

Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.4 Emission outside the fundamental test results at mid carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK



Spectru	m Sp	ectrum 3 🛛	Spectrum 4	X		
Ret Leve	er 20.00 dBn 10.dF	n Offset 21.00 dB N SWT 500 ms	RBW 100 KHZ BW 2 MHZ	Mode Swee		
GATEXT		5 6 6 6 1 1 500 ma	- TON 2 MILE	mode swee	,	
18m Clrw						
	1			M1[1]		1.54 dBm
						3.6247010 GHz
10 dBm				M2[1]		-34.89 dBm
			M1			3.6200000 GHz
0 dBm	-		_		~ <u>h</u>	
-10 dBm—	-					
-20 dBm—						
-30 dBm-		M3			13	
-40 dBm-		~~				man and a second s
m	promotion					mound
-50 dBm—	-					
-60 dBm-						
-70 dBm-						
CE 3.625	GHz		401 nts			Snan 20.0 MHz
Markor						
Type R	ef Trc	X-value	Y-value	Function	Fund	tion Result
M1	1	3.624701 GHz	1.54 dBm	ranocion		cion no suit
M2	1	3.62 GHz	-34.89 dBm			
M3	1	3.63 GHz	-34.29 dBm			









Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.5 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK





Spectr	um	s	pectrum 3	×	Spectrum 4	×		
Ref Le Att GAT:EX	vel : t tdf	20.00 de 10 (m Offset dB e SWT	21.00 de 500 m	8 e RBW 100 kH 5 e VBW 2 MH	lz Iz Mode Sw	eep	×
🖯 1Rm Cli	w							
						M1[1]		1.39 dBm
10 dBm-	-				_	MOLT		3.0922370 GHz
				MI	L I	mat 1		3.6900000 GHz
0 dBm—	-		- r				h	
-10 dBm	+							
-20 anu-								
20 dBm								
-30 ubiii			MØ				M3	
-40 dBm								
		mo	man				×	mann
-50 dBm	mer							- mannan mannan
-60 dBm	-		-					
-70 dBm	+		-					
CF 3.69	5 GH	z			401 p	ts		Span 20.0 MHz
Marker								
Туре	Ref	Trc	X-value		Y-value	Function	Fu	nction Result
M1		1	3.6922	57 GHz	1.39 dBm	-		
M2		1	3.1	59 GHz	-35.30 dBm			
M3		1	3	.7 GHZ	-35.63 dBm			







Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.6 Emission outside the fundamental test results at high carrier frequency







Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.7 Emission outside the fundamental test results at low carrier frequency







Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.8 Emission outside the fundamental test results at low carrier frequency



20 MHz 2 Modulation: 256QAM

-50 dBm

-60 dBm -70 dBm

CF 3.56 GHz

 Marker

 Type
 Ref
 Trc

 M1
 1

 M2
 1

 M3
 1

X-value 3.5613 GHz 3.55 GHz 3.57 GHz



40:

-33.98 dBm -32.62 dBm

Z 3.64 dBm

Span 40.0 MHz

Function Result



Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.9 Emission outside the fundamental test results at mid carrier frequency







Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.10 Emission outside the fundamental test results at mid carrier frequency







Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.11 Emission outside the fundamental test results at high carrier frequency







Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	veraici.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.12 Emission outside the fundamental test results at high carrier frequency







Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.13 Emission outside the fundamental test results at low carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK



Spect	Spectrum 3 🗵 Spectrum 4 🗶											
Ref Le Att GAT:E>	RefLevel 20.00 dBm Offset 21.00 dB ● RBW 500 kHz Att 15 dB ● SWT 500 ms ● VBW 2 MHz Mode Sweep GATEXT TOF											
●1Rm C	lrw											
10 dBm	-					M1	M	1[1] 2[1]		l	:	7.57 dBm 3.571000 GHz -26.86 dBm 3.550000 GHz
0 dBm-	-										-	
-10 dBn	n+		+			_				-		_
-20 dBn	n-+-		ME									_
-30 dBn	n —		1							M3		
-40 dBn		_	-							5		
-50 d8n	1											
-60 dBn	n											
-70 dBn	-											_
CF 3.5	CF 3.57 GHz 401 pts Span 80.0 MHz											
Marker												
Туре	Ref	Trc	X-value	11.011-	Y-valu	e dour	Fund	tion		Fun	ction Res	ult
M2		1	3.5	55 GHz	-26.86	dBm						
M3		1	3.	59 GHz	-28.90	dBm						

40 MHz



GAT:E)	KI IDI	ł								
●1Rm 0	Slrw									
10 dBm	-				M1	M1[1] 1]		3.5	7.72 dBn 568800 GH: -26.80 dBn
0 dBm-	_							+	3.	50000 GH2
-10 dBr	n-+-									
-20 dBr	n+		ME					M3		
-30 dBr	n-+-		<u> </u>							
-40 dBr	n-+-									
-50 d8r	-									
-60 dBr	n+		_							
-70 dBr	n+									
CF 3.5	7 GHz				401 pt	s			Spar	80.0 MHz
Marker										
Туре	Ref	Trc	X-value		Y-value	Functio	on	Fun	ction Resul	t
M1		1	3.56	38 GHz	7.72 dBm					
M2		1	3.5	55 GHz	-26.80 dBm					
M3		1	3.	59 GHz	-26.18 dBm					



Test specification:	Section 96.41(e), Emission	n mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.14 Emission outside the fundamental test results at low carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK



Spect	rum	Ĩ	Spectrum 3	×	Spectrum 4	×					
Ref Le Att GAT:E>	Vel 2	0.00 d 15 F	IBm Offset dB 🖷 SWT	21.00 dB 500 ms	 RBW 500 kH; VBW 2 MH; 	Mode	Sweep				
⊖1Rm C	lrw										
10 dBm				M1		M1	[1] [1] _			3	7.30 dBm .558430 GHz -25.99 dBm
										3	.550000 GHz
0 dBm-											
-10 dBn	∩+									-	-
-20 dBn	-		M2					N	3		
-30 dBn	n+								<u> </u>		
-40 dBn	a										
-60 dBn											
00 000	"										
-70 dBn	n										
CF 3.5	7 GHz	:		1	401 p	ts				Spa	n 80.0 MHz
Marker											
Туре	Ref	Trc	X-valu	e	Y-value	Functi	on		Fun	ction Resu	lt
M1		1	3.558	43 GHz	7.30 dBm						
M2		1	3	55 GHz	-25.99 dBm						
M3		1	3	59 GHz	-27.17 dBm						

40 MHz 2 Modulation: 256QAM



Spect	rum	S	pectrum 3	X Spe	ctrum 4	×				
Ref Le Att GAT:E)	evel 2 KT TDI	0.00 dBm 15 dB	Offset 21.	00 dB 😐 RE 00 ms 🖶 VE	3W 500 kHz 3W 2 MHz	Mode	Sweep			
⊖1Rm 0	Sirw									
10 dBm	_		, I	11		M	1[1] 2[1]		3.5	7.28 dBm 556030 GHz -26 70 dBm
							et al		3.5	550000 GHz
0 dBm-	-								1	1
-10 dBr	n+									
-20 dBr	n+		MP					M3		
-30 dBr	n+		1							
-40 dBr	n -							_		
50 dBr	n+							_		
-60 dBr	n+							_		
-70 dBr	n+							_		
CF 3.5	7 GHz	:			401 pt	ts			Spar	1 80.0 MHz
Marker										
Туре	Ref	Trc	X-value	1	'-value	Func	tion	Fur	nction Resul	t
M1		1	3.55603	GHz	7.28 dBm					
M2		1	3.55	GHz	-26.70 dBm	-				
M3		1	3.59	GHz	-26.38 dBm					



Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.15 Emission outside the fundamental test results at mid carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK



Spect	Spectrum Spectrum 3 🗶 Spectrum 4 🗶									
Ref Le	vel 2	0.00 de	offset 21.0	00 dB 👄 RBW	500 kHz					
Att GAT(E)	/T TD	15	ab 🖷 SW I – SU	iu ms 👄 VBW	2 MH2	Mode Swe	sep			
1Rm (linw									
						M1[1]				7.67 dBm
10 10				M1					3.6	13430 GHz
10 dBm				×	-	M2[1]		`		24.93 dBm
0 dBm-								1	3.6	05000 GHz
-10 dBr										
-10 00/	" I									
-20 dBr	n —							-		
								Мз		
-30 dBr	n —							*		
								~		
-40 dBr	n-†-									
-50 dBr	n—									
-60 dBr	n+		-							
-70 dBr	n									
CF 3.6	25 GH	z			401 pts				Span	80.0 MHz
Marker										
Туре	Ref	Trc	X-value	Y-V4	alue	Function		Fund	tion Result	
M1		1	3.61343	GHz 7	.67 dBm					
M2		1	3.605	GHz -24	.93 dBm					
L 1913		1	3.045	anz -29	.55 ubm					

40 MHz



Spectr	Spectrum Spectrum 3 🗶 Spectrum 4 🗶								
Ref Lev Att GAT:EX	RefLevel 20:00 d8m Offset 21:00 d8 ● RBW 500 kHz Att 15 d8 ● SWT 500 ms ● VBW 2 MHz Mode Sweep GATEXT DF								
⊖1Rm Cl	rw								
10 dBm-					M1	M	1[1] 2[1]		7.77 dBm 3.622610 GHz -25.31 dBm 3.605000 GHz
0 dBm—									
-10 dBm	+								
-20 dBm	+		MP					M3	
-30 dBm	+								
-40 dBm	+								
-50 dBm	+								
-60 dBm	+								
-70 dBm	+				-				
05.0.60	E CU				401	nte			Calan 00 0 Milla
Markor	or aloga Harker								
Type	Ref	Tre	X-value	. 1	Y-value	Euno	tion	Eun	ction Result
M1		1	3.622	51 GHz	7.77 dB	m			
M2 M3		1	3.6 3.6	95 GHz 45 GHz	-25.31 dB -27.38 dB	m m			



Test specification:	Section 96.41(e), Emission	Section 96.41(e), Emission mask							
Test procedure:	Section 96.41(e)(3)								
Test mode:	Compliance	Vardiate	DASS						
Date(s):	15-Feb-22	verdict.	FA33						
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC						
Remarks:									

Plot 7.4.16 Emission outside the fundamental test results at mid carrier frequency



Spectrum	Ĩ	Spectrum 3 🛛 🗴	Spectrum 4	X		
Ref Level Att GAT:EXT_TD	20.00 d 15)F	Bm Offset 21.00 d dB e SWT 500 m	B B RBW 500 kHz s B VBW 2 MHz	Mode Sweep	1	
●1Rm Clrw						
10 dBm			1	M1[1]		7.64 dBm 3.613430 GHz -25.35 dBm 3.605000 GHz
0 dBm						
-10 dBm						
-20 dBm		MP			Mo	
-30 dBm						
-40 d8m						
-50 dBm						
-60 dBm			_			
-70 dBm						
CF 3.625 G	Hz		401 pts	5		Span 80.0 MHz
Marker						
Type Ref	Trc	X-value	Y-value	Function	Functi	on Result
M1	1	3.61343 GHz	7.64 dBm			
M2	1	3.605 GHz	-25.35 dBm			
M3	1	3.645 GHz	-29.58 dBm			





Spect	rum		Spectrum 3	×	Spectrum 4	X		
Ref Le Att GAT:E>	vel 2	0.00 d 15 F	Bm Offset : dB 👄 SWT	21.00 dB 500 ms	 RBW 500 ki VBW 2 Mi 	Hz Hz Mode Swee	p	、 、
⊖1Rm C	lrw				_	M1[1]		7.63 dBm
10 dBm	-				M1	M2[1]		3.622610 GHz -25.81 dBm 2.605000 CHz
0 dBm-								3.003000 GH2
-10 dBn	n+							
-20 dBn	n+		M2		_		M3	
-30 dBn	n+							
-40 dBn								
-50 dBn	n							
-60 dBn	n+							
-70 dBn	n							
CF 3.6	25 G⊦	łz			401	pts		Span 80.0 MHz
Marker	Dof	Two	V ushu	. 1	V uslue	Function	1 F un	otion Docult
M1	Ret	1	3 622	51 GHZ	7.63 dB	m	Fun	COON RESUL
M2		1	3.6	05 GHz	-25.81 dB	m		
M3		1	3.6	45 GHz	-27.46 dB	m		



Test specification:	Section 96.41(e), Emission	mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	DASS
Date(s):	15-Feb-22	verdict.	FA33
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC
Remarks:			

Plot 7.4.17 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK

Spect	rum		Spectrum 3 🛛 🚿	Spectrum 4	X			
Ref Le	vel 2	20.00 dB	m Offset 21.00 dB	RBW 1 MHz				
Att		15 0	dB 😑 SWT 🛛 500 ms	VBW 10 MHz	Mode Sweep			
GAT:E	KT TD	F						
O IKW C	Jrw							
					ma[1]			-40.17 UBR
10 dBm	-				MILLI		0.7	-51 94 dBn
o do m							3.5	300000 GH
u asm-						1	1	
-10 dBr	n							
-20 dBr	n —							
					4			
-30 dBr	n+				NO 1	M	•	
-40 dBr					M2		115	
-40 001	" I.		and the second sec				T _{M6}	
-50 dBr	0	11	and the second designed and the second designed and the second designed and the second designed and the second					
								1
-60 dBr	n-+-						-	-
-								
-/U dBr	°							
CF 3.6	3 GHz	z		4001 pt	s		Span	260.0 MHz
Marker								
Туре	Ref	Trc	X-value	Y-value	Function	FL	inction Resu	lt
M1		1	3.53 GHz	-51.84 dBm				
M2		1	3.65 GHz	-39.72 dBm				
M3		1	3.659 GHz	-33.40 dBm				
M5		1	3.701 GHz	-30.41 dBm				
M6		1	3.72 GHz	-50.31 dBm				
IVIO		1 1	5.72 GH2	30.31 UDIII		1		

Spectr	um		Spectrum 3	×	Spectrum 4	×				
Ref Lev	/el 21	0.00 d	Bm Offset 2	1.00 dB	🖷 RBW 500 k	Hz				
Att		15	dB 👄 SWT	500 ms	VBW 2 M	Hz Mode	Sweep			
GAT:EX										
UTKIII CI						M	1[1]			6.08 dBm
10 dBm-	+			•11		M	2[1]		3.6	64640 GHz 28.13 dBm
0 dBm—	-								3.6	60000 GHz
-10 dBm	+									
-20 dBm	+				_					
-30 dBm	+		M¥					M3		
-40 dBm	+		-							
-50 dBm	_		_					_	~	<u> </u>
-60 dBm	+				_			_		
-70 dBm	+							_		
CF 3.68	GHz				401	pts			Span	80.0 MHz
Marker										
Туре	Ref	Trc	X-value		Y-value	Func	tion	Fun	ction Result	
M1		1	3.6646	i4 GHz	6.08 dB	m				
M2 M3	-	1	3.6	7 GHZ	-28.13 dB	m				
		*		and a	4.0.01 00					

40 MHz







Test specification:	Section 96.41(e), Emission mask				
Test procedure:	Section 96.41(e)(3)				
Test mode:	Compliance	Vardiate	DASS		
Date(s):	15-Feb-22	verdict.	FA33		
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VAC		
Remarks:					

Plot 7.4.18 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING: ANTENNA CHAIN: Modulation: QPSK



40 MHz	
2	
Madulation	SECO



Spect	Spectrum Spectrum 3 (X) Spectrum 4 (X)											
Ref Le Att	evel 2	0.00 dBr 15 d	n Offset 2 B 🖶 SWT	1.00 dB 500 ms	 RBW 500 k VBW 2 M 	Hz Hz	Mode	Sweep)			
GAT:E	KT TD	F										
●1Rm 0	Sirw					-						
							M.	un				6.80 dBm
10 dBm	-+					41	M	111			0.	-27.45 dBm
						ř		1.11			3.	560000 GHz
0 dBm-	-											1
-10 dBr	n —								-			
-20 dBr	n+									1		
			MP							3		
-30 dBr	n-+-								-	1		
										\mathcal{L}		
-40.dBr	n		~									
												\sim
-50 dBr	n — —											
(0.40-												
-ou dBr	n											
70 40-	_											
-70 GBL												
CF 3.6	8 GHz	:			401	pts					Spa	1 80.0 MHz
Marker												
Туре	Ref	Trc	X-value		Y-value		Funct	ion		Fund	ction Resu	t
M1		1	3.68	06 GHz	6.80 dE	ŝm						
M2		1	3.	56 GHz	-27.45 dE	sm						
<u>[МЗ</u>		1	3	./ GHZ	-29.00 dE	sm						

Spectru	m	Spectrum 3 🛛 🗵	Spectrum 4	×		
Ref Leve	1 20.00 dE	m Offset 21.00 dB	RBW 500 kHz			
Att	15	dB 👄 SWT 👘 500 ms	VBW 2 MHz	Mode Sweep		
GAT:EXT	TDF					
1Rm Clrv	/					
				M1[1]		6.87 dB
4.0.40			M1			3.678800 GF
TO GBM-			X	M2[1]		-27.99 dB
						3.660000 GI
J dBm						
40 JB						
-10 asm-						
00.40						
-20 dBm-						
00 d0		MF.			M3	
-30 asm—						
10.40						
-40 dBm-						
-50 dBm—						
co dour						
-ou asm-						
-/U dBm—						
						1
CF 3.68 (ĞĤz		401 pts			Span 80.0 MH
Marker						
Type R	ef Trc	X-value	Y-value	Function	Function	on Result
M1	1	3.6788 GHz	6.87 dBm			
M2	1	3.66 GHz	-27.99 dBm			
M3	1	3.7 GHz	-28.07 dBm			



Test specification:	Section 96.41(e)(2), Radiated spurious emissions				
Test procedure:	Section 96.41(e)(3)				
Test mode:	Compliance	Vardiate	DASS		
Date(s):	17-Feb-22	verdict:	PASS		
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC		
Remarks:					

7.5 Radiated spurious emission measurements

7.5.1 General

This test was performed to measure radiated spurious emissions from the EUT. Specification test limits are given in Table 7.5.1.

Table 7.5.1	Radiated	spurious	emission	test limits
	naulucu	Spurious	01111331011	COL IIIIIIO

Frequency, MHz	EIRP of spurious, dBm	Equivalent field strength limit @ 3m, dB(µV/m)***
0.09 - below 3530.0	-40.0	55.2
3720.0 – 10th harmonic*	-40.0	55.2

*** - Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30xPx1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters

7.5.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

- 7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and the performance check was conducted.
- **7.5.2.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360⁰ and the measuring antenna was rotated around its vertical axis.
- 7.5.2.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

7.5.3 Test procedure for spurious emission field strength measurements above 30 MHz

- **7.5.3.1** The EUT was set up as shown in Figure 7.5.2, energized and the performance check was conducted.
- **7.5.3.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360^o and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal, polarizations.
- 7.5.3.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.



Test specification:	Section 96.41(e)(2), Radiated spurious emissions					
Test procedure:	Section 96.41(e)(3)					
Test mode:	Compliance	Vordiot				
Date(s):	17-Feb-22	verdict.	FA33			
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC			
Remarks:						

Figure 7.5.1 Setup for spurious emission field strength measurements in 9 kHz to 30 MHz band









Test specification:	Section 96.41(e)(2), Radiat	Section 96.41(e)(2), Radiated spurious emissions				
Test procedure:	Section 96.41(e)(3)					
Test mode:	Compliance	Vordiot	DASS			
Date(s):	17-Feb-22	verdict:	PASS			
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC			
Remarks:						

Table 7.5.2 Spurious emission field strength test results

ASSIGNED FREQUENCY RANGE: 3550 - 3700 MHz TEST DISTANCE: 3 m TEST SITE: Semi anechoic chamber INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz DETECTOR USED: Peak VIDEO BANDWIDTH: > Resolution bandwidth TEST ANTENNA TYPE: Active loop (9 kHz - 30 MHz) Biconilog (30 MHz - 1000 MHz) MODULATION: 256 QAM OCCUPIED BANDWIDTH 40 MHz (Output power and PSD Worst case) TRANSMITTER OUTPUT POWER SETTINGS: Maximum Field strength, RBW, Antenna Antenna Turn-table Frequency, Limit, Margin, Verdict MHz dB(µV/m) dB(µV/m) dB* kHz polarization height, cm position**, degrees Low carrier frequency 3570 MHz 55.20 100 Pass 3.117856 V 46.29 -8.91 23.21 -62.0 Pass 3.363887 47.29 55.20 100 V 130.0 22.21 -7.91 55.20 100 Pass 98.229881 30.12 V 100.0 -180.0 -25.08 Mid carrier frequency 3625 MHz 100 55.20 Pass 1.037773 45.29 -9.91 V 22.01 1.0 100 Pass 55.20 961.924098 28.12 -27.08 V 269.0 -123.0 High carrier frequency 3680 MHz 1.447332 44.13 55.20 -11.07 100 V 20.29 130.0 Pass Pass 55.20 100 966.595390 28.19 -27.01 V 169.0 -69.0

*- Margin = Field strength of spurious – calculated field strength limit.

**- EUT front panel refers to 0 degrees position of turntable.

180.0

-180.0

Н

V

100.0

100.0



Test specification:	Section 96 (11(a)(2) Padia	tod sourious omissions	
Test specification.	Section 30.41(e)(z), Raula	leu spullous enlissions	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Vardiate	
Date(s):	17-Feb-22	verdict:	PA33
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC
Remarks:			

Table 7.5.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED TEST DISTA TEST SITE: INVESTIGA DETECTOR VIDEO BAN TEST ANTE MODULATIO OCCUPIED	FREQUENCY NCE: IED FREQUE USED: DWIDTH: NNA TYPE: DN: BANDWIDTH		GE:		3550 - 3 3 m Semi an 0.009 - 3 PEAK / / > Resolu Double r 256 QAM 40 MHz	700 MHz echoic ch 37000 MH AVERAGI ution banc ridged gui M (Output p	amber Hz E Iwidth de (above 100 ower and PSE	0 MHz)) Worst ca	se)	
TRANSMITT	ER OUTPUT	POWER S	ETTINGS	3:	Maximur	m				
Froquoney		Peak			Average			Antonna	Turn-table	
MHz	Measured emission, dB(μV/m)	Limit, dB(µV/m)	Margin, dB*	Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*	Antenna polarization	height, m	position**, degrees	Verdict
Mid carrier fr	equency 3625	MHz								

40.30

40.67

-23.39

-22.89

75.20 *- Margin = Field strength of spurious - calculated field strength limit.

75.20

**- EUT front panel refers to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 3903	HL 4360	HL 4933	HL 4956	HL 5112	HL 5288	HL 5405	
	•	•	•	•		•	

55.20

55.20

-14.90

-14.53

Full description is given in Appendix A.

51.81

52.31

14628.83

17997.80



Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vordiot	DAGG	
Date(s):	17-Feb-22	verdict:	PA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				





Plot 7.5.2 Radiated emission measurements in 9 kHz - 30 MHz range





Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vordiot	DAGG	
Date(s):	17-Feb-22	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				







Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DAGG	
Date(s):	17-Feb-22	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				





Plot 7.5.5 Radiated emission measurements in 30 - 1000 MHz range





Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DAGG	
Date(s):	17-Feb-22	verdict:	PA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				









Note: 3569.3 MHz is low fundamental frequency



Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DASS	
Date(s):	17-Feb-22	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				





Note: 3607.2 MHz is mid fundamental frequency



Plot 7.5.9 Radiated emission measurements in 1000 - 18000 MHz range

Note: 3676.9 MHz is high fundamental frequency



Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DASS	
Date(s):	17-Feb-22	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				

Plot 7.5.10 Radiated emission measurements in 18000 –37000 MHz range





TEST SITE: CARRIER FREQUENCY: ANTENNA POLARIZATION: TEST DISTANCE: Semi anechoic chamber Mid Vertical and Horizontal 3 m





Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vordict	DAGG	
Date(s):	17-Feb-22	verdict.	PA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				

Plot 7.5.12 Radiated emission measurements in 18000 –37000 MHz range

TEST SITE: CARRIER FREQUENCY: ANTENNA POLARIZATION: TEST DISTANCE: Semi anechoic chamber High Vertical and Horizontal 3 m





Test specification:	Section 96.41(e)(3), Conducted spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DASS	
Date(s):	09-Feb-22	veraici.	FA35	
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				

7.6 Spurious emissions at RF antenna connector test

7.6.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.6.1.

Table 7.6.1 Spurious emission limits

Frequency, MHz	Conducted power of spurious, dBm/MHz
0.009– below 3530.0	-40.0
3720.0 – 10th harmonic*	-40.0

7.6.2 Test procedure

- 7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.
- 7.6.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
- 7.6.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.6.2 and associated plots.

Figure 7.6.1 Spurious emission test setup





Test specification:	Section 96.41(e)(3), Conducted spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Vardiate	DAGG	
Date(s):	09-Feb-22	verdict.	FA33	
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VAC	
Remarks:				

Table 7.6.2 Spurious emission test results

ASSIGNED INVESTIGA DETECTOR VIDEO BAN MODULATI(TRANSMIT NUMBER A	FREQUEN TED FREG USED: DWIDTH: ON: TER OUTF NTENNA F	NCY RANG QUENCY F PUT POWE PORTS:	E: ANGE: R SETTINGS	3550 - 37 0.009 – 3 Peak ≥ Resolut QPSK :: Maximum N = 2	00 MHz 7000 MHz ion bandwidth	1			
Frequency		Peak po	wer (VBW=3 M	Hz)		Average po	ower (RMS)		
GHz	' Measurec dBm	l, Total, dBm**	Limit, dBm	Margin, dB*	Measured, dBm	Total, dBm**	Limit, dBm	Margin, dB*	Verdict
Channel ba	andwidth 1	0 MHz	-		-	-	-		
Low carrie	r frequency	y 3555 MHz							
36.718	-46.47	-43.47	-40.00	-3.47	-46.47	-43.47	-40.00	-3.47	Pass
Mid carrier frequency 3625 MHz									
36.835	-47.41	-44.41	-40.00	-4.41	-47.41	-44.41	-40.00	-4.41	Pass
High carrie	er frequenc	y 3695 MHz							
36.706	-47.01	-44.01	-40.00	-4.01	-47.01	-44.01	-40.00	-4.01	Pass
Channel ba	andwidth 2	0 MHz							
Low carrie	r frequency	y 3560 MHz							
36.899	-47.11	-44.11	-40.00	-4.11	-47.11	-44.11	-40.00	-4.11	Pass
Mid carrier	r frequency	3625 MHz					1		
36.426	-47.16	-44.16	-40.00	-4.16	-47.16	-44.16	-40.00	-4.16	Pass
High carrie	er frequenc	y 3690 MHz							
36.720	-46.87	-43.87	-40.00	-3.87	-46.87	-43.87	-40.00	-3.87	Pass
Channel ba	andwidth 4	0 MHz							
Low carrie	r frequency	y 3570 MHz						.	
36.654	-46.33	-43.66	-40.00	-3.66	-46.33	-43.66	-40.00	-3.66	Pass
Mid carrier	r frequency	3625 MHz	10.00				10.00		
36.656	-47.28	-44.28	-40.00	-4.28	-47.28	-44.28	-40.00	-4.28	Pass
High carrie	er trequenc	y 3680 MHz	40.00	4.00	47.00	11.00	10.00		Deer
36.517	-47.09	-44.09	-40.00	-4.09	-47.09	-44.09	-40.00	-4.09	Pass

*- Margin = Total spurious emission - specification limit.

** - Total emission = Maximum SA reading per chain (Chains #1&2) + 10*log(N)

Reference numbers of test equipment used

HL 1294	HL 1295	HL 3287	HL 3301	HL 3355	HL 4355	HL 4366	HL 5232
HL 5233	HL 5286	HL 6143					

Full description is given in Appendix A.



Test specification:	Section 96.41(e)(3), Condu	Section 96.41(e)(3), Conducted spurious emissions						
Test procedure:	Section 96.41(e)(3)							
Test mode:	Compliance	Vardiate	DASS					
Date(s):	09-Feb-22	verdict.	FA33					
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VAC					
Remarks:								

Plot 7.6.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency





Plot 7.6.2 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency

QPSK

MODULATION: CHANNEL SPACING:

	- AIN. #1						
RefLevel -30.00 dBm Att 0 dB TDF	Offset 21.00 dB SWT 14.1 ms	RBW 1 kH VBW 30 kH	z z Mode s	Sweep			(Δ)
91Pk View							
			м	1[1]		1	62.22 dBm 5 0030 kHz
-40 dBm D1 -43.000 dB	šm						
-50 dBm							
-60 gBm							
70 dBm							
-80 dBm							
"Wh	White	A .A.	٨٨	A State			
-90 dBm		S Contro All	MW.	mm	mm	www	N WW
-100 dBm							
-110 dBm							
-120 dBm							
Start 9.0 kHz		6001	pts			Stop	150.0 kHz

10 MHz ANTENNA CHAIN: #2

Spectrum	1								
Ref Level	-30.00 dBm	Offset 2	1.00 dB 👄	RBW 1 kH	z				
Att TDF	0 dB	SWT	14.1 ms 👄	VBW 30 KH	z Mode s	Sweep			
●1Pk View									
					м	1[1]		1	65.04 dBm 4.0160 kHz
-40 dBm	01 -43.000	dBm							
-50 dBm									
-60 dBm									
-76 dela-	mh .								
-80 dBm	V	M	M	Λ.Λ.					
			۷	1. A. A. A.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man	mon	War	Mm
-100 dBm-									
-110 dBm-									
-120 dBm-									
Start 9.0 k	Hz			6001	pts			Stop	150.0 kHz



Test specification:	Section 96.41(e)(3), Conduc	Section 96.41(e)(3), Conducted spurious emissions						
Test procedure:	Section 96.41(e)(3)	Section 96.41(e)(3)						
Test mode:	Compliance	Vardiate	DASS					
Date(s):	09-Feb-22	verdict.	FA33					
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VAC					
Remarks:								

Plot 7.6.3 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency





Plot 7.6.4 Spurious emission measurements in 150 kHz - 30 MHz range at low carrier frequency

MODULATION: CHANNEL SPACING ANTENNA CHAIN: #	G: #1		
Spectrum Ref Level -30.00 dBm Offset 21.00 dB Att 0 dB SWT 29.9 ms	 RBW 10 kHz VBW 30 kHz Mode 	a Sweep	
1Pk View			
		M1[1]	-81.62 dBm 21.52650 MHz
-40 dBm-D1 -43.000 dBm-			
-50 dBm			
-60 dBm			
-70 dBm			
-80 dBm		M1	
		u histophistophi	MANY IN CONTRACTOR
-100 dBm			
-110 dBm			
-120 dBm			
-120 UDII			
Start 150.0 kHz	6001 pts		Stop 30.0 MHz

QPSK						
10 MHz						
ANTENNA	A CHAIN:	#2				
Spectrum	-					
Ref Level -30.00 d Att 0 TDF	Bm Offset 21.00 o dB SWT 29.9 n	IB ● RBW 10 kH ns ● VBW 30 kH	z z Mode Sv	weep		(=
●1Pk View						
			M1	[1]	9.	79.04 dBm 99640 MHz
-40 dBm-01 -43.0	00 dBm					
-50 dBm						
-60 dBm					 	
-70 dBm						
-80 dBm	M1					
					<u>dia materia</u>	h dhand k
100.40-1						
-100 UDII						
-110 dBm		-				
-120 dBm						
Start 150 0 kUz		6001	nte		Ston	20.0 ML/2
Start 150.0 kHz		6001	pts		Stop	30.0 MHz