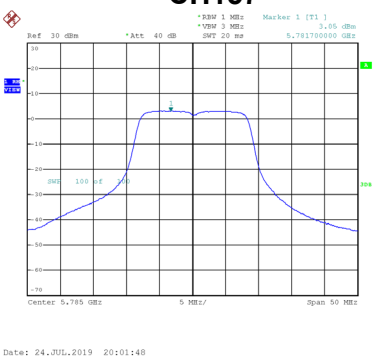
Test Mode	UNII-3_TX A Mode_Ant. 2

Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	2.70	0.14	2.84	30.00	Complies
157	5785	3.05	0.14	3.19	30.00	Complies
165	5825	2.53	0.14	2.67	30.00	Complies

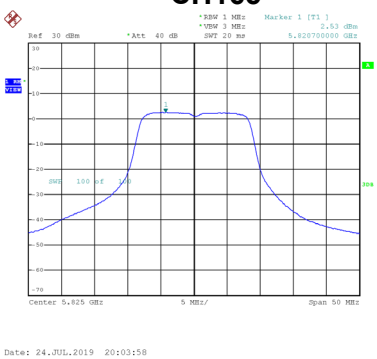
CH149



CH157



CH165



Test Mode	UNII-3_TX A Mode_Total

Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	6.16	30.00	Complies
157	5785	6.62	30.00	Complies
165	5825	6.50	30.00	Complies

APPENDIX H - FREQUENCY STABILITY

Test Mode	UNII-3

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5745.0000
8.36	5744.9797
7.60	5744.9999
6.84	5745.0000
Maximum Deviation (MHz)	0.0203
Maximum Deviation (ppm)	3.5351

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5745.0000
0	5745.0400
10	5745.0750
20	5745.0750
30	5745.0799
40	5745.0999
Maximum Deviation (MHz)	0.0999
Maximum Deviation (ppm)	-17.38903

End of Test Report