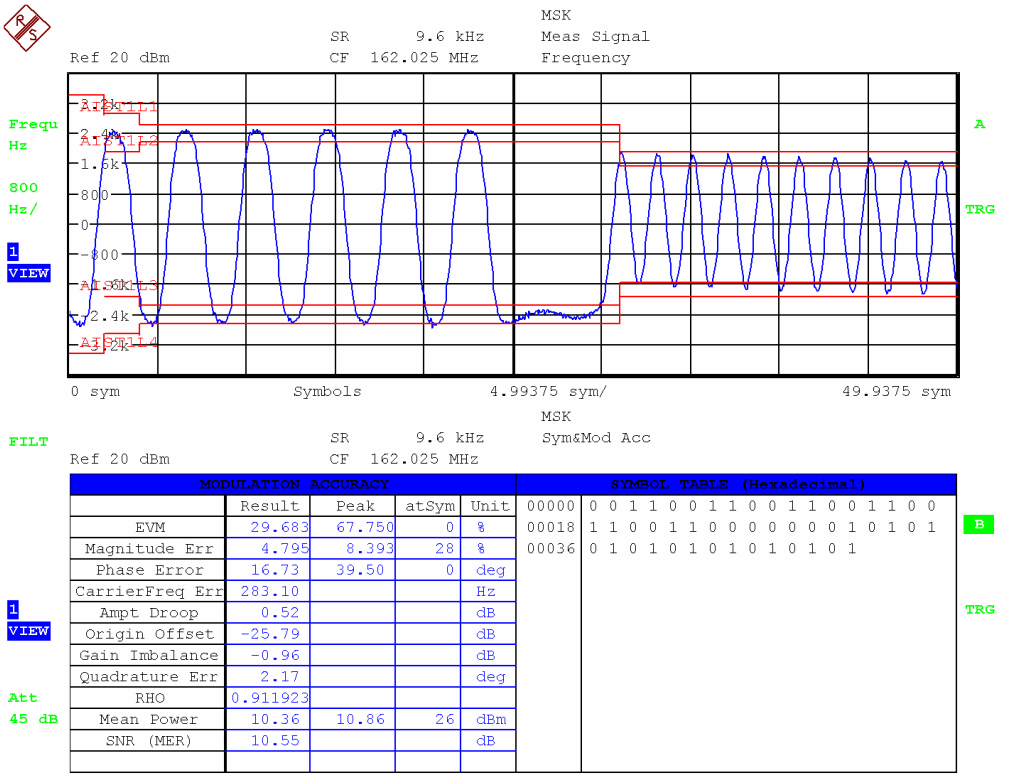
Frequency: 162.025 MHz : +18°C – 24Vdc – Test signal 1

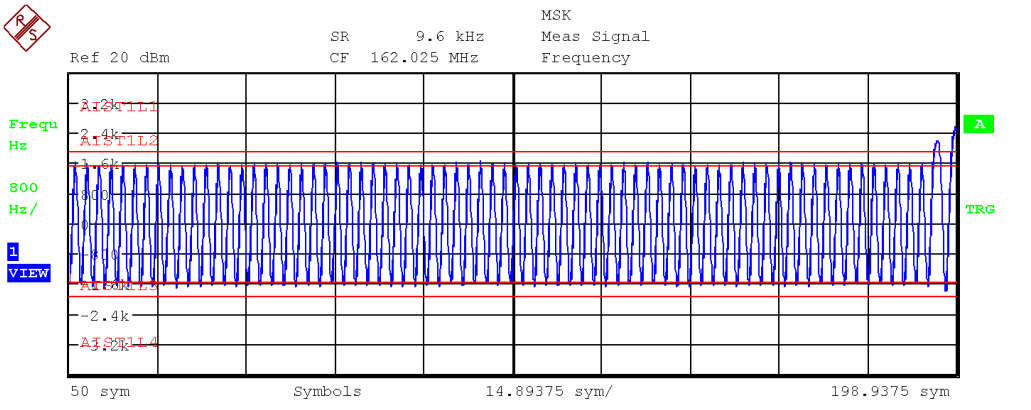
Bit 0 to bit 50

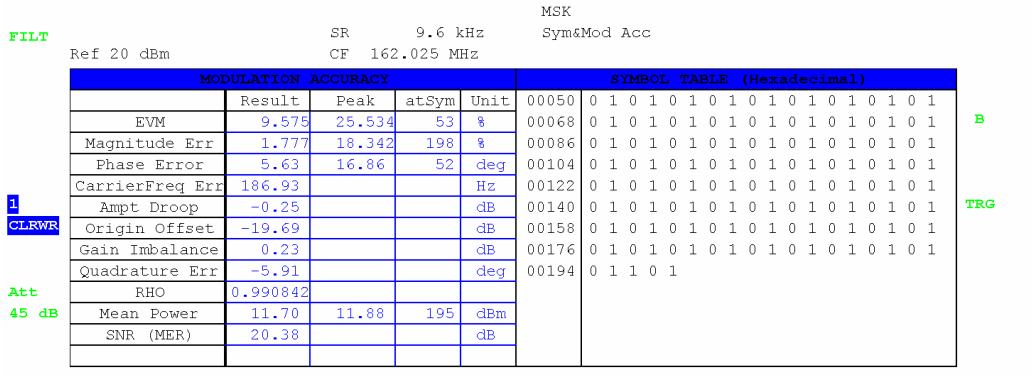


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	29.683	67.750	0	%
Magnitude Err	4.795	8.393	28	%
Phase Error	16.73	39.50	0	deg
CarrierFreq Err	283.10			Hz
Ampt Droop	0.52			dB
Origin Offset	-25.79			dB
Gain Imbalance	-0.96			dB
Quadrature Err	2.17			deg
RHO	0.911923			
Mean Power	10.36	10.86	26	dBm
SNR (MER)	10.55			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





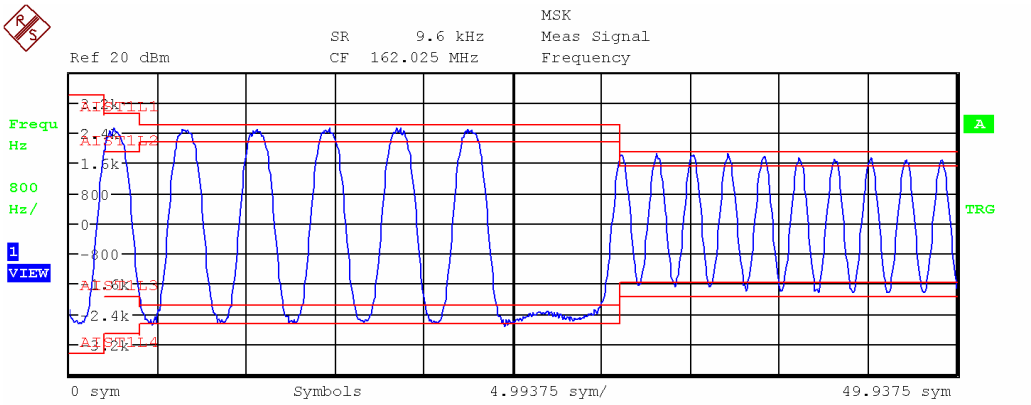
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	9.575	25.534	53	%
Magnitude Err	1.777	18.342	198	%
Phase Error	5.63	16.86	52	deg
CarrierFreq Err	186.93			Hz
Ampt Droop	-0.25			dB
Origin Offset	-19.69			dB
Gain Imbalance	0.23			dB
Quadrature Err	-5.91			deg
RHO	0.990842			
Mean Power	11.70	11.88	195	dBm
SNR (MER)	20.38			dB

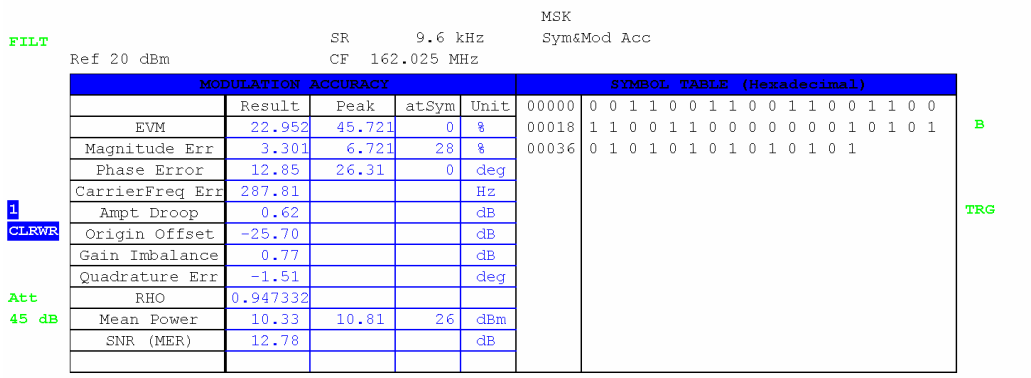
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : +18°C – 30Vdc – Test signal 1

Bit 0 to bit 50

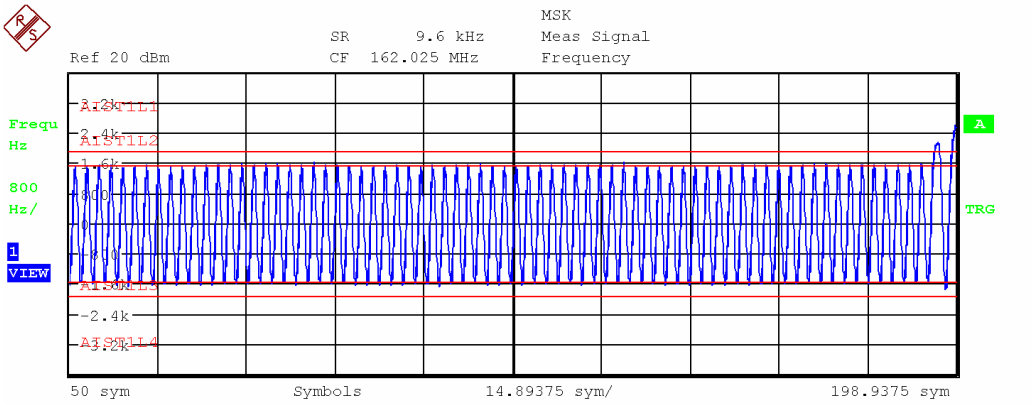


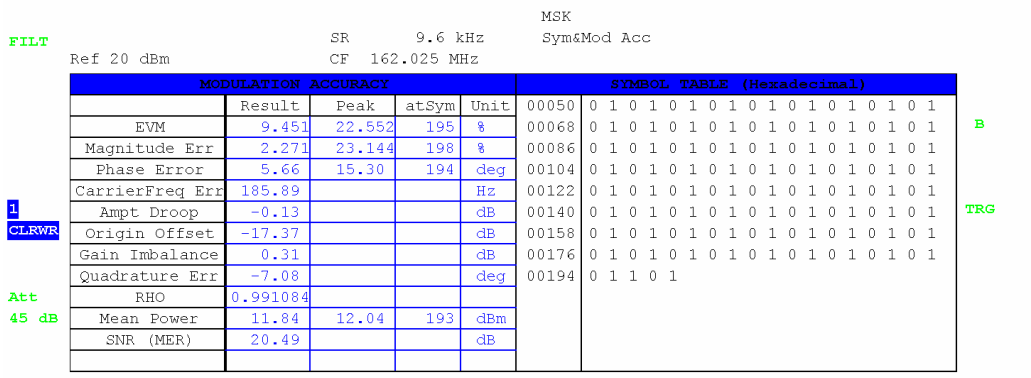


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	22.952	45.721	0	%
Magnitude Err	3.301	6.721	28	%
Phase Error	12.85	26.31	0	deg
CarrierFreq Err	287.81			Hz
Ampt Droop	0.62			dB
Origin Offset	-25.70			dB
Gain Imbalance	0.77			dB
Quadrature Err	-1.51			deg
RHO	0.947332			
Mean Power	10.33	10.81	26	dBm
SNR (MER)	12.78			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





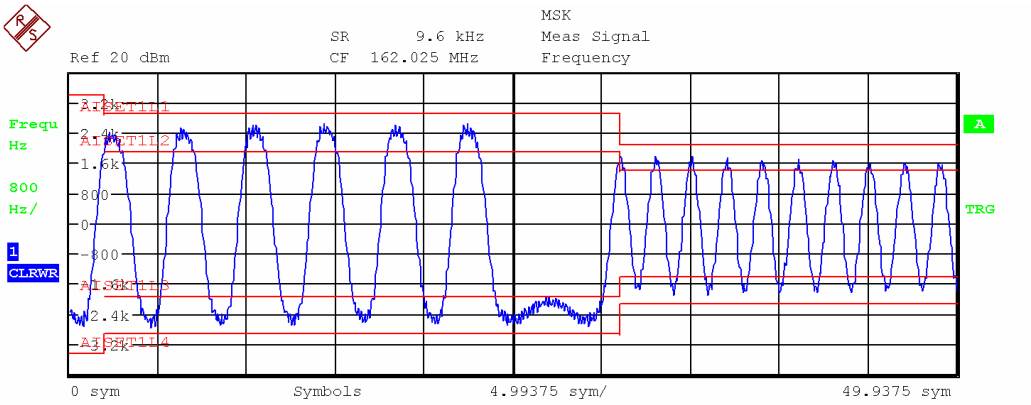
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	9.451	22.552	195	%
Magnitude Err	2.271	23.144	198	%
Phase Error	5.66	15.30	194	deg
CarrierFreq Err	185.89			Hz
Ampt Droop	-0.13			dB
Origin Offset	-17.37			dB
Gain Imbalance	0.31			dB
Quadrature Err	-7.08			deg
RHO	0.991084			
Mean Power	11.84	12.04	193	dBm
SNR (MER)	20.49			dB

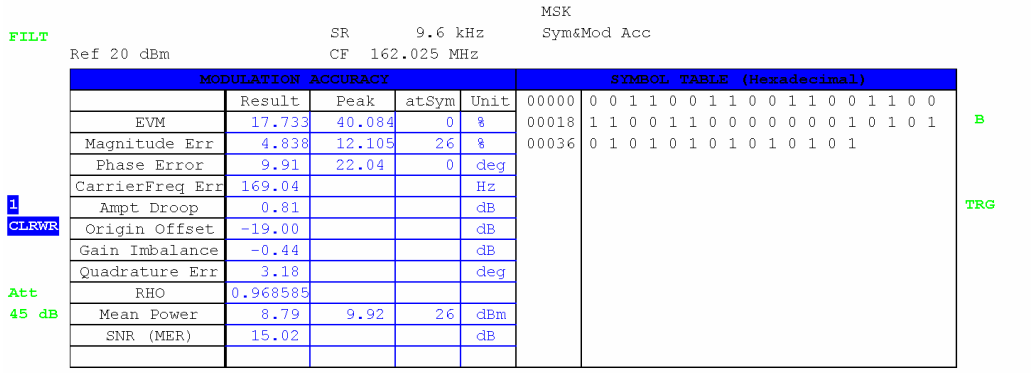
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : -40°C – 10Vdc – Test signal 1

Bit 0 to bit 50

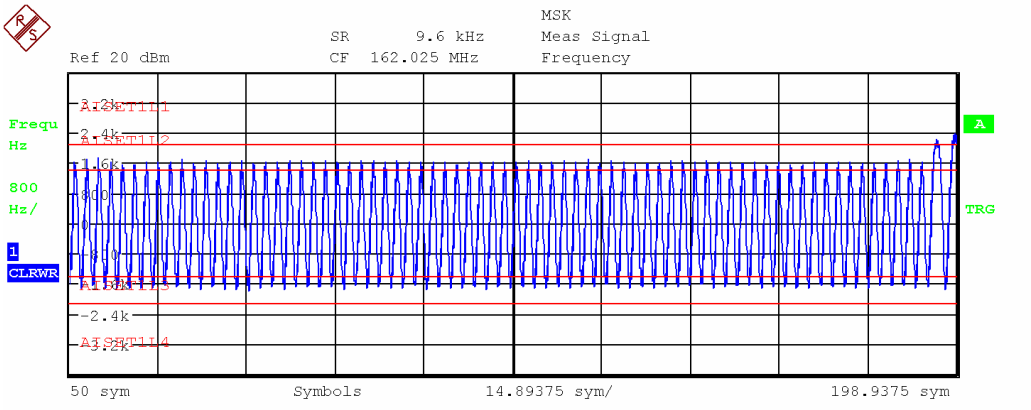


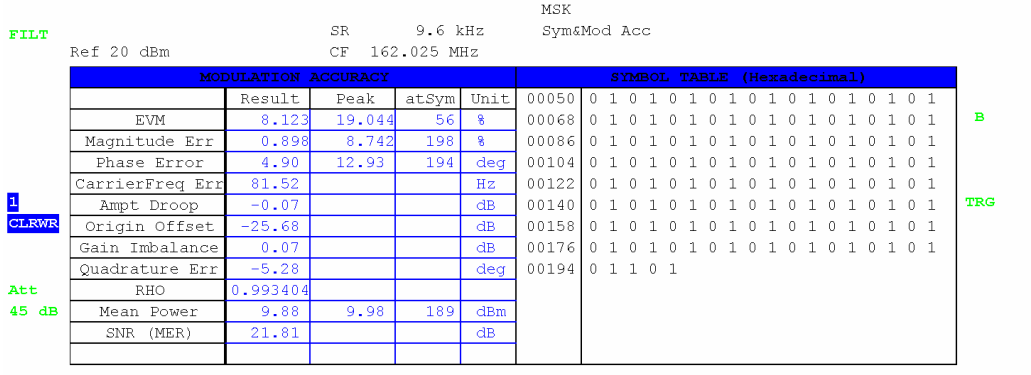


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	17.733	40.084	0	%
Magnitude Err	4.838	12.105	26	%
Phase Error	9.91	22.04	0	deg
CarrierFreq Err	169.04			Hz
Ampt Droop	0.81			dB
Origin Offset	-19.00			dB
Gain Imbalance	-0.44			dB
Quadrature Err	3.18			deg
RHO	0.968585			
Mean Power	8.79	9.92	26	dBm
SNR (MER)	15.02			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





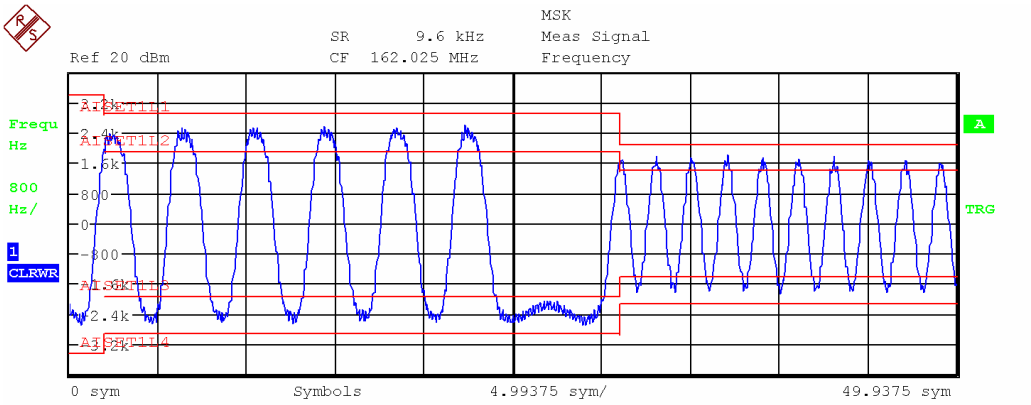
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	8.123	19.044	56	%
Magnitude Err	0.898	8.742	198	%
Phase Error	4.90	12.93	194	deg
CarrierFreq Err	81.52			Hz
Ampt Droop	-0.07			dB
Origin Offset	-25.68			dB
Gain Imbalance	0.07			dB
Quadrature Err	-5.28			deg
RHO	0.993404			
Mean Power	9.88	9.98	189	dBm
SNR (MER)	21.81			dB

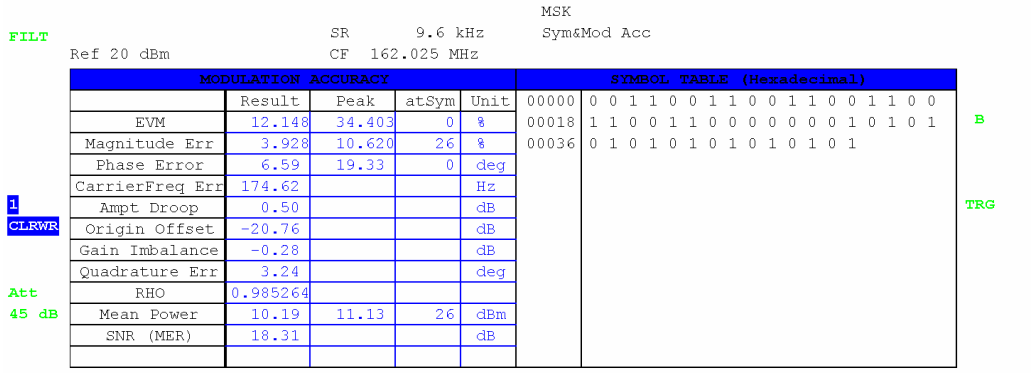
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : -40°C – 12Vdc – Test signal 1

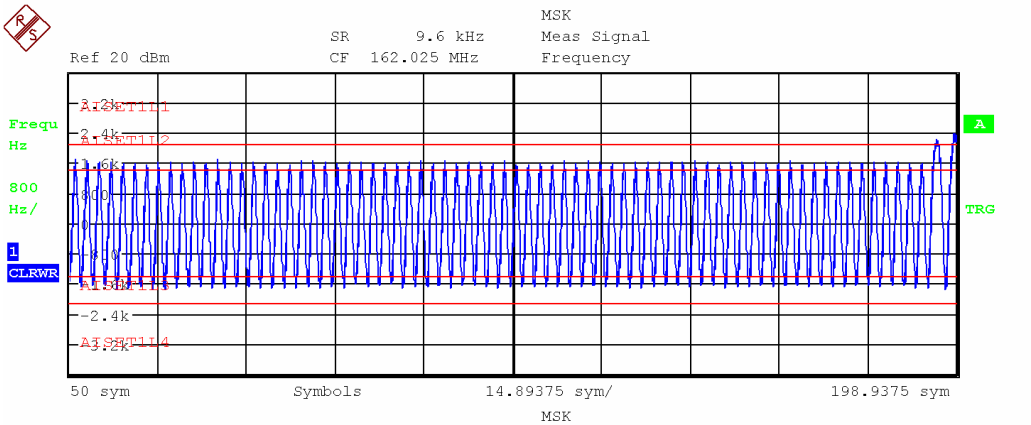
Bit 0 to bit 50

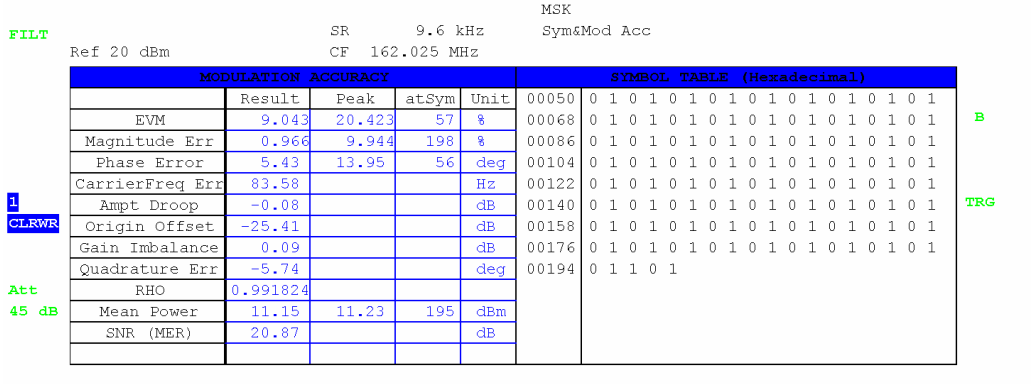




MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
EVM	12.148	34.403	0	%	00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
Magnitude Err	3.928	10.620	26	%	00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1
Phase Error	6.59	19.33	0	deg		
CarrierFreq Err	174.62			Hz		
Ampt Droop	0.50			dB		
Origin Offset	-20.76			dB		
Gain Imbalance	-0.28			dB		
Quadrature Err	3.24			deg		
RHO	0.985264					
Mean Power	10.19	11.13	26	dBm		
SNR (MER)	18.31			dB		

Bit 50 to bit 199



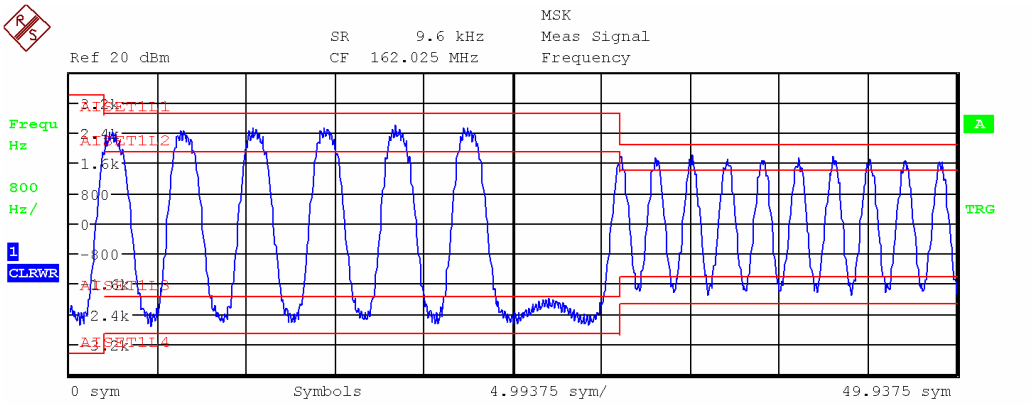


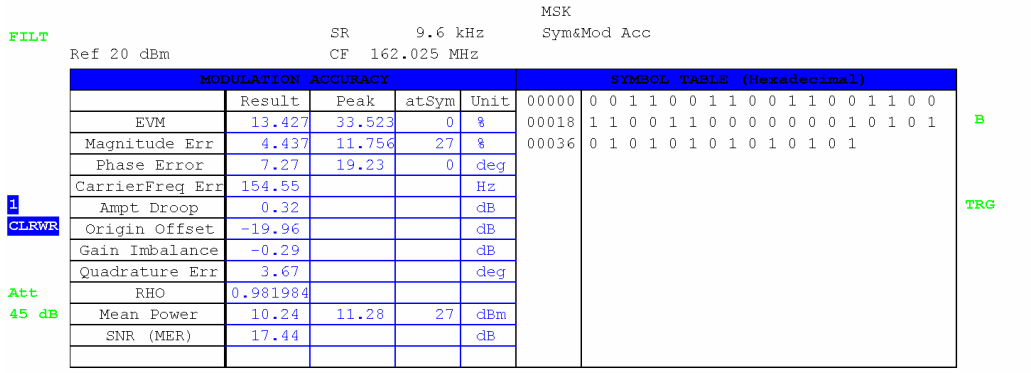
MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
EVM	9.043	20.423	57	%	00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Magnitude Err	0.966	9.944	198	%	00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Phase Error	5.43	13.95	56	deg	00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
CarrierFreq Err	83.58			Hz	00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Ampt Droop	-0.08			dB	00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Origin Offset	-25.41			dB	00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Gain Imbalance	0.09			dB	00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Quadrature Err	-5.74			deg	00194	0 1 1 0 1
RHO	0.991824					
Mean Power	11.15	11.23	195	dBm		
SNR (MER)	20.87			dB		

COMPLIANT

Frequency: 162.025 MHz : -40°C – 24Vdc – Test signal 1

Bit 0 to bit 50

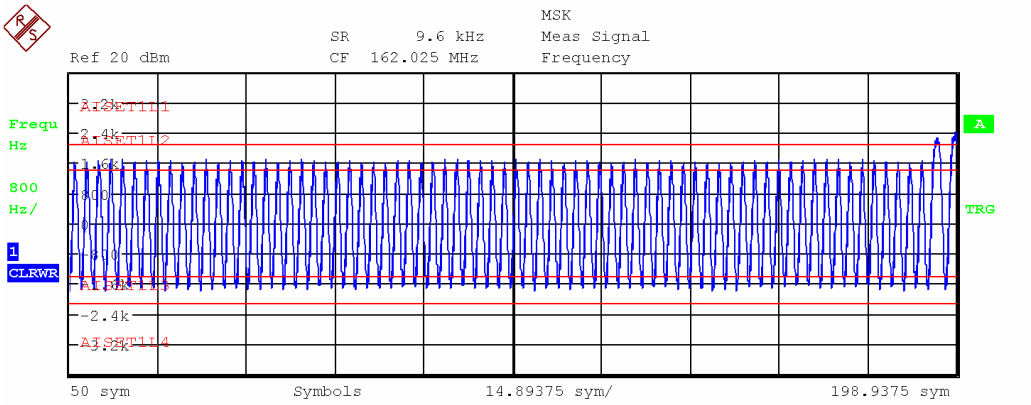


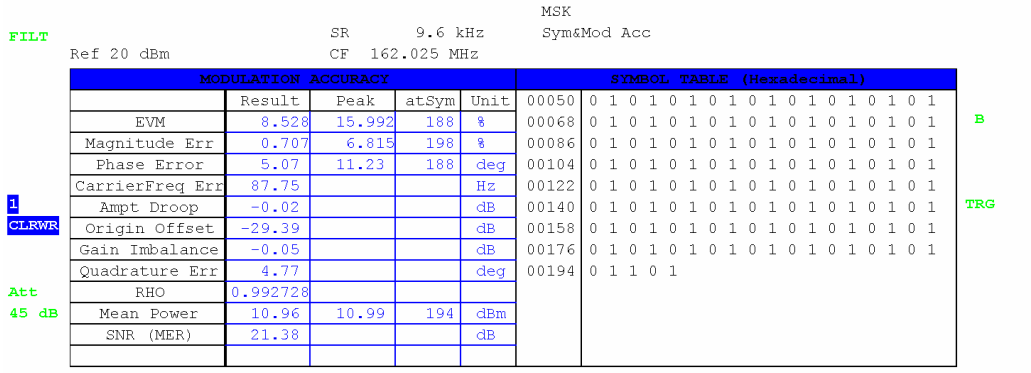


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.427	33.523	0	%
Magnitude Err	4.437	11.756	27	%
Phase Error	7.27	19.23	0	deg
CarrierFreq Err	154.55			Hz
Ampt Droop	0.32			dB
Origin Offset	-19.96			dB
Gain Imbalance	-0.29			dB
Quadrature Err	3.67			deg
RHO	0.981984			
Mean Power	10.24	11.28	27	dBm
SNR (MER)	17.44			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





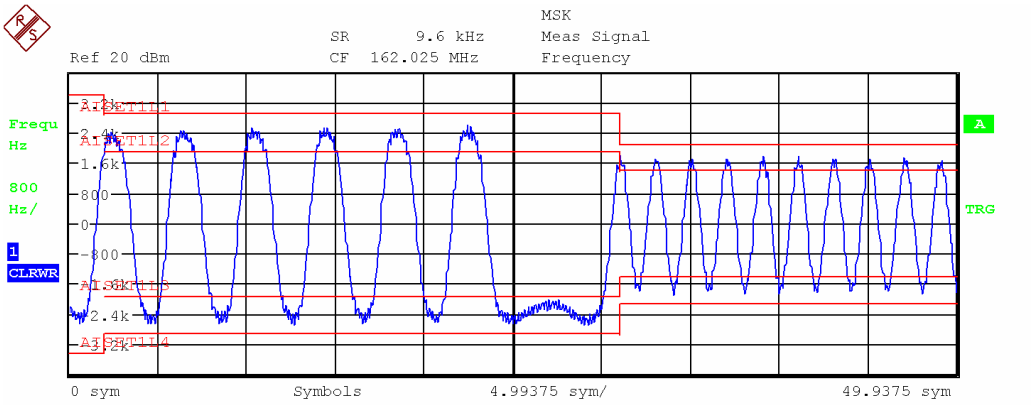
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	8.528	15.992	188	%
Magnitude Err	0.707	6.815	198	%
Phase Error	5.07	11.23	188	deg
CarrierFreq Err	87.75			Hz
Ampt Droop	-0.02			dB
Origin Offset	-29.39			dB
Gain Imbalance	-0.05			dB
Quadrature Err	4.77			deg
RHO	0.992728			
Mean Power	10.96	10.99	194	dBm
SNR (MER)	21.38			dB

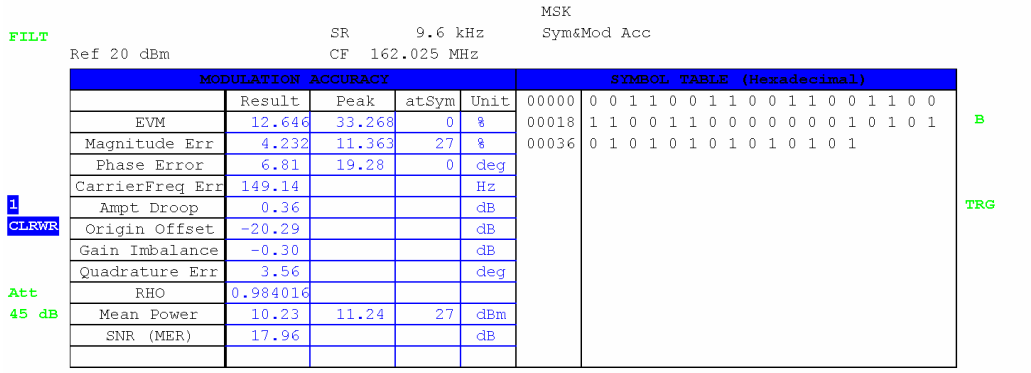
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : -40°C – 30Vdc – Test signal 1

Bit 0 to bit 50

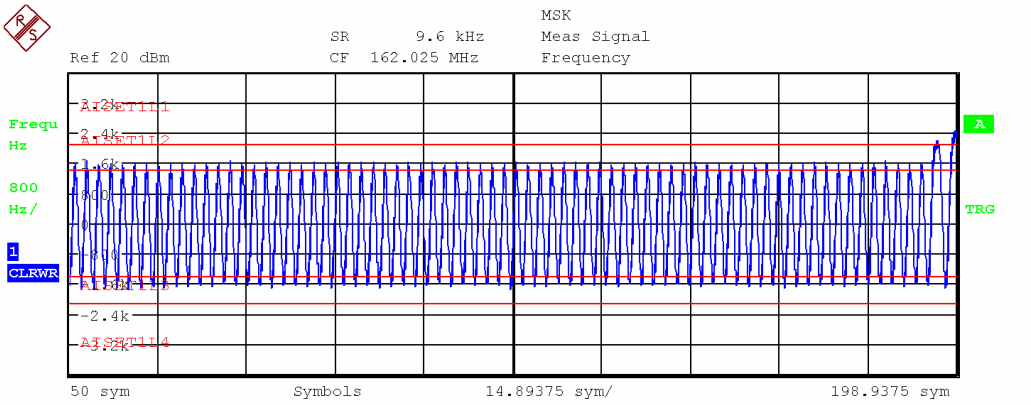


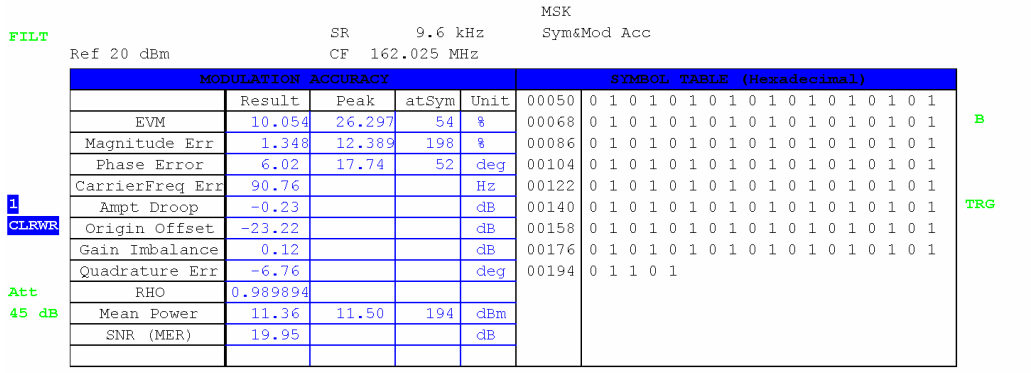


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	12.646	33.268	0	%
Magnitude Err	4.232	11.363	27	%
Phase Error	6.81	19.28	0	deg
CarrierFreq Err	149.14			Hz
Ampt Droop	0.36			dB
Origin Offset	-20.29			dB
Gain Imbalance	-0.30			dB
Quadrature Err	3.56			deg
RHO	0.984016			
Mean Power	10.23	11.24	27	dBm
SNR (MER)	17.96			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





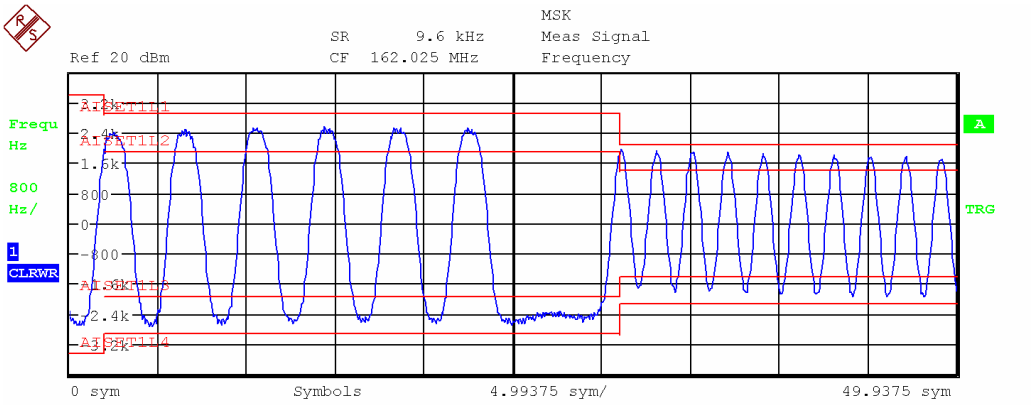
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	10.054	26.297	54	%
Magnitude Err	1.348	12.389	198	%
Phase Error	6.02	17.74	52	deg
CarrierFreq Err	90.76			Hz
Ampt Droop	-0.23			dB
Origin Offset	-23.22			dB
Gain Imbalance	0.12			dB
Quadrature Err	-6.76			deg
RHO	0.989894			
Mean Power	11.36	11.50	194	dBm
SNR (MER)	19.95			dB

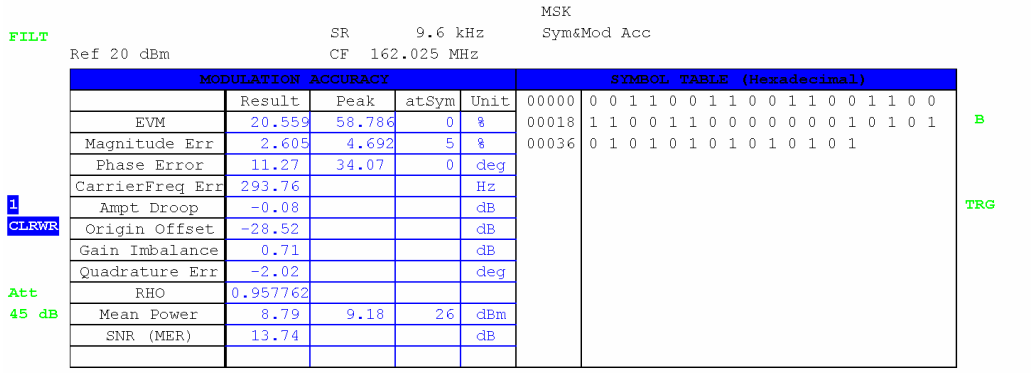
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : +55°C – 10Vdc – Test signal 1

Bit 0 to bit 50

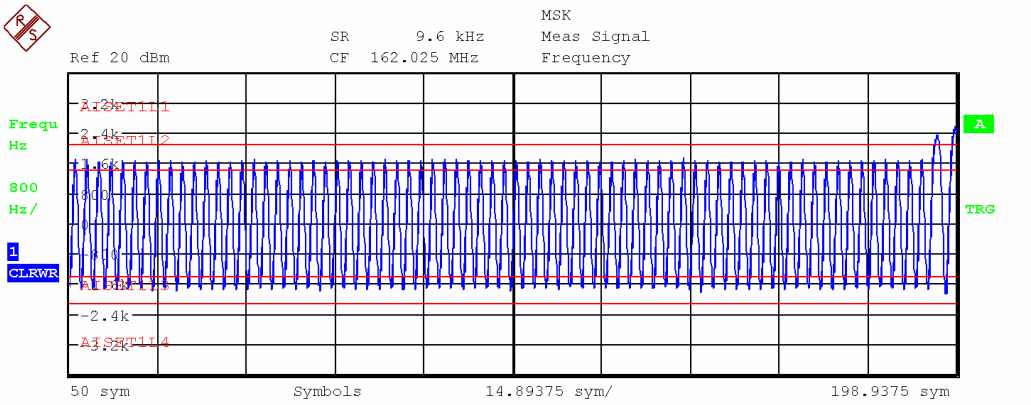


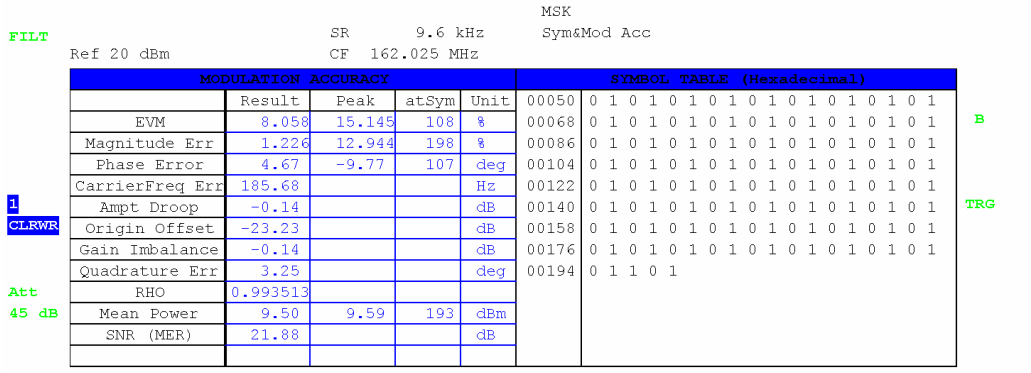


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	20.559	58.786	0	%
Magnitude Err	2.605	4.692	5	%
Phase Error	11.27	34.07	0	deg
CarrierFreq Err	293.76			Hz
Ampt Droop	-0.08			dB
Origin Offset	-28.52			dB
Gain Imbalance	0.71			dB
Quadrature Err	-2.02			deg
RHO	0.957762			
Mean Power	8.79	9.18	26	dBm
SNR (MER)	13.74			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





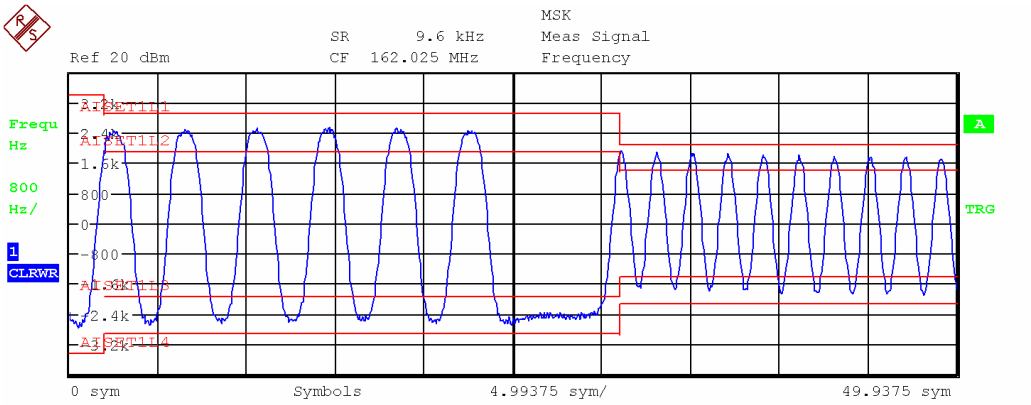
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	8.058	15.145	108	%
Magnitude Err	1.226	12.944	198	%
Phase Error	4.67	-9.77	107	deg
CarrierFreq Err	185.68			Hz
Ampt Droop	-0.14			dB
Origin Offset	-23.23			dB
Gain Imbalance	-0.14			dB
Quadrature Err	3.25			deg
RHO	0.993513			
Mean Power	9.50	9.59	193	dBm
SNR (MER)	21.88			dB

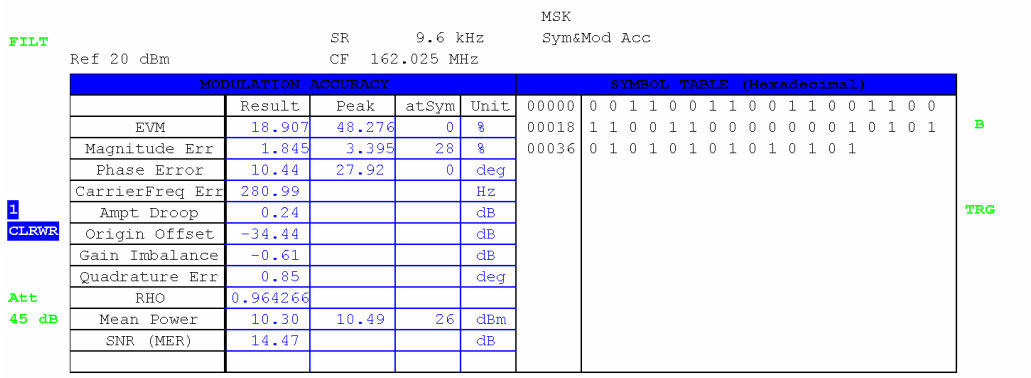
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : +55°C – 12Vdc – Test signal 1

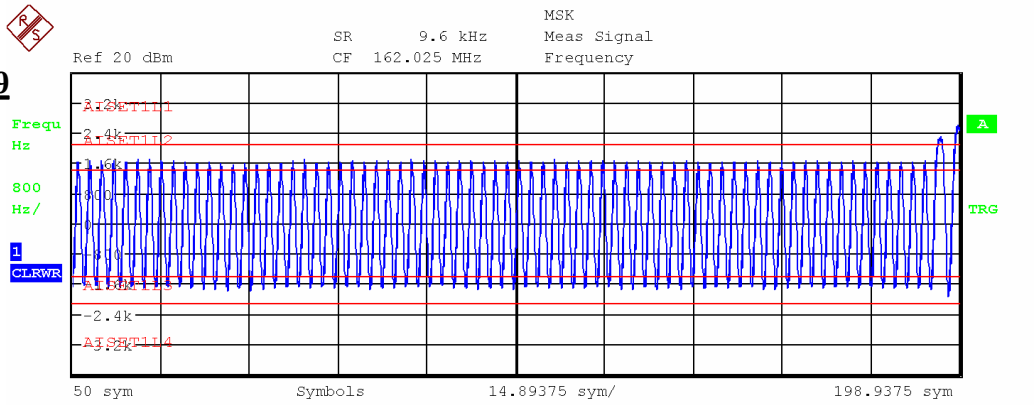
Bit 0 to bit 50

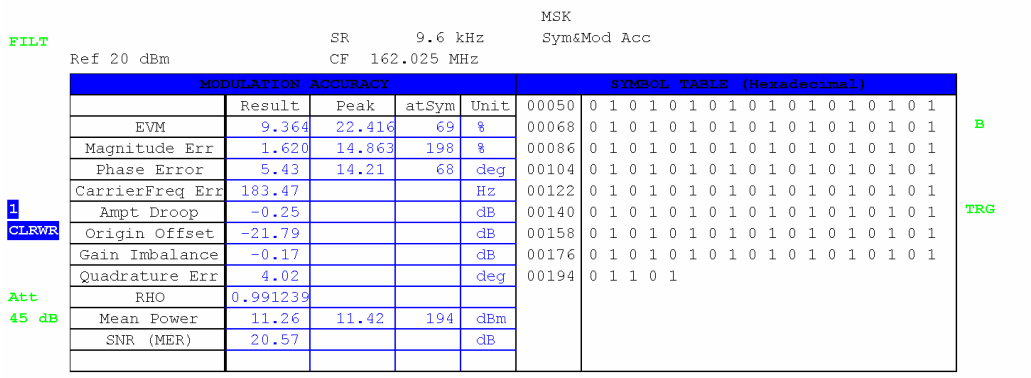




MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
EVM	18.907	48.276	0	%	00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
Magnitude Err	1.845	3.395	28	%	00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1
Phase Error	10.44	27.92	0	deg		
CarrierFreq Err	280.99			Hz		
Ampt Droop	0.24			dB		
Origin Offset	-34.44			dB		
Gain Imbalance	-0.61			dB		
Quadrature Err	0.85			deg		
RHO	0.964266					
Mean Power	10.30	10.49	26	dBm		
SNR (MER)	14.47			dB		

Bit 50 to bit 199



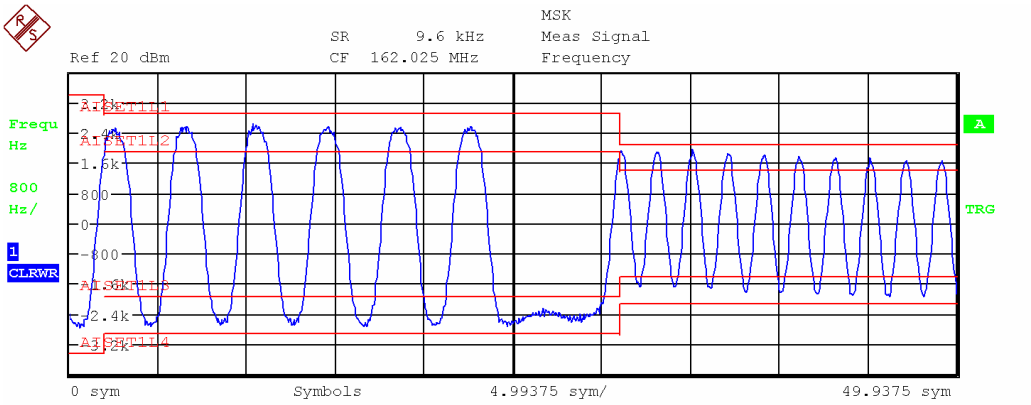


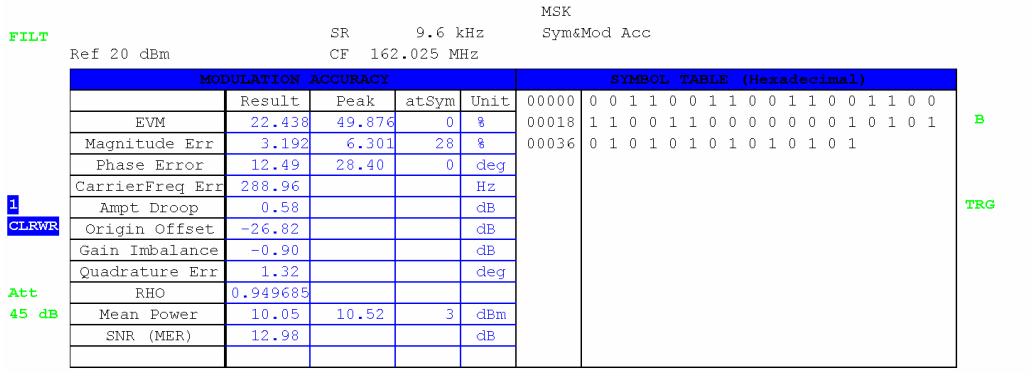
MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
EVM	9.364	22.416	69	%	00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Magnitude Err	1.620	14.863	198	%	00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Phase Error	5.43	14.21	68	deg	00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
CarrierFreq Err	183.47			Hz	00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Ampt Droop	-0.25			dB	00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Origin Offset	-21.79			dB	00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Gain Imbalance	-0.17			dB	00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
Quadrature Err	4.02			deg	00194	0 1 1 0 1
RHO	0.991239					
Mean Power	11.26	11.42	194	dBm		
SNR (MER)	20.57			dB		

COMPLIANT

Frequency: 162.025 MHz : +55°C – 24Vdc – Test signal 1

Bit 0 to bit 50

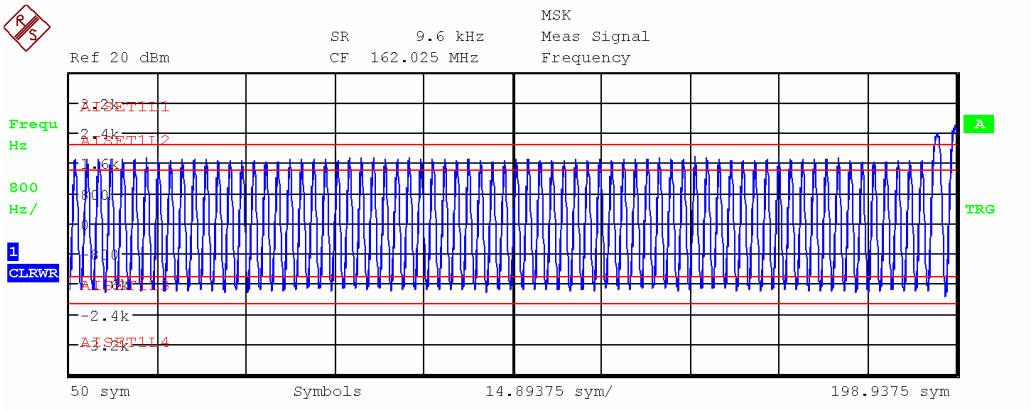


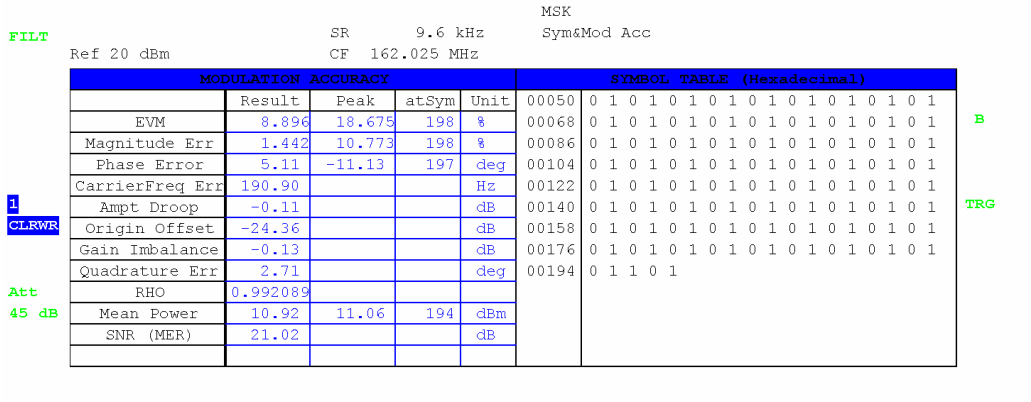


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	22.438	49.876	0	%
Magnitude Err	3.192	6.301	28	%
Phase Error	12.49	28.40	0	deg
CarrierFreq Err	288.96			Hz
Ampt Droop	0.58			dB
Origin Offset	-26.82			dB
Gain Imbalance	-0.90			dB
Quadrature Err	1.32			deg
RHO	0.949685			
Mean Power	10.05	10.52	3	dBm
SNR (MER)	12.98			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





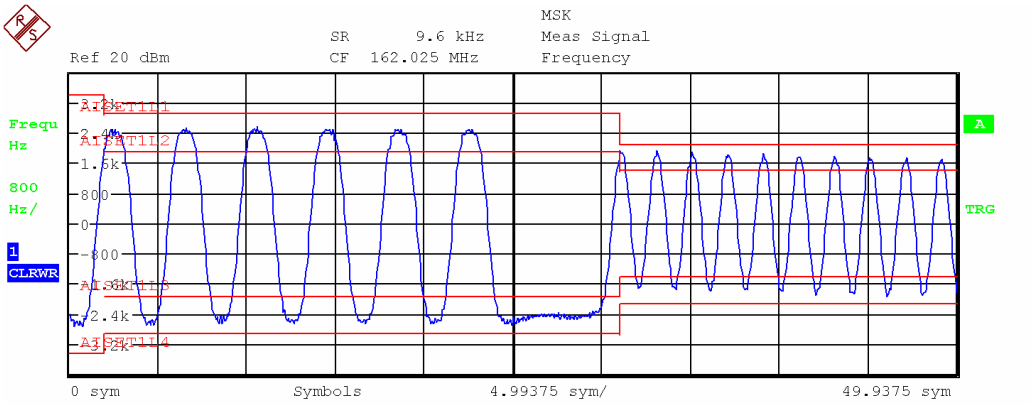
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	8.896	18.675	198	%
Magnitude Err	1.442	10.773	198	%
Phase Error	5.11	-11.13	197	deg
CarrierFreq Err	190.90			Hz
Ampt Droop	-0.11			dB
Origin Offset	-24.36			dB
Gain Imbalance	-0.13			dB
Quadrature Err	2.71			deg
RHO	0.992089			
Mean Power	10.92	11.06	194	dBm
SNR (MER)	21.02			dB

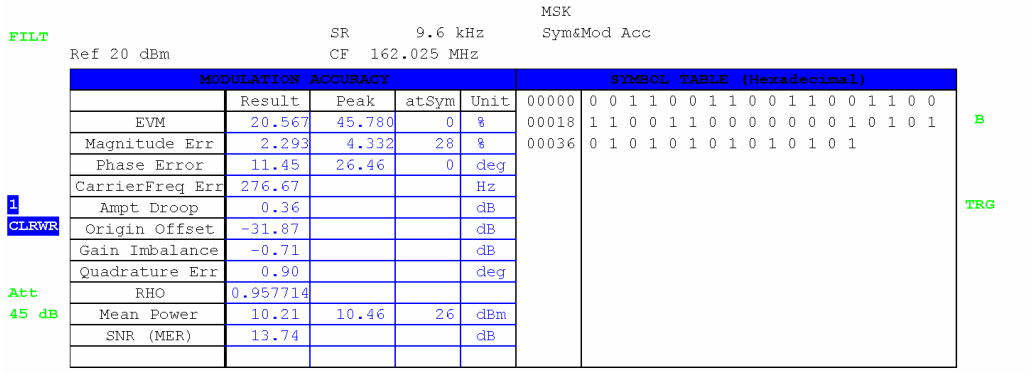
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : +55°C – 30Vdc – Test signal 1

Bit 0 to bit 50

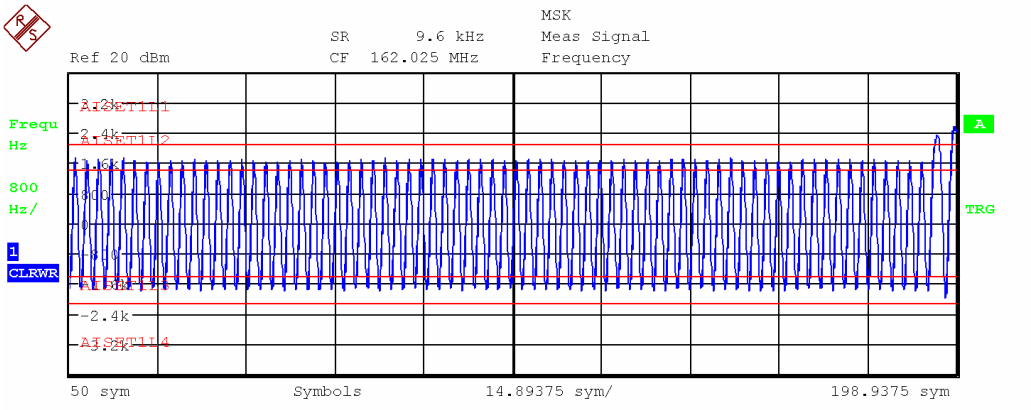


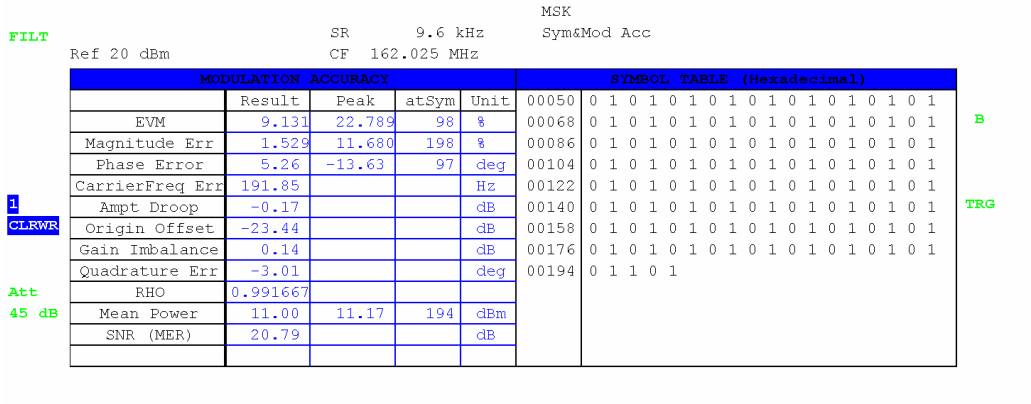


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	20.567	45.780	0	%
Magnitude Err	2.293	4.332	28	%
Phase Error	11.45	26.46	0	deg
CarrierFreq Err	276.67			Hz
Ampt Droop	0.36			dB
Origin Offset	-31.87			dB
Gain Imbalance	-0.71			dB
Quadrature Err	0.90			deg
RHO	0.957714			
Mean Power	10.21	10.46	26	dBm
SNR (MER)	13.74			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 0 1 0 1
00036	0 1 0 1 0 1 0 1 0 1 0 1 0 1

Bit 50 to bit 199





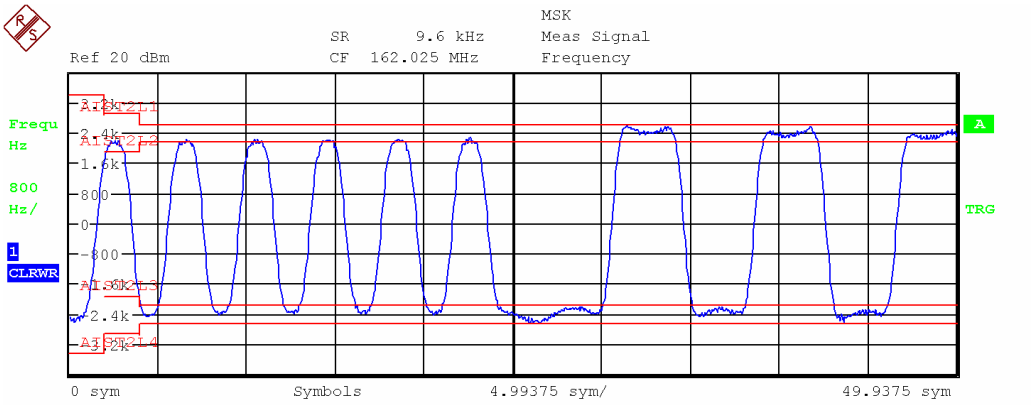
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	9.131	22.789	98	%
Magnitude Err	1.529	11.680	198	%
Phase Error	5.26	-13.63	97	deg
CarrierFreq Err	191.85			Hz
Ampt Droop	-0.17			dB
Origin Offset	-23.44			dB
Gain Imbalance	0.14			dB
Quadrature Err	-3.01			deg
RHO	0.991667			
Mean Power	11.00	11.17	194	dBm
SNR (MER)	20.79			dB

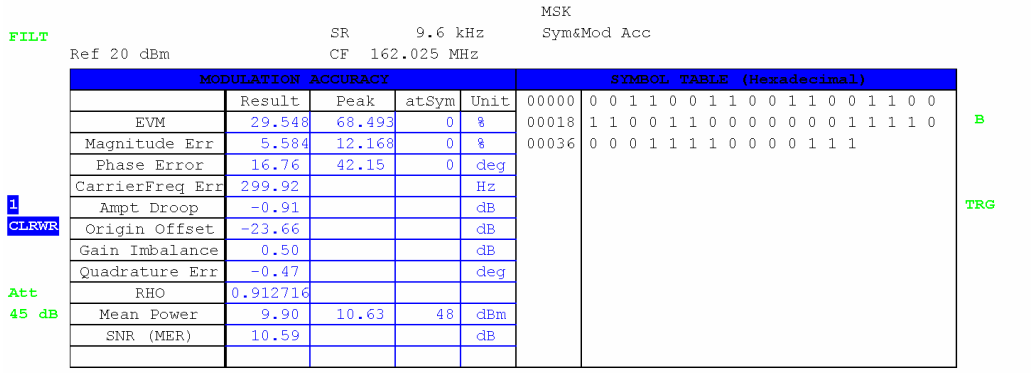
SYMBOL TABLE (Hexadecimal)	
00050	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00068	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00086	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00104	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00122	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00140	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00158	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00176	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1
00194	0 1 1 0 1

COMPLIANT

Frequency: 162.025 MHz : +18°C – 10Vdc – Test signal 2

Bit 0 to bit 50

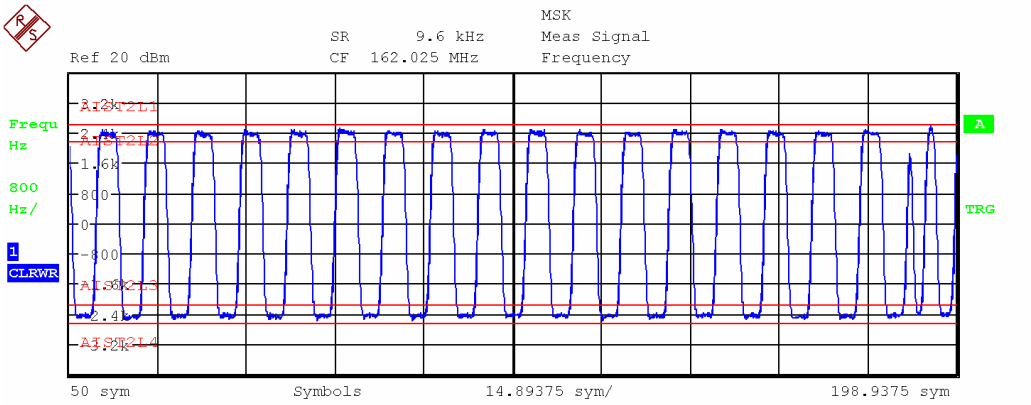


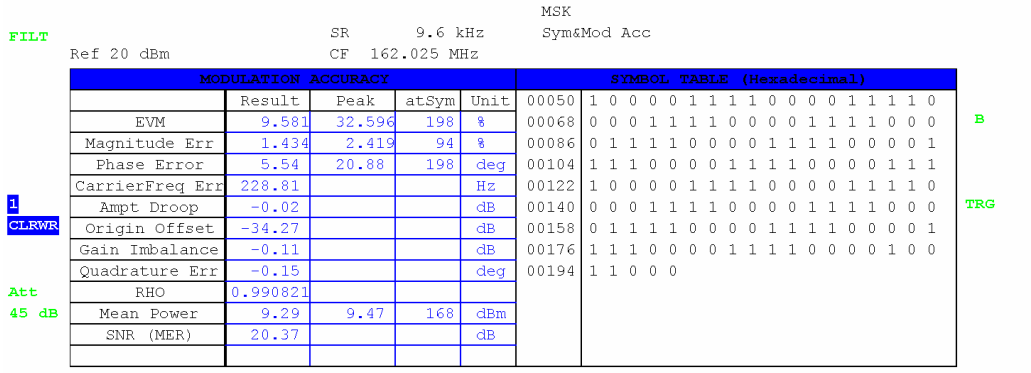


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	29.548	68.493	0	%
Magnitude Err	5.584	12.168	0	%
Phase Error	16.76	42.15	0	deg
CarrierFreq Err	299.92			Hz
Ampt Droop	-0.91			dB
Origin Offset	-23.66			dB
Gain Imbalance	0.50			dB
Quadrature Err	-0.47			deg
RHO	0.912716			
Mean Power	9.90	10.63	48	dBm
SNR (MER)	10.59			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





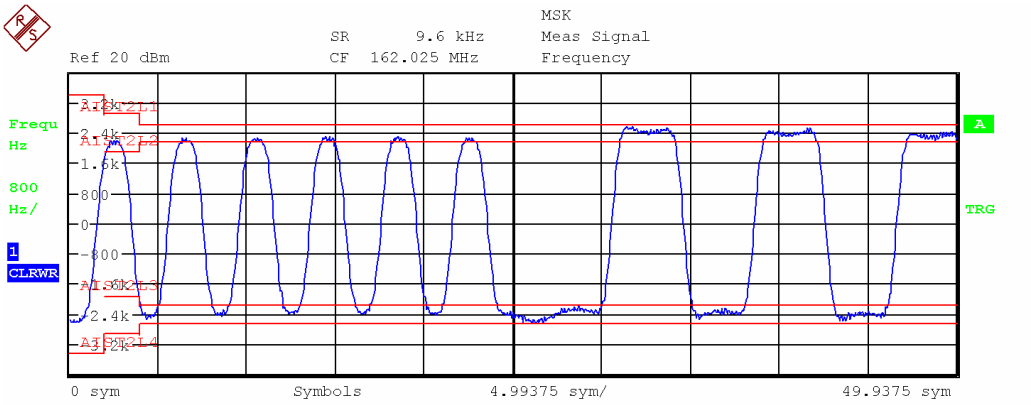
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	9.581	32.596	198	%
Magnitude Err	1.434	2.419	94	%
Phase Error	5.54	20.88	198	deg
CarrierFreq Err	228.81			Hz
Ampt Droop	-0.02			dB
Origin Offset	-34.27			dB
Gain Imbalance	-0.11			dB
Quadrature Err	-0.15			deg
RHO	0.990821			
Mean Power	9.29	9.47	168	dBm
SNR (MER)	20.37			dB

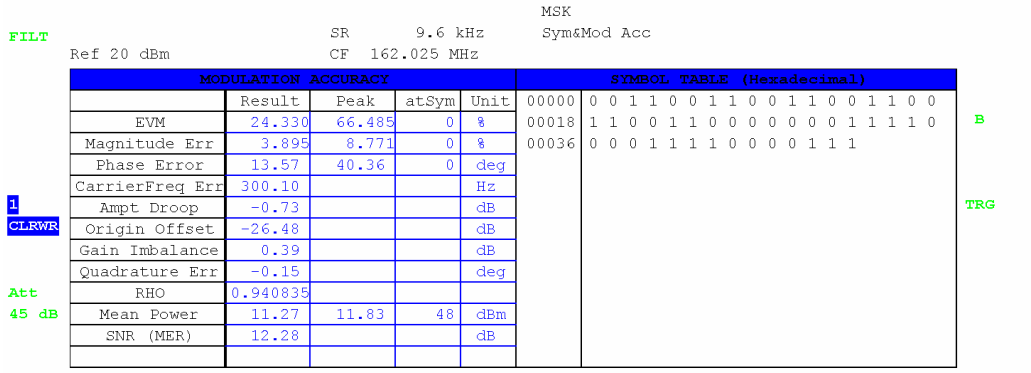
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +18°C – 12Vdc – Test signal 2

Bit 0 to bit 50

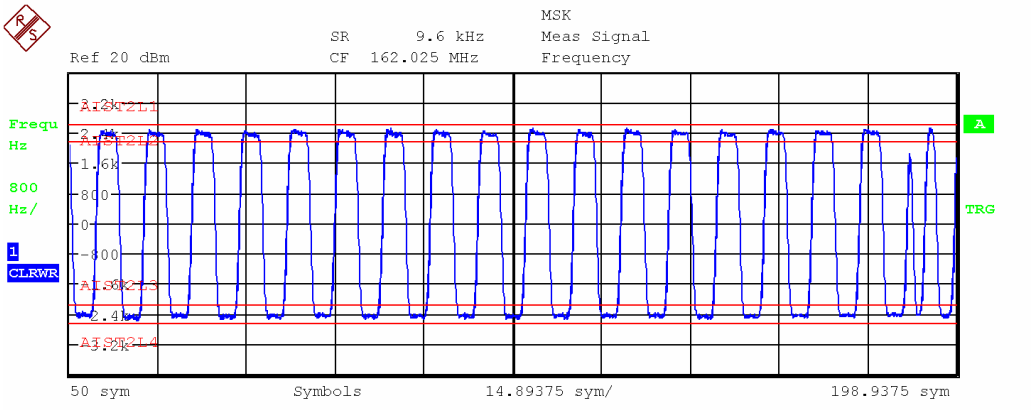


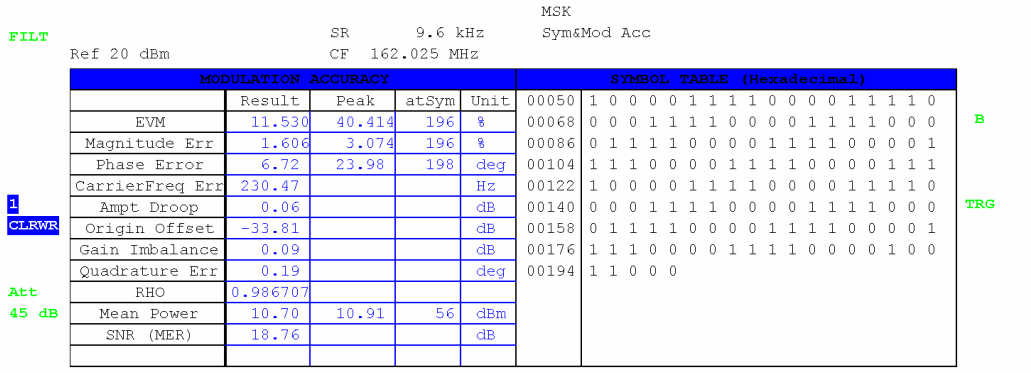


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	24.330	66.485	0	%
Magnitude Err	3.895	8.771	0	%
Phase Error	13.57	40.36	0	deg
CarrierFreq Err	300.10			Hz
Ampt Droop	-0.73			dB
Origin Offset	-26.48			dB
Gain Imbalance	0.39			dB
Quadrature Err	-0.15			deg
RHO	0.940835			
Mean Power	11.27	11.83	48	dBm
SNR (MER)	12.28			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





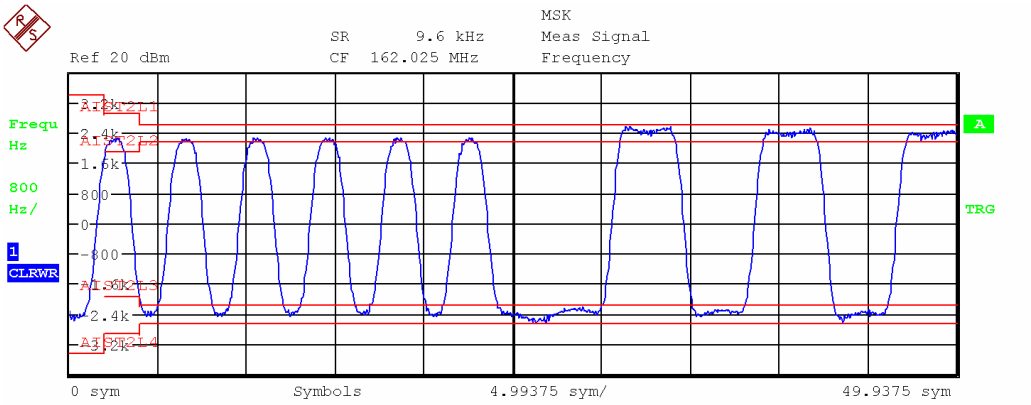
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	11.530	40.414	196	%
Magnitude Err	1.606	3.074	196	%
Phase Error	6.72	23.98	198	deg
CarrierFreq Err	230.47			Hz
Ampt Droop	0.06			dB
Origin Offset	-33.81			dB
Gain Imbalance	0.09			dB
Quadrature Err	0.19			deg
RHO	0.986707			
Mean Power	10.70	10.91	56	dBm
SNR (MER)	18.76			dB

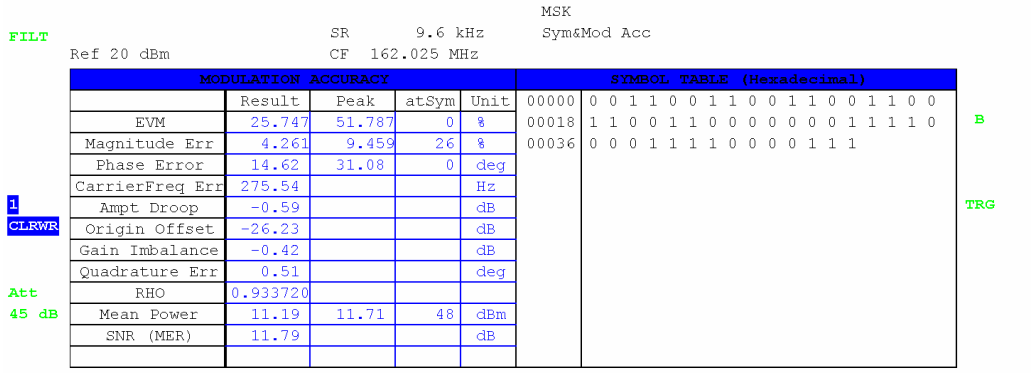
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +18°C – 24Vdc – Test signal 2

Bit 0 to bit 50

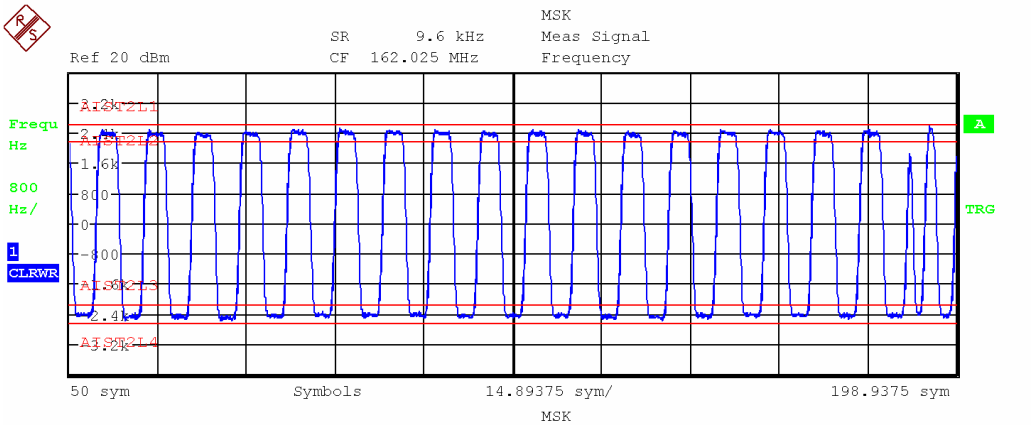


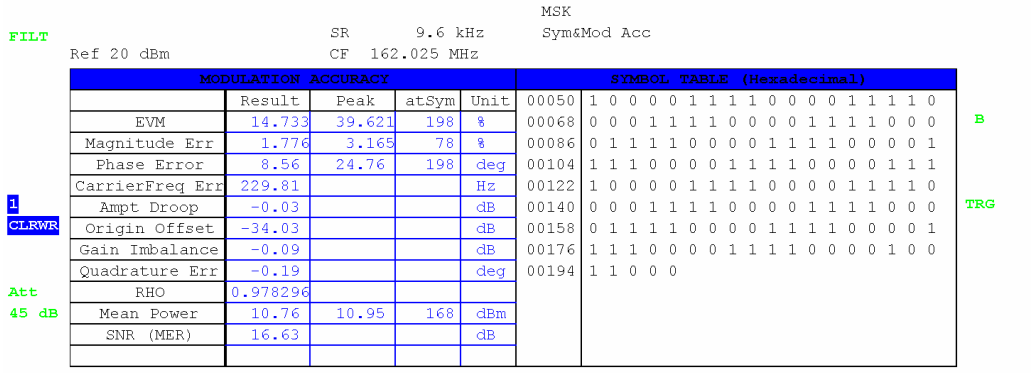


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	25.747	51.787	0	%
Magnitude Err	4.261	9.459	26	%
Phase Error	14.62	31.08	0	deg
CarrierFreq Err	275.54			Hz
Ampt Droop	-0.59			dB
Origin Offset	-26.23			dB
Gain Imbalance	-0.42			dB
Quadrature Err	0.51			deg
RHO	0.933720			
Mean Power	11.19	11.71	48	dBm
SNR (MER)	11.79			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





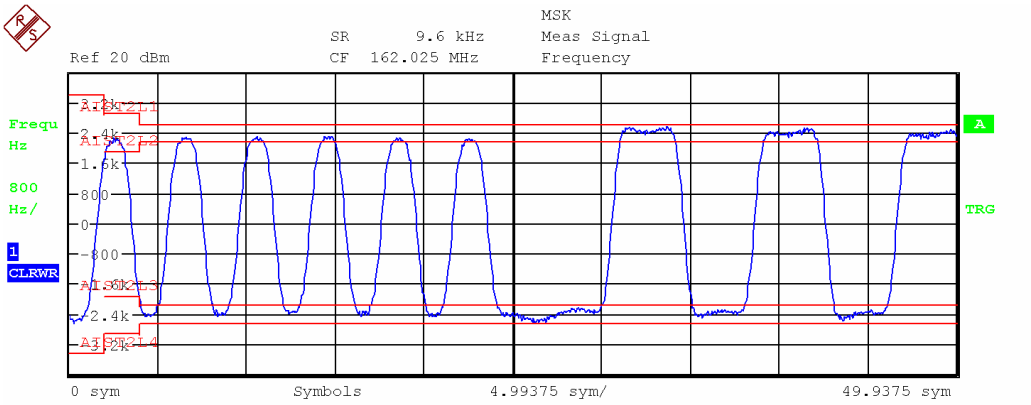
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	14.733	39.621	198	%
Magnitude Err	1.776	3.165	78	%
Phase Error	8.56	24.76	198	deg
CarrierFreq Err	229.81			Hz
Ampt Droop	-0.03			dB
Origin Offset	-34.03			dB
Gain Imbalance	-0.09			dB
Quadrature Err	-0.19			deg
RHO	0.978296			
Mean Power	10.76	10.95	168	dBm
SNR (MER)	16.63			dB

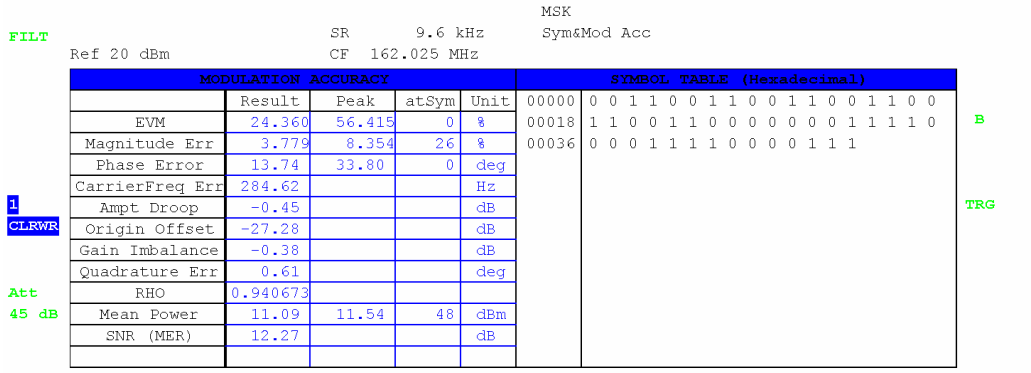
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +18°C – 30Vdc – Test signal 2

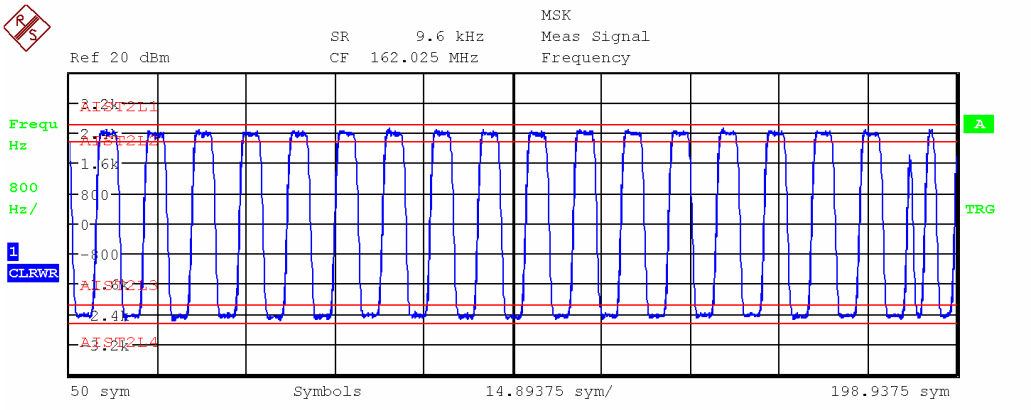
Bit 0 to bit 50

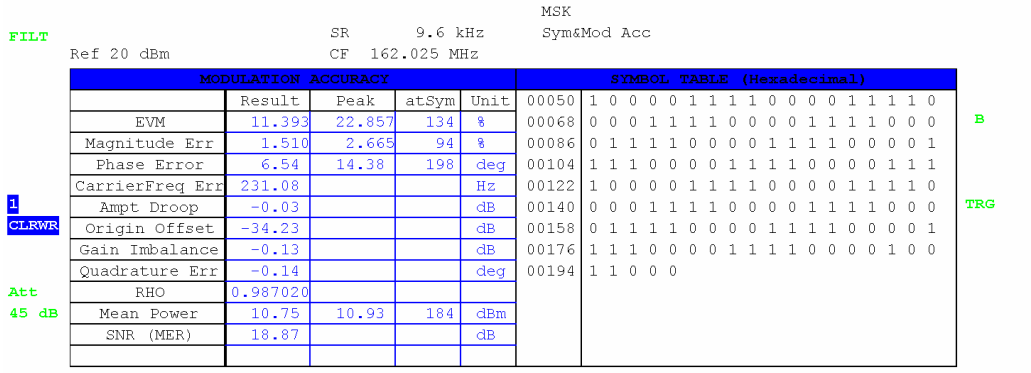




MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
EVM	24.360	56.415	0	%	00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
Magnitude Err	3.779	8.354	26	%	00036	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1
Phase Error	13.74	33.80	0	deg		
CarrierFreq Err	284.62			Hz		
Ampt Droop	-0.45			dB		
Origin Offset	-27.28			dB		
Gain Imbalance	-0.38			dB		
Quadrature Err	0.61			deg		
RHO	0.940673					
Mean Power	11.09	11.54	48	dBm		
SNR (MER)	12.27			dB		

Bit 50 to bit 199



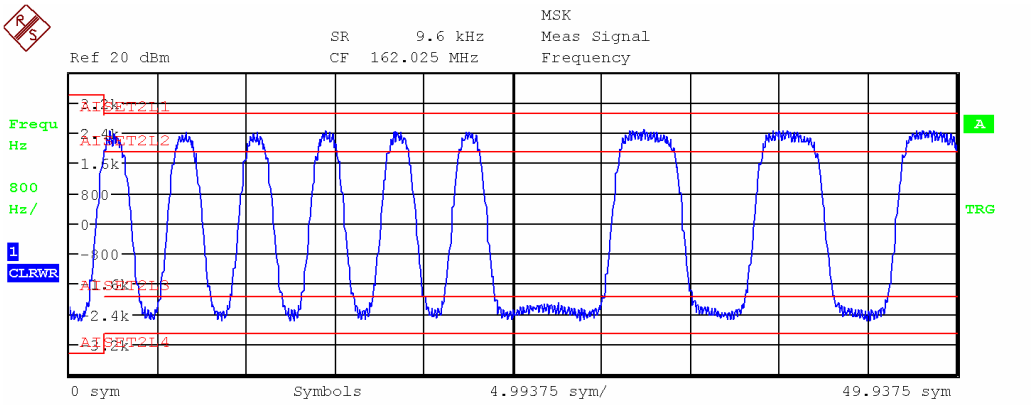


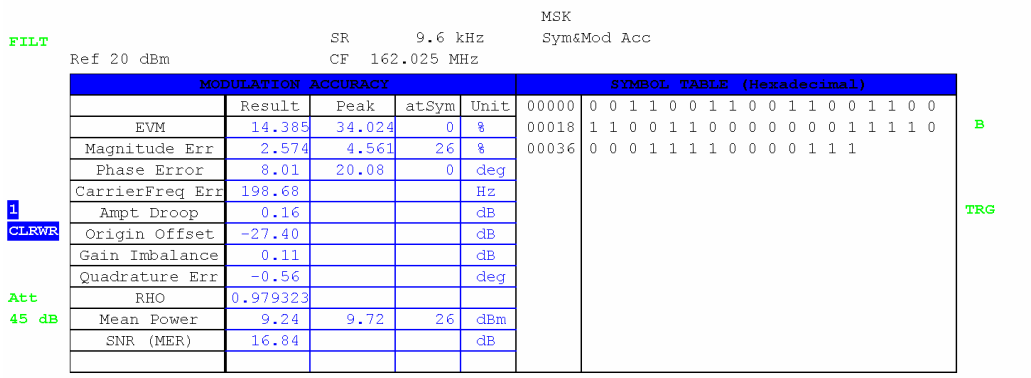
MODULATION ACCURACY					SYMBOL TABLE (Hexadecimal)	
	Result	Peak	atSym	Unit	00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
EVM	11.393	22.857	134	%	00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
Magnitude Err	1.510	2.665	94	%	00086	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
Phase Error	6.54	14.38	198	deg	00104	1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1
CarrierFreq Err	231.08			Hz	00122	1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 0
Ampt Droop	-0.03			dB	00140	0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0
Origin Offset	-34.23			dB	00158	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
Gain Imbalance	-0.13			dB	00176	1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 0 0
Quadrature Err	-0.14			deg	00194	1 1 0 0 0
RHO	0.987020					
Mean Power	10.75	10.93	184	dBm		
SNR (MER)	18.87			dB		

COMPLIANT

Frequency: 162.025 MHz : -40°C – 10Vdc – Test signal 2

Bit 0 to bit 50

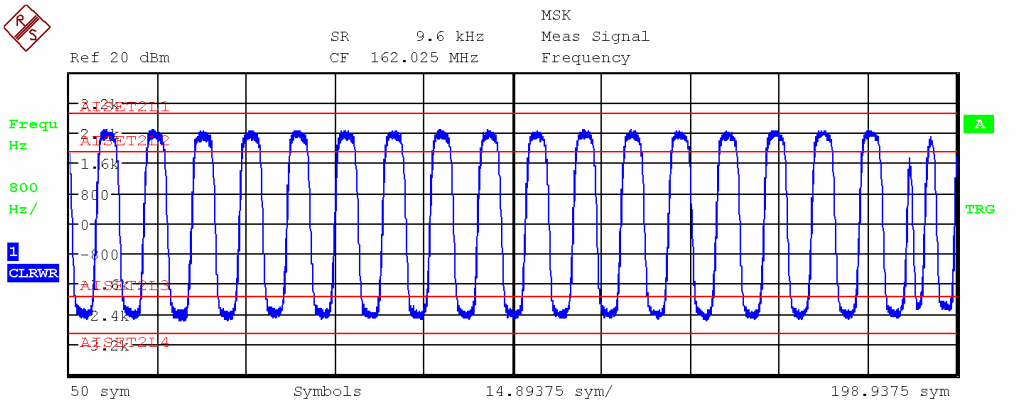


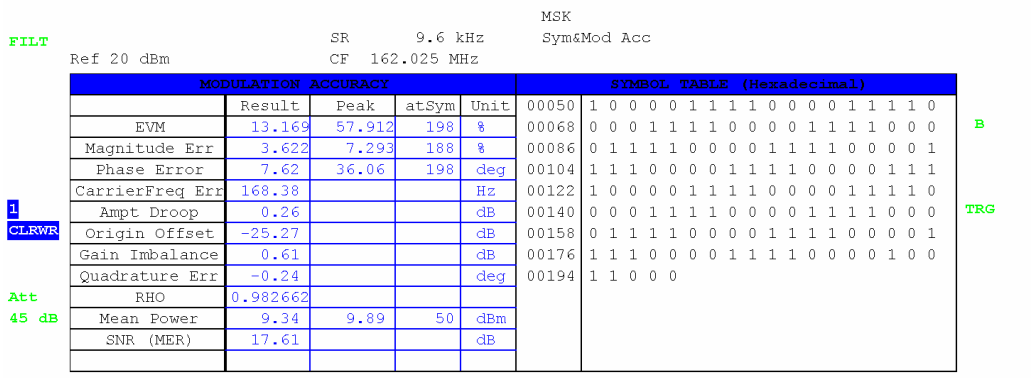


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	14.385	34.024	0	%
Magnitude Err	2.574	4.561	26	%
Phase Error	8.01	20.08	0	deg
CarrierFreq Err	198.68			Hz
Ampt Droop	0.16			dB
Origin Offset	-27.40			dB
Gain Imbalance	0.11			dB
Quadrature Err	-0.56			deg
RHO	0.979323			
Mean Power	9.24	9.72	26	dBm
SNR (MER)	16.84			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





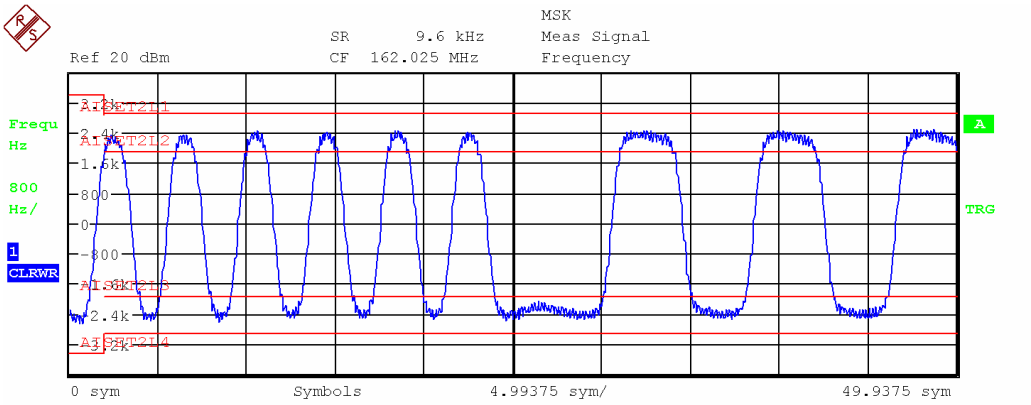
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.169	57.912	198	%
Magnitude Err	3.622	7.293	188	%
Phase Error	7.62	36.06	198	deg
CarrierFreq Err	168.38			Hz
Ampt Droop	0.26			dB
Origin Offset	-25.27			dB
Gain Imbalance	0.61			dB
Quadrature Err	-0.24			deg
RHO	0.982662			
Mean Power	9.34	9.89	50	dBm
SNR (MER)	17.61			dB

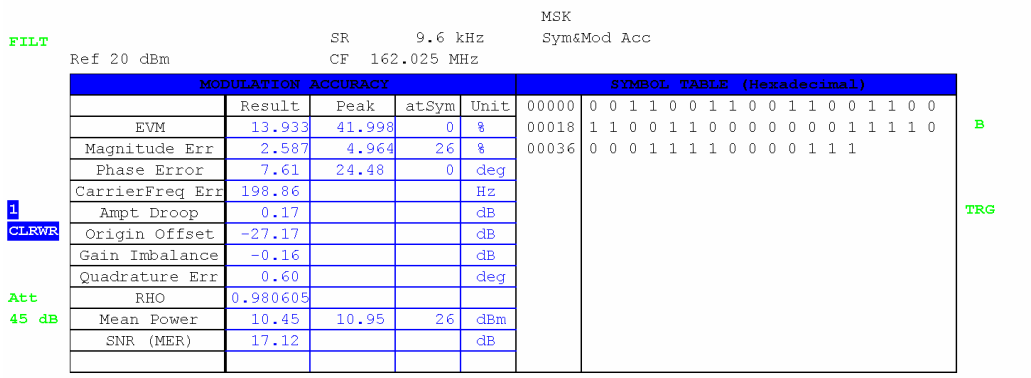
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : -40°C – 12Vdc – Test signal 2

Bit 0 to bit 50

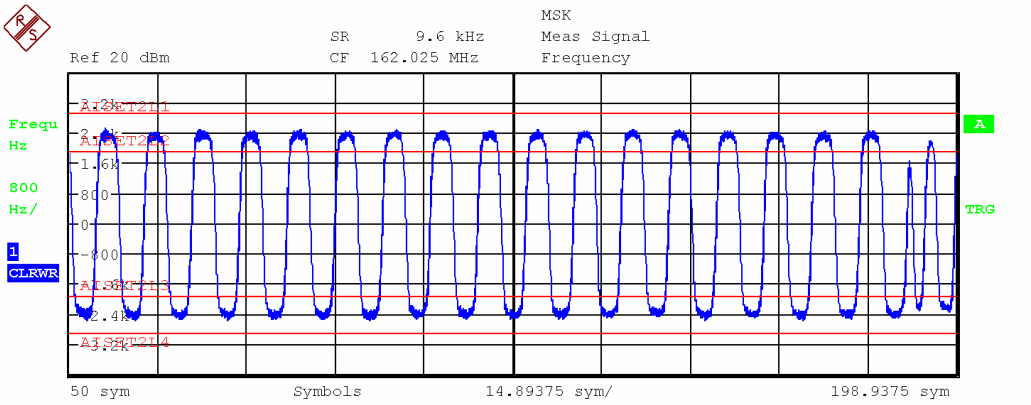


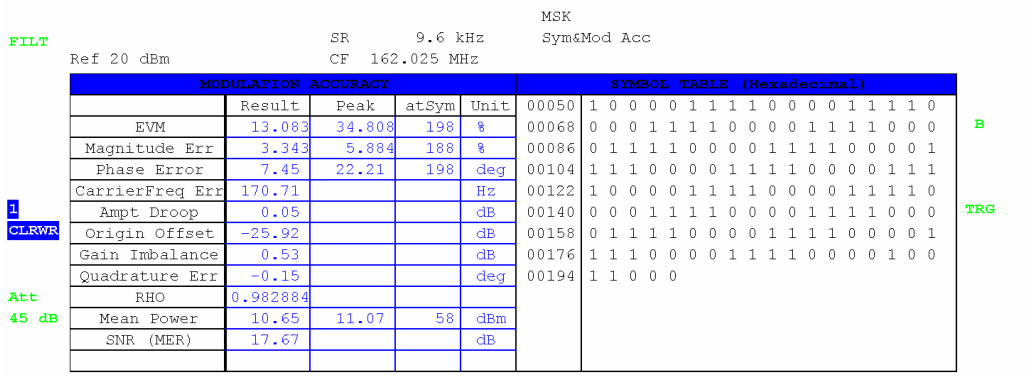


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.933	41.998	0	%
Magnitude Err	2.587	4.964	26	%
Phase Error	7.61	24.48	0	deg
CarrierFreq Err	198.86			Hz
Ampt Droop	0.17			dB
Origin Offset	-27.17			dB
Gain Imbalance	-0.16			dB
Quadrature Err	0.60			deg
RHO	0.980605			
Mean Power	10.45	10.95	26	dBm
SNR (MER)	17.12			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





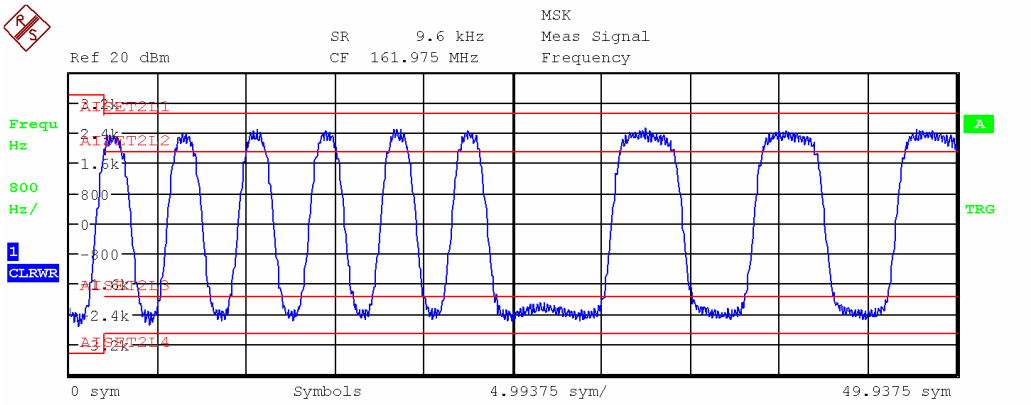
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.083	34.808	198	%
Magnitude Err	3.343	5.884	188	%
Phase Error	7.45	22.21	198	deg
CarrierFreq Err	170.71			Hz
Ampt Droop	0.05			dB
Origin Offset	-25.92			dB
Gain Imbalance	0.53			dB
Quadrature Err	-0.15			deg
RHO	0.982884			
Mean Power	10.65	11.07	58	dBm
SNR (MER)	17.67			dB

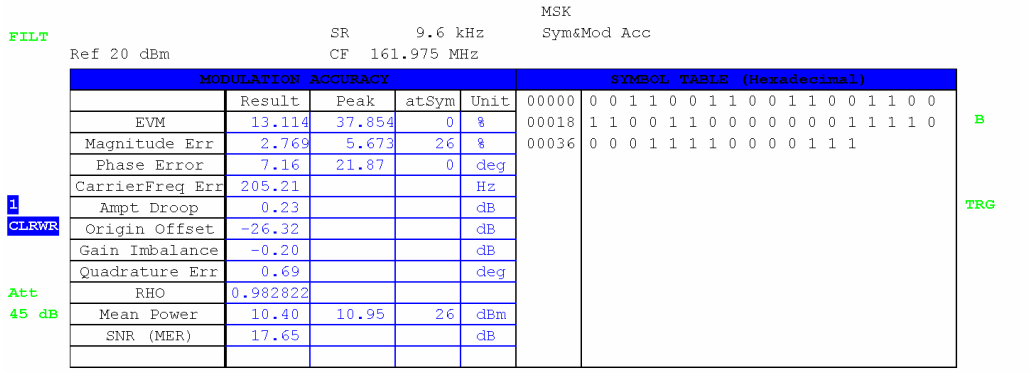
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 0 1 1 1 1 0 0 0 0 0 1 1 1
00122	1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : -40°C – 24Vdc – Test signal 2

Bit 0 to bit 50

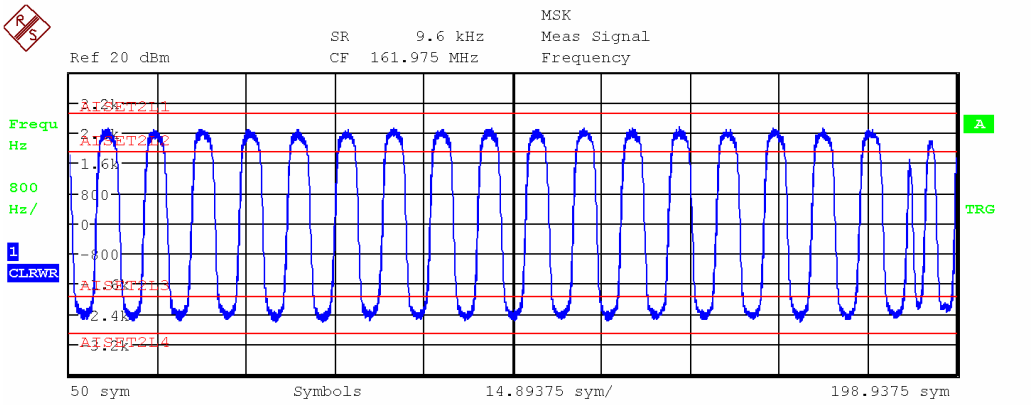


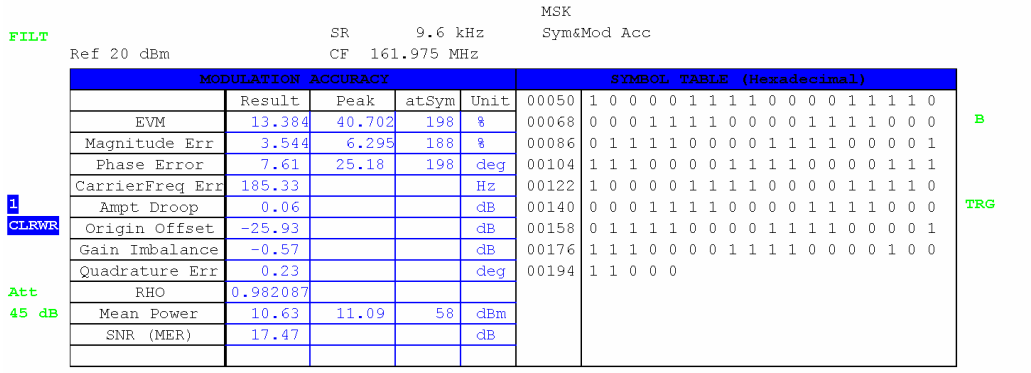


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.114	37.854	0	%
Magnitude Err	2.769	5.673	26	%
Phase Error	7.16	21.87	0	deg
CarrierFreq Err	205.21			Hz
Ampt Droop	0.23			dB
Origin Offset	-26.32			dB
Gain Imbalance	-0.20			dB
Quadrature Err	0.69			deg
RHO	0.982822			
Mean Power	10.40	10.95	26	dBm
SNR (MER)	17.65			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1

Bit 50 to bit 199





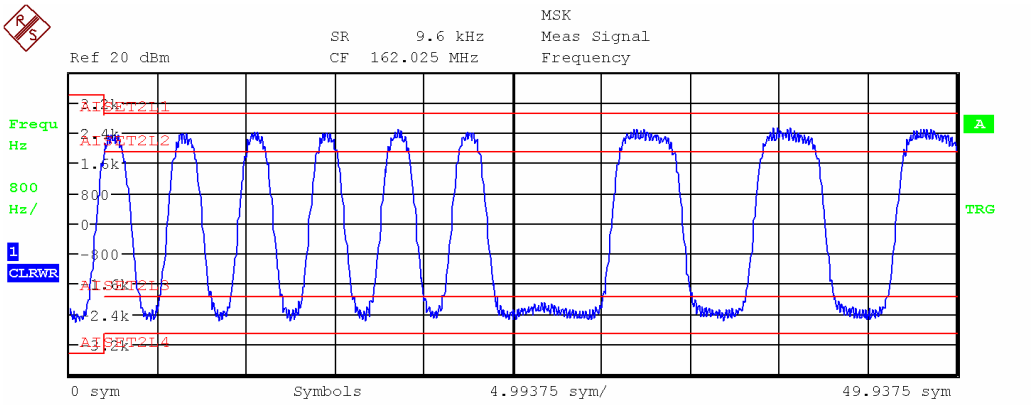
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.384	40.702	198	%
Magnitude Err	3.544	6.295	188	%
Phase Error	7.61	25.18	198	deg
CarrierFreq Err	185.33			Hz
Ampt Droop	0.06			dB
Origin Offset	-25.93			dB
Gain Imbalance	-0.57			dB
Quadrature Err	0.23			deg
RHO	0.982087			
Mean Power	10.63	11.09	58	dBm
SNR (MER)	17.47			dB

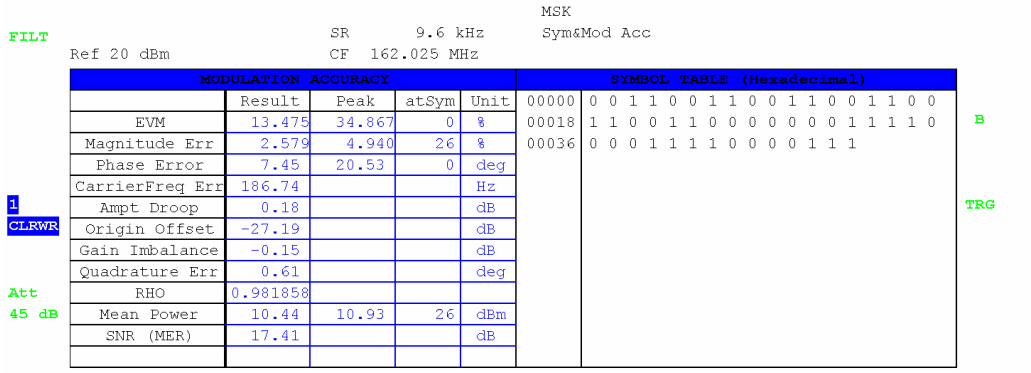
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 0 1 1 1 1 0 0 0 0 0 1 1 1
00122	1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : -40°C – 30Vdc – Test signal 2

Bit 0 to bit 50

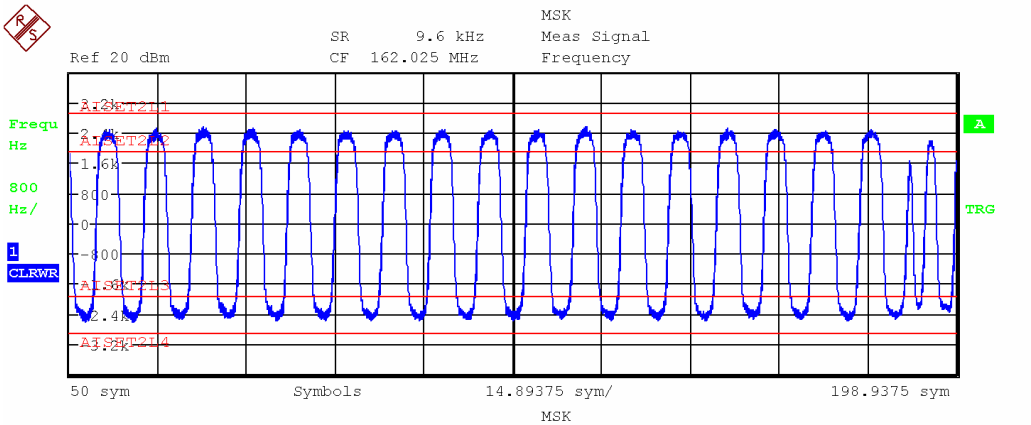


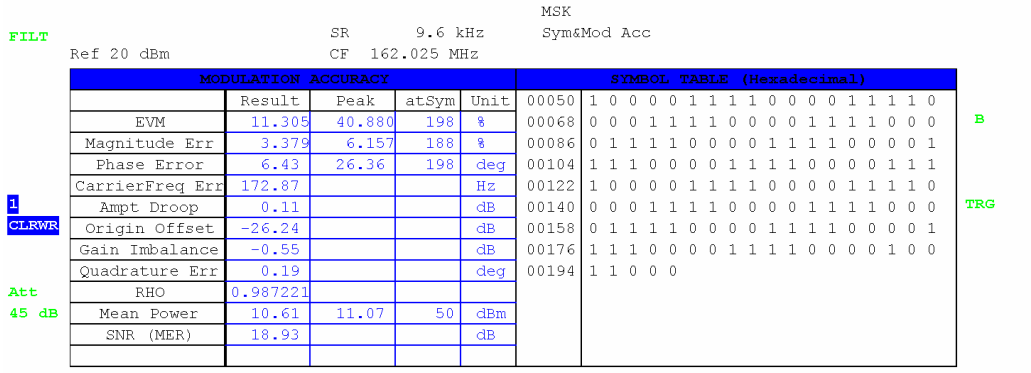


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.475	34.867	0	%
Magnitude Err	2.579	4.940	26	%
Phase Error	7.45	20.53	0	deg
CarrierFreq Err	186.74			Hz
Ampt Droop	0.18			dB
Origin Offset	-27.19			dB
Gain Imbalance	-0.15			dB
Quadrature Err	0.61			deg
RHO	0.981858			
Mean Power	10.44	10.93	26	dBm
SNR (MER)	17.41			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1

Bit 50 to bit 199





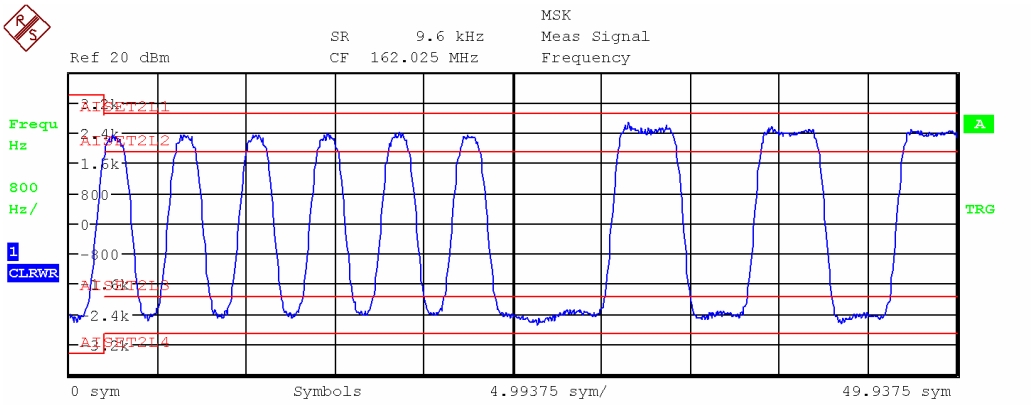
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	11.305	40.880	198	%
Magnitude Err	3.379	6.157	188	%
Phase Error	6.43	26.36	198	deg
CarrierFreq Err	172.87			Hz
Ampt Droop	0.11			dB
Origin Offset	-26.24			dB
Gain Imbalance	-0.55			dB
Quadrature Err	0.19			deg
RHO	0.987221			
Mean Power	10.61	11.07	50	dBm
SNR (MER)	18.93			dB

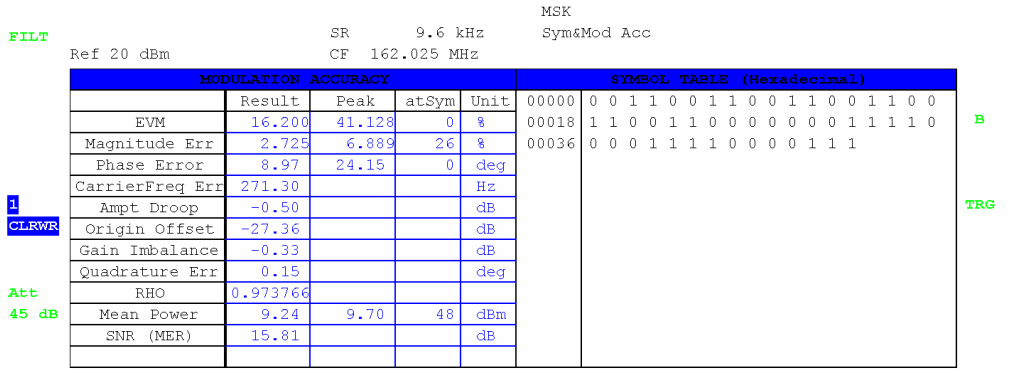
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +55°C – 10Vdc – Test signal 2

Bit 0 to bit 50

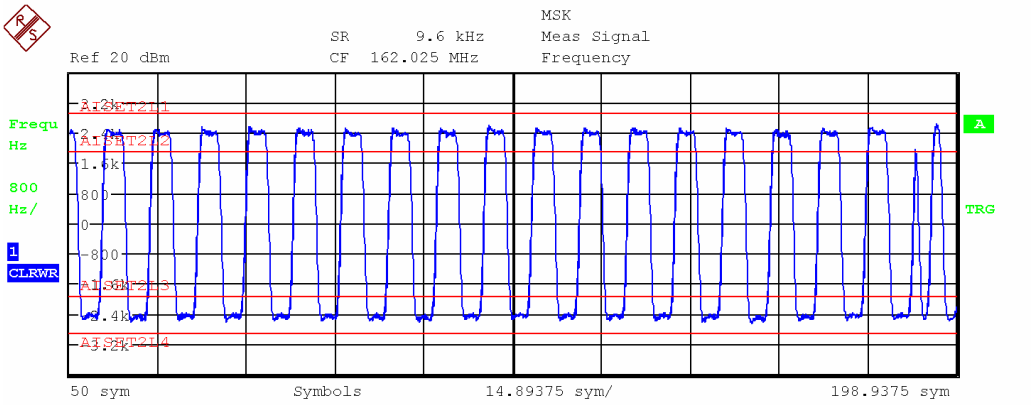


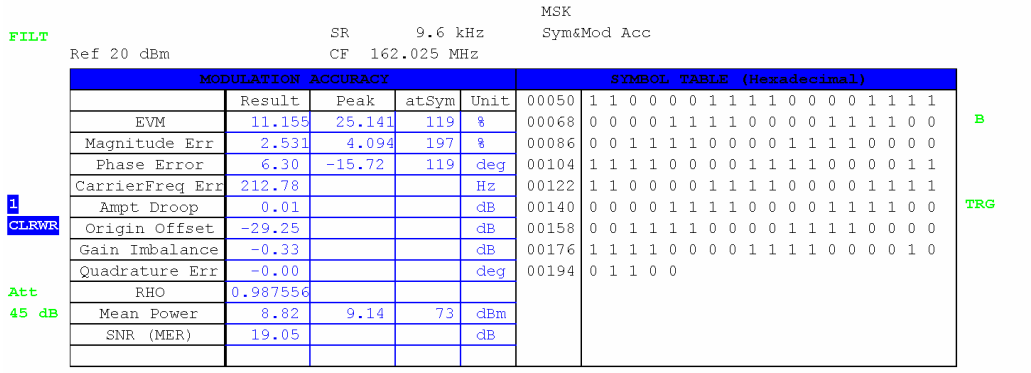


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	16.200	41.128	0	%
Magnitude Err	2.725	6.889	26	%
Phase Error	8.97	24.15	0	deg
CarrierFreq Err	271.30			Hz
Ampt Droop	-0.50			dB
Origin Offset	-27.36			dB
Gain Imbalance	-0.33			dB
Quadrature Err	0.15			deg
RHO	0.973766			
Mean Power	9.24	9.70	48	dBm
SNR (MER)	15.81			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1

Bit 50 to bit 199





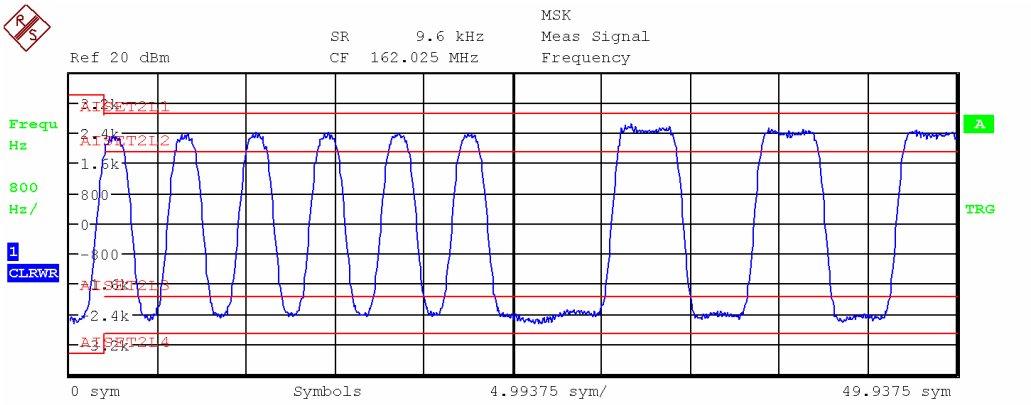
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	11.155	25.141	119	%
Magnitude Err	2.531	4.094	197	%
Phase Error	6.30	-15.72	119	deg
CarrierFreq Err	212.78			Hz
Ampt Droop	0.01			dB
Origin Offset	-29.25			dB
Gain Imbalance	-0.33			dB
Quadrature Err	-0.00			deg
RHO	0.987556			
Mean Power	8.82	9.14	73	dBm
SNR (MER)	19.05			dB

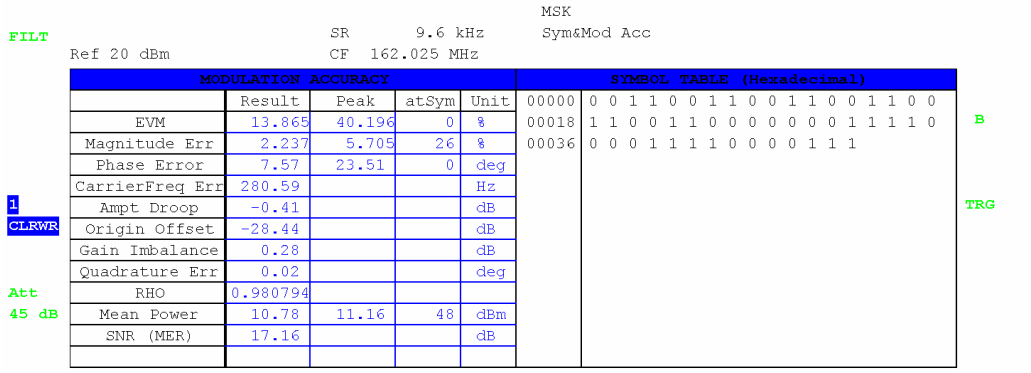
SYMBOL TABLE (Hexadecimal)	
00050	1 1 0 0 0 0 1 1 1 1 0 0 0 0 1 1 1 1
00068	0 0 0 0 1 1 1 1 0 0 0 0 1 1 1 1 0 0
00086	0 0 1 1 1 1 0 0 0 0 1 1 1 1 0 0 0 0
00104	1 1 1 1 0 0 0 0 1 1 1 1 0 0 0 0 1 1
00122	1 1 0 0 0 0 1 1 1 1 0 0 0 0 1 1 1 1
00140	0 0 0 0 1 1 1 1 0 0 0 0 1 1 1 1 0 0
00158	0 0 1 1 1 1 0 0 0 0 1 1 1 1 0 0 0 0
00176	1 1 1 1 0 0 0 0 1 1 1 1 0 0 0 0 1 0
00194	0 1 1 0 0

COMPLIANT

Frequency: 162.025 MHz : +55°C – 12Vdc – Test signal 2

Bit 0 to bit 50

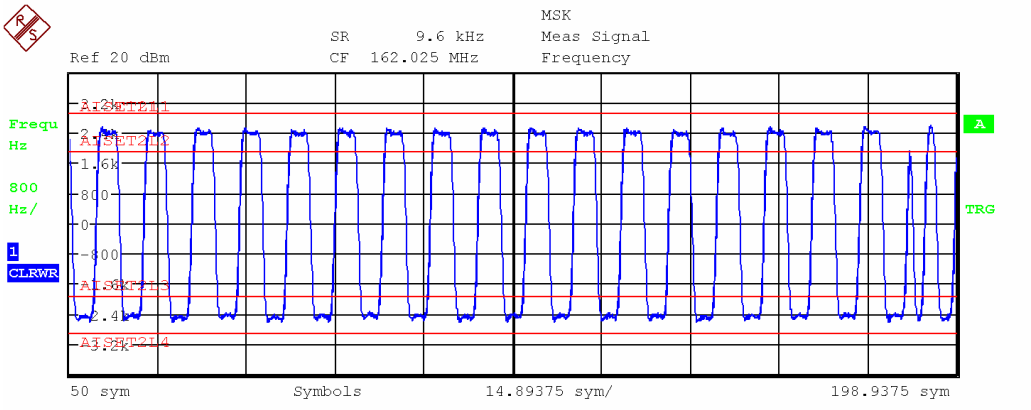


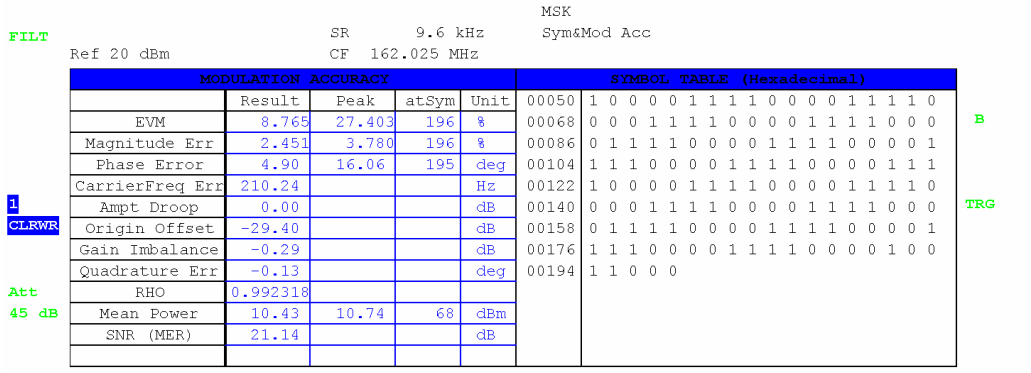


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	13.865	40.196	0	%
Magnitude Err	2.237	5.705	26	%
Phase Error	7.57	23.51	0	deg
CarrierFreq Err	280.59			Hz
Ampt Droop	-0.41			dB
Origin Offset	-28.44			dB
Gain Imbalance	0.28			dB
Quadrature Err	0.02			deg
RHO	0.980794			
Mean Power	10.78	11.16	48	dBm
SNR (MER)	17.16			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





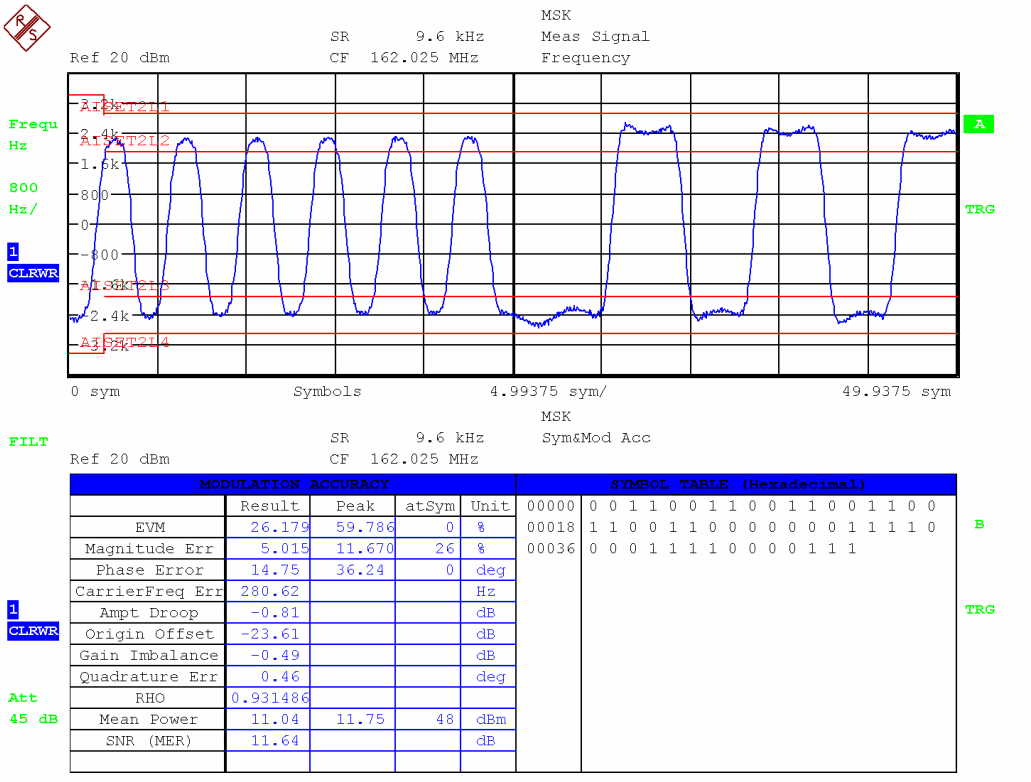
MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	8.765	27.403	196	%
Magnitude Err	2.451	3.780	196	%
Phase Error	4.90	16.06	195	deg
CarrierFreq Err	210.24			Hz
Ampt Droop	0.00			dB
Origin Offset	-29.40			dB
Gain Imbalance	-0.29			dB
Quadrature Err	-0.13			deg
RHO	0.992318			
Mean Power	10.43	10.74	68	dBm
SNR (MER)	21.14			dB

SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +55°C – 24Vdc – Test signal 2

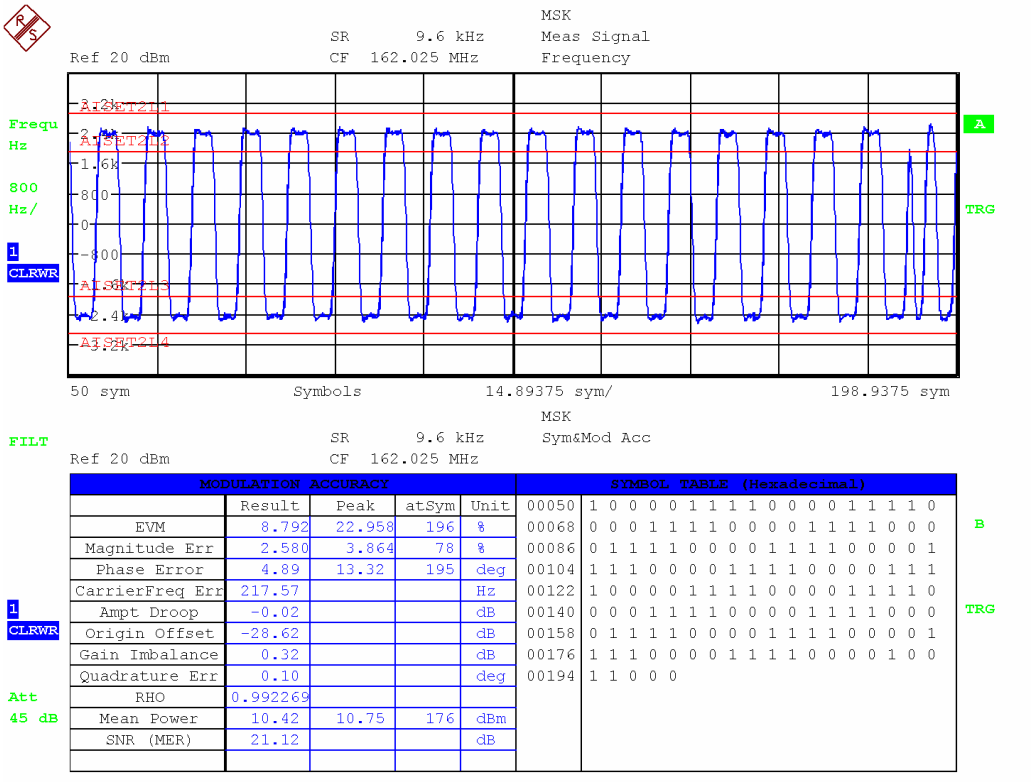
Bit 0 to bit 50



MODULATION ACCURACY	Result	Peak	atSym	Unit
EVM	26.179	59.786	0	%
Magnitude Err	5.015	11.670	26	%
Phase Error	14.75	36.24	0	deg
CarrierFreq Err	280.62			Hz
Ampt Droop	-0.81			dB
Origin Offset	-23.61			dB
Gain Imbalance	-0.49			dB
Quadrature Err	0.46			deg
RHO	0.931486			
Mean Power	11.04	11.75	48	dBm
SNR (MER)	11.64			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199



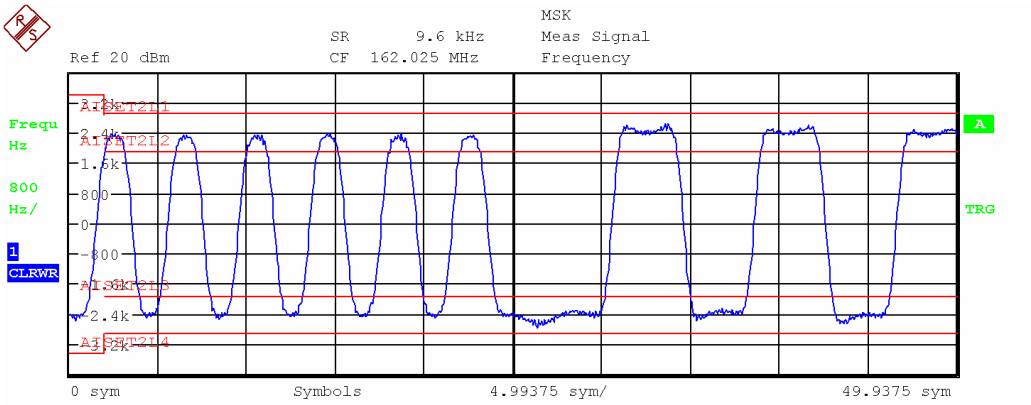
MODULATION ACCURACY	Result	Peak	atSym	Unit
EVM	8.792	22.958	196	%
Magnitude Err	2.580	3.864	78	%
Phase Error	4.89	13.32	195	deg
CarrierFreq Err	217.57			Hz
Ampt Droop	-0.02			dB
Origin Offset	-28.62			dB
Gain Imbalance	0.32			dB
Quadrature Err	0.10			deg
RHO	0.992269			
Mean Power	10.42	10.75	176	dBm
SNR (MER)	21.12			dB

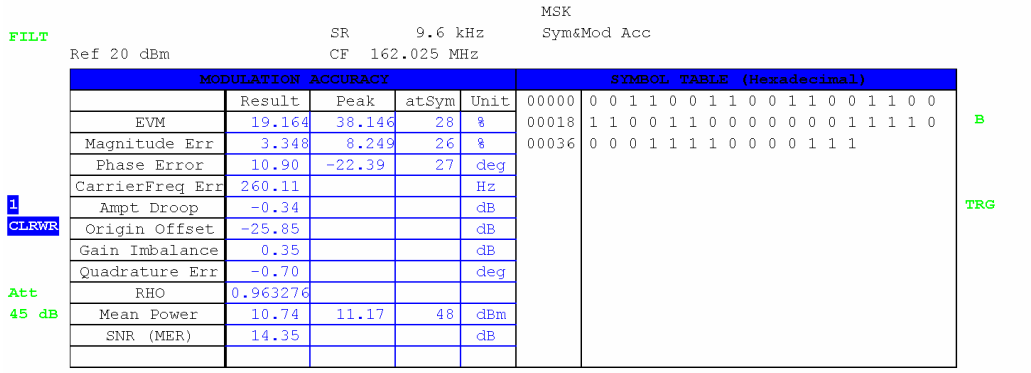
SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

COMPLIANT

Frequency: 162.025 MHz : +55°C – 30Vdc – Test signal 2

Bit 0 to bit 50

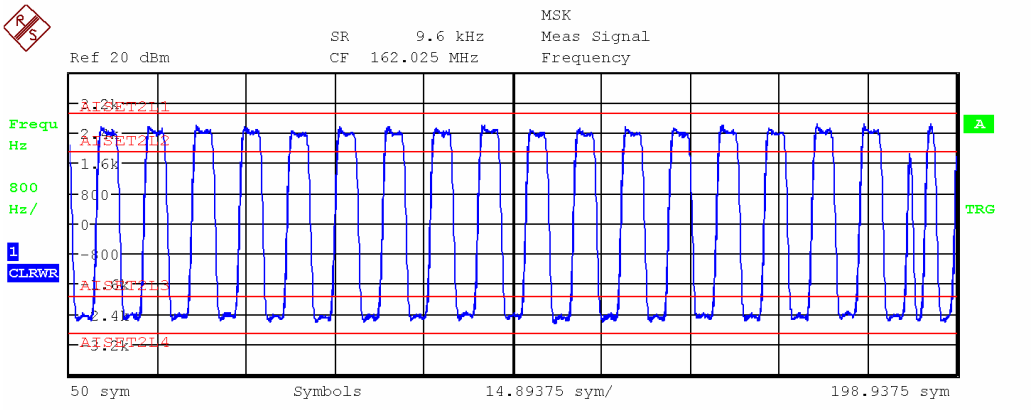


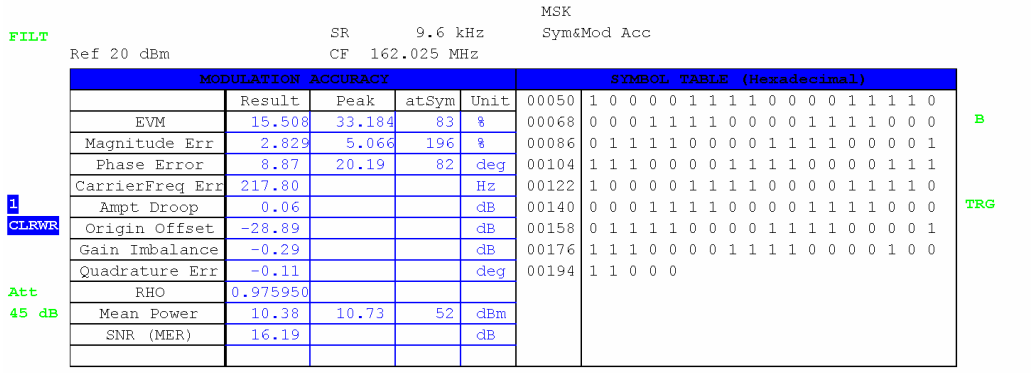


MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	19.164	38.146	28	%
Magnitude Err	3.348	8.249	26	%
Phase Error	10.90	-22.39	27	deg
CarrierFreq Err	260.11			Hz
Ampt Droop	-0.34			dB
Origin Offset	-25.85			dB
Gain Imbalance	0.35			dB
Quadrature Err	-0.70			deg
RHO	0.963276			
Mean Power	10.74	11.17	48	dBm
SNR (MER)	14.35			dB

SYMBOL TABLE (Hexadecimal)	
00000	0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0
00018	1 1 0 0 1 1 0 0 0 0 0 0 0 1 1 1 1 0
00036	0 0 0 1 1 1 1 0 0 0 0 1 1 1

Bit 50 to bit 199





MODULATION ACCURACY				
	Result	Peak	atSym	Unit
EVM	15.508	33.184	83	%
Magnitude Err	2.829	5.066	196	%
Phase Error	8.87	20.19	82	deg
CarrierFreq Err	217.80			Hz
Ampt Droop	0.06			dB
Origin Offset	-28.89			dB
Gain Imbalance	-0.29			dB
Quadrature Err	-0.11			deg
RHO	0.975950			
Mean Power	10.38	10.73	52	dBm
SNR (MER)	16.19			dB

SYMBOL TABLE (Hexadecimal)	
00050	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00068	0 0 0 1 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0
00086	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00104	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1
00122	1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 0
00140	0 0 0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0
00158	0 1 1 1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1
00176	1 1 1 0 0 0 0 1 1 1 1 1 0 0 0 0 1 0 0
00194	1 1 0 0 0

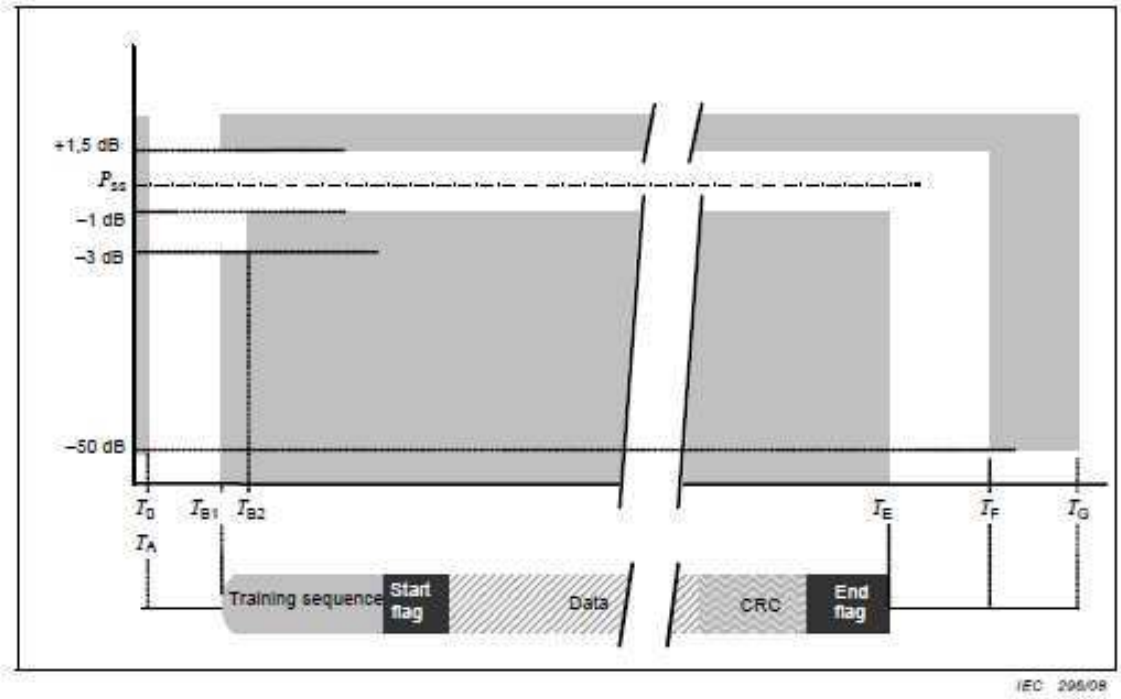
COMPLIANT

11.1.1.5. TRANSMITTER OUTPUT POWER VERSUS TIME FUNCTION (FATDMA AND RATDMA)

11.1.1.5.1. DEFINITION

Transmitter output power versus time function is a combination of the transmitter delay, attack time, release time and transmission duration as defined in Table where:

a) transmitter delay time (*T*A – *T*o) is the time between the start of the slot and the moment when the transmit power may exceed –50 dB of the steady-state power (*P*ss);
b) transmitter attack time (*T*B2 – *T*A) is the time between the transmit power exceeding – 50 dBc and the moment when the transmit power maintains a level within +1.5 dB, -1.0 dB from *P*ss;
c) transmitter release time (*T*F – *T*E) is the time between the end flag being transmitted and the moment when the transmitter output power has reduced to a level 50 dB below *P*ss and remains below this level thereafter.
d) transmission duration (*T*F – *T*A) is the time from when power exceeds – 50 dBc to when the power returns to and stays below – 50 dBc.



Power versus time mask

Reference		Bits	Time	Definition
T_0		0	0 ms	Start of transmission slot. Power shall NOT exceed –50 dB of *P*ss before *T*o
$T_0 – T_A$		0 – 6	0 – 0,624 ms	Power may exceed –50 dB of *P*ss*
T_B	**T_{B1}**	6	0,624 ms	Power shall *T*B be within +1,5 dB or −3 dB of *P*ss*
	T_{B2}	8	0,8324 ms	Power shall be within +1,5 dB or −1 dB of *P*ss*
T_E (includes 1 stuffing bit)		231	20,024 ms	Power shall remain within +1,5 dB or −1 dB of *P*ss during the period *T*B2 to *T*E*
T_F (includes 1 stuffing bit)		239	26,146 ms	Power shall be −50 dB of *P*ss and stay below this
T_G		256	26,624 ms	Start of next transmission time period
* There shall be no modulation of the RF after the termination of transmission (*T*E) until the power has reached zero and next slot begins (*T*G).				

Definition of timings

11.1.1.5.2. METHOD OF MEASUREMENT

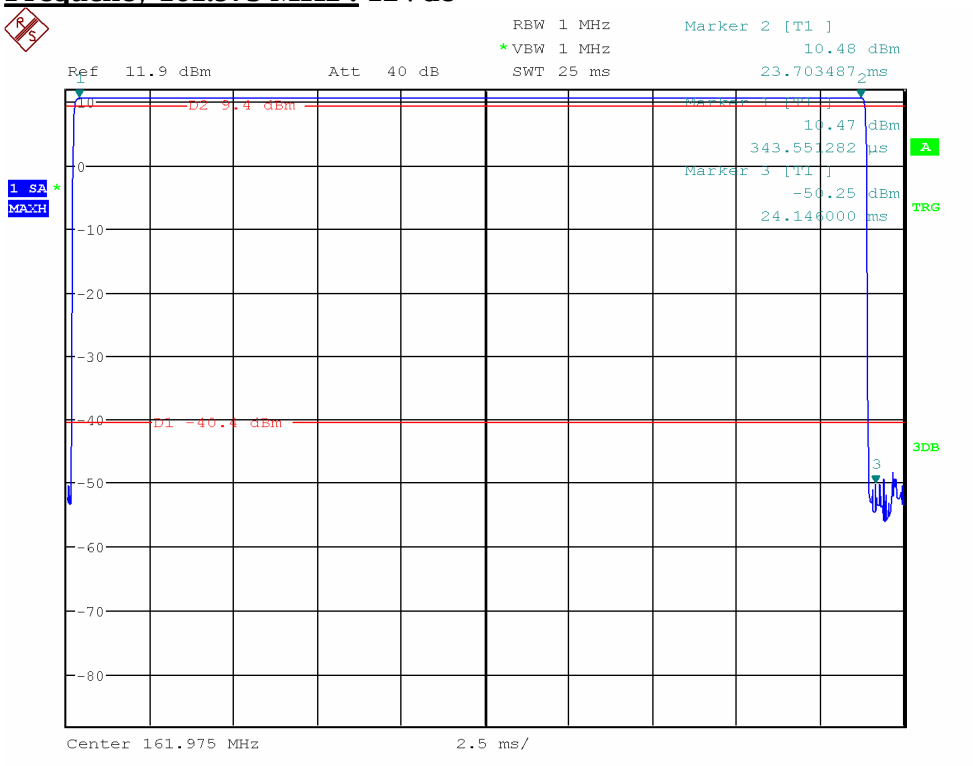
The measurement shall be carried out by transmitting test signal number 1 (note that this test signal generates one additional stuffing bit within its CRC portion).
Tests shall be performed on 2 channels (lowest declared frequency and 162,025 MHz).
The EUT shall be connected to a spectrum analyser.
A resolution bandwidth of 1 MHz, video bandwidth of 1 MHz and a sample detector shall be used for this measurement.
The analyser shall be in zero-span mode for this measurement. The spectrum analyser shall be synchronised to the nominal start time of the slot (*T*0), which may be provided externally, or from the EUT.

11.1.1.5.3. REQUIRED RESULTS

The transmitter power shall remain within the mask shown in Figure “Power versus time mask” and associated timings given in Table “Definition of timings”.

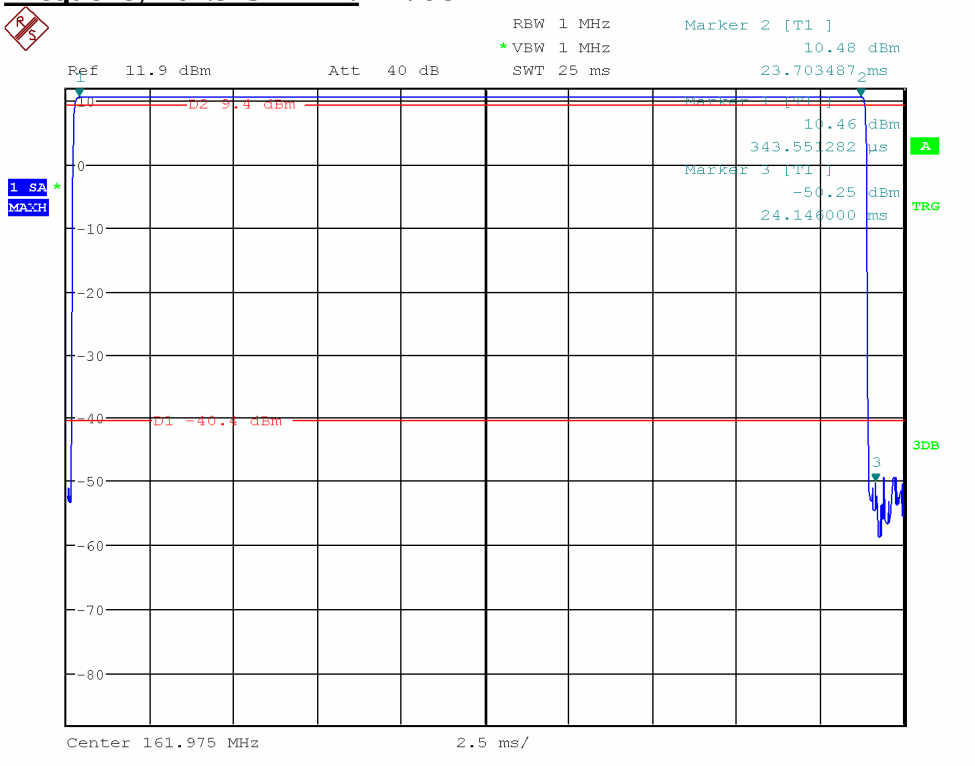
11.1.1.5.4. RESULTS

Frequency 161.975 MHz : 12Vdc



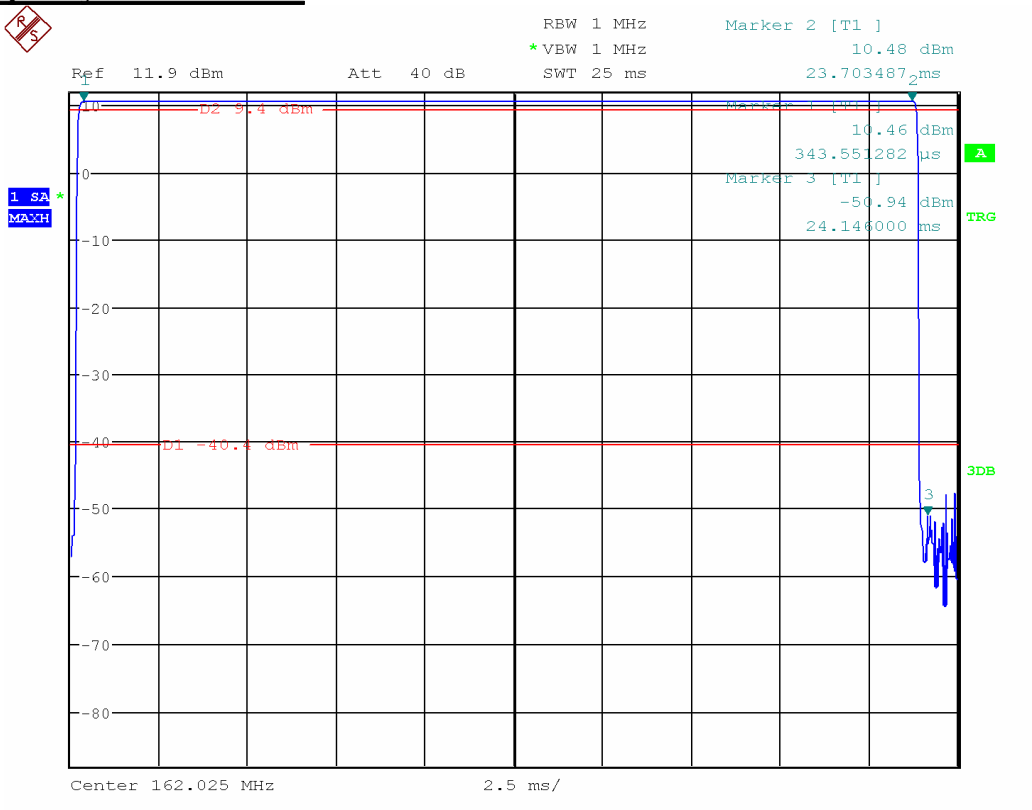
COMPLIANT

Frequency 161.975 MHz : 24Vdc



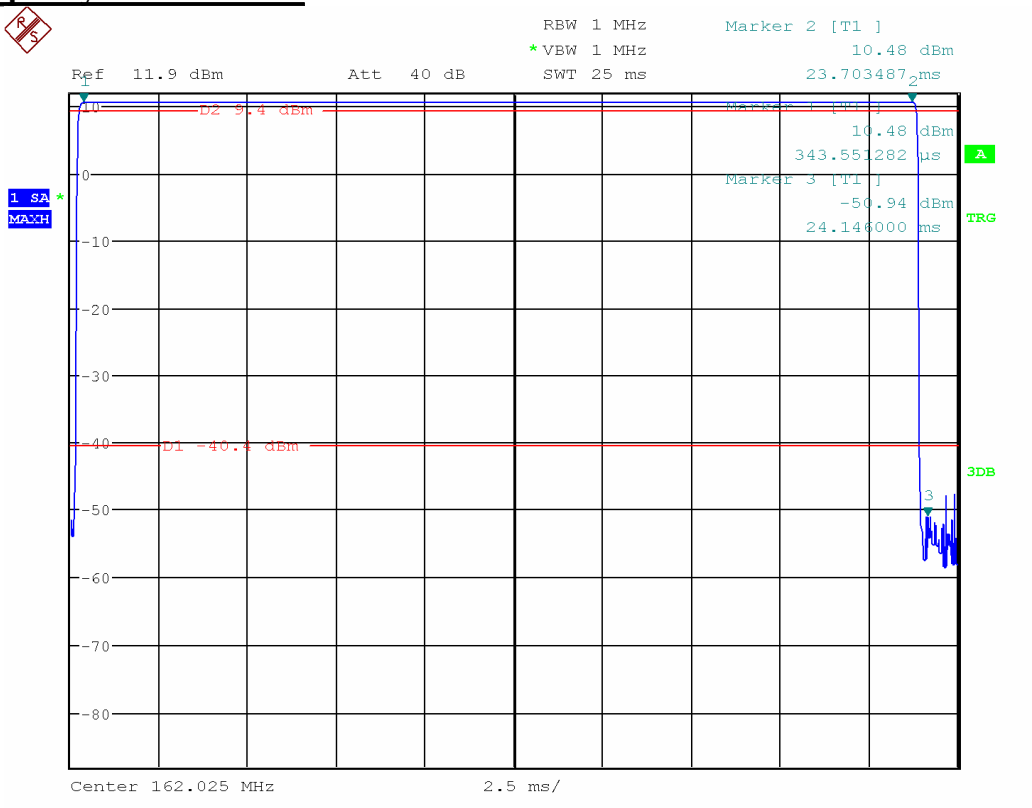
COMPLIANT

Frequency 162.025 MHz : 12Vdc



COMPLIANT

Frequency 162.025 MHz : 24Vdc



COMPLIANT

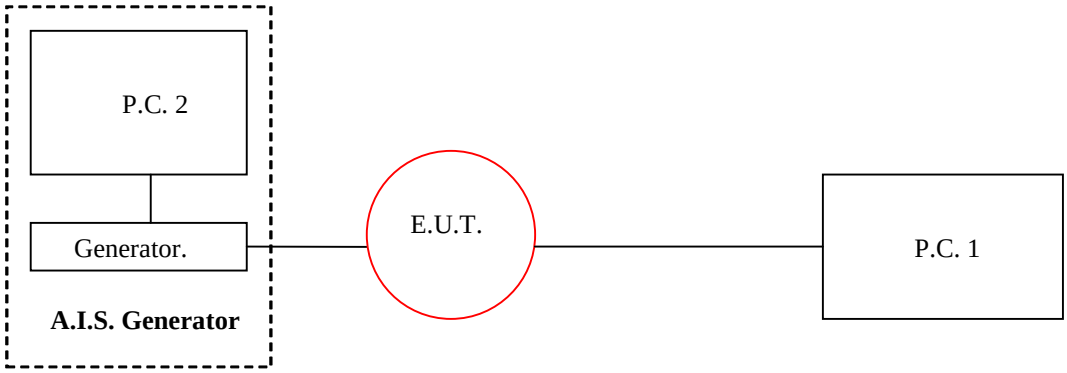
11.1.2. TDMA RECEIVERS (TYPES 2 AND 3)

11.1.2.1. SENSITIVITY

11.1.2.1.1. PURPOSE

The maximum usable sensitivity (data or messages, conducted) is the minimum signal level at the receiver input, produced by a carrier at the specified frequency of the receiver, modulated with the specified test signal, which will, without interference, produce a data signal with a specified packet error rate (PER) after demodulation.

11.1.2.1.2. METHOD OF MEASUREMENT



Measurement arrangement

The measurement procedure shall be as follows with reference to Figure “Measurement arrangement”:

a) the signal generator shall be at the lowest frequency of the receiver as declared by the manufacturer and shall be modulated to generate test signal number 4;
b) the signal level at the input of the receiver shall be set to –107 dBm for a Type 3 device and –97 dBm for a Type 2 device;
c) the message measuring test set shall be monitored and the packet error rate observed. The PER shall be derived by the following formula:

$$PER = (PTX - PRX)/PTX \times 100\ (\%)\ (1)$$

where
*P*RX is the number of packets received without errors,
*P*TX is the number of transmitted packets;
d) the test shall be repeated at a +500 Hz offset from the lowest frequency declared by the manufacturer;
e) the test shall be repeated at a −500 Hz offset from the lowest frequency declared by the manufacturer;
f) the test shall be at the highest frequency declared by the manufacturer;
g) the test shall be repeated at a +500 Hz offset from the highest frequency declared by the manufacturer;
h) the test shall be repeated at a −500 Hz offset from the highest frequency declared by the manufacturer;
i) repeat under extreme conditions, at either the lowest or the highest declared frequency. The signal generator shall be adjusted so the level at the input to the receiver is –101 dBm for a Type 3 device and −91dBm for a Type 2 device.

11.1.2.1.3. REQUIRED RESULTS

Maximum PER of 20 %.

11.1.2.1.4. RESULTS

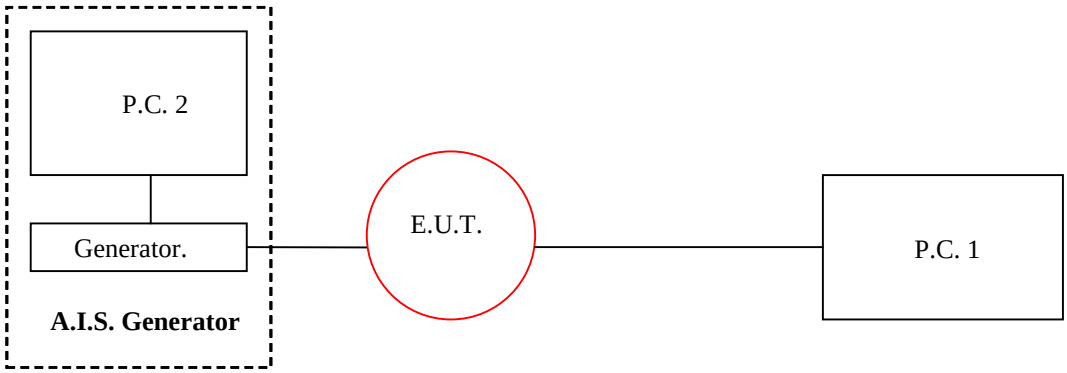
		161.975 MHz			162.025 MHz		
		Nom	+500 Hz	-500 Hz	Nom	+500 Hz	-500 Hz
+18°C	+10Vdc	0.75%	3.1%	0.1%	3%	5.875%	0.75%
	+12Vdc	0.5%	4.4%	0.1%	2%	5.125%	1.125%
	+24Vdc	0.75%	4.1%	0.1%	2%	5.375%	1.375%
	+30Vdc	0.25%	2.4%	0.6%	1.6%	4.5%	0.5%
-40°C	+10Vdc	0.25%	0.125%	0.125%	1.25%	3.5%	1.625%
	+12Vdc	0.25%	0.375%	0.25%	2.875%	3.25%	1%
	+24Vdc	0.125%	0.125%	0.375%	2.5%	4.125%	1.5%
	+30Vdc	0.375%	0.625%	0.125%	1.625%	3.375%	0.5%
+55°C	+10Vdc	0.75%	1.875%	0.25%	1.875%	1.5%	0.375%
	+12Vdc	0.25%	1.375%	0.375%	0.625%	1.875%	0.25%
	+24Vdc	0.375%	2.0%	0.125%	0.25%	1.375%	0.25%
	+30Vdc	0%	1.375%	0.375%	0.375	1.75%	0.375%

COMPLIANT

11.1.2.2. ERROR BEHAVIOUR AT HIGH INPUT LEVELS

11.1.2.2.1. PURPOSE

The error behaviour (performance) at high input levels is defined in the same manner as for the measurement of the maximum usable sensitivity when the level of the wanted signal is 100 dB above the maximum wanted sensitivity.



Measurement arrangement

The measurement procedure shall be as follows:
a) the measurement configuration shall be as shown in Figure 14;
b) the signal generator shall be modulated to generate test signal number 4. The test shall be carried out at the lowest and the highest TDMA frequencies declared by the manufacturer. The message measuring test set shall be monitored and the packet error rate observed;
c) the level of the input signal shall be adjusted to a level of –77 dBm;
d) the level of the input signal shall be adjusted to a level of –7 dBm;
e) 200 packets shall be transmitted and the PER shall be calculated.

11.1.2.2.2. REQUIRED RESULTS

The PER shall not exceed 2 % under c) and 10 % under d).

11.1.2.2.3. RESULTS

	161.975 MHz		162.025 MHz	
	12Vdc	24Vdc	12Vdc	24Vdc
-7 dBm	8.875 %	8.125 %	0.375 %	0.125 %
- 77 dBm	0%	0.375 %	0.375 %	0.375 %

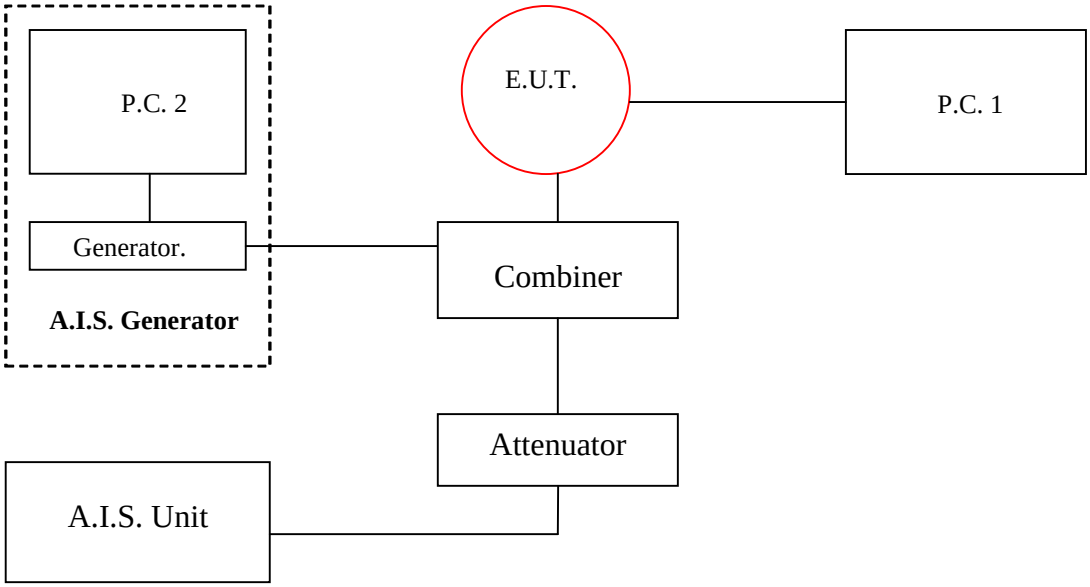
COMPLIANT

11.1.2.3. CO-CHANNEL REJECTION

11.1.2.3.1. PURPOSE

The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the specified frequency of the receiver.

11.1.2.3.2. METHOD OF MEASUREMENT



Measurement arrangement

The measurement procedure shall be as follows with reference to Figure 15:

a) two generators A and B, shall be connected to the receiver via a combining network;
b) the wanted signal, provided by signal generator A, shall be at the lowest declared frequency of the receiver and shall be modulated to generate test signal number 4;
c) the unwanted signal, provided by generator B, shall also be at the lowest declared frequency of the receiver. Generator B shall be modulated to generate test signal number 3, either continuously or in the same time period as that used by generator A for test signal number 4. The content of the wanted and unwanted signals shall not be synchronised;
d) the level of the wanted signal from generator A shall be adjusted to –101 dBm for a Type 3 device and to –101 dBm for a Type 2 device;
e) the level of the unwanted signal from generator B shall be adjusted to –111 dBm for a Type 3 device and –117 dBm for a Type 2 device;
f) the message measuring test set shall be monitored and the packet error rate (PER) observed;
g) the test shall be repeated at +1000 Hz offset from the lowest frequency declared by the manufacturer;

h) the test shall be repeated at –1000 Hz offset from the lowest frequency declared by the manufacturer;
i) the test shall be repeated at the highest declared frequency of the receiver;
j) the test shall be repeated at +1000 Hz offset from the highest frequency declared by the manufacturer;
k) the test shall be repeated at –1000 Hz offset from the highest frequency declared by the manufacturer.

11.1.2.3.3. REQUIRED RESULTS

The PER shall not exceed 20 %.

11.1.2.3.4. REQUIRED RESULTS

	161.975 MHz			162.025 MHz		
	Nom	**+1 kHz**	**-1 kHz**	**Nom**	**+1 kHz**	**-1 kHz**
+12Vdc	**1.875 %**	**8.125 %**	**1.5 %**	**2.875 %**	**7.125 %**	**1.5 %**
+24Vdc	**1.75 %**	**9.875 %**	**1.25 %**	**3.375 %**	**6.75 %**	**0.375 %**

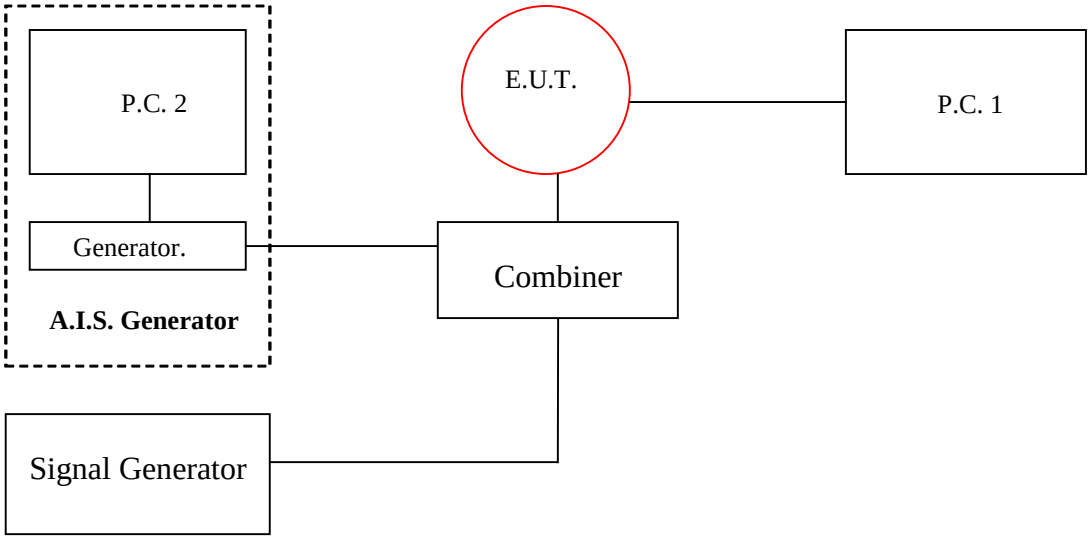
COMPLIANT

11.1.2.4. ADJACENT CHANNEL SELECTIVITY

11.1.2.4.1. PURPOSE

The adjacent channel selectivity is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended.

11.1.2.4.2. METHOD OF MEASUREMENT



Measurement arrangement

The measurement procedure shall be as follows with reference to Figure 16:

a) two generators A and B shall be connected to the receiver via a combining network;
b) the wanted signal, provided by signal generator A, shall be at the lowest declared frequency of the receiver and shall be modulated to generate test signal number 4;
c) the unwanted signal, provided by generator B, shall be frequency modulated with a 400 Hz sine wave with a deviation of ±3 kHz. Generator B shall be at a frequency 25 kHz above that of the wanted signal;
d) the level of the wanted signal from generator A shall be adjusted to a level of –101 dBm for a Type 3 device and to −101 dBm for a Type 2 device;
e) the level of the unwanted signal from generator B shall be adjusted to –31 dBm for a type 3 receiver and –41 dBm for a Type 2 receiver;
f) the message measuring test set shall be monitored and the packet error rate observed;
g) repeat the above measurement with the unwanted signal 25 kHz below the wanted signal;
h) the test shall be repeated, steps b) through g), at the highest TDMA frequency declared by the manufacturer.

11.1.2.4.3. REQUIRED RESULTS

The PER shall not exceed 20 %.

11.1.2.4.4. RESULTS

	161.975 MHz		162.025 MHz	
	12 Vdc	24 Vdc	12 Vdc	24 Vdc
Fnom + 25 kHz	12.75 %	14.375 %	2.875 %	3.25 %
Fnom - 25 kHz	18;125 %	17.5 %	16.75 %	17.4 %

COMPLIANT

11.1.2.5. SPURIOUS RESPONSE REJECTION

11.1.2.5.1. PURPOSE

The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained.

11.1.2.5.2. MANUFACTURERS' DECLARATIONS

The manufacturer shall declare the following in order to calculate the "limited frequency
range" over which the initial part of the test will be performed:

a) list of intermediate frequencies: *IF*1, *IF*2,...*IF*N in Hz;
b) switching range of the receiver1: *sr*;
c) frequency of the local oscillator2 at Channel 2 and at the lowest TDMA channel: *f*LOH, *F*lol

Frequency	**F_{LO1}**	**FI1**	**F_{LO2}**	**FI2**
161.975 MHz	123.12 MHz	38.855 MHz	38.4 MHz	455 kHz

Frequency	**F_{LO1}**	**FI1**	**F_{LO2}**	**FI2**
162.025 MHz	132.770 MHz	29.255 MHz	28.8 MHz	455 kHz

11.1.2.5.3. INTRODUCTION TO THE METHOD OF MEASUREMENT

The initial evaluation of the unit shall be performed over the "limited frequency range" and shall then be performed at the frequencies identified from this test and at "specific frequencies of interest" (as defined below).

To determine the frequencies at which spurious responses can occur the following calculations shall be made:

a) calculation of the "limited frequency range":

The limits of the limited frequency range (*LFR*HI *LFR*LO) are determined from the following calculations:

$$LFRHI = fLOH + (IF1 + IF2 + \ldots + IFN + sr/2)$$
$$LFRLO = fLOL - (IF1 + IF2 + \ldots + IFN + sr/2)$$

b) calculation of specific frequencies of interest (SFI) outside the limited frequency range:

These are determined by the following calculations:

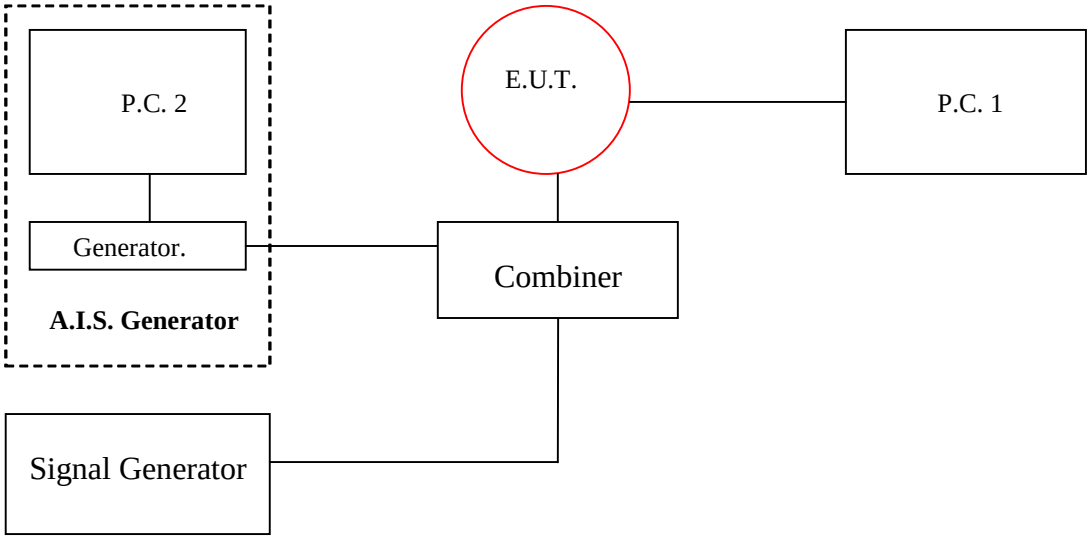
$$SFI1 = (K \times fLOH) + IF1$$
$$SFI2 = (K \times fLOL) - IF1$$

where *K* is an integer from 2 to 4.

11.1.2.5.4. METHOD OF MEASUREMENT OVER THE LIMITED FREQUENCY RANGE

Two methods are available for the measurements over the limited frequency range, one based on SINAD measurements and the other based on PER measurements. Either

method may be used, but in each case shall be followed by the method of measurement at identified frequencies.



Measurement arrangement

11.1.2.5.5. METHOD OF MEASUREMENT (AT IDENTIFIED FREQUENCIES)

The measurement procedure shall be as follows with reference to Figure 17:

a) Two generators A and B shall be connected to the receiver via a combining network.
b) The wanted signal, provided by generator A, shall be at 161,975 MHz and shall be modulated to generate test signal number 3.
c) The unwanted signal, provided by generator B, shall be frequency modulated with a 400 Hz sine wave giving a deviation of ± 3 kHz. Generator B shall be at the frequency of that spurious response being considered.
d) Initially, signal generator B (unwanted) shall be switched off (maintaining the output impedance).
e) The signal level from generator A (wanted) shall be adjusted – 101 dBm for Type 3 or – 91 dBm for Type 2 at the receiver.
f) Signal generator B shall be switched on, and the level of the unwanted signal set to - 31 dBm.
g) For each frequency noted during the tests over the limited frequency range and the specific frequencies of interest (*SFI*1 and *SFI*2), transmit 200 packets to the EUT and note the PER.

NOTE If the manufacturer's specified receiver frequencies do not include 161,975 MHz, one of the manufacturer's specified receiver frequencies may be used as an alternative.

11.1.2.5.6. REQUIRED RESULTS

At any frequency separated from the specified frequency of the receiver by 50 kHz or more, the PER shall not exceed 20 %.

11.1.2.5.7. RESULTS

	161.975 MHz	
	12Vdc	24 Vdc
455 kHz	0.875 %	0.875 %
38.855 MHz	0.875 %	0.75 %
45.41 MHz	0.625 %	1 %
200.03 MHz	0.75 %	0.875 %
207.385 MHz	0.875 %	1.125 %
294.795 MHz	1.125 %	0.75 %
330.505 MHz	1 %	0.375 %
427.565 MHz	1.125 %	0.375 %
453.625 MHz	1.6%	0.5 %
560.335 MHz	0.75 %	0.625 %

	162.025 MHz	
	12Vdc	24 Vdc
455 kHz	4 %	3.75 %
29.255 MHz	6.125 %	5.5%
74.26 MHz	5.125 %	3.75 %
191.28MHz	3.625 %	4.75 %

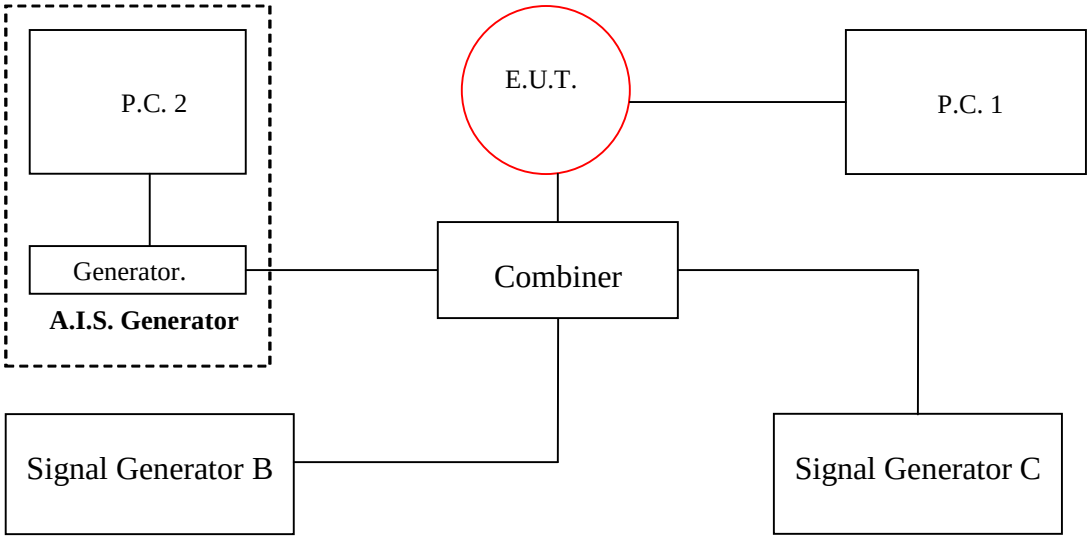
COMPLIANT

11.1.2.6. INTER-MODULATION RESPONSE REJECTION

11.1.2.6.1. PURPOSE

The inter-modulation response rejection is the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two closespaced unwanted signals with a specific frequency relationship to the wanted signal frequency.

11.1.2.6.2. METHOD OF TEST



Measurement arrangement

The measurement procedure shall be as follows with reference to Figure:

a) three signal generators shall be connected to the receiver via a combining network;
b) the wanted signal, provided by signal generator A, shall be at the specified frequency of the receiver and shall be modulated to generate test signal number 3;
c) the unwanted signal from generator B shall be unmodulated;
d) the unwanted signal from generator C shall be frequency modulated with a 400 Hz sine wave at a deviation of ± 3 kHz;
e) the signal level from generator A (wanted) shall be set for – 101 dBm for Type 3 or – 91 dBm for Type 2 at the receiver input;
f) the signal level from generators B and C shall be set for – 36 dBm at the receiver input;
g) the frequencies of generators A, B, C shall be set as per test number 1 of Table 19;
h) the message measuring test set shall be monitored and the PER observed over 200 transmissions;
i) repeat the measurement with frequencies set as per test number 2 of Table 19.

Test Number	**Generator A** Wanted AIS Signal	**Generator B** Unmodulated (+ 500 kHz)	**Generator C** Modulated (+ 1000 kHz)
1 (RATDMA receiver) 1 (Non- RATDMA receiver)	162,025 MHz Highest operating frequency on which the EUT can operate	161,525 MHz Highest operating frequency on which the EUT can operate – 500 kHz	161,025 MHz Highest operating frequency on which EUT can operate − 1 000 kHz
2 (both RATDMA and non-RATDMA receiver)	Lowest operating frequency on which the EUT can operate	Lowest operating frequency on which the EUT can operate + 500 kHz	Lowest operating frequency on which the EUT can operate + 1 000 kHz

11.1.2.6.3. REQUIRED RESULTS

The PER shall not exceed 20 %.

11.1.2.6.4. RESULTS

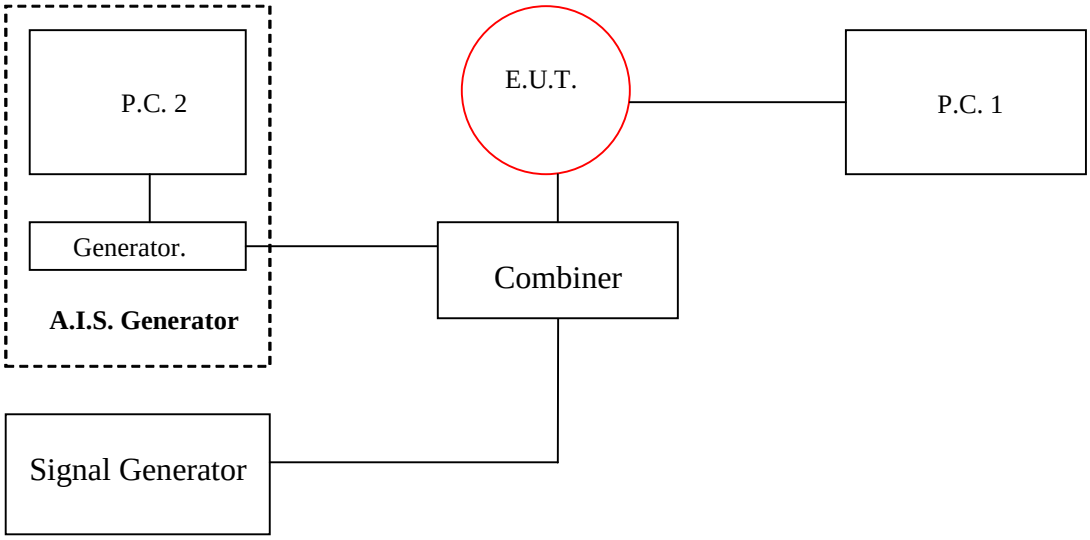
Test number 1		**Test number 2**	
12 Vdc	**24 Vdc**	**12 Vdc**	**24 Vdc**
12.125 %	**13.125 %**	**5.625 %**	**5 %**

COMPLIANT

11.1.2.7. BLOCKING OR DESENSITIZATION

11.1.2.7.1. PURPOSE

Blocking is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequency other than those of the spurious responses or the adjacent channels.



Measurement arrangement for blocking or desensitisation

11.1.2.7.2. METHOD OF MEASUREMENT

The measurement procedure shall be as follows:

a) two generators A and B, shall be connected to the receiver via a combining network as shown in Figure;
b) the wanted signal, provided by signal generator A, shall be at the lowest operating frequency on which the EUT can transmit (or receive for a non-RATDMA receiver) according to the manufacturers specification and be modulated with test signal number 3;
c) the unwanted signal from generator B shall be unmodulated and shall be at a frequency 0,5 MHz to 10 MHz away from the lowest declared frequency of the receiver. Measurements shall be carried out at frequencies of the unwanted signal at ± 500 kHz, ± 1 MHz, ± 2 MHz, ± 5 MHz and ± 10 MHz avoiding those frequencies where spurious responses could occur;
d) initially, signal generator B (unwanted signal) shall be switched off (maintaining the output impedance). The level of the wanted signal from generator A shall be adjusted to − 101 dBm for Type 3 and – 91 dBm for Type 2 at the receiver input;
e) the RF signal level for signal generator B (unwanted signal) shall be adjusted to – 23 dBm when the frequency setting is less than ± 5 MHz with respect to the frequency setting of RF signal generator A. For frequency settings of signal generator B that are equal to or greater than ± 5 MHz with respect to the frequency setting of generator A, the RF signal level shall be adjusted to −15 dBm. This applies to Type 3 receivers only;

f) 200 packets shall be transmitted and the PER recorded;
g) repeat the test steps a) to f) with signal generator A tuned to the highest operating frequency on which the EUT can receive as declared by the manufacturer.

11.1.2.7.3. REQUIRED RESULTS

The PER shall not exceed 20 %.

11.1.2.7.4. RESULTS

	161.975 MHz		162.025 MHz	
	12Vdc	24Vdc	12Vdc	24Vdc
-10 MHz	0.5 %	0.625 %	2.625 %	2.875 %
-5 MHz	1.125 %	0.75 %	1.875 %	2.75 %
-2 MHz	0.125 %	0.625 %	1.625 %	1.5 %
-1 MHz	0.625 %	1.125 %	1.75 %	2 %
-0.5 MHz	0.625 %	0.5 %	2.875 %	2.125 %
+0.5 MHz	0.875 %	0.625 %	2.25 %	1.875 %
+1 MHz	0.625 %	0.75 %	2.75%	2.875 %
+2 MHz	0.5 %	0.875 %	2.625 %	2.375 %
+5 MHz	0.5 %	0.625 %	2.625 %	3.125 %
+10 MHz	0.75 %	0.875 %	2.625 %	3.125 %

COMPLIANT

11.1.3. CONDUCTED SPURIOUS EMISSIONS AT THE ANTENNA

11.1.3.1. SPURIOUS EMISSIONS FROM THE RECEIVER

11.1.3.1.1. PURPOSE

Conducted spurious emissions to the antenna are any RF emissions generated in the receiver and conveyed to the antenna terminal.

11.1.3.1.2. METHOD OF MEASUREMENT

Conducted spurious emissions shall be measured as the power level of any frequency component to the antenna terminals of the receiver. The receiver antenna terminals are connected to a spectrum analyser or selective voltmeter having an input impedance of 50 Ω and the receiver is switched on.
The measurement shall extend over the frequency range 9 kHz to 4 GHz.

11.1.3.1.3. REQUIRED RESULTS

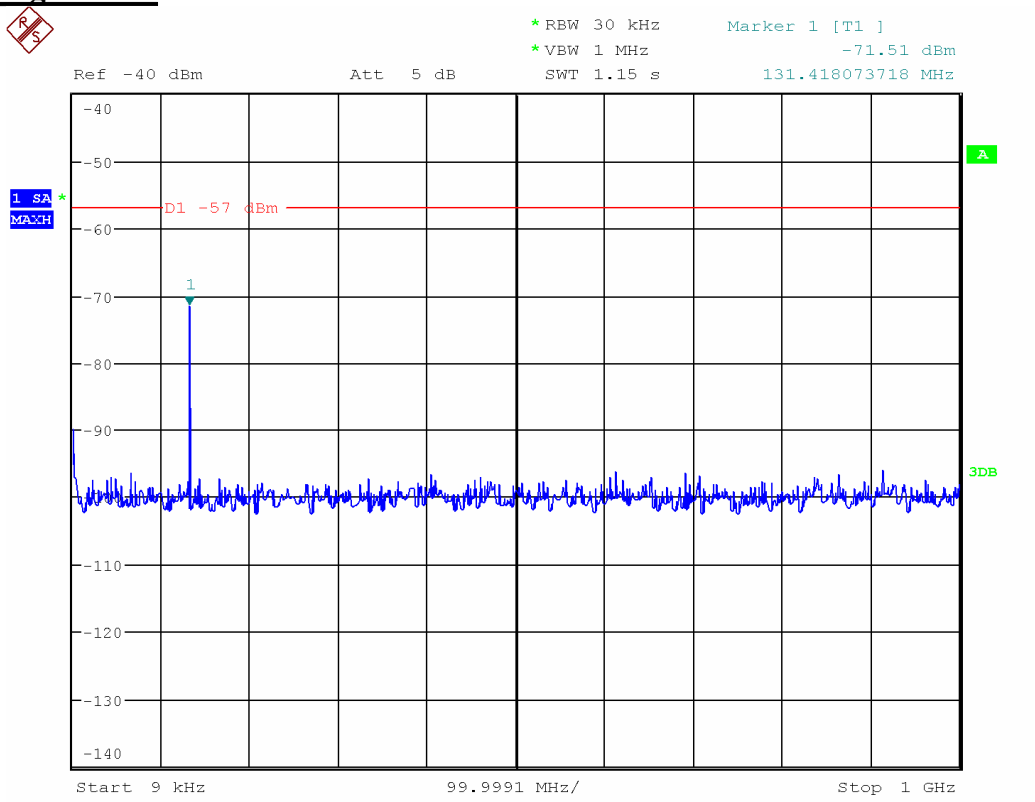
The power of any spurious emission in the specified range at the antenna terminal shall not exceed – 57 dBm in the frequency range 9 kHz to 1 GHz and – 47 dBm in the frequency range 1 GHz to 4 GHz.

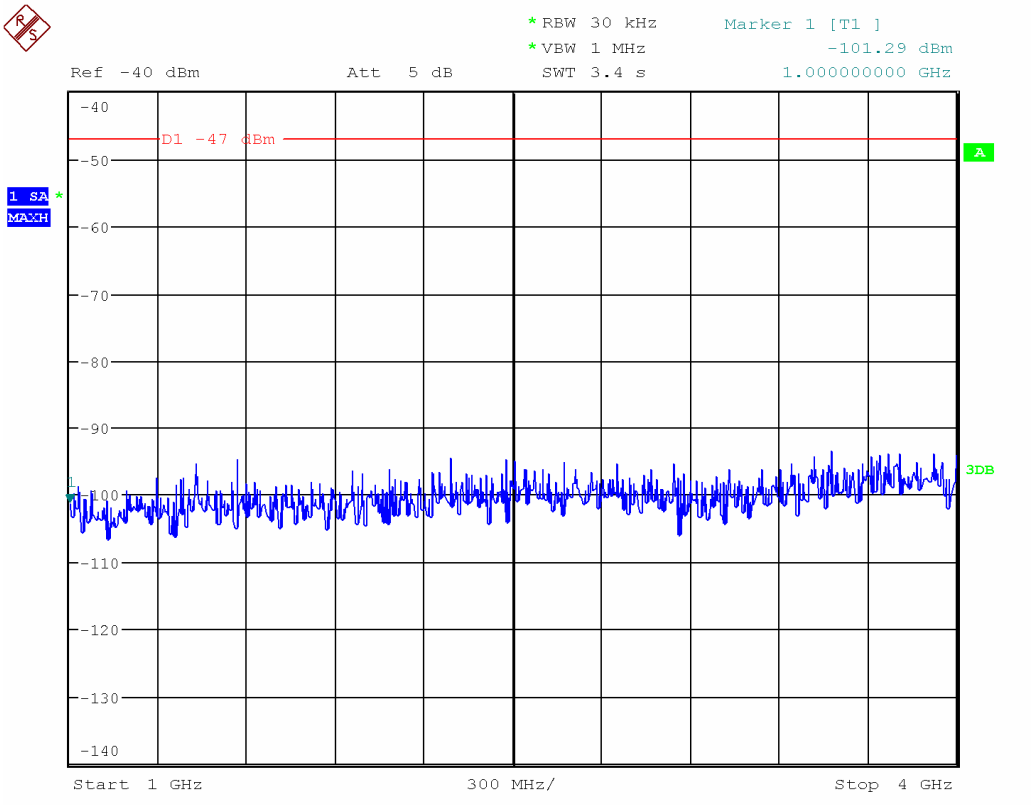
11.1.3.1.4. RESULTS

	Frenquency	Level
161.975 MHz	**131.42 MHz**	**-71.51 dBm**
162.025 MHz	**131.42 MHz**	**-71.41 dBm**

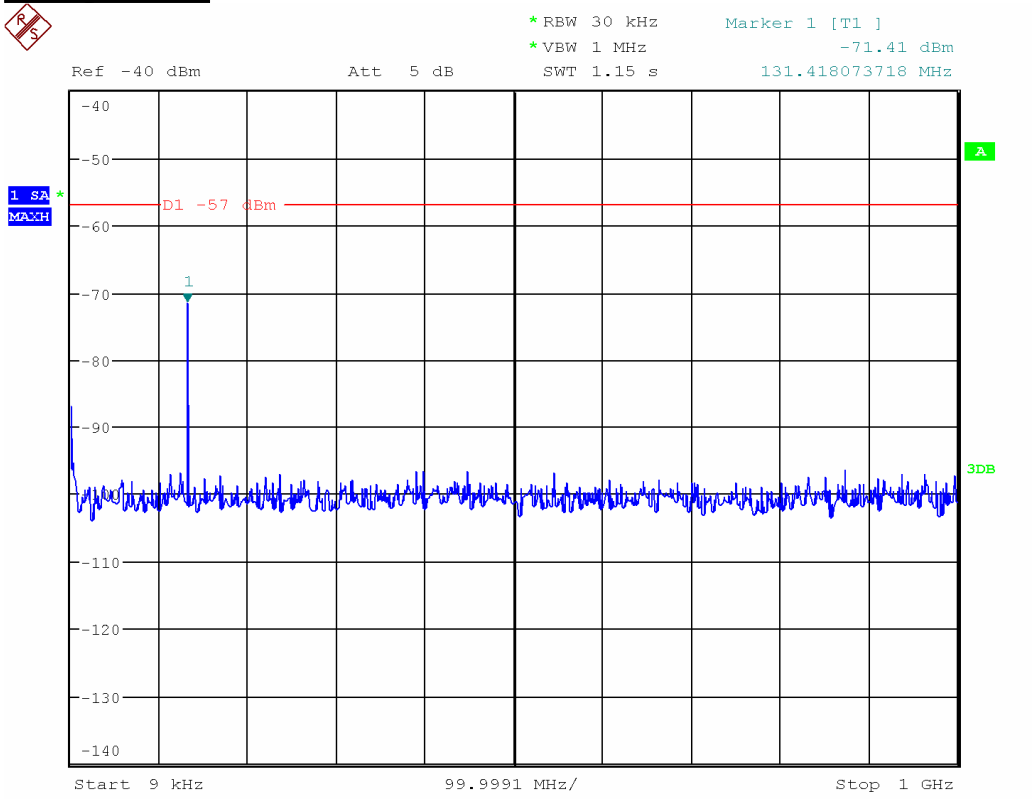
COMPLIANT

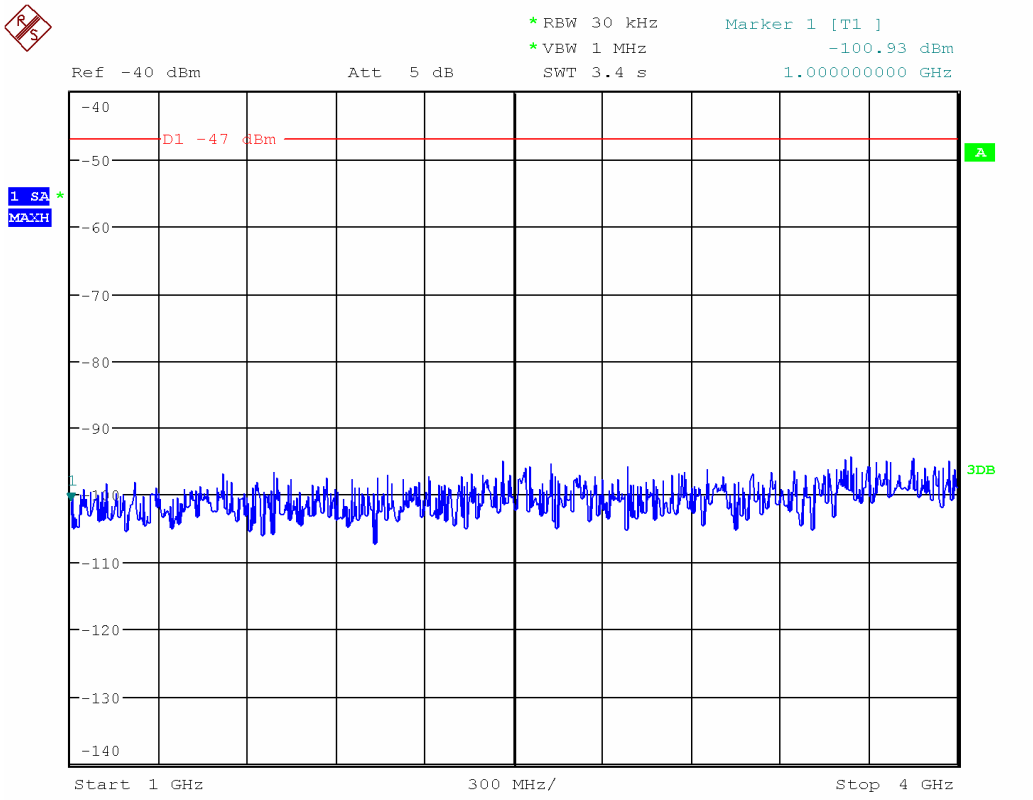
Configuration: 161.975 MHz – 12Vdc





Configuration: 162.025 MHz – 24Vdc





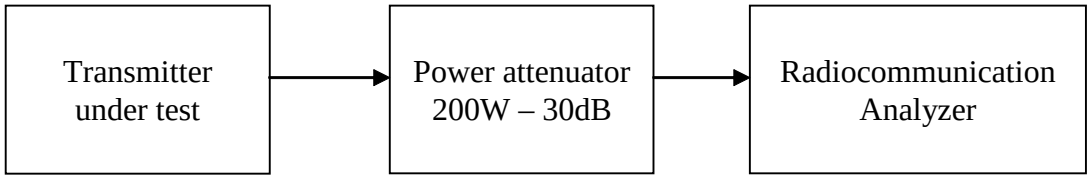
11.1.3.2. SPURIOUS EMISSIONS FROM THE TRANSMITTER

11.1.3.2.1. PURPOSE

Spurious emissions are emissions at frequencies other than those of the carrier and sidebands associated with normal modulation.

11.1.3.2.2. METHOD OF MEASUREMENT

Conducted spurious emissions shall be measured with the unmodulated transmitter connected to the artificial antenna. The measurement shall be made over a frequency range from 9 kHz to 4 GHz, excluding the frequencies within ± 62,5 kHz of the transmitting frequency.



Measurement arrangement

11.1.3.2.3. REQUIRED RESULTS

The power of any spurious emission outside ± 62,5 kHz of the transmitting frequency shall not exceed – 36 dBm in the frequency range 9 kHz to 1 GHz and – 30 dBm in the frequency range 1 GHz to 4 GHz.

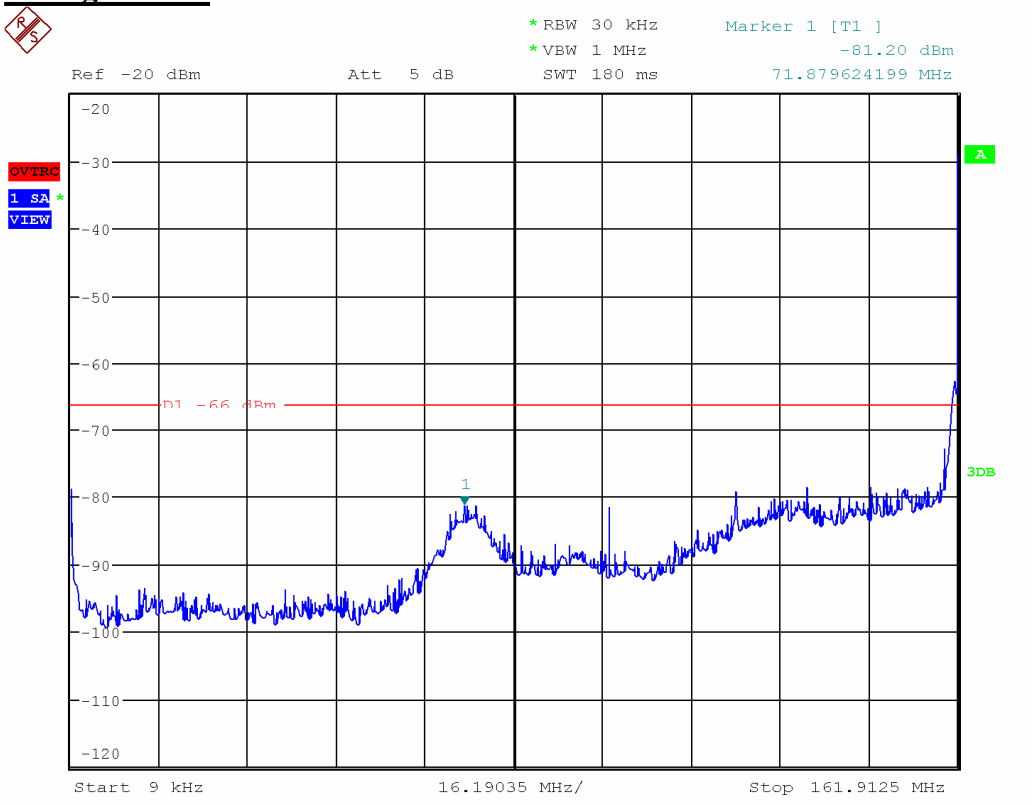
11.1.3.2.4. RESULTS

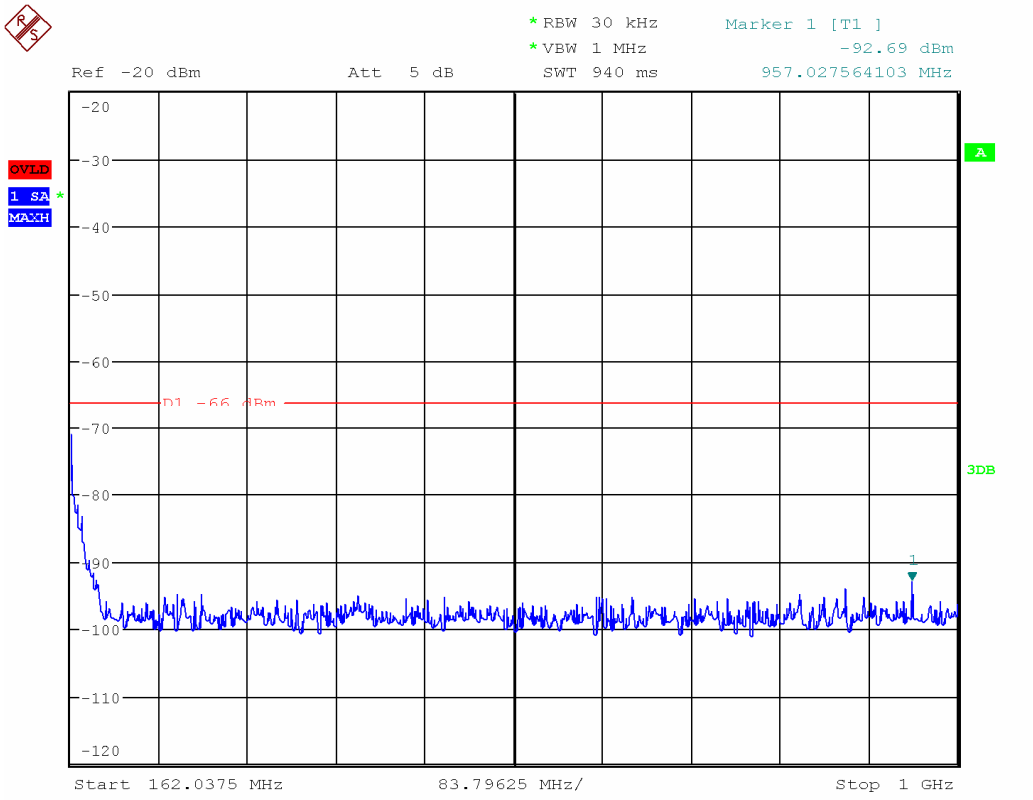
	Frenquency	Level
161.975 MHz	**71.88 MHz**	**-51.20 dBm**
162.025 MHz	**121.21 MHz**	**-37.79 dBm**

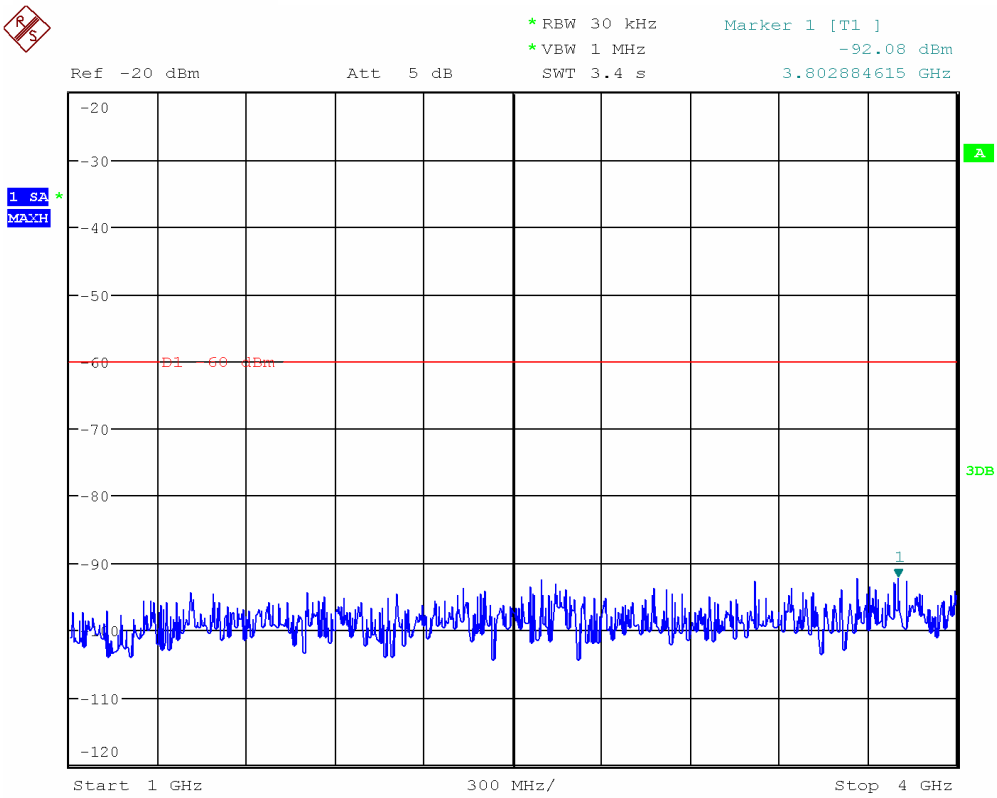
COMPLIANT

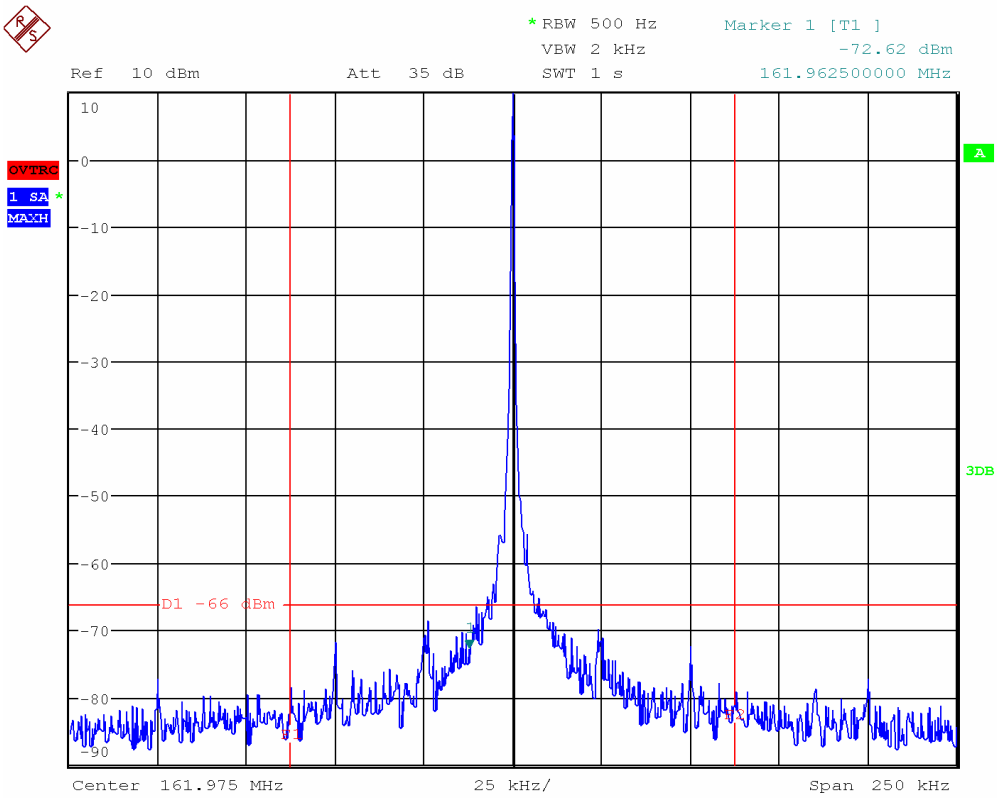
On the graphs, the limits are adjusted with the attenuator level

Configuration: 161.975 MHz – 12Vdc

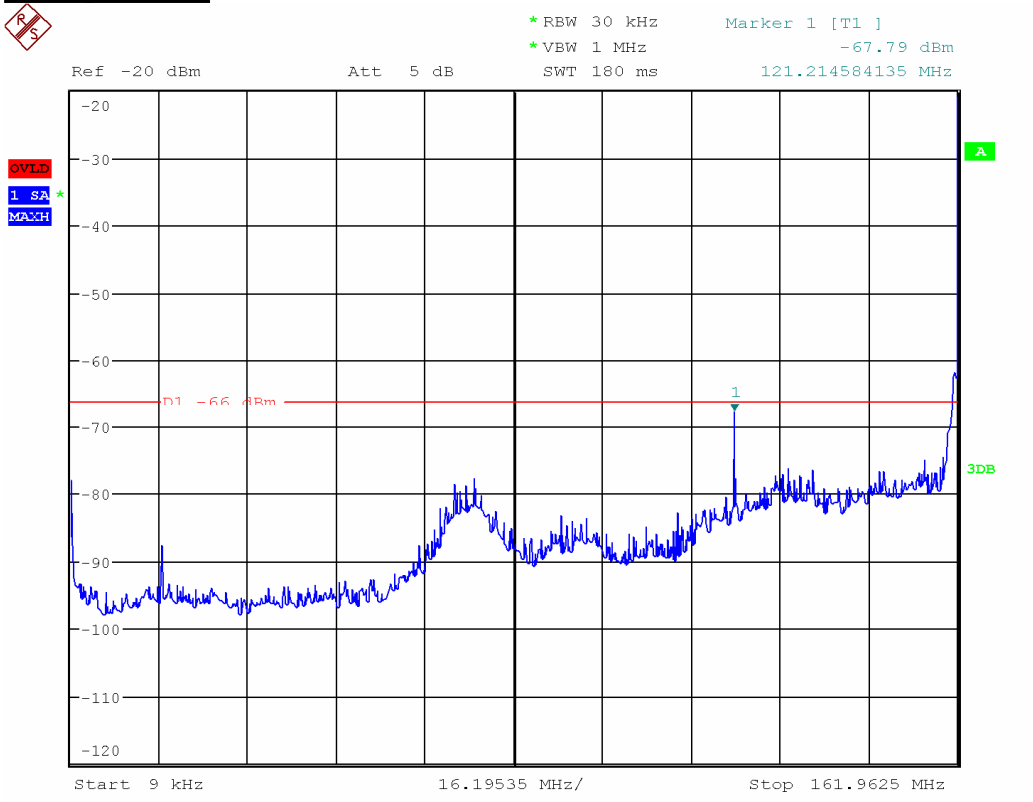


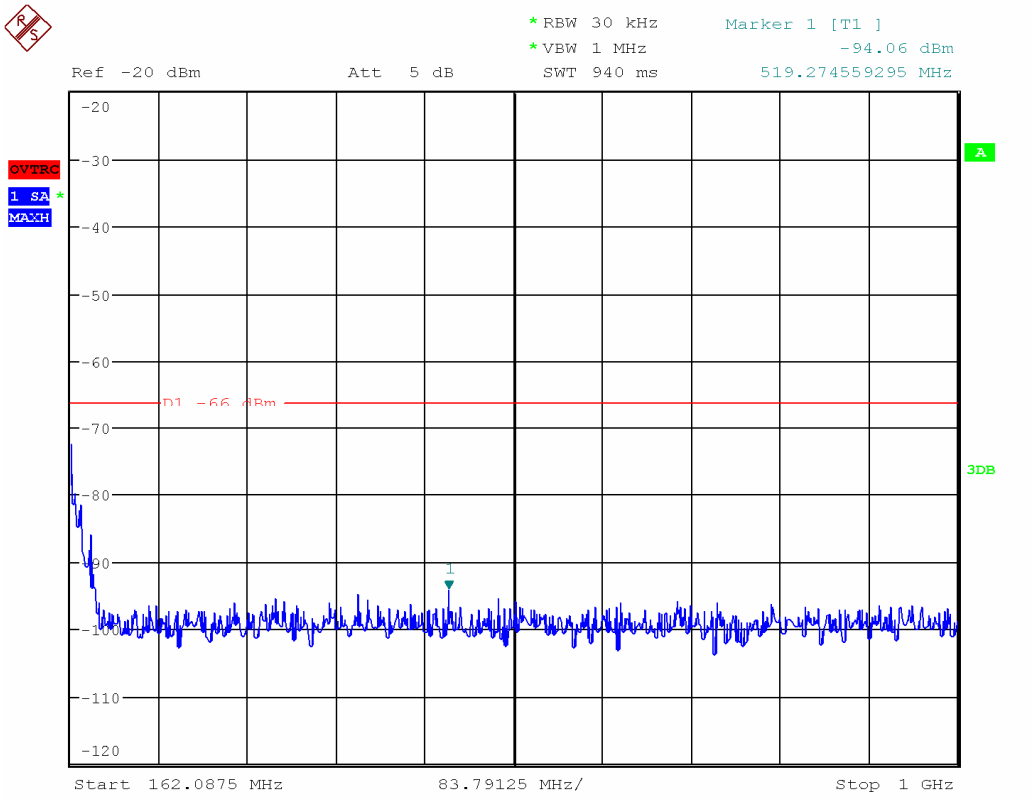


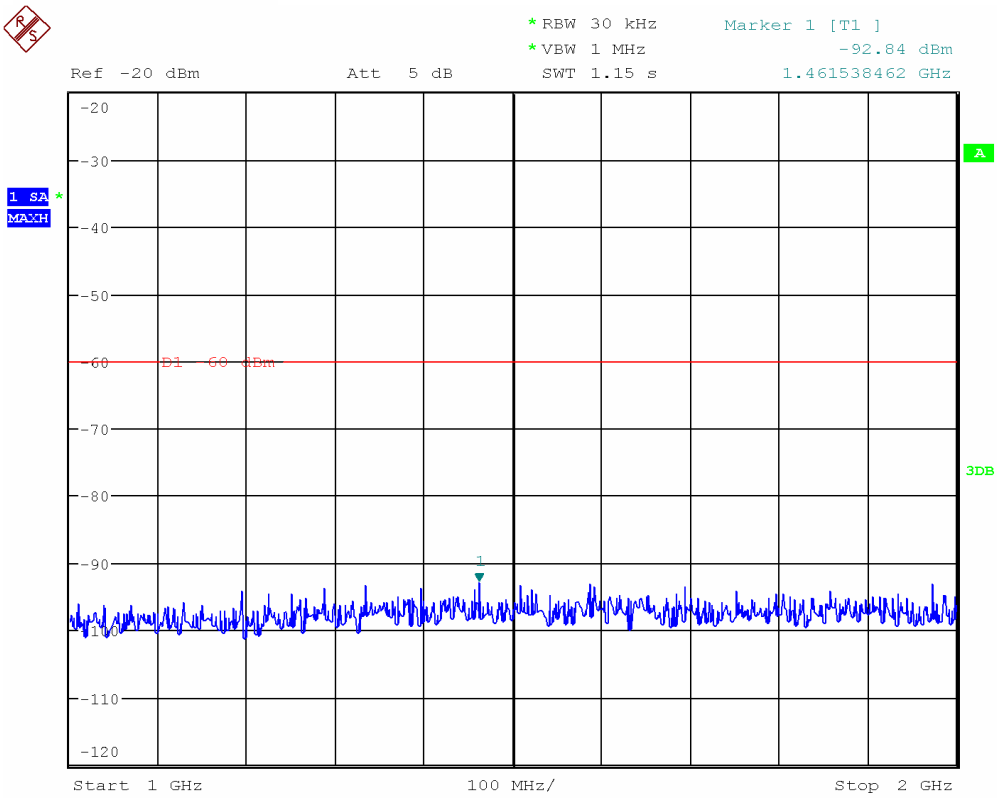

* RBW 30 kHz
* VBW 1 MHz
SWT 3.4 s
Marker 1 [T1]
-92.08 dBm
3.802884615 GHz
Ref -20 dBm
Att 5 dB
1 SA
MAXH
A
3DB
D1 -60 dBm
Start 1 GHz
300 MHz/
Stop 4 GHz

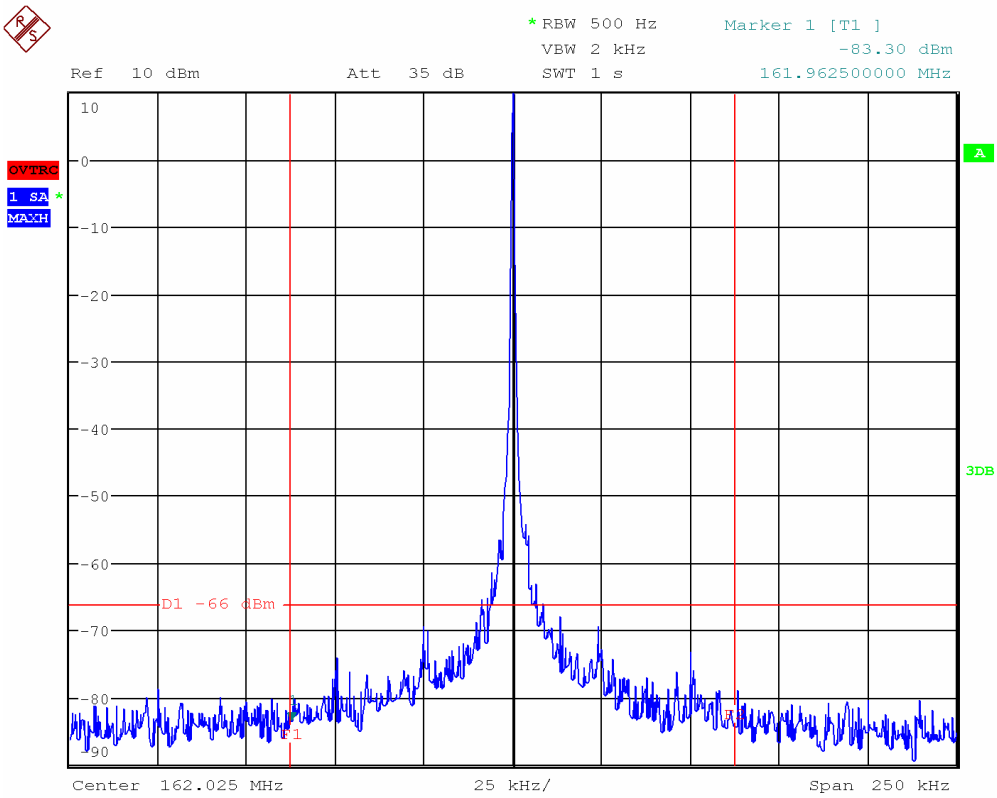

* RBW 500 Hz
VBW 2 kHz
SWT 1 s
Marker 1 [T1]
-72.62 dBm
161.962500000 MHz
Ref 10 dBm
Att 35 dB
OVTRC
1 SA
MAXH
A
3DB
D1 -66 dBm
Center 161.975 MHz
25 kHz/
Span 250 kHz

Configuration: 162.025 MHz – 24Vdc









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