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Appendix B

Test Report for SZEM160300137102



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1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Part 1 – RF Conducted Power of Transmitter for GSM850

		RF Output Power(Conducted)								
TEST CONDITIONS	Channel12	28(L)	Channel19	0(M)	Channel251(H)					
	824.2M	Hz	836.6 MI	Ηz	848.8 MHz					
Tnom/ Vnom	Measured	Limit	Measured	Limit	Measured(dBm)	Limit				
	(dBm)	(dBm)	(dBm)	(dBm)	weasured(dbill)	(dBm)				
GSM/TM1 (GPRS)	33.14	38.5	33.43	38.5	33.41	38.5				

Part 2– Effective Radiated Power of Transmitter (ERP) for GSM850

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substituti on Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Limit (dBm)	Result
GSM/TM1 (GPRS)	824.2	33.21	27.85	5.95	0.6	33.2	38.5	Pass
GSM/TM1 (GPRS)	836.6	33.5	27.43	6.65	0.6	33.48	38.5	Pass
GSM/TM1 (GPRS)	848.8	33.48	27.21	6.85	0.6	33.46	38.5	Pass

Note:

a: For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > $3 \times RBW$.

Detector: RMS



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Part 3 – RF Conducted Power of Transmitter for GSM1900

	RF Output Power(Conducted)								
TEST CONDITIONS	Channel5	12(L)	Channel66	1(M)	Channel810(H)				
TEST CONDITIONS	1850.2N	1Hz	1880.0 M	Hz	1909.8 MHz				
Tnom/ Vnom	Measured	Limit	Measured	Limit	Measured(dBm)	Limit			
	(dBm)	(dBm)	(dBm)	(dBm)	weasured(ubitt)	(dBm)			
GSM/TM1 (GPRS)	30.14	38.5	30.07	38.5	30.02	38.5			

Part 4– Effective Isotropic Radiated Power of Transmitter (EIRP) for GSM1900

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Limit (dBm)	Result
GSM/TM1 (GPRS)	1850.2	30.42	23.51	7.9	1	30.41	38.5	Pass
GSM/TM1 (GPRS)	1880.0	30.35	23.43	7.9	1	30.33	38.5	Pass
GSM/TM1 (GPRS)	1909.8	30.3	23.39	7.9	1	30.29	38.5	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS



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2 Peak-to-Average Ratio

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
	GSM/TM1	LCH		13	PASS
GSM850		MCH	9.15	13	PASS
		HCH	9.31	13	PASS



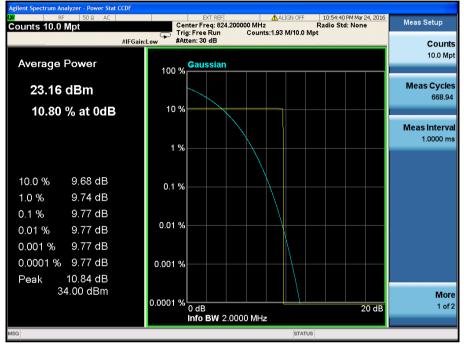
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2.1 For GSM

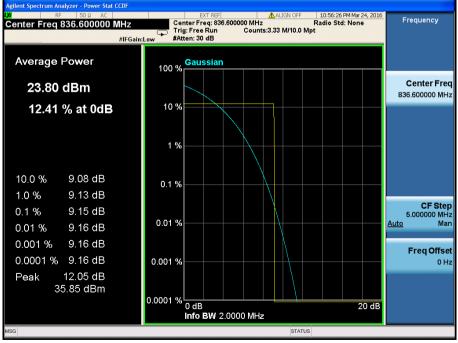
2.1.1 Test Band = GSM850

2.1.1.1 Test Mode = GSM/TM1

2.1.1.1.1 Test Channel = LCH

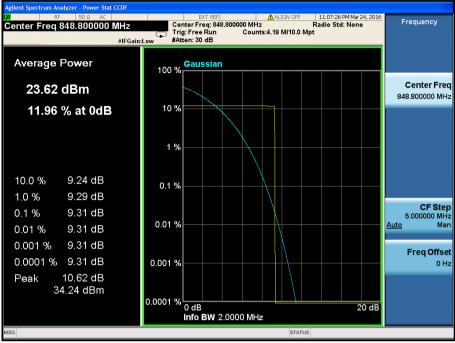


2.1.1.1.2 Test Channel = MCH





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2.1.1.1.3 Test Channel = HCH



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3 Modulation Characteristics

Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH

🐼 GSM8	50 Modulat	ion		Circuit (1) Switched Single Slot	Connect Control
[°] Max. Level: Auto +20	Low Noise Off Q :	PCL: 5/33. / Of		: 190 Meas Slot : 3 Off Current	R Ext.Phase
+10 +5					Appli- cation
₩₩₩₩₩₩₩₩₩ -5 -10	-www-w	www	harren		Trigger Ana. Lvl.
-15 -20 0 20	40 60	80	100	Sym. 120 140	MS Signal
,	C (correlation o.k.) Current	Average	Max / Min	- 0.13 Sym. Timing Advance Error	BS Signal
Phase Error Peak RMS Origin Offset	2.9 ° 1.0 ° - 54.5 dB	2.9 ° 1.1 ° - 55.5 dB	4.0 ° 1.5 ° - 45.2 dB	31.6 dBm Avg. Burst Power (Cur.) 100 Bursts	Network
I/Q Imbalance	– 60.0 dB 🔉	- 54.6 dB	- 45.5 dB	Statistic Count	Marker
TCH	190	8 Hz Timeslot	19 нz	Bursts out of Tolerance	Menus



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3.1.2 Test Band = GSM1900

3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH

\otimes	GSI	/ 190	00 Moo	dulation			Circuit Switched Single Slo	t 📲 🗜	Connect Control
° Ma +20 ₽: +15	ix. Level: 	Auto / (Low N Off	oise PCL:) :	0 / 30.0 / Off		el:661 N 	1eas Slot : 3 Off Current	R Ext.Phase
+10									Appli- cation
+0~~// -5 -10	~~~~	~~~~	~~~~	n	rm	~~~~~		~~~~~	Analyzer Level _{Trg.}
-15 <u>-20</u> 0	20		40	60	80	100	120	Sym. 140	MS Signal
			correlation o.P	Avera		Max / Min	Timing	0.00 Sym. Advance Error	BS Signal
Phase Err	L. L	Peak RMS	3.6 ° 1.1 ° −54.5 d⊟	° (3.0°).9° 1 dB	5.1 ° 1.2 ° - 47.6 dB	Avg. Bur:	28.2 dBm st Power (Cur.) 100 Bursts	Network
I/Q Imbala Frequency	ance	Chann	– 60.1 dE	- 58.4 - 10		- 47.4 dB - 36 Hz		Statistic Count 0.00 %	Marker
TCH Le	vel CI	hannel	66 Hoppin	1	eslot		Bursts o	ut of Tolerance	Menus



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4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850		LCH	238.69	313.6	PASS
	GSM/TM1	MCH	243.07	313.5	PASS
		HCH	241.64	312.6	PASS

Test Band	Test Mode	Test Mode Test Occur Channel		Emission Bandwidth [kHz]	Verdict
		LCH	239.89	313.9	PASS
GSM1900	GSM/TM1	MCH	244.31	313.1	PASS
		HCH	243.88	316.8	PASS



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4.1 For GSM

4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH





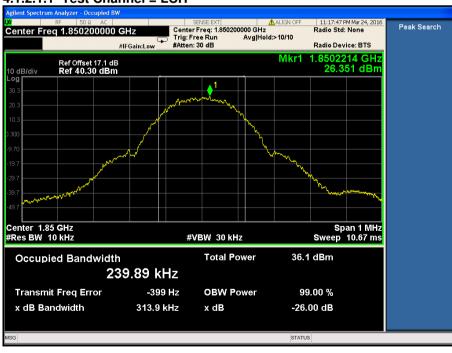
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11:10:58 PM Mar 24, 2 Radio Std: None Peak Search Center Freq: 848.800000 MHz Trig: Free Run Avg|Ho #Atten: 30 dB Center Freq 848.800000 MHz Avg|Hold:>10/10 Radio Device: BTS #IFGain:Low Mkr1 848 839 .83965 MH2 30.194 dBm Ref Offset 16.8 dB Ref 40.00 dBm Center 848.8 MHz #Res BW 10 kHz Span 1 MHz Sweep 10.67 ms #VBW 30 kHz Occupied Bandwidth Total Power 39.8 dBm 241.64 kHz -799 Hz **Transmit Freq Error OBW Power** 99.00 % x dB Bandwidth 312.6 kHz x dB -26.00 dB STATUS

4.1.1.1.3 Test Channel = HCH

4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

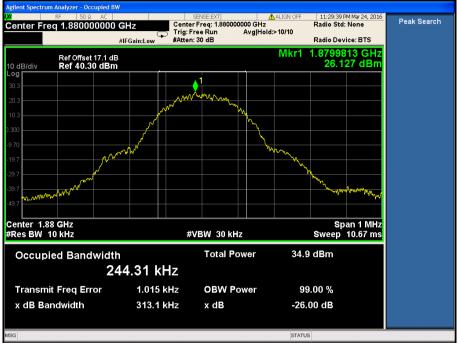


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4.1.2.1.1 Test Channel = LCH



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4.1.2.1.2 Test Channel = MCH

4.1.2.1.3 Test Channel = HCH





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5 Band Edges Compliance

Part I - Test Plots

5.1 For GSM

5.1.1 Test Band = GSM850

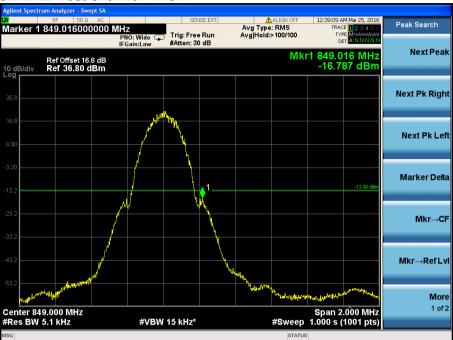
5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH





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5.1.1.1.2 Test Channel = HCH

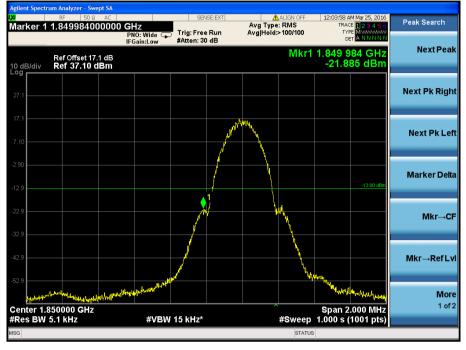


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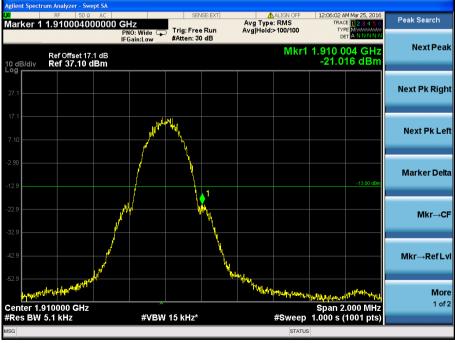
5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH





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6 Spurious Emission at Antenna Terminal

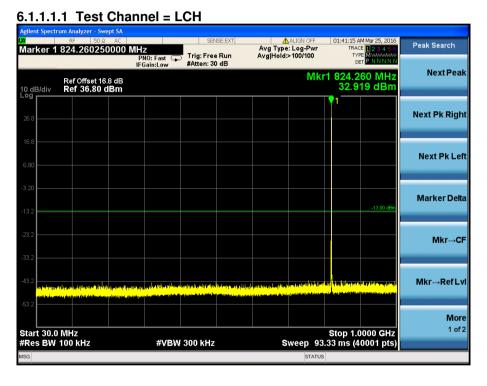
NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Part I - Test Plots

6.1 For GSM

6.1.1 Test Band = GSM850

6.1.1.1 Test Mode = GSM/TM1





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Agilen	t Spectru		zer - Swe									
IXI Mari	kor 1	RF 5 750	50 Ω	AC 00000	247	SEI	NSE:EXT	Ava Tu	ALIGN OFF		AM Mar 25, 2016	Peak Search
Wan	Ker I	5.750	42500		PNO: Fast G	🕤 Trig: Fre		Avg Ho	Id:> 100/100	Т		
					IFGain:Low	#Atten: 3	0 dB					Next Peak
		Ref Of	ffset 16.	8 dB					Mki		425 GHz	NEXTERN
10 dE Log	3/div	Ref 3	6.80 d	Bm						-28.3	569 dBm	
LOg												
26.8												Next Pk Right
20.0												
16.8												
10.0												
6.80												Next Pk Left
0.00												
-3.20												
-3.20												Marker Delta
-13.2											-13.00 dBm	
13.2												
-23.2												
-23.2							↓					Mkr→CF
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-33.2		and the second second	a alamata a	مر مع الحس	and his second states of		a a di seconda da secon Na seconda da seconda d	¹ - I - ¹ - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	and the second second	And a second s	A CANADA AND A CANADA	
-43.2												Mkr→RefLvl
-4J.Z												wiki → Rei Lvi
-53.2												
-00.2												
												More
	t 1.00										0.000 GHz	1 of 2
#Res	s BW 1	1.0 MH	Z		#VBV	V 3.0 MHz			Sweep	16.00 ms (40001 pts)	
MSG									STAT	rus		

6.1.1.1.2 Test Channel = MCH

Ref Offset 16.8 dB State State State Peak Search Ref Offset 16.8 dB Mkr1 836.555 MHz 32.884 dBm	im Analyzer - Swept SA	
PNO: Fast Trig: Free Run Avg Hold>100/100 Trie Mummu Ref Offset 16.8 dB Mkr1 836.555 MHz 32,884 dBm Ref 36.80 dBm 1 1 Next Pk Right Next Pk Right 1 1 Next Pk Right Next Pk Right 1 1 Next Pk Right Marker Delta 1 1 1		TRACE 23456 Peak Search
Image: Sector of the sector	PNO: Fast Trig: Free Run Avg Hold:>100/100 TVE NNNNN IFGain:Low #Atten: 30 dB Mkr1 836.555 MHz Ref Offset 16.8 dB Mkr1 836.555 MHz	B36.555 MHz NextPea
Marker Deita		Next Pk Rig
		Next Pk Le
	-13.00 dēn	
Mkr→CF		Mkr→C
	and the second	and the set of the second s
0 MHz Stop 1.0000 GHz 1 of 2 1 00 KHz #VBW 300 kHz Sweep 93.33 ms (40001 pts)		top 1.0000 GHz 1 of
status		



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												r ugo.
Agile	nt Spectr		lyzer - Sw									
L <mark>XI</mark>	rkor 1	RF		AC 00000	<u>сц</u> _	SEF	NSE:EXT		ALIGN OFF		AM Mar 25, 2016	Peak Search
Wa	Keri	0.00	92750		PNO: Fast G	Trig: Fre		Avg Hold:		TY		
					IFGain:Low	#Atten: 3	0 dB					Next Peak
		Ref	Offset 16	i.8 dB					Mkr	1 6.089 2	275 GHz	NEATFOR
10 d Log	B/div	Ref	36.80	dBm		_	_	_		-30.3	86 dBm	
5												
26.8												Next Pk Right
16.8												
												Next Pk Left
6.80)											NEXL PK LEIL
-3.20												
												Marker Delta
-13.2											-13.00 dBm	
-23.2							<u> </u>					
							. ♦ ¹					Mkr→CF
-33.2	1. 100.000	. India	international de la	al a statistica da	all the state of the state	and in the line	apada kina da kina da k	elle elles colle	televetile dis topol	all sharps bet to serve	a diama a sure	
	a provide a sub-	and state	هيناه والمريد المريد	y	and the second second	and a local state south of the local state of the	THE REAL PROPERTY	i niga Disebut ng mang disebut ng mang kanang k Na kanang kana	and the state of	and the second state	a contractor and a state	
-43.2												Mkr→RefLvl
-53.2	·											
												More
Cto	L rt 1.00	0.04	-							Stop 40	.000 GHz	1 of 2
	s BW				#VB	N 3.0 MHz		s	weep 1		.000 GH2 0001 pts)	
MSG									STATU		, (S)	
m3G									STATU			

6.1.1.1.3 Test Channel = HCH

									ım Analyzer - Sw	gilent Spectr
Peak Search	AM Mar 25, 2016 CE 1 2 3 4 5 6 PE M WARAAAA	TRAC		Avg Type Avg Hold:	SE:EXT				RF 50 Ω 848.80125	arker 1
Next Peal	er <mark>PNNNNN</mark> 101 MHz 197 dBm	1 848.8		in gried.		#Atten: 30	PNO: Fast 🕞 Gain:Low	ا 8 dB.	Ref Offset 16 Ref 36.80	0 dB/div
Next Pk Righ										26.8
Next Pk Lei										6.80
Marker Delta	-13.00 dBm									3.20 13.2
Mkr→Cl										23.2
Mkr→RefLv		n Herner An Starter					(1) provide the local sectors		al an là bà ba ad là	a and a second second
Mor 1 of	0000 GHz	Stop 1.0	ween 03			300 kHz	#VBM			53.2 Start 30.0 Res BW
	ocor pro/		STATUS			000 KHZ	<i>"</i> vВv			SG



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													Taye.
Agiler	nt Specti	rum Analy											
Mar	ker 1	RF 5.535	50 Ω 32500	AC 00000	PNO: F	ast 🖵			Avg Type Avg Hold	ALIGN OF : Log-Pv :>100/100	Vr TR	2 AM Mar 25, 2016 ACE 1 2 3 4 5 6 YPE M WANNAM DET P N N N N N	Peak Search
10 di	B/div		ffset 16. 1 6.80 d		IFGain:L	.0W	#Atten: 30	5 GB		Mk		325 GHz 246 dBm	Next Pea
Log 26.8													Next Pk Righ
16.8 6.80													Next Pk Le
-3.20 -13.2												-13.00 dBm	Marker Del
-23.2	-			al provinsi su	u liter		dises, é quidintes	1	harman fi yedan yeran san	dile de la companya d		و معالی جار میں الڈ اور	Mkr→C
-43.2			and a second		a malificar		A THE OWNER OF A THE	n (24 film in a name citie un	<mark>h by My Hinder, blans and a</mark> bhili		and the second	a. 180	Mkr→RefL
		0 GHz										0.000 GHz	Mor 1 of
	SBW	1.0 MI	IZ		;	₹VBW	3.0 MHz		5			(40001 pts)	
MSG										STA	ATUS		



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6.1.2 Test Band = GSM1900

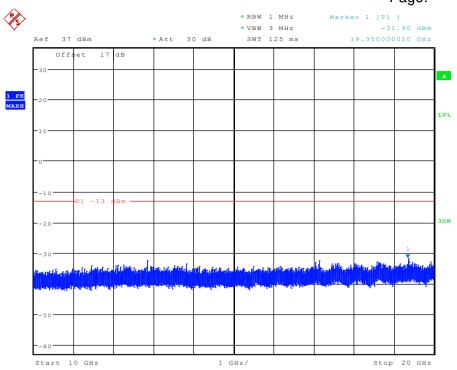
6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH

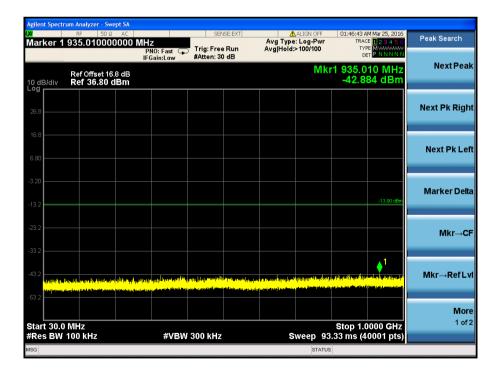
Agilent Spect	trum Analyzer - Sw	rept SA		SEA	ISE:EXT	A	ALIGN OFF	01:46:11	AM Mar 25, 2016	
Marker 1	1 900.67200	0000 MH	Z	Trig: Free		Avg Type Avg Hold:	: Log-Pwr	TRA	CE 123456	Peak Search
		P IFI	NO: Fast 🖵 Gain:Low	#Atten: 30) dB			D	et <mark>P N N N N N</mark>	Next Peak
10 dB/div	Ref Offset 16 Ref 36.80	6.8 dB					WK	r1 900.6 -42.6	72 MHz 15 dBm	Next? cur
10 dB/div Log										
26.8										Next Pk Right
16.8										Next Pk Left
6.80										NEXT FR Leit
-3.20										
									10.00 //D-	Marker Delta
-13.2									-13.00 dBm	
-23.2										Mkr→CF
-33.2										WIKI→CF
-33.2									1	
-43.2	i da mandi na kata si sa s	n ever fizik hander på	1 and 1 and 1 and 1	a da	and de la cat, o bitus	a state and state and a state of the state of t	<mark>albana Merinara</mark>	l sylfied tyles of	and a part of the second	Mkr→RefLvl
-53.2	approximation detailed provide pairs	ie rationantesti antul	a de activa (na ababier	and the second secon	finantial contestant	aleri Bireren Birere	and the second	tas II. kadubatu Kin	, Benetikila ata ana ata birdi	
										More
Start 30.0								Stop 1.	0000 GHz	1 of 2
#Res BW	100 kHz		#VBW	300 kHz		s	status	· ·	0001 pts)	
mod							01/11/00	1		
Agilent Spect	trum Analyzer - Sw	rept SA								
LXI	trum Analyzer - Sw RF 50 ឆ្	AC		SEN	ISE:EXT		ALIGN OFF	01:47:48 / TRA	AM Mar 25, 2016 CE 12 3 4 5 6	Peak Search
LXI	trum Analyzer - Sw RF 50 Ω 1 1.8502750	AC 00000 GI P	HZ NO: Fast ⊊ Gain:Low	THE	Run	Avg Type Avg Hold:	: Log-Pwr	TRA	AM Mar 25, 2016 CE 1 2 3 4 5 6 PE M WAAAAAA ET P N N N N N	Peak Search
Marker 1	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Peak Search Next Peak
LXI	RF 50 G 1 1.8502750	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	CE 123456 PE MWAWAWA ET P N N N N N	
Marker 1	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		
Marker 1	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak
Marker 1	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak Next Pk Right
Marker 1	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak
Marker 1 10 dB/div 26.8	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak Next Pk Right
Marker 1 10 dB/div 26.8	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak Next Pk Right
Marker 1 10 dB/div 26.8	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850		Next Peak Next Pk Right Next Pk Left
Date Date <thdate< th=""> Date Date <thd< th=""><td>RF 50 Ω 1 1.8502750 Ref Offset 16</td><td>AC 00000 GI P IFI</td><td>NO: Fast 😱</td><td>Trig: Free</td><td>Run</td><td>Avg Type</td><td>:: Log-Pwr ≻100/100</td><td>TRA TY D 1.850</td><td>275 GHz 37 dBm</td><td>Next Peak Next Pk Right Next Pk Left Marker Delta</td></thd<></thdate<>	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta
0 dB/div 10 dB/div 26	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left
Date Date <thdate< th=""> Date Date <thd< th=""><td>RF 50 Ω 1 1.8502750 Ref Offset 16</td><td>AC 00000 GI P IFI</td><td>NO: Fast 😱</td><td>Trig: Free</td><td>Run</td><td>Avg Type</td><td>:: Log-Pwr ≻100/100</td><td>TRA TY D 1.850</td><td>275 GHz 37 dBm</td><td>Next Peak Next Pk Right Next Pk Left Marker Delta</td></thd<></thdate<>	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta
0 dB/div 10 dB/div 26	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta
Date Date <thdate< th=""> Date Date <thd< th=""><td>RF 50 Ω 1 1.8502750 Ref Offset 16</td><td>AC 00000 GI P IFI</td><td>NO: Fast 😱</td><td>Trig: Free</td><td>Run</td><td>Avg Type</td><td>:: Log-Pwr ≻100/100</td><td>TRA TY D 1.850</td><td>275 GHz 37 dBm</td><td>Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF</td></thd<></thdate<>	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF
Date Date <thdate< th=""> Date Date <thd< th=""><td>RF 50 Ω 1 1.8502750 Ref Offset 16</td><td>AC 00000 GI P IFI</td><td>NO: Fast 😱</td><td>Trig: Free</td><td>Run</td><td>Avg Type</td><td>:: Log-Pwr ≻100/100</td><td>TRA TY D 1.850</td><td>275 GHz 37 dBm</td><td>Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl</td></thd<></thdate<>	RF 50 Ω 1 1.8502750 Ref Offset 16	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TY D 1.850	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl
Date Date <thdate< th=""> Date Date <thd< th=""><td>Ref Offset 16 Ref 36.80</td><td>AC 00000 GI P IFI</td><td>NO: Fast 😱</td><td>Trig: Free</td><td>Run</td><td>Avg Type</td><td>:: Log-Pwr ≻100/100</td><td>TRA TV D 1.850 2 28.2</td><td></td><td>Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF</td></thd<></thdate<>	Ref Offset 16 Ref 36.80	AC 00000 GI P IFI	NO: Fast 😱	Trig: Free	Run	Avg Type	:: Log-Pwr ≻100/100	TRA TV D 1.850 2 28.2		Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF
Date Date <thdate< th=""> Date Date <thd< th=""><td>Ref Offset 18 Ref Offset 18 Ref 36.80</td><td>AC 00000 GI P IFI</td><td>NO: Fast C</td><td>Trig: Free</td><td>Run</td><td>Avg Type Avg Hold:</td><td>A Participation of the second second</td><td>TRA TV D 1.850 2 28.2</td><td>275 GHz 37 dBm</td><td>Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl More</td></thd<></thdate<>	Ref Offset 18 Ref Offset 18 Ref 36.80	AC 00000 GI P IFI	NO: Fast C	Trig: Free	Run	Avg Type Avg Hold:	A Participation of the second	TRA TV D 1.850 2 28.2	275 GHz 37 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl More



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6.1.2.1.2 Test Channel = MCH



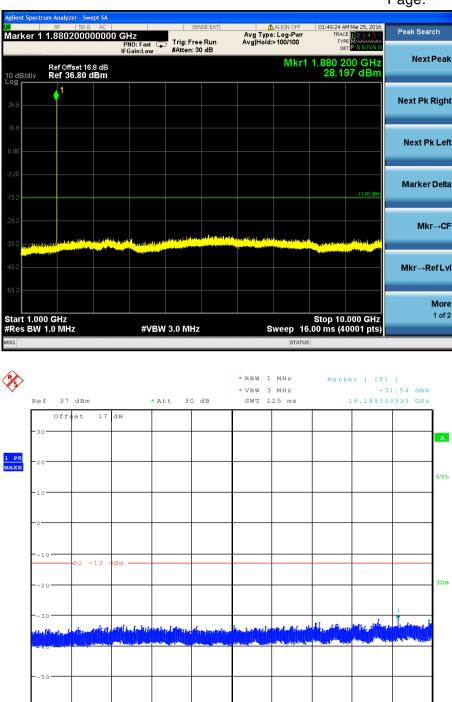


10 GHz

Start

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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1 GHz/

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Stop 20 GHz



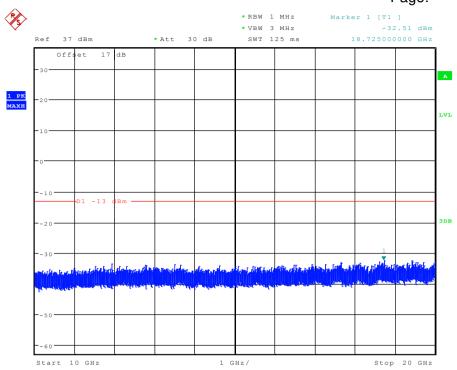
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6.1.2.1.3 Test Channel = HCH

Agilent Spect	rum Analyzer - Sw RF 50 Ω	AC AC		SEN	ISE:EXT		ALIGN OFF	01:47:04 A	M Mar 25, 2016	
Marker 1	856.02775	P	NO: Fast 🗔	Trig: Free	e Run	Avg Type Avg Hold:	: Log-Pwr	TRAC	E 123456 MWWWWW T P N N N N N	Peak Search
10 dB/div Log	Ref Offset 16 Ref 36.80 (.8 dB	Gain:Low	#Atten: 30	DdB		Mki	1 856.0	28 MHz 09 dBm	Next Peak
26.8										Next Pk Right
16.8										Next Pk Left
-3.20										Marker Delta
-13.2									-13.00 dBm	
-23.2										Mkr→CF
-43.2	trografi (1944) UM antibar ana ang Papataka Manakap	alihida da saki sana			albað Íslangslöði kalla	na filia na katalihatan Pada na makarataki sa				Mkr→RefLvl
-53.2 Start 30.0								Stop 1.0	0000 GHz	More 1 of 2
#Res BW			#VBW	300 kHz		S	weep 93	.33 ms (4	0001 pts)	
							STATUS			
Agilent Spect	rum Analyzer - Sw	ept SA								
L X I	rum Analyzer - Sw RF 50 Ω I 1.9101250	AC 00000 GI P	NO: Fast 🗔			Avg Type Avg Hold:	ALIGN OFF :: Log-Pwr >100/100	TRAC	M Mar 25, 2016 E 1 2 3 4 5 6 P M W W W W T P N N N N N	Peak Search
Marker 1	RF 50 Ω 1.9101250	AC 00000 GI PI IF(Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	E 1 2 3 4 5 6	
L X I	RF 50 Ω	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz	Next Peak
10 dB/div 26.8	Ref Offset 16 Ref 36.80 c	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz	Next Peak Next Pk Right
Marker 1	Ref Offset 16 Ref 36.80 c	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz	Next Peak Next Pk Right Next Pk Left
Control Control <t< td=""><td>Ref Offset 16 Ref 36.80 c</td><td>AC 00000 GI PI IF(</td><td>NO: Fast 🗔</td><td>Trig: Free</td><td>e Run</td><td>Ava Type</td><td>:: Log-Pwr ≻100/100</td><td>TRAC TVI DI 1.910 1</td><td>25 GHz</td><td>Next Peak Next Pk Right</td></t<>	Ref Offset 16 Ref 36.80 c	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz	Next Peak Next Pk Right
Ox Ox Marker 1 10 dB/div 26.8	Ref Offset 16 Ref 36.80 c	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz 38 dBm	Next Peak Next Pk Right Next Pk Left
CX CX Marker 1 1 10 dB/div 26.8 16.8	Ref Offset 16 Ref 36.80 c	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100	TRAC TVI DI 1.910 1	25 GHz 38 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta
CX CX Marker 1 10 dB/div 26 8	Ref Offset 16 Ref Offset 16 Ref 36.80 (1	AC 00000 GI PI IF(NO: Fast 🗔	Trig: Free	e Run	Ava Type	:: Log-Pwr ≻100/100		25 GHz 38 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF
CX CX Marker 1 Marker 1 10 dB/div 26	Ref Offset 16 Ref Offset 16 Ref 36.80 (1	AC 00000 GI PI IF(NO: Fast C	Trig: Free			Eleg-Pwr > 100/100 Mikr1	TRAC TVA 1.910 1 28.1:	25 GHz 38 dBm	Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl More



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7 Field Strength of Spurious Radiation

Part I - Test Plots

7.1 For GSM

7.1.1 Test Band = GSM850

7.1.1.1 Test Mode = GSM/TM1

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
110.365	-79.79	-13.00	-66.79	Vertical
162.114	-84.93	-13.00	-71.93	Vertical
228.414	-84.26	-13.00	-71.26	Vertical
306.014	-79.42	-13.00	-66.42	Vertical
449.719	-78.72	-13.00	-65.72	Vertical
622.767	-75.15	-13.00	-62.15	Vertical
1648.425	-47.23	-13.00	-34.23	Vertical
2393.925	-47.48	-13.00	-34.48	Vertical
3263.900	-58.18	-13.00	-45.18	Vertical
4715.350	-56.33	-13.00	-43.33	Vertical
6531.500	-54.40	-13.00	-41.40	Vertical
8998.300	-53.13	-13.00	-40.13	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
119.434	-86.18	-13.00	-73.18	Horizontal
185.637	-85.19	-13.00	-72.19	Horizontal
250.724	-81.03	-13.00	-68.03	Horizontal
327.305	-80.73	-13.00	-67.73	Horizontal
455.927	-78.24	-13.00	-65.24	Horizontal
616.268	-74.58	-13.00	-61.58	Horizontal
1648.050	-45.77	-13.00	-32.77	Horizontal
2408.700	-47.73	-13.00	-34.73	Horizontal
3612.150	-57.62	-13.00	-44.62	Horizontal
4977.150	-55.68	-13.00	-42.68	Horizontal
6660.650	-55.55	-13.00	-42.55	Horizontal
8973.450	-54.39	-13.00	-41.39	Horizontal



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7.1.1.1.2 Test Channel = MCH											
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization							
65.500	-60.58	-13.00	-47.58	Vertical							
106.050	-66.85	-13.00	-53.85	Vertical							
151.150	-84.37	-13.00	-71.37	Vertical							
279.800	-79.33	-13.00	-66.33	Vertical							
398.750	-79.06	-13.00	-66.06	Vertical							
605.105	-59.88	-13.00	-46.88	Vertical							
1195.000	-50.50	-13.00	-37.50	Vertical							
1893.750	-40.25	-13.00	-27.25	Vertical							
2568.750	-42.17	-13.00	-29.17	Vertical							
4234.500	-50.24	-13.00	-37.24	Vertical							
5535.000	-49.97	-13.00	-36.97	Vertical							
7532.500	-48.66	-13.00	-35.66	Vertical							

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
58.800	-63.92	-13.00	-50.92	Horizontal
82.800	-66.25	-13.00	-53.25	Horizontal
105.100	-68.44	-13.00	-55.44	Horizontal
189.200	-78.90	-13.00	-65.90	Horizontal
577.910	-59.90	-13.00	-46.90	Horizontal
1045.000	-51.84	-13.00	-38.84	Horizontal
1199.167	-50.73	-13.00	-37.73	Horizontal
1897.500	-34.66	-13.00	-21.66	Horizontal
2927.063	-40.91	-13.00	-27.91	Horizontal
4954.500	-49.95	-13.00	-36.95	Horizontal
6303.500	-48.76	-13.00	-35.76	Horizontal
8623.500	-46.88	-13.00	-33.88	Horizontal



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Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
102.896	-84.52	-13.00	-71.52	Vertical
157.555	-84.08	-13.00	-71.08	Vertical
232.682	-83.66	-13.00	-70.66	Vertical
315.423	-79.25	-13.00	-66.25	Vertical
448.943	-78.61	-13.00	-65.61	Vertical
615.686	-76.28	-13.00	-63.28	Vertical
1697.700	-46.11	-13.00	-33.11	Vertical
2460.000	-47.88	-13.00	-34.88	Vertical
3521.150	-57.57	-13.00	-44.57	Vertical
4551.550	-56.69	-13.00	-43.69	Vertical
6176.250	-54.91	-13.00	-41.91	Vertical
8755.050	-53.61	-13.00	-40.61	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
98.676	-83.92	-13.00	-70.92	Horizontal
162.939	-86.96	-13.00	-73.96	Horizontal
220.896	-83.55	-13.00	-70.55	Horizontal
316.829	-80.10	-13.00	-67.10	Horizontal
438.419	-78.19	-13.00	-65.19	Horizontal
622.864	-74.95	-13.00	-61.95	Horizontal
1697.400	-46.40	-13.00	-33.40	Horizontal
2474.400	-47.77	-13.00	-34.77	Horizontal
3504.000	-58.45	-13.00	-45.45	Horizontal
4389.500	-57.29	-13.00	-44.29	Horizontal
5452.450	-56.73	-13.00	-43.73	Horizontal
7776.800	-54.07	-13.00	-41.07	Horizontal

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7.1.1.1.3 Test Channel = HCH



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7.1.2 Test Band = GSM1900

7.1.2.1 Test Mode = GSM/TM1

7.1.2.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
161.038	-84.92	-13.00	-71.92	Vertical
237.536	-81.24	-13.00	-68.24	Vertical
322.631	-77.56	-13.00	-64.56	Vertical
438.105	-78.58	-13.00	-65.58	Vertical
600.051	-73.05	-13.00	-60.05	Vertical
832.410	-72.06	-13.00	-59.06	Vertical
3700.000	-50.27	-13.00	-37.27	Vertical
4437.625	-51.37	-13.00	-38.37	Vertical
5188.375	-50.79	-13.00	-37.79	Vertical
6157.875	-49.48	-13.00	-36.48	Vertical
7428.375	-49.36	-13.00	-36.36	Vertical
9041.000	-48.79	-13.00	-35.79	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
161.832	-84.45	-13.00	-71.45	Horizontal
249.970	-80.47	-13.00	-67.47	Horizontal
345.823	-78.49	-13.00	-65.49	Horizontal
479.904	-77.50	-13.00	-64.50	Horizontal
642.379	-74.58	-13.00	-61.58	Horizontal
875.620	-65.37	-13.00	-52.37	Horizontal
3700.000	-50.71	-13.00	-37.71	Horizontal
4532.125	-51.39	-13.00	-38.39	Horizontal
5585.625	-50.55	-13.00	-37.55	Horizontal
6584.875	-49.26	-13.00	-36.26	Horizontal
7426.625	-48.86	-13.00	-35.86	Horizontal
9088.250	-47.64	-13.00	-34.64	Horizontal



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7.1.2.1.2 Test Channel = MCH								
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization				
57.750	-67.87	-13.00	-54.87	Vertical				
65.200	-59.84	-13.00	-46.84	Vertical				
73.050	-63.29	-13.00	-50.29	Vertical				
90.050	-67.83	-13.00	-54.83	Vertical				
105.100	-71.77	-13.00	-58.77	Vertical				
347.450	-77.17	-13.00	-64.17	Vertical				
511.025	-60.37	-13.00	-47.37	Vertical				
1229.167	-50.86	-13.00	-37.86	Vertical				
1651.125	-47.93	-13.00	-34.93	Vertical				
2805.000	-41.46	-13.00	-28.46	Vertical				
4292.625	-50.63	-13.00	-37.63	Vertical				
5486.250	-49.78	-13.00	-36.78	Vertical				

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
59.200	-66.98	-13.00	-53.98	Horizontal
95.550	-69.21	-13.00	-56.21	Horizontal
187.250	-75.48	-13.00	-62.48	Horizontal
206.300	-76.97	-13.00	-63.97	Horizontal
503.333	-58.39	-13.00	-45.39	Horizontal
875.833	-47.29	-13.00	-34.29	Horizontal
1517.420	-49.44	-13.00	-36.44	Horizontal
2413.820	-41.60	-13.00	-28.60	Horizontal
2851.600	-40.42	-13.00	-27.42	Horizontal
4198.875	-49.62	-13.00	-36.62	Horizontal
6201.000	-48.65	-13.00	-35.65	Horizontal
7795.000	-47.80	-13.00	-34.80	Horizontal



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Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
128.764	-82.95	-13.00	-69.95	Vertical
199.970	-82.32	-13.00	-69.32	Vertical
289.255	-80.15	-13.00	-67.15	Vertical
436.165	-78.48	-13.00	-65.48	Vertical
600.007	-73.97	-13.00	-60.97	Vertical
876.105	-67.89	-13.00	-54.89	Vertical
3502.250	-52.43	-13.00	-39.43	Vertical
4052.625	-50.91	-13.00	-37.91	Vertical
4983.625	-50.16	-13.00	-37.16	Vertical
6006.500	-49.65	-13.00	-36.65	Vertical
7298.000	-49.43	-13.00	-36.43	Vertical
8639.375	-48.05	-13.00	-35.05	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
165.006	-81.75	-13.00	-68.75	Horizontal
240.578	-81.40	-13.00	-68.40	Horizontal
330.965	-79.87	-13.00	-66.87	Horizontal
453.846	-77.41	-13.00	-64.41	Horizontal
650.006	-72.75	-13.00	-59.75	Horizontal
875.531	-66.71	-13.00	-53.71	Horizontal
3468.125	-52.90	-13.00	-39.90	Horizontal
4025.500	-52.11	-13.00	-39.11	Horizontal
4668.625	-50.74	-13.00	-37.74	Horizontal
5531.375	-50.72	-13.00	-37.72	Horizontal
6547.250	-49.33	-13.00	-36.33	Horizontal
7847.500	-47.58	-13.00	-34.58	Horizontal

NOTE:

1) The disturbance above 10GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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7.1.2.1.3 Test Channel = HCH



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8 Frequency Stability

8.1 For GSM

8.1.1 Frequency Error VS. Voltage

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VL	-8.65	-0.00468	PASS
		LCH	ΤN	VN	-10.20	-0.00551	PASS
	GSM850 GSM/TM1			VH	-12.85	-0.00695	PASS
		МСН	TN	VL	-1.80	-0.00096	PASS
GSM850				VN	-2.51	-0.00134	PASS
				VH	-7.49	-0.00398	PASS
		НСН	TN	VL	-19.04	-0.00997	PASS
				VN	-8.39	-0.00439	PASS
				VH	-1.16	-0.00061	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VL	-10.20	-0.00551	PASS
		LCH	TN	VN	-12.85	-0.00695	PASS
				VH	-8.65	-0.00468	PASS
		МСН	TN	VL	-2.51	-0.00134	PASS
GSM1900	GSM/TM1			VN	-7.49	-0.00398	PASS
				VH	-1.80	-0.00096	PASS
		НСН	TN	VL	-1.16	-0.00061	PASS
				VN	-19.04	-0.00997	PASS
				VH	-8.39	-0.00439	PASS



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8.1.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-4.64	-0.00563	PASS
				-20	-1.38	-0.00167	PASS
				-10	-5.38	-0.00653	PASS
				0	-4.19	-0.00508	PASS
		LCH	VN	10	-3.35	-0.00406	PASS
				20	-2.05	-0.00249	PASS
				30	-10.19	-0.01236	PASS
				40	0.66	0.00080	PASS
				50	0.88	0.00107	PASS
				-30	0.14	0.00017	PASS
				-20	-0.51	-0.00061	PASS
		MCH	VN	-10	-8.67	-0.01036	PASS
				0	-2.28	-0.00273	PASS
GSM850	GSM/TM1			10	-2.02	-0.00241	PASS
				20	-3.83	-0.00458	PASS
				30	0.04	0.00005	PASS
				40	-5.70	-0.00681	PASS
				50	-6.41	-0.00766	PASS
				-30	-5.74	-0.00676	PASS
				-20	-7.22	-0.00851	PASS
				-10	-5.09	-0.00600	PASS
				0	-3.83	-0.00451	PASS
		HCH	VN	10	-10.26	-0.01209	PASS
				20	-9.67	-0.01139	PASS
				30	-1.54	-0.00181	PASS
				40	-8.61	-0.01014	PASS
				50	-3.67	-0.00432	PASS



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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-15.00	-0.00811	PASS
				-20	-8.93	-0.00483	PASS
				-10	-14.10	-0.00762	PASS
				0	-2.28	-0.00123	PASS
		LCH	VN	10	1.59	0.00086	PASS
				20	-5.12	-0.00277	PASS
				30	-13.90	-0.00751	PASS
				40	-10.48	-0.00566	PASS
				50	1.27	0.00069	PASS
				-30	-5.83	-0.00310	PASS
		МСН		-20	-7.45	-0.00396	PASS
			VN	-10	-13.19	-0.00702	PASS
				0	-0.73	-0.00039	PASS
GSM1900	GSM/TM1			10	-15.39	-0.00819	PASS
				20	-7.70	-0.00410	PASS
				30	2.37	0.00126	PASS
				40	-8.93	-0.00475	PASS
				50	-11.97	-0.00637	PASS
				-30	-14.74	-0.00772	PASS
				-20	-5.25	-0.00275	PASS
				-10	-6.80	-0.00356	PASS
				0	-11.77	-0.00616	PASS
		HCH	VN	10	1.01	0.00053	PASS
				20	2.56	0.00134	PASS
				30	-6.35	-0.00332	PASS
				40	-13.65	-0.00715	PASS
				50	-2.22	-0.00116	PASS

The End