

FCC Radio Test Report

FCC ID : 2AEUPBHASC052
Equipment : Stick Up Cam Elite
Brand Name : Ring LLC
Model Name : Stick Up Cam Elite
Applicant : Ring LLC
12515 Cerise Ave Hawthorne, CA 90250, USA
Manufacturer : Chicony Electronics Co.,Ltd.
No.69, Sec. 2, Guangfu Rd., Sanchong Dist. New Taipei
City 241 Taiwan
Standard : 47 CFR FCC Part 15.407

The product was received on Oct. 12, 2022, and testing was started from Oct. 14, 2022 and completed on Oct. 15, 2022. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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PHOTOGRAPHS OF EUT V01



History of this test report

Report No.	Version	Description	Issued Date
FR852814-10AN	01	Initial issue of report	Dec. 08, 2022



Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.407(a)	Emission Bandwidth	Not Required	-
3.1	15.407(a)	Maximum Conducted Output Power	PASS	-
-	15.407(a)	Peak Power Spectral Density	Not Required	-
3.2	15.407(b)	Unwanted Emissions	PASS	-

Remark:

1. Not required means after assessing, test items are not necessary to carry out.
2. According to the manufacturer's declaration of product application, the RF Function are same as FCC ID: 2AEUPBHASC051. After evaluation and verify, the test data meet our expectation. Therefore the test data could leverage as FCC ID: 2AEUPBHASC052. All the test cases were performed on original report which can be referred to Sporton Report Number FR852814-05AN.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and explanations:

None

Reviewed by: Ryan Hsiao
Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5250-5350	a, n (HT20)	5260-5320	52-64 [4]
5470-5725		5500-5700	100-140 [11]
5250-5350	n (HT40)	5270-5310	54-62 [2]
5470-5725		5510-5670	102-134 [5]

Band	Mode	BWch (MHz)	Nant
5.25-5.35GHz	802.11a	20	1TX
5.47-5.725GHz	802.11a	20	1TX
5.25-5.35GHz	802.11n HT20	20	1TX
5.47-5.725GHz	802.11n HT20	20	1TX
5.25-5.35GHz	802.11n HT40	40	1TX
5.47-5.725GHz	802.11n HT40	40	1TX

Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	-	Orion Wifi Antenna	PIFA Antenna	Fixed on board

5G	
Frequency (MHz)	Gain (dBi)
5250	2.85
5350	2.96
5470	3.08
5600	3.26
5725	2.96

For 5 GHz function:

For IEEE 802.11a/n mode (1TX/1RX)

Only Ant. 1 (port 1) can be used as transmitting/receiving antenna.



1.1.3 EUT Information

Operational Condition				
EUT Power Type	From Battery / Transformer			
EUT Function	<input type="checkbox"/>	Outdoor AP	<input type="checkbox"/>	Indoor AP
	<input type="checkbox"/>	Fixed P2P AP	<input checked="" type="checkbox"/>	Client
Beamforming Function	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
TPC Function	<input type="checkbox"/>	With TPC Function	<input checked="" type="checkbox"/>	Without TPC Function
Weather Band	<input checked="" type="checkbox"/>	With 5600~5650MHz	<input type="checkbox"/>	Without 5600~5650MHz
Type of EUT				
<input checked="" type="checkbox"/>	Stand-alone			
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)			
	Combined Equipment - Brand Name / Model No.: ...			
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)			
	Host System - Brand Name / Model No.:			
<input type="checkbox"/>	Other:			

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a_Nss1,(6Mbps)_1TX	0.935	0.29	1.431m	1k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR852814-03AI and FR852814-03AN. Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
U-NII-2A and UNII-2C were added.	All
Applicant address was changed	N/A



1.1.6 Cross Reference on Test Data

Equipment Class	Wireless Technology	Frequency Band (MHz)	Original FCC ID	Original Report	Variant Model FCC ID	Variant Model Report	Leverage Test Item
U-NII	WLAN	5250-5350 5470-5725	2AEUPBHASC051	FR852814-05AN	2AEUPBHASC052	FR852814-10AN	<ul style="list-style-type: none"> Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density Unwanted Emissions

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF:

- KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/>	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)		
		TEL: 886-3-327-3456	FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH07-HY	Xun Xie	22.6~25.6°C / 55~62%	14/Oct/2022
Radiated	03CH03-HY	Edward Wang	22.1~23.9°C/ 50~60%	15/Oct/2022
<input checked="" type="checkbox"/>	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
		TEL: 886-3-318-0787	FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				

Laboratory number TAF 3785 is a spin-off from the original Laboratory number TAF 1190.

1.4 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))

Test Items	Uncertainty	Remark
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Unwanted Emissions	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%


2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software	DOS
Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5300MHz	88
5500MHz	69

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Maximum Conducted Output Power
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
1	USB mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	X Plane
	
Worst Planes of EUT	V



2.3 Accessories

Accessories				
Indoor Adapter	Brand Name	DEE VAN ENTERPRISE	Model Name	DSA-15CAB-05 050250
	Power Rating	I/P: 100 - 240Vac, 0.5 A, O/P: 5 Vdc, 2.5 A		
Outdoor Adapter	Brand Name	ring	Model Name	DSA-15PFL-05 FUS 050250
	Power Rating	I/P: 100-240V ~ 0.5A MAX 50-60Hz; O/P: 5V 2.5A		
	DC Power Cord	2.45 meter, non-shielded cable, w/o ferrite core		
	AC Power Cord	4.53 meter, non-shielded cable, w/o ferrite core		
PoE Adapter 1	Brand Name	Phihong	Model Name	POE15M
	Power Rating	I/P: 100 - 240Vac, 0.8 A, O/P: 56 Vdc, 0.275 A		
PoE Adapter 2	Brand Name	ONV	Model Name	PSE3010DCG
	Power Rating	I/P: 100 - 240Vac, 0.8 A, O/P: 5 Vdc, 2.5A		
Adapter 2	Brand Name	ZTE	Model Name	RJ-AS120150U104-B
	Power Rating	I/P: 100 - 240Vac, 1 A, O/P: 12Vdc, 1.5A		
USB Cable	Power Rating	2.45 meter, non-shielded cable, w/o ferrite core		
6ft Ethernet Cable	Power Rating	1.8 meter, non-shielded cable, w/o ferrite core		

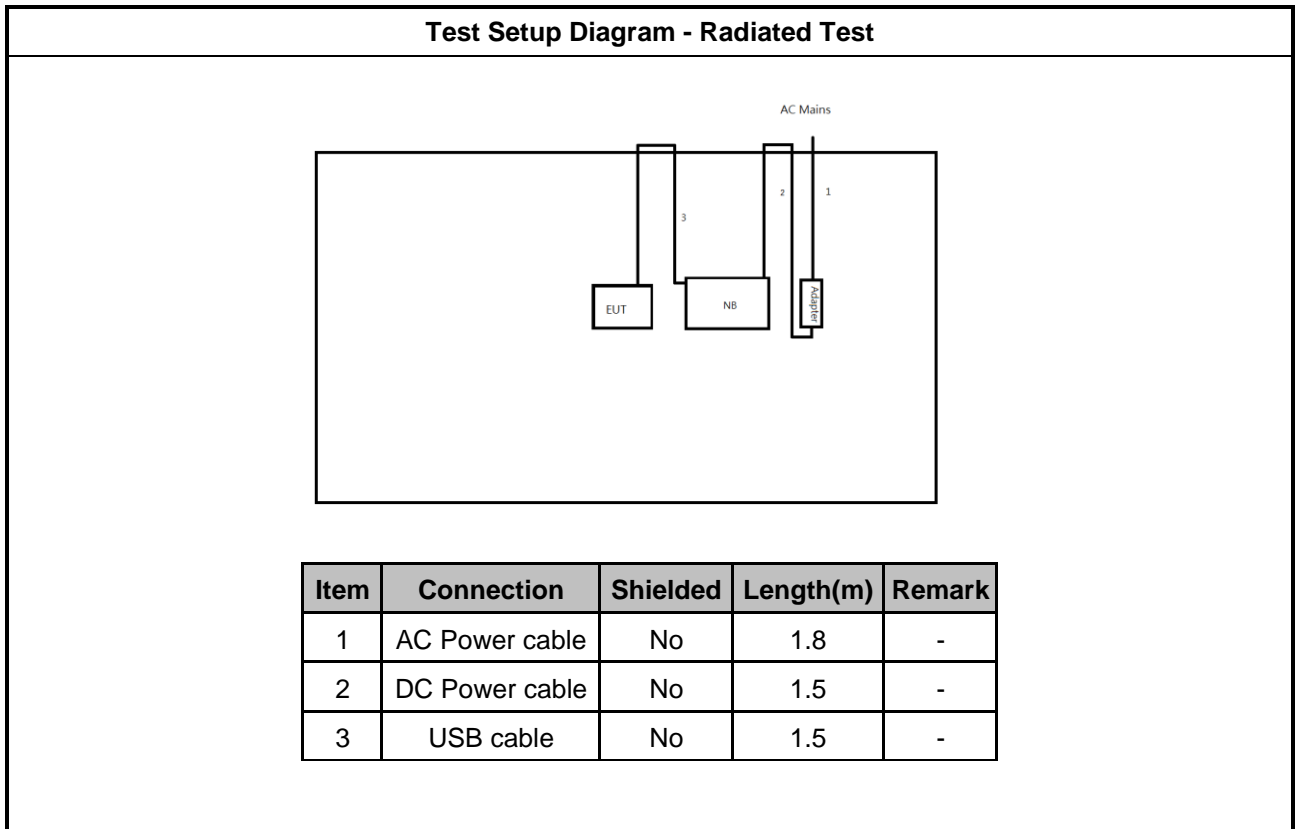
Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	AC Adapter (for NB)	HP	HSTNN-CA40	DoC
2	Notebook	HP	HSTNN-142C	DoC
3	AC Power cable	Power sync	PW-GPC180-3	DoC
4	USB Cable	Sporton	Sporton	DoC

2.5 Test Setup Diagram



3 Transmitter Test Result

3.1 Maximum Conducted Output Power

3.1.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
UNII Devices	
<input type="checkbox"/> For the 5.15-5.25 GHz band:	
	<ul style="list-style-type: none"> ▪ Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees $\leq 125mW$ [21dBm] ▪ Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ ▪ Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$. ▪ Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input checked="" type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input checked="" type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input type="checkbox"/> For the 5.725-5.85 GHz band:	
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. ▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

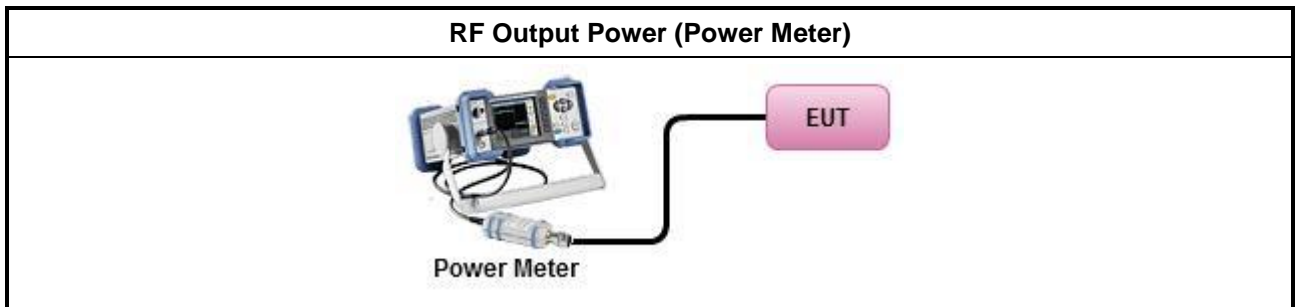
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> Maximum Conducted Output Power 	
	Duty cycle \geq 98%
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
	Duty cycle $<$ 98%
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
Wideband RF power meter and average over on/off periods with duty factor	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause E Method PM (using an RF average power meter).
<ul style="list-style-type: none"> For conducted measurement. 	
	<ul style="list-style-type: none"> If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	<ul style="list-style-type: none"> If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Refer as Appendix A

3.2 Unwanted Emissions

3.2.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method									
<ul style="list-style-type: none"> Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). 									
<ul style="list-style-type: none"> The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. 									
<ul style="list-style-type: none"> For the transmitter unwanted emissions shall be measured using following options below: <table border="1" data-bbox="225 824 1466 1043"> <tr> <td><input type="checkbox"/></td> <td>Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.</td> </tr> </table> 		<input type="checkbox"/>	Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.	<input type="checkbox"/>	Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.	<input checked="" type="checkbox"/>	Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.	<input checked="" type="checkbox"/>	Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.
<input type="checkbox"/>	Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.								
<input type="checkbox"/>	Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.								
<input checked="" type="checkbox"/>	Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.								
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.								
<ul style="list-style-type: none"> For radiated measurement. <table border="1" data-bbox="225 1093 1466 1227"> <tr> <td><input type="checkbox"/></td> <td>Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.</td> </tr> </table> 		<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.	<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.	<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.		
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.								
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.								
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.								
<ul style="list-style-type: none"> The any unwanted emissions level shall not exceed the fundamental emission level. 									
<ul style="list-style-type: none"> All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported. 									

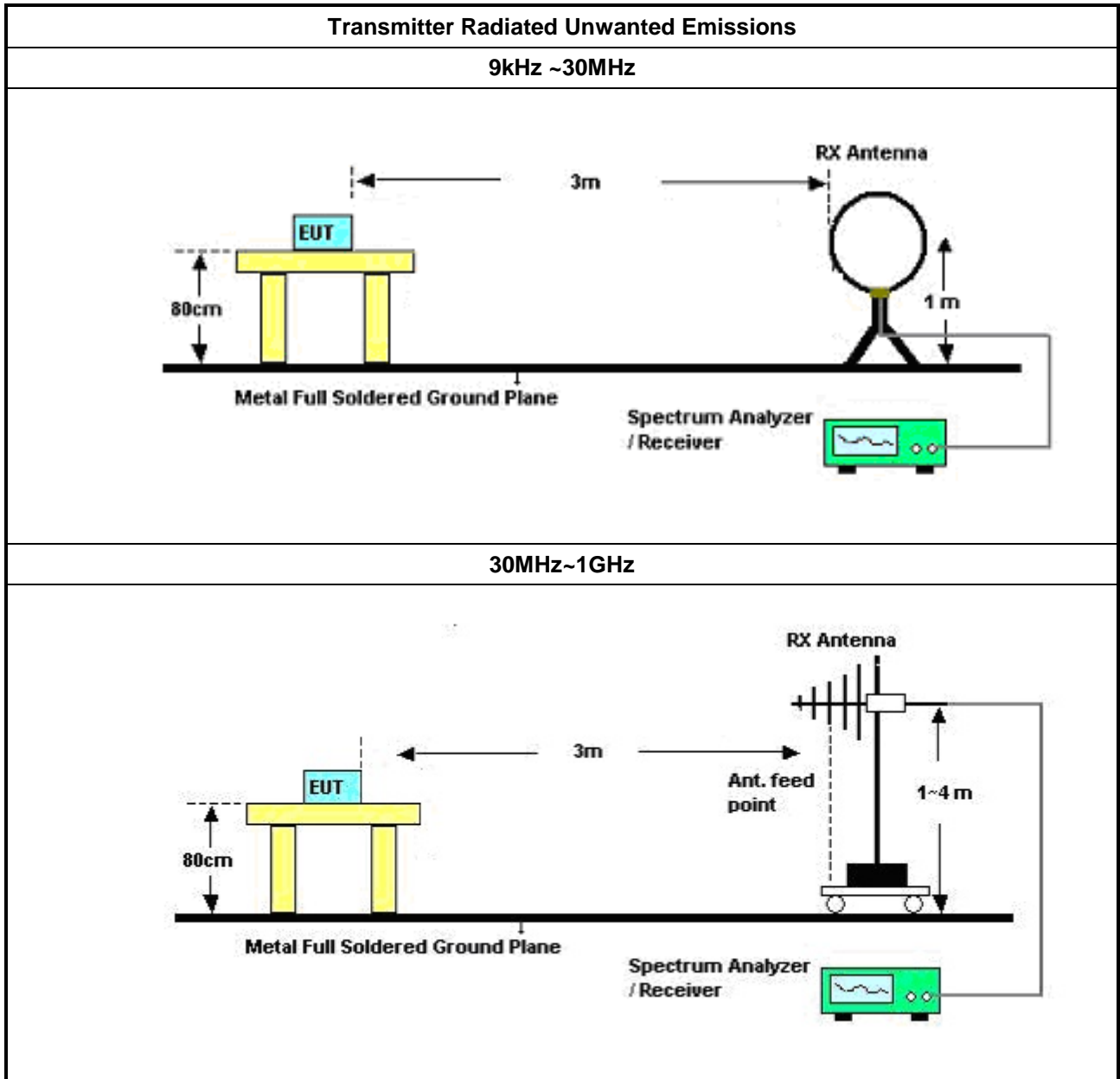
<ul style="list-style-type: none"> Use the following spectrum analyzer settings: <table border="1" data-bbox="225 1442 1466 1594"> <tr> <td><input type="checkbox"/></td> <td>Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.</td> </tr> </table> 		<input type="checkbox"/>	Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.	<input type="checkbox"/>	Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.
<input type="checkbox"/>	Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.				
<input type="checkbox"/>	Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.				
<ul style="list-style-type: none"> KDB 414788 Open-Field Test Sites and Chamber Correlation Justification. <table border="1" data-bbox="225 1644 1466 1823"> <tr> <td><input type="checkbox"/></td> <td>Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.</td> </tr> </table> 		<input type="checkbox"/>	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.	<input type="checkbox"/>	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.
<input type="checkbox"/>	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.				
<input type="checkbox"/>	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.				

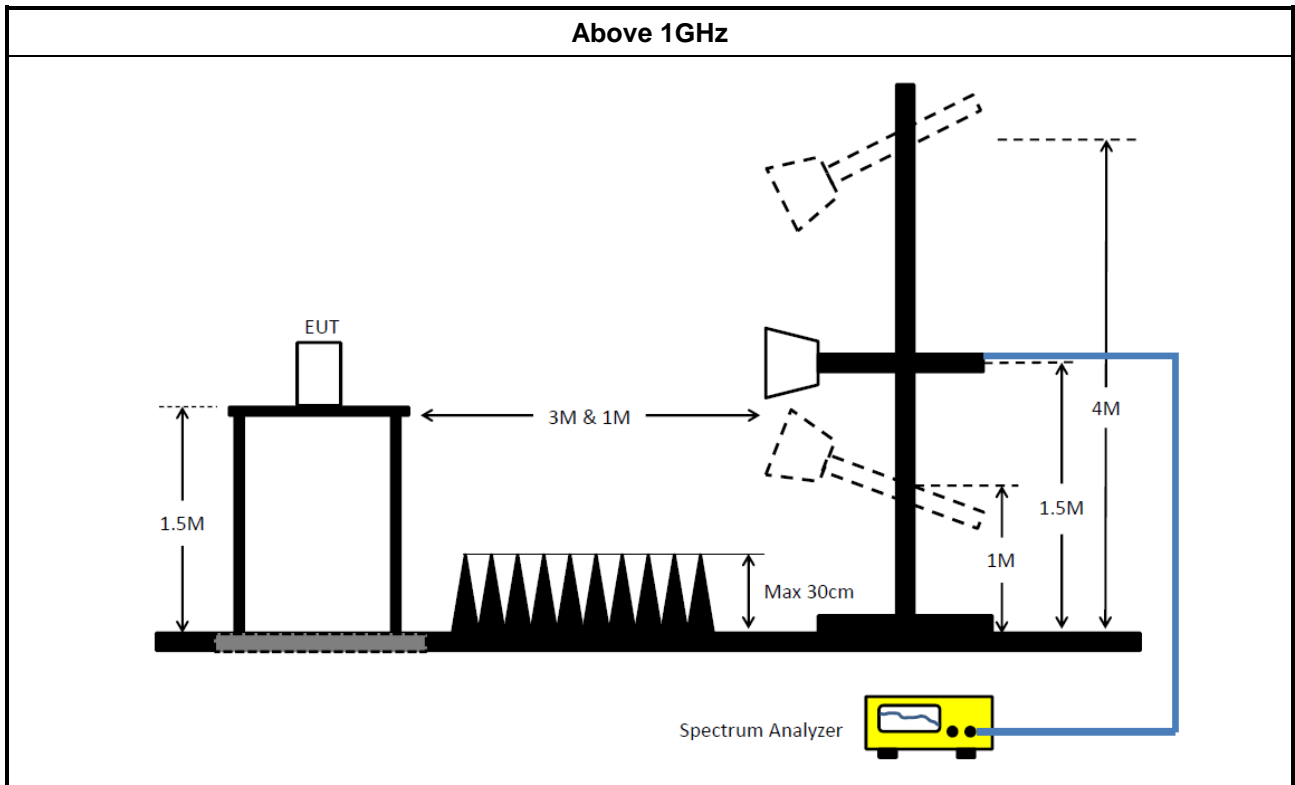
3.2.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

3.2.5 Test Setup





3.2.6 Transmitter Unwanted Emissions (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.2.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix B



4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	10Hz~40GHz	14/Feb/2022	13/Feb/2023
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	21/Oct/2021	20/Oct/2022
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	17/Dec/2021	16/Dec/2022
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	20/Dec/2021	19/Dec/2022
SENSE-15407_NII	Sporton	V5.10.7.13	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	02/Aug/2022	01/Aug/2023
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	08/Apr/2022	07/Apr/2023
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz~26.5GHz	14/Jul/2022	13/Jul/2023
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	1534	1GHz ~18GHz	10/Mar/2022	09/Mar/2023
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	03CH03-cable-01	1GHz~40GHz	27/Jul/2022	26/Jul/2023
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz~40GHz	18/Mar/2022	17/Mar/2023
Microwave Prempifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	08/Mar/2022	07/Mar/2023
SENSE-15407_NII	Sporton	v5.10.8.7.1	NA	NA	NA	NA



Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.63	0.04603	19.59	0.09099
5.47-5.725GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	17.25	0.05309	20.33	0.10789



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
5300MHz	Pass	2.96	16.63	16.63	23.98	19.59	30.00
5500MHz	Pass	3.08	17.25	17.25	23.98	20.33	30.00

DG = Directional Gain; Port X = Port X output power



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.25-5.35GHz	-	-	-	-	-	-	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	Pass	AV	5.3504G	52.91	54.00	-1.09	3	Vertical	90	2.14	-
5.47-5.725GHz	-	-	-	-	-	-	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	Pass	PK	5.4698G	67.97	68.20	-0.23	3	Vertical	109	2.15	-

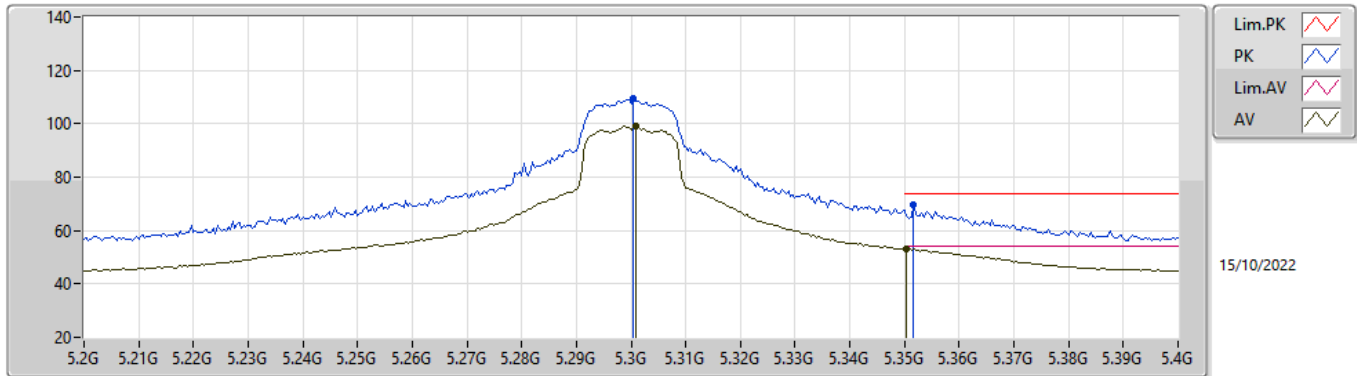


Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-
5300MHz	Pass	AV	5.3008G	99.04	Inf	-Inf	3	Vertical	90	2.14	-
5300MHz	Pass	AV	5.3504G	52.91	54.00	-1.09	3	Vertical	90	2.14	-
5300MHz	Pass	PK	5.3004G	109.33	Inf	-Inf	3	Vertical	90	2.14	-
5300MHz	Pass	PK	5.3516G	69.52	74.00	-4.48	3	Vertical	90	2.14	-
5300MHz	Pass	AV	5.3008G	97.17	Inf	-Inf	3	Horizontal	172	1.05	-
5300MHz	Pass	AV	5.35G	50.97	54.00	-3.03	3	Horizontal	172	1.05	-
5300MHz	Pass	PK	5.3008G	107.26	Inf	-Inf	3	Horizontal	172	1.05	-
5300MHz	Pass	PK	5.3536G	65.34	74.00	-8.66	3	Horizontal	172	1.05	-
5300MHz	Pass	AV	10.6003G	42.31	54.00	-11.69	3	Vertical	13	1.00	-
5300MHz	Pass	PK	10.60114G	55.12	74.00	-18.88	3	Vertical	13	1.00	-
5300MHz	Pass	AV	10.60036G	41.48	54.00	-12.52	3	Horizontal	337	1.72	-
5300MHz	Pass	PK	10.60594G	53.98	74.00	-20.02	3	Horizontal	337	1.72	-
5500MHz	Pass	AV	5.4584G	50.87	54.00	-3.13	3	Vertical	109	2.15	-
5500MHz	Pass	AV	5.5006G	96.88	Inf	-Inf	3	Vertical	109	2.15	-
5500MHz	Pass	PK	5.4698G	67.97	68.20	-0.23	3	Vertical	109	2.15	-
5500MHz	Pass	PK	5.498G	106.45	Inf	-Inf	3	Vertical	109	2.15	-
5500MHz	Pass	AV	5.4598G	51.04	54.00	-2.96	3	Horizontal	92	2.28	-
5500MHz	Pass	AV	5.4992G	97.00	Inf	-Inf	3	Horizontal	92	2.28	-
5500MHz	Pass	PK	5.461G	67.88	68.20	-0.32	3	Horizontal	92	2.28	-
5500MHz	Pass	PK	5.5008G	107.03	Inf	-Inf	3	Horizontal	92	2.28	-
5500MHz	Pass	AV	10.99904G	43.31	54.00	-10.69	3	Vertical	0	1.97	-
5500MHz	Pass	PK	11.00126G	57.19	74.00	-16.81	3	Vertical	0	1.97	-
5500MHz	Pass	AV	10.99544G	42.21	54.00	-11.79	3	Horizontal	59	2.04	-
5500MHz	Pass	PK	11.00006G	54.17	74.00	-19.83	3	Horizontal	59	2.04	-

5.25-5.35GHz_802.11a_Nss1,(6Mbps)_1TX

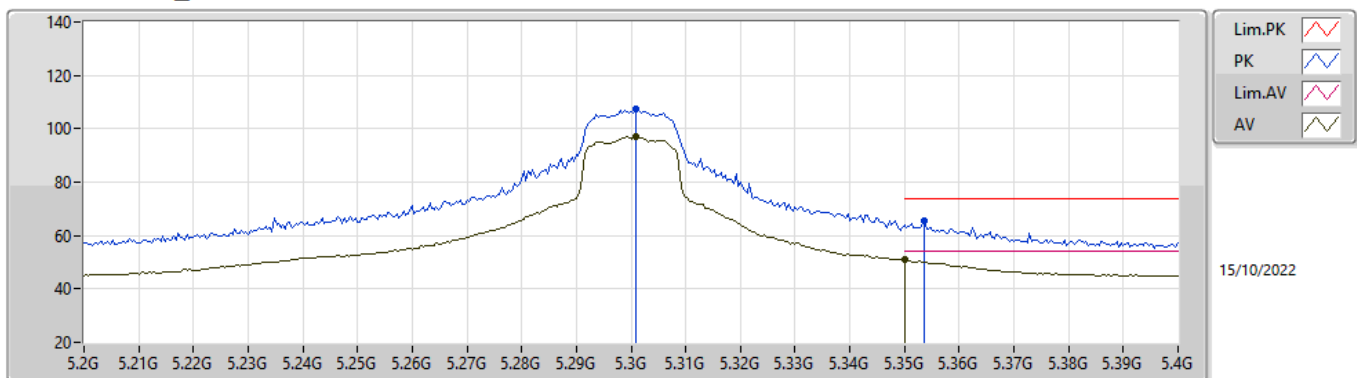
5300MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	5.3008G	99.04	Inf	-Inf	6.01	3	Vertical	90	2.14	-	93.03	33.00	7.26	34.25
AV	5.3504G	52.91	54.00	-1.09	5.89	3	Vertical	90	2.14	-	47.02	32.90	7.24	34.25
PK	5.3004G	109.33	Inf	-Inf	6.01	3	Vertical	90	2.14	-	103.32	33.00	7.26	34.25
PK	5.3516G	69.52	74.00	-4.48	5.89	3	Vertical	90	2.14	-	63.63	32.90	7.24	34.25

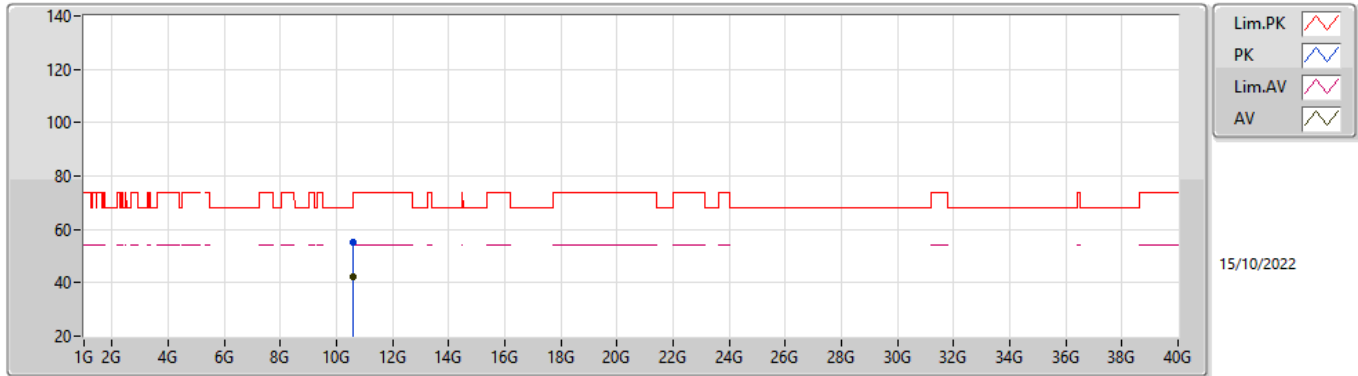
5.25-5.35GHz_802.11a_Nss1,(6Mbps)_1TX

5300MHz_TX



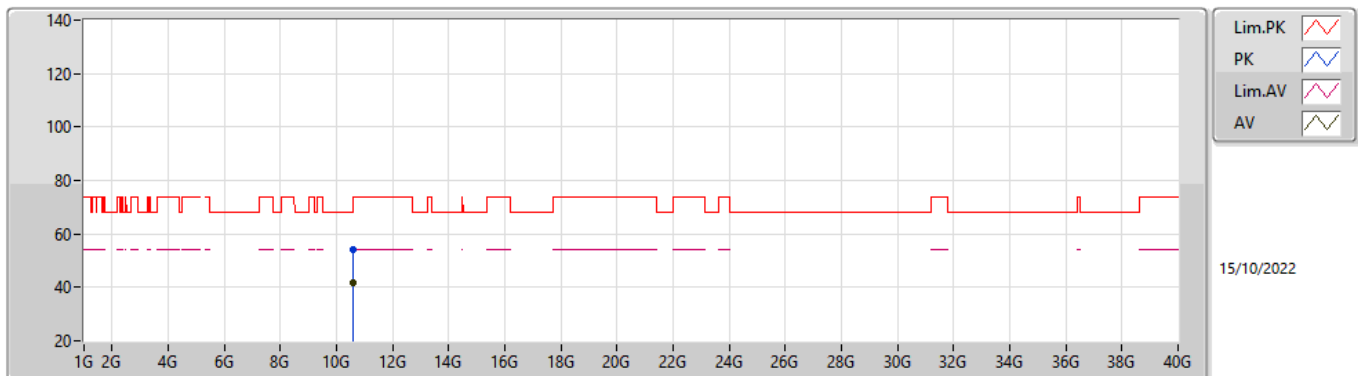
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	5.3008G	97.17	Inf	-Inf	6.01	3	Horizontal	172	1.05	-	91.16	33.00	7.26	34.25
AV	5.35G	50.97	54.00	-3.03	5.89	3	Horizontal	172	1.05	-	45.08	32.90	7.24	34.25
PK	5.3008G	107.26	Inf	-Inf	6.01	3	Horizontal	172	1.05	-	101.25	33.00	7.26	34.25
PK	5.3536G	65.34	74.00	-8.66	5.90	3	Horizontal	172	1.05	-	59.44	32.91	7.24	34.25

5.25-5.35GHz_802.11a_Nss1,(6Mbps)_1TX
5300MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	10.6003G	42.31	54.00	-11.69	14.67	3	Vertical	13	1.00	-	27.64	39.00	10.43	34.76
PK	10.60114G	55.12	74.00	-18.88	14.67	3	Vertical	13	1.00	-	40.45	39.00	10.43	34.76

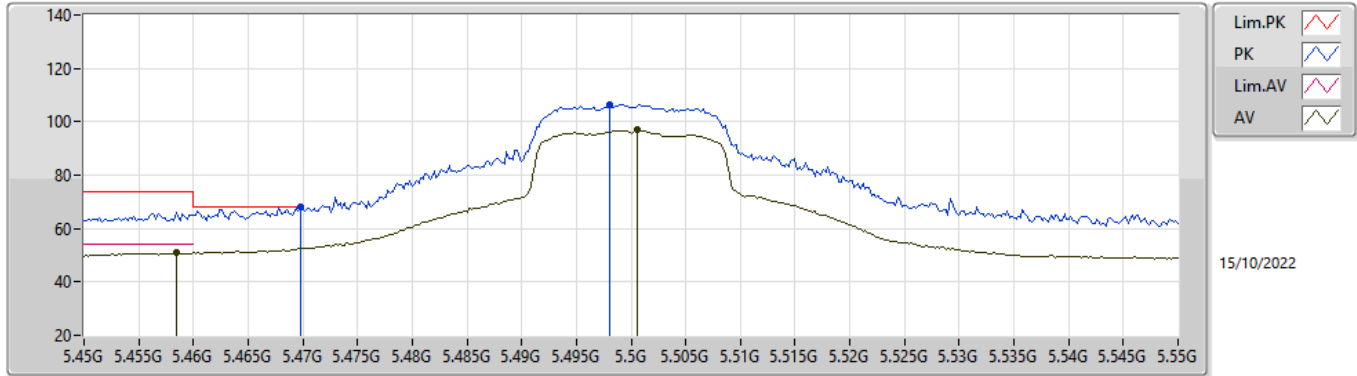
5.25-5.35GHz_802.11a_Nss1,(6Mbps)_1TX
5300MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	10.60036G	41.48	54.00	-12.52	14.67	3	Horizontal	337	1.72	-	26.81	39.00	10.43	34.76
PK	10.60594G	53.98	74.00	-20.02	14.69	3	Horizontal	337	1.72	-	39.29	39.02	10.43	34.76

5.47-5.725GHz_802.11a_Nss1,(6Mbps)_1TX

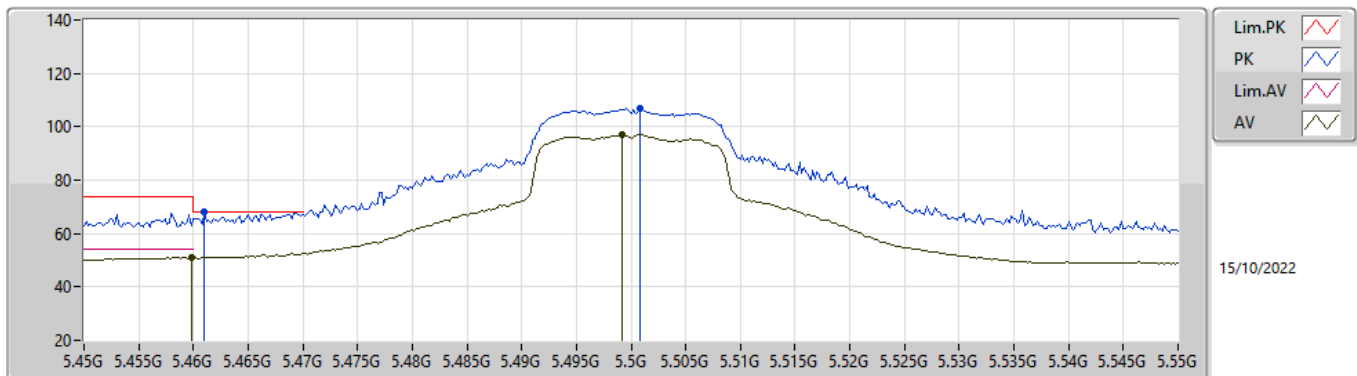
5500MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	5.4584G	50.87	54.00	-3.13	6.04	3	Vertical	109	2.15	-	44.83	33.00	7.28	34.24
AV	5.5006G	96.88	Inf	-Inf	6.08	3	Vertical	109	2.15	-	90.80	33.00	7.32	34.24
PK	5.4698G	67.97	68.20	-0.23	6.05	3	Vertical	109	2.15	-	61.92	33.00	7.29	34.24
PK	5.498G	106.45	Inf	-Inf	6.08	3	Vertical	109	2.15	-	100.37	33.00	7.32	34.24

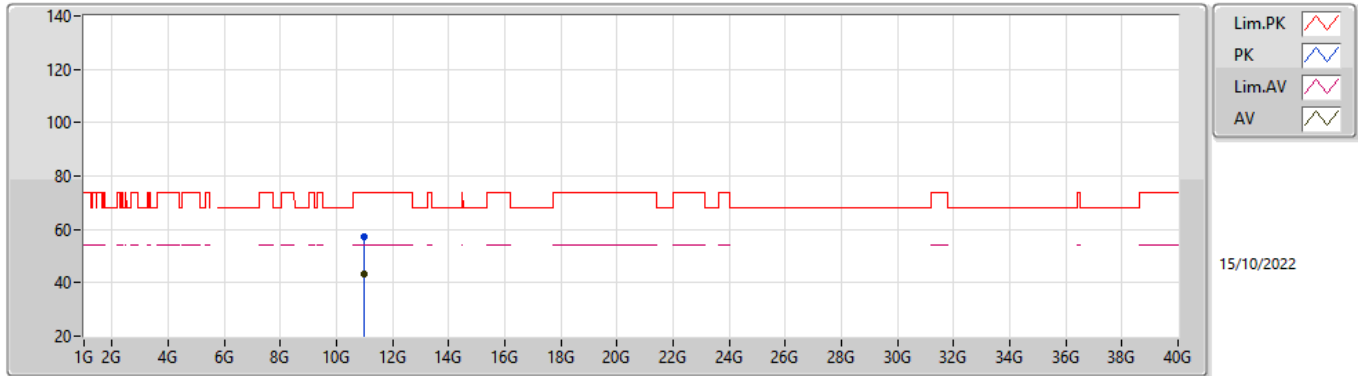
5.47-5.725GHz_802.11a_Nss1,(6Mbps)_1TX

5500MHz_TX



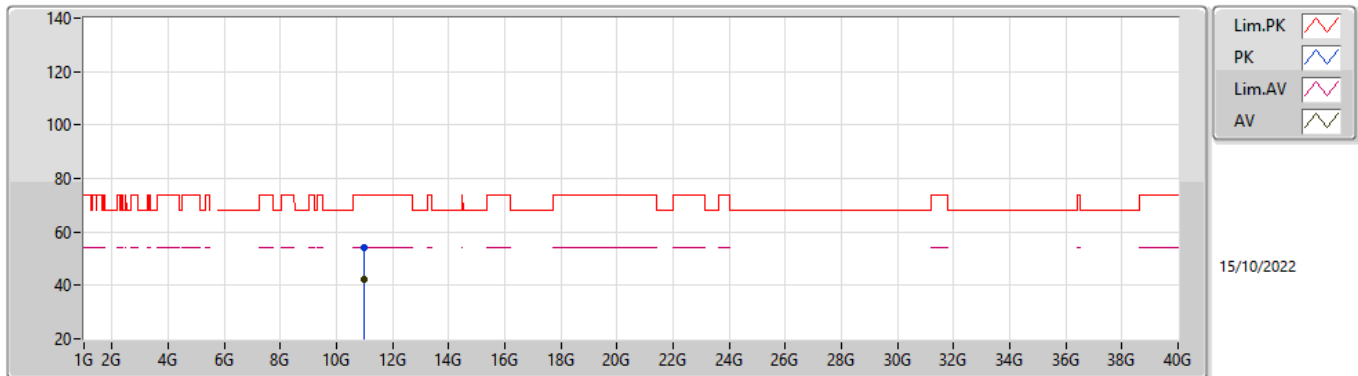
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	5.4598G	51.04	54.00	-2.96	6.04	3	Horizontal	92	2.28	-	45.00	33.00	7.28	34.24
AV	5.4992G	97.00	Inf	-Inf	6.08	3	Horizontal	92	2.28	-	90.92	33.00	7.32	34.24
PK	5.461G	67.88	68.20	-0.32	6.04	3	Horizontal	92	2.28	-	61.84	33.00	7.28	34.24
PK	5.5008G	107.03	Inf	-Inf	6.08	3	Horizontal	92	2.28	-	100.95	33.00	7.32	34.24

5.47-5.725GHz_802.11a_Nss1,(6Mbps)_1TX
5500MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	10.99904G	43.31	54.00	-10.69	15.09	3	Vertical	0	1.97	-	28.22	39.00	10.59	34.50
PK	11.00126G	57.19	74.00	-16.81	15.10	3	Vertical	0	1.97	-	42.09	39.00	10.60	34.50

5.47-5.725GHz_802.11a_Nss1,(6Mbps)_1TX
5500MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	10.99544G	42.21	54.00	-11.79	15.10	3	Horizontal	59	2.04	-	27.11	39.01	10.59	34.50
PK	11.00066G	54.17	74.00	-19.83	15.10	3	Horizontal	59	2.04	-	39.07	39.00	10.60	34.50