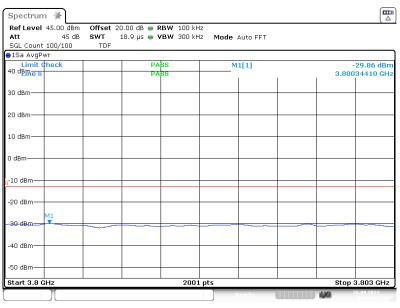
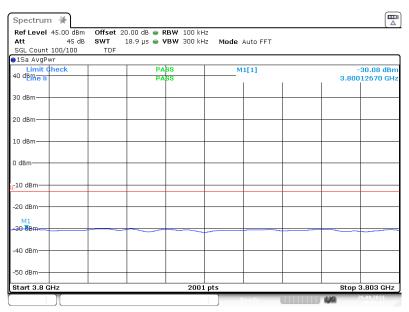


Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1



<sup>3.6.2</sup> out of band emi Band C low A2 AWGN100 upper lcarrier - 0.3 dB 3.800G 3.803G

Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper; Mod: AWGN100; Input Power = 3 dB > AGC; Number of signals 1

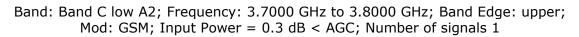


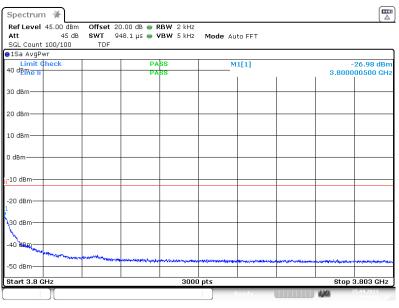
3.6.2 out of band emi Band C low A2 AWGN100 upper 1carrier +

3.0 dB 3.800G 3.803G

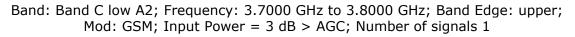
The test results relate only to the tested item. The sample has been provided by the client.

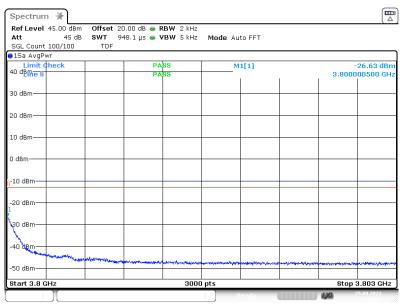






<sup>3.6.2</sup> out of band emi Band C low A2 GSM upper lcarrier -0.3 dB 3.800G 3.803G

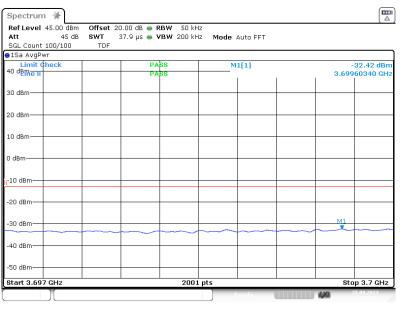




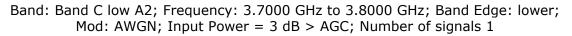
3.6.2 out of band emi Band C low A2 GSM upper lcarrier +3.0 dB 3.800G 3.803G

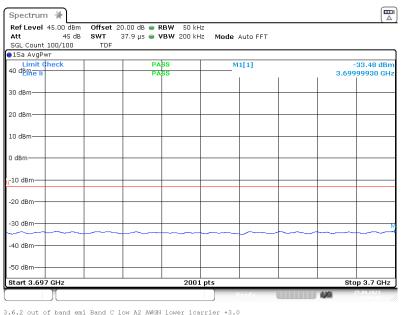


Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1



<sup>3.6.2</sup> out of band emi Band C low A2 AWGN lower lcarrier -0.3 dB 3.697G 3.700G

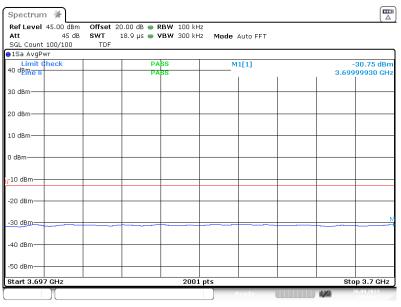




3.6.2 out of band emi Band C low A2 AWGN lower lcarrier dB 3.697G 3.700G

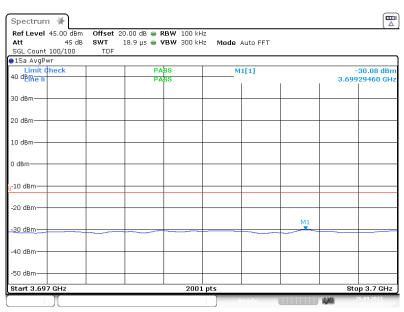


Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: lower; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1



<sup>3.6.2</sup> out of band emi Band C low A2 AWGN100 lower 1carrier - 0.3 dB 3.697G 3.700G

Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: lower;

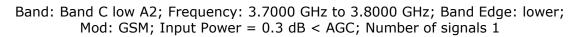


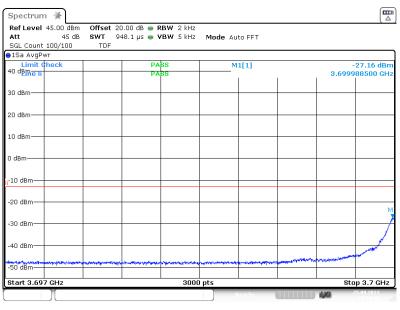
Mod: AWGN100; Input Power = 3 dB > AGC; Number of signals 1

The test results relate only to the tested item. The sample has been provided by the client.

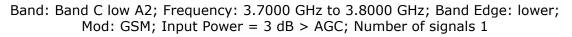
<sup>3.6.2</sup> out of band emi Band C low A2 AWGN100 lower lcarrier + 3.0 dB 3.697G 3.700G

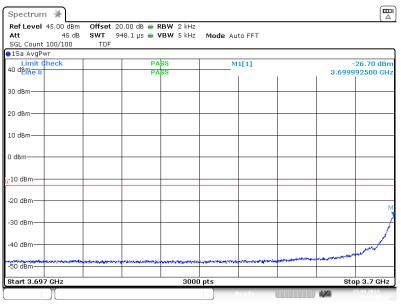






<sup>3.6.2</sup> out of band emi Band C low A2 GSM lower lcarrier -0.3 dB 3.697G 3.700G

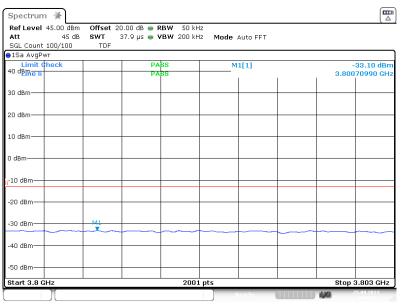




<sup>3.6.2</sup> out of band emi Band C low A2 GSM lower lcarrier +3.0 dB 3.697G 3.700G

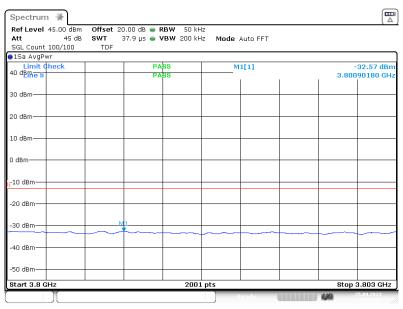


#### Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2



<sup>3.6.2</sup> out of band emi Band C low A2 AWGN upper 2carriers -0. 3 dB 3.800G 3.803G

Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper; Mod: AWGN; Input Power = 3 dB > AGC; Number of signals 2

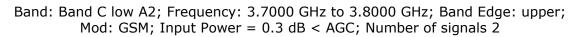


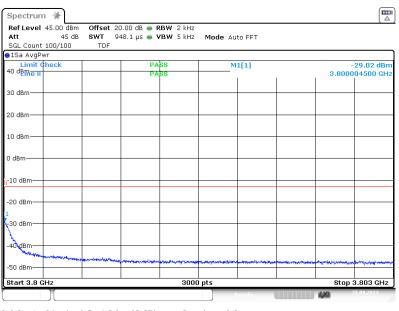
3.6.2 out of band emi Band C low A2 AWGN upper 2carriers +3.

0 dB 3.800G 3.803G

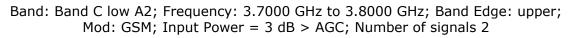
The test results relate only to the tested item. The sample has been provided by the client.

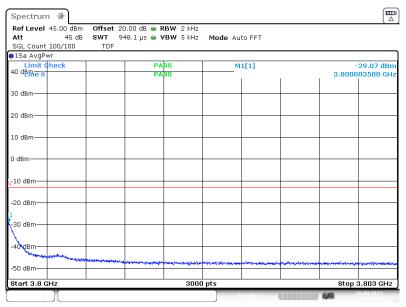






3.6.2 out of band emi Band C low A2 GSM upper 2carriers -0.3 dB 3.800G 3.803G



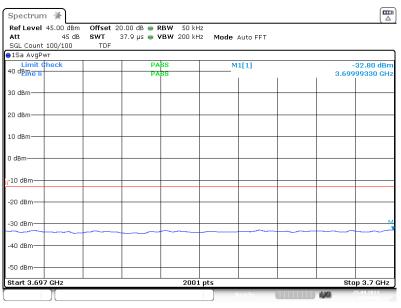


3.6.2 out of band emi Band C low A2 GSM upper 2carriers +3.0 dB 3.800G 3.803G

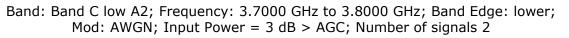
The test results relate only to the tested item. The sample has been provided by the client.

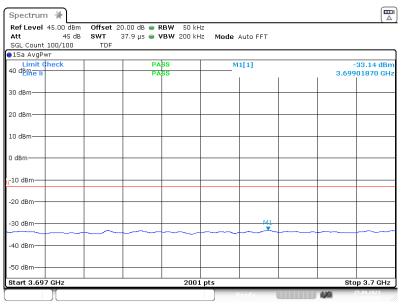


Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2



<sup>3.6.2</sup> out of band emi Band C low A2 AWGN lower 2carriers -0. 3 dB 3.697G 3.700G





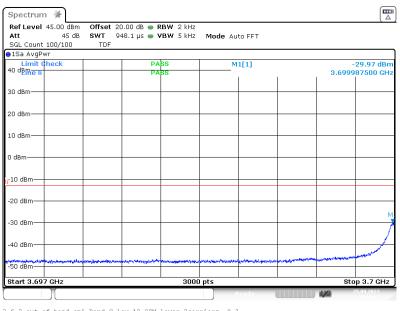
3.6.2 out of band emi Band C low A2 AWGN lower 2carriers  $\pm 3.$ 

0 dB 3.697G 3.700G

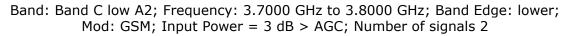
The test results relate only to the tested item. The sample has been provided by the client.

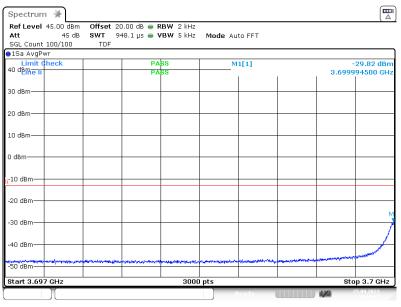


Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: lower; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 2



3.6.2 out of band emi Band C low A2 GSM lower 2carriers -0.3 dB 3.697G 3.700G



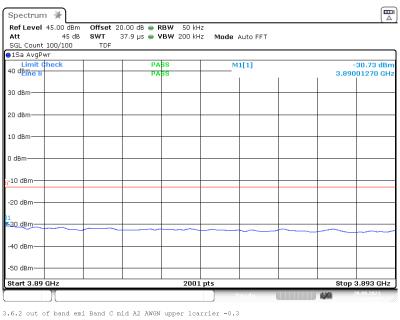


3.6.2 out of band emi Band C low A2 GSM lower 2carriers +3.0 dB 3.697G 3.700G

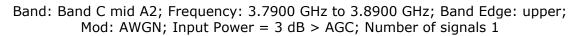
The test results relate only to the tested item. The sample has been provided by the client.



#### Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1



dB 3.890G 3.893G



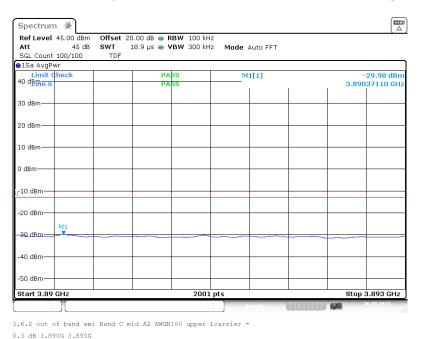
	ffset 20.00 dB		
SGL Count 100/100	TDF	Mode Auto FFT	
●1Sa AvgPwr			
Limit Check 40 dBMe n	PASS PASS	M1[1]	-30.85 d 3.89000070 (
30 dBm			
20 dBm			
10 dBm			
) dBm			
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
Start 3.89 GHz	200	1 pts	Stop 3.893 G

3.6.2 out of band emi Band C mid A2 AWGN upper lcarrier +3.0 dB 3.890G 3.893G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: AWGN100; Input Power = 3 dB > AGC; Number of signals 1

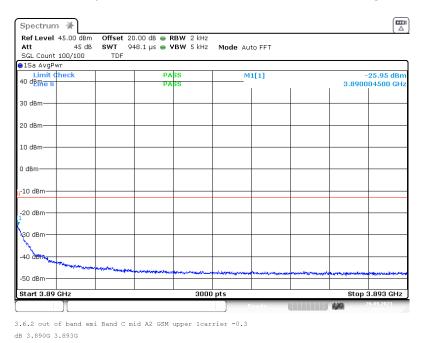
	fset 20.00 dB  RBW 100		
	/Τ 18.9 μs 👄 VBW 300 TDF	KHZ MODE AUTO FFI	
1Sa AvgPwr			
Limit Check	PASS	M1[1]	-30.26 dBn
40 demen	PASS		3.89088080 GHz
30 dBm			
20 dBm			
10 dBm			
0 dBm			
-10 dBm			
10 00111			
-20 dBm			
-20 ubiii			
-30 dBm	M		
-30,0800			
-40 dBm			
-50 dBm			
Start 3.89 GHz	20	01 pts	Stop 3.893 GHz

3.6.2 out of band emi Band C mid A2 AWGN100 upper lcarrier + 3.0 dB 3.890G 3.893G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 1



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: GSM; Input Power = 3 dB > AGC; Number of signals 1

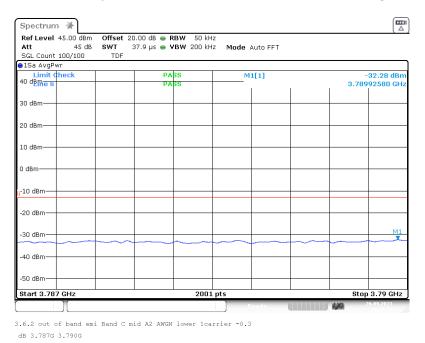
Spectrum 🔆						
Ref Level 45.00 dBm Att 45 dB			Mode Auto FFT			
SGL Count 100/100	TDF	BHORNE	HOUE ACCOUNT			
∋1Sa AvgPwr						
Limit Check	PA	SS	M1[1]			25.46 dBm
40 dBmen	РА	SS		1	3.8900	05500 GHz
30 dBm						
20 dBm						
10 dBm						
0 dBm						
-10 dBm						
20 dBm						
80 dBm						
-40 dBm						
-50 dBm	an alfan allan an a		and the second		*****	مور بوران کار اندو رو
Start 3.89 GHz	<u> </u>	3000 p	ts		Stop 3	3.893 GHz
			Ready		4/4	6.09.2023 11:50:05

3.6.2 out of band emi Band C mid A2 GSM upper lcarrier +3.0 dB 3.890G 3.893G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN; Input Power = 3 dB > AGC; Number of signals 1

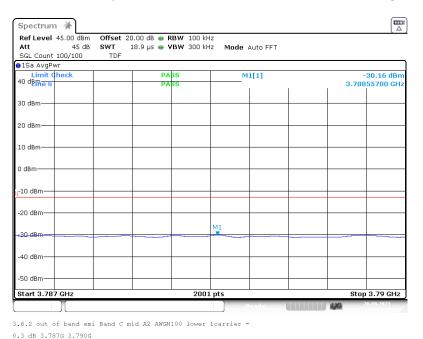
Att 45.00 dBm Offs	et 20.00 dB 👄 RBW 50 kH 37.9 µs 👄 VBW 200 kH			
	DF			
●1Sa AvgPwr		1		
Limit Check 40 dBmen	PASS PASS	M1[1]	-32.4 3.7897939	
Line ii	PADO		3.7697935	
30 dBm				
20 dBm				
10 dBm				
0 dBm				
-10 dBm				
-20 dBm				
-30 dBm			M1	
-40 dBm				
-50 dBm				
Start 3.787 GHz	200:	nts	Stop 3.79	GHz

3.6.2 out of band emi Band C mid A2 AWGN lower 1carrier +3.0 dB 3.787G 3.790G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN100; Input Power = 3 dB > AGC; Number of signals 1

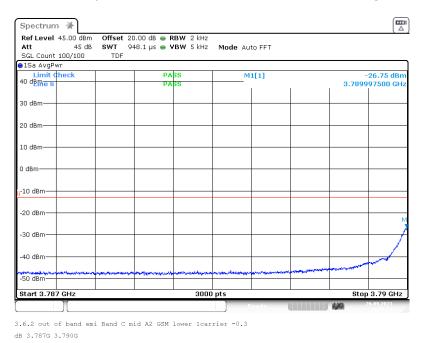
Ref Level 45.00 dBm Att 45 dB		dB 👄 RBW 100 kH: us 👄 VBW 300 kH:	2 Mode Auto FFT	
SGL Count 100/100	TDF			
●1Sa AvgPwr				
Limit Check 40 dBine li		PASS PASS	M1[1]	-30.12 dBn 3.78737860 GH:
30 dBm				
So dam				
20 dBm				
10 dBm				
) dBm				
-10 dBm				
20 dBm				
30-dBm				 
40 dBm				
50 dBm				
Start 3.787 GHz		2001		Stop 3.79 GHz

3.6.2 out of band emi Band C mid A2 AWGN100 lower 1carrier + 3.0 dB 3.787G 3.790G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 1



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: GSM; Input Power = 3 dB > AGC; Number of signals 1

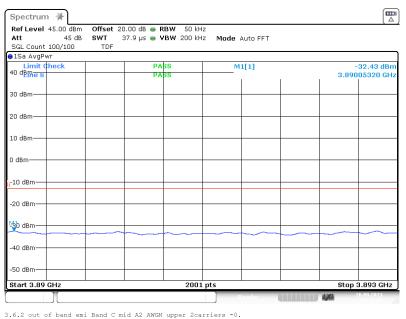
Spectrum 🔆					
Ref Level         45.00 dBm           Att         45 dB	Offset 20.00 dB ● F SWT 948.1 µs ● V	RBW 2 kHz /BW 5 kHz Mod			
SGL Count 100/100	TDF	in skiz mou	B Adto FFT		
)1Sa AvgPwr					
Limit Check	PA	88	M1[1]	-26.30	) dBm
40 d <mark>BM e n</mark>	PA	ss	_ , ,	3.78999750	O GHz
30 dBm					
20 dBm					
10 dBm					
0 dBm					
10.10					
-10 dBm					
-20 dBm					
-20 ubiii					M
-30 dBm					1
-30 UBIII					7
-40 dBm					A.
TO UDIT				and the second second second	
-50 dBm		al white many interesting and the second	anseller after see strate and an adverte	and the second s	
Start 3.787 GHz		3000 pts		Stop 3.79	GHz

3.6.2 out of band emi Band C mid A2 GSM lower 1carrier +3.0 dB 3.787G 3.790G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2



3 dB 3.890G 3.893G

Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: AWGN; Input Power = 3 dB > AGC; Number of signals 2

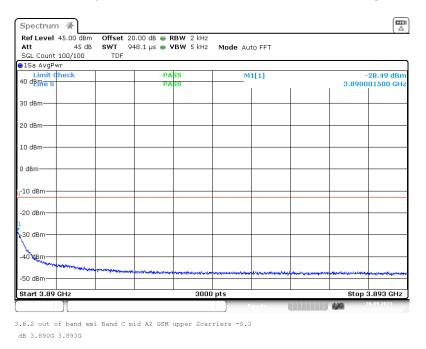
	ffset 20.00 dB ● RBW 50 WT 37.9 µs ● VBW 200		
3GL Count 100/100	TDF		
1Sa AvgPwr			
Limit Check 0 dBme ii	PASS	M1[1]	-32.19 dBn
o delhe li	PASS		3.89000820 GH
0 dBm			
0 dBm			
.0 dBm			
dBm			
10 dBm			
20 dBm			
30 dBm			
40 dBm			
50 dBm			
30 ubiil			

3.6.2 out of band emi Band C mid A2 AWGN upper 2carriers +3. 0 dB 3.890G 3.893G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 2



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: upper; Mod: GSM; Input Power = 3 dB > AGC; Number of signals 2

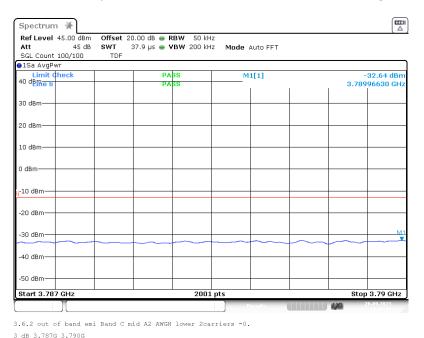
Spectrum 🖌						
Ref Level 45.00 dBm		io dB 👄 RBW 2 kHz				
Att 45 dB SGL Count 100/100	SWT 948 TDF	1 µs 👄 <b>VBW</b> 5 kHz	Mode Auto FFT			
1Sa AvgPwr	TDF					
Limit Check		PASS	M1[1]			-28.61 dBm
40 demen		PASS				04500 GHz
30 dBm						
20 dBm						
10 dBm						
0 dBm						
10 - 10						
-10 dBm						
-20 dBm						
-20 ubiii						
-30 dBm						
So ubiii						
-40 JBm						
-40 dBm						
-50 dBm	and the second	where a start water and the second seco	he was preserved to have been and	way a water water	Hard Market and Market	
Start 3.89 GHz		300	0 pts		Stop	3.893 GHz

3.6.2 out of band emi Band C mid A2 GSM upper 2carriers +3.0 dB 3.890G 3.893G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: AWGN; Input Power = 3 dB > AGC; Number of signals 2

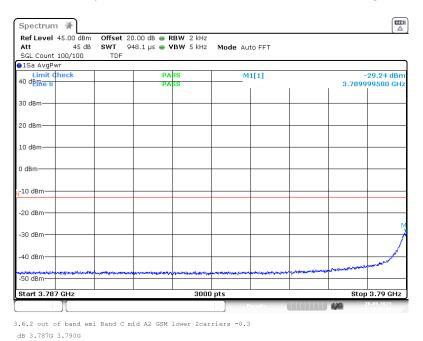
Ref Level 45.00 dBm Offs Att 45 dB SW1	et 20.00 dB 👄 RBW 50 kH 7 37.9 µs 👄 VBW 200 kH			
	DF	ie mode Adtorri		
1Sa AvgPwr				
Limit Check 40 dBmen	PASS	M1[1]		-32.52 dBn
<sup>+0</sup> <sup>a</sup> Piñe li	PASS		1 1	3.78983130 GH
30 dBm				
20 dBm				
10 dBm				
0 dBm				
-10 dBm				
-20 dBm				
20 dbiii				
-30 dBm				M1
-40 dBm			+	
-50 dBm				
Start 3.787 GHz	200	pts		Stop 3.79 GHz

3.6.2 out of band emi Band C mid A2 AWGN lower 2carriers +3. 0 dB 3.7876 3.790G

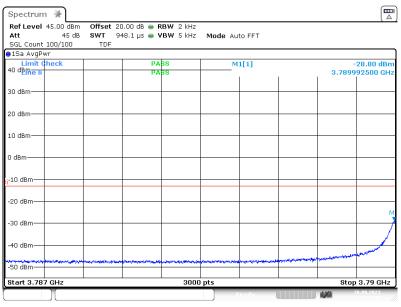
The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 2



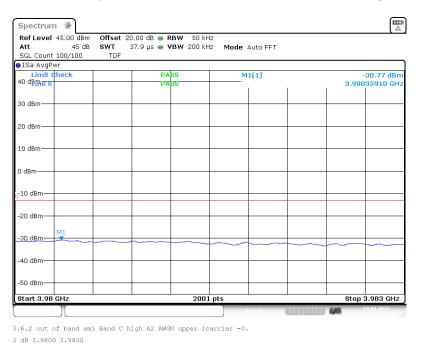
Band: Band C mid A2; Frequency: 3.7900 GHz to 3.8900 GHz; Band Edge: lower; Mod: GSM; Input Power = 3 dB > AGC; Number of signals 2

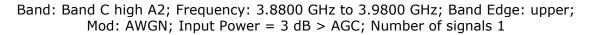


3.6.2 out of band emi Band C mid A2 GSM lower 2carriers +3.0 dB 3.787G 3.790G



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: upper; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1





Spectrum 🔆	m Offset 20.00	dB 👄 RBW 50 k	<hz< th=""><th></th><th></th></hz<>		
Att 45	dB <b>SWT</b> 37.9	) µs 👄 <b>VBW</b> 200 k	Hz Mode Auto FFT		
SGL Count 100/100	TDF				
∋1Sa AvgPwr					
Limit Check		PASS	M1[1]		-30.50 dBn
40 demen		PASS	1		3.98115970 GH
30 dBm					
20 dBm					
10 dBm					
0 dBm					
-10 dBm					
-10 dbiii	_			_	
-20 dBm					
		M1			
-30 dBm	$\rightarrow \rightarrow$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			~
-40 dBm	+ +				
-50 dBm					
Start 3.98 GHz		200	01 pts		Stop 3.983 GHz
JUIT 3.90 GHZ		201	ir hra		atop a.96a GHZ

3.6.2 out of band emi Band C high A2 AWGN upper 1carrier +3.

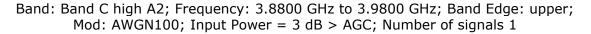
0 dB 3.980G 3.983G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: upper; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1





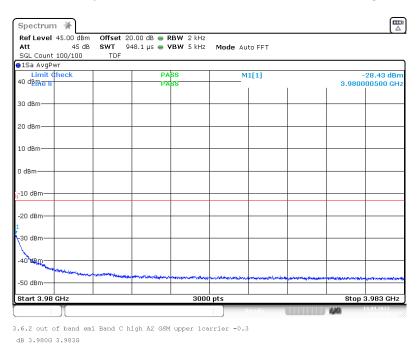
Spectrum 🔆	m Offset 20.0	0 dB 👄 RBW 100 k	Hz		
Att 45 c		9 µs 👄 <b>VBW</b> 300 k			
SGL Count 100/100	TDF	•			
∋1Sa AvgPwr					
Limit Check		PASS	M1[1]		30.16 dBn
40 demen		PASS		3.982	42950 GH:
30 dBm					
20 dBm					
10 dBm					
0 dBm					
-10 dBm					
-10 UBIII					
-20 dBm					
				M1	
-30 dBm-	++		┿╼╼═┿┲╼╼╼┿╸		
-40 dBm	-				
-50 dBm	-				
Start 3.98 GHz		200	1 pts	Ptop (	3.983 GHz
atart a.98 GHZ		200	ii pis	stop .	5.963 GHZ

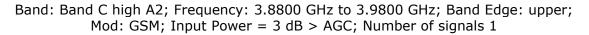
3.6.2 out of band emi Band C high A2 AWGN100 upper lcarrier +3.0 dB 3.980G 3.983G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: upper; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 1





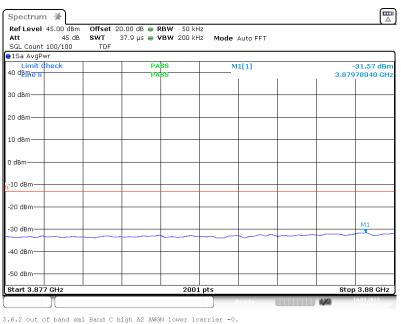
Ref Level 45.00 dBm	Offset 20	.00 dB 😑 RE	W 2 kHz					
Att 45 dB		8.1 µs 👄 VE	3W 5 kHz	Mode Au	to FFT			
SGL Count 100/100	TDF							
1Sa AvgPwr								
Limit Check		PAS		M	1[1]			29.35 dBr
40 dBMen		PAS	8		I	1	3.9800	11500 GH
30 dBm								
20 dBm								
.o dbiii								
LO dBm								
) dBm								
10 dBm								
20 dBm								
30 dBm								
40 dBm								
50 dBm	ar/1.444.164		ang an	performante		en antiper and a second a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
tart 3.98 GHz			3000	pts	1		Stop 3	3.983 GHz

3.6.2 out of band emi Band C high A2 GSM upper lcarrier +3.0 dB 3.980G 3.983G

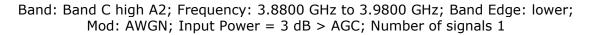
The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1



3 dB 3.877G 3.880G



Spectrum 🐳			
Ref Level         45.00 dBm           Att         45 dB           SGL Count         100/100			
1Sa AvgPwr			
Limit Check 40 dBme li	PASS PASS	M1[1]	-32.89 dBr 3.87989280 GH
30 dBm			
20 dBm			
10 dBm			
0 dBm			
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
Start 3.877 GHz	200	01 pts Ready	Stop 3.88 GHz

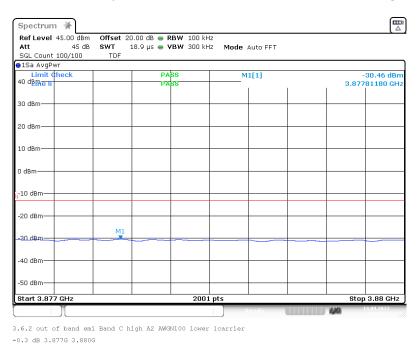
3.6.2 out of band emi Band C high A2 AWGN lower 1carrier +3.

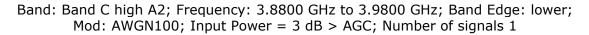
0 dB 3.877G 3.880G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: lower; Mod: AWGN100; Input Power = 0.3 dB < AGC; Number of signals 1





Ref Level 45.00 dBm Offs Att 45 dB SW1	et 20.00 dB 👄 RBW 100 kH 18.9 µs 👄 VBW 300 kH			
	10.9 µs 🖶 ¥BW 300 kr	12 MOUE AULU FFT		
1Sa AvgPwr				
Limit Check 40 dBme ii	PASS PASS	M1[1]	3.	-30.53 dBn 37733960 GH
30 dBm				
20 dBm				
10 dBm				
) dBm				
-10 dBm				
-20 dBm				
-30. dBm				_
40 dBm				
-50 dBm				
Start 3.877 GHz	200:	l nts	e	top 3.88 GHz

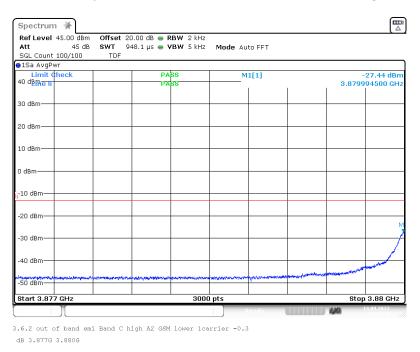
3.6.2 out of band emi Band C high A2 AWGN100 lower 1carrier +3.0 dB 3.877G 3.880G

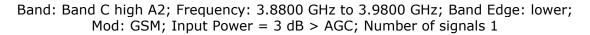
The test results relate only to the tested item. The sample has been provided by the client. Without the written consent of Bureau Veritas Consumer Products Services Germany GmbH excerpts of this report shall not be reproduced.

2023-0313-EMC-TR-23-0199-V02



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: lower; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 1





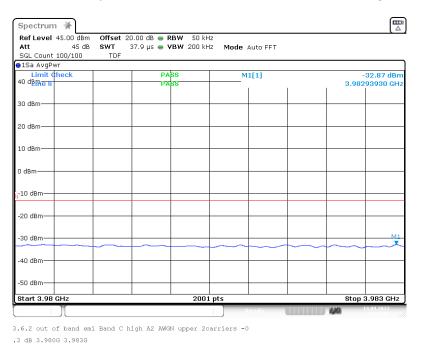
Spectrum 🔆		.00 dB 👄 RBW 2 kH:	2		
Att 45 d		8.1 µs 👄 <b>VBW</b> 5 kHa	Mode Auto FFT		
SGL Count 100/100 1Sa AvgPwr	TDF				
Limit Check		PASS	M1[1]		-27.29 dBn
40 d <mark>Bmen</mark>		PASS		3	.879996500 GH
30 dBm					
20 dBm					
10 dBm					
10 0011					
0 dBm					
-10 dBm					
-20 dBm					
					· · · · ·
-30 dBm					
-40 dBm	-				
				and the second s	where we want the state of the
-50 dBm		ha an international and a state of the second s	400 - 11 - 11 - 11 - 11 - 11 - 11 - 11 -	Appendix a constrainty	
Start 3.877 GHz		200	)0 pts		Stop 3.88 GHz
Marc 5.077 GHZ		300	o pro		300p 3.88 GHZ

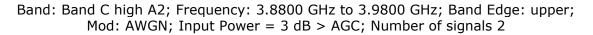
3.6.2 out of band emi Band C high A2 GSM lower lcarrier +3.0 dB 3.877G 3.880G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: upper; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2





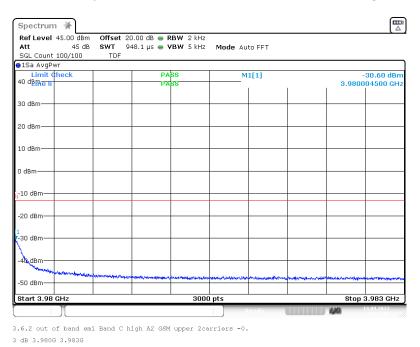
Spectrum 🔆			
Ref Level         45.00 dBm           Att         45 dB           SGL Count         100/100	Offset 20.00 dB ● RBW 50 SWT 37.9 µs ● VBW 200 TDF		•
1Sa AvgPwr			
Limit Check 40 dBM e li	PASS PASS	M1[1]	-32.71 dBm 3.98151650 GHz
30 dBm			
20 dBm			
10 dBm			
0 dBm			
-10 dBm			
-20 dBm			
-30 dBm		M1	
-40 dBm			
-50 dBm			
Start 3.98 GHz	20	01 pts	Stop 3.983 GHz

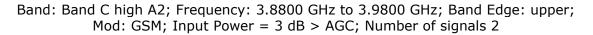
3.6.2 out of band emi Band C high A2 AWGN upper 2carriers +3 .0 dB 3.980G 3.983G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: upper; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 2





Ref Level 45.00 dBm Att 45 dB		1.00 dB 👄 R						
SGL Count 100/100	SWT 94 TDF	+8.1 μs 👄 V	BW 5 KH2	Mode Au	to FF I			
)1Sa AvgPwr								
Limit Check		PA	SS	M	1[1]		-	30.57 dBr
40 d <u>Bmen</u>		PA	38		1	1	3.9800	05500 GH
30 dBm								
20 dBm							<u> </u>	
10 dBm								
0 dBm								
-10 dBm								
-20 dBm								
L								
-30 dBm								
-40,dBm								
and the second and the second se		****	and a stand sector of the s	****	-	and the second se		
-50 dBm								
Start 3.98 GHz			3000	pts	1	1	Stop	] 3.983 GHz

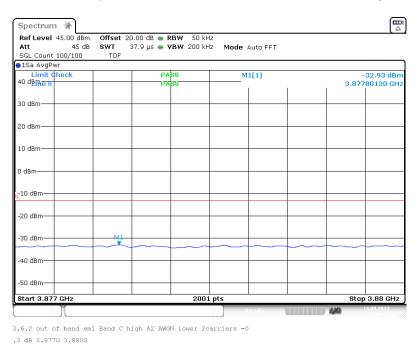
3.6.2 out of band emi Band C high A2 GSM upper 2carriers +3.

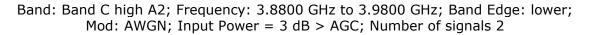
0 dB 3.980G 3.983G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: lower; Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 2





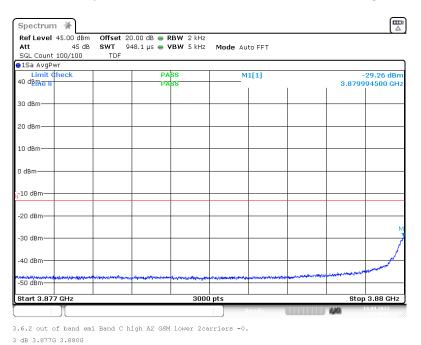
Spectrum 🔆		0 dB 👄 RBW 50			
Att 45 d		9 µs 👄 <b>VBW</b> 200	kHz Mode Auto FFT		
SGL Count 100/100 1Sa AvgPwr	TDF				
Limit Check		PASS	M1[1]		-32.23 dBm
40 demen		PASS			996480 GHz
30 dBm					
20 dBm					
10 dBm					-
0 dBm					+
-10 dBm					
-20 dBm					
-30 dBm					M
	++			 	
-40 dBm	+ +		+	 	
-50 dBm				 	+
Start 3.877 GHz		20	01 pts	Stor	p 3.88 GHz
		20	or pes	 310	14.00 2022

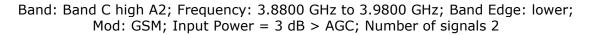
3.6.2 out of band emi Band C high A2 AWGN lower 2carriers +3 .0 dB 3.877G 3.880G

The test results relate only to the tested item. The sample has been provided by the client.



Band: Band C high A2; Frequency: 3.8800 GHz to 3.9800 GHz; Band Edge: lower; Mod: GSM; Input Power = 0.3 dB < AGC; Number of signals 2





Ref Level 45.00 dBr		0.00 dB 😑 <b>RBW</b> 2 kH			
Att 45 dl		48.1 µs 👄 <b>VBW</b> 5 kH	z Mode Auto FFT		
SGL Count 100/100	TDF				
1Sa AvgPwr		n i ha			
Limit Check 40 d <u>Bme ii</u>		PASS PASS	M1[1]		-29.69 dBr 3.879998500 GH
		PADO		1	3.879990300 GH
30 dBm					
20 dBm					
20 0011					
10 dBm					
0 dBm					
o ubiii					
-10 dBm					
-10 dbiii					
-20 dBm					
-20 0811					
-30 dBm					
-50 0011					
-40 dBm					
					and the state of the
50 dpm				and the second of the second	Physical Street and Stre
Start 3.877 GHz		30	00 pts		Stop 3.88 GHz

3.6.2 out of band emi Band C high A2 GSM lower 2carriers +3.

0 dB 3.877G 3.880G

The test results relate only to the tested item. The sample has been provided by the client.



# 4.5.5 TEST EQUIPMENT USED

- Conducted

# 4.6 OUT-OF-BAND REJECTION

Standard FCC Part 27

#### **The test was performed according to:** ANSI C63.26

**Test date:** 2023-09-06 - 2023-11-14

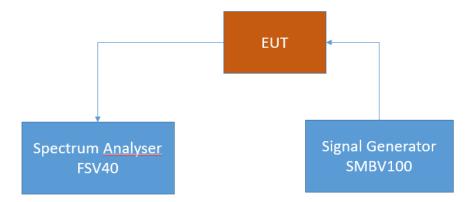
**Environmental conditions**: 23 ° C ± 5 K; 40 % r. F. ± 20 % r. F.

Test engineer: Thomas Hufnagel

# 4.6.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the out-of-band rejection test case for industrial signal boosters.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; Out-of-band rejection

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

# 4.6.2 TEST REQUIREMENTS/LIMITS

For this test case exists no applicable limit



## 4.6.3 TEST PROTOCOL

C-Band. segment 1				
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [MHz]
3712.800	26.09	3696.325	3803.725	107.25

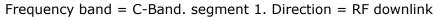
C-Band. segment 2				
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [MHz]
3887.00	26.08	3786.275	3893.725	107.45

C-Band. segment 3	]			
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [MHz]
3886.70	23.68	3876.175	3983.825	107.65

Remark: Please see next sub-clause for the measurement plots.

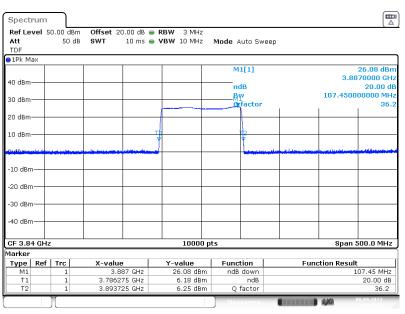


## 4.6.4 MEASUREMENT PLOTS



Ref Level Att TDF	50.00 dBm 50 dB			Mode Auto Sweep	q
1Pk Max					
				M1[1]	26.09 dB
10 dBm					3.7128000 GF
				ndB	20.00 c
30 dBm			M1	Bw O factor	107.40000000 MF 34
					34
20 dBm					
			_[		
.0 dBm			4	₩.	
dPro				a state of	
10 dBm—					
10 00.00					
20 dBm—					
30 dBm—					
40 dBm—					
CF 3.75 G	Hz		10000 pt	s	Span 500.0 MHz
arker					
Type   Re	f Trc	X-value	Y-value	Function	Function Result
M1	1	3.7128 GHz	26.09 dBm	ndB down	107.4 MHz
T1	1	3.696325 GHz	5.99 dBm	ndB	20.00 dE
T2	1	3.803725 GHz	6.07 dBm	Q factor	34.6

3.3 Out of band rejection Band C low A2 3.75000G 20dB

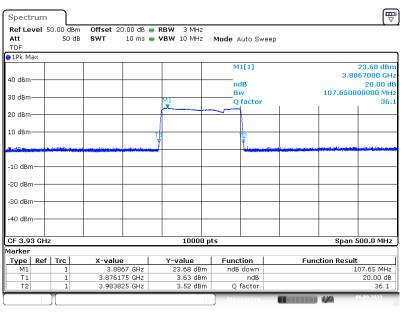


## Frequency band = C-Band. segment 2. Direction = RF downlink

3.3 Out of band rejection Band C mid A2 3.84000G \_20dB

The test results relate only to the tested item. The sample has been provided by the client.





#### Frequency band = C-Band. segment 3. Direction = RF downlink

3.3 Out of band rejection Band C high A2 3.93000G \_20dB

# 4.6.5 TEST EQUIPMENT USED

- Conducted



# 4.7 FREQUENCY STABILITY

The frequency stability test case was not carried out, as any frequency errors are eliminated by the given system architecture. This is achieved by generating the LOs in the head-end station and the LOs in the remote unit with a common reference clock. This reference clock is transmitted from the head-end station to the remote unit and regenerated there. This means that the same reference frequency is used for all signal conversions (up- and down-conversion as well as analog-to-digital and digital-to-analog conversion) and any frequency error in the reference clock is compensated therefore. This is already clear from the measurement markings for the occupied bandwidth (26dB bandwidth). It can be seen that the DUT has no influence on the frequency (comparison between input and output signal). In addition, it is operationally necessary for the frequency deviation to be significantly smaller than the spectral distance between the transmission bandwidth edge and the channel bandwidth edge in order to meet the signal quality requirement (signal purity) and such ensure that the fundamental emissions remain within the authorized bands of operation.

4.8 FIELD STRENGTH OF SPURIOUS RADIATION

Standard FCC Part 27. §27.53

**The test was performed according to:** ANSI C63.26

**Test date**: 2023-10-04. 2023-12-06

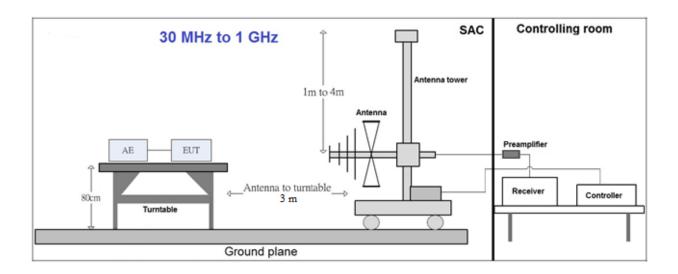
**Environmental conditions**: 23 ° C ± 5 K; 40 % r. F. ± 20 % r. F.

Test engineer: Thomas Hufnagel, Gerhard Gass

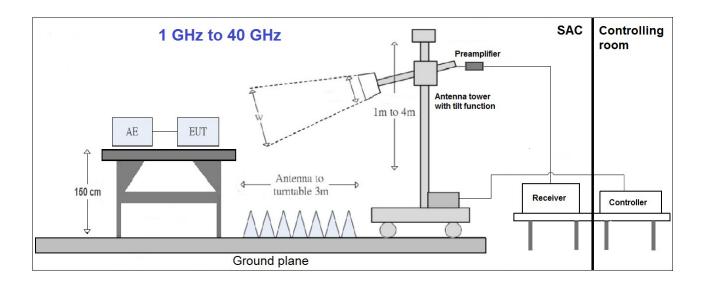
# 4.8.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable radiated spurious emission measurements per § 2.1053

The EUT was connected to the test setup according to the following diagram:







The test set-up was made in accordance to the general provisions of ANSI C63.4 in a typical installation configuration. The Equipment Under Test (EUT) was set up on a non-conductive table  $1.5 \times 1.5 \text{ m}^2$  in the semi-anechoic chamber.0.8 meter above the ground or floor-standing arrangement shall be placed on the horizontal ground reference plane.. The influence of the EUT support table that is used between 30–1000 MHz was evaluated. For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. The highest emissions between 30 MHz to 1000 MHz were analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions.

The measurement procedure is implemented into the EMI test software BAT EMC from NEXIO. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered by a DC power source.



## 1. Measurement above 30 MHz and up to 1 GHz

#### Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit. Settings for step 1:

- Antenna distance: 3 m
- Detector: PEAK
- Frequency range: 30 1000 MHz
- Frequency steps: 30 kHz
- IF-Bandwidth: 100 kHz
- Turntable angle range: -180° to 180°
- Turntable step size: 15°
- Height variation range: 1 4 m
- Height variation step size: 1 m
- Polarisation: Horizontal + Vertical

Intention of this step is. to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

#### Step 2: Adjustment measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency. which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by  $\pm 15^{\circ}$  around this value. During this action. the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary by  $\pm 100$  cm around the antenna height determined. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: PEAK
- Measured frequencies: in step 1 determined frequencies
- IF Bandwidth: 100 kHz
- Turntable angle range: ±15 ° around the determined value
- Antenna Polarisation: max. value determined in step 1

Step 3: Final measurement with PEAK detector

With the settings determined in step 3. the final measurement will be performed:

- EMI receiver settings for step 4:
- Detector: PEAK (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF Bandwidth: 100 kHz

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

The test results relate only to the tested item. The sample has been provided by the client.



## 3. Measurement above 1 GHz

The following modifications apply to the measurement procedure for the frequency range above 1 GHz:

#### Step 1:

The Equipment Under Test (EUT) was set up on a non-conductive support at 1.5 m height in the semi-anechoic chamber. Absorbers are placed around and between the turn table and the antenna tower.

All steps were performed with one height (1.5 m) of the receiving antenna only.

The EUT is turned during the preliminary measurement across the elevation axis. with a step size of 15 °.

The turn table step size (azimuth angle) for the preliminary measurement is 15 °.

## Step 2:

The maximum RFI field strength was determined during the measurement by rotating the turntable ( $\pm 180$  degrees) and varying the height of the receive antenna (h = 1 ... 4 m) with a additional tilt function of the antenna. The turn table azimuth will slowly vary by  $\pm 15^{\circ}$ . EMI receiver settings (for all steps):

- Detector: PEAK

- IF Bandwidth = 1 MHz

## Step 3:

Spectrum analyser settings for step 3:

- Detector: PEAK
- Measured frequencies: in step 1 determined frequencies
- IF Bandwidth: 1 MHz



# 4.8.2 TEST REQUIREMENTS/LIMITS

## FCC Part 2.1053; Measurement required: Field strength of spurious radiation:

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet. control circuits. power leads. or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test. single sideband. independent sideband. and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.1049. as appropriate.

## Part 27; Miscellaneous Wireless Communication Services

## Subpart C – Technical standards

## §27.53 – Emission limits

#### (I) 3.7 GHz Service.

The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

- (1) For base station operations in the 3700-3980 MHz band. the conducted power of any emissionoutside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(1) is based on the use of measurement instrumentation employing a resolutionbandwidth of 1 megahertz or greater. However. in the 1 megahertz bands immediately outside andadjacent to the licensee's frequency block. a resolution bandwidth of at least one percent of theemission bandwidth of the fundamental emission of the transmitter may be employed. The emissionbandwidth is defined as the width of the signal between two points. one below the carrier centerfrequency and one above the carrier center frequency. outside of which all emissions are attenuatedat least 26 dB below the transmitter power.
- (2) For mobile operations in the 3700-3980 MHz band. the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However. in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block. the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block. the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points. one below the carrier center frequency and one above the carrier center frequency. outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The test results relate only to the tested item. The sample has been provided by the client.



# 4.8.3 TEST PROTOCOL

General considerations concerning the limits:

The measuring bandwidth of 1 MHz was chosen according the test requirements exept at the bands from 30 MHz to 1 GHz: At these bands reducing of measurement bandwidth was done. Also outside the downlink frequency band at lower frequencies the measurement bandwidths were reduced to have the possibility to record the spurious emissions at these lower frequencies.

At frequencies were measuring bandwidths were reduced also the limit lines were reduced according the given formula:

$$p \ RBW reduced \ [dBm] = 10 * \log \left( RBW reduced \ [kHz] - 1000 \ kHz \right) + pRBW \ 1000 \ kHz [dBm]$$

Hereby "p" are the limit lines' values.

Considerations to MIMO operation:

At this test the two output ports ANT 2and ANT 4 are together in function according KDB 935210 D02 v04r02 chapter II (o) (2).

# Measurement tables (showing the highest value "worst case") whit one antenna

At this tables the highest peak value of spurious radiation per frequency test band is shown.

C-Band. segment 1. downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
176.9/vert.	-61.0	-5.2	RMS	100	-23.0	38.0
500/hor.	-62.5	-5.2	RMS	100	-23.0	39.5
17755/hor.	-23.6	-5.2	RMS	1000	-13.0	10.6
39916/hor.	-45.7	-5.2	RMS	1000	-13.0	32.7

C-Band. segn	nent 2. downl	ink;	]			
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
177.6/vert.	-59.8	-5.0	RMS	100	-23.0	36.8
500/vert.	-60.6	-5.0	RMS	100	-23.0	37.6
17784/hor.	-23.9	-5.0	RMS	1000	-13.0	10.9
39876/hor.	-45.9	-5.0	RMS	1000	-13.0	32.9

C-Band. segment 3. downlink;			]			
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
195.7/vert.	-61.0	-4.2	RMS	100	-23.0	38.0
500/vert.	-60.7	-4.2	RMS	100	-23.0	37.7
17747/vert.	-22.6	-4.2	RMS	1000	-13.0	9.6
39929/vert.	-45.6	-4.2	RMS	1000	-13.0	32.6

<u>Abbreviations:</u> Hor.: horizontal position Vert.: vertical position

Remark: Please see next sub-clause for the measurement plot.

The test results relate only to the tested item. The sample has been provided by the client.



# Measurement tables (showing the highest value "worst case") whit two antennas (MIMO)

At this tables the highest peak value of spurious radiation per frequency test band is shown.

C-Band. segment 1. downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
178.4/vert.	-62.3	-5.2	RMS	100	-23.0	39.3
500/vert.	-61.6	-5.2	RMS	100	-23.0	38.6
17749/vert.	-22.8	-5.2	RMS	1000	-13.0	9.8
39926/hor.	-45.2	-5.2	RMS	1000	-13.0	32.2

C-Band. segment 2. downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
177.2/vert.	-61.7	-5.0	RMS	100	-23.0	38.7
500/hor.	-62.3	-5.0	RMS	100	-23.0	39.3
17591/vert.	-23.5	-5.0	RMS	1000	-13.0	10.5
39877/hor.	-45.7	-5.0	RMS	1000	-13.0	32.7

C-Band. segment 3. downlink;			]			
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
178.4/vert.	-62.4	-4.2	RMS	100	-23.0	39.4
391.8/hor	-64.6	-4.2	RMS	100	-23.0	41.6
500/vert.	-62.4	-4.2	RMS	100	-23.0	39.4
17788/hor.	-23.1	-4.2	RMS	1000	-13.0	10.1
39916/hor.	-45.5	-4.2	RMS	1000	-13.0	32.5

<u>Abbreviations:</u> Hor.: horizontal position Vert.: vertical position

Remark: Please see next sub-clause for the measurement plot.

The test results relate only to the tested item. The sample has been provided by the client.