US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agil	lent 1	19:54:3	0 Oct	23, 201	.8					L	Marker
Ref 30 Peak	dBm		Atten	20 dB	Ext PG	-20 d	В	М		50 GHz 5 dBm	Select Marker
Log 10											<u>1</u> 2 3 4
dB/											Normal
											Dalka
DI -3.7 dBm	Mark		000								Delta
dBm		0000 35 dl		GHZ							Delta Pair (Tracking Ref)
M1 S2	and the second second	m	hor and	Munha	moun	kon an hala		men frank	man		Ref <u>Delta</u>
S3 FC AA											Span Pair Span <u>Center</u>
											Off
Start 1 #Res B		z		VI	BW 3 MI		Swee	p 240		25 GHz 1 pts)	More 1 of 2

Figure 19. 802.11n, Channel 11, 1 – 25 GHz

 US Tech Test Report:
 FCC Part 15/IC RSS Certification

 FCC ID:
 07P-4343

 IC:
 10147A-4343

 Test Report Number:
 22-0116

 Issue Date:
 April 4, 2022

 Customer:
 ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

2.10 Intentional Radiator, Radiated Emissions (CFR 15.209, 15.247(d), RSS-247, 5.5)

On the test site, the EUT was placed on top of a non-conductive table, 80 cm above the floor for measurements below 1 GHz and 150 cm above the floor for measurements > 1 GHz. The EUT was also evaluated in three orthogonal positions to determine the worst case position. The front of the EUT faced the measurement antenna located 3 meters away. Each signal measured was maximized by raising and lowering the receive antenna between 1 and 4 meters in height while monitoring the ever changing spectrum analyzer display (with channel A in the Clear-Write mode and channel B in the Max-Hold mode) for the largest signal visible. That exact antenna height where the signal was maximized was recorded for reproducibility purposes. Also, the EUT was rotated about its Y-axis while monitoring the Spectrum Analyzer display for maximum. The EUT azimuth was recorded for reproducibility purposes. The EUT was measured when both maxima were simultaneously satisfied.

For radiated measurements, the EUT was set into a continuous transmission mode. Below 1 GHz, the RBW of the measuring instrument was set equal to 120 kHz. Peak measurements above 1 GHz were measured using a RBW = 1 MHz, with a VBW \geq RBW. The results of peak radiated spurious emissions falling within restricted bands are given in Table 6below.

For Average measurements above 1 GHz, the emissions were measured using RBW = 1 MHz and VBW = 10 Hz or the duty cycle correction factor was applied to the Peak recorded value.

US Tech Test Report:

Table 5.b mode - Peak Radiated Fundamental & Harmonic Emissions (Chip Antenna)

/ intorina)										
Tested By:		t: FCC Part 5,247(d)		Client: Inventek Systems						
AF	Proj	ect: 18-0268	3 Mc	Model: ISM4343-X including ISM4343-WBM-L151 a ISM4343-WB-L151						
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector		
			Low	Channel - P	EAK					
2412.00	71.13	0.00	33.95	105.08		3.0m./HORZ		PK		
*4824.00	49.47	0.00	6.52	55.99	74.0	3.0m./HORZ	18.0	PK		
7236.00	40.65	0.00	15.10	55.75	74.0	3.0m./HORZ	18.3	PK		
			Mid	Channel - P	EAK					
2437.00	76.69	0.00	34.05	110.74		3.0m./HORZ		PK		
*4874.00	49.57	0.00	6.46	56.03	74.0	3.0m./HORZ	18.0	PK		
*7311.00	40.96	0.00	15.66	56.62	74.0	3.0m./HORZ	17.4	PK		
High Channel– PEAK										
2462.00	78.85	0.00	34.06	112.91		3.0m./HORZ		PK		
*4924.00	49.83	0.00	7.64	57.47	74.0	3.0m./HORZ	16.5	PK		
*7386.00	40.83	0.00	15.51	56.34	74.0	3.0m./HORZ	17.7	PK		

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

Sample Calculation at 2412.00 MHz:Magnitude of Measured Frequency71.13+Additional Factor0.00+Antenna Factor + Cable Loss+ Amplifier Gain33.95Corrected Result105.08

Test Date: September 18, 2018 Tested By Abyle Fight Signature:

Name: Afzal Fazal

Table 6.bmode - Average Radiated Fundamental & Harmonic Emissions (Chip Antenna)

Test: F	FCC Part 15,	247(d)	Client: Inventek Systems						
Pr	oject: 18-02	68	Model: ISM4343-X including ISM4343-WBM-L151 ar ISM4343-WB-L151						
Test Data (dBuV)	Additional Factor	AF+CL- PA (dB/m)	Corrected Results (dBuV/m)		Distance / Polarization	Margin (dB)	Detector		
		Low	Channel - A	Average					
63.21	0.00	33.95	97.16		3.0m./HORZ		AVG		
39.17	0.00	6.52	45.69	54.0	3.0m./HORZ	8.3	AVG		
30.49	0.00	15.10	45.59	54.0	3.0m./HORZ	8.4	AVG		
		Mid	Channel-A	verage					
68.32	0.00	34.05	102.37		3.0m./HORZ		AVG		
38.81	0.00	6.46	45.27	54.0	3.0m./HORZ	8.7	AVG		
30.22	0.00	15.66	45.88	54.0	3.0m./HORZ	8.1	AVG		
High Channel–Average									
69.52	0.00	34.06	103.58		3.0m./HORZ		AVG		
39.34	0.00	7.64	46.98	54.0	3.0m./HORZ	7.0	AVG		
30.34	0.00	15.51	45.85	54.0	3.0m./HORZ	8.1	AVG		
	Pr Test Data (dBuV) 63.21 39.17 30.49 68.32 38.81 30.22 69.52 39.34	Project: 18-02 Test Data (dBuV) Additional Factor 63.21 0.00 39.17 0.00 30.49 0.00 38.81 0.00 30.22 0.00 39.34 0.00	Data (dBuV) Factor (dB/m) Factor (dBuV) PA (dB/m) G3.21 0.00 33.95 39.17 0.00 6.52 30.49 0.00 15.10 68.32 0.00 34.05 38.81 0.00 6.46 30.22 0.00 15.66 High 9.34.06 34.06 39.34 0.00 7.64	Project: 18-0268 Model: IS Test (dBuV) Additional Factor AF+CL-PA (dB/m) Corrected Results (dBuV/m) 63.21 0.00 33.95 97.16 39.17 0.00 6.52 45.69 30.49 0.00 15.10 45.59 68.32 0.00 34.05 102.37 38.81 0.00 6.46 45.27 30.22 0.00 15.66 45.88 High Channel-A 69.52 0.00 34.06 103.58 39.34 0.00 7.64 46.98	Project: 18-0268 Model: ISW4343-X ir ISM Test Data (dBuV) Additional Factor AF+CL- PA (dB/m) Corrected Results (dBuV/m) Limits (dBuV/m) 63.21 0.00 33.95 97.16 39.17 0.00 6.52 45.69 54.0 30.49 0.00 15.10 45.59 54.0 68.32 0.00 34.05 102.37 38.81 0.00 6.46 45.27 54.0 30.22 0.00 15.66 45.88 54.0 30.22 0.00 34.06 103.58 39.34 0.00 7.64 46.98 54.0	Project: 18-0268 Model: ISM4343-X including ISM43 ISM4343-WB-L18 Test Data (dBuV) Additional Factor AF+CL- PA (dB/m) Corrected Results (dBuV/m) Limits (dBuV/m) Distance / Polarization 63.21 0.00 33.95 97.16 3.0m./HORZ 39.17 0.00 6.52 45.69 54.0 3.0m./HORZ 30.49 0.00 15.10 45.59 54.0 3.0m./HORZ Mid Channel-Average 68.32 0.00 34.05 102.37 3.0m./HORZ 30.22 0.00 15.66 45.88 54.0 3.0m./HORZ 30.22 0.00 34.06 103.58 3.0m./HORZ 39.34 0.00 7.64 46.98 54.0 3.0m./HORZ	Project: 18-0268 Model: ISM4343-X including ISM4343-WBM- ISM4343-WB-L151 Test Data (dBuV) Additional Factor AF+CL- PA (dB/m) Corrected Results (dBuV/m) Limits (dBuV/m) Distance / Polarization Margin (dB) 63.21 0.00 33.95 97.16 3.0m./HORZ 39.17 0.00 6.52 45.69 54.0 3.0m./HORZ 8.3 30.49 0.00 15.10 45.59 54.0 3.0m./HORZ 8.4 Mid Channel-Average Mid Channel-Average S.0m./HORZ 8.3 3.0m./HORZ 8.4 68.32 0.00 34.05 102.37 3.0m./HORZ 8.7 30.22 0.00 15.66 45.88 54.0 3.0m./HORZ 8.1 69.52 0.00 34.06 103.58 3.0m./HORZ 8.1 69.52 0.00 34.06 103.58 3.0m./HORZ 39.34 0.00 7.64 46.98 54.0 3.0m./HORZ 7.0		

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th

harmonic

US Tech Test Report:

Test Report Number:

FCC ID:

Issue Date:

Customer:

Model:

IC:

3. Duty cycle applied where applicable.

Sample Calculation at 2412.00MHz:		
Magnitude of Measured Frequency	63.21	dBuV
+Additional Factor (filter + duty cycle)	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain – Duty Cycle	33.95	dB/m
Corrected Result	97.16	dBuV/m

Test Date: September 18, 2018 Tested By Signature: Abul Jacut

Name: Afzal Fazal

Note: The transmitter was programmed to transmit at >98% during all testing.

Table 7. g mode - Peak Radiated Fundamental & Harmonic Emissions (Chip Antenna)

/											
Tested By:	Test: FCC Part 15,247(d)				Client: Inventek Systems						
AF	Project: 18-0268				Model: ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151						
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+C (dB		Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector		
				Low	Channel - P	EAK					
2412.00	70.80	0.00	33.	95	104.75		3.0m./HORZ		PK		
*4824.00	49.41	0.00	6.5	52	55.93	74.0	3.0m./HORZ	18.1	PK		
7236.00	41.35	0.00	15.	10	56.45	74.0	3.0m./HORZ	17.6	PK		
				Mid	Channel – P	EAK					
2437.00	75.85	0.00	34.	05	109.90		3.0m./HORZ		PK		
*4874.00	49.78	0.00	6.4	16	56.24	74.0	3.0m./HORZ	17.8	PK		
*7311.00	41.17	0.00	15.	66	56.83	74.0	3.0m./HORZ	17.2	PK		
	High Channel– PEAK										
2462.00	78.94	0.00	34.	06	113.00		3.0m./HORZ		PK		
*4924.00	49.20	0.00	7.6	64	56.84	74.0	3.0m./HORZ	17.8	PK		
*7386.00	40.46	0.00	15.	51	55.97	74.0	3.0m./HORZ	18.0	PK		

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	70.80	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	33.95	dB/m
Corrected Result	104.75	dBuV/m

Test Date: September 18, 2018 Tested By Signature: Algal Jugal

Name: Afzal Fazal

Table 8. g mode - Average Radiated Fundamental & Harmonic Emissions (Chip Antenna)

/										
Tested By:	Test	: FCC Part 1	5,247(d)		Client: Inventek Systems					
AF		Project: 18-0)268	Model: IS	Model: ISM4343-X including ISM4343-WBM-L15 and ISM4343-WB-L151					
Frequency	Test		AF+CL-PA		Limits			Detector		
(MHz)	Data (dBuV)	Factor	(dB/m)	Results (dBuV/m)	(aBuv/m)	Polarization	(dB)			
			Low (Channel–Av	erage					
2412.00	57.16	0.00	33.95	91.11		3.0m./HORZ		AVG		
*4824.00	39.90	0.00	6.52	46.42	54.0	3.0m./HORZ	7.6	AVG		
7236.00	30.41	0.00	15.10	45.51	54.0	3.0m./HORZ	8.5	AVG		
			Mid C	hannel –Av	erage					
2437.00	61.96	0.00	34.05	96.01		3.0m./HORZ		AVG		
*4874.00	38.88	0.00	6.46	45.34	54.0	3.0m./HORZ	8.7	AVG		
*7311.00	30.42	0.00	15.66	46.08	54.0	3.0m./HORZ	7.9	AVG		
	High Channel–Average									
2462.00	64.92	0.00	34.06	98.98		3.0m./HORZ		AVG		
*4924.00	39.54	0.00	7.64	47.18	54.0	3.0m./HORZ	6.8	AVG		
*7386.00	30.18	0.00	15.51	45.69	54.0	3.0m./HORZ	8.3	AVG		
1 (*) Follo within the restricted hands of CED 15 205 Limits based on CED 15 200 CED 15 25										

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. Duty cycle applied where applicable.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	57.16	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	33.95	dB/m
Corrected Result	91.11	dBuV/m

Test Date: September 18, 2018 Tested By Signature: Abul Junal

Name: Afzal Fazal

Note: The transmitter was programmed to transmit at >98% during all testing.

Table 9. n mode – Peak Radiated Fundamental & Harmonic Emissions (Chip Antenna)

Tested By:	Tes	t: FCC Part 1	5,247(d)		Client: Inventek Systems				
AF		Project: 18-0	268	Model: IS		ncluding ISM M4343-WB-L		3M-L151	
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization		Detector	
			Low (Channel - Pl	EAK				
2412.00	70.12	0.00	33.95	104.07		3.0m./HORZ		PK	
*4824.00	49.58	0.00	6.52	56.10	74.0	3.0m./HORZ	17.9	PK	
7236.00	41.13	0.00	15.10	56.23	74.0	3.0m./HORZ	17.8	PK	
			Mid C	hannel – Pl	EAK				
2437.00	75.38	0.00	34.05	109.43		3.0m./HORZ		PK	
*4874.00	49.73	0.00	6.46	56.19	74.0	3.0m./HORZ	17.8	PK	
*7311.00	40.97	0.00	15.66	56.63	74.0	3.0m./HORZ	17.4	PK	
	High Channel– PEAK								
2462.00	78.81	0.00	34.06	112.87		3.0m./HORZ		PK	
*4924.00	49.53	0.00	7.64	57.17	74.0	3.0m./HORZ	16.8	PK	
*7386.00	41.16	0.00	15.51	56.67	74.0	3.0m./HORZ	17.3	PK	

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	70.12	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	33.95	dB/m
Corrected Result	104.07	dBuV/m

Test Date: September 18, 2018 Tested By Signature: Abyl Fight

US Tech Test Report:

Test Report Number:

FCC ID:

Issue Date:

Customer:

Model:

IC:

Name: Afzal Fazal

Table 10. n mode – Average Radiated Fundamental & Harmonic Emissions (Chip Antenna)

Temp / memory									
Tested By:	Test	: FCC Part 1	l5,247(d)		Client: Inventek Systems				
AF		Project: 18-0	0268	Model: IS	Model: ISM4343-X including ISM4343-WBM-L and ISM4343-WB-L151				
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization		Detector	
			Low C	Channel - Av	erage				
2412.00	56.37	0.00	33.95	90.32		3.0m./HORZ		AVG	
*4824.00	39.72	0.00	6.52	46.24	54.0	3.0m./HORZ	7.8	AVG	
7236.00	31.34	0.00	15.10	46.44	54.0	3.0m./HORZ	7.6	AVG	
			Mid C	hannel –Av	erage				
2437.00	61.25	0.00	34.05	95.30		3.0m./HORZ		AVG	
*4874.00	39.64	0.00	6.46	46.10	54.0	3.0m./HORZ	7.9	AVG	
*7311.00	31.14	0.00	15.66	46.80	54.0	3.0m./HORZ	7.2	AVG	
	High Channel–Average								
2462.00	64.73	0.00	34.06	98.79		3.0m./HORZ		AVG	
*4924.00	39.83	0.00	7.64	47.47	54.0	3.0m./HORZ	6.5	AVG	
*7386.00	31.18	0.00	15.51	46.69	54.0	3.0m./HORZ	7.3	AVG	
				4 E O O E I ' ''					

(*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. Duty cycle applied where applicable.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	56.37	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	33.95	dB/m
Corrected Result	90.32	dBuV/m

Test Date: September 18, 2018 Tested By Signature: Uppl Jugel

Name: Afzal Fazal

Note: The transmitter was programmed to transmit at >98% during all testing.

2.11 Band Edge Measurements (CFR 15.247(d), RSS-247, 5.5)

Band Edge measurements are made following the guidelines in ANSI C63.10-2013 with the EUT initially operating on the Lowest Channel and then operating on the Highest Channel within its band of operation. Antenna port radiated measurements are performed to demonstrate compliance with the requirement of 15.247(d) that all emissions outside of the band edges be attenuated by at least 20 dB when compared to its highest in-band value (contained in a 100 kHz band). Because these frequencies occur above 1000 MHz they have both a peak and average requirement.

To capture the band edge set the Spectrum Analyzer frequency span large enough (usually around 10 MHz) to capture the peak level of the emission operating on the channel closest to the band edge as well as any modulation products falling outside of the authorized band of operation. Conducted measurements are performed with RBW \geq 1% of the frequency span. In all cases, the VBW is set \geq RBW. See figures and calculations below for more detail.

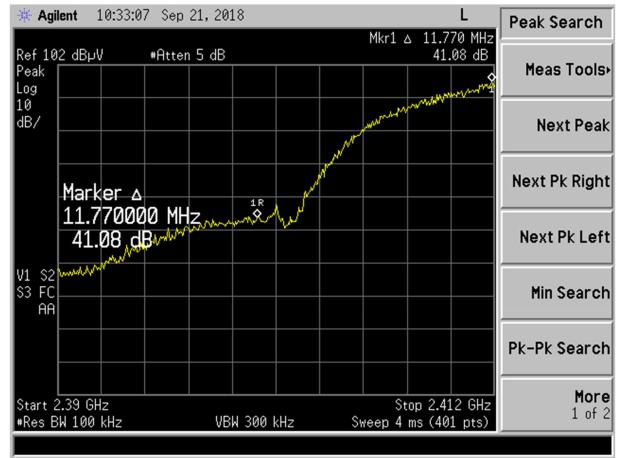


Figure 20. Band Edge Compliance – b mode (Chip Antenna) Low Channel Delta - Peak

Measured Result	41.08	dB
Band Edge Limit	20.00	dB
Band Edge Margin	21.08	dB

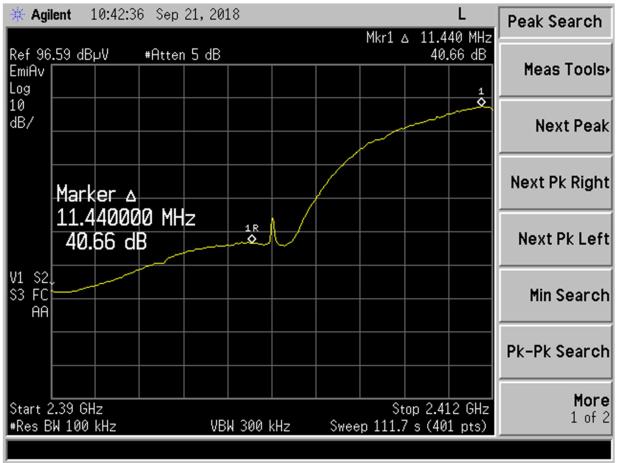


Figure 21. Band Edge Compliance – b mode (Chip Antenna) Low Channel Delta – Average

Measured Result	40.66	dB
Band Edge Limit	20.00	dB
Band Edge Margin	20.66	dB

🔆 Agi	lent (10:46:4	4 Sep	21,20	18					L	Peak Search
D. C 10								Mkr1		54 GHz	
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Log 10											
dB/											Next Peak
											Next Pk Right
	Mark										Heat FK Right
		5400		GHz							
	42.	08 d	Bh∧							1	Next Pk Left
V1 S2	m	mm	man	m	mahm	unun	annon	~~~~~~~	Som Norman	N. M. Walanda	
S3 FC AA											Min Search
											Pk-Pk Search
Start 2	L 2.31 GH	l Iz						S	Stop 2.3	39 GHz	More
	W 100			VB	W 300	kHz	Sweep	8.288			1 of 2

Figure 22. b mode (Chip Antenna) Low Channel Restricted Band - Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2385.40	42.08	-1.66	40.42	74.0	3.0m./HORZ	33.6	РК

US Tech Test Report: FCC ID:	FCC Part 15/IC RSS Certification 07P-4343
IC:	10147A-4343
Test Report Number:	22-0116
Issue Date:	April 4, 2022
Customer:	Inventek Systems
Model:	ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

🔆 Agi	lent 1	10:55:5	5 Sep	21, 20	18					L	Peak Search
Ref 40	aa da	οU	# <u>0</u> ++_	n 5 dB				Mkr1		58 GHz dBµV	
EmiAv Log									27.45	1	Meas Tools
10 dB/											Next Peak
	Mark		000								Next Pk Right
		5800 43 d	0000 BµV	GHZ							Next Pk Left
V1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B				VB	W 300 I	kHz	Swee	S p 406.2		39 GHz 1 pts)	More 1 of 2

Figure 23. b mode (Chip Antenna) Low Channel Restricted Band– Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2385.80	27.43	-1.66	25.77	54.0	3.0m./HORZ	28.2	AVG

 US Tech Test Report:
 FCC Part 15/IC RSS Certification

 FCC ID:
 07P-4343

 IC:
 10147A-4343

 Test Report Number:
 22-0116

 Issue Date:
 April 4, 2022

 Customer:
 Inventek Systems

 Model:
 ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

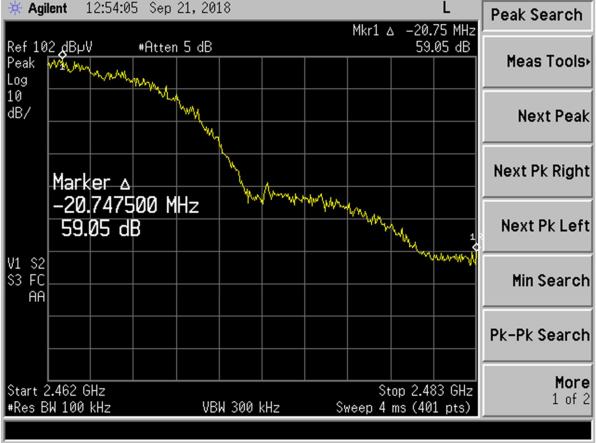


Figure 24. Band Edge Compliance – b mode (Chip Antenna) High Channel Delta - Peak

Measured Result	59.05	dB
Band Edge Limit	20.00	dB
Band Edge Margin	39.05	dB

Test Report:	FCC Part 15/IC RSS Certification
	O7P-4343
	10147A-4343
ort Number:	22-0116
e:	April 4, 2022
1	Inventek Systems
	ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech T FCC ID: IC: Test Repor Issue Date Customer: Model:

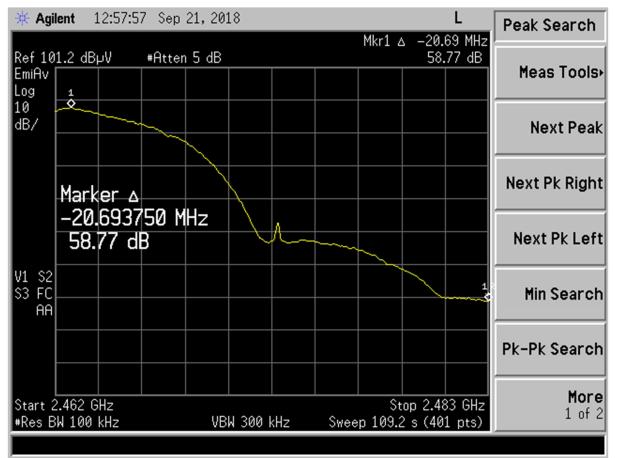


Figure 25. Band Edge Compliance – b mode (Chip Antenna) High Channel Delta - Average

Measured Result	58.77	dB
Band Edge Limit	20.00	dB
Band Edge Margin	38.77	dB

🔆 Agi	lent (13:00:2	1 Sep	21,20	18					L	Peak Search
D. (10	a ab. i	1						Mkr1		04 GHz	
Ref 10 Peak	יב מסעי 	, 	#Htter	n 5 dB					42.30	dBµV	Meas Tools+
Log 10											
dB/											Next Peak
											Next Pk Right
	Mark										
			250	ЬHZ							Next Pk Left
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											Pk-Pk Search
	2.483 G			<u> </u>		<u> </u>				.5 GHz	More 1 of 2
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Figure 26.b mode (Chip Antenna) High Channel Restricted Band –Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2484.04	42.58	-0.51	42.07	74.0	3.0m./HORZ	31.9	PK

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10 dB/	.×										Next Peak
	Mark										Next Pk Right
		4036 82 d	5250 BµV	ЬHZ							Next Pk Left
V1 S2 S3 FC AA											Min Search
											Pk-Pk Search
	2.483 G W 100			VB	W 300	kHz	Swee	p 83.78		.5 GHz 1 pts)	More 1 of 2

Figure 27.b mode (Chip Antenna) High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2484.03	29.82	-0.51	29.31	54.0	3.0m./HORZ	24.7	AVG

port: FCC Part 15/IC RSS Certification 07P-4343 10147A-4343 per: 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

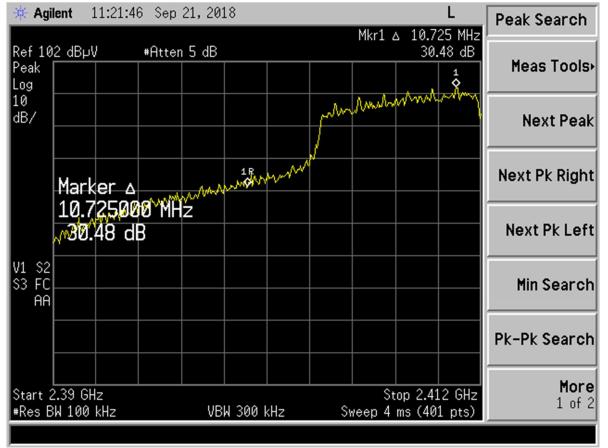


Figure 28. Band Edge Compliance – g mode (Chip Antenna) Low Channel Delta – Peak

Measured Result	30.48	dB
Band Edge Limit	20.00	dB
Band Edge Margin	10.48	dB

FCC Part 15/IC RSS Certification O7P-4343 10147A-4343 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

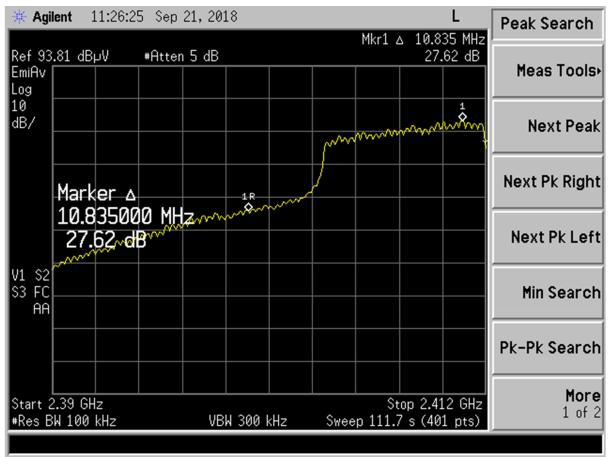


Figure 29. Band Edge Compliance – g mode (Chip Antenna) Low Channel Delta –Average

Measured Result	27.62	dB
Band Edge Limit	20.00	dB
Band Edge Margin	7.62	dB

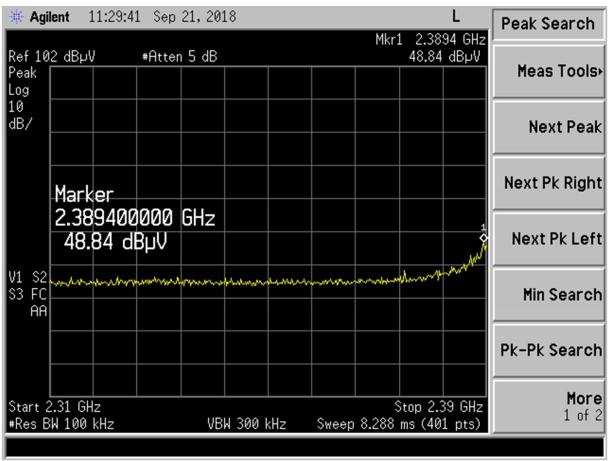


Figure 30. g mode (Chip Antenna) Low Channel Restricted Band – Peak

Frequency	Test Data (dBuV)	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(uouv)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.40	48.84	-1.66	47.18	74.0	3.0m./HORZ	26.8	PK

Report:	FCC Part 15/IC RSS Certification
	O7P-4343
	10147A-4343
lumber:	22-0116
	April 4, 2022
	Inventek Systems
	ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

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Figure 31. g mode (Chip Antenna) Low Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2390.60	32.58	-1.66	30.92	54.0	3.0m./HORZ	23.1	AVG

rt: FCC Part 15/IC RSS Certification 07P-4343 10147A-4343 r: 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

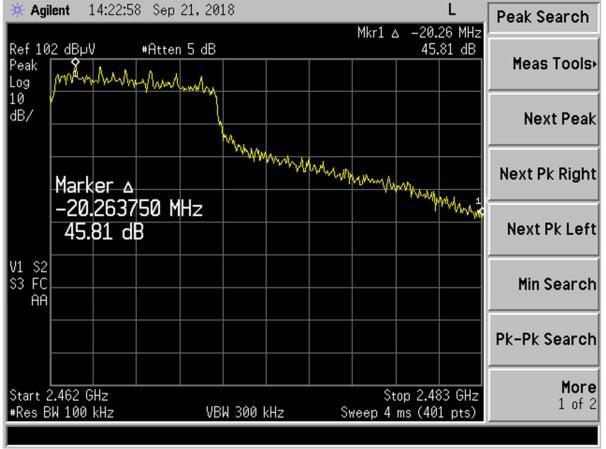


Figure 32. Band Edge Compliance – g mode (Chip Antenna) High Channel Delta – Peak

Measured Result	45.81	dB
Band Edge Limit	20.00	dB
Band Edge Margin	25.81	dB

FCC Part 15/IC RSS Certification O7P-4343 10147A-4343 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

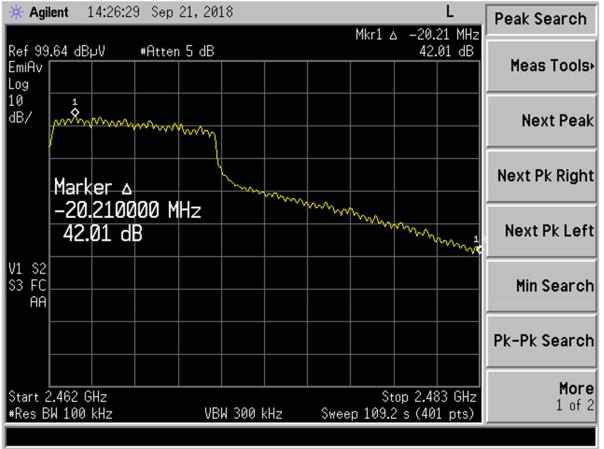


Figure 33. Band Edge Compliance – g mode (Chip Antenna) High Channel Delta – Average

Measured Result	42.01	dB
Band Edge Limit	20.00	dB
Band Edge Margin	22.01	dB

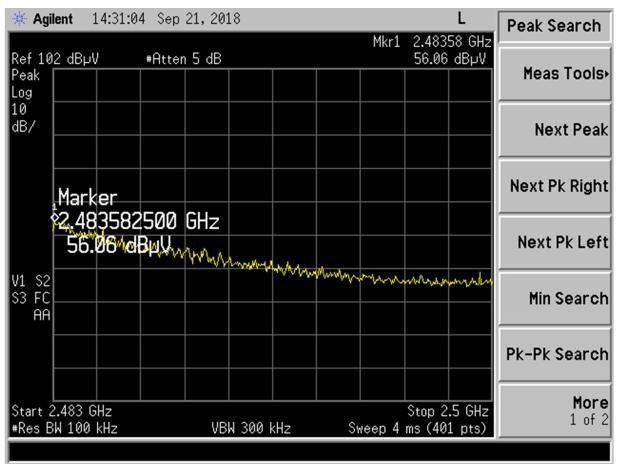


Figure 34. g mode (Chip Antenna) High Channel Restricted Band – Peak

Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP+DC (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector PK/QP/AVG
	(ubuv)	(ub/iii)	(ubu v/iii)		FUIdHZatiUH	(ub)	FINGFIANO
2483.58	56.06	-0.51	55.55	74.0	3.0m./HORZ	18.5	PK

FCC Part 15/IC RSS Certification O7P-4343 10147A-4343 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

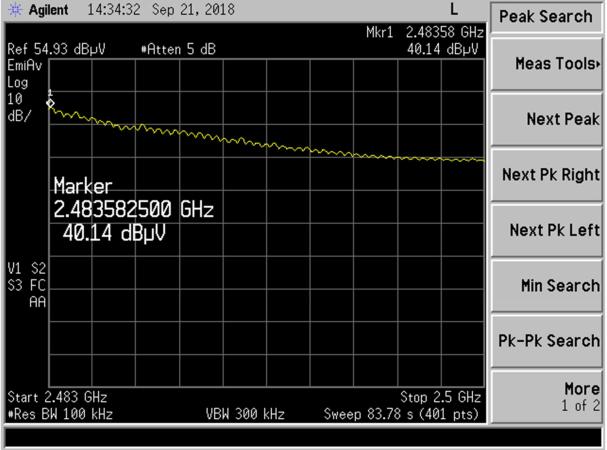


Figure 35. g mode (Chip Antenna) High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.58	40.14	-0.51	39.63	54.0	3.0m./HORZ	14.4	AVG

ort: FCC Part 15/IC RSS Certification 07P-4343 10147A-4343 er: 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

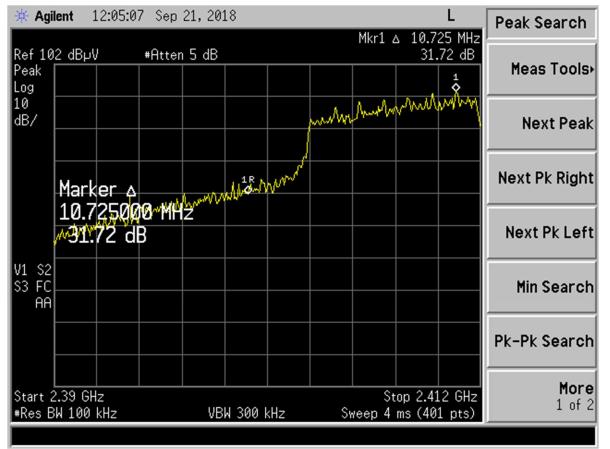


Figure 36. Band Edge Compliance – n mode (Chip Antenna) Low Channel Delta – Peak

Measured Result	31.72	dB
Band Edge Limit	20.00	dB
Band Edge Margin	11.72	dB

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

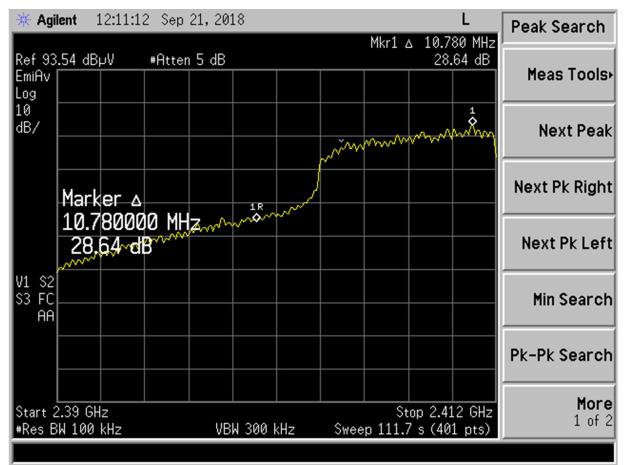


Figure 37. Band Edge Compliance – n mode (Chip Antenna) Low Channel Delta –Average

Measured Result	28.64	dB
Band Edge Limit	20.00	dB
Band Edge Margin	8.64	dB

🔆 Agi	lent 1	12:13:5	5 Sep	21,20	18					L	Peak Search
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	2.31 GH 3W 100			VB	W 300 I	kHz	Sweep	S1 8.288 n	top 2.3 ns (401		More 1 of 2

Figure 38. n mode (Chip Antenna) Low Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.80	50.69	-1.66	49.03	74.0	3.0m./HORZ	25.0	PK

Log 10 dB/ dB/ Marker 2.389600000 GHz 34.22 dBµV V1 \$2 \$3 FC AA Start 2 31 GHz Start 2 31 GHz Marker AA Marker AA Marker AA Marker AA Marker AA Marker AA More Start 2 31 GHz More	🔆 Agile	ent 1	2:40:5	i9 Sep	21,20	18					L	Peak Search
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dB/ Marker Next Peak Marker Next Pk Right 2.389600000 GHz Next Pk Left 34.22 dBµV Next Pk Left W1 \$2 Next Pk Left S3 FC Min Search AA Next Pk Left Start 2.31 GHz Stop 2.39 GHz	EmiAv Log	.40 UD								54.22		Meas Tools•
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S3 FC AA Start 2.31 GHz Start 2.31 GHz Start 2.31 GHz Start 2.31 GHz Start 2.31 GHz Start 2.31 GHz Start 2.31 GHz					002							Next Pk Left
Start 2.31 GHz Stop 2.39 GHz	\$3 FC											Min Search
Start 2.31 GHZ Stop 2.39 GHZ 1 of 2	-											Pk-Pk Search
*Kes DM 100 KHZ VDW 500 KHZ Smeep 400.2 S (401 pts)					VB	W 300	kHz	Swee				More 1 of 2

Figure 39. n mode (Chip Antenna) Low Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.60	34.22	-1.66	32.56	54.0	3.0m./HORZ	21.4	AVG

eport: FCC Part 15/IC RSS Certification O7P-4343 10147A-4343 nber: 22-0116 April 4, 2022 Inventek Systems ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

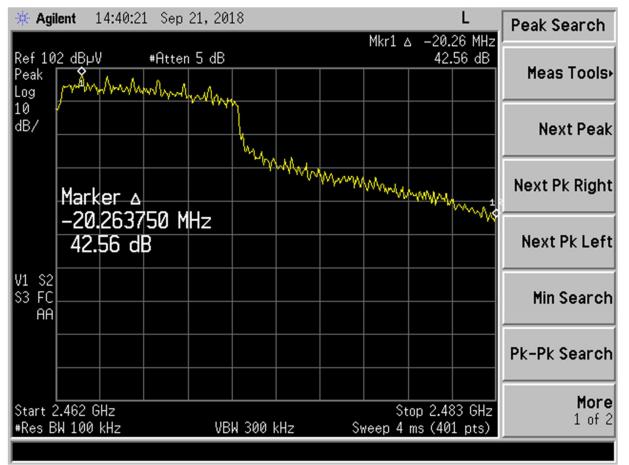


Figure 40. Band Edge Compliance – n mode (Chip Antenna) High Channel Delta – Peak

Measured Result	42.56	dB
Band Edge Limit	20.00	dB
Band Edge Margin	22.56	dB

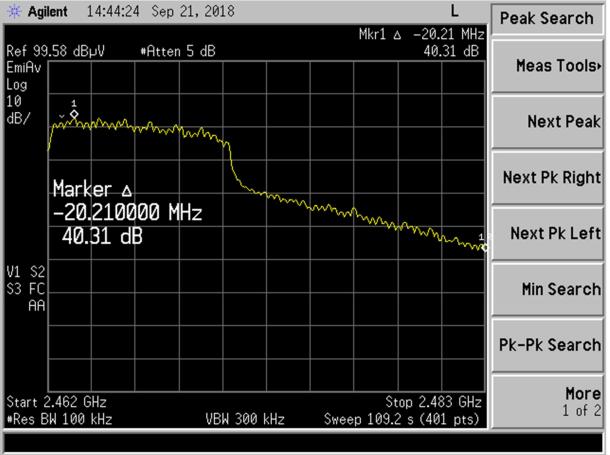


Figure 41. Band Edge Compliance – n mode (Chip Antenna) High Channel Delta - Average

Measured Result	40.31	dB
Band Edge Limit	20.00	dB
Band Edge Margin	20.31	dB

🔆 Agil	lent 1	L4:47:0	6 Sep	21,203	18					L	Peak Search
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Figure 42. n mode (Chip Antenna) High Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.87	59.14	-0.51	58.63	74.0	3.0m./HORZ	15.4	PK

Mkr1 2.48362 GHz 41.18 dBµV #Atten 5 dB 41.18 dBµV Log 1 1 1 10 1 1 1 1 dB/ Marker 1 1 1 1 VI \$2 2.483623750 GHz 1 1 1 1 VI \$2 3 FC 1	★ Agilent 14:50:18 Sep 21, 2018	Peak Search
EmiRv Log 10 dB/ Meas Tools+ Marker 2.483623750 GHz Next Peak Marker 2.483623750 GHz Next Pk Right V1 S2 S3 FC AA Next Pk Left Start 2.483 GHz More		
dB/ Marker Next Peak Marker Next Pk Right 2.483623750 GHz 41.18 dBµV V1 \$2 Next Pk Left S3 FC Min Search AA Next Pk Left Min Search More Start 2.483 GHz Stop 2.5 GHz	EmiAv Log	Meas Tools•
Marker Next Pk Left 2.483623750 GHz 41.18 dBµV V1 \$2 S2 \$3 FC Min Search AA Pk-Pk Search Start 2.483 GHz Stop 2.5 GHz		Next Peak
41.18 dBµV Next Pk Left V1 \$2 \$3 FC AA Min Search Start 2.483 GHz Stop 2.5 GHz		Next Pk Right
S3 FC AA Start 2.483 GHz Start 2.483 GHz		Next Pk Left
Start 2.483 GHz Stop 2.5 GHz More	\$3 FC	Min Search
Start 2.463 GHZ Stop 2.5 GHZ 1 of 2		Pk-Pk Search

Figure 43. n mode (Chip Antenna) High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.62	41.18	-0.51	40.67	54.0	3.0m./HORZ	13.3	AVG

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	O7P-4343
IC:	10147A-4343
Test Report Number:	22-0116
Issue Date:	April 4, 2022
Customer:	Inventek Systems
Model:	ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

2.12 Intentional Radiator, Radiated Emissions (CFR 15.209, RSS-Gen, 8.9)

The test data provided herein is to support the verification requirement for radiated emissions coming for the EUT in a <u>transmitting</u> state per 15.209 and were investigated from 9kHz or the lowest operating clock frequency to 25 GHz and tested as detailed in ANSI C63.10:2013, Clause 6.4-6.6. Data is presented in Table 12.

Radiated emissions within the band of 9 kHz to 30 MHz were investigated using a calibrated Loop Antenna and per the requirements of ANSI C63.10:2013.

Measurements were made with the analyzer's resolution bandwidth set to 120 kHz for measurements made below 1 GHz and 1 MHz for measurements made above 1 GHz. The video bandwidth was set to three times the resolution bandwidth; 1 MHz RBW and 3 MHz VBW. The test data were maximized for magnitude by rotating the turn-table through 360 degrees and raising and lowering the receiving antenna between 1 to 4 meters in height as a part of the measurement procedure.

The worst case configuration was determined to be the radio module set up with the Dual band antenna. The test data is presented below.

The worst-case radiated emission was 9.0 dB below the specification limit at 31.31 MHz. All other measured signals were at least 10.0 dB below the specification limit. The results are shown in the table below. These results are meant to show that this EUT has met the intentional transmitter requirements of CFR Part 15.209.

Table 11. Spurious Radiated Emissions (150 KHz-30MHz)

Test Dur	Test	t: FCC Part 15	5.209	Client: Inventek Systems			
Test By: AF	Proje	ct: 18-0268 C	lass B	Model: ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151			
Frequency (MHz)	Test Data (dBuV)	AF+CL-PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	DETECTOR PK / QP/AVG
All emissions were at least 20 dB below the applicable limit.							

No other emissions detected other than those presented in this table and the tables in section 2.10 above.

AF is antenna factor. CL is cable loss. PA is preamplifier gain.

SAMPLE CALCULATION: N/A

Name: Afzal Fazal

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	O7P-4343
IC:	10147A-4343
Test Report Number:	22-0116
Issue Date:	April 4, 2022
Customer:	Inventek Systems
Model:	ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151

- (-	Test: FCC Part 15.109/15.209 Project: 18-0268 Class B			Client: Inventek Systems					
Test By: AF				Model: IS	Model: ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151				
Frequency (MHz)	Test Data (dBuV)	Additional Factors	AF+CL- PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization		DETECTOR PK / QP/AVG	
	Tested from 30 MHz to 1 GHz, Quasi Peak Limits								
31.31	44.29	-	-13.25	31.04	40.0	3m./VERT	9.0	QP	
58.28	40.96	-	-17.65	23.31	40.0	3m./VERT	16.7	QP	
118.24	45.60	-	-15.14	30.46	43.5	3m./VERT	13.0	QP	
134.76	43.92	-	-14.33	29.59	43.5	3m./VERT	13.9	QP	
188.52	37.19	-	-11.35	25.84	43.5	3m./VERT	17.7	QP	
58.57	37.96	-	-16.65	21.31	40.0	3m./HORZ	18.7	QP	
192.20	45.62	-	-12.15	33.47	43.5	3m./HORZ	10.0	PK	
213.33	41.35	-	-14.02	27.33	43.5	3m./HORZ	16.2	QP	
216.63	47.31	-	-13.97	33.34	46.0	3m./HORZ	12.7	QP	
251.90	44.82	-	-12.79	32.03	46.0	3m./HORZ	14.0	QP	
981.00	41.32	-	-1.59	39.73	54.0	3m./HORZ	14.3	PK	
219.00	43.49	-	-14.37	29.12	46.0	3m./VERT	16.9	QP	
263.00	40.74	-	-12.32	28.42	46.0	3m./VERT	17.6	QP	
979.40	41.15	-	-2.19	38.96	54.0	3m./VERT	15.0	PK	
All other emissions were greater than 20 dB from the applicable limit.									

Table 12. Spurious Radiated Emissions (30 MHz – 1 GHz)

AF is antenna factor. CL is cable loss. PA is preamplifier gain.

SAMPLE CALCULATION AT: 31.31 MHz

Magnitude of Measured Frequency	44.29	dBuV
Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	-13.25	dB
Corrected Result	31.04	dBuV/m

Name: <u>Afzal Fazal</u>

Table 13. Spurious Radiated Emissions (1 GHz – 25 GHz)

	Test: FC	C Part 15.1	09/15.209	Client: Inventek Systems					
Test By: AF	Project: 18-0268 Class B			Model: IS	Model: ISM4343-X including ISM4343-WBM-L151 and ISM4343-WB-L151				
Frequency (MHz)	Test Data (dBuV)	Factors PA (dBuV/m) (dBuV/m) Polarization (dB) PI					DETECTOR PK / QP/AVG		
	Tested from 30 MHz to 1 GHz, Quasi Peak Limits								
2975.00	39.77	-	3.81	43.58	54.0	3.0m./VERT	10.4	AVG	
3030.00	39.57	-	4.14	43.71	54.0	3.0m./VERT	10.3	AVG	
2975.00	39.91	-	3.69	43.60	54.0	3.0m./HORZ	10.4	AVG	
3053.00	39.75	-	3.93	43.68	54.0	3.0m./HORZ	10.3	AVG	
8820.00	31.32	-	16.09	47.41	54.0	3.0m./HORZ	6.6	AVG	
10290.00	29.10	-	18.91	48.01	54.0	3.0m./VERT	6.0	AVG	
All other emissions were more than 20 dB below the applicable limit.									

AF is antenna factor. CL is cable loss. PA is preamplifier gain.

SAMPLE CALCULATION AT: 2975.00 MHz

Magnitude of Measured Frequency	39.77	dBuV
Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	3.81	dB
Corrected Result	43.58	dBuV/m

Name: <u>Afzal Fazal</u>

2.13 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4-2:2011. A coverage factor of k=2 was used to give a level of confidence of approximately 95%.

2.13.1 Conducted Emissions Measurement Uncertainty

Measurement Uncertainty (within a 95% confidence level) for this test is ± 2.78 dB.

2.13.2 Radiated Emissions Measurement Uncertainty

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.3 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ±5.1 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is ± 5.1 dB.

3 Conclusions

The EUT is deemed to have met the requirements of the standards cited within the test report when tested as detailed in the present test report.