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Appendix B.6

LTE Cat-M1 Band13



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Effective (Isotropic) Radiated Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band13	5M	QPSK	L	1RB0	20.53	21.38	34.77	PASS
Band13	5M	QPSK	L	1RB5	20.45	21.3	34.77	PASS
Band13	5M	QPSK	L	6RB0	19.32	20.17	34.77	PASS
Band13	5M	QPSK	М	1RB0	20.45	21.3	34.77	PASS
Band13	5M	QPSK	М	1RB5	20.36	21.21	34.77	PASS
Band13	5M	QPSK	М	6RB0	19.42	20.27	34.77	PASS
Band13	5M	QPSK	Н	1RB0	20.32	21.17	34.77	PASS
Band13	5M	QPSK	Н	1RB5	20.42	21.27	34.77	PASS
Band13	5M	QPSK	Н	6RB0	19.42	20.27	34.77	PASS





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Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	6RB#0	10.50	13	PASS
Band13	5MHz	QPSK	23230	6RB#0	10.56	13	PASS
Band13	5MHz	QPSK	23255	6RB#0	9.08	13	PASS

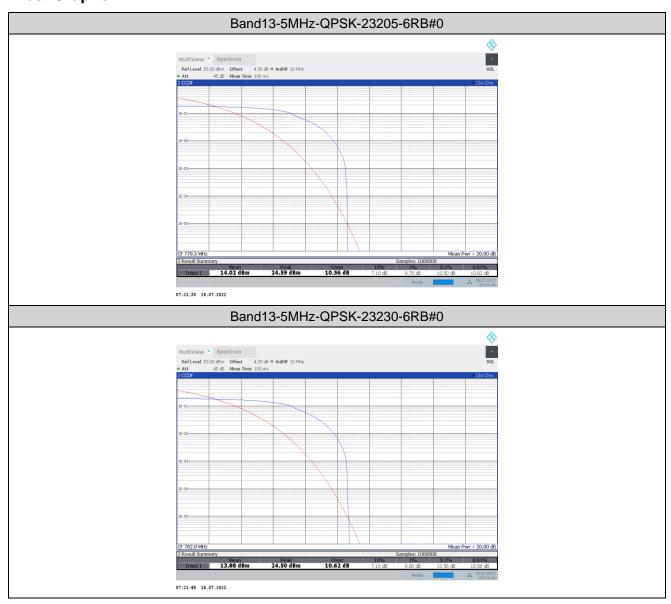




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Test Graphs

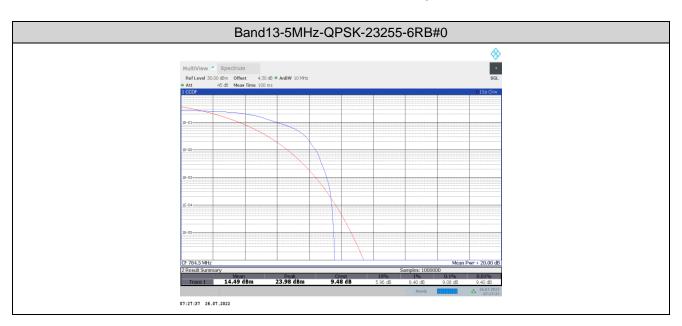






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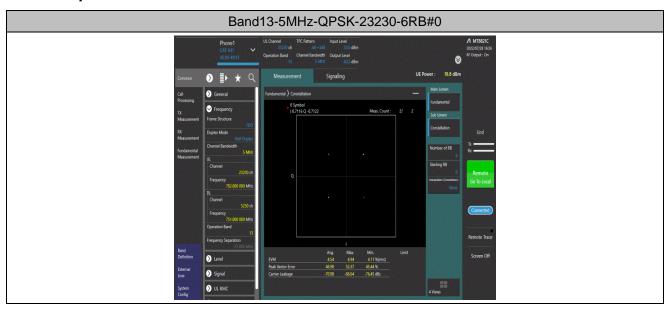
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Modulation Characteristics

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band13	5MHz	QPSK	23230	6RB#0	PASS	PASS

Test Graphs





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26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	6RB#0	1.114	1.47	PASS
Band13	5MHz	QPSK	23230	6RB#0	1.125	1.42	PASS
Band13	5MHz	QPSK	23255	6RB#0	1.126	1.41	PASS

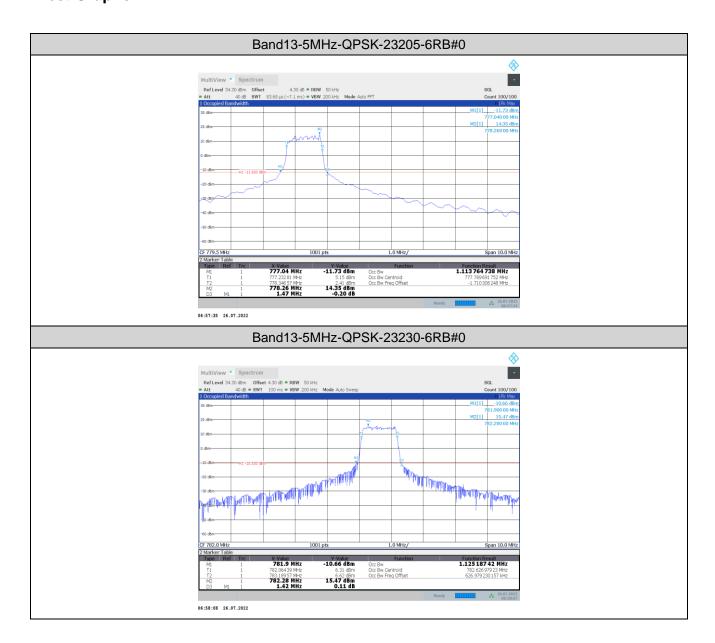




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Test Graphs

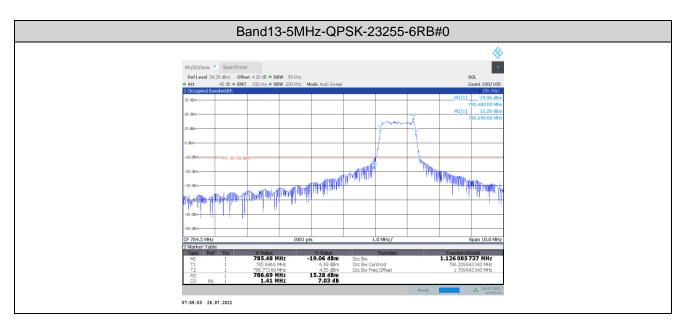






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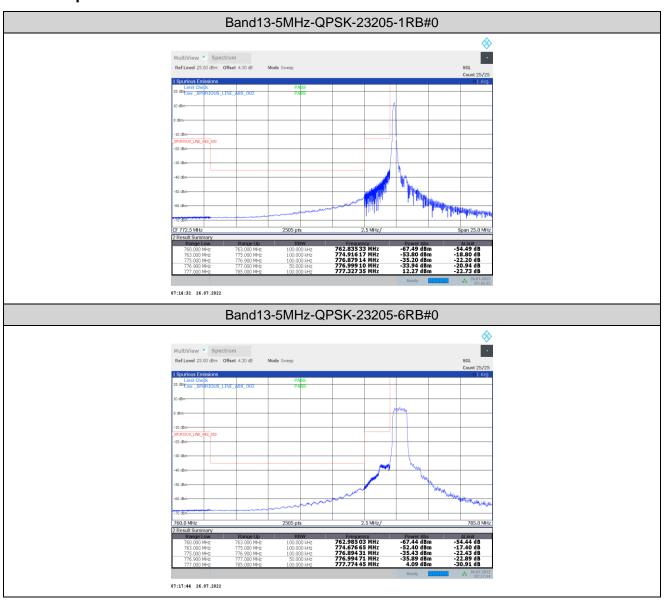
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Band Edge

Test Graphs



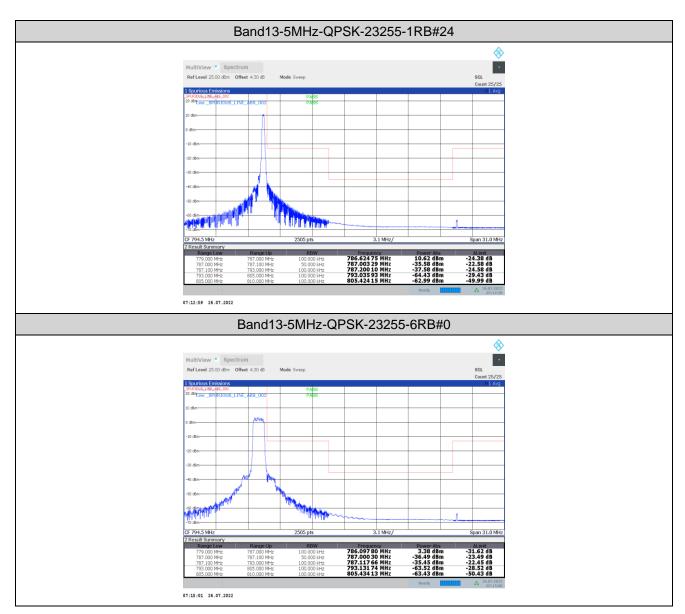




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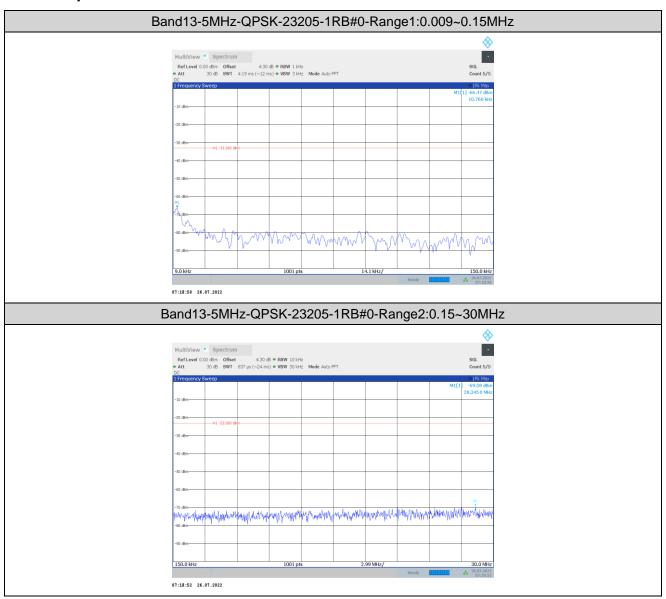
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Conducted Spurious Emission

Test Graphs



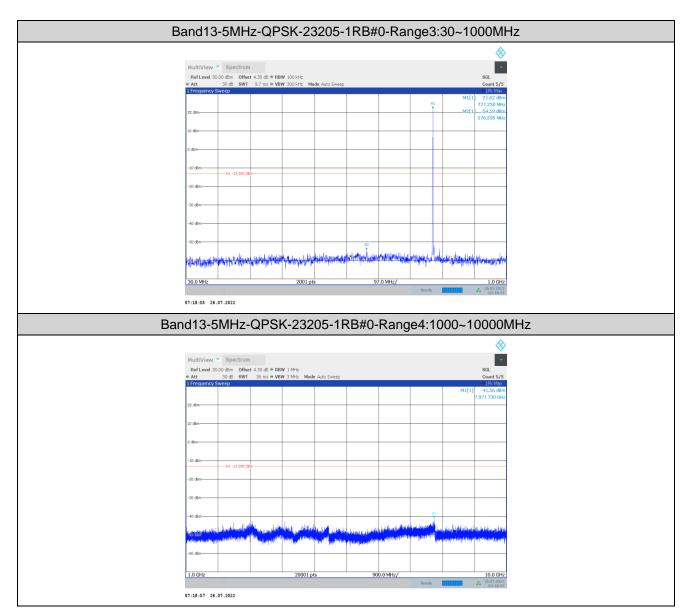




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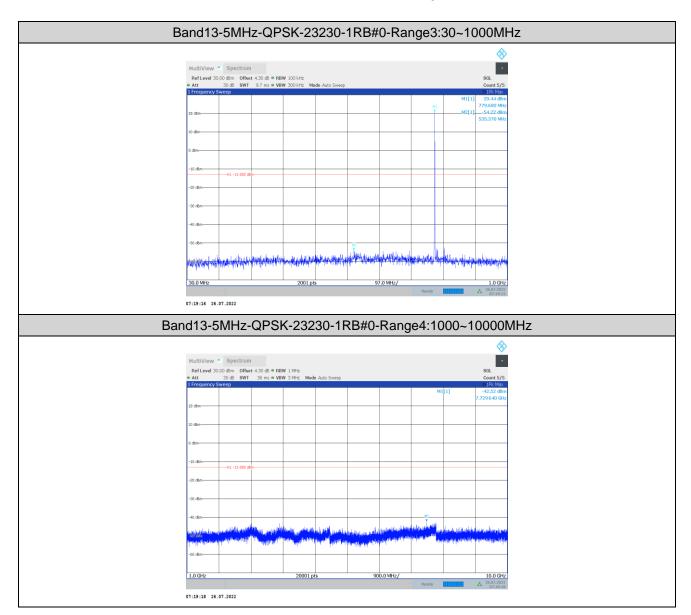
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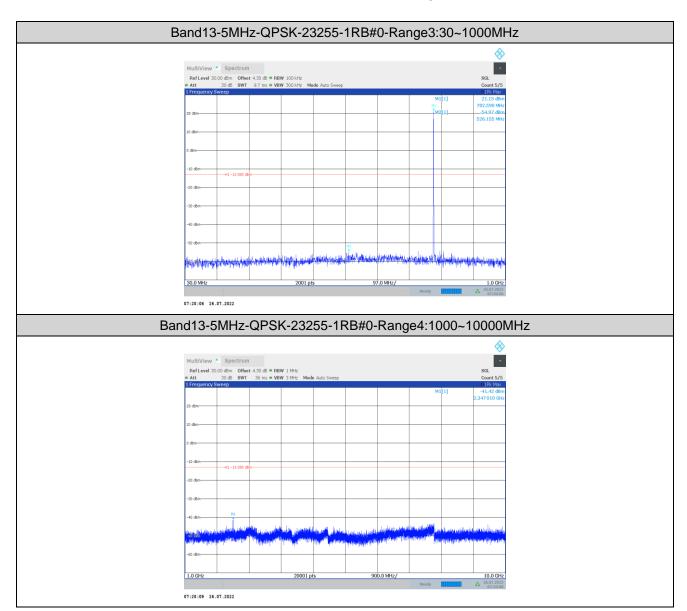
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Field Strength of Spurious Radiation

Test Band = CAT M1 Band 13_ TM1
Test Channel = Low

Final	Data List									
NO.	Frequency	Reading	Factor	Λ Γ[dD/m]	Level	Limit	Margin	Height	Angle	Dolority
NO.	[MHz]	[dBµV]	[dB]	AF[dB/m]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity
1	1554.6800	68.08	-48.30	25.41	-50.07	-13.00	37.07	162	360	Horizontal
2	2332	74.97	-47.48	27.41	-40.37	-13.00	27.37	158	237	Horizontal
3	3109.3600	63.88	-46.71	29.53	-48.55	-13.00	35.55	215	263	Horizontal
4	3886.7000	59.69	-46.22	30.53	-51.26	-13.00	38.26	231	237	Horizontal
5	4664.0400	49.52	-45.80	31.91	-59.63	-13.00	46.63	175	13	Horizontal
6	5441.3800	49.92	-45.04	32.85	-57.54	-13.00	44.54	163	184	Horizontal

Final	Final Data List													
NO	Frequency	Reading	Factor	Λ Γ[dD/m]	Level	Limit	Margin	Height	Angle	Dolority				
NO.	[MHz]	[dBµV]	[dB]	AF[dB/m]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	1554.6800	54.51	-48.30	25.41	-63.64	-13.00	50.64	138	255	Vertical				
2	2332	61.36	-47.48	27.41	-53.98	-13.00	40.98	141	122	Vertical				
3	3109.3600	54.36	-46.71	29.53	-58.07	-13.00	45.07	254	163	Vertical				
4	3886.7000	50.30	-46.22	30.53	-60.65	-13.00	47.65	187	295	Vertical				
5	4664.0400	48.74	-45.80	31.91	-60.41	-13.00	47.41	164	4	Vertical				
6	5441.3800	49.01	-45.04	32.85	-58.45	-13.00	45.45	218	189	Vertical				





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Test Band = CAT M1 Band 13_ TM1 Test Channel = Mid

Final	Final Data List													
NO.	Frequency	Reading	Factor	Λ Γ[dD/m]	Level	Limit	Margin	Height	Angle	Dolority				
NO.	[MHz]	[dBµV]	[dB]	AF[dB/m]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	1559.6800	71.50	-48.30	25.40	-46.65	-40.00	6.65	257	213	Horizontal				
2	2339.4286	75.15	-47.48	27.41	-40.18	-13.00	27.18	161	213	Horizontal				
3	3119.3600	65.23	-46.66	29.55	-47.14	-13.00	34.14	152	240	Horizontal				
4	3899.2000	59.01	-46.23	30.56	-51.92	-13.00	38.92	149	254	Horizontal				
5	4679.0400	48.97	-45.80	31.95	-60.14	-13.00	47.14	234	4	Horizontal				
6	5458.8800	50.03	-45.07	32.87	-57.44	-13.00	44.44	257	351	Horizontal				

Final	Final Data List												
NO.	Frequency	Reading	Factor	Λ Γ[dD/m]	Level	Limit	Margin	Height	Angle	Dolority			
NO.	[MHz]	[dBµV]	[dB]	AF[dB/m]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity			
1	1559.6800	57.32	-48.30	25.40	-60.83	-40.00	20.83	253	282	Vertical			
2	2339.5200	59.22	-47.48	27.41	-56.11	-13.00	43.11	162	162	Vertical			
3	3119.3600	53.23	-46.66	29.55	-59.14	-13.00	46.14	147	228	Vertical			
4	3899.2000	50.33	-46.23	30.56	-60.60	-13.00	47.60	228	135	Vertical			
5	4679.0400	48.99	-45.80	31.95	-60.12	-13.00	47.12	235	83	Vertical			
6	5458.8800	50.31	-45.07	32.87	-57.16	-13.00	44.16	226	294	Vertical			





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Test Band = CAT M1 Band 13_ TM1 Test Channel = High

Final	Data List									
NO	Frequency	Reading	Factor	Λ Γ[dD/m]	Level	Limit	Margin	Height	Angle	Dolority
NO.	[MHz]	[dBµV]	[dB]	AF[dB/m]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity
1	1564.5714	70.48	-48.29	25.40	-47.68	-40.00	7.68	129	331	Horizontal
2	2347.0200	77.09	-47.48	27.41	-38.23	-13.00	25.23	142	239	Horizontal
3	3129.3600	61.31	-46.61	29.56	-51.00	-13.00	38.00	215	186	Horizontal
4	3911.7000	57.40	-46.23	30.59	-53.49	-13.00	40.49	231	252	Horizontal
5	4694.0400	51.22	-45.80	32.00	-57.84	-13.00	44.84	154	4	Horizontal
6	5476.3800	50.09	-45.10	32.88	-57.39	-13.00	44.39	166	26	Horizontal

Final	Final Data List													
NO.	Frequency	Reading	Factor	AF[dB/m]	Level	Limit	Margin	Height	Angle	Polarity				
NO.	[MHz]	[dBµV]	[dB]	AF[ub/III]	[dBm]	[dBm]	[dB]	[cm]	[°]	Folality				
1	1564.5714	58.82	-48.29	25.40	-59.34	-40.00	19.34	194	201	Vertical				
2	2347.0200	59.25	-47.48	27.41	-56.07	-13.00	43.07	152	243	Vertical				
3	3129.3600	52.74	-46.61	29.56	-59.57	-13.00	46.57	168	163	Vertical				
4	3911.7000	50.05	-46.23	30.59	-60.84	-13.00	47.84	175	320	Vertical				
5	4694.0400	49.76	-45.80	32.00	-59.30	-13.00	46.30	193	96	Vertical				
6	5476.3800	49.83	-45.10	32.88	-57.65	-13.00	44.65	255	43	Vertical				

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:

Level = Reading Level + AF(dB/m) + Factor(dB)

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier gain (dB)

Margin = Limit(dBm) - Level(dBm)

 $dBm = dB\mu V - 95.26$





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Frequency Stability

Test Result

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	5MHz	QPSK	23230	6RB#0	VL	NT	0.50	0.000639	PASS
Band13	5MHz	QPSK	23230	6RB#0	VN	NT	0.00	0.000000	PASS
Band13	5MHz	QPSK	23230	6RB#0	VH	NT	-3.70	-0.004731	PASS

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	5MHz	QPSK	23230	6RB#0	NV	-30	-1.70	-0.002174	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	-20	-0.50	-0.000639	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	-10	0.90	0.001151	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	0	0.30	0.000384	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	10	1.20	0.001535	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	20	1.10	0.001407	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	30	-3.30	-0.004220	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	40	0.00	0.000000	PASS
Band13	5MHz	QPSK	23230	6RB#0	NV	50	-3.20	-0.004092	PASS

---End of Attachment---

