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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT **CLASS II PC REPORT**

OF

Frey **Product Name:** 

**Bitatek Brand Name:** 

Frey M1-0000, Frey M1-0010 Model No.:

**Model Difference:** 

FCC ID: SPYIM0002

ER/2017/70092 **Report No.:** 

Aug. 04, 2017 Issue Date:

**FCC Rule Part:** §15.407

Bitatek Co., Ltd. Prepared for:

6F., No.115, Wugong 3rd Rd., Wugu Dist., New

Taipei City 248, Taiwan

Prepared by: SGS Taiwan Ltd.

> **Electronics & Communication Laboratory** No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan

24803





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### **VERIFICATION OF COMPLIANCE**

Bitatek Co., Ltd. **Applicant:** 

6F., No. 115, Wugong 3rd Rd., Wugu Dist., New Taipei City 248,

Taiwan

**Product Name:** Frey

**Brand Name: Bitatek** 

Model No.: Frey M1-0000, Frey M1-0010

**Model Difference:** N/A

FCC ID: SPYIM0002

File Number: ER/2017/70092

Date of test: Jul. 18, 2017 ~ Jul. 28, 2017

Date of EUT Received: Jul. 18, 2017

### We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Test By:	Curry Chen	Date:	Aug. 04, 2016
	Curry Chen / Engineer		
Prepared By:	Yuri Tsou	Date:	Aug. 04, 2016
Approved By:	Yuri Tsai / Clerk  Jim Chang / Asst. Manager	Date:	Aug. 04, 2016

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# **Revision History**

Report Number	Revision	Description	Issue Date
ER/2017/70092	Rev.00	Initial creation of document	Aug. 04, 2016

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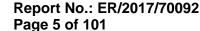
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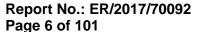
### **GENERAL INFORMATION**

### 1.1. Product Description

General Information of Host:

Product Name of Host:	Rugged Handheld Computer			
Brand Name:	unitech			
Model No. of Host:	PA730			
Model Difference:	N/A			
Hardware Version:	N/A			
Software Version:	N/A			
Model No. of BT/WLAN Module:	Frey M1-0000, Frey M1-0010			
Scope:	The test report covers the radiated emissions requirements of the standards referenced in the report to allow system level approval of the module in this specific host.			
Class II Permissive change:	Frey INSTALLED IN Rugged Handheld Computer			
USB Cable:	Model No.	.: 3C10-00000790, Supplier: Bitatek		
		om Rechargeable Li-polymer Battery n AC/DC Adapter		
Power Supply:	Battery:	<ol> <li>Model No.: BTBAT2, Supplier: Leung's Communication &amp; Electric Products (Guangzhou) LTD.</li> <li>Model No.: BTBAT1, Supplier: Leung's Communication &amp; Electric Products (Guangzhou) LTD.</li> </ol>		
	Adapter:	Model No.: S018BDU0900200, Supplier: Ten Pao Industrial Co., Ltd.		

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#### WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Modulation Technology	
	5150~5250	4		
11a	5250~5350	4	OFDM	
IIa	5470~5725	12	OFDM	
	5725~5850	5		
	HT20 5150~5250	4		
11n /	HT205250~5350	4	OEDM	
n_20M	HT20 5470~5725	12	OFDM	
	HT20 5725~5850	5		
	HT40 5150-5250	2		
11n /	HT40 5250-5350	2	OFDM	
n_40M	HT40 5470-5725	6	OI DIVI	
	HT40 5725-5850	2		
	VHT80 5150~5250	1		
11ac_80M	VHT80 5250~5350	1	OFDM	
	VHT80 5470~5725	3	OFDM	
	VHT80 5725-5850	1		

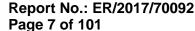
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Antenna Designation	IFA Antenna, Gain:2.9dBi (5150MHz-5250MHz) Gain: 2.9dBi (5250MHz-5350MHz) Gain: 2.6dBi (5470MHz-5725MHz) Gain: 1.3dBi (5725MHz-5850MHz)	
Modulation type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM	
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 - 150.0Mbps 802.11 ac 80MHz: 29.3 – 433.3Mbps	

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### 1.2. Related Submittal(s) / Grant (s)

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01

FCC KDB 662911 D01 Multiple Transmitter Output v02

FCC KDB 644545 D03 Guidance for IEEE 802.11ac v01

ANSI C63.10:2013

#### Note:

- 1. All test items have been performed and record as per the above standards.
- The composite system is compliance with FCC Subpart B is authorized under the certification procedure.

### 1.3. Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 (TAF code 0513)

FCC Registration Numbers are: 509634

Canada Registration Number: 4620A-4

### 1.4. Special Accessories

There are no special accessories used while test was conducted.

### 1.5. Equipment Modifications

There was no modification incorporated into the EUT.

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#### 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

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

#### 2.2. EUT Exercise

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

#### 2.3. Test Procedure

#### 2.3.1 Conducted Emissions

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

#### 2.3.2 Radiated Emissions

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

### 2.4. Measurement Results Explanation Example For all conducted test items:

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

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### 2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A

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#### SUMMARY OF TEST RESULT

FCC / IC Rules	<b>Description Of Test</b>	Result
§15.407(b) (1) (2) (3)(6) (7)	Undesirable Emission –	Compliant
	Radiated Measurement	
§15.203 Antenna Requirement		Compliant

### 4. DESCRIPTION OF TEST MODES

### 4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

4 channels are provided for 802.11a, 802.11n HT20,

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n\_HT40,

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac VHT80

CHANNEL	FREQUENCY
42	5210 MHz

Operated band in 5250 MHz ~5350 MHz:

4 channels are provided for 802.11a, 802.11n\_HT20,

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n HT40,

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
CHAININEL	FREQUENCT	CHAMMEL	FREQUENCT
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac VHT80

CHANNEL	FREQUENCY	
58	5290 MHz	

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### Operated band in 5470 MHz ~5725 MHz:

11 channels are provided for 802.11a, 802.11n HT20,

provided for 662:11d, 662:11m_11126;					
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY		
100	5500 MHz	124	5620 MHz		
104	5520 MHz	128	5640 MHz		
108	5540 MHz	132	5660 MHz		
112	5560 MHz	136	5680 MHz		
116	5580 MHz	140	5700 MHz		
120	5600 MHz				

5 channels are provided for 802.11n HT40,

Γ_						
	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY		
	102	5510 MHz	126	5630 MHz		
	110	5550 MHz	134	5670 MHz		
	118	5590 MHz				

3 channel is provided for 802.11ac VHT80

CHANNEL	FREQUENCY
106	5530 MHz
122	5610 MHz
138	5690 MHz

#### Operated band in 5725 MHz ~5850 MHz:

5 channels are provided for 802.11a, 802.11n HT20,

┺.	<u> </u>					
	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY		
	149	5745 MHz	161	5805 MHz		
	153	5765 MHz	165	5825 MHz		
	157	5785 MHz				

2 channels are provided for 802.11n HT40,

	· · · · · <u> </u>		
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac VHT80

CHANNEL	FREQUENCY
155	5775 MHz

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#### **RADIATED EMISSION TEST:**

RADIATED ENIISSION TEST.						
	RADI	ATED EMISS	SION TEST (A	BOVE 1 GHz)		
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	E400 E040	20 1- 40	20 44 40	OFDM	6	Main
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	Main
802.11n_HT 40	5190~5230	38 to 46	38,46	OFDM	MCS0	Main
802.11ac_VHT80	5210	42	42	OFDM	MCS0	Main
802.11a	5260~5320	50 to 64	E2 60 64	OFDM	6	Main
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS0	Main
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	Main
802.11ac_VHT80	5290	58	58	OFDM	MCS0	Main
802.11a	FF00 F700	400 to 440	400 440 440	OFDM	6	Main
802.11n_HT20	5500~5700	100 to 140	100,116,140	OFDM	MCS0	Main
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	Main
802.11ac_VHT80	5530~5690	106 to 138	106,122, 138	OFDM	MCS0	Main
802.11a	5745 500F	440 +- 405	440 457 405	OFDM	6	Main
802.11n_HT20	5745~5825	149 to 165	149,157,165	OFDM	MCS0	Main
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	Main
802.11ac_VHT80	5755	155	155	OFDM	MCS0	Main

#### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

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#### ANTENNA PORT CONDUCTED MEASUREMENT:

ANTENNA FORT CONDUCTED MEASUREMENT.						
		CONI	DUCTED TEST	Ī		
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	E190 - E240	36 to 48	26 44 49	OFDM	6	Main
802.11n_HT20	5180~5240	30 10 40	36,44,48	OFDM	MCS0	Main
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	Main
802.11ac_VHT80	5210	42	42	OFDM	MCS0	Main
802.11a	E260- E220	50 to 64	E2 60 64	OFDM	6	Main
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS0	Main
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	Main
802.11ac_VHT80	5290	58	58	OFDM	MCS0	Main
802.11a	FF00 F700	100 to 110	100 116 110	OFDM	6	Main
802.11n_HT20	5500~5700	100 to 140	100,116,140	OFDM	MCS0	Main
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	Main
802.11ac_VHT80	5530~5690	106 to 138	106,122, 138	OFDM	MCS0	Main
802.11a	5745 5005	4401-405	440.457.405	OFDM	6	Main
802.11n_HT20	5745~5825	149 to 165	149,157,165	OFDM	MCS0	Main
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	Main
802.11ac_VHT80	5755	155	155	OFDM	MCS0	Main

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#### **MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty	
AC Power Line Conducted Emission	+/- 2.586 dB	
26 dB and 99% Emission Bandwidth	+/- 123.36 Hz	
The Maximum Output Power Measurement	+/- 1.42 dB	
Peak Power Spectral Density Measurement	+/- 1.55 dB	
Peak Excursion Measurement	+/- 1.55 dB	
Undesirable Emission –	+/- 1.55 dB	
Conducted Measurement	17- 1.00 db	
Transmission in case of Absence of Information	+/- 1.55 dB	
Frequency Stability	+/- 123.36 Hz	
TPC and DFS Measurement	+/- 123.36 Hz	
Temperature	+/- 0.8 °C	
Humidity	+/- 4.7 %	
DC / AC Power Source	DC= +/- 1%, AC=+/- 0.2%	

Radiated Spurious Emission:

Management	9kHz-30MHz: +/-2.87dB	
	30MHz - 180MHz: +/- 3.37dB	
Measurement uncertainty (Polarization : <b>Vertical</b> )	180MHz -417MHz: +/- 3.19dB	
(1 Olanzation : Vertical)	0.417GHz-1GHz: +/- 3.19dB	
	1GHz - 18GHz: +/- 4.04dB	
	18GHz - 40GHz: +/- 4.04dB	

	9kHz-30MHz: +/-2.87dB
NA	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty (Polarization : <b>Horizontal</b> )	167MHz -500MHz: +/- 3.44dB
(1 olarization : Horizontal)	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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#### 6. UNDESIRABLE EMISSION - RADIATED MEASUREMENT

### 6.1 Standard Applicable

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- 1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
- 2. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
- 3. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 4. For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

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APPL	ICABLE TO	LIN	NIT
UNII Test Pro	39033 D02 General ocedures New Rules	FIELD STRE	NGTH AT 3m
	v01r01	PK: 74 (dBμV/m)	AV 54 (dBμV/m)
APPLICABLE TO		EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)	RSS-247 §6.2.1 (2)		
15.407(b)(2)	RSS-247 §6.2.2 (2)	PK: -27 (dBm/MHz)	PK: 68.3 (dBµV/m)
15.407(b)(3)	RSS-247 §6.2.3 (2)		
15.407(b)(4)	RSS-247 §6.2.4 (4)	PK: -27 (dBm/MHz) PK: -17 (dBm/MHz)	PK: 68.3 (dBμV/m) PK: 78.2 (dBμV/m)
15.4	407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBµV/m) *1 PK:105.2 (dBµV/m) *2 PK: 110.8(dBµV/m) *3 PK:122.2 (dBµV/m) *4

<sup>\*1</sup> beyond 75 MHz or more above of the bandedge.

EIRP =  $((E*d)^2) / 30$ , where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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<sup>\*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

<sup>\*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

<sup>\*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



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Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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

#### Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level  $(dB\mu V/m) = 20 \log Emission level (dB\mu V/m)$

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### 6.2 Measurement Equipment Used:

SGS 966 Chamber No.C							
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
EMI Test Receiver	R&S	ESCI7	100760	05/11/2017	05/10/2018		
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/25/2017	04/24/2018		
Loop Antenna	ETS.LINDGREN	6502	148045	09/20/2016	09/19/2017		
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/19/2016	12/18/2017		
Horn Antenna	Schwarzbeck	BBHA9120D	1441	08/01/2016	07/31/2017		
Pre-Amplifier	Agilent	8447D	2944A07676	01/05/2017	01/04/2018		
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/05/2017	01/04/2018		
Turn Table	HD	DT420	N/A	N.C.R	N.C.R		
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R		
Controller	ChamPro	EM1000	60776	N.C.R	N.C.R		
Low Loss Cable	Huber Suhner	966_RX	9	01/05/2017	01/04/2018		
3m Site NSA	SGS	966 chamber	N/A	07/01/2017	06/30/2018		
Low Loss Cable	Huber Suhner	966 TX	1	01/05/2017	01/04/2018		
Horn Antenna	Schwarzbeck	BBHA9170	184	12/12/2016	12/11/2017		
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/05/2017	01/04/2018		

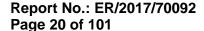
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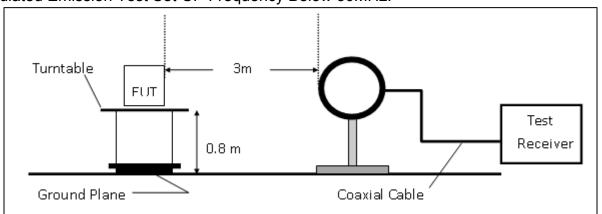
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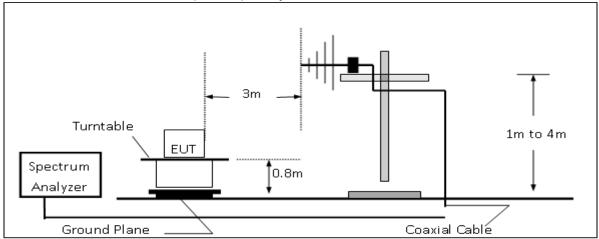


### 6.3 Test SET-UP

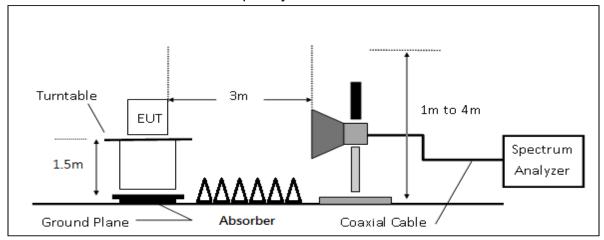
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



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



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



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#### 6.4 Measurement Procedure

- The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequen-3. cy> 1GHz above ground plane.
- The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) 6. and Quasi-peak (QP) at frequency below 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 11. Repeat above procedures until all frequency measured were complete.

### 6.5 Field Strength Calculation

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

FS = RA + AF + CL - AG

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

Actual FS(dB $\mu$ V/m) = SPA. Reading level(dB $\mu$ V) + Factor(dB)

Factor(dB) = Antenna Factor(dB $\mu$ V/m) + Cable Loss(dB) – Pre Amplifier Gain(dB)

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SGS Taiwan Ltd.



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#### Note:

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

### 6.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

#### 6.7 Measurement Result

Refer to attach tabular data sheets.

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:2017-07-21

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# **Radiated Spurious Emission Measurement Result Above 1GHz Worst-Case Data:**

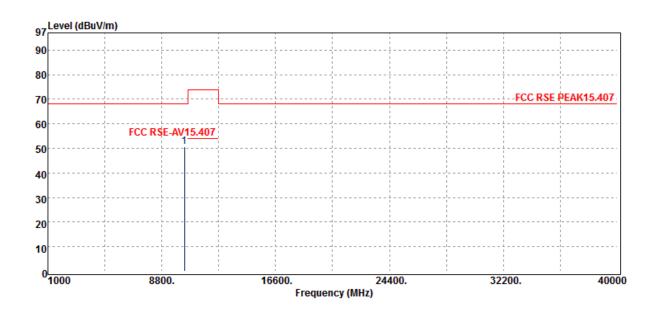
802.11a, 5150~5250 MHz

**Operation Band Test Date** :802.11aB1

Fundamental Frequency :5180 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10360.00	Н	Peak	32.29	18.29	50.58	68.30	-17.72

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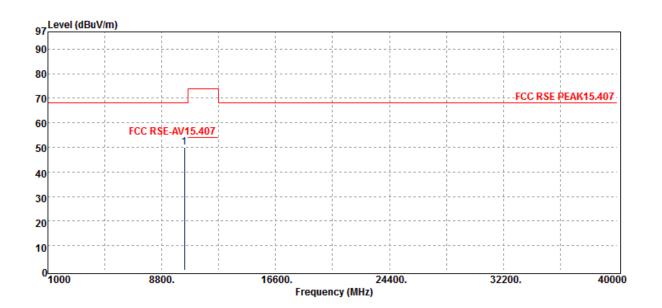
**Operation Band** :802.11aB1 Fundamental Frequency :5180 MHz **Operation Mode** :Tx CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
10360.00	Н	Peak	31.64	18.29	49.93	68.30	-18.37	

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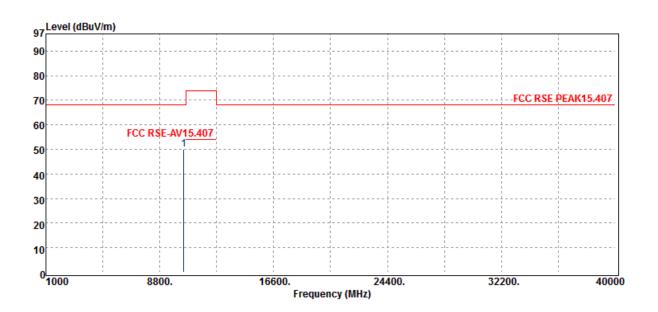
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**Operation Band** :802.11aB1 **Test Date** :2017-07-21

Fundamental Frequency :5220 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
10440.00	Н	Peak	31.26	18.69	49.95	68.30	-18.35	

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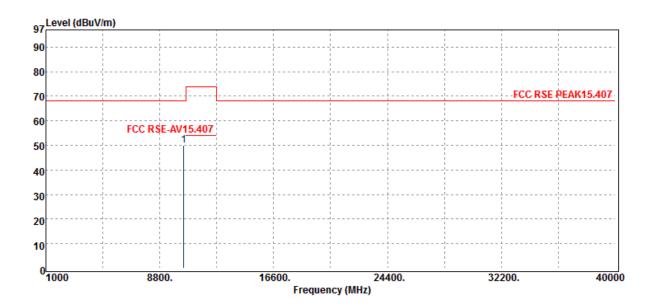
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**Operation Band** :802.11aB1 **Test Date** :2017-07-21

Fundamental Frequency :5220 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
10440.00	Н	Peak	31.43	18.69	50.12	68.30	-18.18

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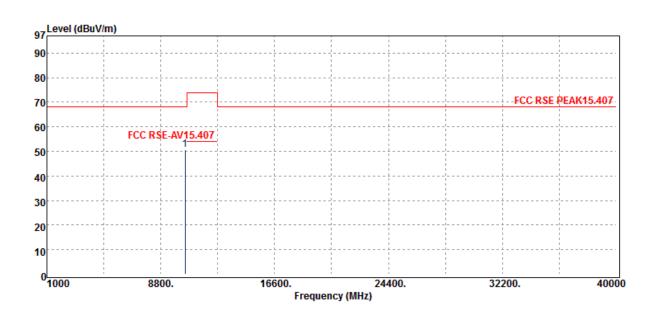
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**Operation Band** :802.11aB1 **Test Date** 

:2017-07-21 Fundamental Frequency :5240 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH HIGH Engineer

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	_
								_
10480.00	Н	Peak	32.48	18.30	50.78	68.30	-17.52	

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**Operation Band** :802.11aB1

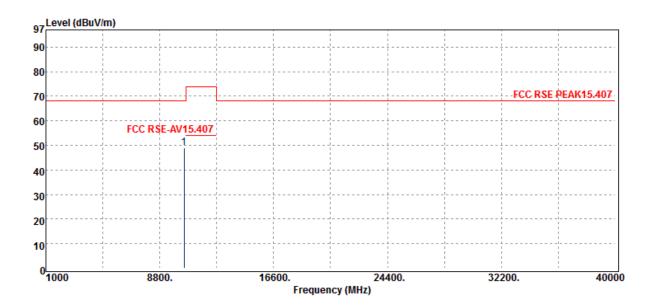
Fundamental Frequency :5240 MHz **Operation Mode** :Tx CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB	_
								_
10480.00	Н	Peak	30.76	18.30	49.06	68.30	-19.24	

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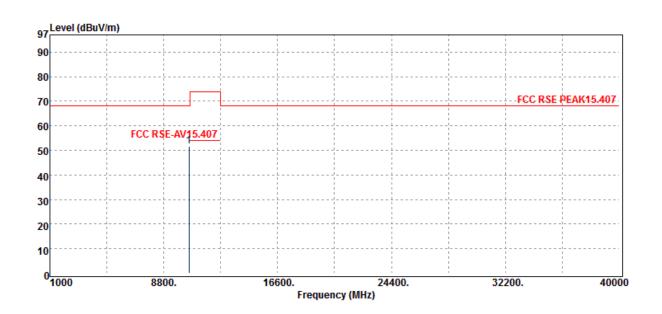
# **Radiated Spurious Emission Measurement Result** 802.11a, 5250MHz-5350MHz

**Operation Band** :802.11aB2 **Test Date** :2017-07-21

Fundamental Frequency :5260 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
10520.00	Н	Peak	32.47	19.38	51.85	68.30	-16.45

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**Operation Band** :802.11aB2 Fundamental Frequency :5260 MHz

**Operation Mode** 

EUT Pol.

:H Plane

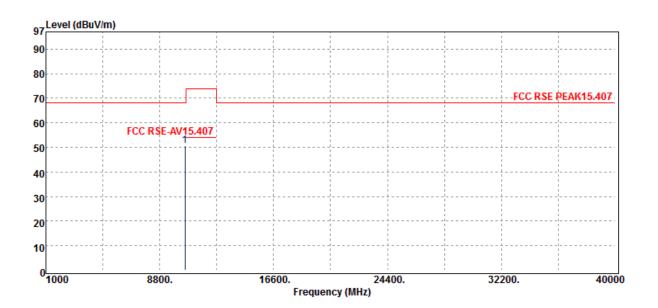
:Tx CH LOW

**Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
10520.00	Н	Peak	31.30	19.38	50.68	68.30	-17.62

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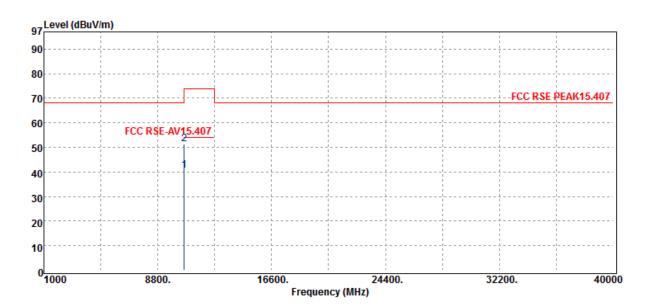
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**Operation Band** :802.11aB2 **Test Date** :2017-07-21

Fundamental Frequency :5300 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10600.00	Н	Average	21.59	18.91	40.50	54.00	-13.50	
10600.00	Н	Peak	32.53	18.91	51.44	74.00	-22.56	

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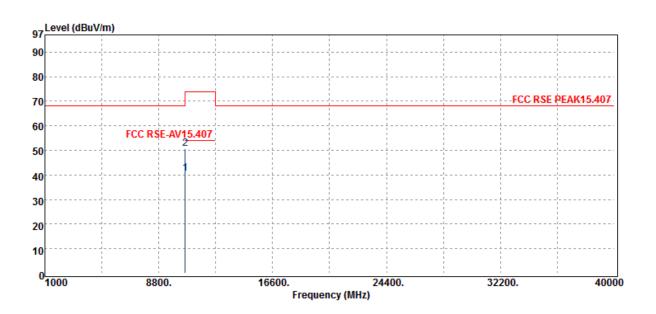
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**Operation Band** :802.11aB2 **Test Date** :2017-07-21

Fundamental Frequency :5300 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer EUT Pol.

:H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
10600.00	Н	Average	21.64	18.91	40.55	54.00	-13.45
10600.00	Н	Peak	31.62	18.91	50.53	74.00	-23.47

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**Operation Band** :802.11aB2 Fundamental Frequency :5320 MHz :Tx CH HIGH

**Operation Mode** 

EUT Pol.

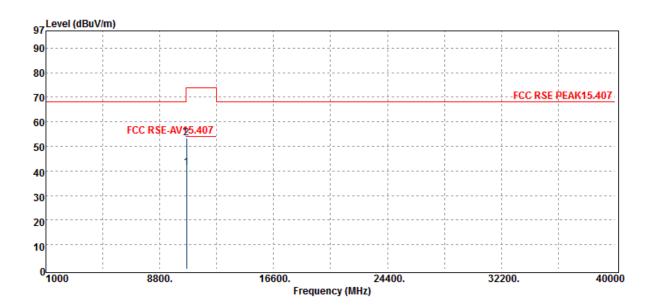
:H Plane

**Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10640.00	Н	Average	22.02	19.19	41.21	54.00	-12.79
10640.00	Н	Peak	34.19	19.19	53.38	74.00	-20.62

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**Operation Band** Fundamental Frequency **Operation Mode** 

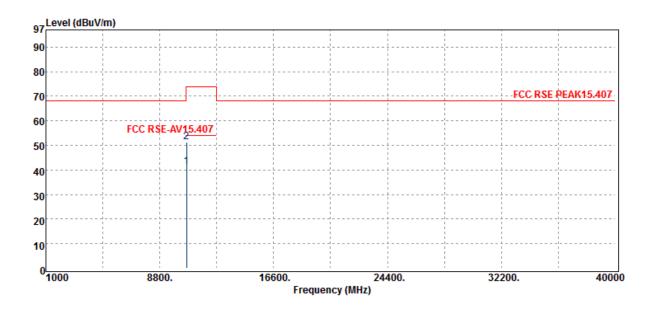
EUT Pol.

:802.11aB2 :5320 MHz :Tx CH HIGH :H Plane

**Test Date** :2017-07-21 Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10640.00	Н	Average	22.08	19.19	41.27	54.00	-12.73
10640.00	Н	Peak	32.27	19.19	51.46	74.00	-22.54

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#### **Radiated Spurious Emission Measurement Result**

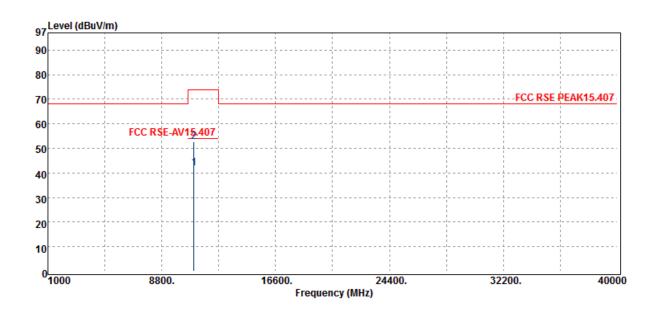
802.11a, 5470~5725 MHz

**Operation Band** :802.11aB3 **Test Date** :2017-07-21

**Fundamental Frequency** Temp./Humi. :5500 MHz :23 deg C / 62 RH

**Operation Mode** :Tx CH LOW Engineer

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB	
11000.00	Н	Average	21.80	20.16	41.96	54.00	-12.04	
11000.00	Н	Peak	32.48	20.16	52.64	74.00	-21.36	

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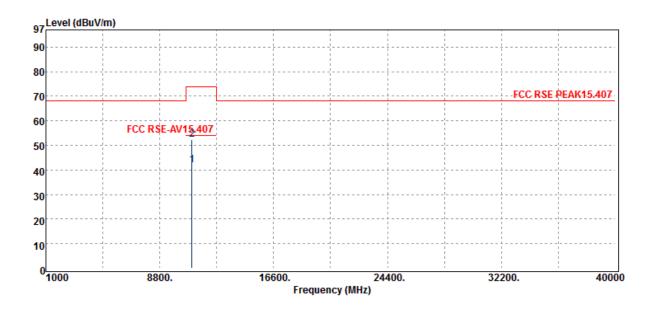
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:802.11aB3 :5500 MHz :Tx CH LOW :H Plane

**Test Date** :2017-07-21 Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11000.00	Н	Average	21.85	20.16	42.01	54.00	-11.99
11000.00	Н	Peak	32.23	20.16	52.39	74.00	-21.61

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**Operation Band** :802.11aB3

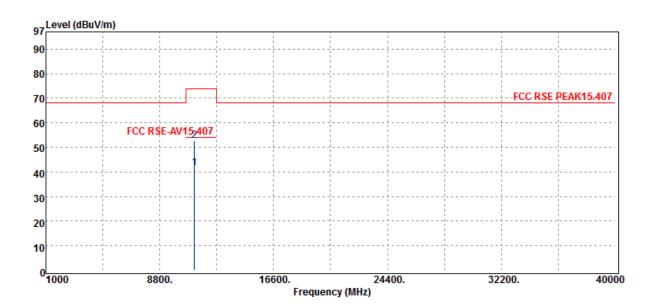
Fundamental Frequency :5580 MHz **Operation Mode** :Tx CH MID

EUT Pol. :H Plane **Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
11160.00	Н	Average	21.31	20.44	41.75	54.00	-12.25
11160.00	Н	Peak	32.32	20.44	52.76	74.00	-21.24

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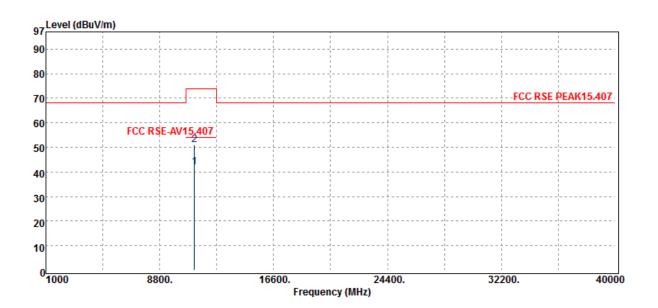
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**Operation Band** :802.11aB3 **Test Date** :2017-07-21

Fundamental Frequency :5580 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
11160.00	Н	Average	21.36	20.44	41.80	54.00	-12.20
11160.00	Н	Peak	30.72	20.44	51.16	74.00	-22.84

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**Operation Band** :802.11aB3 Fundamental Frequency :5700 MHz

**Operation Mode** 

EUT Pol.

:H Plane

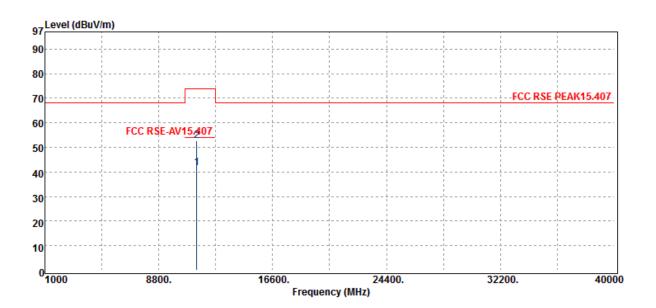
:Tx CH HIGH

**Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11400.00	Н	Average	20.99	20.56	41.55	54.00	-12.45
11400.00	Н	Peak	32.10	20.56	52.66	74.00	-21.34

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**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

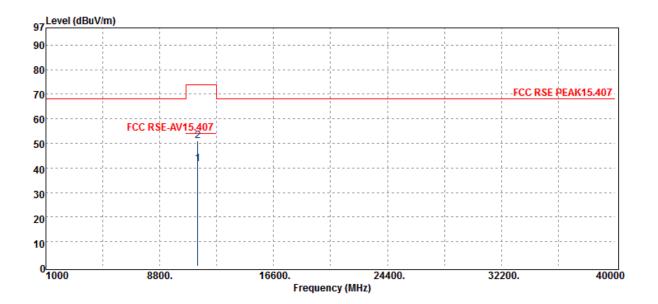
:802.11aB3 :5700 MHz :Tx CH HIGH :H Plane

**Test Date** Temp./Humi. Engineer

:2017-07-21

:23 deg\_C / 62 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
11400.00	Н	Average	21.03	20.56	41.59	54.00	-12.41
11400.00	Н	Peak	30.46	20.56	51.02	74.00	-22.98

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## **Radiated Spurious Emission Measurement Result**

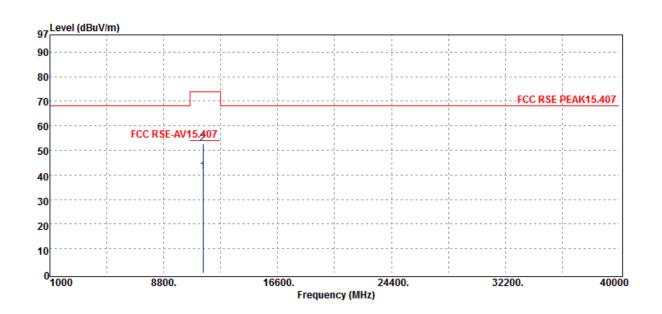
802.11a, 5725~5850 MHz

Operation Band :802.11aB4 **Test Date** :2017-07-21

Fundamental Frequency Temp./Humi. :5745 MHz :23 deg\_C / 62 RH

**Operation Mode** :Tx CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
11490.00	Н	Average	21.03	20.42	41.45	54.00	-12.55
11490.00	Н	Peak	32.37	20.42	52.79	74.00	-21.21

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**Operation Band** :802.11aB4 Fundamental Frequency :5745 MHz :Tx CH LOW

**Operation Mode** 

EUT Pol.

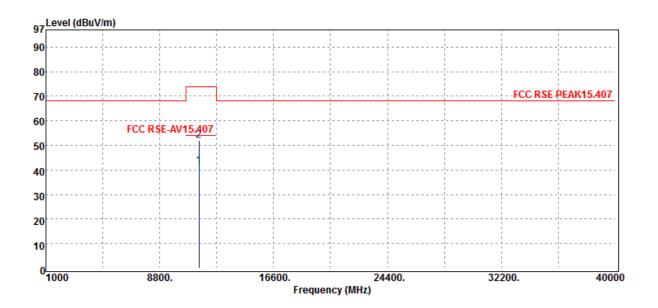
:H Plane

**Test Date** :2017-07-21

Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
11490.00	Н	Average	21.09	20.42	41.51	54.00	-12.49
11490.00	Н	Peak	31.66	20.42	52.08	74.00	-21.92

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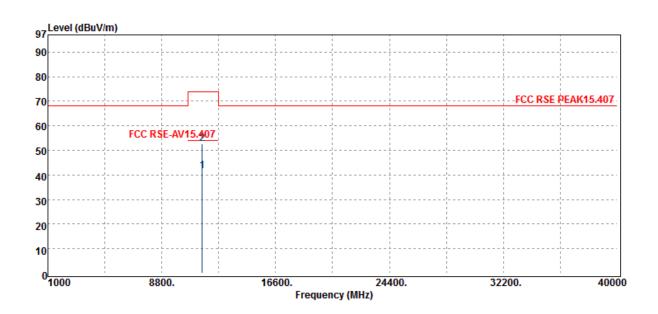


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**Operation Band** :802.11aB4 **Test Date** :2017-07-21

Fundamental Frequency :5785 MHz Temp./Humi. :23 deg\_C / 62 RH **Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11570.00	Н	Average	21.15	20.58	41.73	54.00	-12.27
11570.00	Н	Peak	32.26	20.58	52.84	74.00	-21.16

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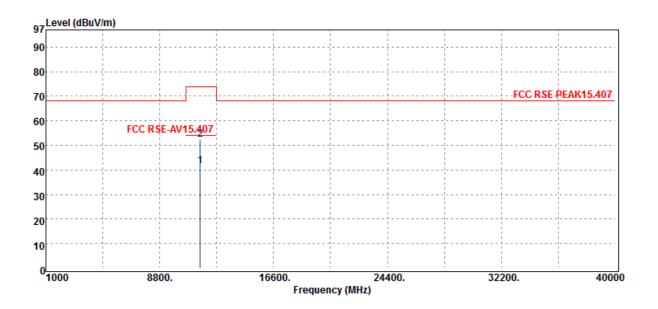
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**Operation Band** :802.11aB4 **Test Date** :2017-07-21

Fundamental Frequency :5785 MHz Temp./Humi. :23 deg\_C / 62 RH

**Operation Mode** :Tx CH MID Engineer

EUT Pol. :H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11570.00	Н	Average	21.09	20.58	41.67	54.00	-12.33
11570.00	Н	Peak	31.91	20.58	52.49	74.00	-21.51

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**Operation Band** :802.11aB4 Fundamental Frequency :5825 MHz **Operation Mode** 

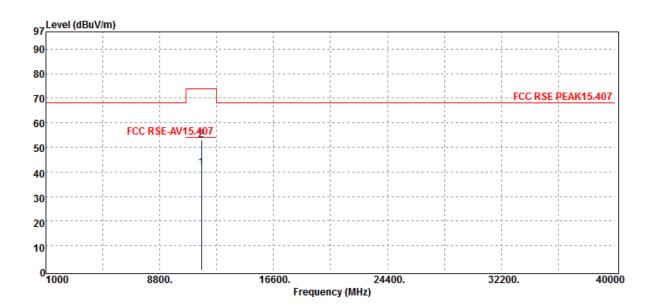
EUT Pol.

:Tx CH HIGH :H Plane

**Test Date** Temp./Humi. :2017-07-21

:23 deg\_C / 62 RH Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
11650.00	Н	Average	21.17	20.43	41.60	54.00	-12.40
11650.00	Н	Peak	32.70	20.43	53.13	74.00	-20.87

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**Operation Band** Fundamental Frequency **Operation Mode** 

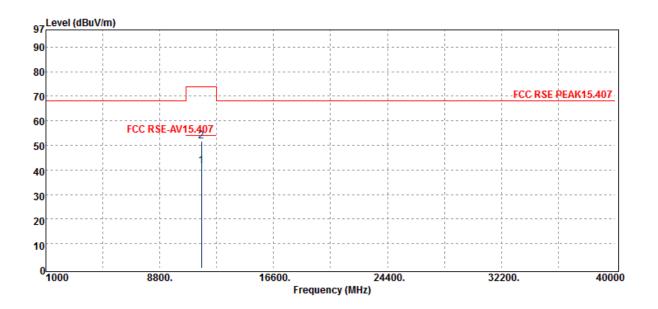
EUT Pol.

:802.11aB4 :5825 MHz :Tx CH HIGH :H Plane

**Test Date** :2017-07-21 Temp./Humi. :23 deg\_C / 62 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11650.00	Н	Average	21.22	20.43	41.65	54.00	-12.35
11650.00	Н	Peak	31.30	20.43	51.73	74.00	-22.27

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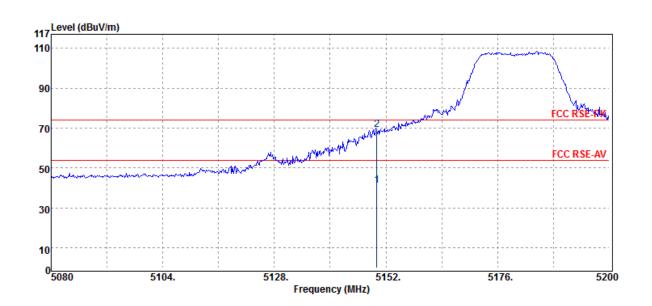
## Band edge falling to restricted band

## 802.11a mode

**Operation Band** :802.11aB1 **Test Date** :2017-07-20

Fundamental Frequency :5180 MHz Temp./Humi. :22 deg\_C / 61 RH **Operation Mode** :Bandedge CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	E	Average	35.30	5.88	41.18	54.00	-12.82
5150.00	Е	Peak	63.28	5.88	69.16	74.00	-4.84

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**Operation Band** :802.11aB1 Fundamental Frequency :5180 MHz **Operation Mode** 

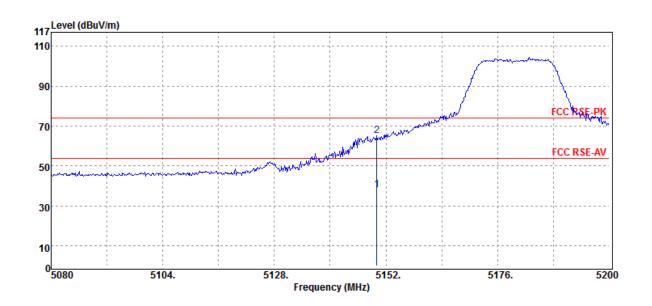
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	Е	Average	32.10	5.88	37.98	54.00	-16.02
5150.00	Е	Peak	59.29	5.88	65.17	74.00	-8.83

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11aB2 :5320 MHz

:Bandedge CH HIGH

EUT Pol.

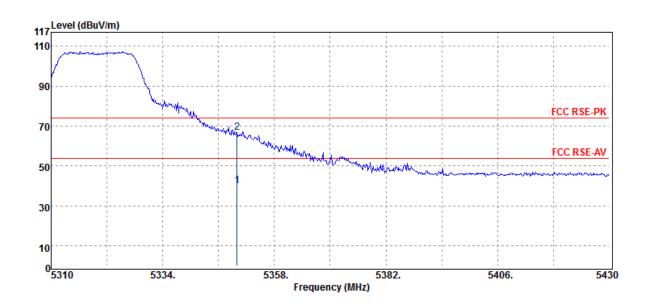
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	34.06	6.16	40.22	54.00	-13.78
5350.00	Е	Peak	60.54	6.16	66.70	74.00	-7.30

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**Operation Band** Fundamental Frequency **Operation Mode** 

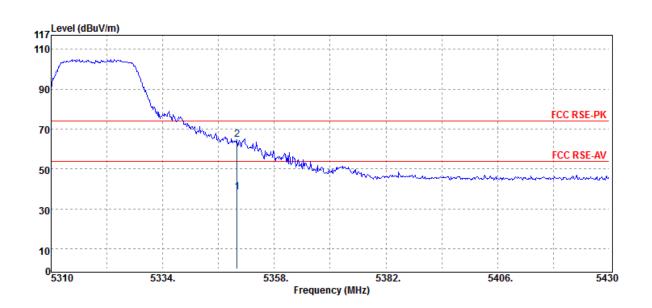
:802.11aB2 :5320 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	32.36	6.16	38.52	54.00	-15.48
5350.00	Е	Peak	58.48	6.16	64.64	74.00	-9.36

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11aB3 :5500 MHz

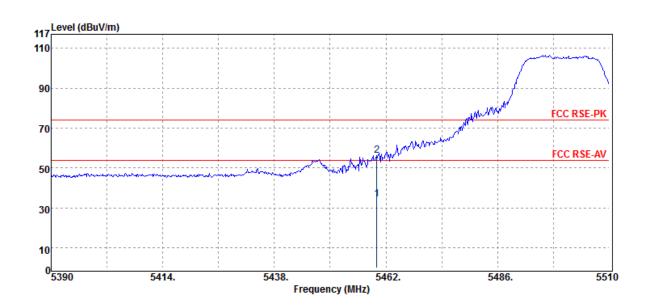
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5460.00	Е	Average	28.31	6.23	34.54	54.00	-19.46
5460.00	Е	Peak	49.88	6.23	56.11	74.00	-17.89

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11aB3 :5500 MHz

:Bandedge CH LOW

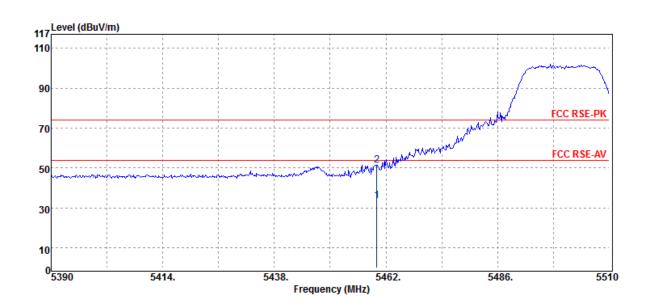
EUT Pol.

:H Plane

**Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5460.00	Е	Average	27.28	6.23	33.51	54.00	-20.49
5460.00	Е	Peak	45.12	6.23	51.35	74.00	-22.65

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**Operation Band** :802.11aB3 Fundamental Frequency :5500 MHz

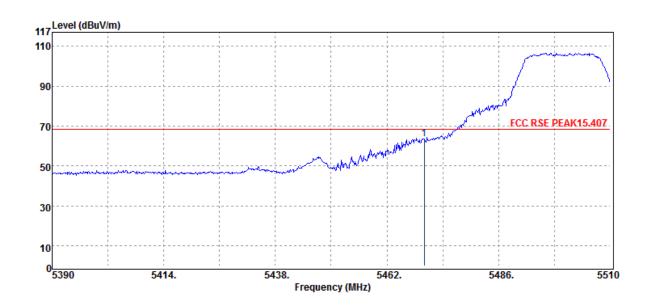
**Operation Mode** :Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5470.00	Е	Peak	57.13	6.26	63.39	68.30	-4.91

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11aB3 :5500 MHz

:Bandedge CH LOW

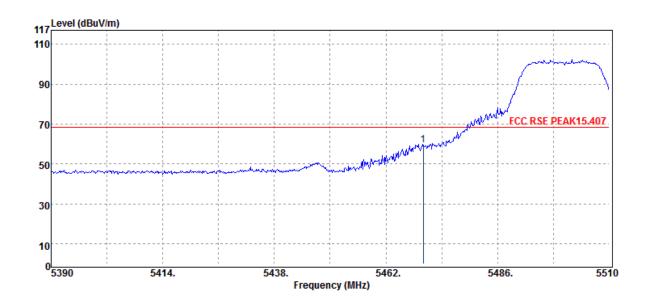
EUT Pol.

:H Plane

**Test Date** :2017-07-20 :22 deg\_C / 61 RH

Temp./Humi. Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5470.00	Е	Peak	53.15	6.26	59.41	68.30	-8.89

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11aB3 :5700 MHz

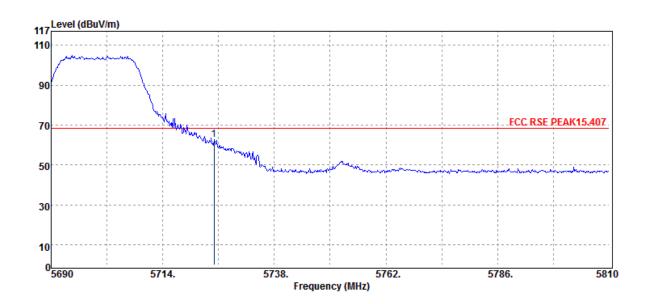
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Е	Peak	56.34	6.59	62.93	68.30	-5.37

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**Operation Band** Fundamental Frequency **Operation Mode** 

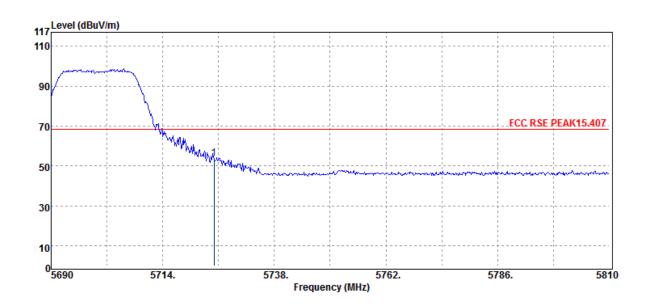
:802.11aB3 :5700 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Е	Peak	47.34	6.59	53.93	68.30	-14.37

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**Operation Band** :802.11aB4 Fundamental Frequency :5745 MHz

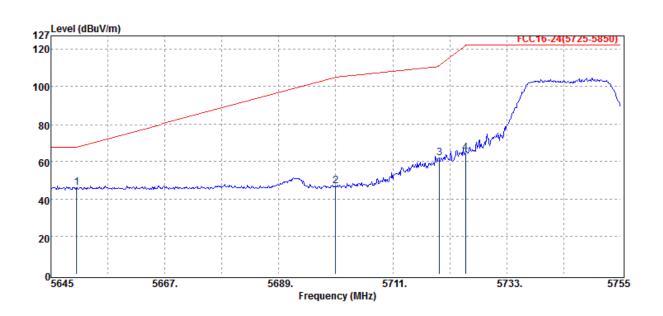
**Operation Mode** :Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	Е	Peak	39.61	6.48	46.09	68.23	-22.14
5700.00	Е	Peak	40.28	6.67	46.95	105.23	-58.28
5720.00	Е	Peak	55.33	6.60	61.93	110.83	-48.90
5725.00	Е	Peak	57.82	6.59	64.41	122.23	-57.82

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**Operation Band** :802.11aB4 Fundamental Frequency :5745 MHz

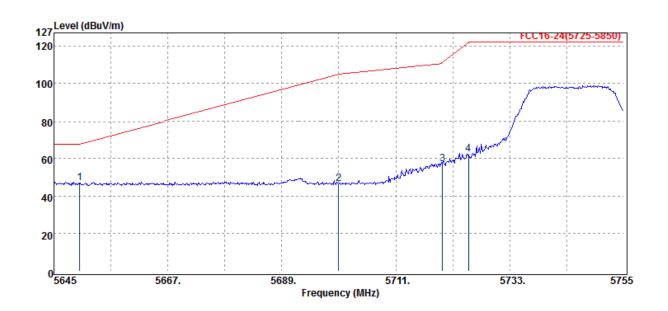
**Operation Mode** :Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	E	Peak	40.67	6.48	47.15	68.23	-21.08
5700.00	Е	Peak	39.93	6.67	46.60	105.23	-58.63
5720.00	E	Peak	50.59	6.60	57.19	110.83	-53.64
5725.00	E	Peak	56.01	6.59	62.60	122.23	-59.63

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**Operation Band** :802.11aB4 Fundamental Frequency :5825 MHz

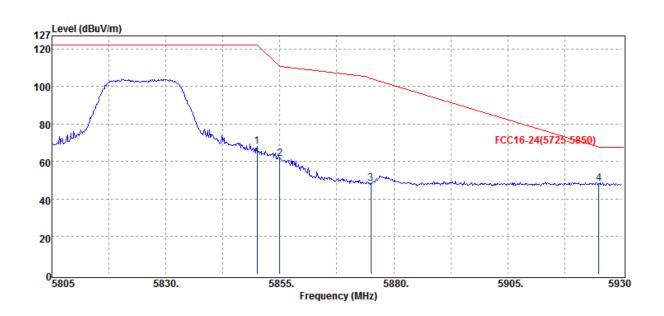
**Operation Mode** :Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	61.01	7.28	68.29	122.23	-53.94
5855.00	Е	Peak	54.32	7.32	61.64	110.83	-49.19
5875.00	E	Peak	40.95	7.37	48.32	105.23	-56.91
5925.00	E	Peak	40.86	7.39	48.25	68.23	-19.98

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**Operation Band** Fundamental Frequency **Operation Mode** 

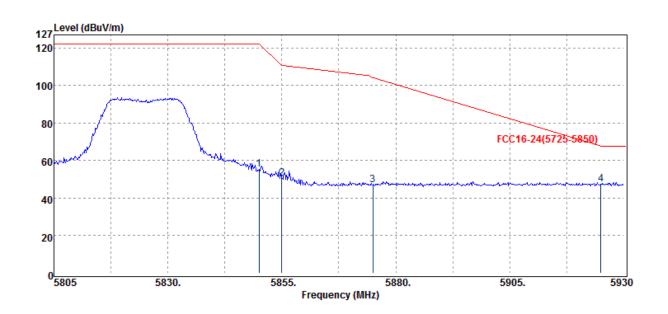
:802.11aB4 :5825 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	47.99	7.28	55.27	122.23	-66.96
5855.00	E	Peak	43.27	7.32	50.59	110.83	-60.24
5875.00	Е	Peak	39.55	7.37	46.92	105.23	-58.31
5925.00	E	Peak	39.92	7.39	47.31	68.23	-20.92

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:2017-07-20

:22 deg\_C / 61 RH

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## Band edge falling to restricted band 802.11n HT20 mode

**Operation Band** :802.11n20B1

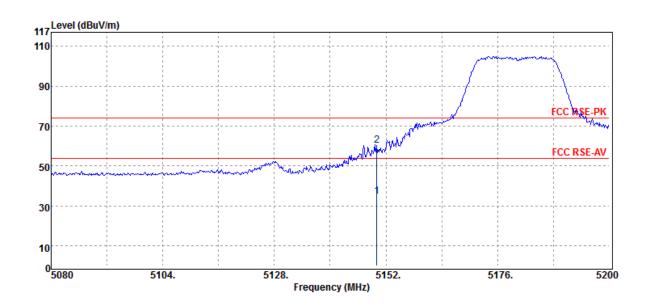
**Fundamental Frequency** :5180 MHz

**Operation Mode** :Bandedge CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.

**Test Date** 

Temp./Humi.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	E	Average	29.07	5.88	34.95	54.00	-19.05
5150.00	E	Peak	54.62	5.88	60.50	74.00	-13.50

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台灣檢驗科技股份有限公司

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f (886-2) 2298-0488



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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B1 :5180 MHz

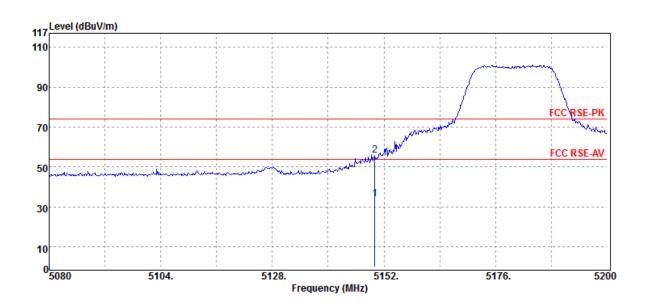
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	Е	Average	28.05	5.88	33.93	54.00	-20.07
5150.00	Е	Peak	50.18	5.88	56.06	74.00	-17.94

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B2 :5320 MHz

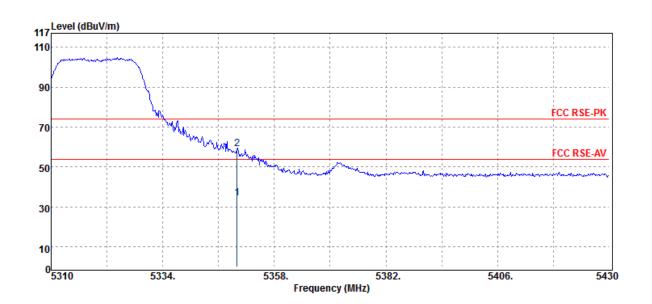
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	28.15	6.16	34.31	54.00	-19.69
5350.00	Е	Peak	52.96	6.16	59.12	74.00	-14.88

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B2 :5320 MHz

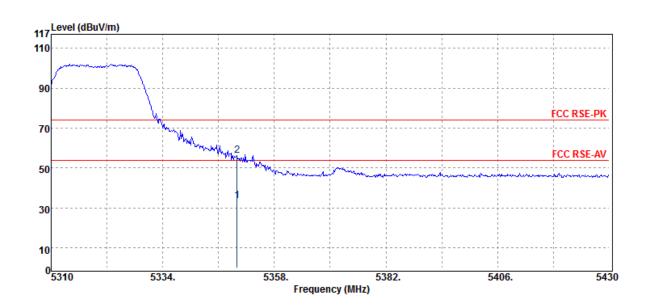
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	27.48	6.16	33.64	54.00	-20.36
5350.00	Е	Peak	50.28	6.16	56.44	74.00	-17.56

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5500 MHz

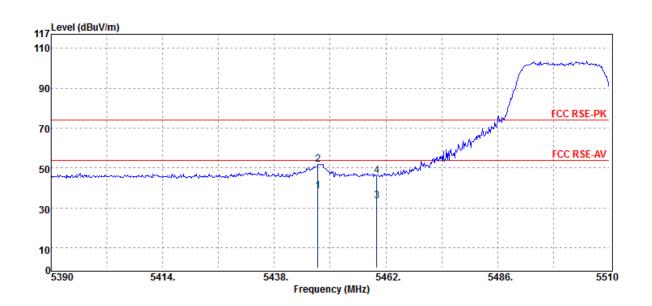
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5447.36	E	Average	32.30	6.19	38.49	54.00	-15.51
5447.36	Е	Peak	45.81	6.19	52.00	74.00	-22.00
5460.00	E	Average	27.34	6.23	33.57	54.00	-20.43
5460.00	E	Peak	40.11	6.23	46.34	74.00	-27.66

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5500 MHz

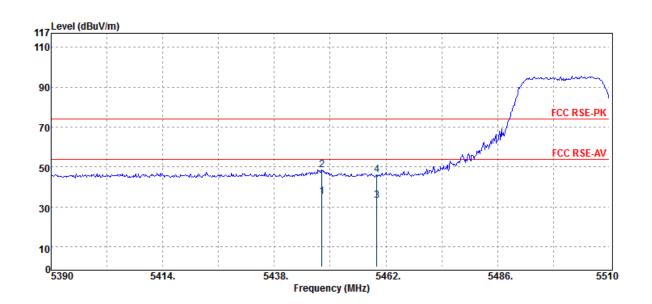
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5448.20	E	Average	28.90	6.20	35.10	54.00	-18.90
5448.20	Е	Peak	42.35	6.20	48.55	74.00	-25.45
5460.00	E	Average	26.80	6.23	33.03	54.00	-20.97
5460.00	Ε	Peak	39.81	6.23	46.04	74.00	-27.96

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5500 MHz

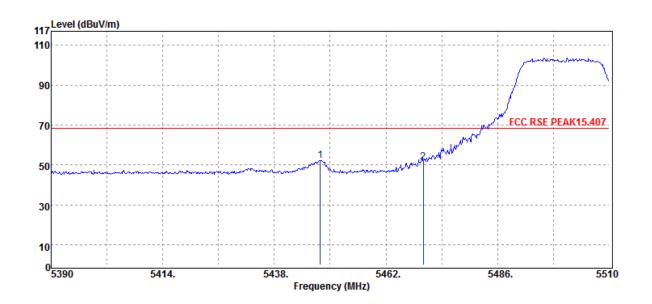
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5447.84	E	Peak	46.12	6.19	52.31	68.30	-15.99
5470.00	Е	Peak	45.25	6.26	51.51	68.30	-16.79

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5500 MHz

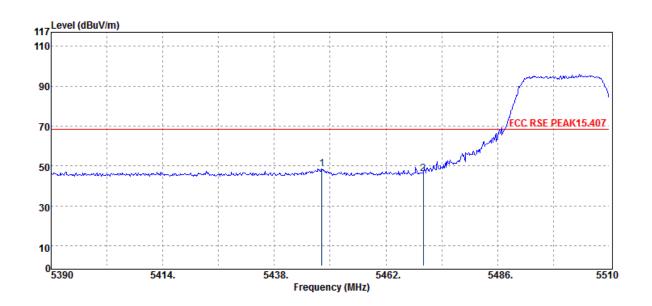
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5448.20	E	Peak	42.35	6.20	48.55	68.30	-19.75
5470.00	Е	Peak	39.99	6.26	46.25	68.30	-22.05

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5700 MHz

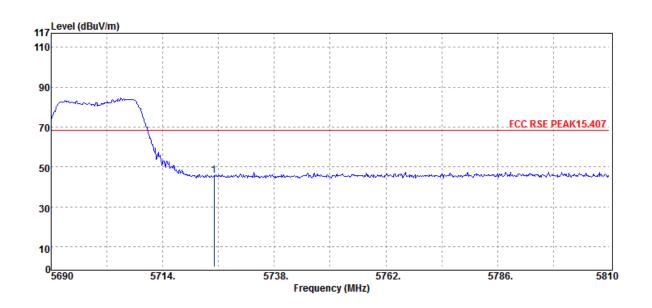
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Е	Peak	39.20	6.59	45.79	68.30	-22.51

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No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488



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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B3 :5700 MHz

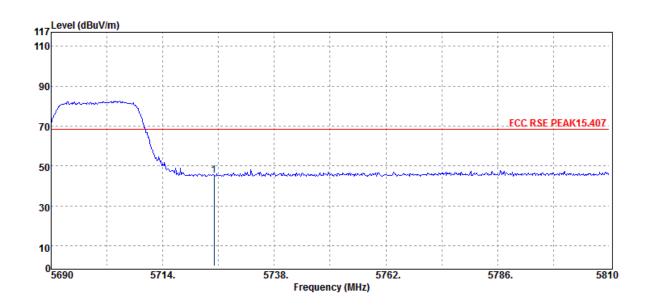
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Е	Peak	38.67	6.59	45.26	68.30	-23.04

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B4 :5745 MHz

:Bandedge CH LOW

EUT Pol.

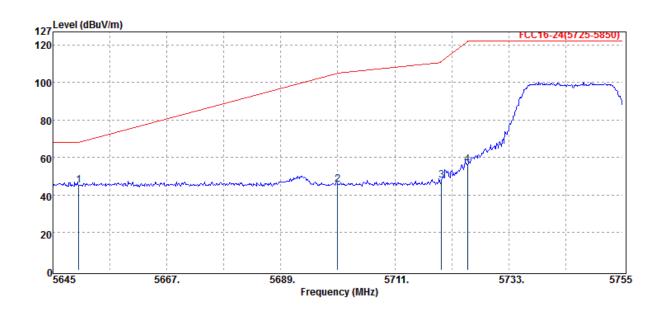
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	Е	Peak	38.80	6.48	45.28	68.23	-22.95
5700.00	Е	Peak	39.19	6.67	45.86	105.23	-59.37
5720.00	Е	Peak	41.16	6.60	47.76	110.83	-63.07
5725.00	E	Peak	49.63	6.59	56.22	122.23	-66.01

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B4 :5745 MHz

:Bandedge CH LOW

EUT Pol.

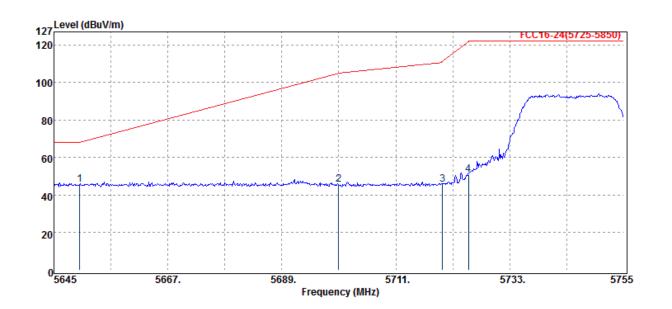
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	Е	Peak	39.17	6.48	45.65	68.23	-22.58
5700.00	Е	Peak	38.83	6.67	45.50	105.23	-59.73
5720.00	E	Peak	39.22	6.60	45.82	110.83	-65.01
5725.00	E	Peak	44.43	6.59	51.02	122.23	-71.21

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**Operation Band** Fundamental Frequency **Operation Mode** 

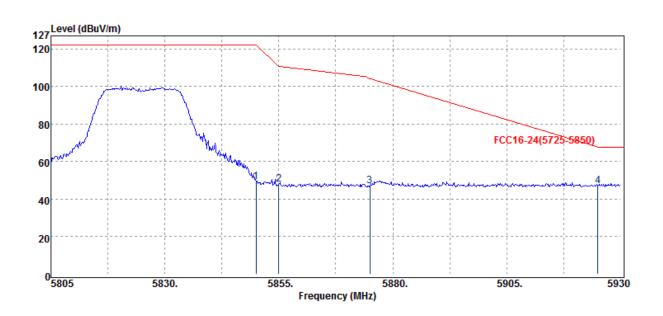
:802.11n20B4 :5825 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	42.13	7.28	49.41	122.23	-72.82
5855.00	Е	Peak	40.40	7.32	47.72	110.83	-63.11
5875.00	Е	Peak	39.51	7.37	46.88	105.23	-58.35
5925.00	Е	Peak	39.67	7.39	47.06	68.23	-21.17

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n20B4 :5825 MHz

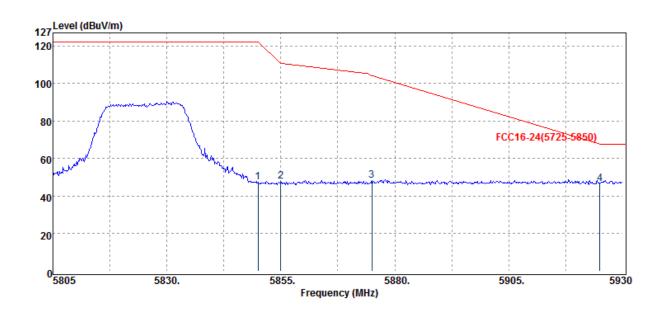
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	40.07	7.28	47.35	122.23	-74.88
5855.00	Е	Peak	40.42	7.32	47.74	110.83	-63.09
5875.00	Е	Peak	40.99	7.37	48.36	105.23	-56.87
5925.00	Е	Peak	39.30	7.39	46.69	68.23	-21.54

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:2017-07-20

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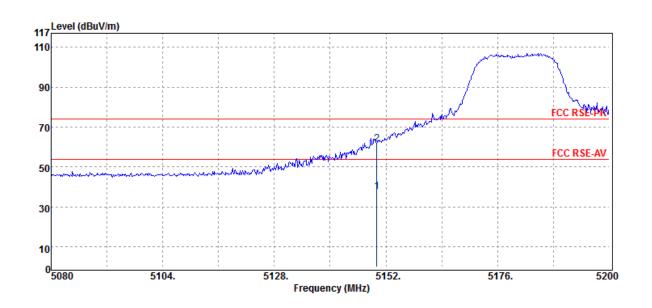
# Band edge falling to restricted band 802.11n\_HT40 mode

**Operation Band Test Date** :802.11n40B1

**Fundamental Frequency** Temp./Humi. :22 deg\_C / 61 RH :5190 MHz

**Operation Mode** :Bandedge CH LOW Engineer :Tin

EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	E	Average	31.78	5.88	37.66	54.00	-16.34
5150.00	E	Peak	55.54	5.88	61.42	74.00	-12.58

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B1 :5190 MHz

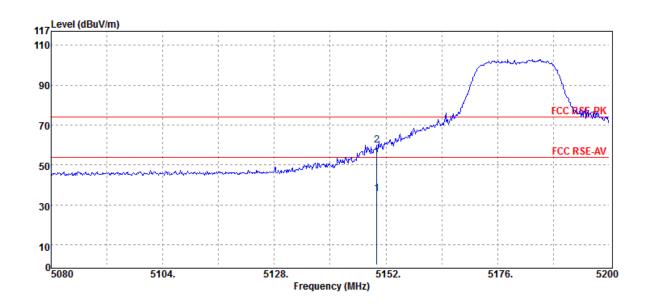
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	Е	Average	29.77	5.88	35.65	54.00	-18.35
5150.00	Е	Peak	54.00	5.88	59.88	74.00	-14.12

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**Operation Band** Fundamental Frequency **Operation Mode** 

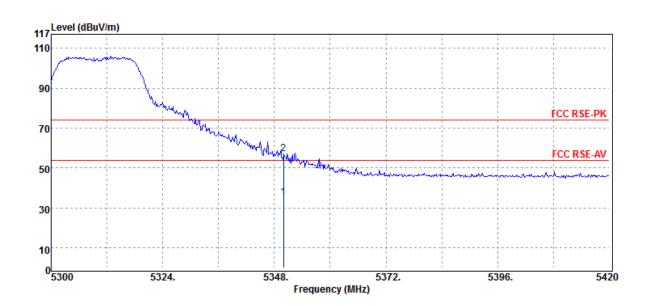
:802.11n40B2 :5310 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	28.92	6.16	35.08	54.00	-18.92
5350.00	Е	Peak	51.05	6.16	57.21	74.00	-16.79

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B2 :5310 MHz

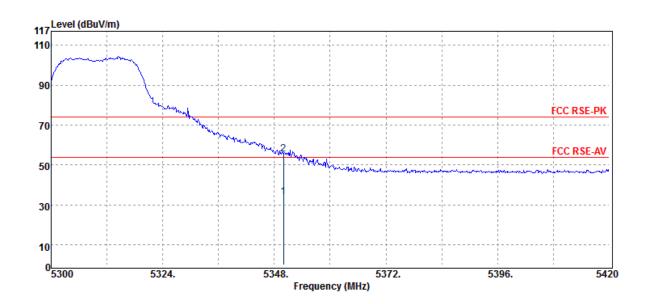
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	27.88	6.16	34.04	54.00	-19.96
5350.00	Е	Peak	49.38	6.16	55.54	74.00	-18.46

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**Operation Band** Fundamental Frequency

**Operation Mode** 

EUT Pol.

:802.11n40B3 :5510 MHz

:Bandedge CH LOW

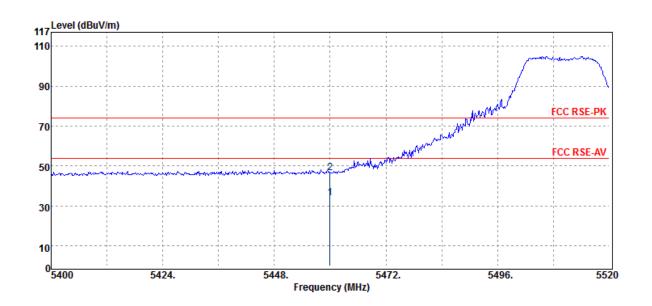
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5460.00	Е	Average	27.70	6.23	33.93	54.00	-20.07
5460.00	Е	Peak	40.44	6.23	46.67	74.00	-27.33

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B3 :5510 MHz

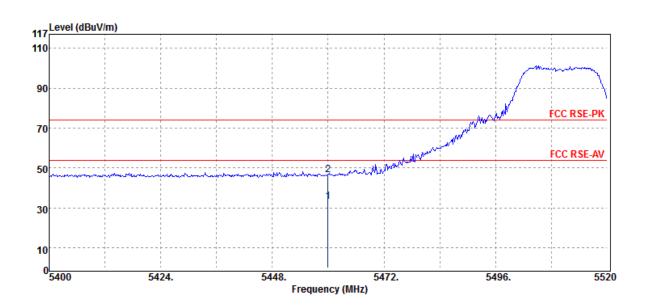
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dΒμV/m	dB
5460.00	Е	Average	27.01	6.23	33.24	54.00	-20.76
5460.00	Е	Peak	40.28	6.23	46.51	74.00	-27.49

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B3 :5510 MHz

:Bandedge CH LOW

EUT Pol.

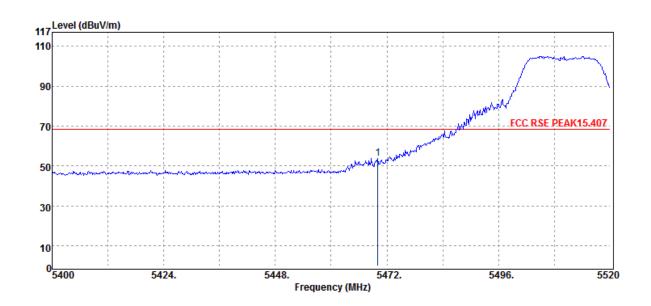
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	<b>@</b> 3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5470.00	Е	Peak	47.74	6.26	54.00	68.30	-14.30

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B3 :5510 MHz

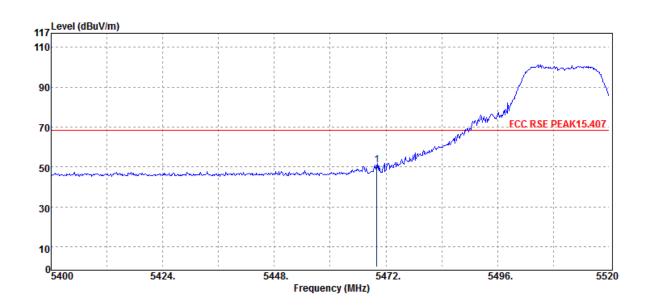
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5470.00	Е	Peak	44.66	6.26	50.92	68.30	-17.38

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B3 :5670 MHz

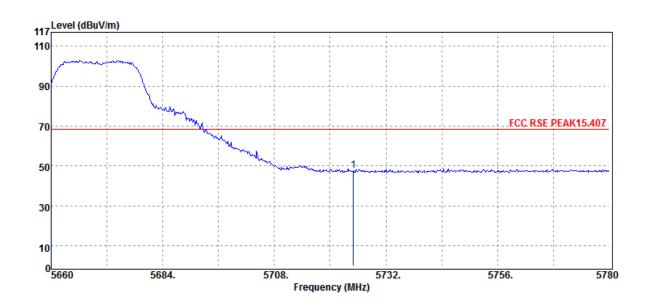
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	<b>@</b> 3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	41.12	6.59	47.71	68.30	-20.59

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B3 :5670 MHz

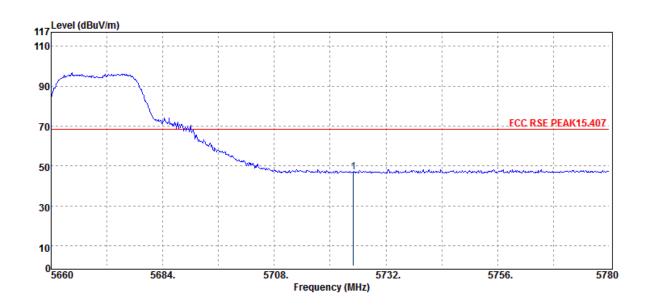
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Е	Peak	40.52	6.59	47.11	68.30	-21.19

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B4 :5755 MHz

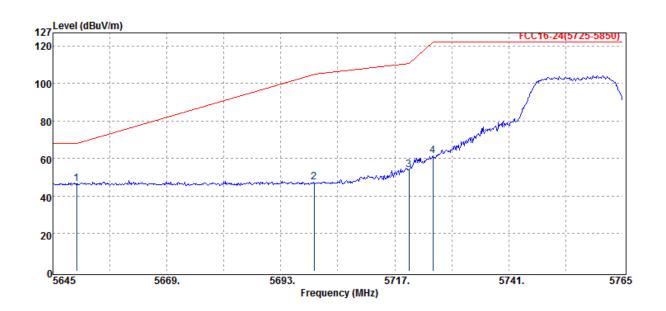
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	E	Peak	40.20	6.48	46.68	68.23	-21.55
5700.00	Е	Peak	40.73	6.67	47.40	105.23	-57.83
5720.00	Е	Peak	47.47	6.60	54.07	110.83	-56.76
5725.00	Е	Peak	55.12	6.59	61.71	122.23	-60.52

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B4 :5755 MHz

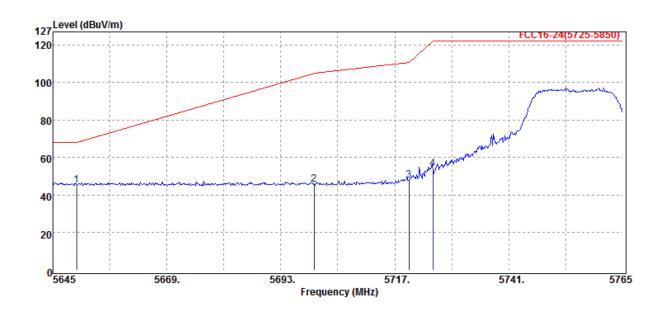
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	E	Peak	38.99	6.48	45.47	68.23	-22.76
5700.00	Е	Peak	39.19	6.67	45.86	105.23	-59.37
5720.00	Е	Peak	41.29	6.60	47.89	110.83	-62.94
5725.00	Е	Peak	47.50	6.59	54.09	122.23	-68.14

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11n40B4 :5795 MHz

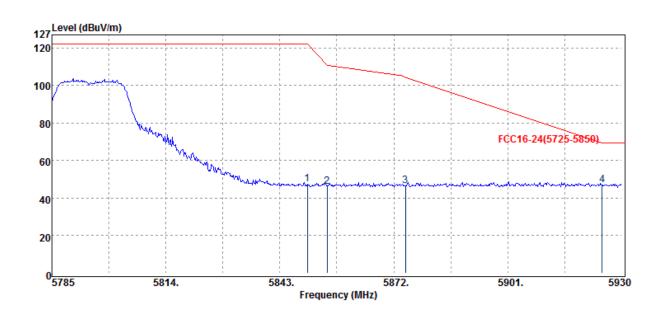
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	40.08	7.28	47.36	122.23	-74.87
5855.00	Е	Peak	39.04	7.32	46.36	110.83	-64.47
5875.00	Е	Peak	39.22	7.37	46.59	105.23	-58.64
5925.00	Е	Peak	39.41	7.39	46.80	68.23	-21.43

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台灣檢驗科技股份有限公司

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**Operation Band** Fundamental Frequency **Operation Mode** 

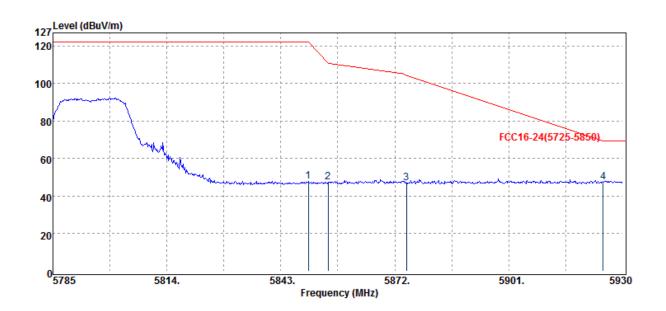
:802.11n40B4 :5795 MHz

:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	40.68	7.28	47.96	122.23	-74.27
5855.00	Е	Peak	40.32	7.32	47.64	110.83	-63.19
5875.00	Е	Peak	39.83	7.37	47.20	105.23	-58.03
5925.00	Е	Peak	40.18	7.39	47.57	68.23	-20.66

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## Band edge falling to restricted band

802.11ac\_VHT80 mode

**Operation Band** :802.11ac80B1 **Fundamental Frequency** :5210 MHz

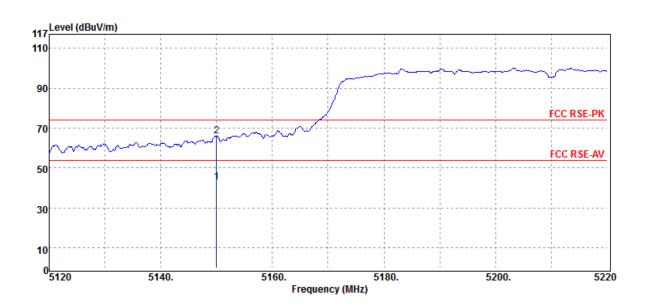
**Operation Mode** :Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	E	Average	37.00	5.88	42.88	54.00	-11.12
5150.00	E	Peak	60.11	5.88	65.99	74.00	-8.01

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B1 :5210 MHz

:Bandedge CH LOW

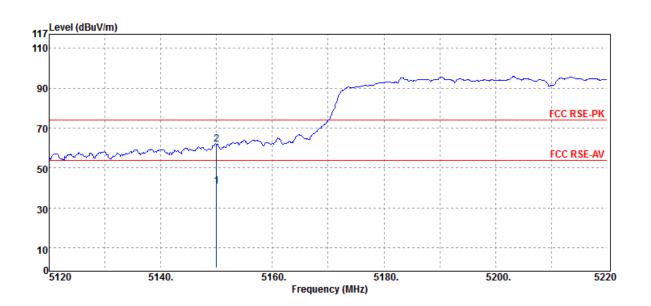
EUT Pol.

:H Plane

**Test Date** :2017-07-20 :22 deg\_C / 61 RH

Temp./Humi. Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dΒμV/m	dB
5150.00	Е	Average	34.86	5.88	40.74	54.00	-13.26
5150.00	Е	Peak	56.15	5.88	62.03	74.00	-11.97

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B2 :5290 MHz

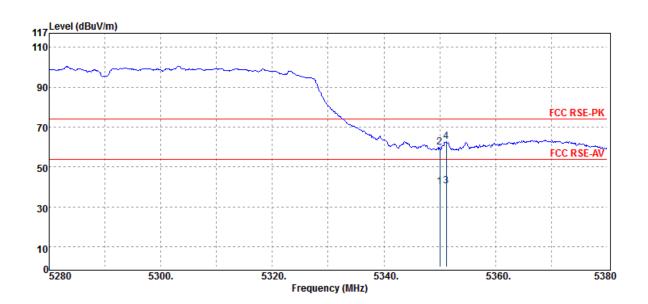
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5350.00	E	Average	33.99	6.16	40.15	54.00	-13.85
5350.00	Е	Peak	53.58	6.16	59.74	74.00	-14.26
5351.20	E	Average	34.35	6.15	40.50	54.00	-13.50
5351.20	Ε	Peak	56.45	6.15	62.60	74.00	-11.40

t (886-2) 2299-3279

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台灣檢驗科技股份有限公司

f (886-2) 2298-0488



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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B2 :5290 MHz

:Bandedge CH HIGH

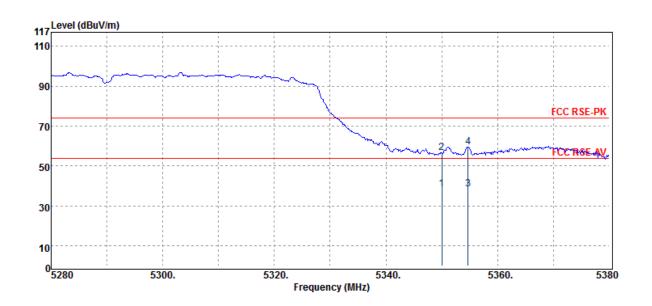
EUT Pol.

:H Plane

**Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Е	Average	32.33	6.16	38.49	54.00	-15.51
5350.00	Е	Peak	50.56	6.16	56.72	74.00	-17.28
5354.70	E	Average	32.43	6.12	38.55	54.00	-15.45
5354.70	E	Peak	53.51	6.12	59.63	74.00	-14.37

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B3 :5530 MHz

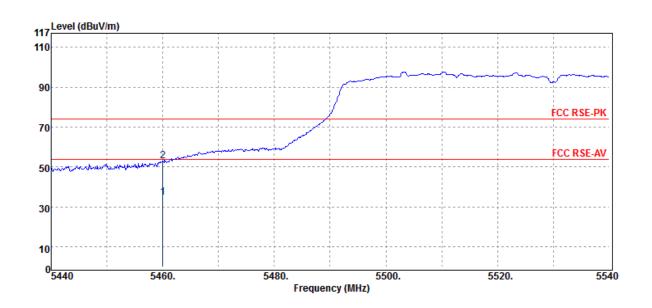
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5460.00	Е	Average	28.77	6.23	35.00	54.00	-19.00
5460.00	Е	Peak	47.00	6.23	53.23	74.00	-20.77

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B3 :5530 MHz

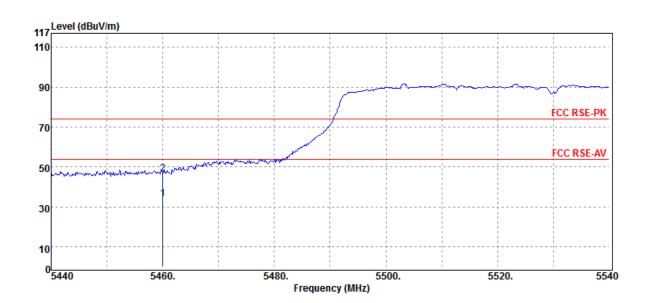
:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5460.00	Е	Average	27.72	6.23	33.95	54.00	-20.05
5460.00	Е	Peak	40.49	6.23	46.72	74.00	-27.28

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**Operation Band** Fundamental Frequency **Operation Mode** 

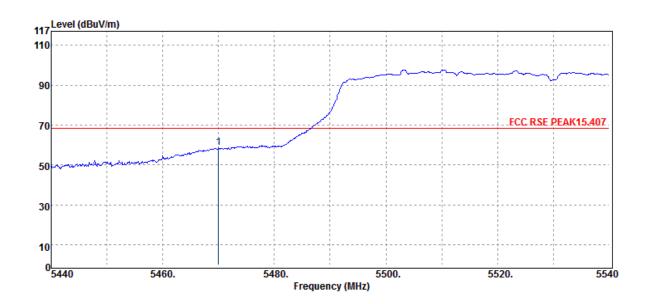
:802.11ac80B3 :5530 MHz

:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5470.00	E	Peak	52.25	6.26	58.51	68.30	-9.79

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**Operation Band** Fundamental Frequency **Operation Mode** 

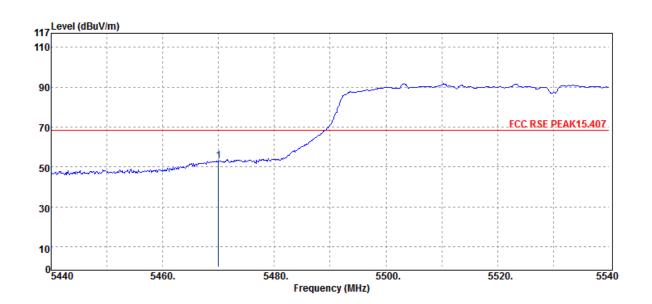
:802.11ac80B3 :5530 MHz

:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	<b>@</b> 3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5470.00	Е	Peak	46.73	6.26	52.99	68.30	-15.31

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**Operation Band** Fundamental Frequency

**Operation Mode** 

EUT Pol.

:802.11ac80B4 :5775 MHz

:Bandedge CH LOW

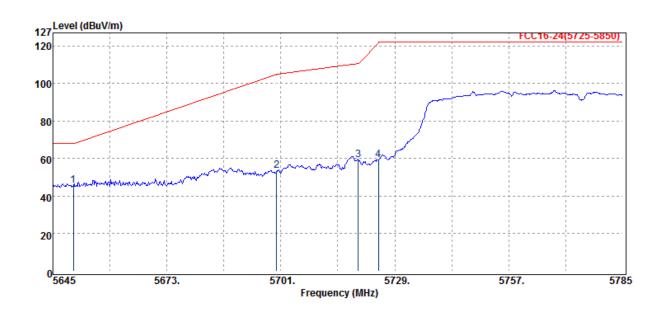
:H Plane

**Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	Е	Peak	39.36	6.48	45.84	68.23	-22.39
5700.00	Е	Peak	46.86	6.67	53.53	105.23	-51.70
5720.00	E	Peak	52.77	6.60	59.37	110.83	-51.46
5725.00	E	Peak	52.81	6.59	59.40	122.23	-62.83

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**Operation Band** Fundamental Frequency **Operation Mode** 

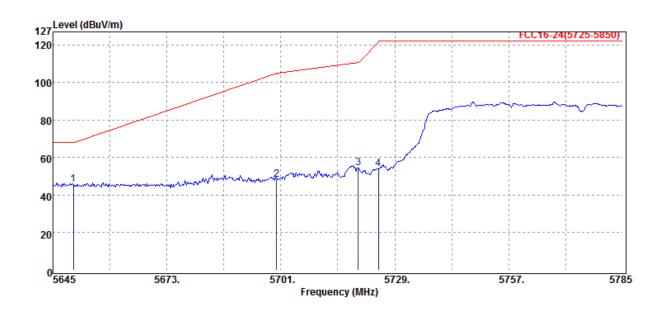
:802.11ac80B4 :5775 MHz

:Bandedge CH LOW

EUT Pol. :H Plane **Test Date** :2017-07-20 Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5650.00	Е	Peak	39.18	6.48	45.66	68.23	-22.57
5700.00	Е	Peak	41.68	6.67	48.35	105.23	-56.88
5720.00	E	Peak	47.91	6.60	54.51	110.83	-56.32
5725.00	E	Peak	47.47	6.59	54.06	122.23	-68.17

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B4 :5775 MHz

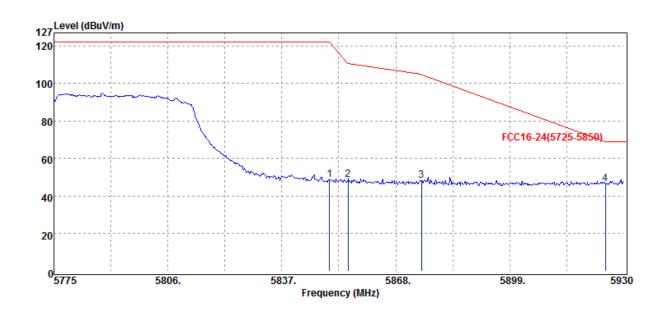
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	E	Peak	41.32	7.28	48.60	122.23	-73.63
5855.00	Е	Peak	41.42	7.32	48.74	110.83	-62.09
5875.00	E	Peak	41.11	7.37	48.48	105.23	-56.75
5925.00	E	Peak	39.01	7.39	46.40	68.23	-21.83

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**Operation Band** Fundamental Frequency **Operation Mode** 

:802.11ac80B4 :5775 MHz

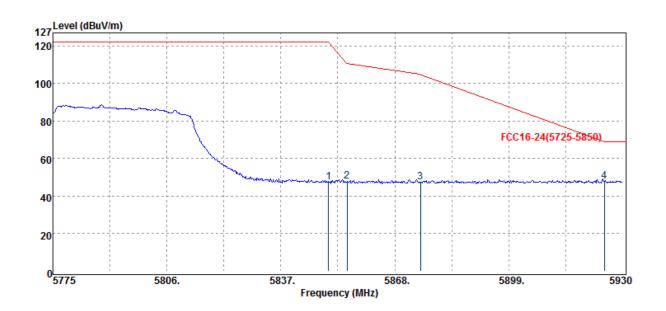
:Bandedge CH HIGH

EUT Pol. :H Plane **Test Date** :2017-07-20

Temp./Humi. :22 deg\_C / 61 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
5850.00	Е	Peak	40.23	7.28	47.51	122.23	-74.72
5855.00	Е	Peak	40.44	7.32	47.76	110.83	-63.07
5875.00	Е	Peak	39.88	7.37	47.25	105.23	-57.98
5925.00	Е	Peak	40.41	7.39	47.80	68.23	-20.43

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#### ANTENNA REQUIREMENT

## 7.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device. If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

## According to RSS-GEN 8.3

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.9 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

### 7.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna is designed with permanent attached and no consideration of replacement. Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

### ~ End of Report ~

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