



MT6162 RF Performance Test Report



2010/3/20

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- WCDMA RF performance Summary
- WCDMA TX and Sensitivity test data
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- Tx performance data
- Rx performance data



WCDMA RF performance Summary



WCDMA RF Performance Summary

Item	Band	Avg	Worst
Sensitivity (dBm)	1	-110.4	-109.2
	2	-109.9	-109.2
	5	-111.1	-110.4
	8	-110.7	-110.0

Item	Band	Avg	Worst
ACLR1 (dBc)	1	-42.75	-40.48
	2	-42.15	-39.54
	5	-47.86	-42.08
	8	-48.08	-43.27
ACLR2 (dBc)	1	-59.03	-56.85
	2	-59.87	-57.27
	5	-61.15	-59.79
	8	-65.25	-63.68

Item	Band	Avg	Worst
EVM (%)	1	2.5	2.77
	2	2.53	3.10
	5	3.12	4.38
	8	2.31	4.04
SEM (dB), lowest margin in the tested range	1	7.58	5.81
	2	9.05	6.36
	5	10.5	6.4
	8	10.33	6.99

- Sensitivity and TX performance are under extreme conditions of NTN, HTHV, HTLV, LTLV and LTHV

Item	Band	(margin in dB)
ACS case 1 (-52dBm)	1	27
	2	31
	5	32
	8	32
ACS case 2 (-25dBm)	1	14
	2	12
	5	17
	8	16

Item	Band	(margin in dB)
In-band blocking 10MHz (-56dBm)	1	30
	2	32
	5	28
	8	31
In-band blocking 15MHz (-44dBm)	1	18
	2	20
	5	17
	8	19
Narrow-band blocking 2.7MHz (-57dBm)	2	32
	5	32
	8	32

Item	Band	(margin in dB)
Intermodulation 10/20MHz (-46dBm)	1	14
	2	16
	5	18.5
	8	17
Narrow-band Intermodulation 3.5/5.9MHz (-44dBm)	2	18
	5	19
	8	18.5

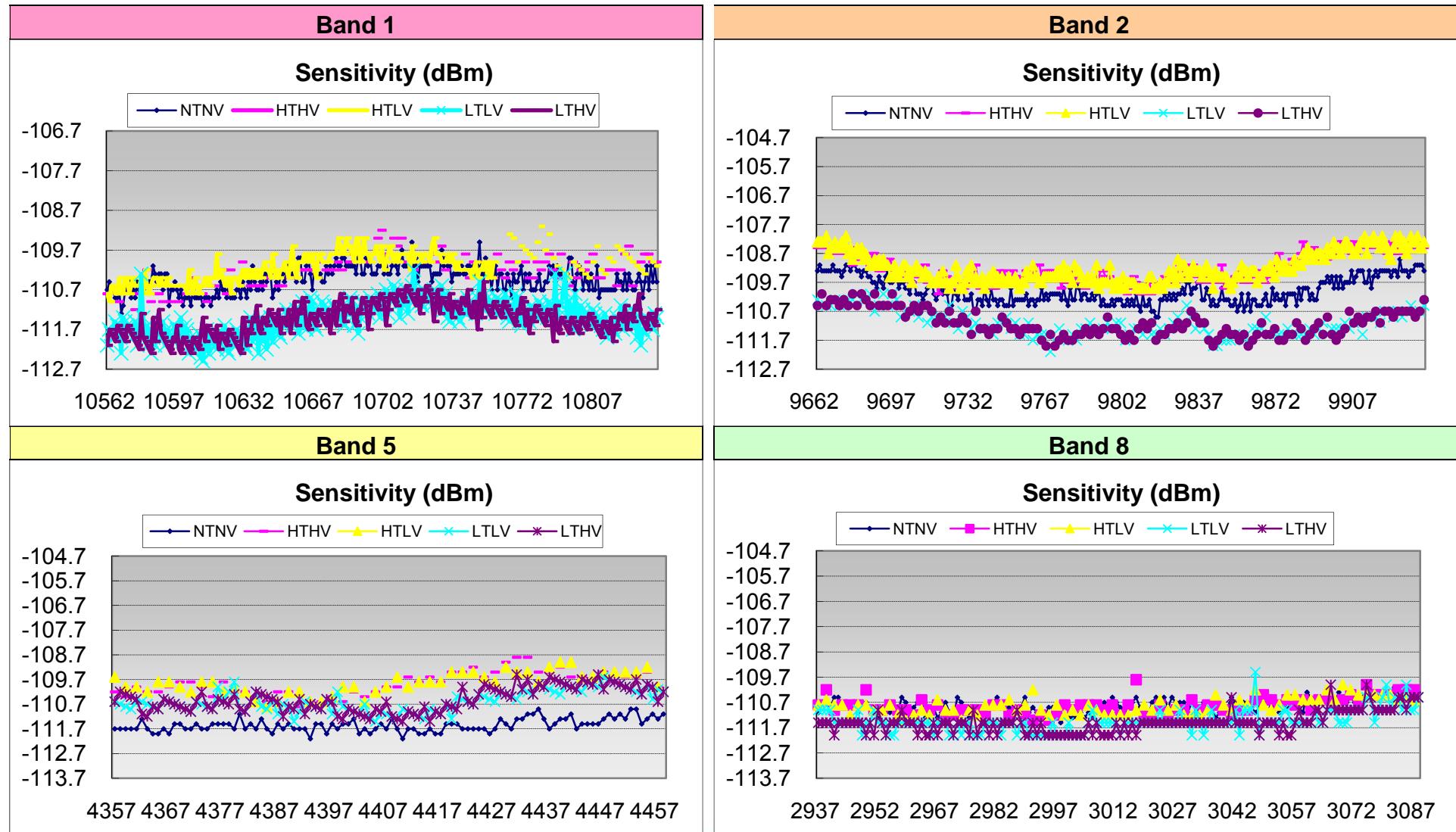
- RX interference performance are measured in mid channel under NVNT



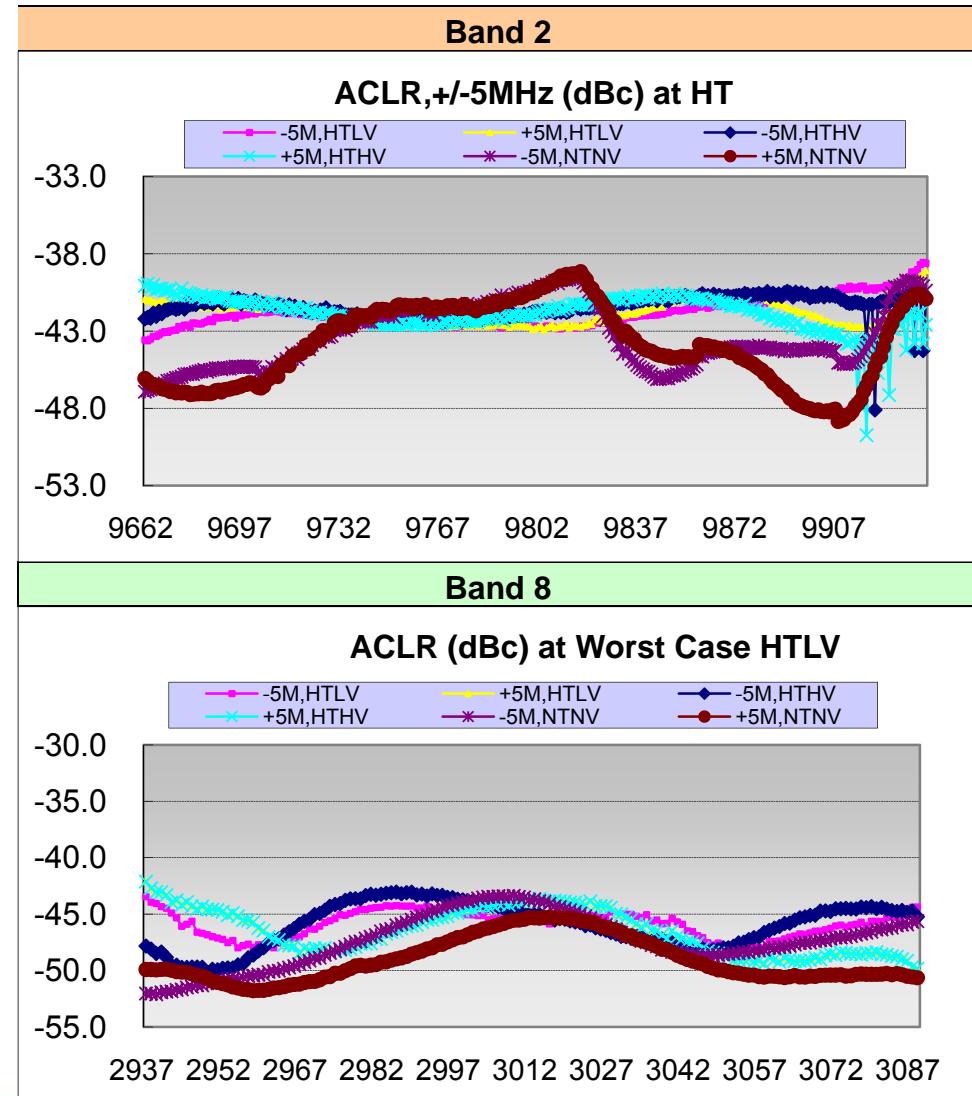
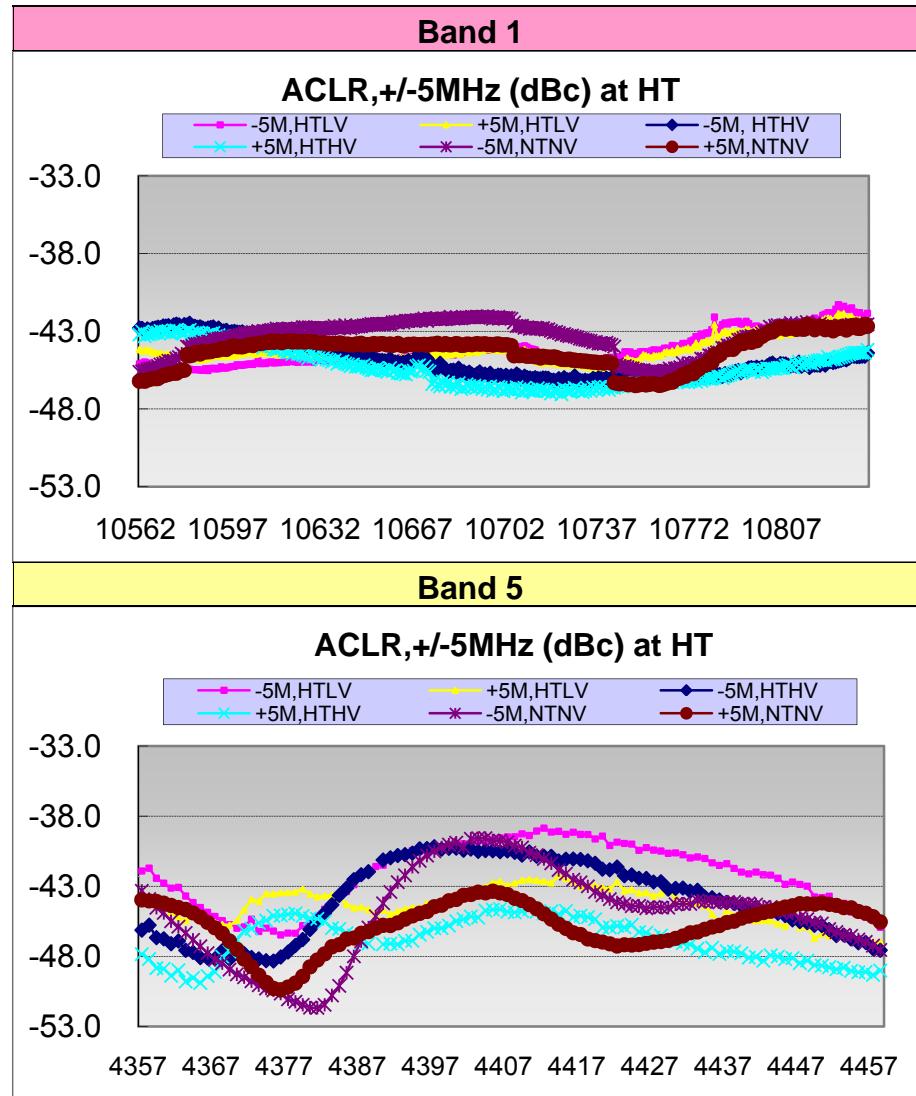
WCDMA TX and Sensitivity test data



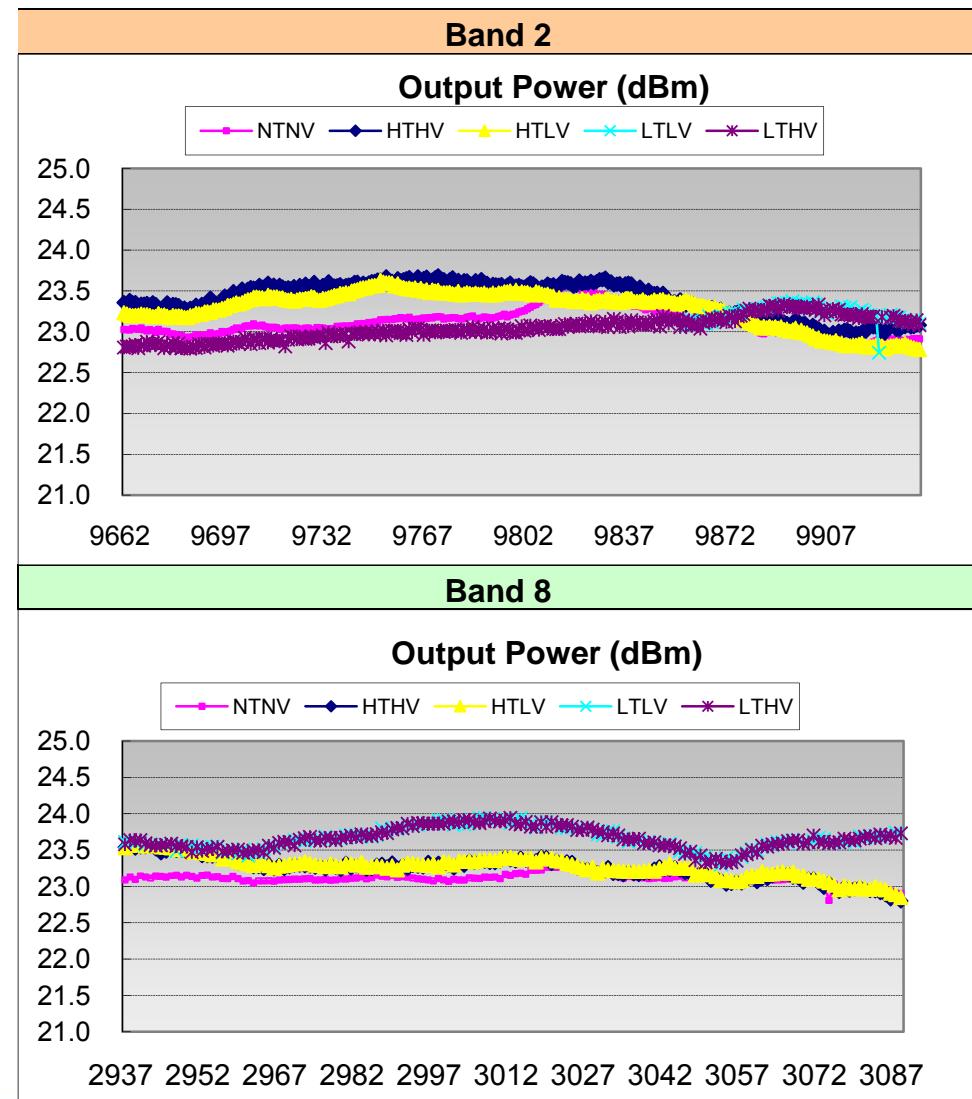
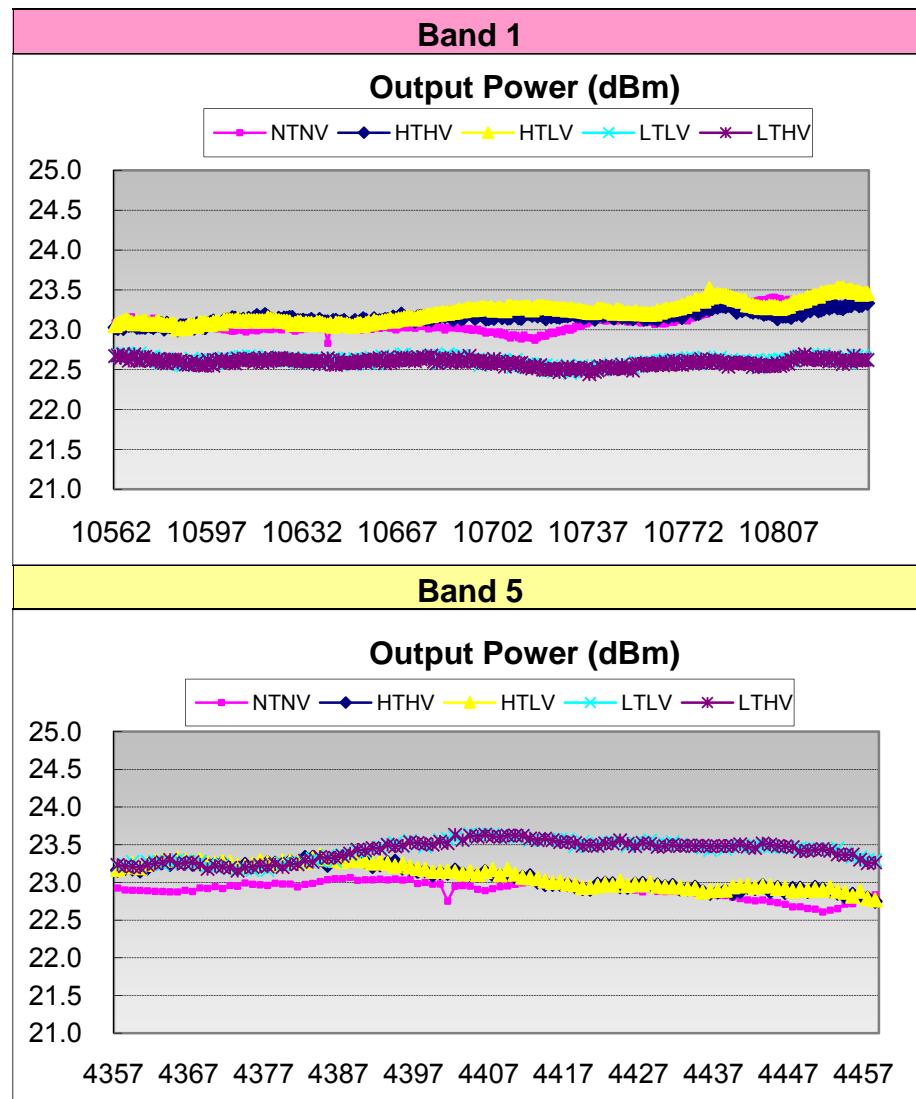
Sensitivity



ACLR

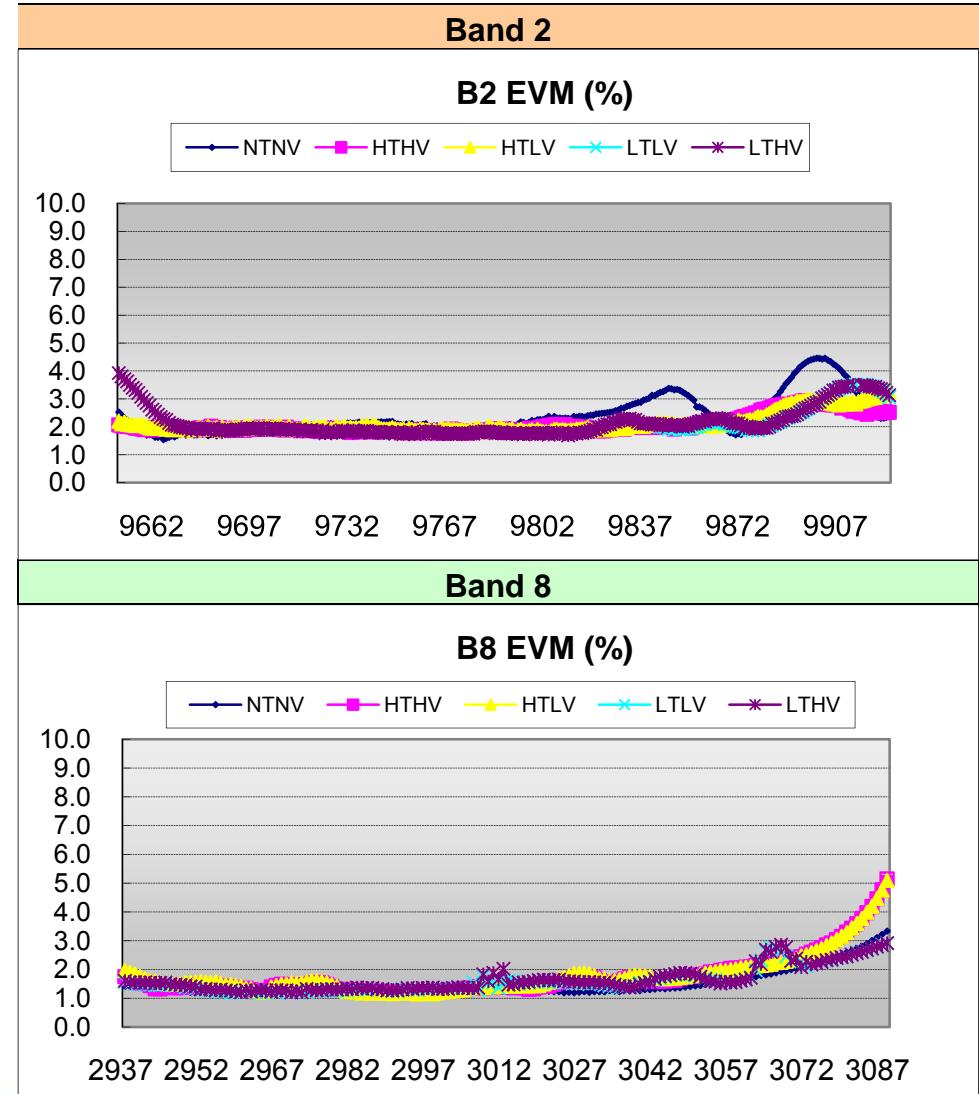
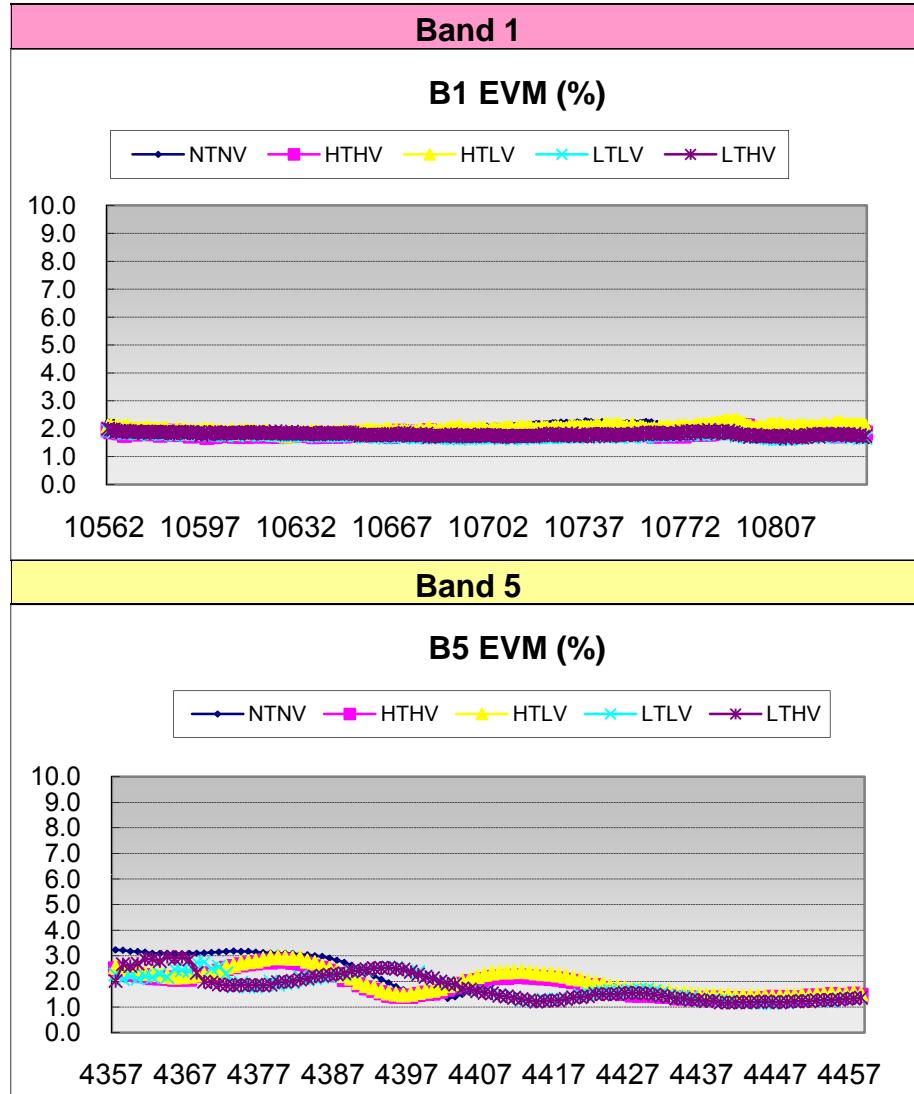


Max RMS Power

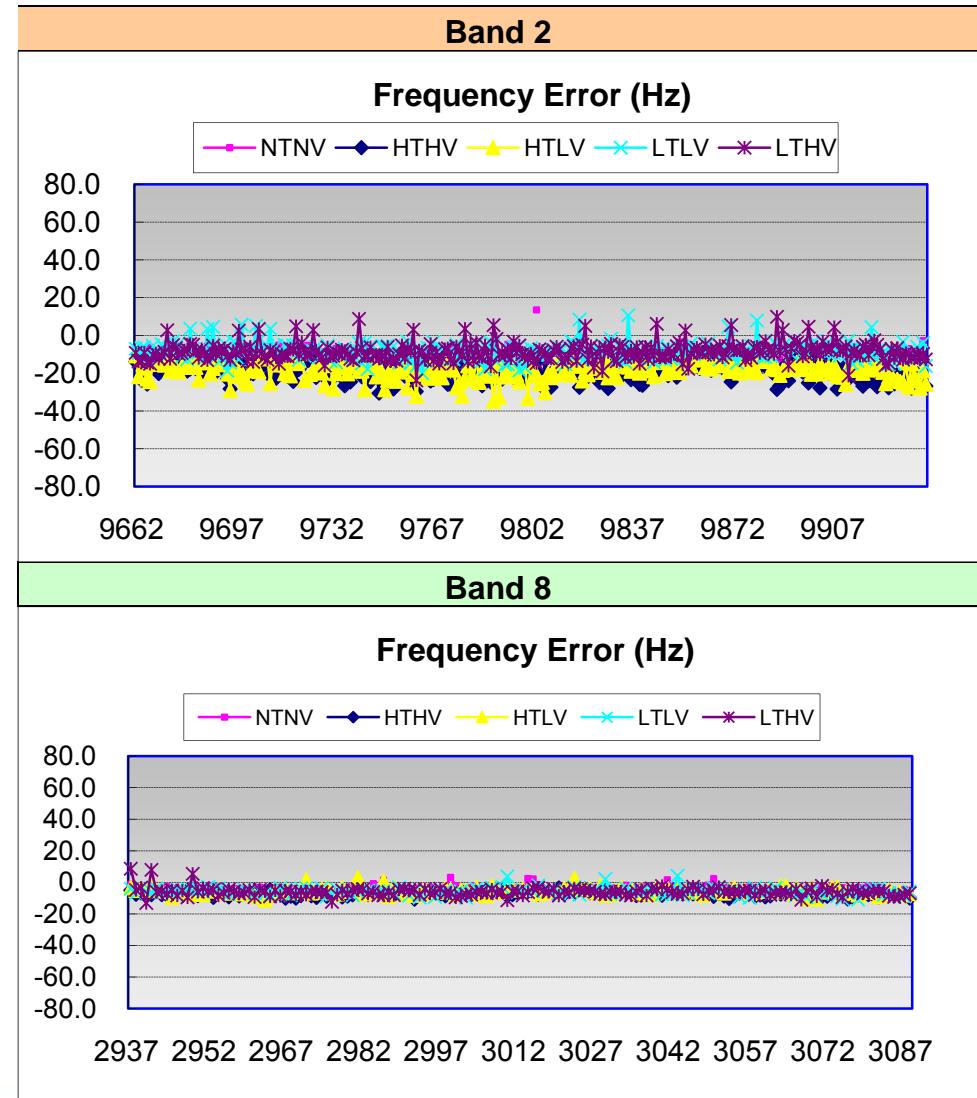
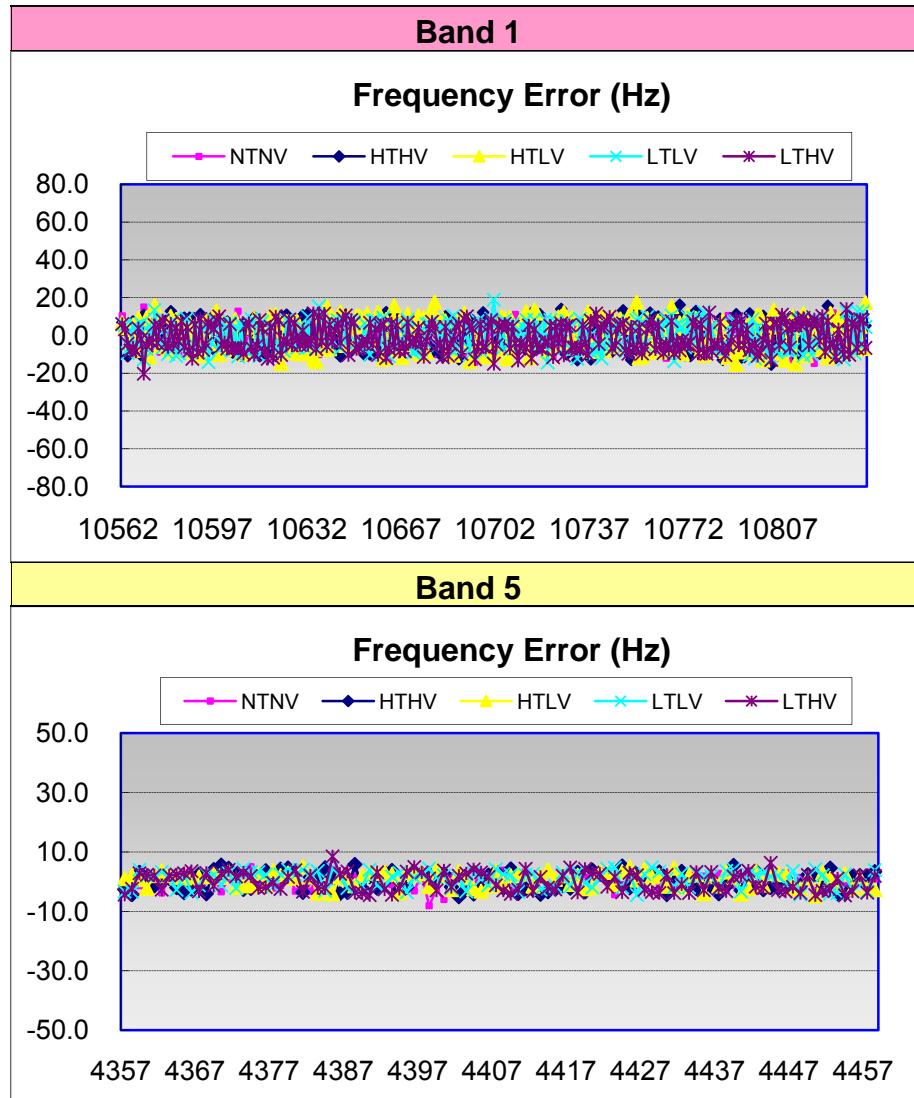


EVM (B8 Duplexer will degrade EVM at high ch)

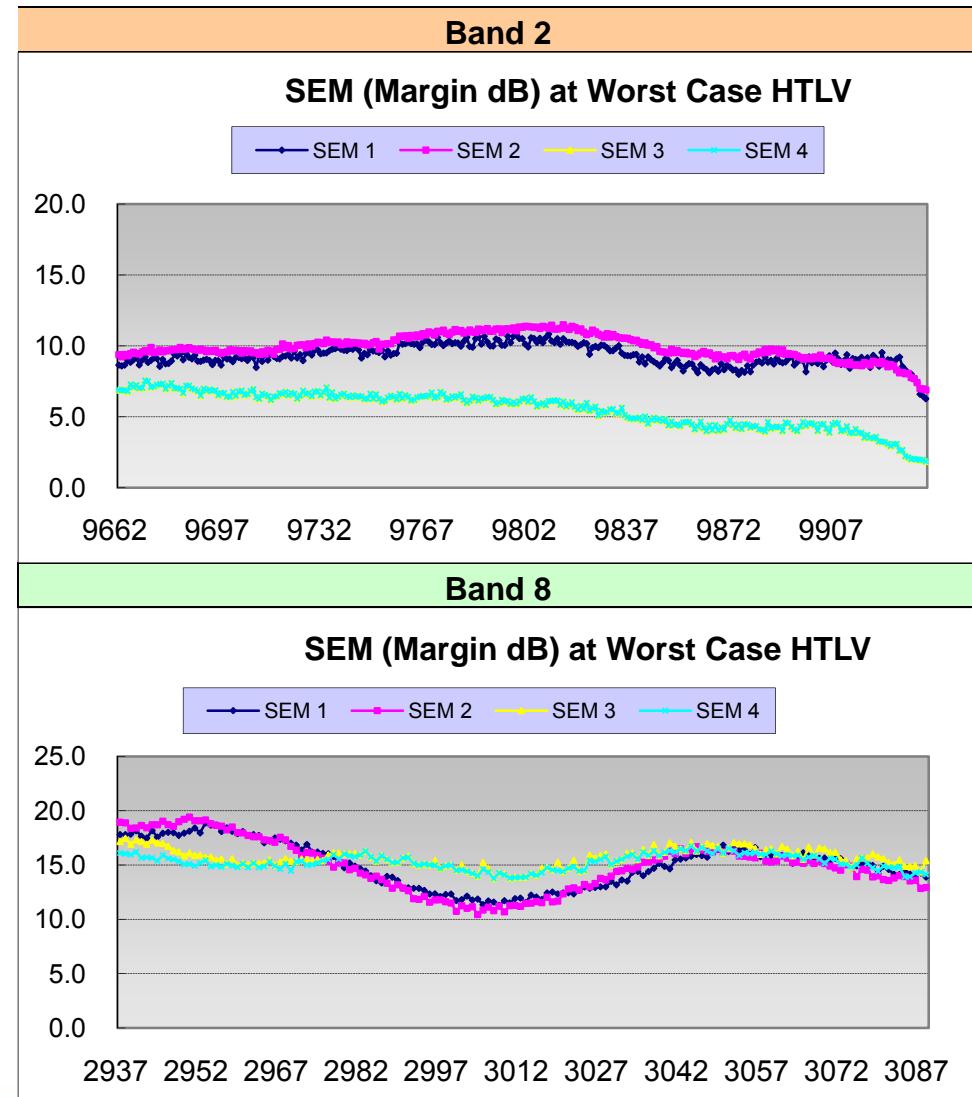
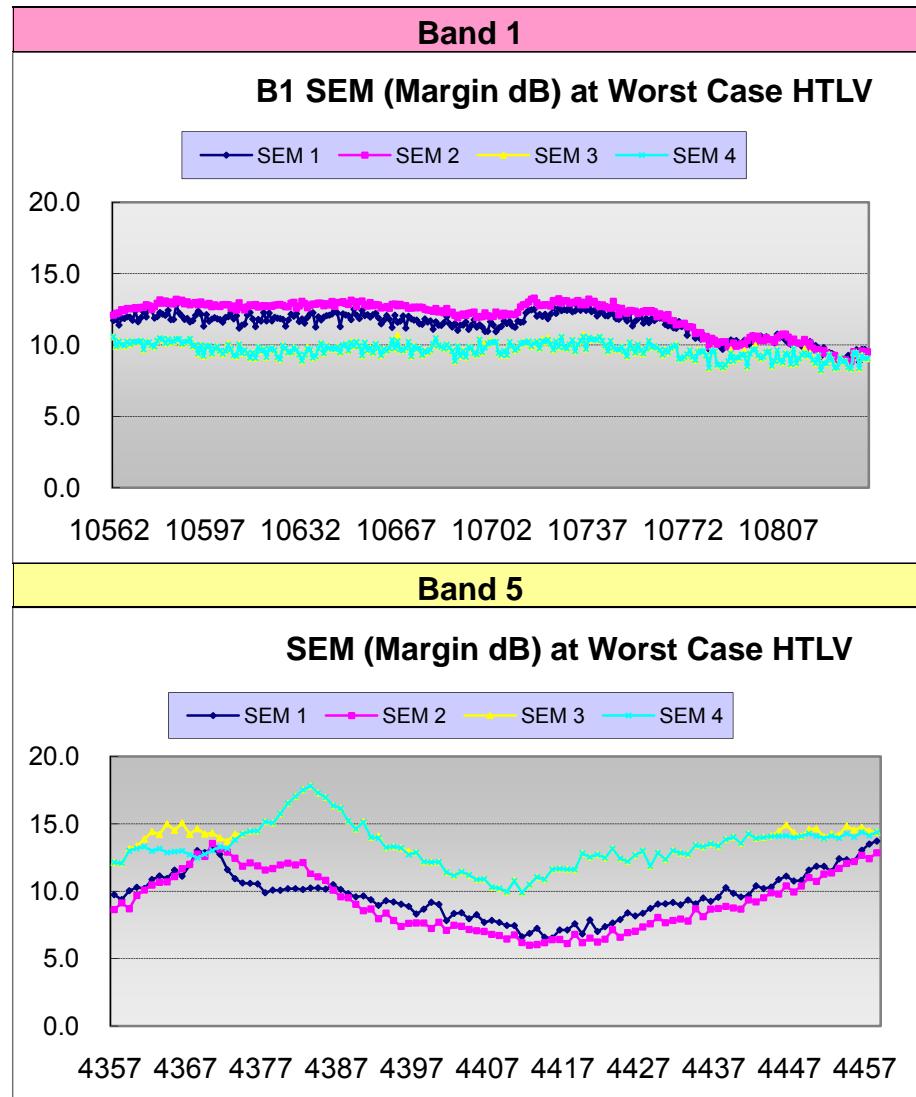
Confidential B



Frequency Error



SEM





HSDPA & HSUPA TX test data

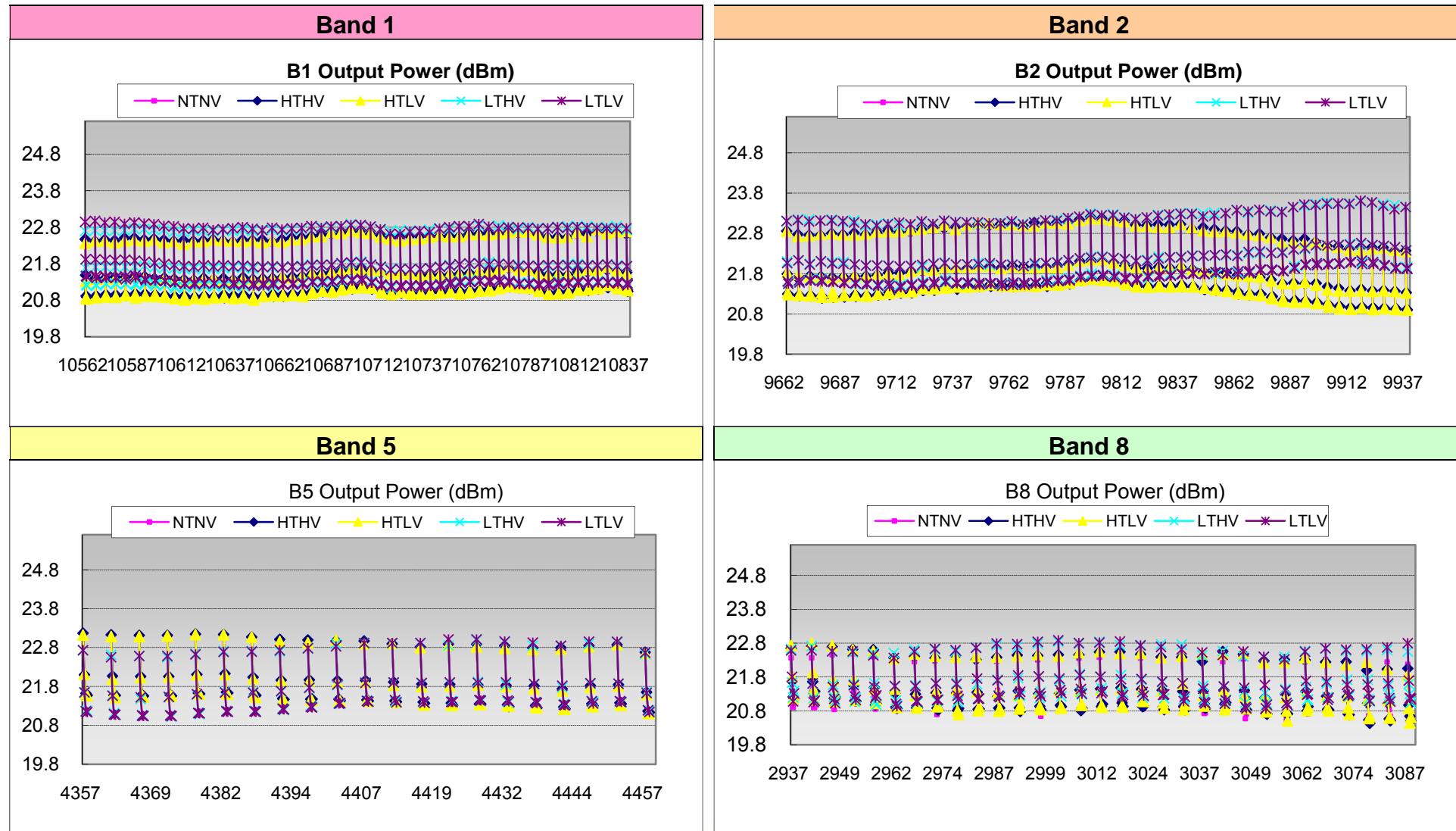


Test Coverage and benchmark

TS 34.121	HSDPA(R5 & R6)		HSUPA(R6)
Max Power	5.2A (R5)	5.2AA (R6)	5.2B (R6)
RCDPA	5.2C (R5)		5.2D (R6)
HS-DPCCH	5.7A (R5)		
SEM	5.9A (R5)		5.9B (R6)
ACLR	5.10A (R5)		5.10B (R6)
EVM/Phase Disc	5.13.1A (R5)	5.13.1AA(R6)	N/A
Code Domain	5.13.2A (R5)		5.13.2B (R6)
Max Input Level	6.3A (R5)		N/A

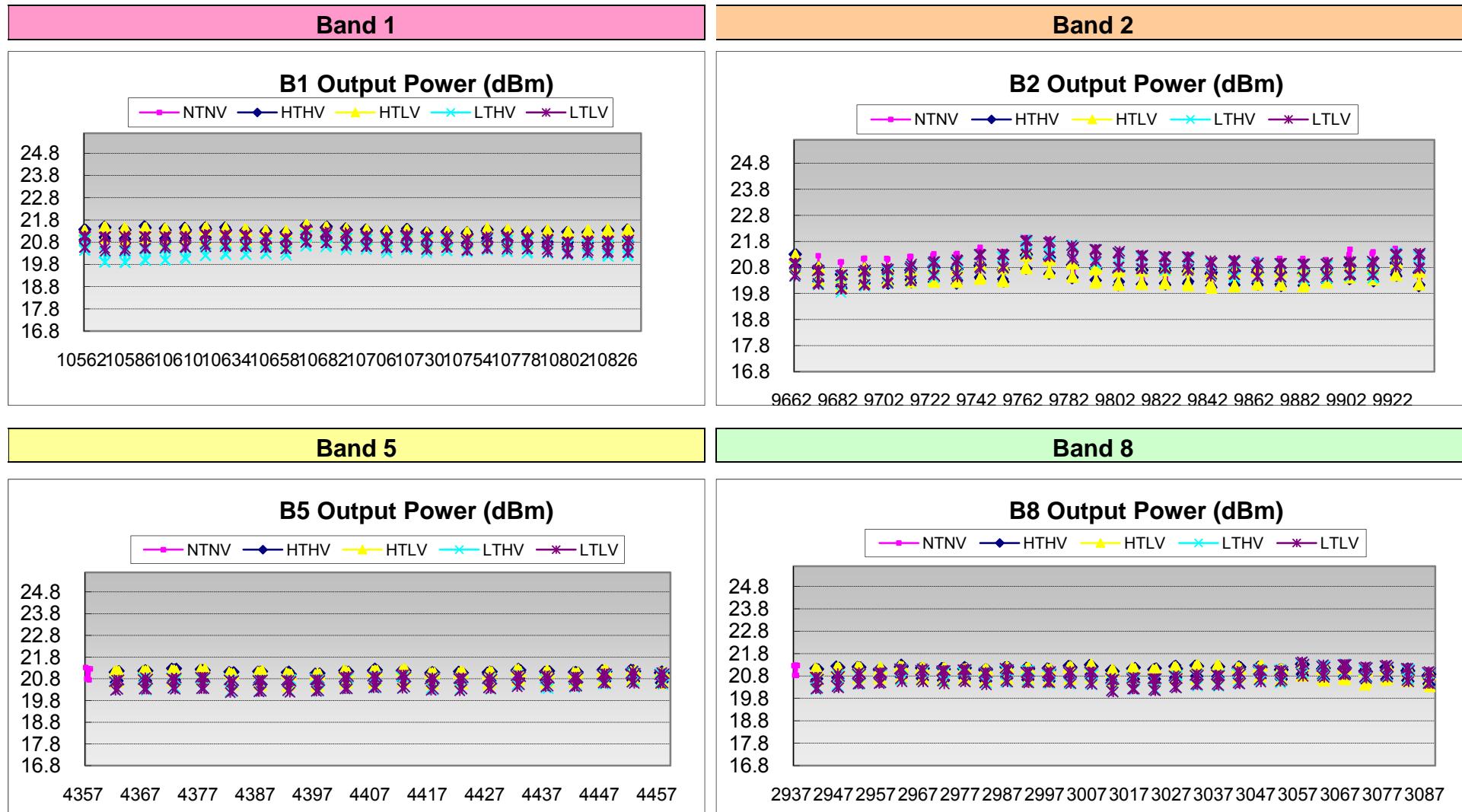
5.2A Maximum Output Power : B2 need a power back off 1dB in HT

Confidential B

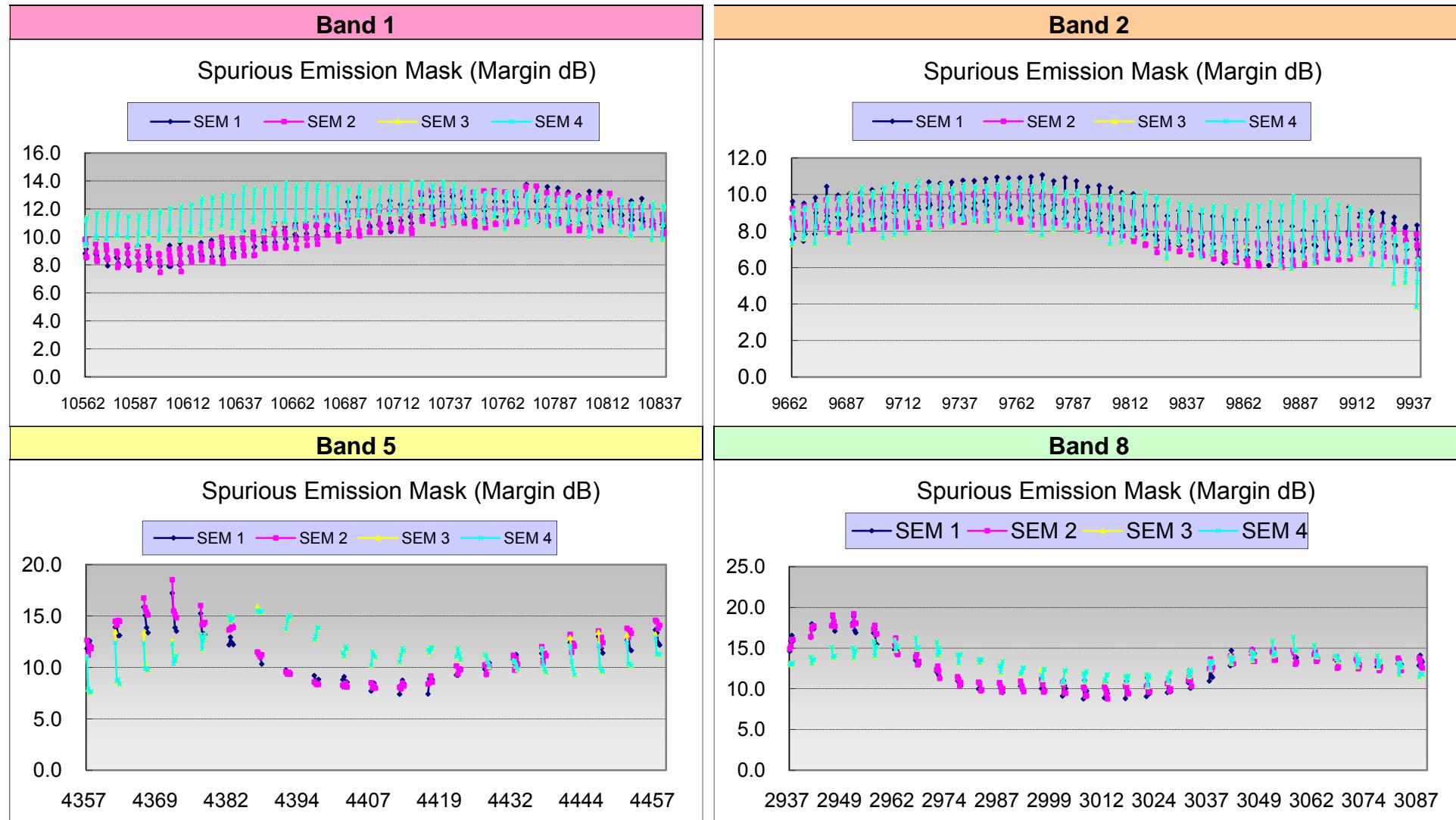


5.2B Maximum Output Power: B2 need a power back off 1dB in HT

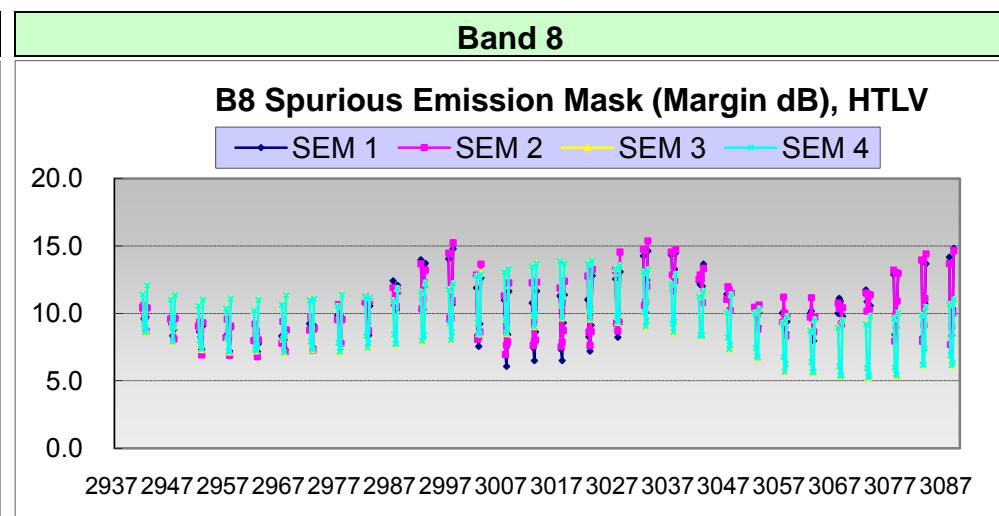
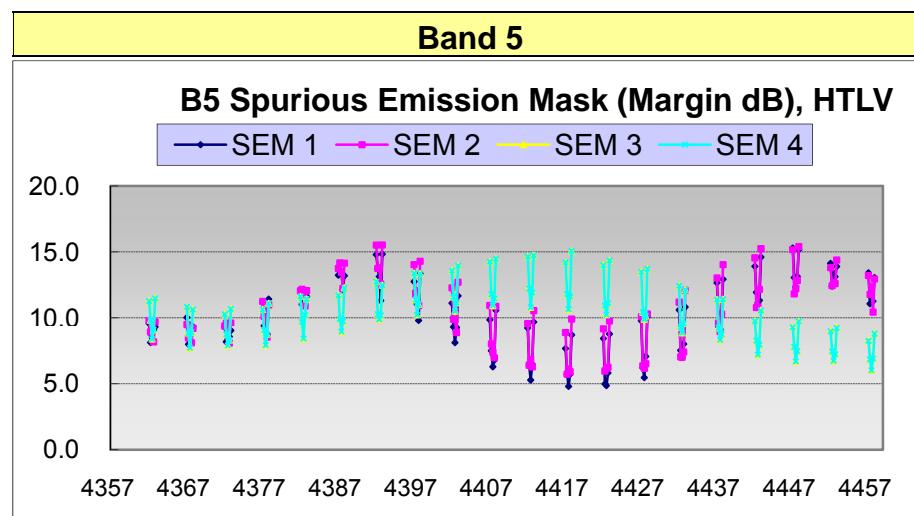
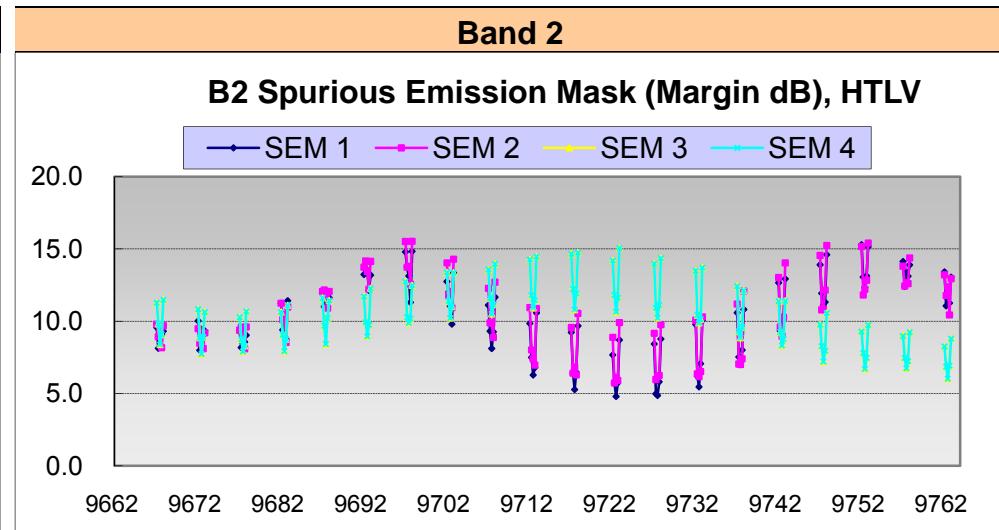
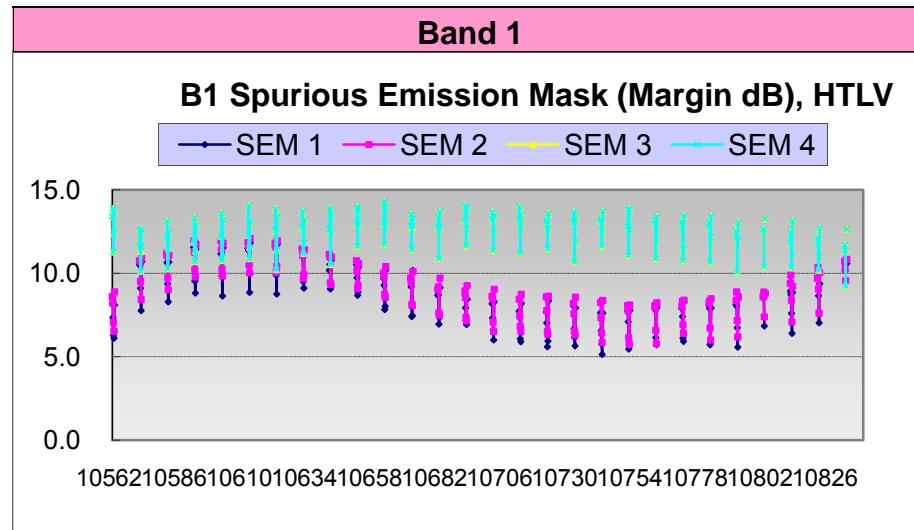
Confidential B



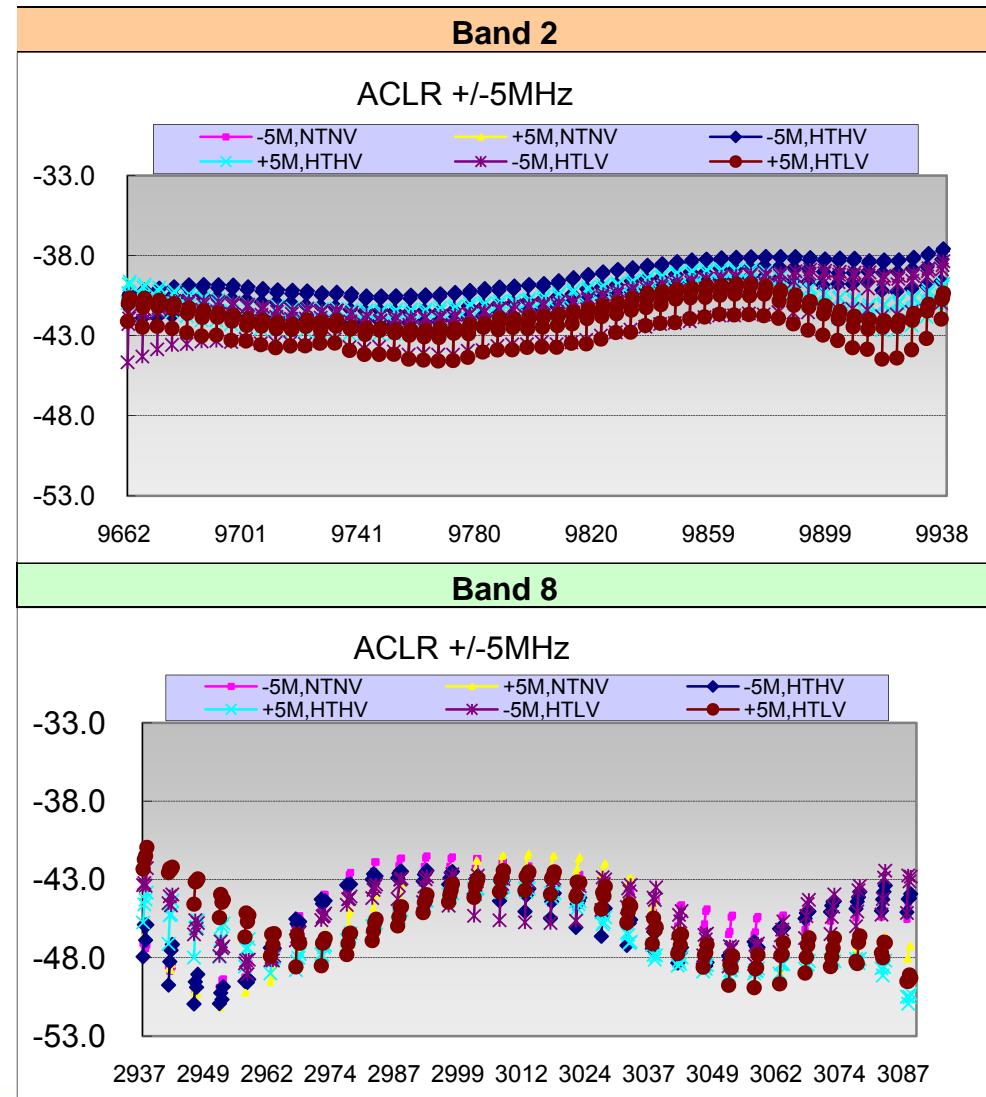
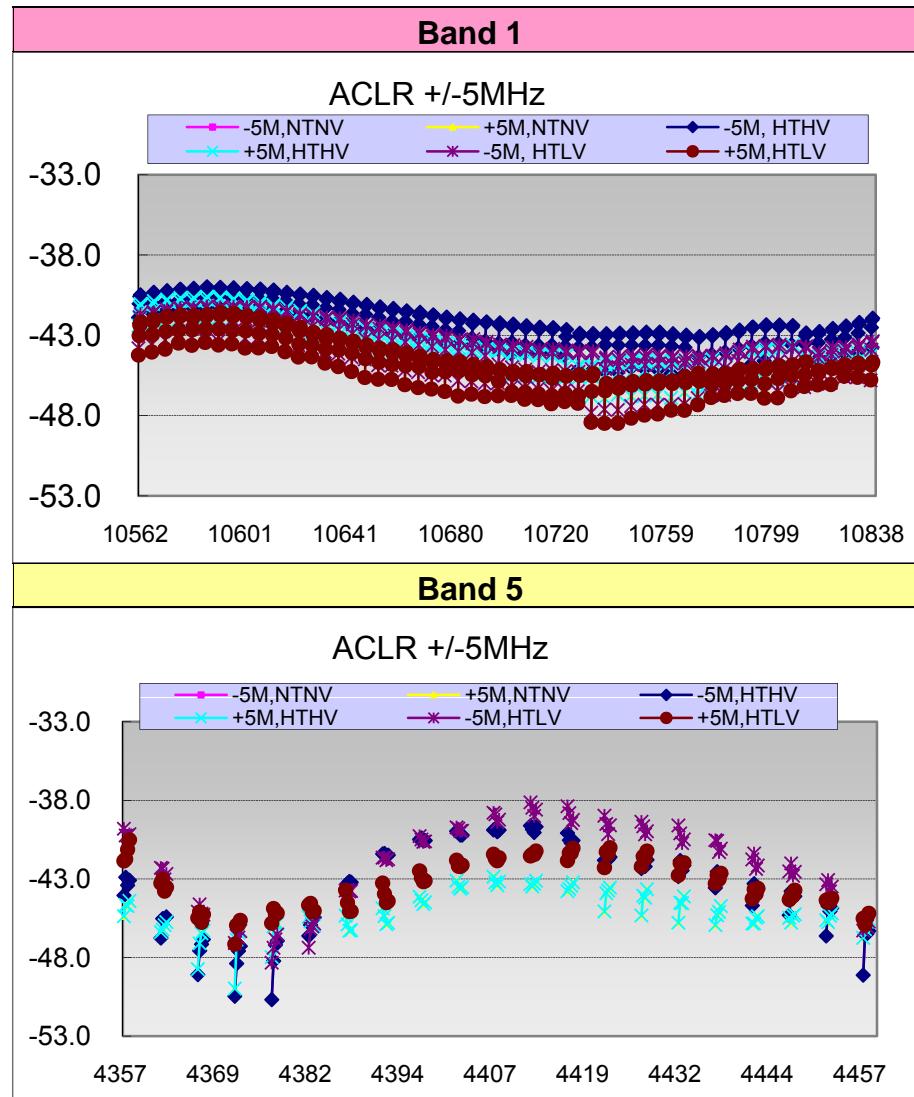
5.9A SEM with HS-DPCCCH :Pass



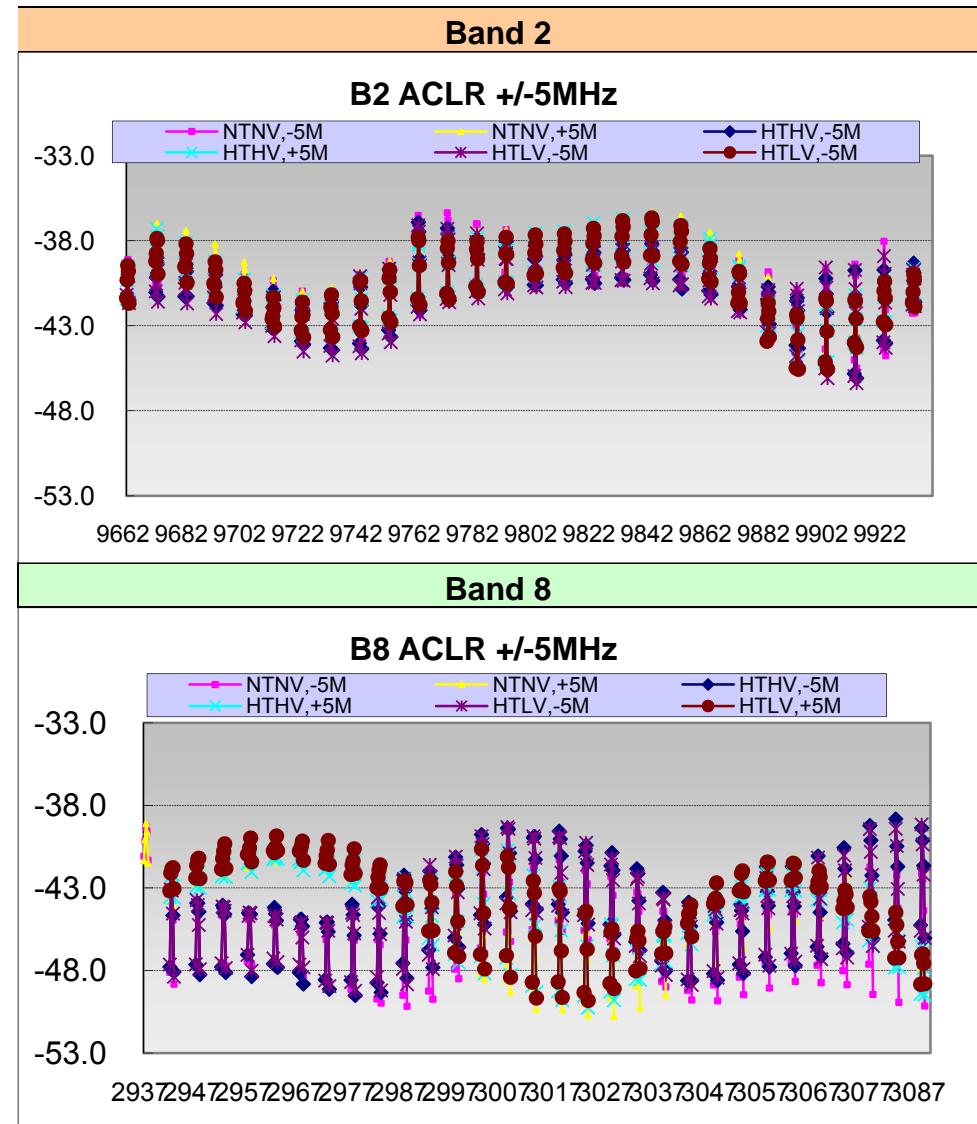
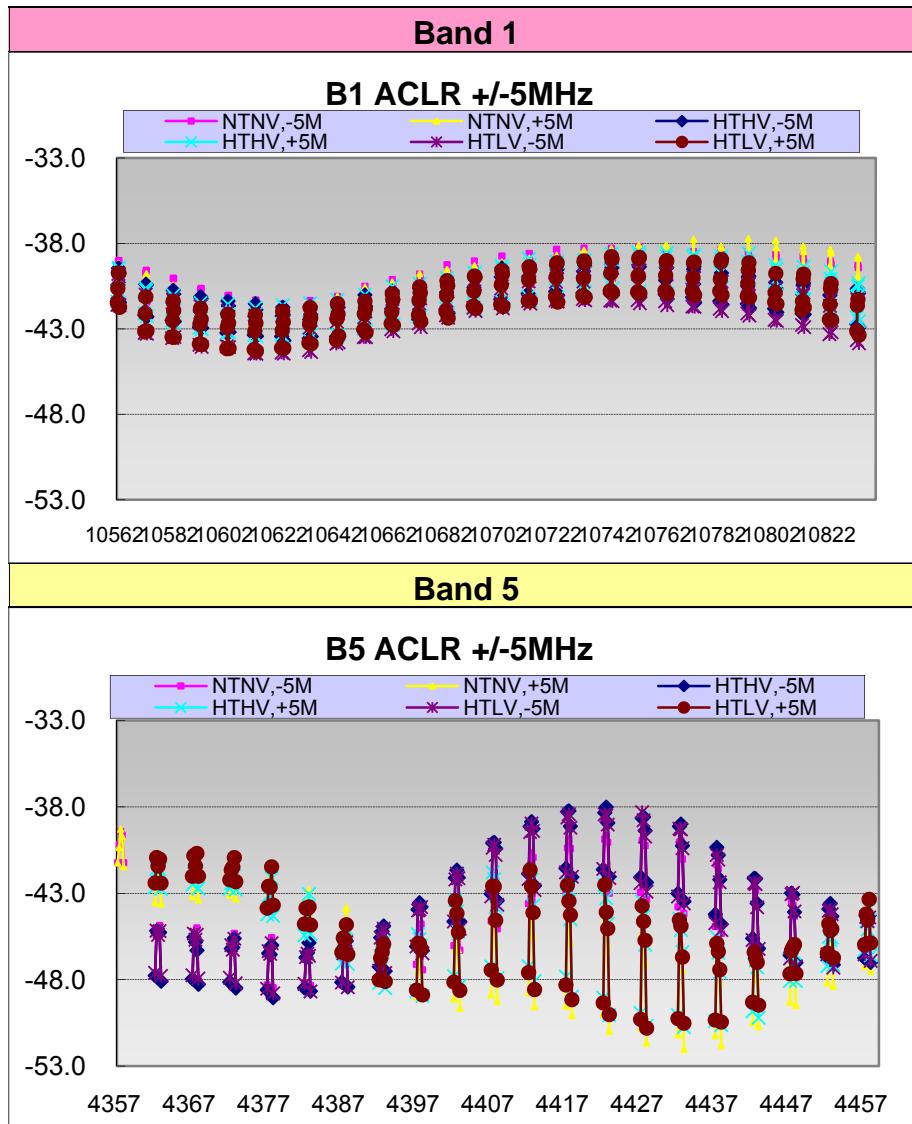
5.9B SEM with E-DCH :Pass



5.10A ACLR with HS-DPCCCH :Pass



5.10B ACLR with E-DCH :Pass



5.2C UE relative code domain power accuracy :Pass

Confidential B



- Test channel: B1258, Low/Mid/High CH
- List B1 CH 10700 as an example.

5.2D RCDPA with HS-DPCCH and E-DCH :

		5.2D RCDPA with HS-DPCCH and E-DCH						
CH	Sub-test	Measurement Point	DPCCH (Pass/Fail)	DPDCH (Pass/Fail)	HS-DPCCH (Pass/Fail)	E-DPCCH (Pass/Fail)	E-DPDCH1 (Pass/Fail)	E-DPDCH2 (Pass/Fail)
10700	Sub-test1	1	PASS	PASS	PASS	PASS	PASS	
		2	PASS	PASS	PASS	PASS	PASS	
		3	PASS	PASS	PASS	PASS	PASS	
	Sub-test2	1	PASS	PASS	PASS	PASS	PASS	
		2	PASS	PASS	PASS	PASS	PASS	
		3	PASS	PASS	PASS	PASS	PASS	
	Sub-test3	1	PASS	PASS	PASS	PASS	PASS	
		2	PASS	PASS	PASS	PASS	PASS	
		3	PASS	PASS	PASS	PASS	PASS	
	Sub-test4	1	PASS	PASS	PASS	PASS	PASS	
		2	PASS	PASS	PASS	PASS	PASS	
		3	PASS	PASS	PASS	PASS	PASS	

- Test channel: B1258, Low/Mid/High CH
- List B1 CH 10700 as an example.

5.7A HS-DPCCH power control (R5) :Pass

5.7A HS-DPCCH power control (R5)					
CH	Condition	Power step	Transmit power	Allowed Transmitter power step range [dB]	Pass/Fail
10700	TPC_cmd=0	1	6.69	3.70 <= Slot#2.0:#2.5 <= 8.44	PASS
		2	-0.90	-1.98 <= Slot#3.0:#3.5 <= -0.40	PASS
		3	-5.95	-7.30 <= Slot#5.0:#5.5 <= -2.46	PASS
		4-1	0.02	-0.60 <= Slot#5.5:#6.0 <= 0.60	PASS
		4-2	-0.05	-0.60 <= Slot#8.5:#9.0 <= 0.60	PASS
		5	5.88	2.46 <= Slot#9.0:#9.5 <= 7.30	PASS
		6	0.84	0.40 <= Slot#11.0:#11.5 <= 1.98	PASS
		7	-6.94	-8.44 <= Slot#12.0:#12.5 <= -3.70	PASS
		8-1	-0.07	-0.60 <= Slot#12.5:#13.0 <= 0.60	PASS
		8-2	0.07	-0.60 <= Slot#14.5:#15.0 <= 0.60	PASS
		9	5.91	2.46 <= Slot#15.0:#15.5 <= 7.30	PASS
		10	-6.00	-7.30 <= Slot#17.0:#17.5 <= -2.46	PASS
		11-1	-0.07	-0.60 <= Slot#17.5:#18.0 <= 0.60	PASS
		11-2	0.06	-0.60 <= Slot#19.5:#20.0 <= 0.60	PASS
10700	TPC_cmd=1	1	7.16	3.70 <= Slot#2.0:#2.5 <= 8.44	PASS
		2	-1.05	-1.98 <= Slot#3.0:#3.5 <= -0.40	PASS
		4	-6.23	-7.30 <= Slot#5.0:#5.5 <= -2.46	PASS
		5-1	1.10	0.40 <= Slot#5.5:#6.0 <= 1.60	PASS
		5-2	0.98	0.40 <= Slot#6.5:#7.0 <= 1.60	PASS
		5-3	1.08	0.40 <= Slot#7.5:#8.0 <= 1.60	PASS
		6	6.08	2.46 <= Slot#9.0:#9.5 <= 7.30	PASS
		8	1.05	0.40 <= Slot#11.0:#11.5 <= 1.98	PASS
		9	-7.16	-8.44 <= Slot#12.0:#12.5 <= -3.70	PASS
		10-1	1.03	0.40 <= Slot#12.5:#13.0 <= 1.60	PASS
		10-2	1.14	0.40 <= Slot#13.5:#14.0 <= 1.60	PASS
		11	6.12	2.46 <= Slot#15.0:#15.5 <= 7.30	PASS
		12	-6.21	-7.30 <= Slot#17.0:#17.5 <= -2.46	PASS
		13-1	1.13	0.40 <= Slot#17.5:#18.0 <= 1.60	PASS
		13-2	0.98	0.40 <= Slot#18.5:#19.0 <= 1.60	PASS

- Test channel: B1258, Low/Mid/High CH
- List B1 CH 10700 as an example.

5.13.1AA EVM and phase discontinuity with HS-DPCCH :Pass

5.13.1AA EVM and phase discontinuity with HS-DPCCH					
CH	UE Target Power	Connect	Requirement	Data	Pass/Fail
10700	High	EVM (Maker 0)	EVM(%) <= 17.50	1.78	PASS
	High	EVM (Maker 1)	EVM(%) <= 17.50	2.05	PASS
	High	PD (1) to (2) (Maker 1)	PD(degrees) <= 36	3.74	PASS
	High	EVM (Maker 20)	EVM(%) <= 17.50	1.92	PASS
	High	EVM (Maker 21)	EVM(%) <= 17.50	1.86	PASS
	High	PD (3) to (4) (Maker 21)	PD(degrees) <= 36	-15.46	PASS
	Low	EVM (Maker 0)	EVM(%) <= 17.50	2.49	PASS
	Low	EVM (Maker 1)	EVM(%) <= 17.50	2.14	PASS
	Low	PD (1) to (2) (Maker 1)	PD(degrees) <= 36	0.09	PASS
	Low	EVM (Maker 20)	EVM(%) <= 17.50	2.10	PASS
	Low	EVM (Maker 21)	EVM(%) <= 17.50	2.42	PASS
	Low	PD (3) to (4) (Maker 21)	PD(degrees) <= 36	-0.12	PASS

- Test channel: B1258, Low/Mid/High CH
- List B1 CH 10700 as an example.

5.13.2A RCDE with HS-DPCCH : Pass

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5.13.2A RCDE with HS-DPCCH						
CH	UE Power Level	Sub-test	Code	ECDP	RCDE	Pass/Fail
10700	High	Sub-test1	DPCCH	-18	-47	PASS
			DPDCH	-6	-53	PASS
			HS-DPCCH	-12	-48	PASS
		Sub-test3	DPCCH	-7	-48	PASS
			DPDCH	-19	-32	PASS
			HS-DPCCH	-1	-50	PASS
	Low	Sub-test4	DPCCH	-7	-53	PASS
			DPDCH	-25	-21	PASS
			HS-DPCCH	-1	-59	PASS
		Sub-test1	DPCCH	-7	-54	PASS
			DPDCH	-24	-25	PASS
			HS-DPCCH	-1	-68	PASS
	Low	Sub-test3	DPCCH	-7	-61	PASS
			DPDCH	-25	-24	PASS
			HS-DPCCH	-10	-61	PASS
		Sub-test4	DPCCH	-7	-57	PASS
			DPDCH	-24	-23	PASS
			HS-DPCCH	-10	-67	PASS

- Test channel: B1258, Low/Mid/High CH
- List B1 CH 10700 as an example.

5.13.2B RCDE with HS-DPCCH and E-DCH :

Pass

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- Test channel: B1258,
Low/Mid/High CH
- List B1 CH 10700 as an
example.



Open and Inner loop power control test



Open Loop Power Control : Pass

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Channel	Upper PRACH	Upper ERROR	Middle PRACH	Middle ERROR	Sensitivity PRACH	Sensitivity ERROR	PRACH EVM	PRACH FREQ ER
Limit	9.00		9.00		9.00		17.50	80.00
10562	-37.84	-0.14	-15.07	-1.07	8.60	-0.70	3.98	-27.52
10700	-37.23	0.47	-15.43	-1.43	7.96	-1.34	3.87	14.20
10838	-59.09	-5.28	-11.93	2.07	9.01	-0.29	3.59	-62.99
9662	-39.44	-1.74	-17.48	-3.48	4.58	-4.72	4.20	-33.07
9800	-36.68	1.02	-14.87	-0.87	7.11	-2.19	3.39	-18.27
9938	-36.71	0.99	-15.05	-1.05	8.33	-0.97	5.53	-73.97
4357	-45.36	-7.66	-16.85	-2.85	7.72	-1.58	2.24	-22.23
4405	-60.60	-2.34	-16.58	-2.58	7.10	-2.20	1.66	-76.85
4458	-37.35	0.35	-16.58	-2.58	7.12	-2.18	1.79	31.87
2937	-60.44	-3.54	-15.66	-1.66	8.13	-1.17	1.90	-4.97
3012	-59.32	-2.12	-16.40	-2.40	6.83	-2.47	1.70	-24.01
3088	-37.97	-0.27	-15.28	-1.28	7.33	-1.97	3.55	-5.66

PRACH Freq Err can pass in 3Gpp Spec.
However, this value is worse than 6268+O3

Inner Loop Power Control : Pass

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CH	Slot	ILPC Margin in Step E, Step F (Spec. 1+/- 0.5dB)					Margin in Step E (dB)	Margin in Step F (dB)
		Step E		Step F				
		Absolute Pwr (dBm)	Relative Pwr (dB)	Slot	Absolute Pwr (dBm)	Relative Pwr (dB)		
10562	15	7.77	-0.70	64	7.89	1.19	0.30	0.41
10700	1	19.65	-1.37	77	21.29	1.38	0.23	0.22
10838	11	11.90	-1.27	68	11.66	1.19	0.33	0.41
9662	19	3.71	-1.18	57	0.74	1.40	0.42	0.20
9800	7	15.80	-1.25	68	11.95	1.42	0.35	0.18
9938	15	7.96	-1.35	57	0.86	1.37	0.25	0.23
4357	3	19.62	-1.24	77	21.14	1.21	0.36	0.39
4405	25	-1.71	-0.82	56	0.40	1.12	0.42	0.48
4458	3	19.59	-1.22	77	21.11	1.24	0.38	0.36
2937	3	19.84	-1.22	54	-1.83	1.18	0.38	0.42
3012	31	-8.02	-0.83	68	12.32	1.29	0.43	0.31
3088	3	19.67	-1.29	68	11.78	1.17	0.31	0.43

- PA : Avago ACPM540X series
- Passed in 3 pcs Luffy76 V2.2 and NTC & ETC with worst margin 0.18dB.

UE phase discontinuity : Pass

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Channel	down_power	down_phase	up_power	up_phase	TFC_down_pass	TFC_down_val	TFC_up_pass	TFC_up_val
Limit		30		30	0	7+/-2	0	-7+/-2
10562	-44.0	-12.8	19.0	12.0	0.0	7.1	0.0	-7.1
10700	-44.0	-13.2	19.0	12.7	0.0	7.0	0.0	-7.1
10838	-41.0	-14.8	19.0	-1.3	0.0	7.0	0.0	-7.2
9662	4.0	19.8	-7.0	20.3	0.0	7.1	0.0	-7.1
9800	4.0	16.3	-8.0	16.3	0.0	7.0	0.0	-7.2
9938	-40.0	14.3	19.0	-1.0	0.0	7.0	0.0	-7.2
4357	13.0	18.5	6.0	18.6	0.0	7.1	0.0	-7.2
4405	-44.0	-9.5	19.0	7.0	0.0	7.0	0.0	-7.1
4458	-41.0	9.7	7.0	7.5	0.0	7.1	0.0	-7.2
2937	-41.0	9.8	19.0	-7.0	0.0	7.1	0.0	-7.2
3012	-42.0	9.9	17.0	-7.5	0.0	7.1	0.0	-7.1
3088	-43.0	-10.0	-4.0	9.6	0.0	7.1	0.0	-7.1

- AVAGO 3G PA can pass phase discontinuity without phase compensation.



Non-fading test data



TRX Spurious emission - Band I : Pass

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5.11 TX spurious emission				6276 + OH(ECO) EVB WS1232-016			Luffy76 V2.2 (OH E2)		
Band I	Start Freq	Stop Freq	Spec.	L	M	H	L	M	H
General	9k	150k	-36	-77.3	-77.62	-77.65	-83.46	-84.39	-86.26
	150k	30M	-36	-91.33	-91.28	-89.81	-91.1	-90.05	-91.01
	30M	200M	-36	-101.93	-101.59	-100.8	-102.25	-97.78	-101.3
	200M	1G	-36	-98.76	-99.36	-99.4	-98.85	-98.59	-99.43
	1G	(F _{TX} -12.5M)	-30	-60.55	-60.26	-57.92	-60.87	-64.9	-61.56
	(F _{TX} +12.5M)	3G	-30	-57.05	-58.72	-57.33	-61.16	-59.17	-62.44
	3G	5G	-30	-72.61	-73.08	-68.31	-69.16	-71.83	-66.85
	5G	12.75G	-30	-72.14	-73.32	-71.48	-67.63	-67.39	-67.84
Additional	860M	895M	-60	-85.42	-84.67	-84.9	-85.16	-85.19	-85.47
	921M	925M	-60	-99.52	-99.28	-99.99	-99.48	-98.83	-99.06
	925M	935M	-67	-100.02	-99.49	-98.86	-98.86	-99	-99.57
	925M	935M	-60	-85.17	-85.99	-85.4	-84.86	-84.64	-85.1
	935M	960M	-79	-99.78	-99.61	-98.92	-99.41	-98.96	-99.43
	1475.9M	1500.9M	-60	-84.23	-84.27	-83.59	-84.06	-83.67	-83.08
	1805M	1880M	-71	-87.39	-89.34	-87.64	-77.04	-77.92	-77.25
	1844.9M	1879.9M	-60	-72.18	-74.23	-72.87	-70.99	-70.76	-70.65
	1884.5M	1919.6M, (1909.9M)	-41	-61.87	-77.89	-79.73	-60.01	-77.92	-79.24
	2110M	2170M	-60	-82.03	-83.03	-82.85	-82.09	-82.05	-82.17
	2620M	2690M	-60	-82.14	-82.38	-81.65	-81.33	-80.86	-81.19

TRX Spurious emission - Band II :Pass

Confidential B

5.11 TX spurious emission				6276 + OH EVB			Luffy76 V2.2 (OH E2)		
Band II	Start Freq	Stop Freq	Spec.	L	M	H	L	M	H
General	9k	150k	-36	-77.55	-77.67	-77.93	-84.94	-85.94	-82.95
	150k	30M	-36	-91.84	-91.08	-90.54	-91.06	-89.36	-91.31
	30M	200M	-36	-101.54	-102.09	-100.78	-98.63	-99.03	-100.4
	200M	1G	-36	-99.65	-98.85	-98.87	-99.26	-95.42	-99.54
	1G	(F _{TX} -12.5M)	-30	-66.48	-61.82	-59.79	-65.86	-57.6	-52.36
	(F _{TX} +12.5M)	3G	-30	-58.69	-57.91	-79.1	-55.14	-57.9	-79.87
	3G	5G	-30	-55.67	-57.16	-57.63	-41.17	-41.95	-33.99
	5G	12.75G	-30	-62.51	-60.42	-61.47	-45.09	-46.93	-46.96
Additional	869M	894M	-60	-85.77	-85.27	-84.58	-85.73	-84.43	-84.23
	1930M	1990M	-60	-83.81	-80.75	-83.35	-82.39	-82.54	-78.76
	2110M	2170M	-60	-82.6	-83.07	-82.66	-82.31	-81.26	-82.08

TRX Spurious emission - Band V :Pass

Confidential B

5.11 TX spurious emission				6276 + OH EVB			Luffy76 V2.2 (OH E2)		
Band V	Start Freq	Stop Freq	Spec.	L	M	H	L	M	H
General	9k	150k	-36	-76.83	-77.1	-76.83	-86.87	-83.38	-84.32
	150k	30M	-36	-92.07	-91.79	-90.58	-89.36	-90.59	-90.54
	30M	500M	-36	-101.05	-100.61	-100.68	-100.26	-98.6	-101.47
	500M	(F _{TX} -12.5M)	-36	-61.15	-61.08	-76.07	-46.19	-59.93	-58.11
	(F _{TX} +12.5M)	1G	-36	-59.99	-57.01	-44.94	-46.07	-63.16	-66.51
	1G	1.6G	-30	-97.87	-97.27	-97.9	-94.79	-93.41	-95.24
	1.6G	5.6G	-30	-59.35	-55.07	-59.29	-64.59	-62.56	-67.95
Additional	5.6G	12.75G	-30	-74.19	-74.73	-72.92	-66.26	-67.27	-67.5
	869M	894M	-60	-84.82	-85.56	-64.04	-67.64	-85.53	-84.84
	1930M	1990M	-60	-83.87	-77.17	-82.5	-83	-82.75	-81.23
	2110M	2170M	-60	-83.05	-82.46	-82.54	-81.49	-81.34	-81.25

TRX Spurious emission - Band VIII :Pass

Confidential B

5.11 TX spurious emission				6276 + OH EVB			Luffy76 V2.2 (OH E2)		
Band VIII	Start Freq	Stop Freq	Spec.	L	M	H	L	M	H
General	9k	150k	-36	-83.23	-83.18	-83.36	-86.95	-86.76	-86.5
	150k	30M	-36	-86.43	-87.58	-91.14	-91.8	-91.87	-91.69
	30M	500M	-36	-99.87	-100.25	-100.23	-100.18	-100.6	-100.63
	500M	(F _{TX} -12.5M)	-36	-74.23	-56.46	-61.13	-70.85	-64.08	-60.53
	(F _{TX} +12.5M)	1G	-36	-58.88	-60.34	-97.83	-59.12	-61.9	-98.4
	1G	1.6G	-30	-93.65	-93.84	-93.92	-94.31	-94.65	-94.74
	1.6G	5.6G	-30	-55.74	-50.37	-48.67	-50.07	-46.11	-48.46
	5.6G	12.75G	-30	-69.97	-71.06	-71.43	-69.3	-68.67	-68.82
Additional	925M	935M	-67						
	925M	935M	-60	-81.18	-69.61	-85.01	-85.47	-85.73	-74.73
	935M	960M	-79	-84.9	-84.98	-84.91	-85.21	-85.39	-85.21
	935M	960M	-60						
	1805M	1830M	-71	-82.07	-47.1	-82.66	-83.2	-82.45	-44.7
	1805M	1830M	-60						
	1830M	1880M	-71	-82.47	-59.59	-81.84	-81.85	-82.45	-58.06
	1830M	1880M	-60						
	2110M	2170M	-60	-80.65	-80.99	-80.42	-81.89	-81.62	-81.59
	2620M	2640M	-60	-80.52	-81.08	-81.09	-81.55	-81.06	-81.68
	2640M	2690M	-60	-71.02	-80.42	-77.35	-75.95	-78.13	-80.37

2nd harmonic :
pass
(exception)

6.8 RX spurious emission				6276 + OH(ECO) EVB			Luffy76 V2.2 (OH E2)		
Band VIII	Start Freq	Stop Freq	Spec.	L	M	H	L	M	H
General	30M	200M	-57	-101.87	-101.61	-102.19	-102.27	-102.6	-101.38
	200M	1G	-57	-98.39	-98.6	-99.25	-99.22	-99.07	-99.93
	1G	5G	-47	-81.31	-82.6	-81.99	-75.87	-80.98	-69.29
	5G	12.75G	-47	-72.87	-73.64	-73.08	-71.59	-71.06	-71.99
Additional	880M	915M	-60	-85.2	-85.1	-84.54	-85.89	-85.27	-86.57
	921M	925M	-60	-99.17	-99.63	-99.14	-99.25	-99.12	-99.3
	925M	935M	-67	-85.77	-85.91	-86.11	-86.06	-86.27	-86.42
	925M	935M	-60	-99.26	-98.62	-99.64	-99.47	-99.75	-100.12
	935M	960M	-79						
	1805M	1880M	-60	-83.64	-84.02	-83.98	-83.56	-83.96	-84.13
	2110M	2170M	-60	-82.38	-82.65	-82.34	-83.18	-82.93	-82.77
	2620M	2690M	-60	-82.14	-81.57	-82.16	-82.18	-82.13	-82.61

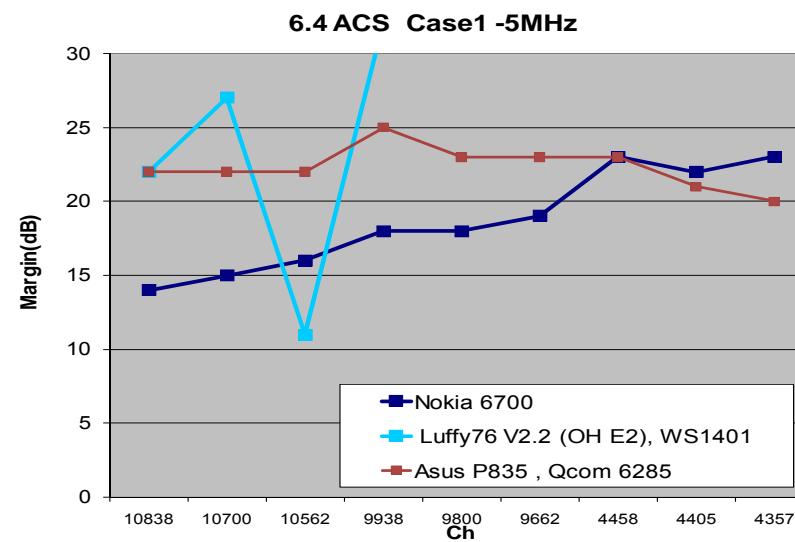
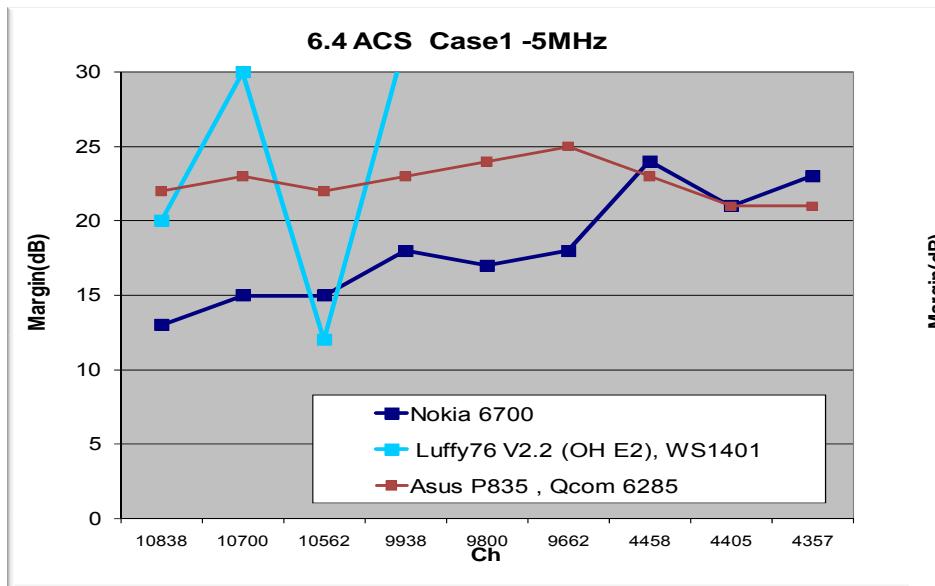
MEDIATEK

In Band Blocking Summary : B1258

WS1401 Luffy76 V2.2 (OH E2)														
6276	6.4 ACS				6.5.2.1 In-band blocking				6.5.2.3 Narrow-band blocking (6.7.1 IM (CW&W)		6.7.2 Narrow Band IM(CW&GMSK) (
Ch	-52dBm, Ior +14dF		-25dBm, Ior +41dF		-56dBm		-44dBm		-57dBm		-46dBm		-44dBm	
	+5MHz	-5MHz	+5MHz	-5MHz	+10MHz	-10MHz	+15MHz	-15MHz	+2.7MHz	-2.7MHz	+10,+20MHz	-10,-20MHz	+3.5,+5.9MHz	-3.5,-5.9MHz
10838	20	22	12	11	30	30	18	18			14.5	13.5		
10700	30	27	15	14	30	30	18	19			14	14.5		
10562	12	11	12	15	16	15	17	18			14.5	15		
9938	32	32	25	25	32	32	20	20	26	24	19	16	12	12
9800	31	32	12	16	32	33	20	20	32	32	16	16	18	18
9662	32	32	16	15	31	32	19	20	31	29	16	21	18	17.5
4458	32	32	18	18	28	29	17	18	32	32	19	18	19	19
4405	32	32	17	17	28	29	17	17	32	32	18.5	18.5	19	19
4357	32	32	16	17	29	29	18	18	32	32	17.5	18.5	19	19
3088	32	32	17	16	31	31	18	18	32	32	20	15.5	19	19
3010	32	32	16	25	31	31	19	19	32	32	17	18	19	18.5
2937	31	32	16	21	31	30	19	18	32	32	16	20	18.5	19

6.4 ACS—case1, Band 1,2,5

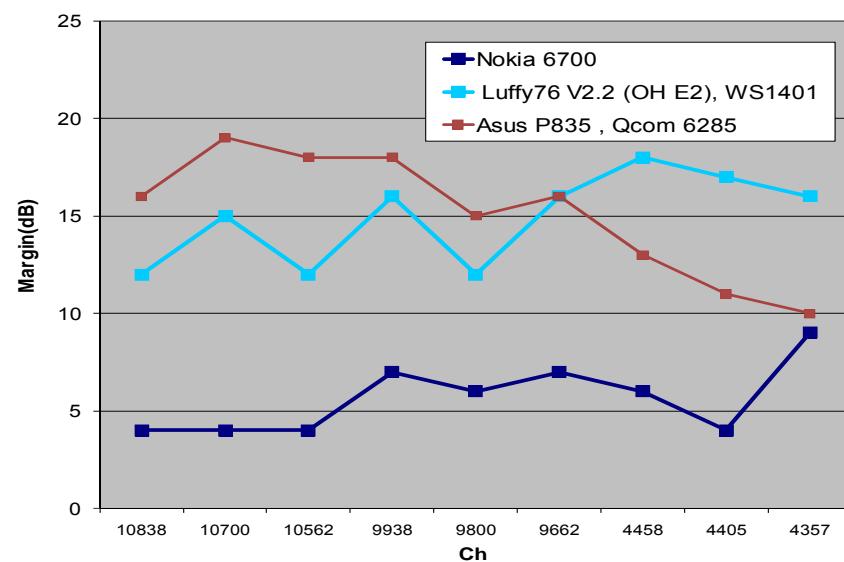
Confidential B



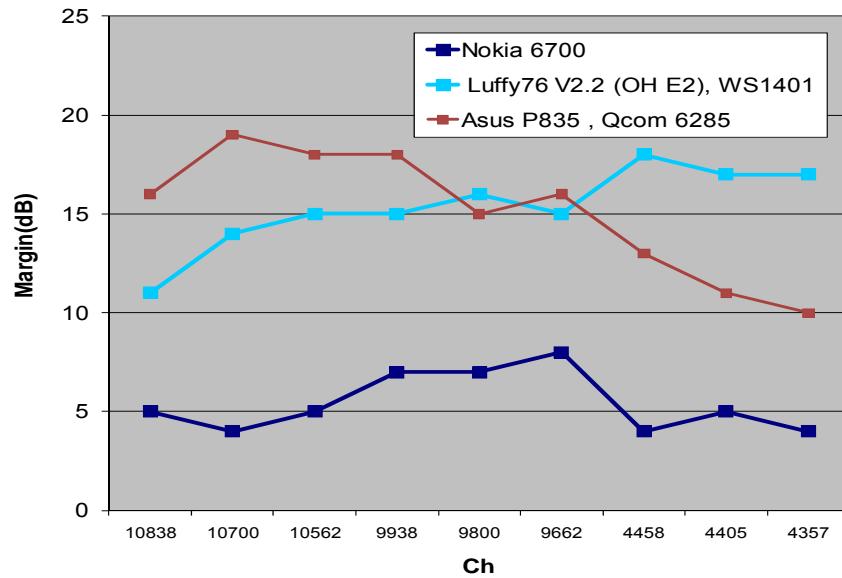
6.4 ACS—case2, Band 1,2,5

Confidential B

6.4 ACS Case2 +5MHz



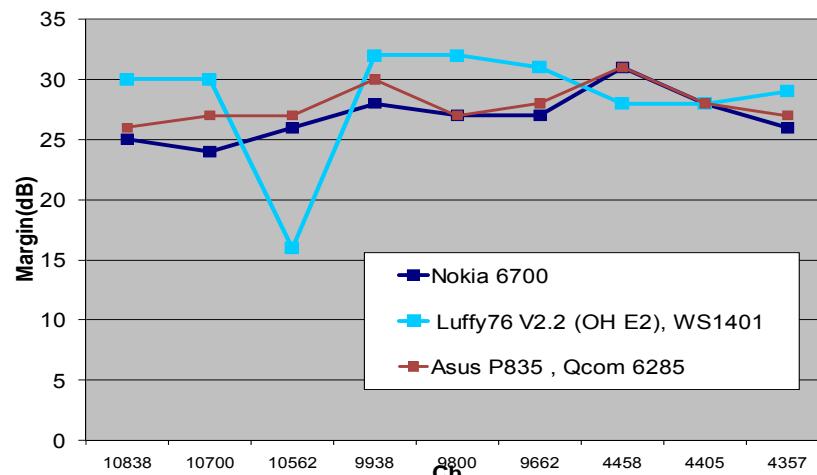
6.4 ACS Case2 -5MHz



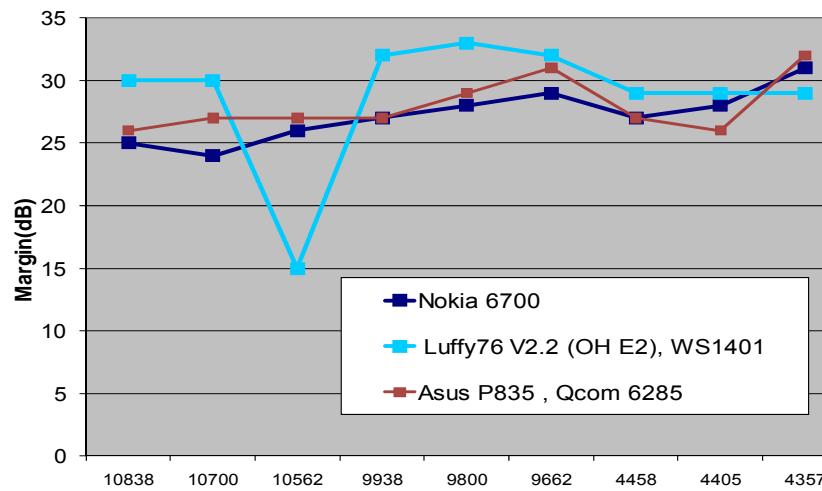
6.5 In Band Blocking, Band 1,2,5

Confidential B

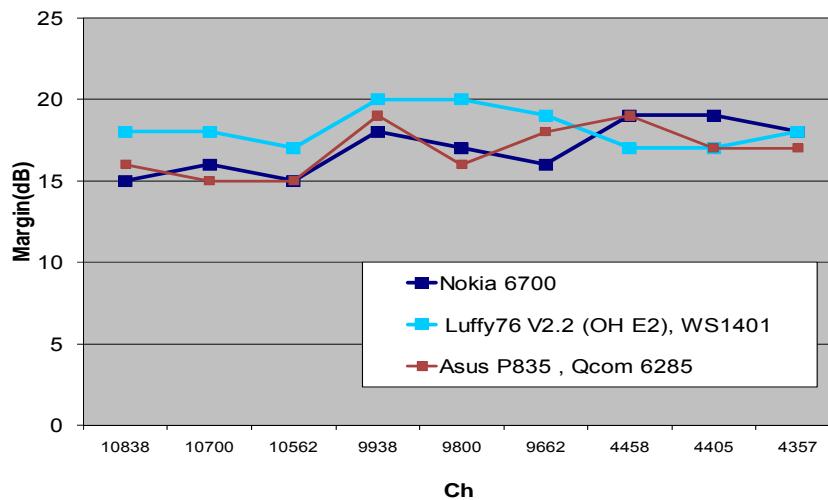
6.5.2.1 In band blocking Case 1 +10MHz



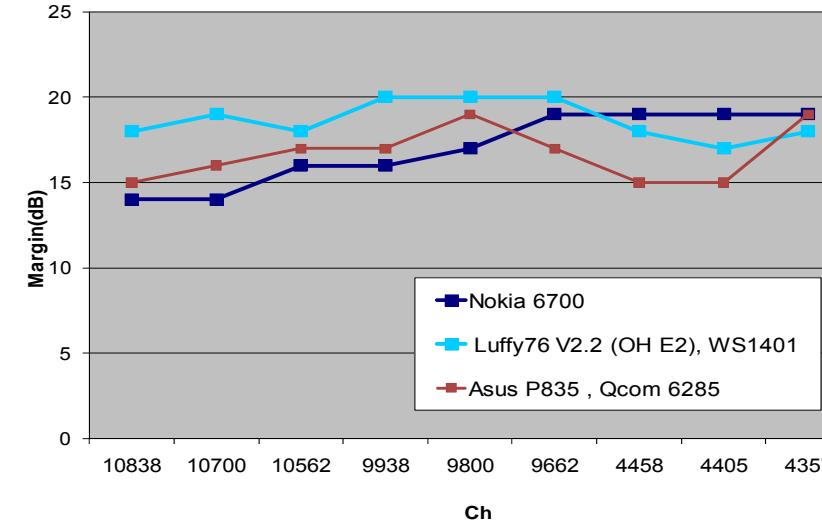
6.5.2.1 In band blocking Case 1 -10MHz



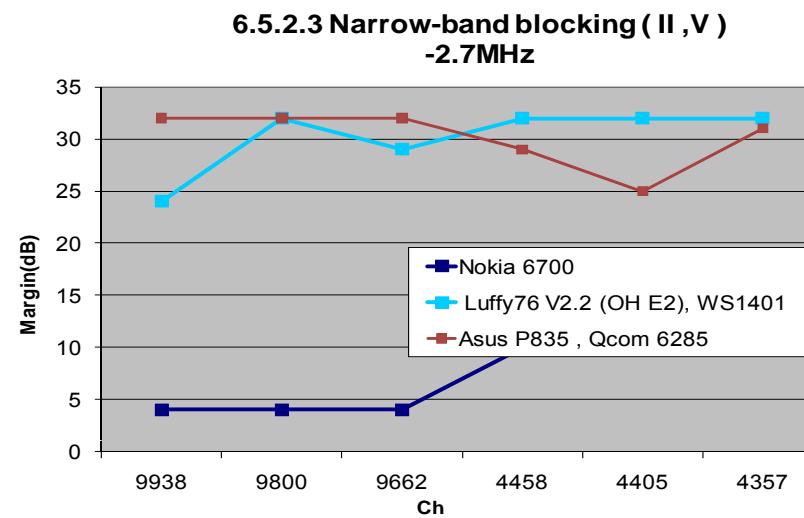
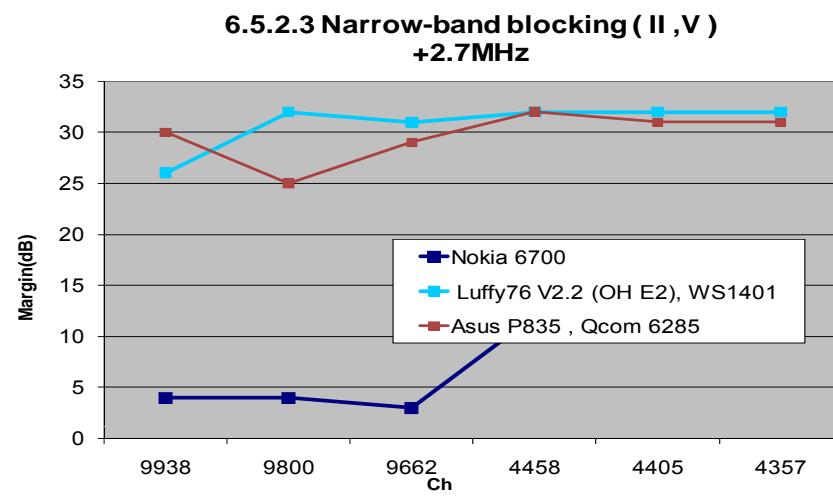
6.5.2.1 In band blocking Case 2 +15MHz



6.5.2.1 In band blocking Case 2 -15MHz

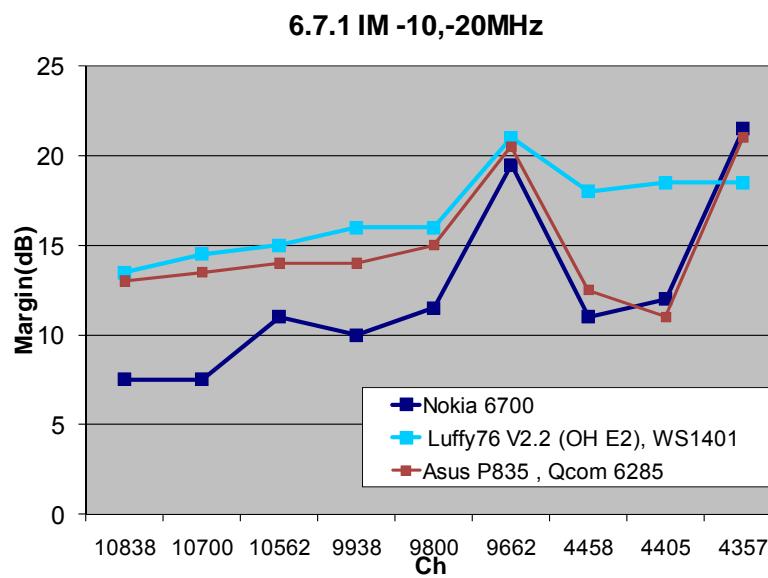
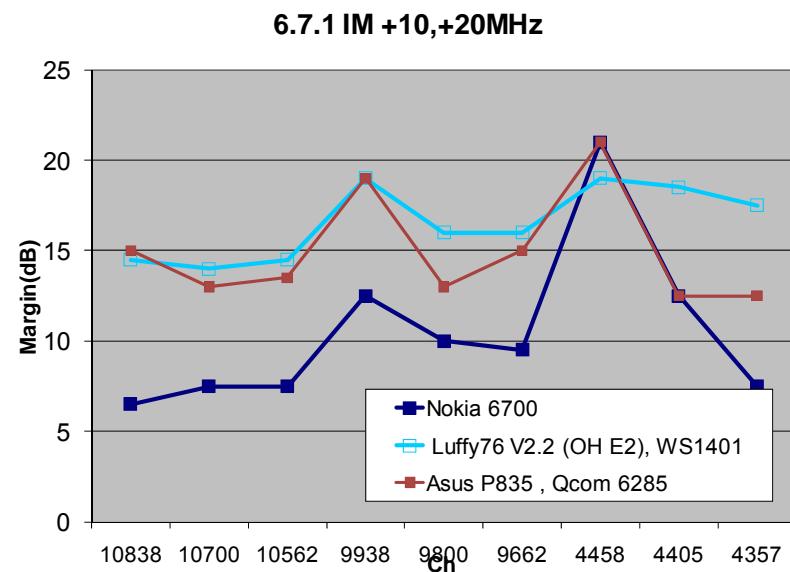


6.5.2.3 Narrow Band Blocking , Band 2,5

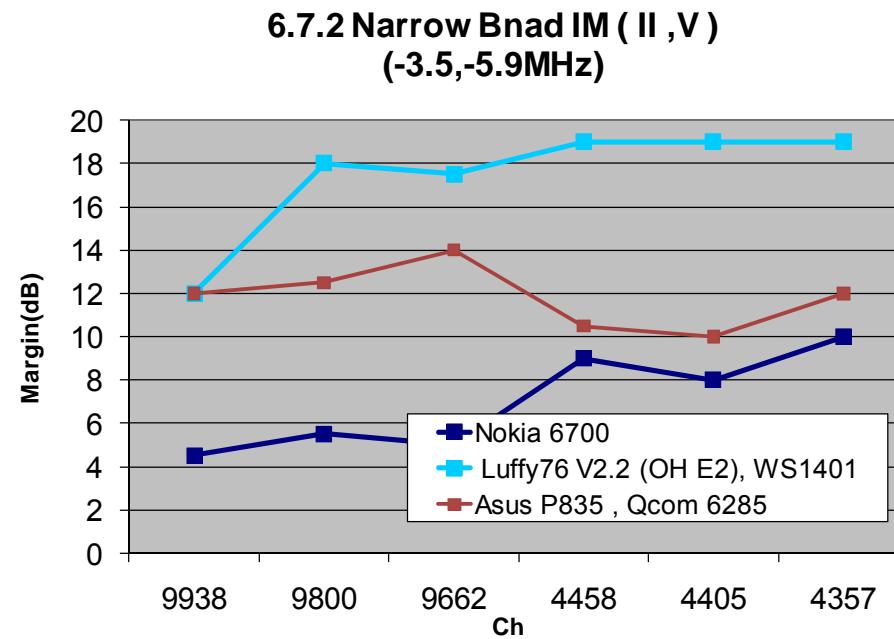
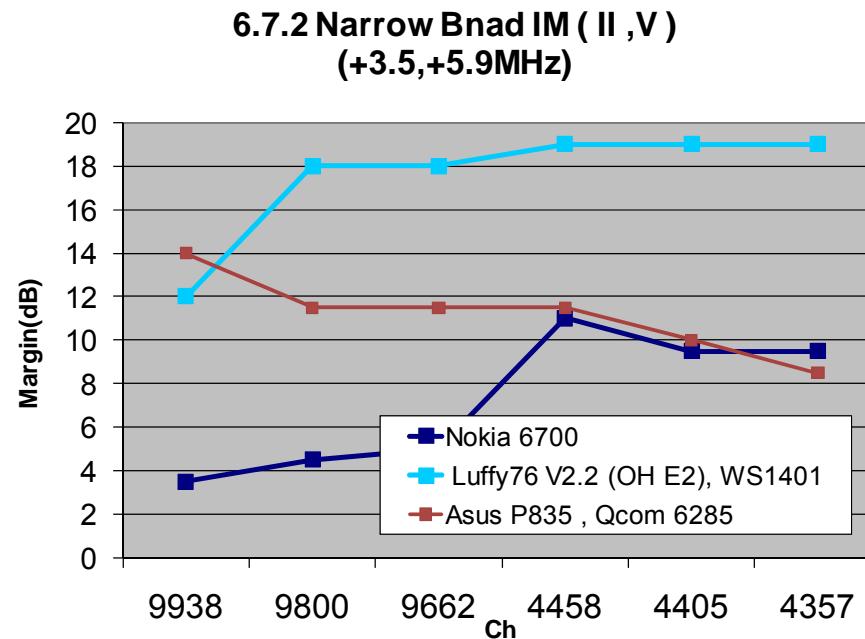


6.7 Inter-modulation 10/20MHz (CW+WCDMA), Band 1,2,5

Confidential B

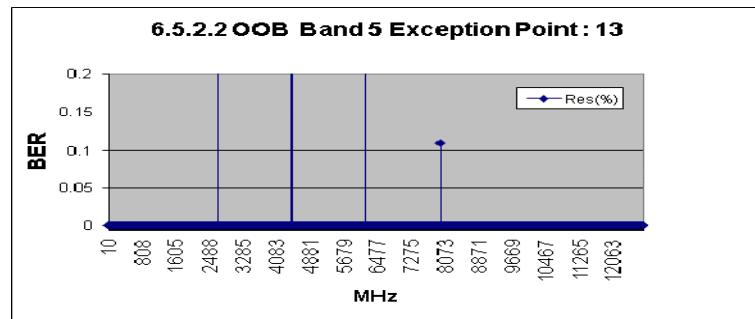
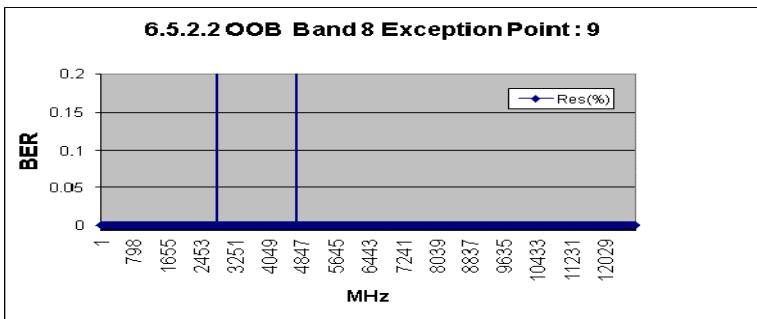
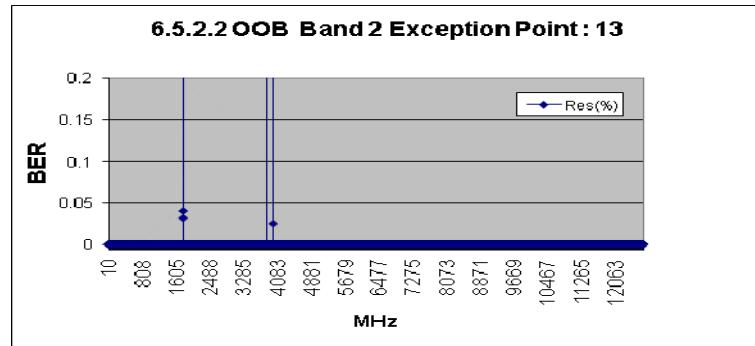
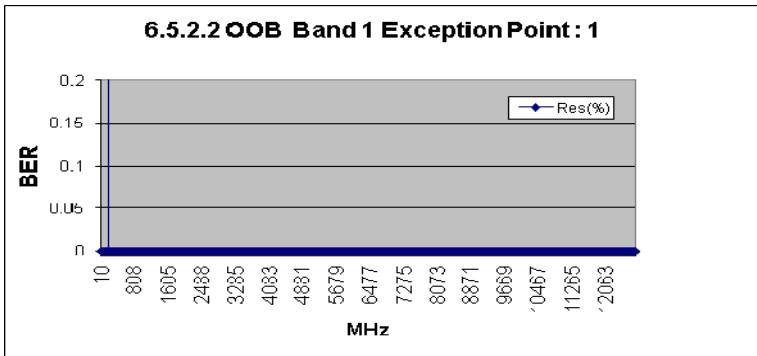


6.7.2 Narrow Band Inter-modulation 3.5/5.9MHz (CW+WCDMA), Band 2,5



Out-Band Blocking Test

Confidential B



- **1 exception in B1 at 113MHz**
- **13 exception in B2 at TX+RX, 2TX-RX**
- **13 exception in B5 at 3TX, 5TX and 7TX**
- **9 exception in B8 at 3RX, 5RX**
- **Luffy76 V2.2 WS1401 #614**
- **DPX : B1/5 Murata, B2 Epcos**
- **ASM : Murata LMSP33QM-B16**



MT6276+MT6162 GSM+EDGE RF performance test report





Tx performance data



Performance summary : TX all channel at NVNT

Confidential B

	GSM850	GSM900	DCS1800	PCS1900
GMSK mode NVNT all channel worst case				
Pout	Pass in all PCL	Pass in all PCL	Pass in all PCL	Pass in all PCL
PE rms (°)	1.0	1.0	0.9	1.1
PE peak (°)	3.3	3.1	-3.9	-4.7
FE peak (Hz)	11.0	-11.4	26.0	25.6
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.8 margin	8.5 margin	6.8 margin	6.4 margin
SW 400kHz (dBm)	11.1 margin	10.9 margin	9.9 margin	9.4 margin
Harmonic (dBm)	>10dB margin	>10dB margin	>10dB margin	>10dB margin
TX in RX noise	758.4MHz exception 888.4MHz 2.4dB margin Other freq 4dB margin	936MHz 1.6dBmargin 955MHz 1.9dB margin Other freq 4dB margin	1825.4MHz 0.9dB margin 1877.4MHz 5dB margin Other freq 10dB margin	1958MHz 1.6dB margin Other freq 9dB margin
8PSK mode NVNT all channel worst case				
Pout	Pass in all PCL	Pass in all PCL	Pass in all PCL	Pass in all PCL
FE peak (Hz)	12.6	-14.0	-24.6	26.7
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.0 margin	7.7 margin	7.3 margin	5.5 margin
SW 400kHz (dBm)	12.6 margin	12.2 margin	9.2 margin	7.5 margin
EVM rms (%)	2.0	2.0	2.3	2.4
EVM peak (%)	8.4	8.8	10.2	12.6
95P EVM (%)	3.4	3.5	4.1	4.2
OOS (dB)	-41.2	-41.0	-39.8	-40.1

Performance summary : TX all channel at HTHV

Confidential B

	GSM850	GSM900	DCS1800	PCS1900
GMSK mode HTHV all channel worst case				
Pout	Pass in all PCL			
PE rms (°)	0.8	0.9	1.0	1.2
PE peak (°)	3.1	-3.5	4.4	5.1
FE peak (Hz)	-11.6	-11.9	28.4	26.2
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.3 margin	7.9 margin	6.5 margin	6.6 margin
SW 400kHz (dBm)	10.7 margin	11.4 margin	8.7 margin	8.3 margin
8PSK mode HTHV all channel worst case				
Pout	Pass in all PCL			
FE peak (Hz)	-14.0	15.0	26.7	33.8
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	9.3 margin	9.1 margin	9.4 margin	7.6 margin
SW 400kHz (dBm)	12.5 margin	13.2 margin	10.5 margin	8.4 margin
EVM rms (%)	2.5	2.5	2.3	2.7
EVM peak (%)	10.5	11.0	12.9	14.0
95P EVM (%)	4.4	4.5	4.1	4.7
OOS (dB)	-41.9	-39.4	-40.9	-38.3

Performance summary : TX all channel at HTLV

Confidential B

	GSM850	GSM900	DCS1800	PCS1900
GMSK mode HTLV all channel worst case				
Pout	Pass in all PCL			
PE rms (°)	0.9	1.0	1.1	1.2
PE peak (°)	4.5	3.6	4.5	4.7
FE peak (Hz)	-11.4	-15.1	26.4	29.2
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.8 margin	8.8 margin	7.2 margin	6.5 margin
SW 400kHz (dBm)	10.2 margin	10.1 margin	9.5 margin	8.2 margin
8PSK mode HTLV all channel worst case				
Pout	Pass in all PCL			
FE peak (Hz)	14.0	16.0	25.9	30.9
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	7.0 margin	7.1 margin	6.5 margin	4.8 margin
SW 400kHz (dBm)	11.0 margin	10.6 margin	7.9 margin	16.0 margin
EVM rms (%)	2.7	2.7	3.9	3.2
EVM peak (%)	11.7	11.6	14.5	13.4
95P EVM (%)	4.7	4.8	7.1	4.8
OOS (dB)	-39.8	-38.3	-35.7	-40.7

Performance summary : TX all channel at LTHV

Confidential B

	GSM850	GSM900	DCS1800	PCS1900
GMSK mode LTHV all channel worst case				
Pout	Pass in all PCL			
PE rms (°)	0.7	1.0	0.9	1.0
PE peak (°)	2.7	-2.9	-3.3	4.3
FE peak (Hz)	15.7	-12.5	28.5	32.7
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.1 margin	7.6 margin	6.6 margin	6.2 margin
SW 400kHz (dBm)	10.6 margin	10.0 margin	8.8 margin	7.8 margin
8PSK mode LTHV all channel worst case				
Pout	Pass in all PCL			
FE peak (Hz)	14.8	-13.8	-25.3	29.8
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.3 margin	8.1 margin	9.0 margin	6.2 margin
SW 400kHz (dBm)	13.1 margin	11.9 margin	11.1 margin	7.9 margin
EVM rms (%)	1.7	1.8	1.8	2.3
EVM peak (%)	7.4	8.1	9.6	12.7
95P EVM (%)	3.0	3.1	3.2	4.2
OOS (dB)	-42.2	-42.4	-41.7	-39.9

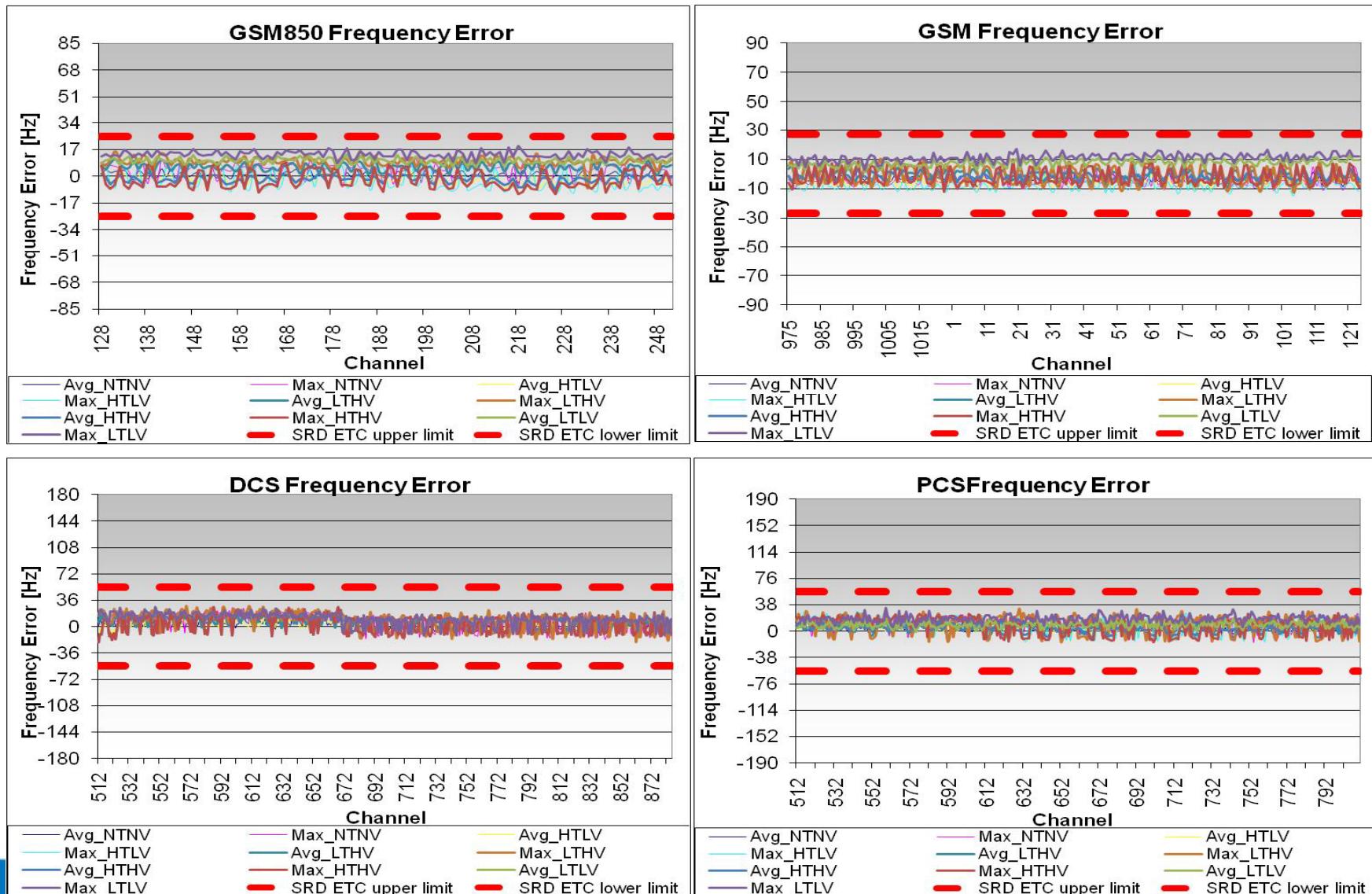
Performance summary : TX all channel at LTLV

Confidential B

	GSM850	GSM900	DCS1800	PCS1900
GMSK mode LVLT all channel worst case				
Pout	Pass in all PCL			
PE rms (°)	0.8	0.9	0.8	0.9
PE peak (°)	3.9	-3.6	3.2	-3.8
FE peak (Hz)	19.2	16.9	27.0	33.6
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	8.4 margin	7.8 margin	6.1 margin	5.9 margin
SW 400kHz (dBm)	10.7 margin	10.0 margin	8.4 margin	8.6 margin
8PSK mode LVLT all channel worst case				
Pout	Pass in all PCL			
FE peak (Hz)	14.1	13.5	23.4	32.3
Power vs. time	Pass all PCL	Pass all PCL	Pass all PCL	Pass all PCL
MOD 400kHz (dB)	7.2 margin	6.4 margin	5.7 margin	4.8 margin
SW 400kHz (dBm)	12.1 margin	10.8 margin	7.4 margin	5.2 margin
EVM rms (%)	1.7	1.8	2.6	2.2
EVM peak (%)	7.2	8.2	10.4	11.5
95P EVM (%)	3.0	3.1	4.7	3.9
OOS (dB)	-44.9	-41.4	-37.0	-40.6

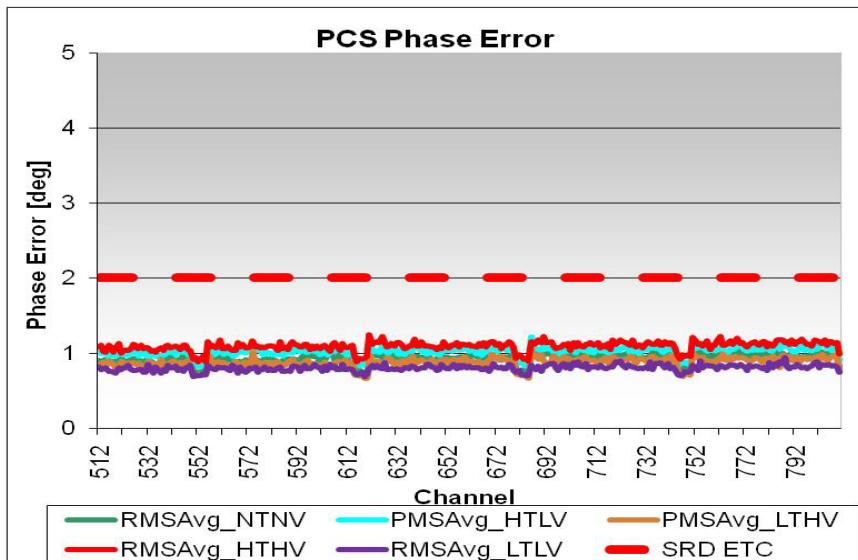
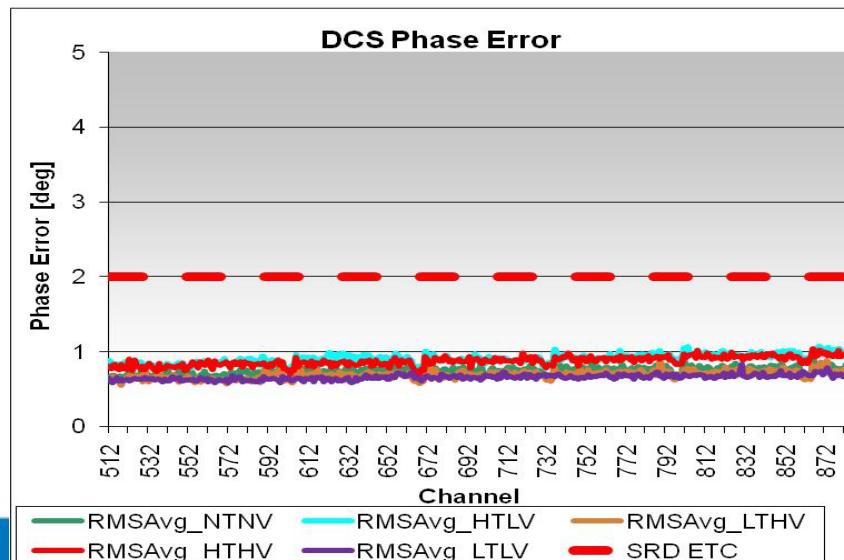
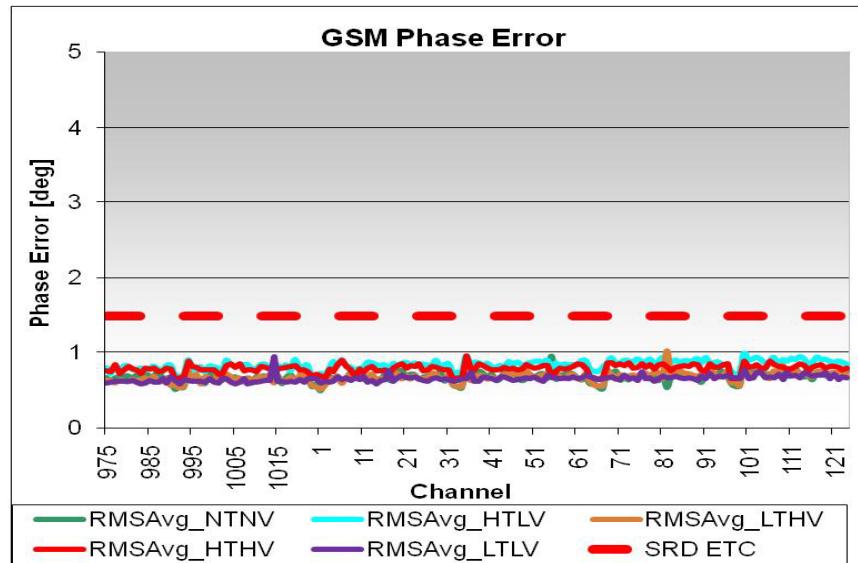
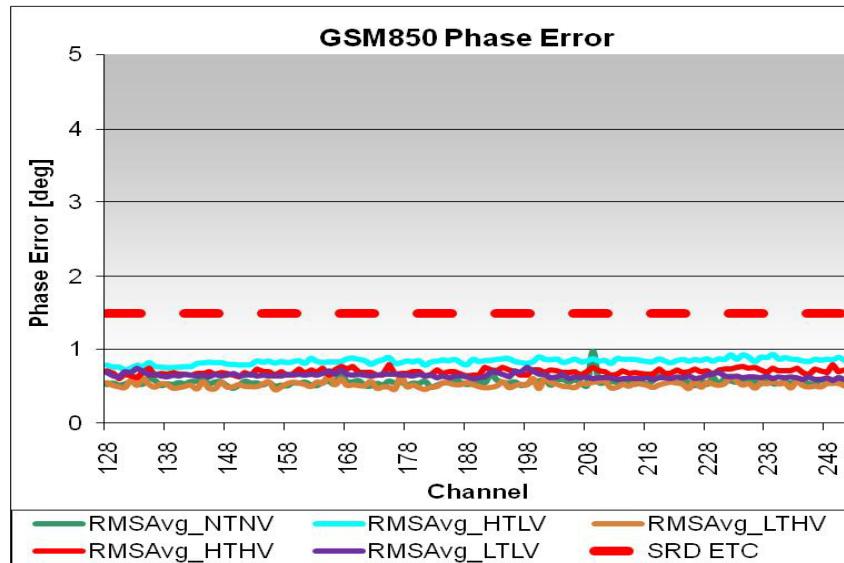
GMSK mode frequency error

- All condition test data



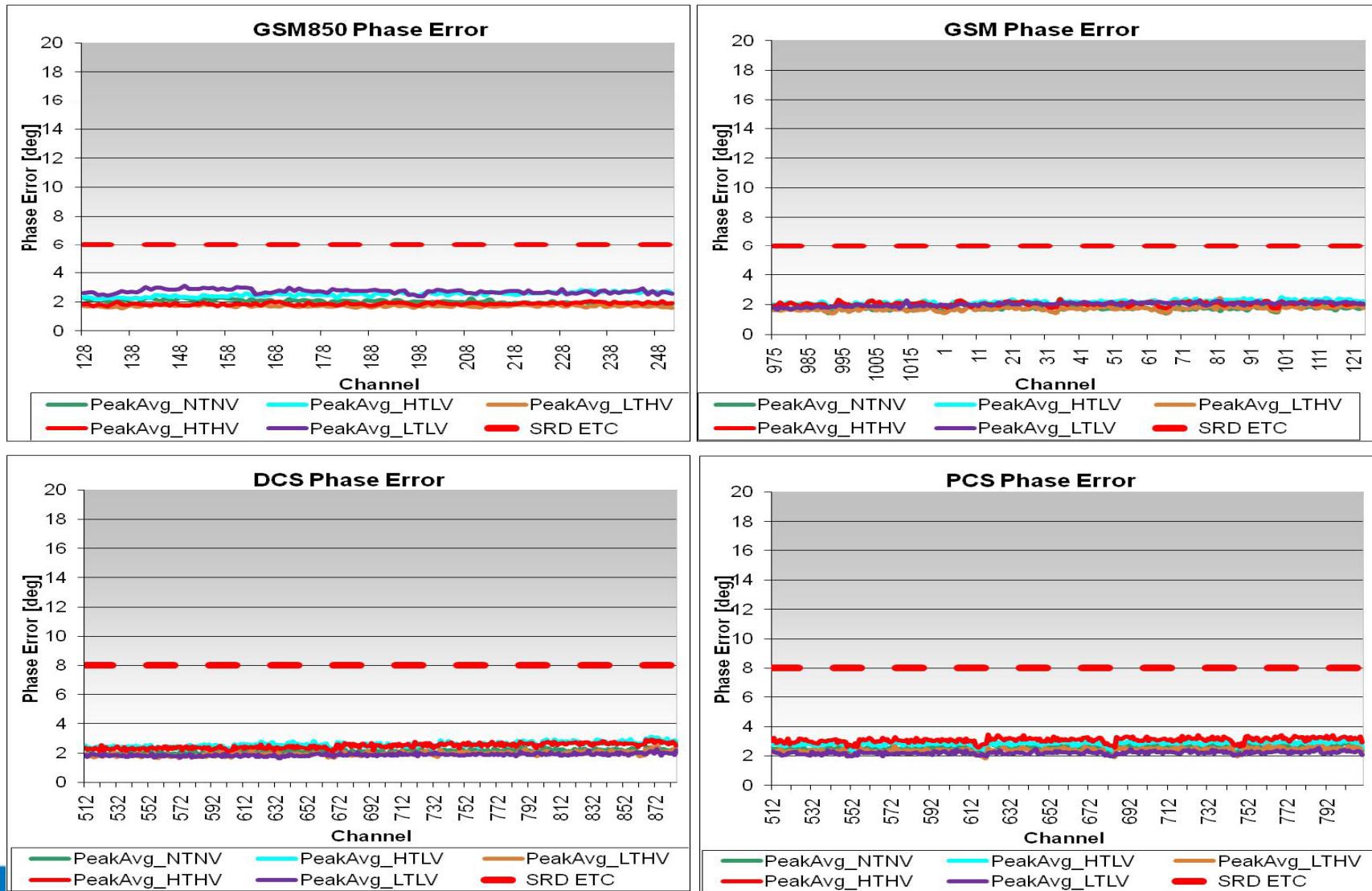
GMSK mode RMS phase error

- All condition test data



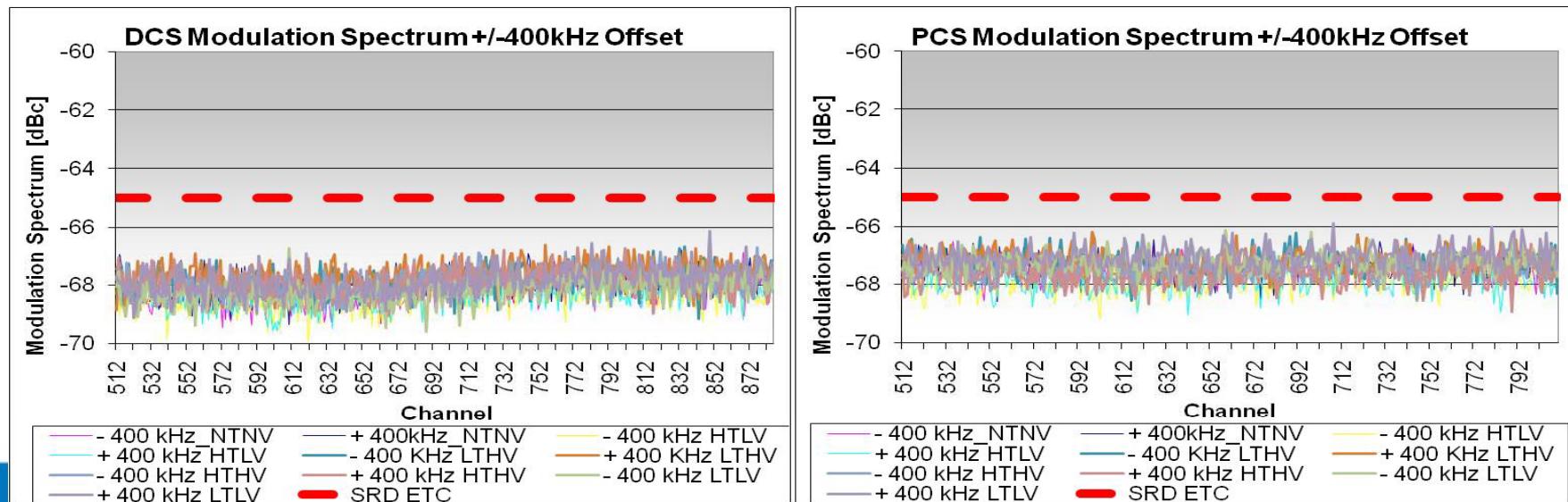
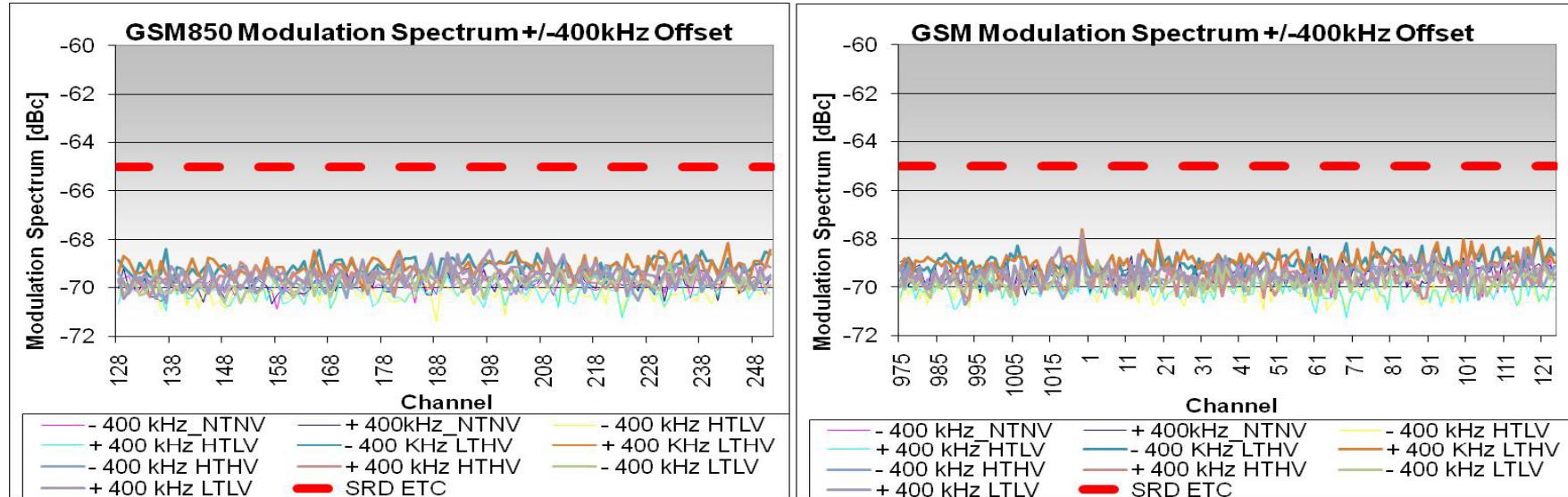
GMSK mode peak phase error

- All condition test data



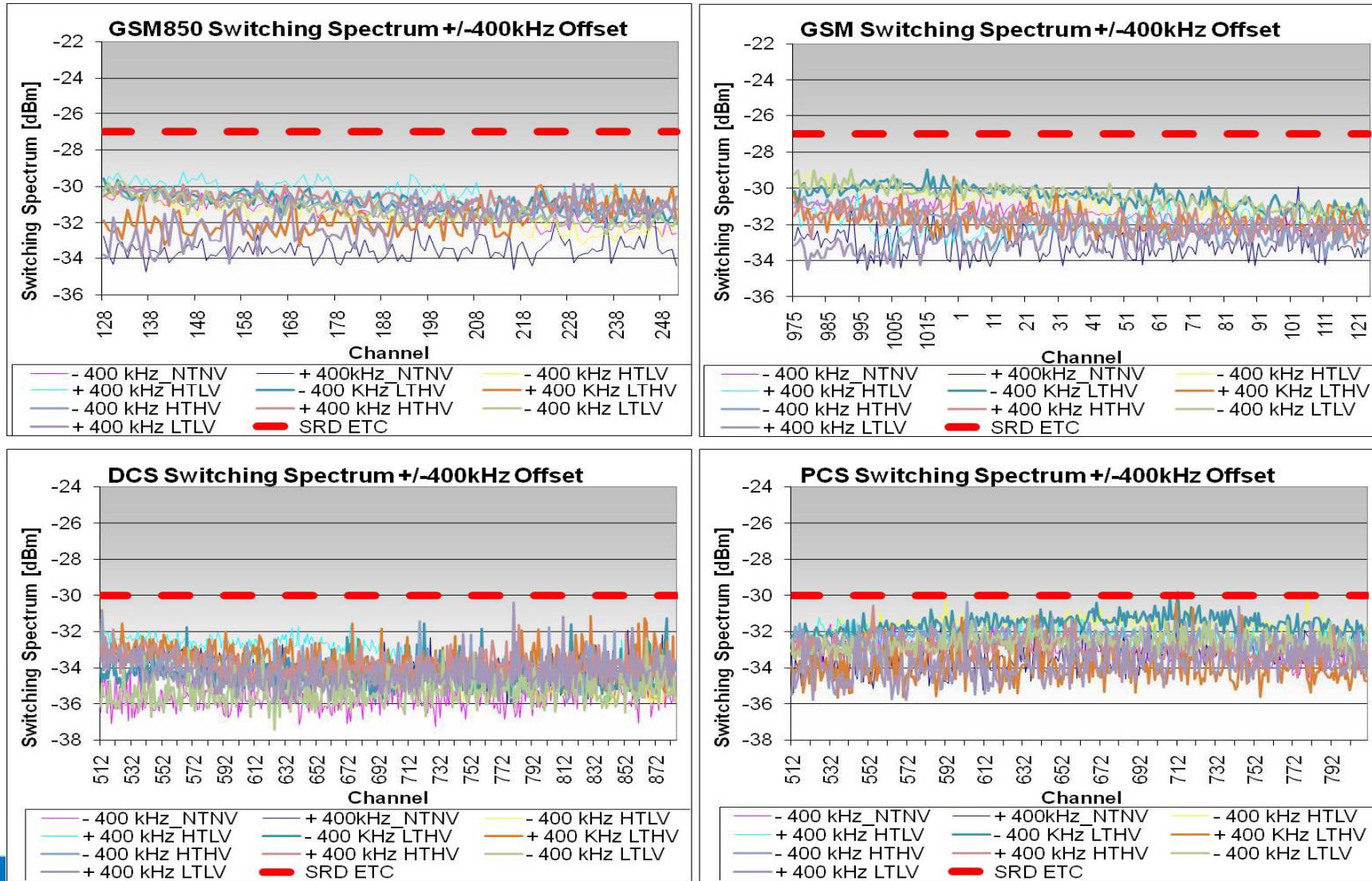
GMSK mode modulation spectrum

- All condition test data



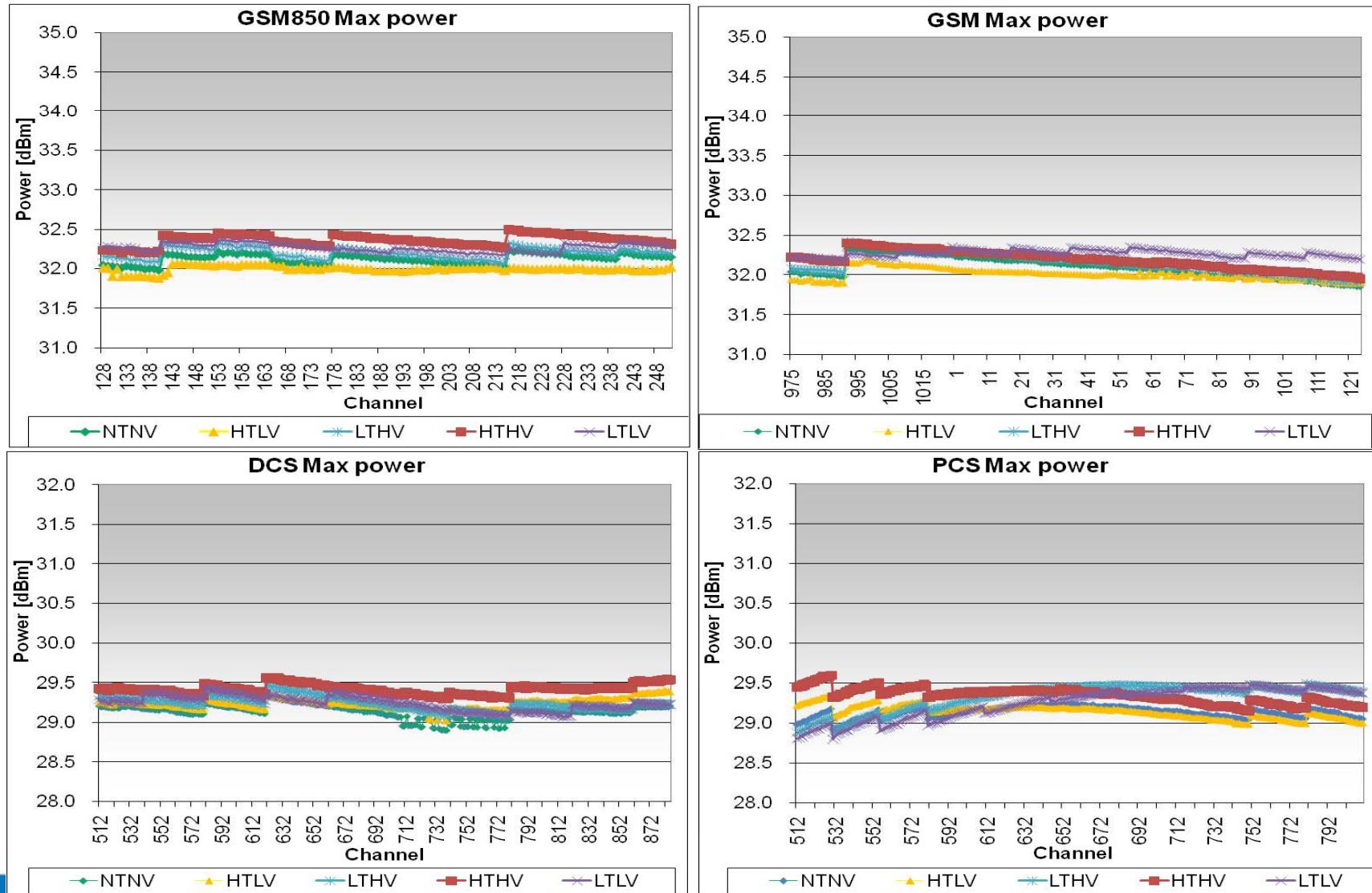
GMSK mode switching spectrum

- All condition test data



GMSK mode Max Pout

- All condition test data

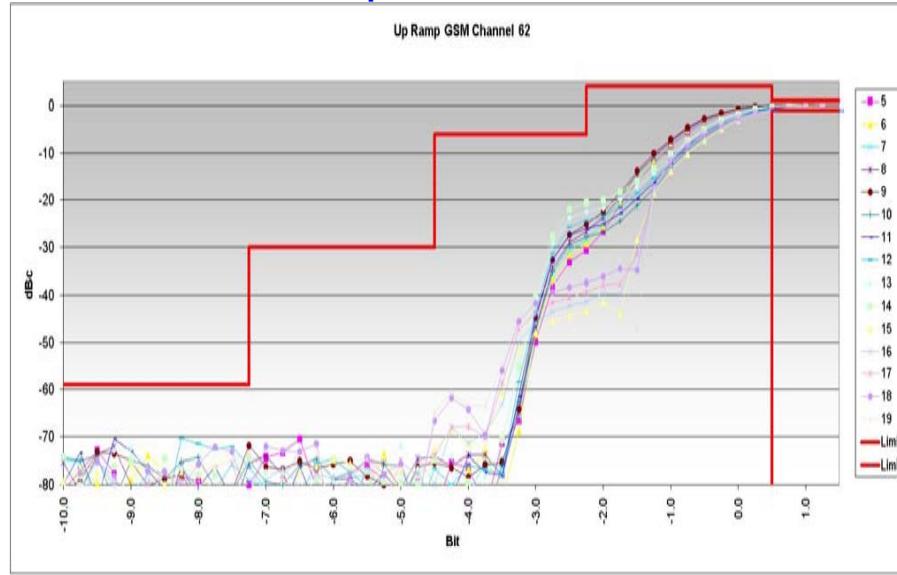


GMSK PVT in all PCL

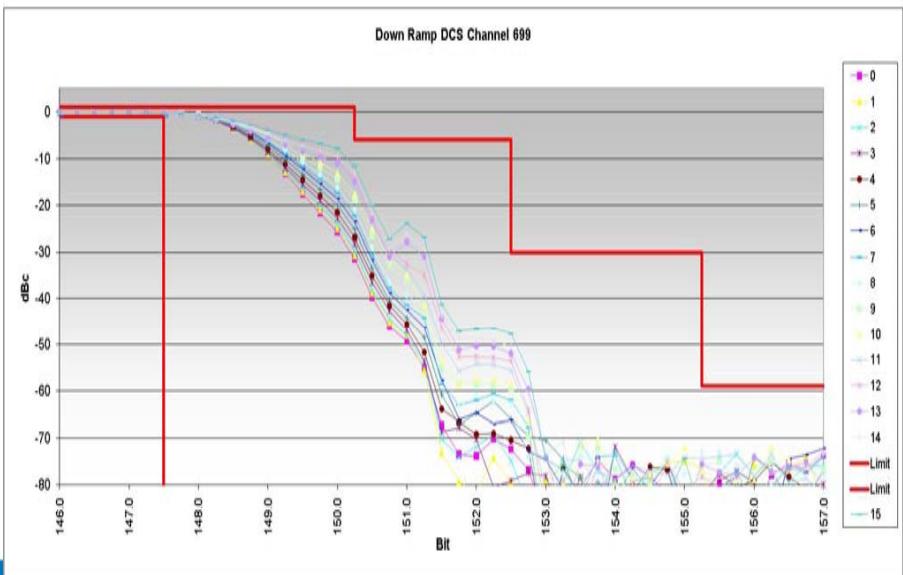
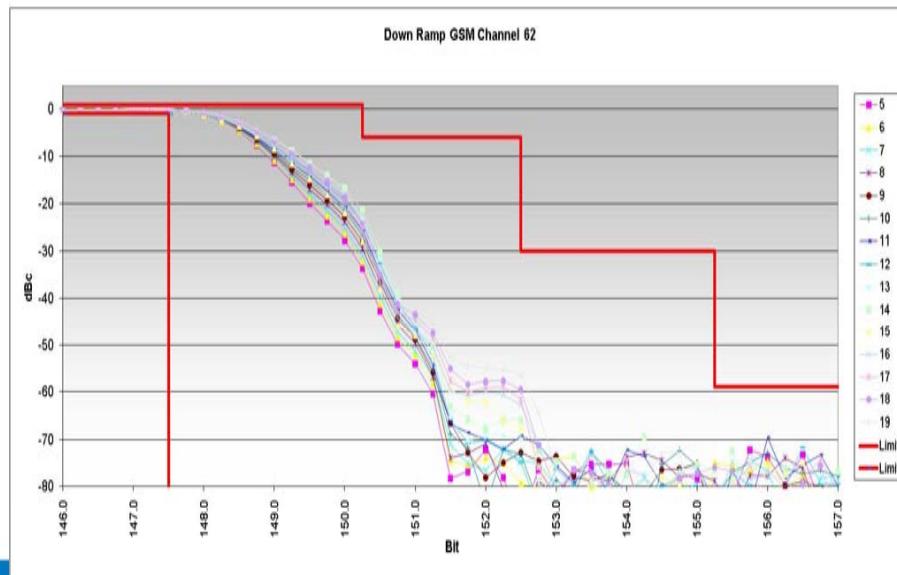
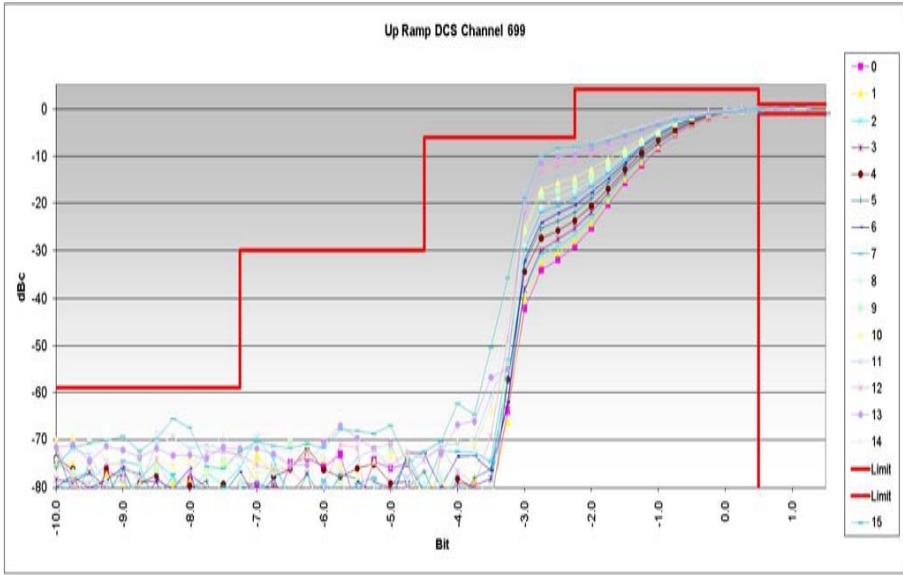
Confidential B

GSM900

All pass



DCS1800



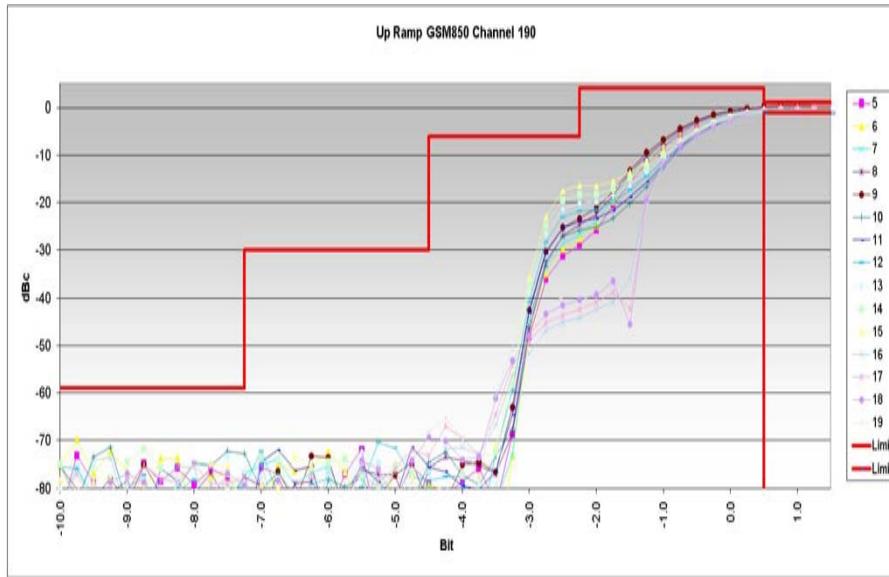
MEDIATEK

GMSK PVT in all PCL

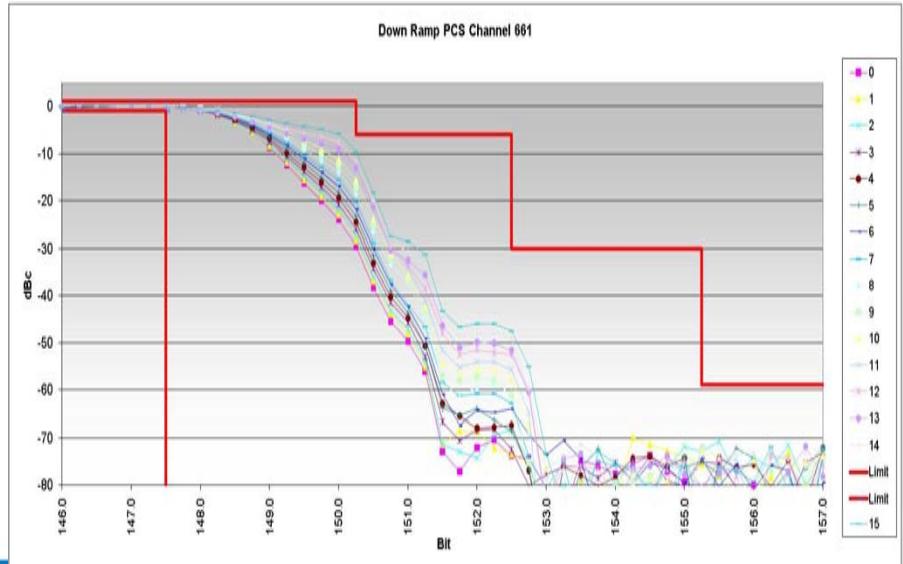
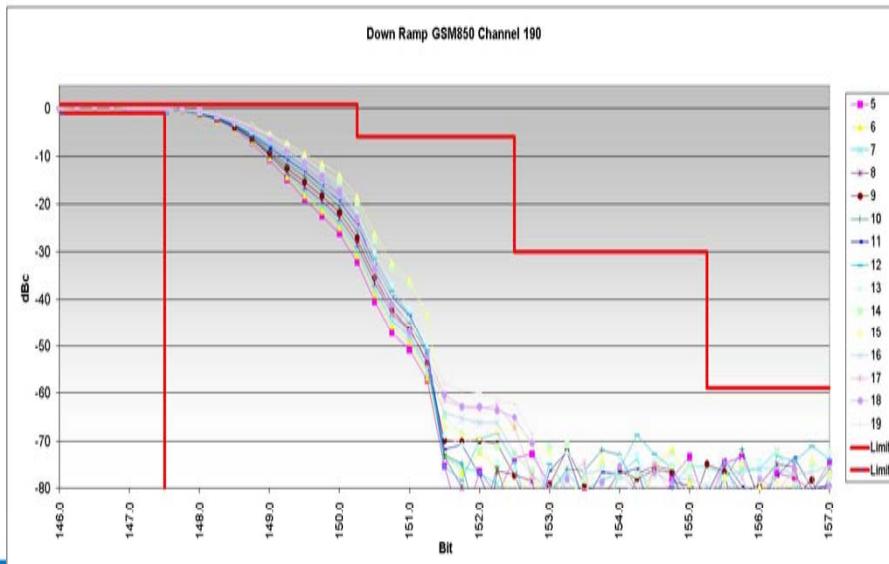
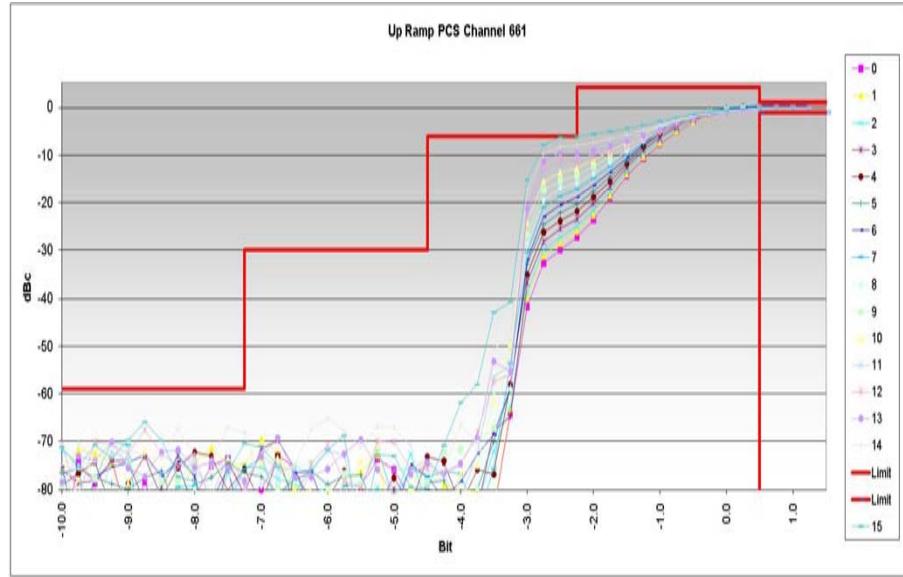
Confidential B

GSM850

All pass



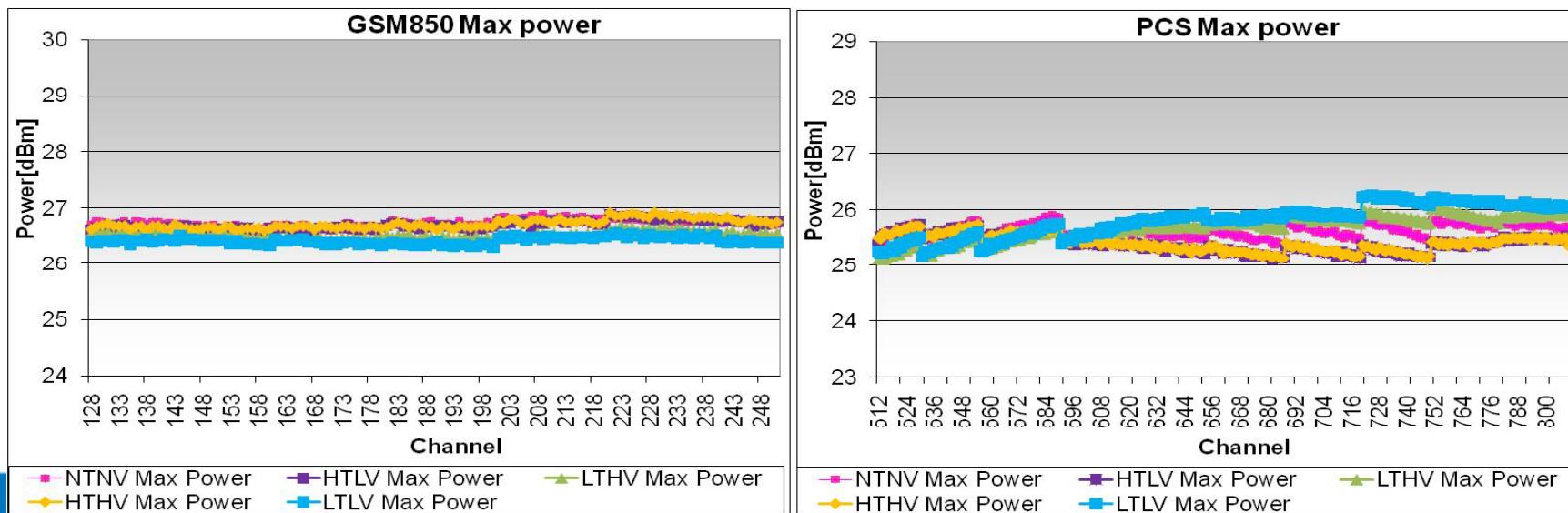
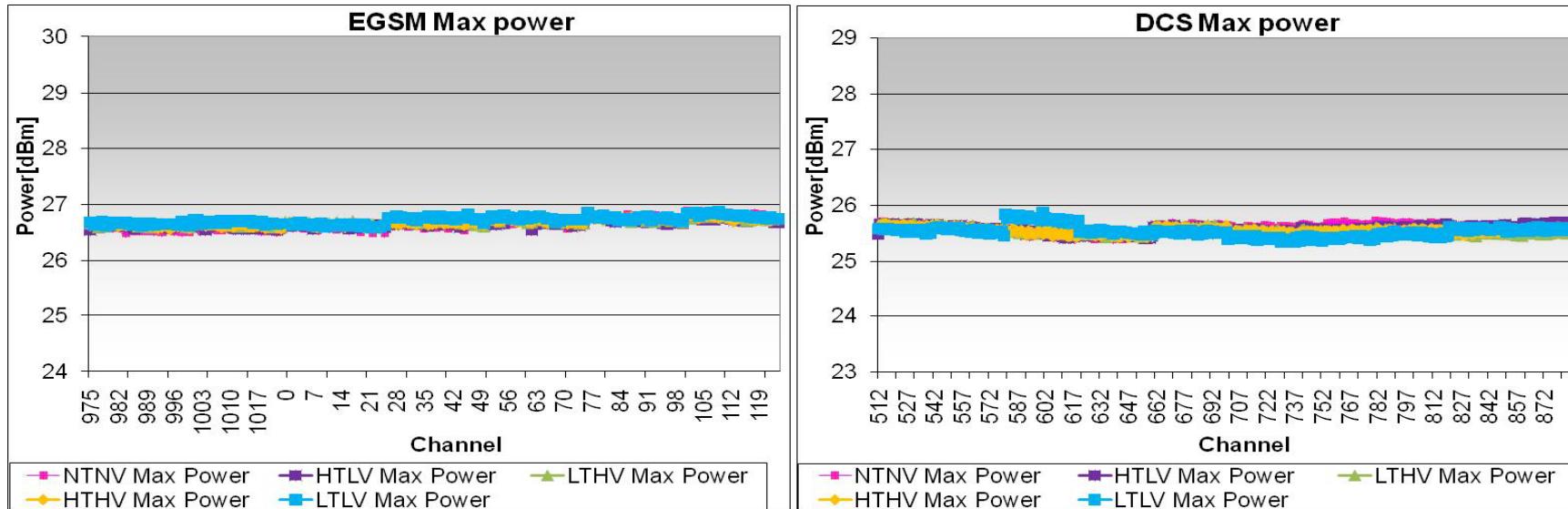
PCS1900



MEDIATEK

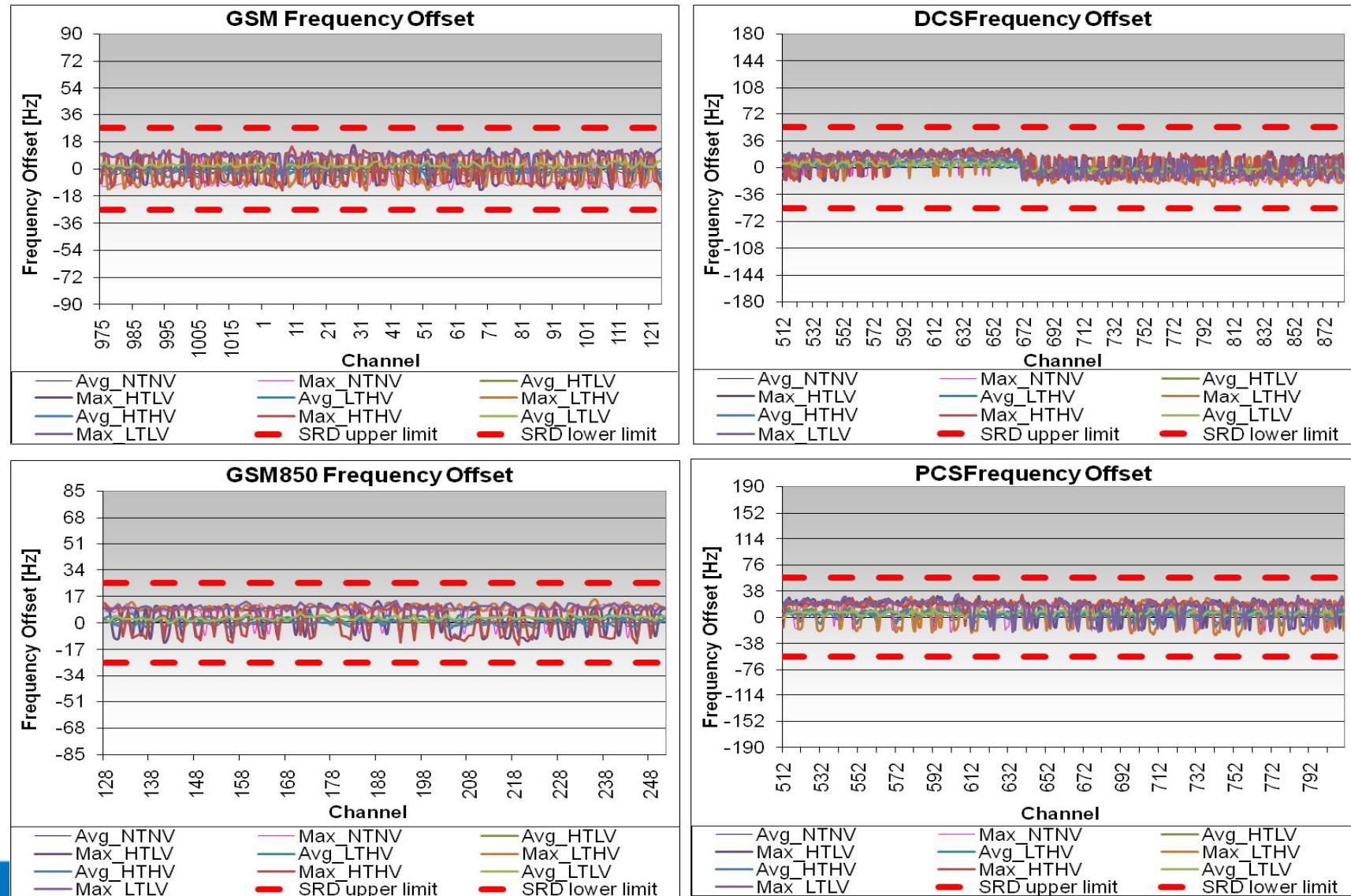
8PSK mode Max Pout (original)

- All condition test data



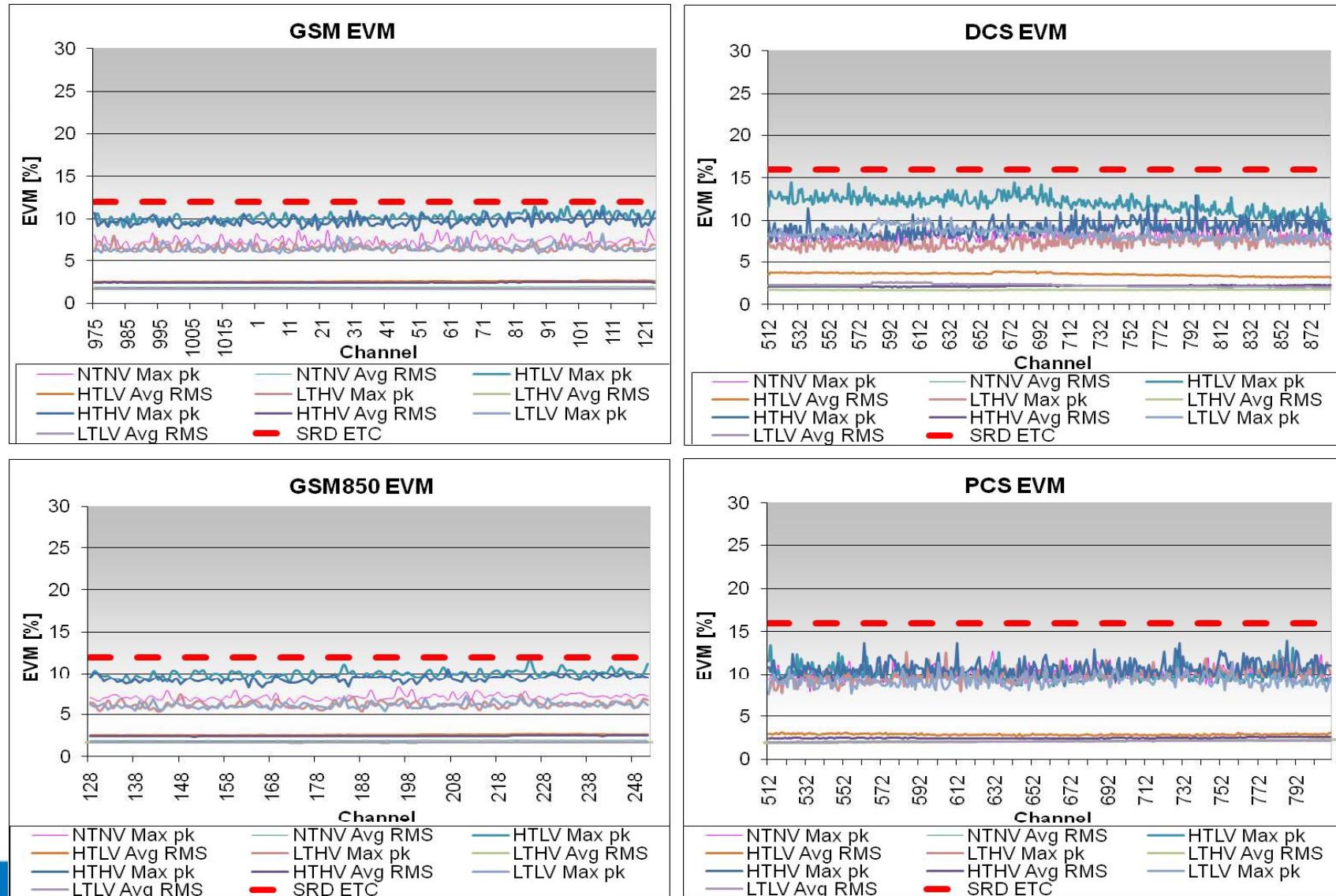
8PSK mode Frequency Error

- All condition test data



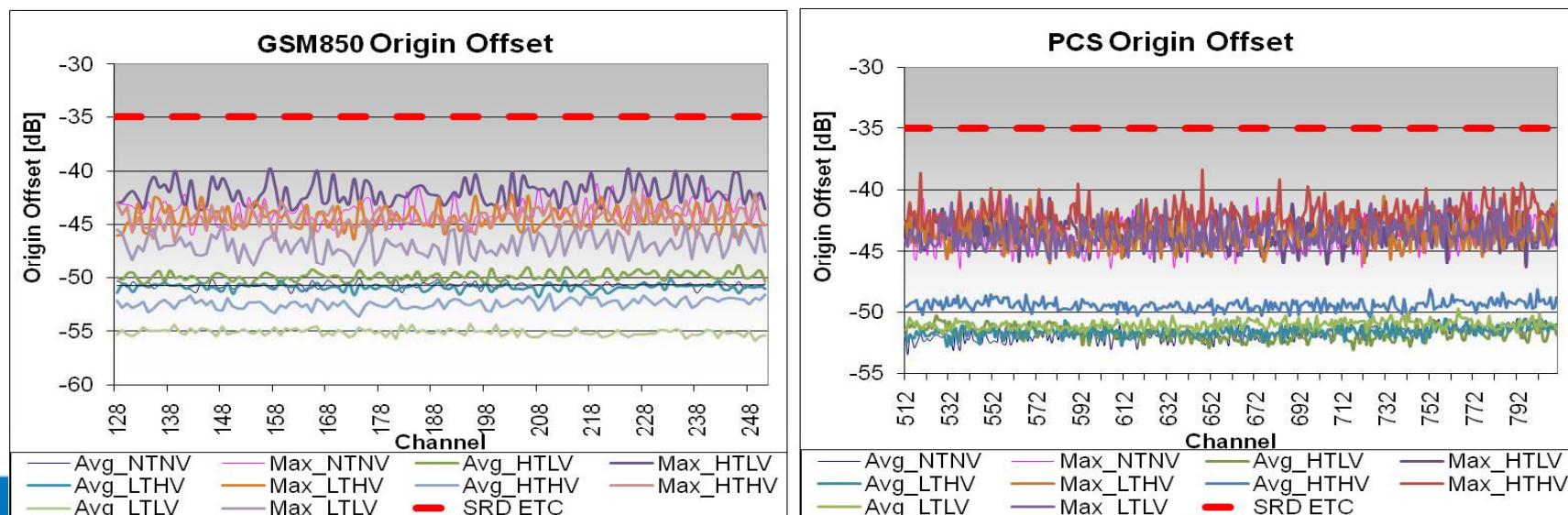
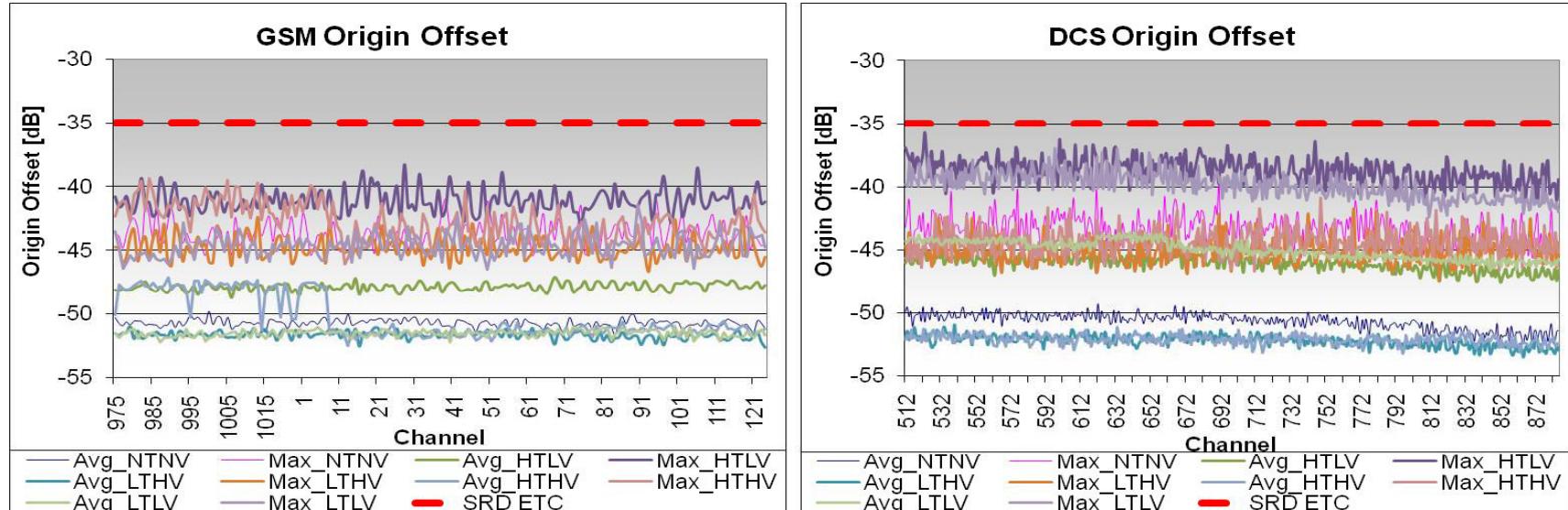
8PSK mode EVM, Max EVM

- All condition test data



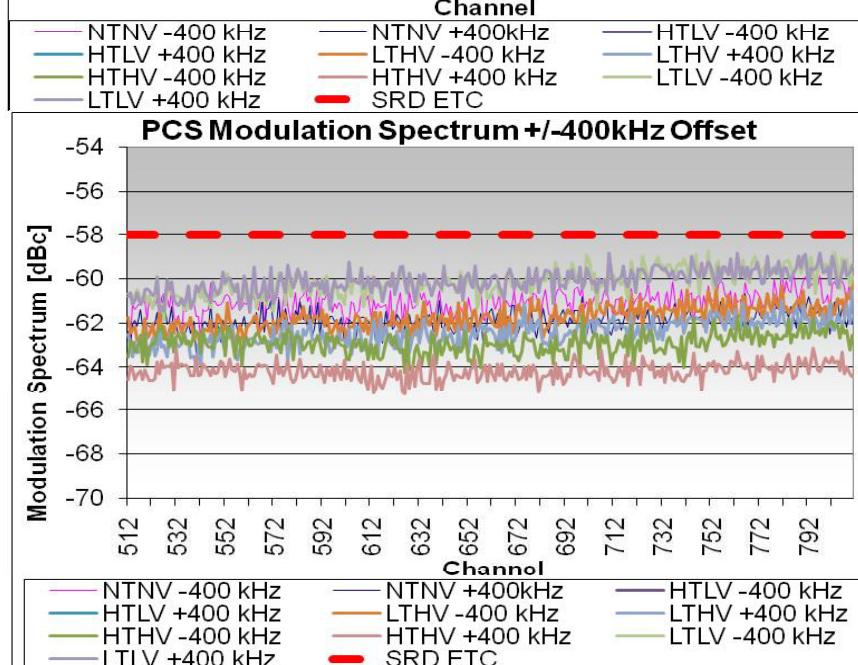
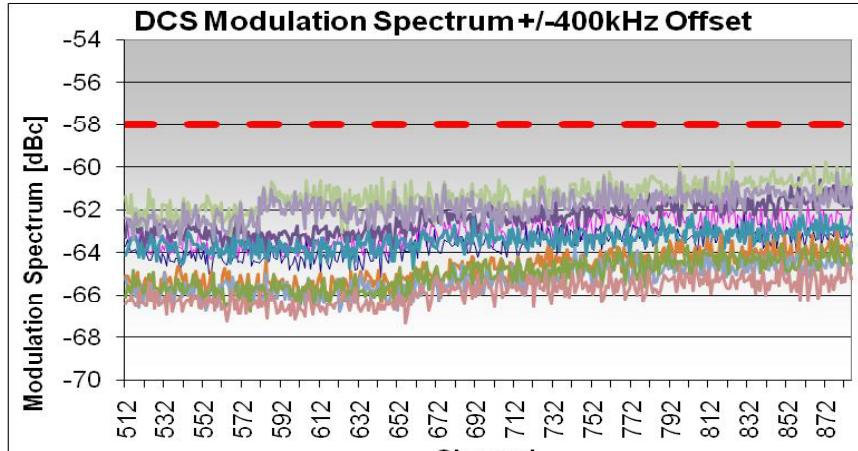
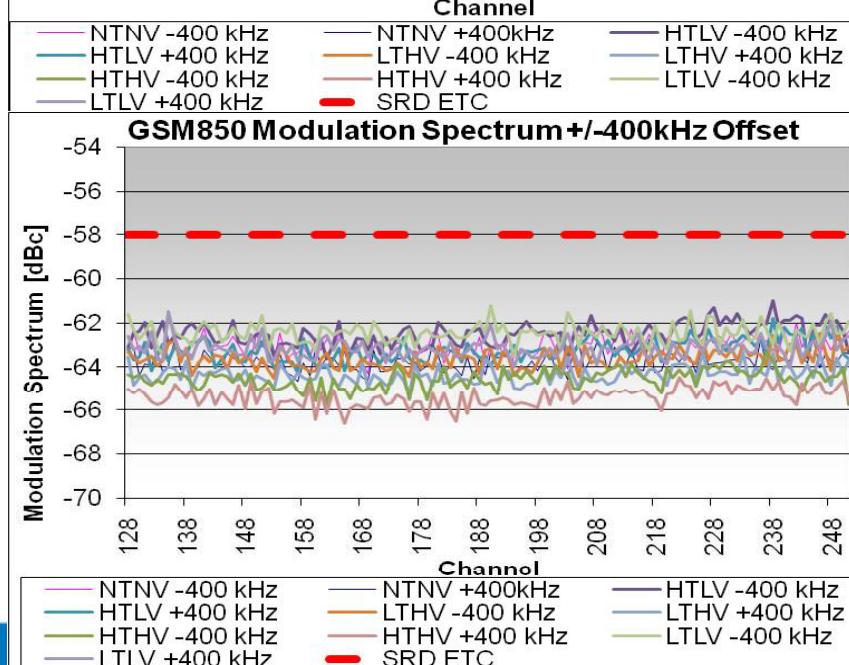
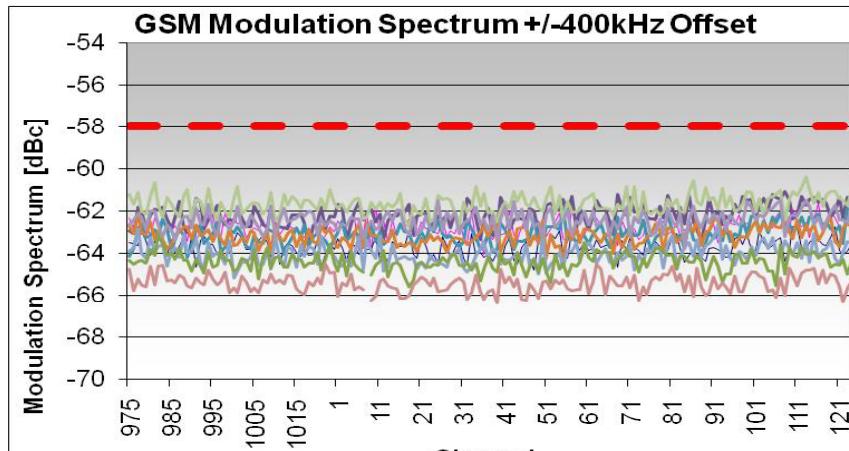
8PSK mode origin offset (Type1 PLL)

- All condition test data



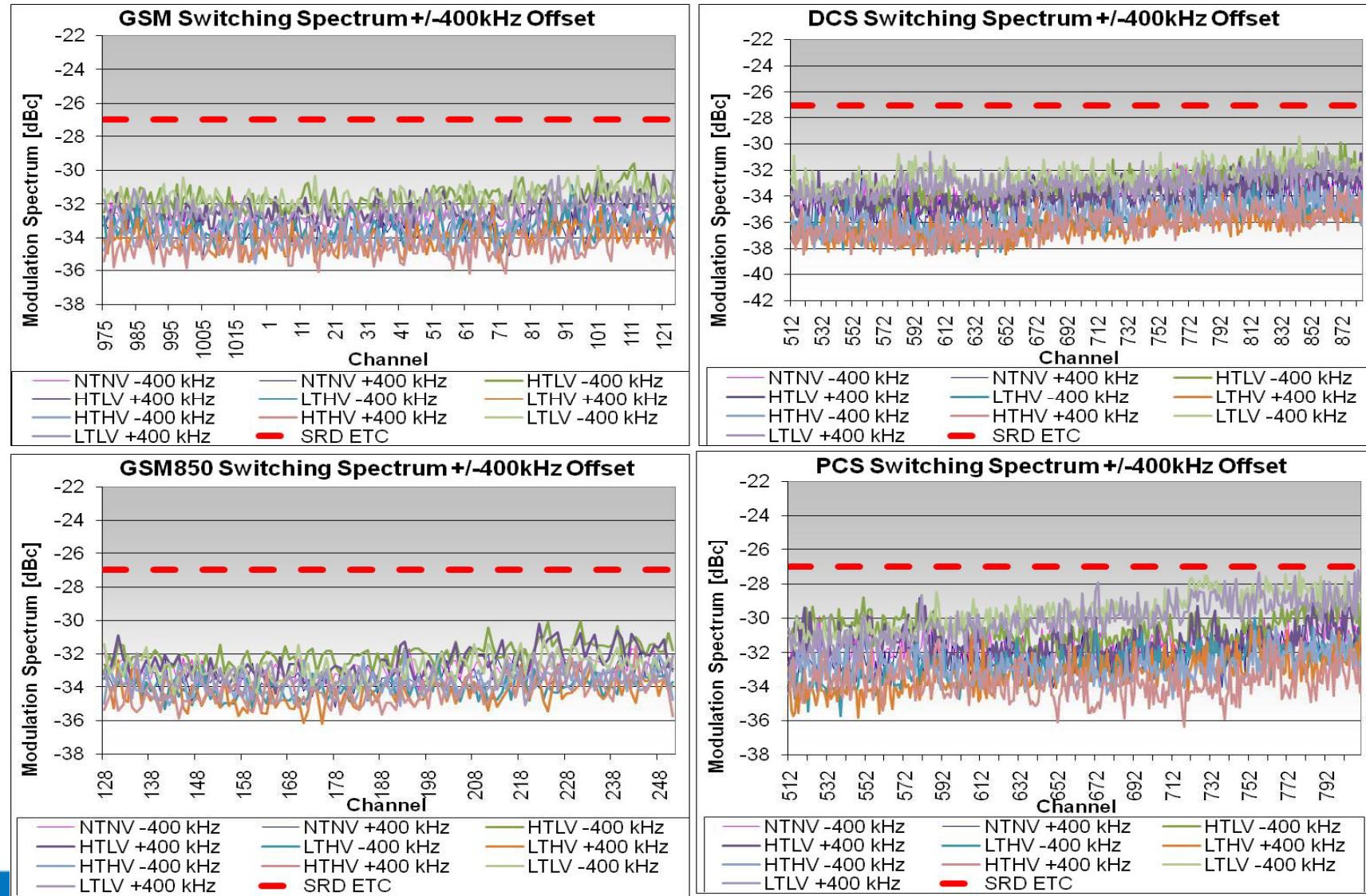
8PSK mode modulation spectrum

- All condition test data



8PSK mode switching spectrum

- All condition test data

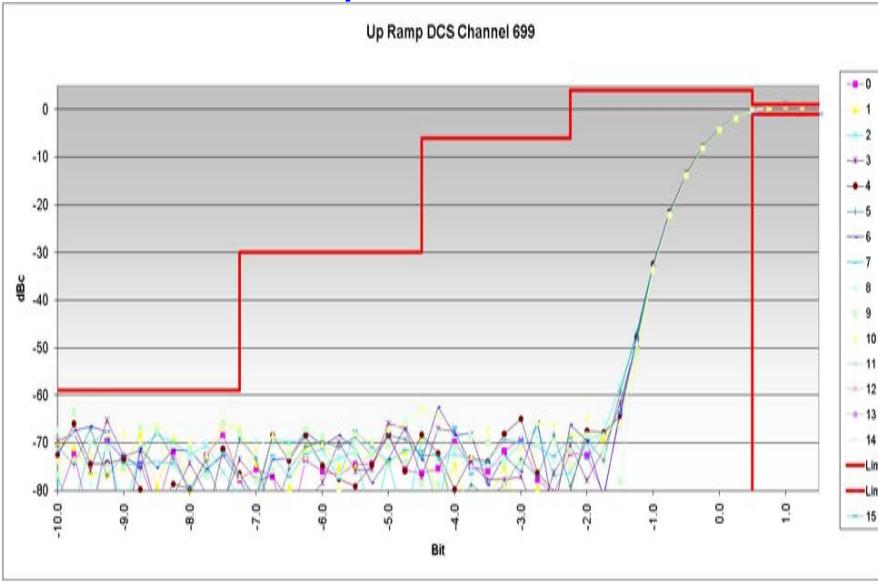


EDGE PVT in all PCL

Confidential B

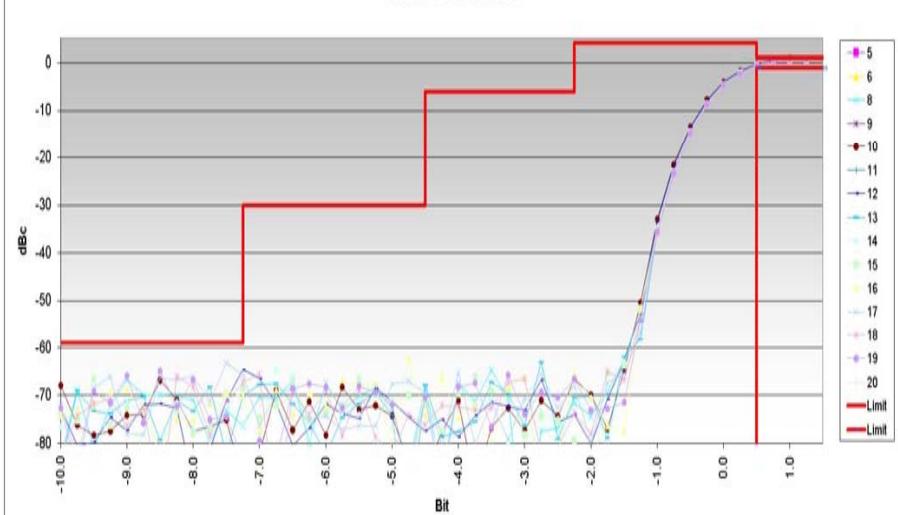
GSM900

All pass

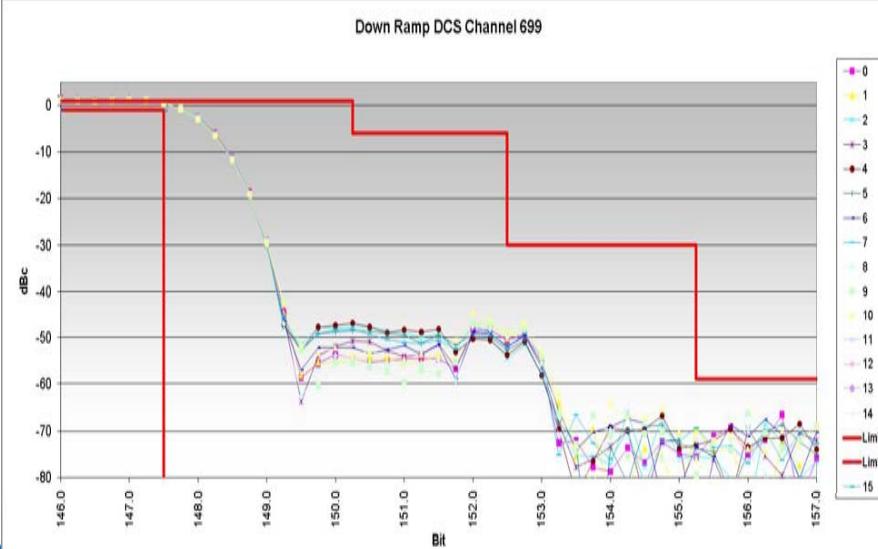


DCS1800

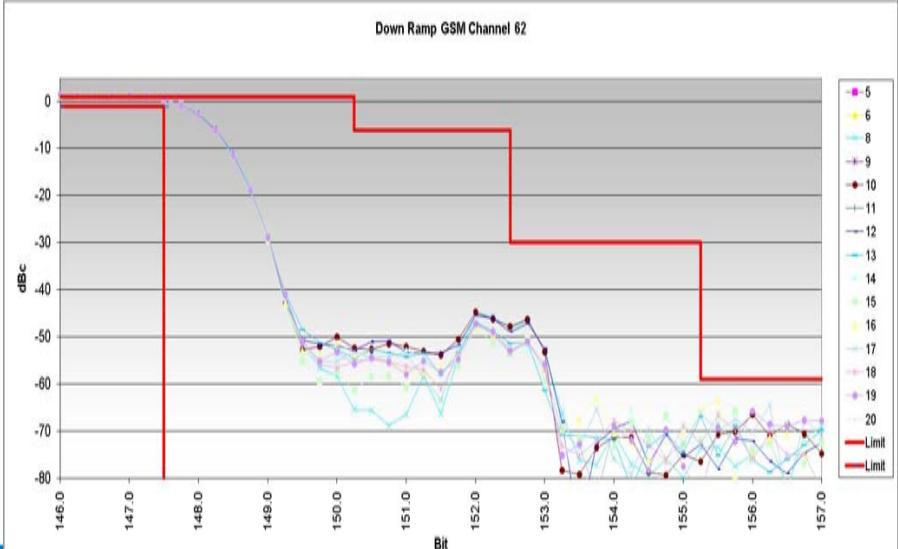
Up Ramp GSM Channel 62



Down Ramp DCS Channel 699



Down Ramp GSM Channel 62

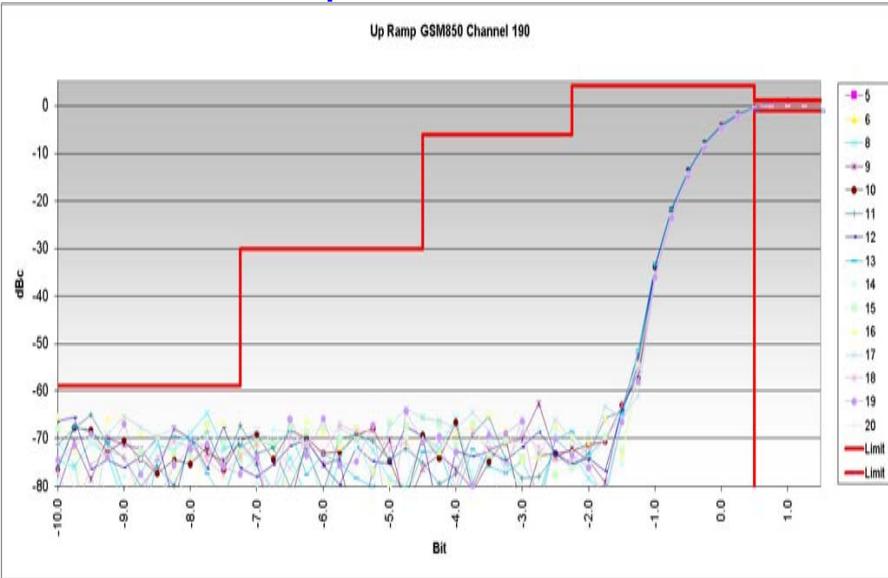


MEDIANTE

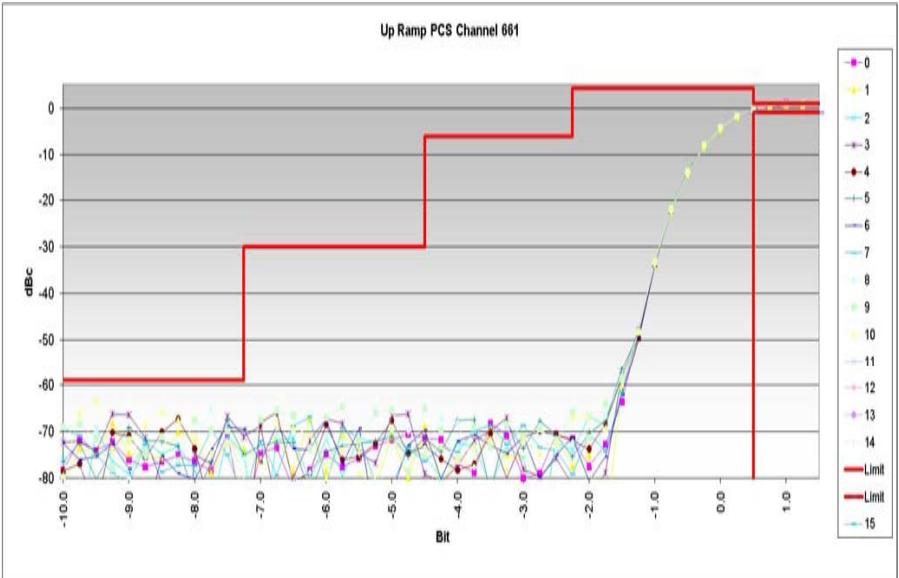
EDGE PVT in all PCL

Confidential B

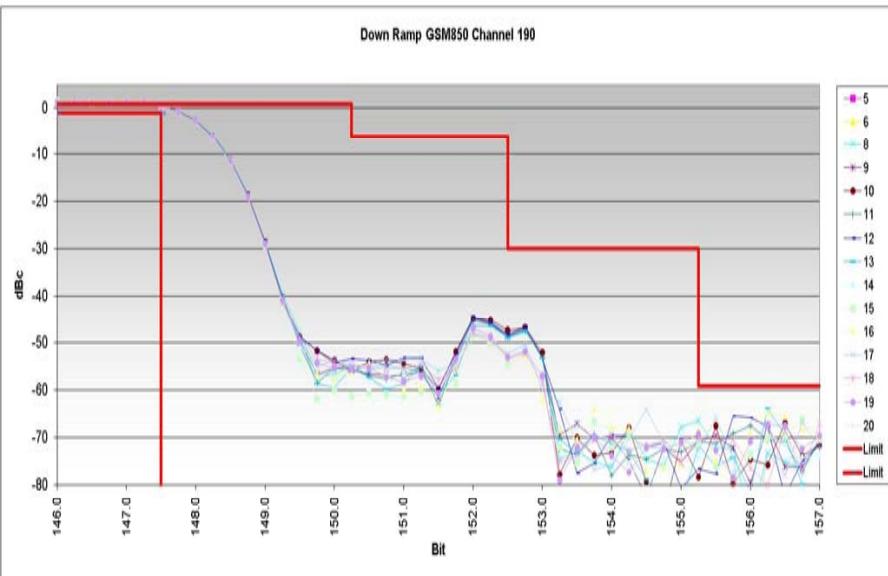
GSM850 All pass



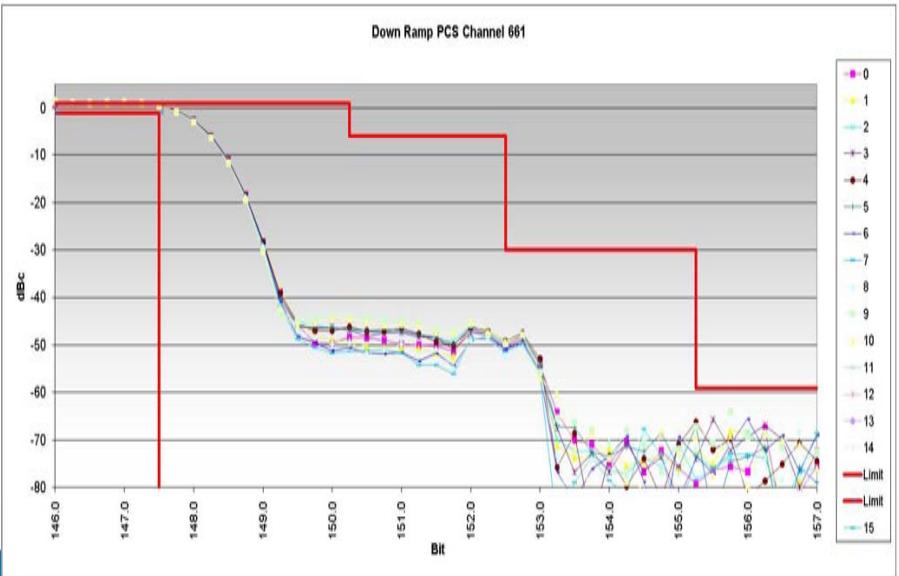
PCS1900



Down Ramp GSM850 Channel 190



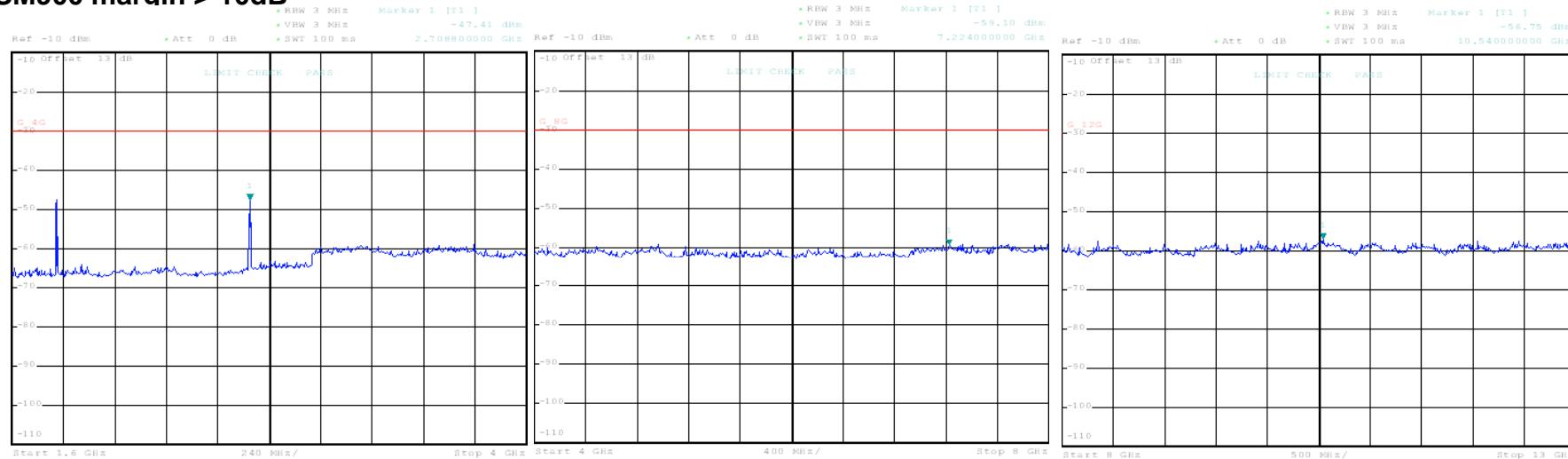
Down Ramp PCS Channel 661



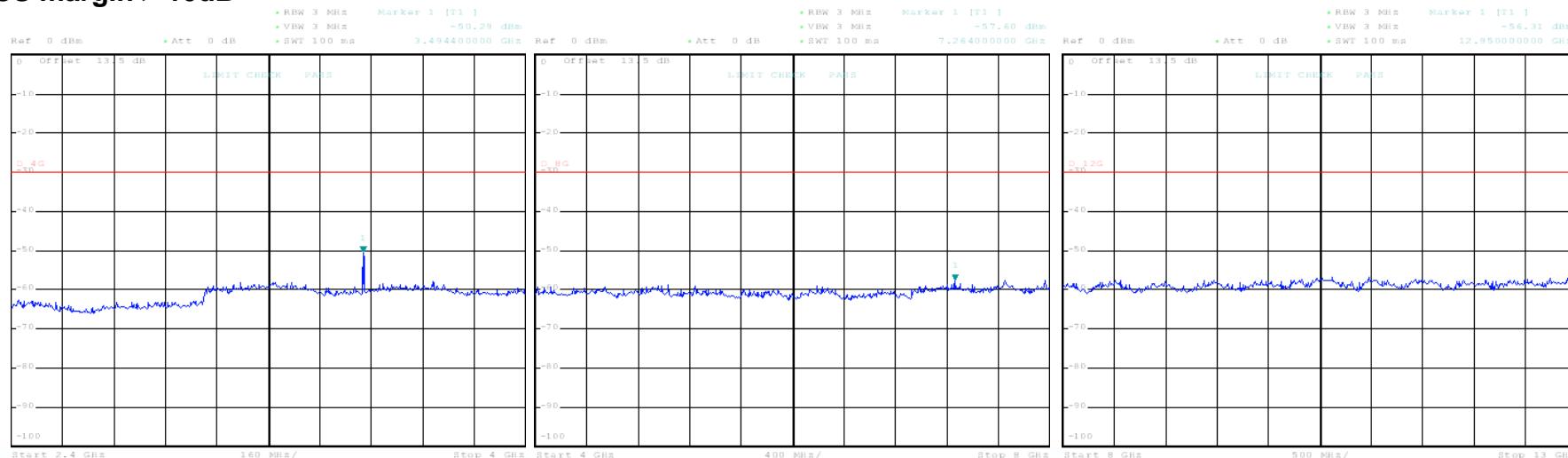
MEDITEK

Harmonics

GSM900 margin > 10dB

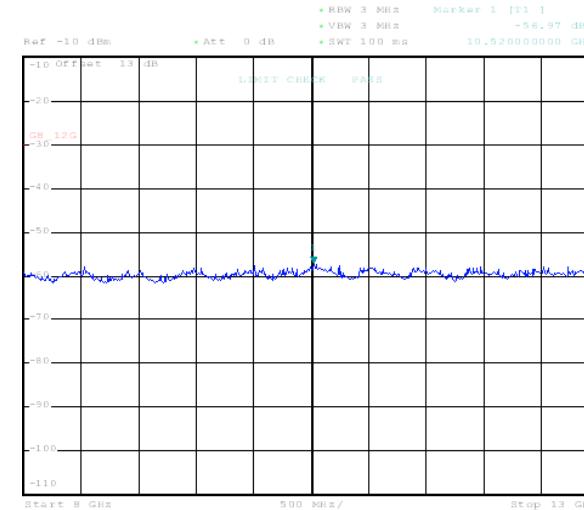
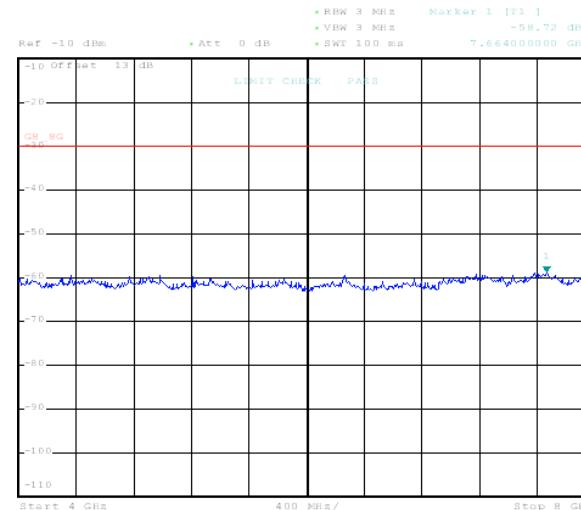
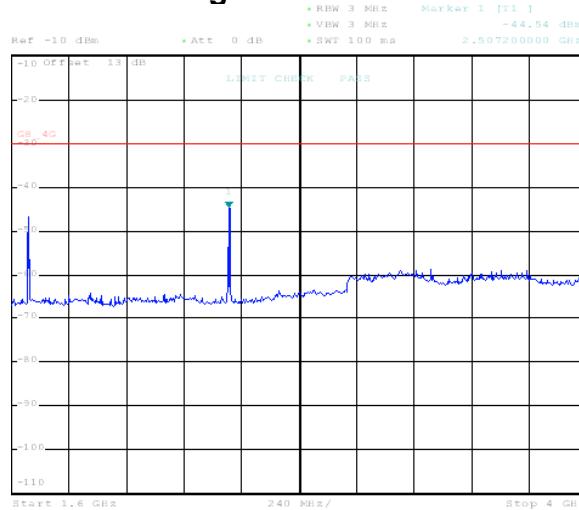


DCS margin > 10dB

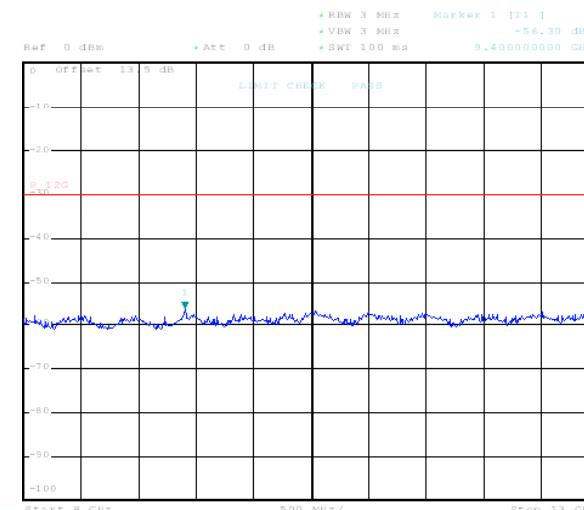
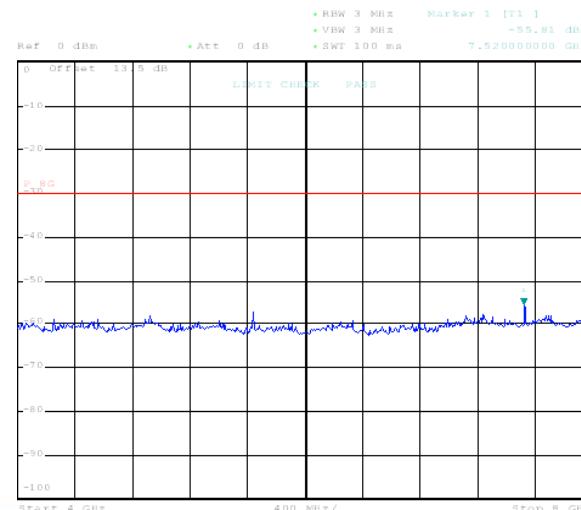
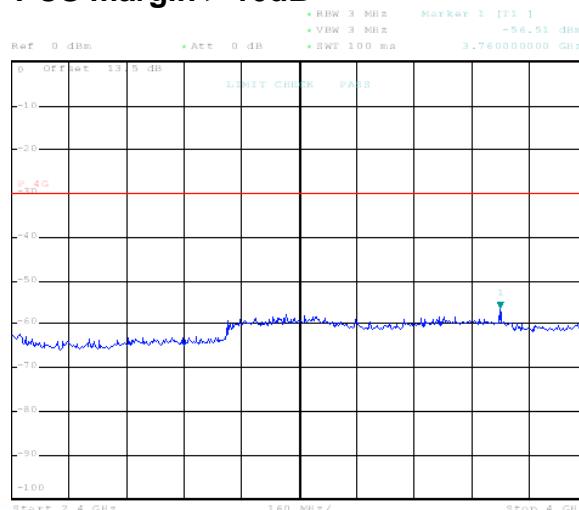


Harmonics

GSM850 margin > 10dB

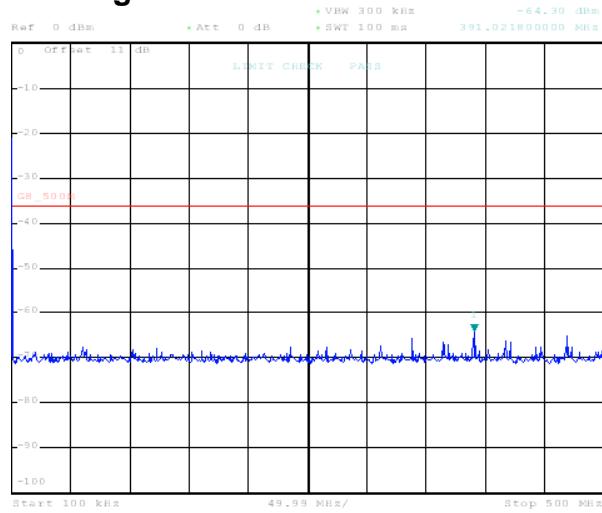


PCS margin > 10dB

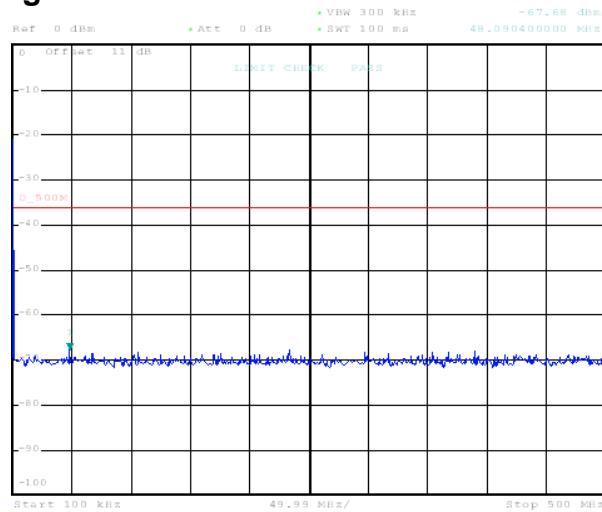


Conducted spurious emissions (100KHz~500MHz)

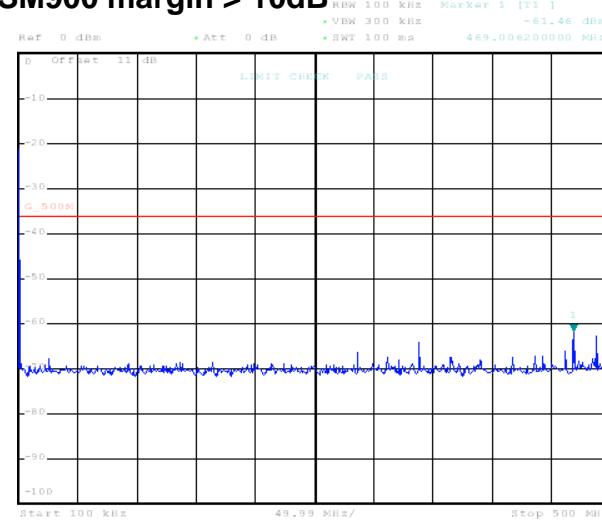
GSM850 margin > 10dB



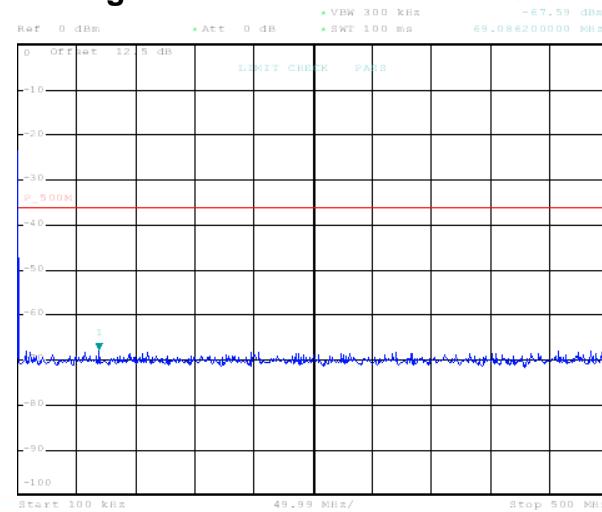
DCS margin > 10dB



GSM900 margin > 10dB

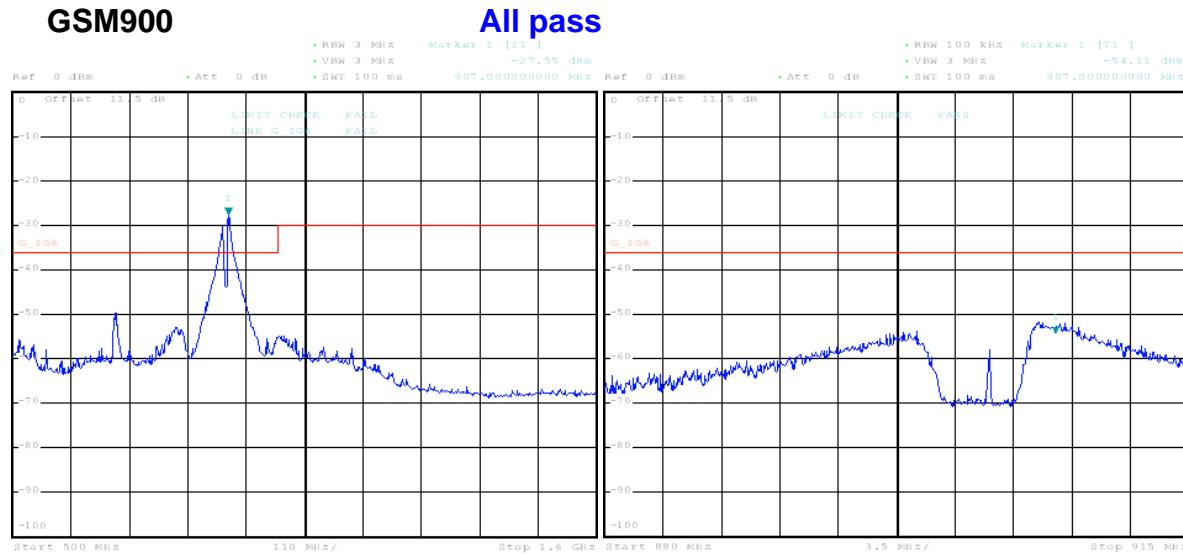


PCS margin > 10dB

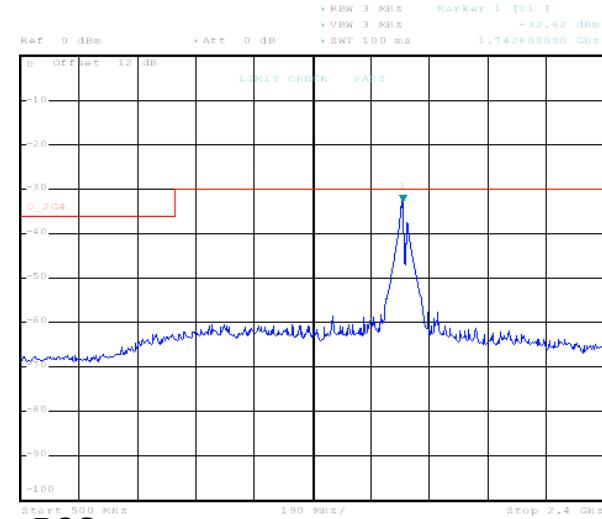


Conducted spurious emissions (500MHz~1.6/2.4MHz)

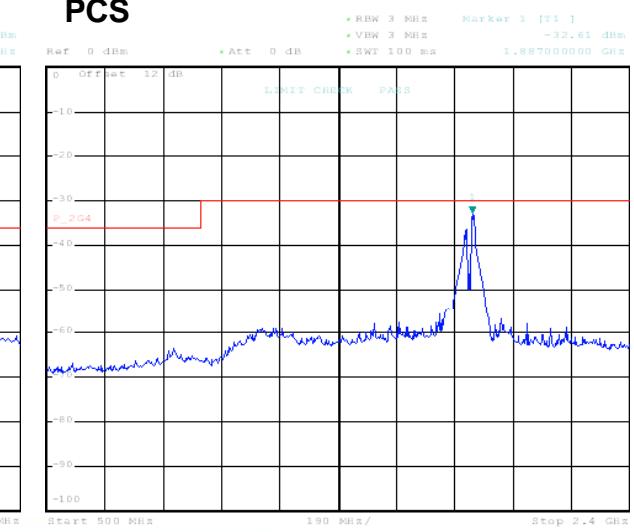
GSM900



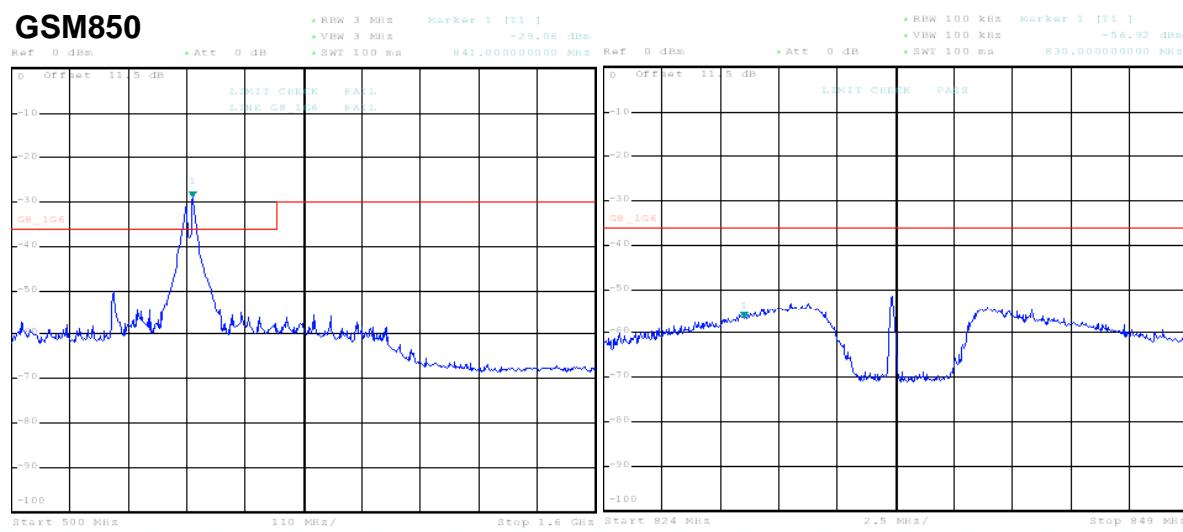
DCS



PCS



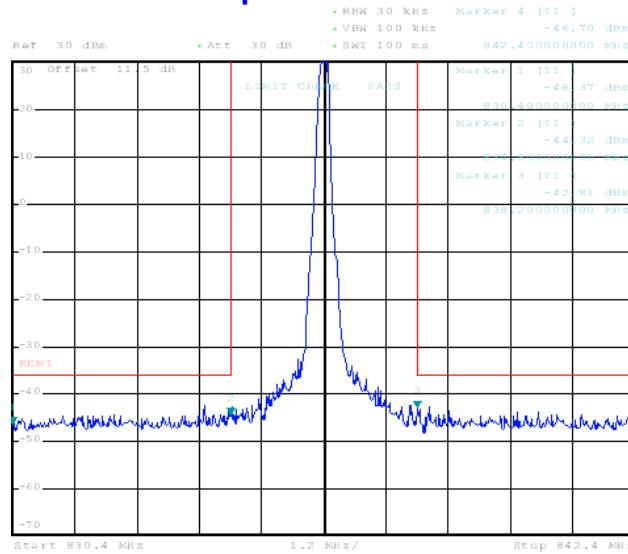
GSM850



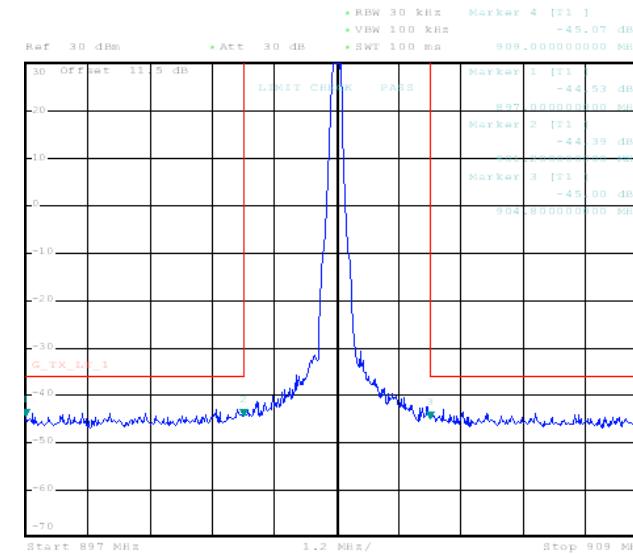
CH12.1 Conducted spurious in relevant Tx band

Confidential B

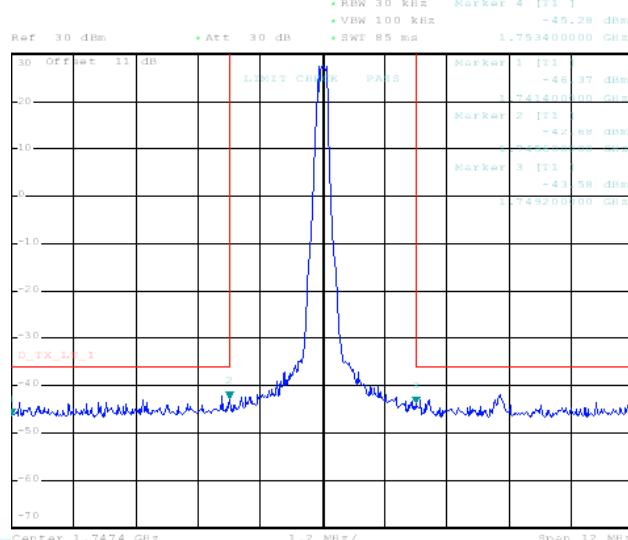
GSM850 All pass



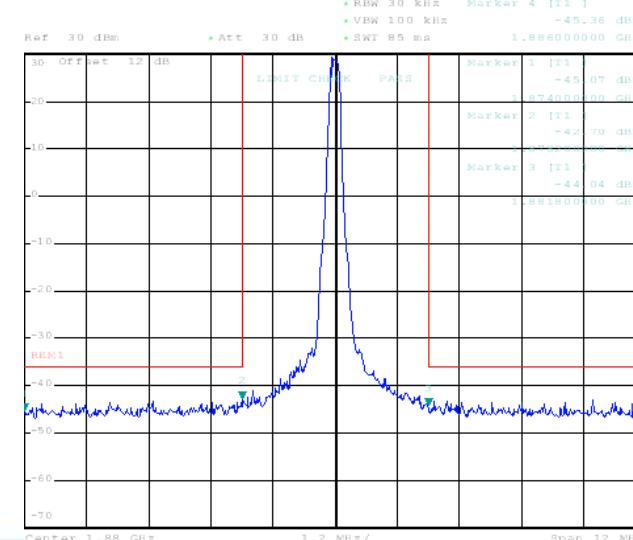
GSM900



DCS1800



PCS1900



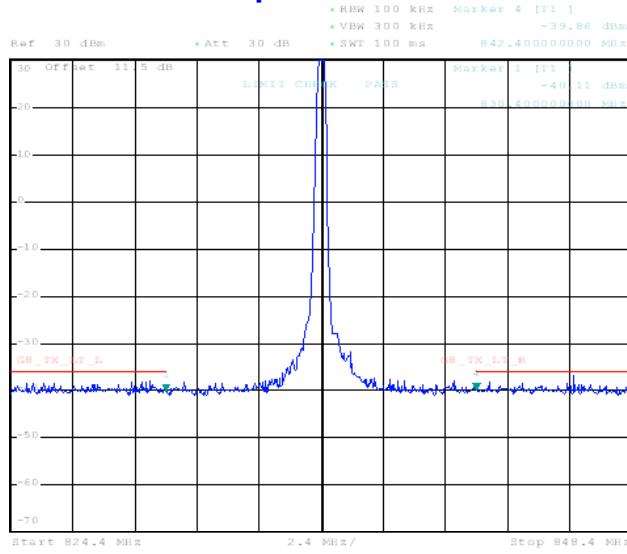
MEDIATEK

CH12.1 Conducted spurious in relevant Tx band

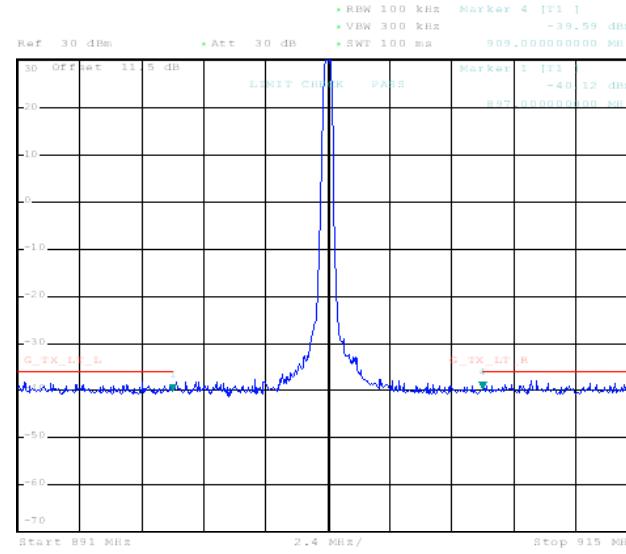
Confidential B

GSM850

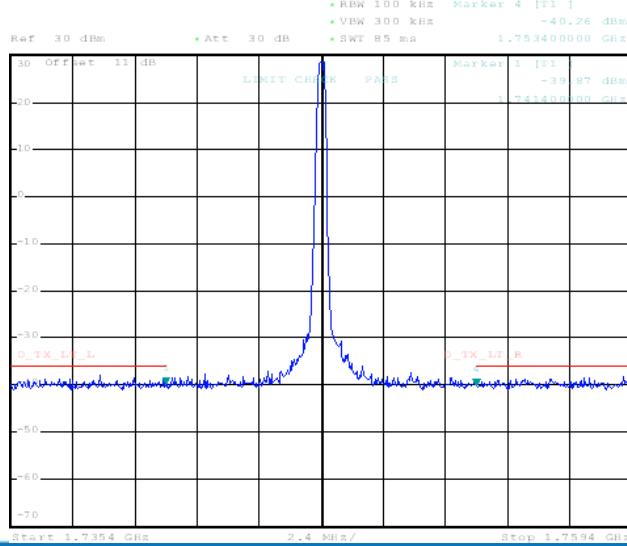
All pass



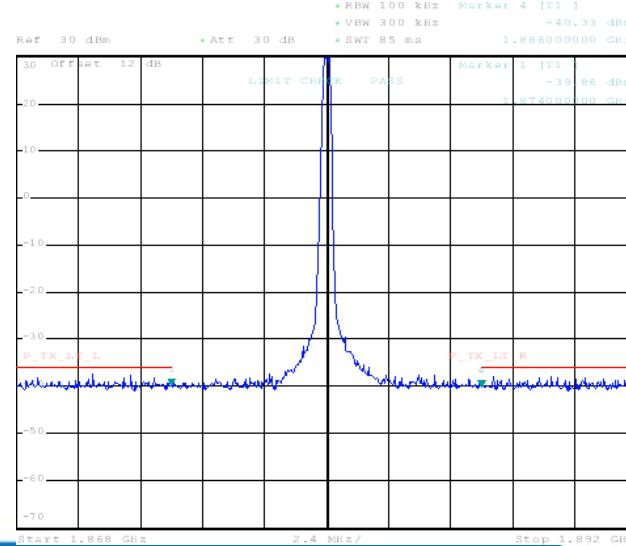
GSM900



DCS1800



PCS1900

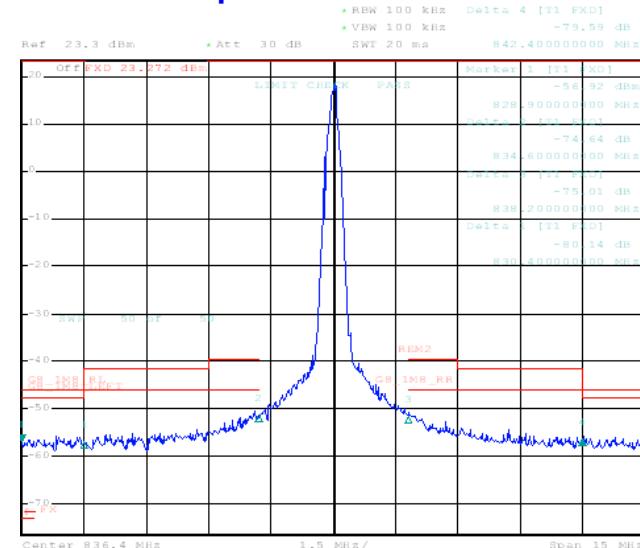


MEDIATEK

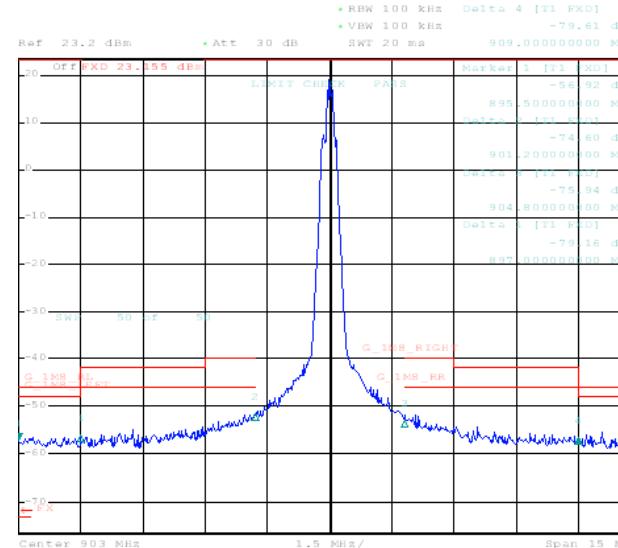
CH13.4 MOD spectrum from 1.8MHz to band edge

confidential B

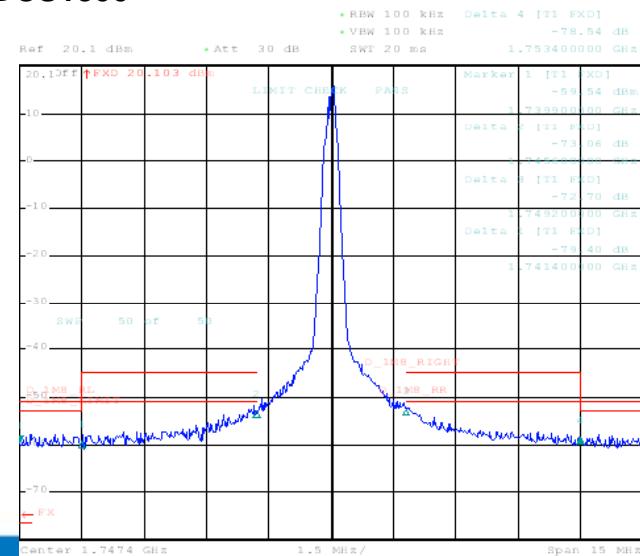
GSM850 All pass



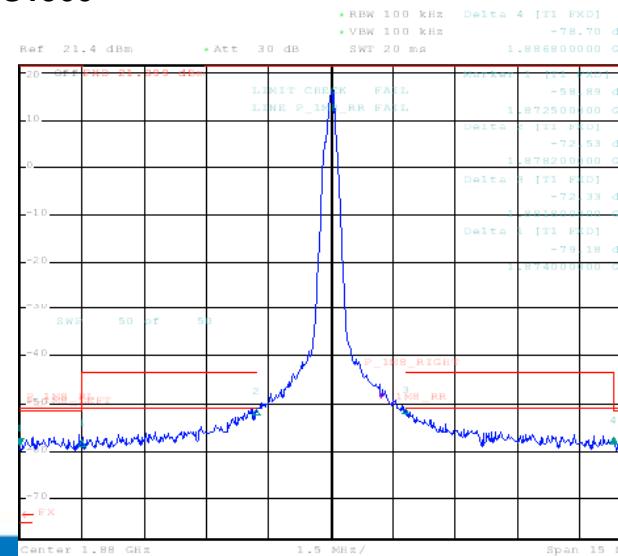
GSM900



DCS1800



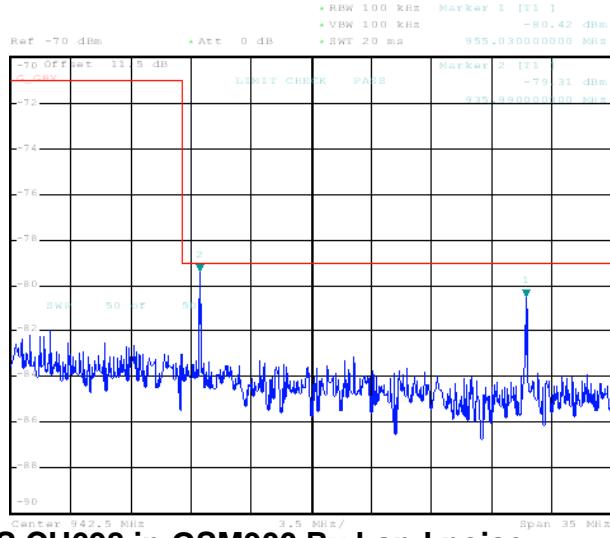
PCS1900



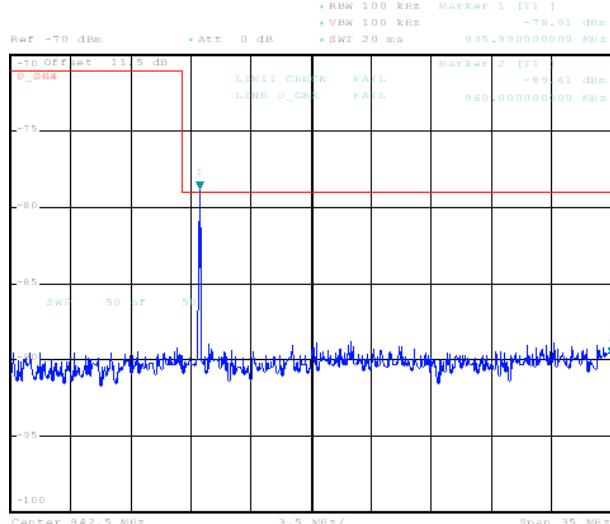
MEDIATEK

Spurious emissions in the MS receive bands

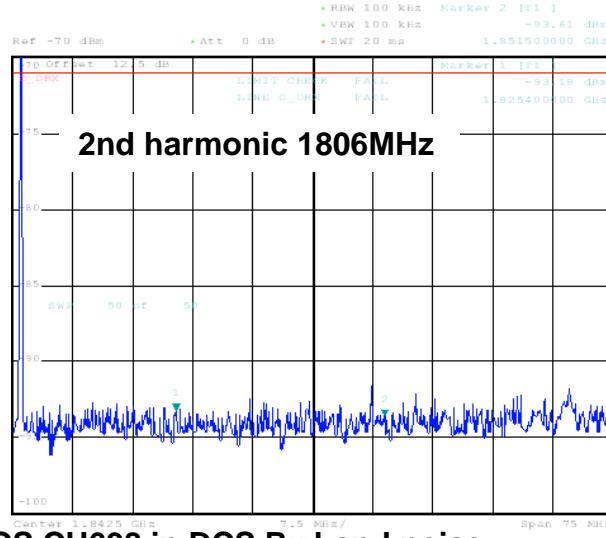
GSM900 CH65 in GSM900 Rx band noise



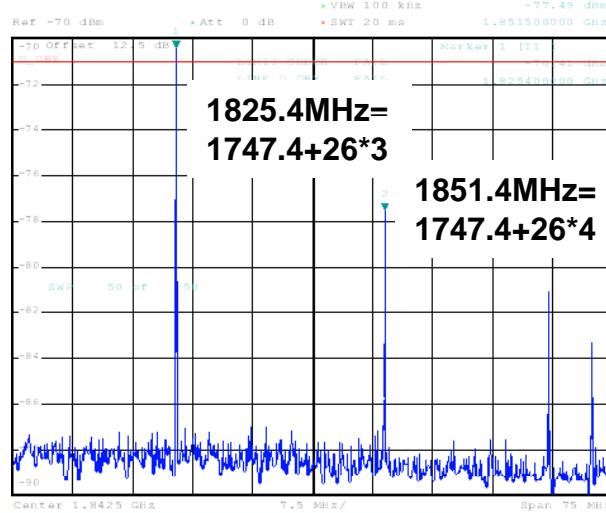
DCS CH698 in GSM900 Rx band noise



GSM900 CH65 in DCS Rx band noise

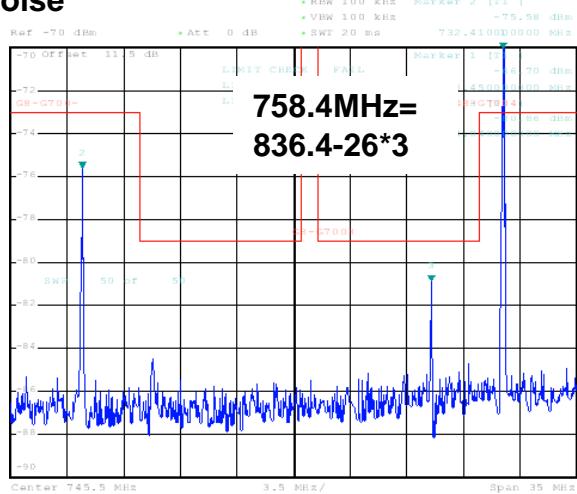


DCS CH698 in DCS Rx band noise

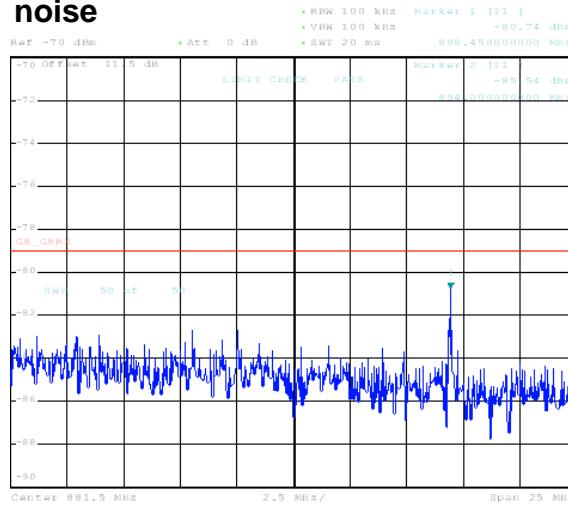


Spurious emissions in the MS receive bands

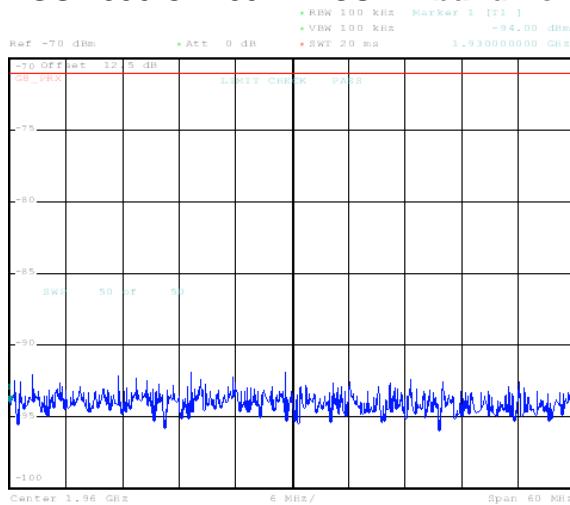
GSM850 CH189 in GSM700 Rx band noise



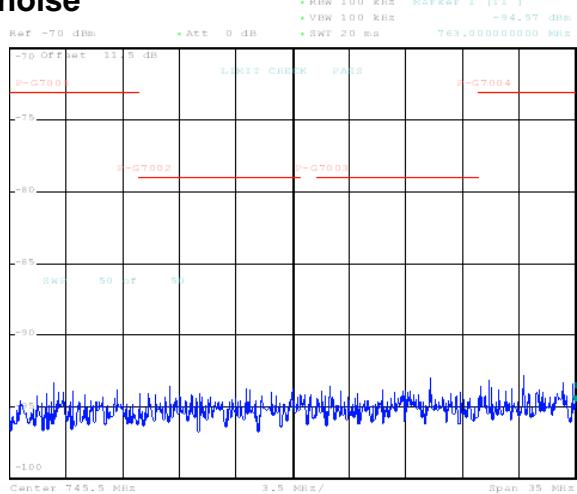
GSM850 CH189 in GSM850 Rx band noise



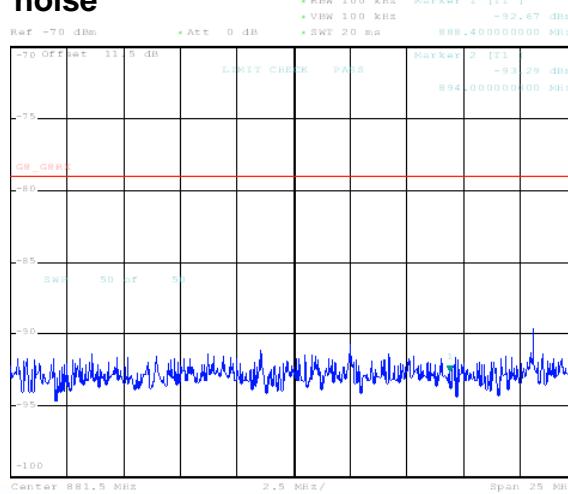
GSM850 CH189 in PCS Rx band noise



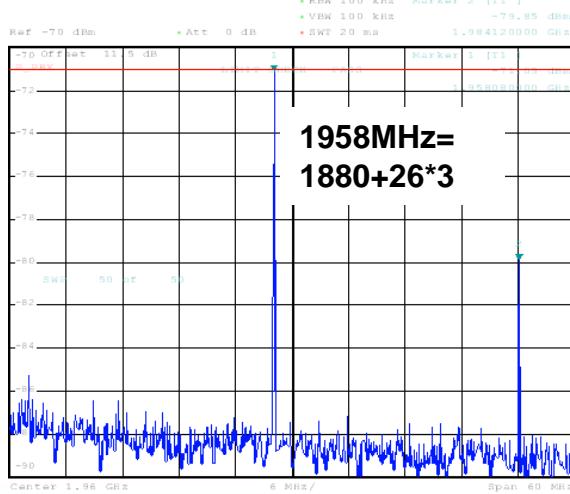
PCS CH661 in GSM700 Rx band noise



PCS CH661 in GSM850 Rx band noise



PCS CH661 in PCS Rx band noise





Rx performance data



Performance summary (RX)

Rx sensitivity all channel worst case/Avg					
Sensitivity		GSM850	EGSM	DCS	PCS
Separation	NTNV	-110.0/-110.5	-109.7/-110.4	-109.4/-110.2	-109.6/-110.2
	HTHV	-109.7/-110.2	-109.1/-110.0	-108.6/-109.6	-108.7/-109.7
	HTLV	-109.5/-110.2	-109.3/-109.9	-108.8/-109.6	-108.5/-109.6
	LTHV	-110.5/-111.0	-109.9/-110.9	-109.5/-110.5	-109.9/-110.6
	LTLV	-109.9/-110.8	-110.0/-110.8	-109.6/-110.5	-109.5/-110.5
Co-banded	NTNV	-109.4/-109.9	-108.9/-109.8	--	-108.3/-109.4
	HTHV	-108.8/-109.5	-108.4/-109.2	--	-107.8/-108.6
	HTLV	-108.9/-109.6	-108.5/-109.2	--	-107.8/-108.6
	LTHV	-109.7/-110.4	-109.0/-110.4	--	-109.0/-110.0
	LTLV	-109.6/-110.4	-109.0/-110.3	--	-108.9/-110.0

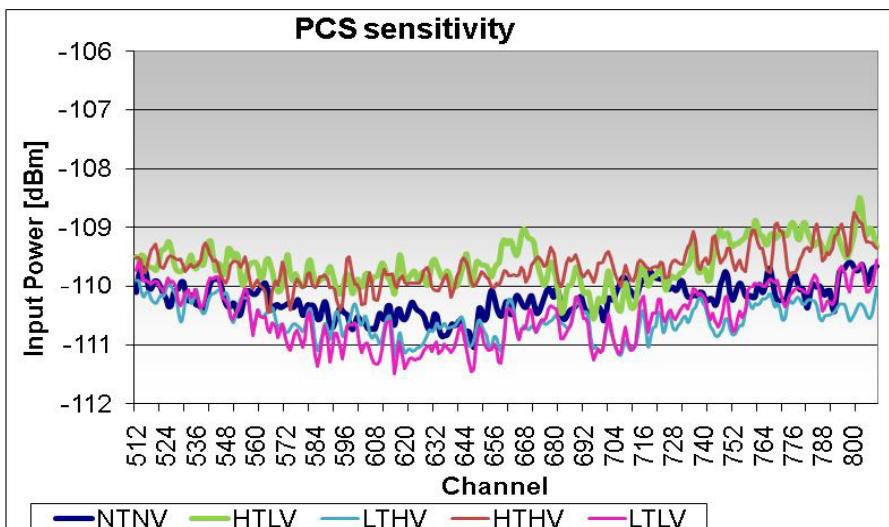
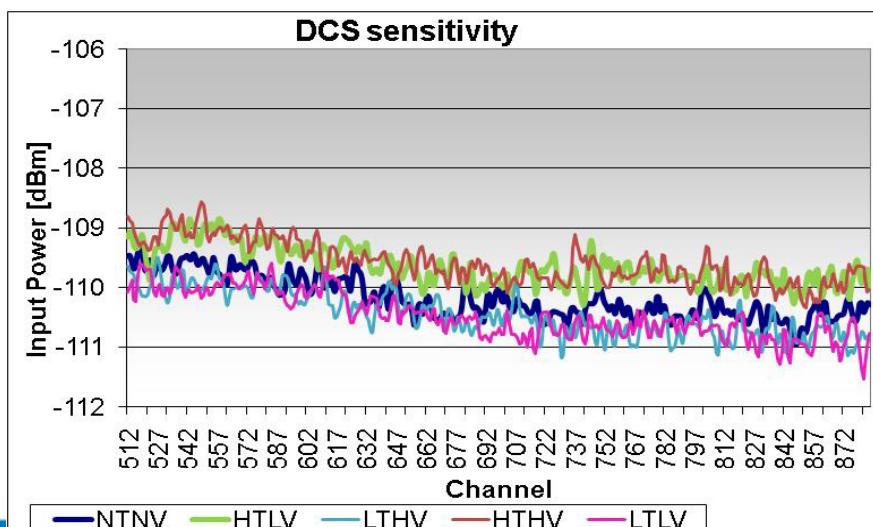
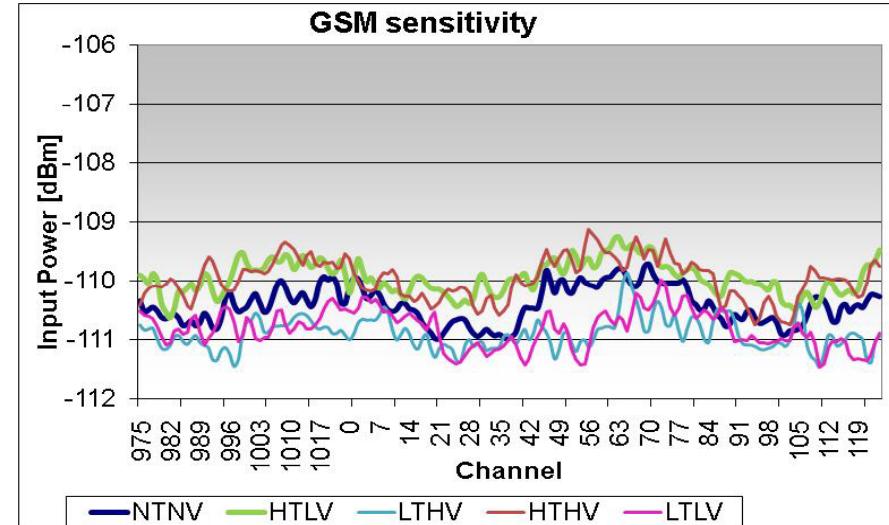
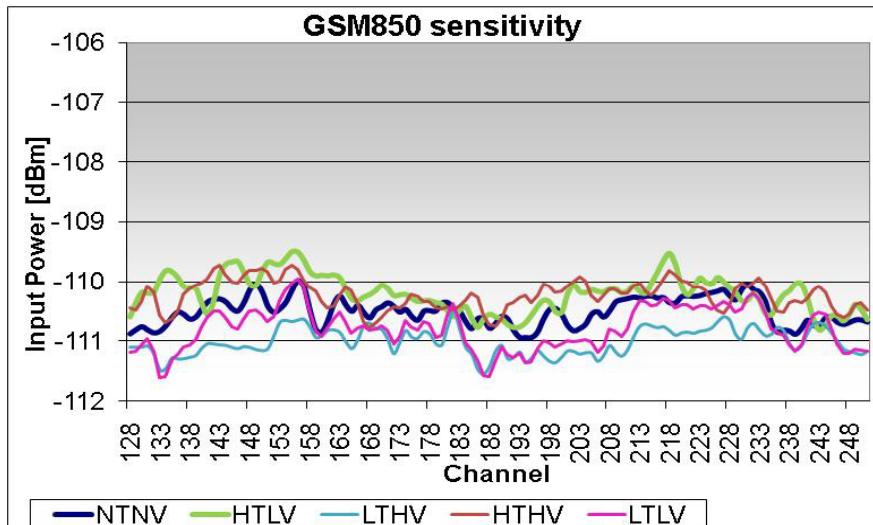
Performance summary (RX)

RX items	GSM850	EGSM	DCS	PCS
Intermodulation rejection	Pass (15dB)	Pass (15dB)	Pass (12dB)	Pass (12dB)
AM suppression	Pass (12dB)	Pass (12dB)	Pass (13.5dB)	Pass (13dB)
3M blocking	Pass (6dB)	Pass (6dB)	Pass (7dB)	Pass (6.5dB)

Out-band blocking exception		GSM850	EGSM	DCS	PCS
Separation	Voice	3Fo/7Fo/9Fo	Pass	Pass	Pass
	GMSK MCS4	3Fo/7Fo/9Fo	3Fo/9Fo	3Fo	3Fo/5Fo
	8PSK MCS9	3Fo/7Fo/9Fo	3Fo/9Fo	Pass	3Fo/5Fo
Co-banded	Voice	3Fo/5Fo/9Fo	Pass	--	Pass
	GMSK MCS4	3Fo/5Fo/7Fo/9Fo	3Fo/5Fo/7Fo/9Fo	--	5Fo
	8PSK MCS9	3Fo/5Fo/7Fo/9Fo	3Fo/5Fo/9Fo	--	5Fo

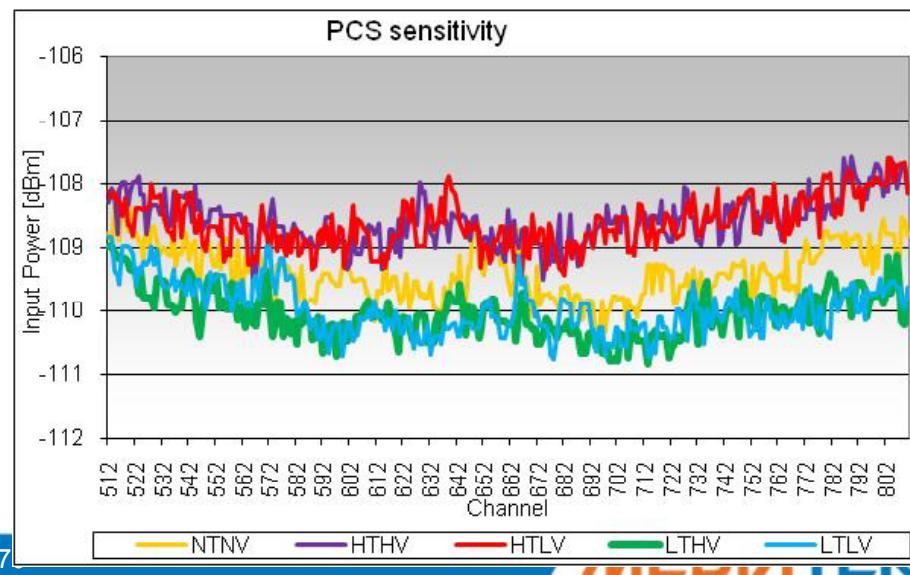
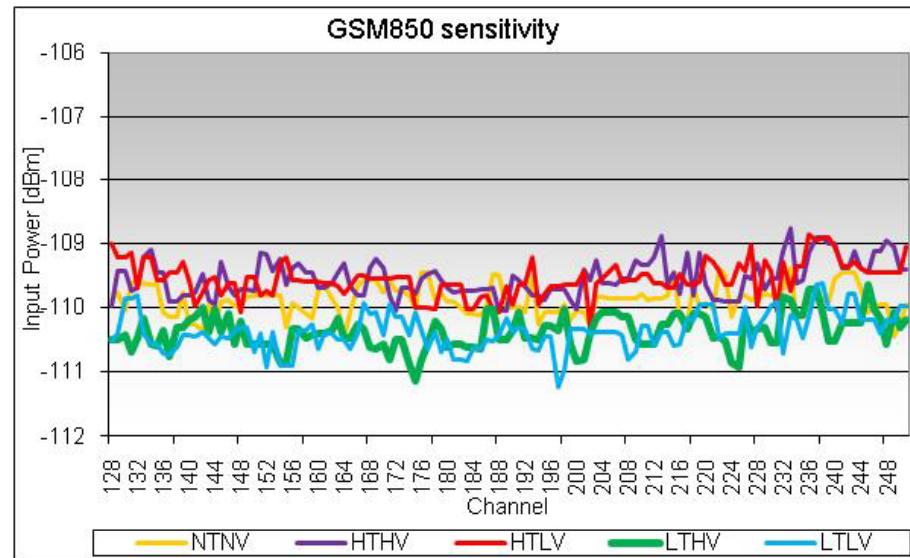
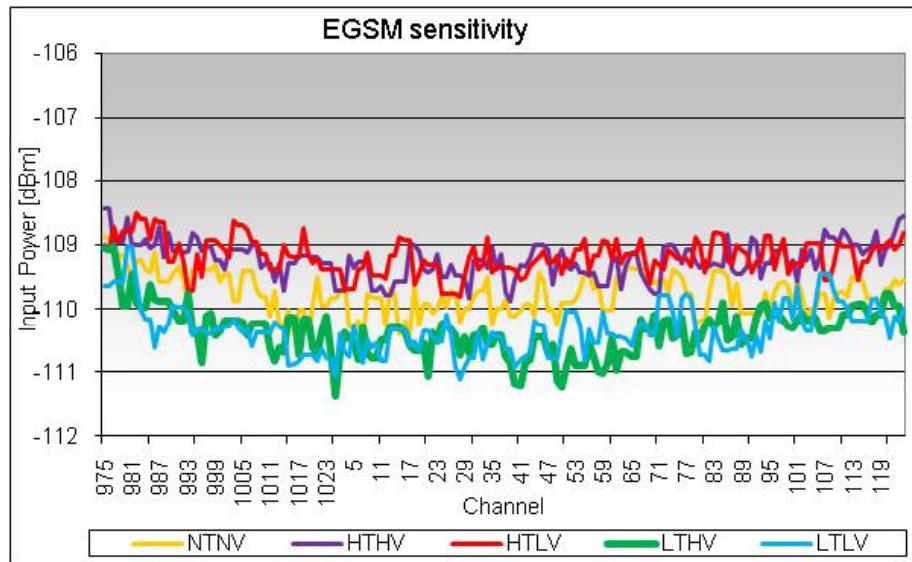
GMSK mode Sensitivity (separation)

- All condition test data



GMSK mode Sensitivity (co-banded)

- All condition test data



RX non-fading Summary

